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A supplement is issued with this copy of Sheetlines, containing the following, to which attention is directed:

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Minutes of the Annual General Meeting, 20 July 1991
'Sheetlines: what is its status?'
Proposals for standardising the use of terminology by the Charles Close Society
Roger Hellyer: 'Ordnance Survey covers: the extended list'

NOTICE

The editor and contributors to Sheetlines are individually responsible for the opinions which they express therein: the Charles Close Society as a body does not necessarily agree with all or any such opinions.

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Contributions

to Sheetlines, long or short, profound or (fairly) trivial are welcome:

Deadline for Sheetlines 32:

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The various authors and the Charles Close Society
Introduction

1991 sees the official bicentenary of the Ordnance Survey, and it also sees the effective tenth anniversary of the Charles Close Society. As a general rule, 'foundation dates' often turn out to be rather less of an absolute than a convenience. The official 'foundation date' for the Ordnance Survey is 21 June 1791, when the Board of Ordnance purchased a theodolite from Jesse Ramsden for £373:14s:0d, in order to continue triangulation work which had been in hand since 1783-4, but paid for by others; but the origins of the Ordnance Survey, in spirit if not in name, can be traced back at least as far as the military survey of Scotland carried out between 1747 and 1755. Similarly, as its first secretary, Yolande Hodson, explains below, the Charles Close Society was officially formed on Saturday 8 November 1980. In fact, the first public announcement of its existence seem to have been made about 16 June 1981, when a leaflet was enclosed with one of Alan Godfrey's second-hand map catalogues, and the first meeting took place, at the National Library of Scotland, in Edinburgh, on 21 November 1981. The first Annual General Meeting took place at Birkbeck College, University of London, on 24 April 1982. Thus there is a good case for a 'tenth anniversary issue' of Sheetlines being published at some time between June and November 1991. At a time when the Ordnance Survey faces an uncertain future, with its claim to keeping Great Britain the best mapped country in the world under financial, intellectual and political threat, it is worth pointing out that the Charles Close Society remains the only Society in the world which has as its object the study of the work of a single national map-producing agency; that one of our longest-standing members, Professor David Rhind, has been appointed as the next Director-General of the Ordnance Survey is a most felicitous coincidence.

Yolande Hodson was Secretary of the Charles Close Society for nearly eleven years, from its foundation until the recent Annual General Meeting. She was also Editor of Sheetlines for the first two years and six issues, and many virtues which Sheetlines has are ultimately due to her early lead, though I do not wish to belittle the efforts of her two successors, Richard Dean and Ian O'Brien! I am delighted that, partly by chance, this issue of Sheetlines includes contributions from all three past editors.

As this is a special issue of Sheetlines, it is rather longer than usual, despite three contributions which are not in definitive form having joined the AGM minutes and the membership list in a Supplement. It includes some short contributions on various interesting aspects of Ordnance Survey maps; I hope that more such will appear in Sheetlines. It also includes rather longer reports on meetings and more reviews than is customary; this is an inevitable outcome of this being a special year for the Ordnance Survey, though it remains to be seen whether the flow of review-worthy publications will continue. There are more footnotes than ever before, and for the first time they are foot, not end, notes, somewhere in this issue is the most expensive statistic so far published by the Charles Close Society, and there are even photographs. The meeting reports are long, though I have done my best to render them entertaining as well as instructive; I cannot emphasise too strongly that they, and indeed all contributions to Sheetlines, express only the author's personal opinion. Thus, any complaints about unfairness or misrepresentation should be addressed to me as Editor in the first instance; though I have to say that letters of appreciation are always welcome! I feel I must apologise in advance for the number of times that my name appears; this is partly because of the unique circumstances in which this issue of Sheetlines is being produced, rather than any deep-rooted desire to emulate Sir Henry James. As I have said before, the long-term quality of Sheetlines depends on its being more than merely a mouthpiece for the Editor.

Any worthwhile work is always a co-operative effort. I am extremely grateful to all the con-
tributors to this issue, and to several publishers who were able to supply advance copies of new publications, thereby enabling reviews to appear simultaneously with their subjects. I am also particularly grateful to David Archer and to Roger Hellyer, the Society’s new Secretary and Membership Secretary respectively, for their assistance with a number of aspects of this issue of *Sheetlines*, including some of the proof-reading, though as usual the remaining errors are entirely my doing, and responsibility.

RICHARD OLIVER

**Founding the Charles Close Society**

by Yolande Hodson

I have often been asked how the Society came to be founded, and now, in the year when we celebrate both our tenth Annual General Meeting and the Ordnance Survey’s bicentenary, seems to be an appropriate time to record the sequence of events which led up to the founding meeting of 8 November 1980.

These were set in train on 12 March 1979, by which time I had been working in the British Library’s Map Library for eight years. On this day, I received a letter from a colleague, Martin Nail, of the Bibliographic Services Division, in which he went into great detail about the states of some of the Seventh Series one-inch sheets which both he and I had been collecting. We had been trying to unravel the publishing sequence of the sheets and had questions to which the national collection did not provide the answers.

Over the past few years, I had been comparing my own collections with those in the British Library and had discovered that the BL’s claim at that time to have the only complete set of Ordnance Survey material was exaggerated, and, at least as far as the small scales were concerned, the BL holdings, even though they were the primary copyright deposit, were considerably incomplete. This was hardly a novel discovery, and of course hundreds had arrived at this conclusion before me, but, unlike them, I was in a unique position to be able to begin to do something about it.

I had begun with the ambitious idea of creating a national record of Ordnance Survey publications, based on the supposedly complete holdings of the British Library. I ought to have known better: the work already done on the Margary facsimiles had served to underline how little I knew about the complexities of OS publishing practices, and in any case, what I knew about Ordnance Survey maps would have covered one side of a postage stamp compared with the profound cartographic knowledge of my map mentors, Peter Clark and Ian Mumford.

However, nothing daunted, and with the vauge hope that one might live long enough to complete the task (or else certainly to rue the day one began it) I was now creating card indexes for the BL OS collections in order to find the gaps in the holdings, although how I was going to fill these, other than by personally travelling the country’s second-hand bookshops, I was then at a loss to know.

Martin Nail’s letter mentioned states of the Seventh Series which were not held by the Map Library but which he had seen in a mapseller’s catalogue. That mapseller was Alan Godfrey; I rang him on 13 March 1979 and from that day became aware that there was a thriving interest in OS maps outside the professional map world. The idea of bringing the two interest groups, that is to say the professional and amateur, together evolved gradually over the next twenty months after many discussions with Alan, Peter Clark, Ian Mumford, Chris Board and others. In particular, Peter’s ideas and influence were absolutely central to the formation of the Society.

The concept of some sort of OS collectors’ club had been mooted before, but without any clear focus. Now, in 1980, several aims began to emerge. One thing was clear, we were all comparatively ignorant about what Ordnance Survey had actually published in the past; this
ignorance was also tinged with an element of confusion because, in so many cases, the Ordnance Survey’s reports of what had been produced did not match the product it purported to describe. The creation of a comprehensive record for each map series was therefore seen as an essential first step in the direction of severing fact from fiction.

I suppose we were contemplating the formation of a record society, but it was quite evident by then that the national, and even local, collections would not provide the full range of raw material for any listing of maps which had any pretensions to completeness. The only answer was to harness the enthusiasm of private collectors who, between them, would be able to produce a wealth of maps and information not to be found elsewhere.

It seemed appropriate that any initial meeting of interested parties should take place in the British Library, the home of the primary copyright collection of Ordnance Survey maps, and so it fell to my lot (to borrow a phrase from William Roy), with the sanction of Dr Helen Wallis, Map Librarian, to send out a letter, from which the following is an extract, in October 1980:

Ordinance Survey Map Collectors’ Group

Interest in Ordnance Survey maps has grown considerably in the last few years, and has now reached a point where it is thought that the formation of an 'interest' group would provide a valuable forum for those who wish to share their interest and become better informed about the Ordnance Survey and its products.

Several ideas have been expressed as to the form such a group should take, and in order to discuss these further it is planned to hold an all-day meeting at the British Library Map Library on Saturday 8th November.

This letter was sent to the following people: C.Board, D.Castle, P.K.Clark, A.J.Coombes, A.Cook, R.Dean, R.Fairclough, B.Garvan, A.Godfrey, F.Herbert, M.Ivory, I.Mumford, C.I.M.O’Brien and M.Wilkes who, with myself, constituted the first fifteen members of the Society. Those who received the letter but were unable to attend the first meeting were: C.Ballantyne, G.Bilcliffe, R.V.Clarke, B.Fathers, D.Ferro, J.Goss, J.B.Harley, D.Stagg, A.Tatham and P.Wallington.

The agenda for that day covered an excellent exposition by Peter Clark who spoke on 'The Ordnance Survey half-inch maps: a framework for collectors', and the discussion centred on who potential members of the group might be, (not more than forty or fifty in number - of that we were sure!), what its aims and activities should be and what it should call itself. Ian Mumford’s brilliant suggestion that it should be named after a prominent OS personality, preferably Close, was adopted on the spot. [The full minutes of this meeting are available from me for those who have not received them.]

What has followed would make a suitable subject for a 'Ten Years Retrospect'. The Society has accomplished an astonishing range of work, and has made such a significant contribution to the history of Ordnance Survey publishing that it is difficult now to convey the real state of ignorance in which we stood only a short time ago. That these contributions have come as much from the keen amateurs, as from the professional map men, is, in my view, a principal ingredient of the success which the Society enjoys today.

Although no longer Honorary Secretary, Yolande Hodson continues to serve on the Committee of the Charles Close Society. Her successor writes as follows:

A message from the new Honorary Secretary

I am very pleased to have been elected Honorary Secretary of the Society at the AGM in July. If I can contribute half as much as has Yolande Hodson, I will be well satisfied.

Yo was in at the beginning and has done a tremendous amount to ensure the strong position
in which we find ourselves. This in no way belittles the contributions of other members.

From an initial meeting of fifteen people, we now have a membership approaching 300, and are mature enough to have elected Honorary Members. We have a good financial position, a strong publications list, and *Sheetlines*. The Society is now well known within the Ordnance Survey and cartographic circles worldwide. We are a repository for official documents and have provided speakers at major cartographic events. The excellence and variety of our own meetings is well known. In no small part is this the result of the encouragement and hard work of Yo.

It is on this base that we must build and develop in the next ten years. The basic publications list must be completed. Results of members' research, whether lengthy articles or two line observations must continue to appear in *Sheetlines*. Perhaps with more members, we will be able to have more meetings, but must be prepared to travel a bit more. The first meeting in Ireland? Colour in Sheetlines? A lot can happen in ten years, as the last ten have shown.

DAVID ARCHER

ASPECTS OF ORDNANCE SURVEY MAPS

A number of members accepted the invitation in the last issue of *Sheetlines* to write something short about an aspect of Ordnance Survey mapping which gave them particular pleasure, or which they found of particular interest. The Editor very much hopes that contributions of this type will not prove to be merely a flash in the pan in the Ordnance Survey's bicentenary year, but rather that more will be forthcoming in the future.

Map Reading Booklets

If you go into most secondhand bookshops and search for a section labelled Geography you will not find one. However, if you do, you will stand a good chance of picking up one or two small booklets on map reading. I have collected these as long as I have been interested in Ordnance Survey maps and now have about 100 different items.

I collect them because I like them. I like them because they are a good source of map extracts where the whole sheets are seldom found. They are also cheap, fairly readily found and quickly build into a recognisable collection. They go back to the beginning of this century, hence covering roughly half of the Ordnance Survey's existence, and many are found in series composed of different editions or reprints, giving the added interest of collecting sets.

Map reading booklets fall into two main categories, those for the military and those for schools, the later being much more numerous both in total numbers produced and individual titles.

There is no need to emphasise the importance of maps for military operations, but personnel do have to be taught how to read maps and to make sketches of an area. The military have used a basic work for most of this century. My earliest example is *Manual of map reading and field sketching*, 1912 (reprinted with additions, 1914). This has various coloured plates, including the half-inch Training Map. Further editions appeared in 1921, 1929 (with the addition of photo reading in the title and contents), and 1939 (1929 edition with amendments). During the 1950s the work appeared as three small volumes before again being issued as a single volume in a blue ring binder in 1973.

The sections specifically on map reading were issued as separate booklets in 1915 and 1939. Although not exclusively on OS maps, none of these items will fail to be of interest to members in some way or other.
Map reading and panorama sketching, by An Instructor, 1916 (2nd edition, 1917) is intended for officers but is published by Sifton, Praed & Co. Ltd.

The earliest publication for schools that I have is Map work by Bryant and Hughes, 1918, which laments 'that present curricula in schools do not efficiently meet modern needs' and notes encouragingly the introduction of map work as a voluntary subject in Oxford Senior Local Examinations for 1918 and 1919.

In March 1924, the first edition of Cox and Maggs’ Exercises on Ordnance Maps appeared, my 2nd revised edition of 1928 having full page coloured extracts from quarter-inch Third Edition, one-inch Popular Edition, Ten mile and six-inch Southampton sheets. This booklet continued to be revised and reprinted, with the 1939 edition having plates for the 5th Relief and Land Utilisation maps.

Perhaps the most common booklets are those by Pickles, Map reading and Elementary map reading, the former starting in 1937 and the latter in 1942. Together with Cox and Maggs, the frequent revision and reprints, plus the numerous colour plates, give an excellent picture of OS mapping over a period of time, well into the 1960s and each edition is a snapshot picture of what was available at that time, much as are the Descriptions produced by the OS.

I collect every reprint of these series as plates often change very slightly (most obviously by print code), but have yet to sit down and study them in detail; at this stage merely noting that they do change. There are many publications of this sort, usually with titles such as Map reading for schools, Reading topographical maps or Map and photo reading, plus titles aimed at specific groups such as Map reading and Local Studies. There is also a whole range of books on map interpretation and landscape studies, which fall outside this short piece.

Obviously there is much more to these books than the colour plates and the differences between editions, and as a Society, I hope that in future years we will turn our attention to these books and their relationship with Ordnance Survey maps. Until that time comes, I will keep on looking for different copies.

Finally, my favourite book is An introduction to mapwork and practical geography, by John Bygott, First edition 1934. Find a copy and you will see why.

Note: the above was written only with reference to books that I own, and is intended purely to whet the appetite.

DAVID ARCHER

The Charles Close Society and cartographic treasures

As the Charles Close Society celebrated its 10 years of existence recently at the R.G.S., I had a go at trying to remember some of the highlights that I have had during the ten years that I have been a member.

Before I joined the Society I was under the impression that all OS historical material was lost during the blitz on Southampton in 1940, but how wrong I was. At various meetings over the years I have seen TREASURES such as: sheets of William Roy’s manuscript map of the Highlands; original Surveyors Drawings for the Old Series one-inch maps, all in wonderful colour and UNIQUE, (the Charles Close Society must save up and get them all photographed in colour), the Hill Sketches for the Old Series one inch map, also in colour, and in fine detail. All these, I thought, had disappeared years ago. Another, more recent, discovery that excited me was the original pencilled hill shading drawing which was made for the current one-inch Tourist Map of the Lake District; no colours, just grey on grey, but still a TREASURE.
Have you seen the OS reprint of the six-inch map of Edinburgh? You should have seen the manuscript map, absolutely beautiful, all meticulously drawn by hand and in glorious colour. There is only one of these, and I have been privilged to see it. More recently, at a meeting at the OS in Southampton, I saw the OS Jubilee Book, made for Queen Victoria’s Golden Jubilee in 1887, and I actually turned the pages. All this and more for only £5:00 a year.

BILL BATECHelor.

Pass Words

The Peak District One-inch Tourist Map is a work of art, one that I never tire of studying. Since I was given my first copy as a birthday present in 1962 (10/- and still cloth-backed) I have had a succession of them. I even found one on the moors near the Cat and Fiddle Inn above Buxton. It was a newish map and had a drawing of the Winnats Pass on the cover (H.135).

About a month ago I bought a copy of the latest version of the map because I needed one with the latest long distance paths shown on it. Once again the Winnats Pass was featured on the cover, but this time it was a photograph (H.407.5).

Now I know that they can do all sorts of trickery with photographs these days. They can remove offending objects and put different heads on people, but I hadn’t realised that they could restructure the landscape.

I first used the new map on a walk from Edale to my home near Bakewell. I climbed up to Mam Nick, avoiding the fragile surface of Mam Tor itself, and crossed Windy Knoll to the top of Winnats Pass. The descent to the village of Castleton was steep. My knees were hot by the time that I reached Speedwell Mine at the bottom of the pass, and the cars that were coming up were struggling up the 1 in 5 gradient.

Later that evening I took a closer look at the cover of the map and got the distinct impression that the road through the pass was level, if not sloping up instead of down. The sky and the landscape were clear and bright with little hint of the menace attached to the ravine.

Was this the Winnats of myth and legend? The Wind Gate, as the name means, through which storms howl in the winter? Was this the defile in which Allan and Clara were murdered in 1758 on their way to a secret marriage in Peak Forest, the Gretna Green of those days?

On the other hand, the drawing on the 1972 map, which may not have been very popular when it first appeared, certainly gives the impression of a rocky gully climbing up to some high plateau. The colours give you the feeling that you are passing from the light into a gloomy sinister place. It is not hard to imagine one of the murderers of Allan and Clara flinging himself, as legend says, from the crag in the centre of the picture.

But all things change. The vogue for photographic covers may be replaced by an artist-drawn cover. I was always content with the simple red and cream cover (H.100) of the 1962 map, and until the arrival of John Paddy Browne’s *Map Cover Art* I was unaware of the delightful covers of the 1920s and 1930s.

A glorious map deserves a cover to match. Maybe one day we will see one graced with a painting of a scene into which the imagination can walk. Or it could feature a well-dressing, a picture in flowers, such as can be seen in many Peak District villages throughout the summer. That surely would be better than any photograph.

RAY BRADSHAW
On the Pleasures of collecting Flat Maps

As anyone who has ever tried will be aware, it is impossible easily to store flat maps. The under-the-bed method will probably best accommodate any restrictions laid upon married collectors, though it cannot be recommended to anyone actually wanting to use his exhibits. The plan chest is probably the most sightly solution, and in addition provides an excellent work surface. But it is severely restricting as to the number of maps it can house before their weight permanently jams the drawers closed (or even open). And OS maps require the largest size of plan chest, if they are to be stored unfolded, and even then they cannot all be so accommodated, as any collector of flat 1:50,000 maps will tell you. One of our members probably has the perfect solution in the unrestricted use of a reinforced attic. But this will not work for long in those roof spaces built to conventional British specifications - a couple of tons of maps will assuredly end up in the bedroom, along with a great deal of ceiling.

Some collectors fold their flat maps down, sometimes to standard dimensions, which makes storage in boxes a practicable solution. The drawback to this has to be that maps are not the same size to start with, and constantly folding and unfolding maps will wear them more quickly than if they can be preserved flat. Others go for rolling them up, and keeping them around tubes, or inside them, thus causing more friction both to maps (and one's patience) when getting them out. Either way a battle royal is guaranteed actually to persuade a rolled map to stay open so that you can look at it. And anyway, where does one keep the tubes?

My solution (only for bachelors) has been the door-across-an-armchair method. The maps, piled on one half of the door and weighted at one edge, could be turned over onto the other half as pages of a massive book. This worked well until the 500 map mark was reached, since when the maps have got further and further out of control.

Whatever imperfect solution you arrive at, it is axiomatic that the map you need next will be at the bottom of the heap. But in spite of everything, I unreservedly recommend the collecting of flat maps. No map gives me more visual pleasure than one in virgin condition, which means that it has never been folded or cut down. Many maps folded in covers have been mutilated by the trimmer even before they leave the OS - the title may have been removed, probably also the sheet number. Side margins were often trimmed, leaving pathetically fragmented magnetic variation diagrams. One can only think back with black depression at the operations of turn-of-the-century dealers who cut engraved maps back to the neat lines before mounting them. If you are lucky they might have remembered to stick the symbols they had removed to the back of the cloth. But what cartographic pleasure can exceed that of a flat engraved map, still with the full plate mark intact, hopefully with spare paper beyond, and, the crowning jewel, a complete embossed printing date at the top? And there is no cover to obstruct the viewing of your exhibit.

Collecting covered maps only is terribly limiting. There are so many more flat ones - all those in covers were flat once, for a start, and then the rest, probably more than 90 per cent of the OS product. Large scale maps, for instance, were rarely covered. These are hardly the stuff of private collections, but surely at least representative examples of all types is not an unworthy ambition? Outline versions of standard small scale series maps come in a surprising variety of styles. Collectors of district maps will never achieve complete coverage without turning to flat maps: the Popular Edition Colchester and Catterick, to name but two, were only printed for military use. Extract maps for educational or other purposes were never covered, and are at least easy to store. Administrative maps are frankly an acquired taste, but Planning Series maps, with a philosophy supporting their creation (one class of overprinted information per map) that O.G.S.Crawford would have approved, are expertly researched, and one can only admire the finely crafted methods chosen in the drawing of the overprint. They can give pleasure to anyone.

Collecting indexes is a guaranteed voyage of discovery - or frustration. The size and scope of this byway of OS mapping is frankly bewildering. The OS persists in refusing to consider them maps at all. By trade and library users they have always been considered ephemeral,
and often disposed of when a new updated version arrives. This is hardly surprising, since they were, and are, often free. Who keeps old copies of Pathfinder indexes today? But it has had the effect of making many states of indexes remarkably rare, and apparently even nonexistent. Map librarians rarely if ever catalogue them, so if you wish to learn about them, in effect you start from scratch.

I have not yet even mentioned military or aviation maps, the vast majority of which have never been placed inside covers. Here again there is a lifetime of new discoveries to be made: the field is apparently limitless, and is not even governed, for once, by the coastline of these islands. There are at least two aspects to this. One is the wealth of information to be found in the overprinted information, and a wealth that multiplies with successive issues of the same map. This is because such information could be updated very frequently, as collectors of First World War trench maps, or of 1930s aviation maps will testify, and many locations may only survive for an issue or two before deletion or modification. The second aspect is in the base map itself, which in military states often appear in revisions that were unused in civilian mapping. For a full understanding of the base map, therefore, the military versions can hardly be overlooked. And let me conclude by reminding members that some map series were created by the OS solely for military use - for instance the 1:25,344 GSGS 3036, or the 1:20,000 GSGS 2748. The latter is in my opinion one of the finest topographical maps ever produced by the OS. If any collector of covered maps only is trying to dispose of a set, will he let me know?

ROGER HELLYER

Ordnance Survey maps and the local society

Yateley is a former village, now a small town, in north-east Hampshire. In 1981 the Yateley Society was formed, a local amenity society registered with the civic trust, which soon defined its main areas of interest as planning, local history, and natural history. I was one of the original committee members and I offered to deal with maps. I had been for a long time a keen user and acquirer of Ordnance Survey maps, and had for some years acted for the Ramblers' Association as their link with the OS. My experience was thus mainly with the small scales, whereas the Yateley Society was more interested in the large scales.

As for current maps, most of us had the local 1:50,000 and 1:25,000 sheets, and the Society purchased the two relevant 1:10,000 sheets. For the current 1:2500 and 1:1250 sheets we relied largely on the local library; we are unfortunately not a wealthy society.

I persuaded the committee that we should obtain copies of at least the first edition of the 1:2500 maps covering Yateley. This proved more difficult that I expected. I had the sheet-line diagram for Hampshire and I knew that the British Library could supply photocopies of OS maps. However, the BL catalogue showed that part of Yateley was covered at 1:2500 by '4 Sheets and 2 Area Sheets' published in 1855 and the whole (?) parish by '8 sheets with Index Sheet and Area Book' of 1872. Some complex correspondence with BL (I never understood 'Yateley in the parish of Tufton') established that the 1855 sheets did not cover the modern parish of Yateley, and that there were eighteen sheets, not eight, in 1872. So I ordered the five 1872 sheets covering present-day Yateley (£2 each for electrostatic prints in 1981!) and the Area Book. One of the sheets straddled the county boundary, and I ordered Berks 6.15 instead of Hants 6.15, so we got Radley College instead of northern Yateley. We live and learn!

Over the ten years since 1981 we have built up our collection of the later 1:2500 county sheets, with more photocopies from BL, some sheets kindly donated by local people, and some exciting finds in John Coombes's catalogues. Until recently I thought we had all these county sheets, with some revised in 1931 and some in 1939, but I have now established with Richard Oliver's help that some were revised in both years, so there are still a few gaps left to fill.
Storage of unfolded maps poses problems for the amateur librarian. Most of them lie flat on a large shelf, but the 1:2500 sheets are too big, and are kept rolled in cardboard tubes. Each tube holds the sheets of a particular edition, rolled up together with their left-hand edges held by a long plastic clip. The resulting composite rolls have some strange properties, but with a cautious and systematic approach it is possible to inspect any individual map and return to the original configuration without becoming enrolled oneself.

The maps in the Society’s collection are used mainly in connection with planning and local history, and we have provided several exhibitions showing how small areas of Yateley have changed over the years. The maps are an important source for the history of individual buildings, and can be useful at planning enquiries when a building may be threatened with demolition. They can often be used in conjunction with other historical sources, such as the Census enumerators' schedules, to add the missing spatial element. The 1872 1:2500 sheets with the Area Book giving the land-use of particular fields are particularly useful, and provide a comparison with the tithe survey of 1844. Later maps show how scrub and woodland have taken the place of heather on parts of Yateley Common. A project I am at present engaged in uses 1:2500 maps to show how the boundary and the area of the common have changed over time, and shows not only the expected small encroachments but also, more suprisingly, how the common has been extended in some areas.

MICHAEL HOLROYD

Distinguishing the wood from the trees:
An Orienteer in the Charles Close Society

Orienteering, particularly in the formative years of the sport in the sixties and early seventies, took place essentially in the forests of Britain. Originally, the competitors would use 1:25,000 Ordnance Survey maps which they would bring to the event themselves, but as the popularity of the sport grew - a National Event in 1975 might attract 1000-plus competitors - alternatives to this map were sought. The 1:25,000 OS map is still highly regarded by all walkers as the best map ever produced, but orienteers were demanding even more information than even this map indicated. Marshes, crags and even individual boulders were essential to good navigation by orienteers, so a new map was born. The Orienteering Map is currently drawn to international standards at scales of 1:10,000 and 1:15,000, but has come from the original 1:25,000 by way of 1:20,000. The base map for our redrawn maps was the 1:10,560 OS map, with permission from the OS of course, and the areas which were selected for competition needed to be established forests.

The OS 1:50,000 'Landranger' map shows all the areas in the country planted with trees as a green screen, as everyone knows, but there is no distinction between recent plantations and those containing mature trees and thus suitable for orienteering: why should there be?

The maps that give this information today are those which were printed about 50 to 70 years ago, the Popular Edition of the OS 1-inch map, and so, as a mapmaker for orienteering I set out to collect those maps of this vintage covering a 100-mile radius of my home in Chester. After a while I realised that I was well on the way to completing the whole set in one form or another, and so the quest was broadened. Twenty years on I am still a few short, but I have, over the same period, acquired a very wide selection of assorted maps from Parish Maps to Town Maps, from Old Series to Bridges-Mounted, and many more, so that when I heard of the Charles Close Society I had to be a natural. I now realise that I have hardly scratched the surface in studying the detail of the early surveyors and cartographers of the OS, but it is good fun and a very stimulating interest, with parallels in map-making for orienteering.

MALCOLM MCIVOR

Member of the British Orienteering Federation
Six-inch county content

Maps which I find particularly interesting are the pre-war six-inch county series, particularly those covering rural areas. Although uncoloured, except for red or blue contours and sometimes Ministry of Transport road numbers in minute red lettering, the detail more than makes up for this drabness, and nostalgic memories are revived with the appearance of such bygone items as Smithy, Saw Pit, Trough, Pheasantry, etc.

Occasionally quite detailed descriptions can be found. On the 1911 Edition of Cheshire sheet XLI N.W. there is 'Tree Marked Centre of County of Cheshire' with an arrow pointing to the exact tree in the village of Bostock Green. The plaque was erected in 1887 by a local dignitary. (Presumably he had to use Ordnance Survey maps to work out the spot in the first place?) Another example, noted on the 1908 Edition of Cheshire sheet XL N.E., is 'Marton Grange (Site of). Several Documents, Ancient Coins & the remains of two Coffins, with the bones of the interred complete, were found A.D. 1848'.

ROD MONNINGTON

A trip into the past
or, Has anyone seen Paul Baker?

One of the great pleasures of exploring the paper landscapes of the Ordnance Survey is the sheer variety, and there is always the uncertainty of just how far that variety extends. To give an example: the 1913 edition of the War Office Text Book of Topographical Surveying contains, as plate XXIV, a specimen of One-inch mapping around Keswick in a style similar to the celebrated Killarney map. The extract was quite widely distributed - 6000 copies of the book were printed in November 1913 - but, why Keswick? Why not Killarney? Does the Keswick map antedate Killarney by a few months, though not published till later? Is it as much as was done in this style or is it part of a larger sheet? If so, do any copies of the latter survive somewhere, perhaps in private hands?

It is a map to look for, and I'm sure I'm not the only one looking. I'm equally sure that the competition is a lot less intense for GSGS 3907, sheet 33, in the 1932 printing, which is a map I would prefer to have for my collection in preference to 'Killarney', were I forced to make a choice. I only saw it once, 26 years ago, and I'd like to see it again, if only for old times sake. Certainly, it cannot compare with Keswick or Killarney as a work of art: indeed, GSGS 3907 in its early years, with relief by contours only, all road infill in yellow, and the green plate for woods and parks conspicuous by its absence, was the complete negation of the high hopes entertained in 1913-14 of an Ordnance Survey supermap.

I suppose one reason why this particular sheet attracts is because it has eluded me so far - one so dislikes being bettered by inanimate objects - but another is because it represented my first real plunge (at the age of eleven) into something like 'antique' mapping. At home, my father had quite a number of OS maps, from the Fifth Relief onwards, but all the Popular-type mapping was War Revision or later, and the 'periodical corrected reprints' publication notes (when present) gave little away. New Popular sheet 105 (one of the most successful of the series, and a good initiation to it) hinted at a strange world in the cartographic past, but GSGS 3907 sheet 33 was a glimpse into it.

I remember the occasion well enough. It possibly was my last day, or within the last two or three, at St James' School, Grimsby, whence I had been sent to avoid the reproach of a Grimsby accent, as well as learn something. I had already acquired the reputation of a map enthusiast, and had been particularly enthusiastic on first seeing a six-colour 7th (105, B - what

2 In this, at least, my father's money did not go to waste.
else?!, being struck by the 'glittering' effect, which would be due to the screening for building fill and water tint. A chap called Paul Baker said his father had a lot of maps at home, and he brought along sheet 33. I seem to recall that he said that it was the most unusual map in the collection; presumably the others were conventional New Populairs and Sevenths. Certainly it was the most unusual map I'd had dealings with to date.

Part of the reason, I suppose, was that it looked like nothing which I'd ever seen before. I was prepared to accept that during the war things had been difficult and roads had appeared in orange instead of red and yellow, but this... It just didn't fit in. But then it also had an atmosphere of Antiquity, which must have been in part due to the publication note. 'Surveyed in 1850-90'... Rather a long time... A few weeks earlier I had been introduced to GSGS 3907 sheet 40, Second War Revision, with cropped margins, which had excited me then, but now sheet 33 opened a whole new dimension and posed far more questions. I thought of writing to the Ordnance Survey\(^3\) and asking if they had any old stock, but I never got round to it, and it would of course have been a waste of time.\(^4\) I can see vividly in my mind the solid blue of the sea tint, (okay, the Humber estuary), and the line of what the New Popular sheet 99 called the A.1105, still under construction.

A day or two later I left St James for De Aston School, Market Rasen, the only Jacobean to make the transfer that year, and I have never seen Paul Baker or his map since. Curiously enough, I came close to sheet 33 some years later, by which time my parents had moved to Surrey. At a jumble sale in March 1969 in Woldingham I bought a small cache of maps, which included GSGS 3907 sheets 32 and 38 in their 1932 printings. I suppose that curious incident, followed much more recently by the acquisition of sheet 28 in a 1933 printing, merely fuelled my desire to get sheet 33, (Sheets 34, 39 and 40 would be nice, too, to 'square the block'), and indeed to try to assemble a collection of these 'ungreen' early 3907s. (GSGS 3908 (Scotland) and GSGS 3917 (Northern Ireland) were also printed in this style in 1932-3.) They are not particularly easily found; the only consolation is that few seem to share my enthusiasm.

So if you have a copy of GSGS 3907, sheet 33, 1932 printing, you know where to send it...

RICHARD OLIVER

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\(^3\) No nonsense about dropping the definite article in the heyday of the Seventh Series.

\(^4\) On two counts: (a) all the stock would long since have been exhausted, if not destroyed in the war, and (b) it was technically a GSGS rather than OS publication!
The Ordnance Survey and a nineteenth century environmental 'crisis'

by Tim Nicholson

At the end of 1866 Benjamin Disraeli's radical Conservative government appointed a Royal Commission to investigate and report on means of collecting and storing 'unpolluted and wholesome' water from the mountains of England and Wales and delivering it to the nation's cities. The elevation, high rainfall and scanty population of these upland areas promised the best head of clean, soft water for drinking, cooking, washing, sanitation and industry. London and its suburbs was given first priority; then the other principal cities. In April 1867 the Commission's brief was extended to take in a study of London's current water supply, and an investigation of water sources other than those in mountainous areas. The Commission took evidence from February 1867 to December 1868, and reported in June 1869.¹

The Victorians were well aware of the danger of the populations of Britain's expanding cities outrunning their water supplies. Since the 1840s new reservoirs had been built in the Derbyshire and Yorkshire hills to supply the industrial towns close at hand, such as Manchester and Sheffield. But the Pennine water was treated as 'theirs', and their consumption was already near to matching available resources, so how would Britain's biggest city cope in the future? Since the 1820s London's population had doubled to 3.2 million, and those people had acquired cleaner habits, each one requiring 80 per cent more water on average. So, while in 1829 29 million gallons a day had been supplied to the capital, in 1867 the figure was 98.6 million gallons.

The Thames, the Lea and the chalk springs in the hills around the Thames basin supplied London's present demand between them, and Acts of 1852 and 1866 had curbed pollution in the Thames, which provided half the city's water. But it was estimated that the population would ultimately rise to 5 million, putting existing sources under strain from the additional waste; and that demand for clean water would double, to 200 million gallons a day. A recent series of prolonged droughts had shown how narrow margins were. A looming crisis was perceived; and the Commission asked some eminent civil engineers how best it might be averted. Four plans were submitted for exploiting new sources of water for London, and one for industrial Lancashire and Yorkshire. Two of the five concern us here.

John Frederick Bateman, who had already provided Glasgow with a water supply from Loch Katrine, planned to take 230 million gallons a day from reservoirs around the sources of the Severn, high in the mountains of North Wales. They would be fed by the rainfall over 204 square miles of peaty upland south of Snowdon and east of Plynlimon and Cader Idris, and possibly, too, by the basins of the rivers Vyrnwy and Banw. The water would be delivered by tunnel and aqueduct 180 miles to London, some being diverted to the Midland manufacturing towns on the way.

G.W. Hemans and Richard Hassard proposed using as their source the natural, high-altitude lakes of Lakeland, north of the hills running east and west between Scafell Pike and Shap Fell. They planned to dam the outlets of Thirlmere and Haweswater, increase drainage from the hills above them, and take water from Haweswater to Ullswater, which would be treated as a reservoir. They would transport the water to London along a 240-mile aqueduct, serving the towns of the north-west on the way. Water taken off for these towns would be replenished from a branch aqueduct to Bala Lake in North Wales.

As an alternative, the Commission also solicited plans for augmenting the capital's water supply from existing sources. One was to embank and canalise the Thames above Medmenham and build reservoirs along it; another was to collect water from streams and springs around the Lea Valley into reservoirs north-east of London.

The Commissioners’ Report found insuperable objections to all the schemes proposed. If Bateman’s were adopted, the peat stain would need to be filtered out of the water to make it acceptable. The action of soft water on the lead pipes he would use was known to be harmful to health; and dammed reservoirs, one of which in the Pennines had burst with tragic results in 1864, were disliked as dangerous. Hemans and Hassard would use iron pipes, but the Lake District water was regarded as belonging geographically to the north-western towns, not to London. Both schemes suffered from over-optimistic rainfall estimates; and both, at a period when such enterprises relied on raising private capital, were thought to be unrealistically expensive. The plan for the Thames was also held to be too costly; and it would drain the river dry. The proposed Lea development would not supply enough water on its own.

Finally, the Commission concluded that, on the basis of its study of London’s existing water supplies, the reserves of the Thames basin had anyway been underestimated. It was now thought capable of providing the capital with up to 300 million gallons of good quality water a day, and if new reservoirs were built to store it and pollution were kept under control, London’s supply for the foreseeable future was assured. The local water was hard, but that only mattered in industrial areas. In short, after a closer look at the facts, London’s crisis had gone away.2

Among the mass of paper that the Commission left behind were 66 beautifully drawn maps, plans and diagrams illustrating the projects put forward and their topography. Fifty-eight were lithographed by Vincent Brooks, Day and Son of London, no doubt at the expense of the projectors, and printed by HMSO contractors together with the Commission’s Report, Minutes of Evidence, letterpress Appendices and Index. The other eight, which concern us here, were created and printed by the Ordnance Survey. One reason was that for some, the OS already had base material: the other was that, according to the Commissioners, their elaboration would put them ‘beyond the capabilities of the Stationery Office to prepare’.3 The work that went to Southampton covered the projects of Bateman and of Hemans and Hassard (which the Commissioners regarded as the most important), the Thames Basin, and the rivers of England and Wales in general, with their catchment basins. The origins of two items are doubtful; the rest were reproduced from various engraved originals by zincography. This was a variant of lithography using zinc plates instead of stones. Like lithography, it allowed engraved matter to be copied and altered, or new matter originated, quickly and cheaply. All were published in 1870, well after the Report they were supposed to illustrate: and all were financed by the Treasury as an OS ’special service’5 for another government department. Each item bore identifying letters or combinations of letters and figures.

Two of the eight helped to illustrate the Bateman project. One was the Map of the District at the Head of the River Severn in North Wales Shewing the General Geological Features of the Ground (BA1). At Quarter-inch scale (1:253,440), it showed ‘solid’ geology only - the underlying solid rock formations - rather than ‘drift’, which is the surface debris distributed by ancient ice movements. The information, provided by the Geological Survey, was confined to the boundaries of the different types of rocks and the fault lines (breaks in the continuity of rock formations). The map was published in outline form, with a key to rock types in case hand colouring were required. No pre-existing engraved map is known to the writer; the Geological Survey’s maps on this scale belong to a later era, and the style as well as content differ from those of possible contemporary originals.6

2 Events justified the Commission’s conclusions. As late as 1933 the resources of the Thames Basin, supplying 294 million gallons a day, were providing sufficient water to cope with London’s population, by then more than 8 million. The water resources of the Welsh mountains and the Lake District were in due course exploited by municipal authorities for their own benefit, not London’s.
3 William Pole (Secretary to the Commission) to the Treasury, 22 April 1870, in Public Record Office (PRO) T1/7063A/7293, papers in group 8463. This lofty sentiment was not shared by the Controller of HMSO: see n.23 below.
4 Report of Commissioners, op cit.
6 This applies to the Geological Survey’s Quarter-inch index sheets of Wales, published in 1858. See List F: Memoirs, Maps etc issued by the Geological Survey of the United Kingdom... (1896). The six sheets were reduced from the Geological Survey’s One-inch scale maps and those of the Ordnance
The other 'Bateman' map, which was at One-inch (1:63,360) scale, consisted of two sheets. Its title was *Map of the District at the Head of the River Severn in North Wales Shewing the Reservoirs and Main Conduits Proposed by Mr Bateman in his Project for Supplying Water to the Metropolis* (BA2 sheets 1 and 2). The two contiguous sheets were composites made up of parts of engraved and hachured Old Series sheets 56 and 60 and 60 and 74 respectively, with Bateman's planned reservoirs, tunnels and aqueducts superimposed as heavy black, solid or dashed lines.

Two maps also illustrated the Hemans and Hassard plan. A Quarter-inch scale map was entitled *Map of Part of the Lake District of Cumberland and Westmoreland Shewing the General Geological Features of the Ground* (AZ1). It was similar in every way to its Welsh counterpart, down to lacking a known engraved original. Then there was a One-inch scale map in two sheets headed *Map of Part of the Lake District of Cumberland and Westmoreland Shewing the Reservoirs and Main Conduits Proposed by Messrs Hemans and Hassard in their Project for Supplying Water to the Metropolis* (AZ2 sheets 1 and 2).

Something of the history of this map is known. In 1867 the OS electrotyped the engraved plates of at least ten Old Series quarter sheets of the Lake District. Sheets 98 NW, NE, SW and SE, sheets 99 NE and SE, sheets 101 SW and SE and sheet 102 SW made up a block of three by three. An anomalous tenth sheet (101 NE) treated in the same way forms part of an otherwise incomplete set in the Map Room of the Royal Geographical Society, which begs a question: to 'square the map' again as a block, there should have been another two electrotyped sheets - 101 NW and 102 NW - of which the writer has found no trace.

The electrotypes were taken from plates of the contoured (outline) edition engraved between 1864 and 1867. In the areas where high ground occurred, the electrotypes were radically re-engraved to make virtually a new map. Over 250 ft, subtle layering in up to six successively darker gradations of grey was applied as a very fine, almost screen-like black stipple, which was either engraved or etched. As well as the standard contours at 100 ft intervals, there were extra contours every 250 ft. These were depicted with a narrow stripe left white on the slopes illuminated by a westering sun, and with a narrow, dark stripe made up of tightly packed, fine black lines on the shaded slopes. They are known as shaded or illuminated contours, depending on which slope one is looking at. Layers and contours together produced a striking three-dimensional effect that instantly conveyed relative altitude without the use of colour other than black. Where the grey was darkest, at the highest altitudes, names of prominent features were left in white, to stand out. Sheets without high ground were unaltered.

The Ordnance Survey Report for 1867 states that the original contoured map 'has been shaded by zones of altitude, which is a very effective mode of representing the great physical features of the country, and will enable the Commissioners to judge of the capabilities of the Lake District to supply water to the large towns'.7 'Shaded by zones of altitude' described the grey layering. Curiously, there is no mention here of the 'shaded contours', which were more arresting.8

This engraved map existed in at least two different versions. In both cases the marginal information tells us that it was electrotyped in 1867; but in one instance the publication dates given are those of the original, contoured maps,9 while in the other the publication date is 1867, the same year as the electrotyping. A further, minor difference in the imprint suggests that the

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8 Printed colour layering was pioneered in the commercial sense by Bartholomew in 1880, but not perfected by the Ordnance Survey until the early years of the new century. In 1857 the Survey had issued Scottish One-inch sheet 32 with shaded contours, and in 1858 the sheet was reissued with 'shaded zones of altitude', or grey layering, as well. There is no indication on this map that an electrotype had been taken of the 1857 map and re-engraved or etched, which suggests that the original plate itself was re-engraved (or etched).
9 For example, British Library Map Library set, at Maps 23.f.8.
'published 1867' map is the later version: in this, the letters added after Sir Henry James' name - RE, FRS, MRIA - have the ampersand '&c' added, for 'et cetera'. This sounds like second thoughts on the part of a gentleman who was not averse to blowing his own trumpet. The writer has found no evidence that the map was on sale before 1870. In that year's OS catalogue, the nine quarter-sheets making up the first block described were offered at 1s each or 9s for the set, as Map of the Lake District of Cumberland and Westmoreland with Shaded Contours.

The OS Report for 1867 makes it clear that the electrotypes were taken and re-engraved with the Water Supply Commission in mind; and when in 1870 the two-sheet Hemans and Hassard map for the Commission finally appeared, it was as a composite put together by zincoography from elements of the nine-sheet 'shaded contours' set. It consisted of all of sheets 99 NE and SE, parts of 98 NE, SW and SE, all of 98 NW, part of 101 SW, all of 101 SE, and part of 102 SW. As its title suggested, a feature was the proposed aqueducts and reservoirs, added to the 1867 map in heavy black.

The Hemans and Hassard map was restricted to the area covering the proposed works. It is not recorded why the 1867 electrotypes should have been so elaborately, labouriously and no doubt expensively re-engraved over a wider area than was needed for the Commission's Report. Maybe there was a breakdown of communication between the Commission and the OS on this point. Maybe, however, Sir Henry James was attracted by the prospect of getting an eye-catching map of the whole Lake District - which had been a honeypot for tourists since the days of the Lake Poets - without the OS having to pay for it in full, or perhaps at all. The Survey no doubt added a proportion, at least, of its re-engraving costs for the 1867 map to the expense of making the Hemans and Hassard and other maps for the Treasury, which would then be credited to its appropriation. But if this were Sir Henry's motive, why offer the map in cumbersome nine-sheet form, instead of putting together electrotypes or zincographing them to make a single sheet?

In any case, if the Survey expected good sales, it was to be disappointed. The 1867 map remained in stock for half a century at unchanged prices, disappearing from the catalogue only in 1920. It retained its Old Series sheet numbers even after new numbers for the area were introduced in 1881-2. Copies were still being printed in the 1880s, but apparently not afterwards. Nowadays it is seldom to be seen outside a few copyright libraries and other institutions, which suggests that not many were printed to start with.

The Thames Basin was illustrated by two OS maps with the same sheetlines, covering an area from Kent and East Anglia to the Cotswolds, and northwards as far as the South Midlands. Both were at Quarter-inch scale. One was entitled Contoured Map of the Thames Basin (Y2). It carried geological information consisting of fault lines, the boundaries of rock strata permeable and impermeable to water, the locations of the principal springs, the boundary of the area drained by the tributaries of the Thames, and the lines of horizontal sections taken through the basin. There were shaded contours at approximately 100 ft VI, and within the boundary of the area drained by the Thames tributaries, the ground was layered in shades of grey. Unlike the rest of the Survey's maps for the Commission, this one was engraved for the occasion in its entirety; from which one concludes that there was no engraved Quarter-inch scale map in existence from which it could be taken.

The Contoured Map was offered for sale at least as early as 1873, for 4s coloured; it could not be bought uncoloured. It was still listed in the 1924 edition of the Ordnance Survey catalogue.

10 The writer has seen two examples of the 'published 1867' map: sheet 98 NW, in a private collection, and sheet 101 NE, in the RGS Map Room. If this 'tenth' sheet and its hypothetical companions 101 NW and 102 NW were afterthoughts, here is further evidence that the 'published 1867' version was the later one.

11 There are examples in private collections of single-sheet composite maps of the Lake District put together in the late 1860s or thereabouts by simply butting-together Old Series quarter sheets. At least one was made up to order by a local OS agent, Philip Son & Nephew of Liverpool.

Its companion, the *Geological Map of the Thames Basin* (Y1), was zincographed from it. There were shaded contours, but the layering was omitted, and the geological information was presented in slightly more detail. The map title spelled out the fact that the information was provided by Joseph Prestwich, FRS, President of the Geological Society and one of the Commissioners. There was a key, in case colouring of rock strata was added.

Accompanying the Thames Basin maps was a zincographed sheet of horizontal sections through the underground rock in the area, showing its arrangement in side elevation, or profile (Y3). The sheet, which was on the same quarter-inch horizontal scale as the maps, was derived from a set of engraved sections reproduced by lithography in an earlier book by Prestwich.13

The eighth OS contribution to the Commission was the map *Rivers and their Catchment Basins* (BN), a single, very large outline sheet on a scale of one inch to ten miles (1:633,600), usually seen divided vertically. Its history had parallels with that of the Lake District One-inch Hemans and Hassard map, complexity being amongst them. Much of the information on it was derived from a Ten-mile map of England and Wales engraved in 1861 for a Royal Commission on Salmon Fisheries; and that, in turn, owed its ultimate origin to the Ten-mile index to the Old Series One-inch map. Negotiations between the Commission and the Ordnance Survey were in train as early as January 1867, when Sir Henry James sent a copy of the Salmon Fisheries map to Colonel Henry Drury Harness RE, one of the Commissioners.14 By April the specification for a new map was taking shape.15 It was engraved the same year,16 and published in engraved form in 1868;17 though without a publication date on it. In that form it showed the rivers, with the boundaries of their basins, and gave the lengths of rivers, areas of basins, and rainfall at different locations. The principal towns were shown, and there was a graticule of latitudes and longitudes. This map was put on sale. In 1873 - the earliest date at which the writer has seen it offered - the price was 21s coloured (the only state available), or 27s coloured and cased.18 It remained in the OS catalogue until 1920.19

It was three years before the map was zincographed for the Royal Commission in 1870. The lines of the aqueducts for the Bateman and Hemans and Hassard schemes, together with their proposed reservoirs near London, were added in fine black. It seems that the engraved 'parent' map was another attempt by Sir Henry James to make money for his department out of a map it did not have to pay for. This entrepreneurial approach, seen in other contexts too, was one of the ways in which Sir Henry's attitudes differed from those of his contemporaries at Southampton.20

The delay between the publication of the Royal Commission's Report and the appearance of its Ordnance Survey maps calls for comment. In fact, its Report was the only one of its elements to

14 James to Harness, 19 January 1867, quoted in document 70B in PRO OS 1/144.
15 James to Harness, 2 April 1867, quoted *ibid*.
16 Ordnance Survey Report, 1867, op cit.
18 *Catalogue of Maps... 1873*, op cit.
19 In 1868 - the same year in which the engraved map of England and Wales appeared - a similar engraved map of Ireland was published. Derived from an 1864 Irish fisheries map, it had no connection with the Royal Commission on Water Supply. A corresponding map of Scotland was photozincographed by the OS in 1893.
20 For example, when the sappers engaged in the 1868-9 Ordnance Survey of Sinai returned, their work was comprehensively 'merchandised'. Models of Mount Sinai and Mount Serbal at Six-inch (1:10,560) horizontal scale were put on sale, and 272 of the photographs the team took of local places and people were offered, either separately or (some of them) in albums. Thirty-six stereoscopic slides were made and sold with a box stereoscope. Sir Henry James ordered two dozen boxed sets at 9s each from the London Stereoscopic Company, and listed then at two guineas (42s) each: a handsome mark-up. See PRO OS 1/12/3.
be published in June 1869. The Report was regarded as urgently needed, so was published on its own before the other documents were ready. These followed at more or less lengthy intervals. The Minutes of Evidence were available by the autumn of 1869; the Index and Appendices, including the 58 non-OS maps, plans and diagrams by March 1870. The OS material for the Report was yet to appear.

Why the delay? After all, the engraving of two maps (Rivers and their Catchment Basins and the Hemans and Hassard One-inch Lake District map, the most elaborate of the lot) had been done by the end of 1867; and engraving was far more time-consuming than subsequent zincography. However, it was, perhaps, the very fact that such work had been done so early that delayed the rest of it. Elaboration meant expense, and the total cost must already have become apparent to the Commissioners and the Treasury. We know that the rest of the maps were not put in hand until mid-1869 because of the difficulty of getting Treasury permission for the expenditure. By this time the Report, which promised the maps, had been published, and something clearly had to be done to expedite them.

Once the Treasury had sanctioned the expenditure, progress was necessarily slow. At least one map - Contoured Map of the Thames Basin - had to be engraved from scratch; and it was the most elaborate of those outstanding. When explaining the delays to the Treasury, William Pole, the Commission’s Secretary, no doubt had this in mind when describing some maps as ‘of quite a novel kind, very difficult to draw and engrave’. The Ordnance Survey Report for 1869, covering work done up to the end of the year, misled its readers when it claimed that all the Water Supply Commission maps had been ‘prepared’. By January 1870 one map was ‘nearly completed’, but the engraving of another - probably the Thames Basin map - was not even begun, owing to ‘the peculiarity of the design, and the novelty of the information required to be shown’. In April, work ‘has been progressing slowly’; but it was expected that all the maps would be ready ‘in a month or two’. They may, therefore, have been published by May or June; but the earliest known reference to the actual existence of this remarkable set of maps dates from October - no less than 16 months after the publication of the Report they had been intended to accompany.

21 Pole to Treasury, 22 April 1870, cited in n.3 above.
22 Ibid.
23 Ibid. A few figures survive. The OS estimated that Rivers and their Catchment Basins would cost £150 to prepare. See James to War Office, 26 April 1867, in PRO T1/6746A/19252. The actual cost of printing everything turned out to be £413.1s.1d, while paper, for 1010 sets of maps, came to £177.8s.6d. The Controller, HMSO, complaining to the Treasury about the loss of work to the Ordnance Survey, claimed that his contractors would have charged only £200.10s.8d for altering and adding to OS plates (omitting to add a figure for the engraving of entirely new maps, and zincographing the rest). His charge for paper, using less extravagantly high-quality stock, would have been £27.17s.0d. See Controller, HMSO to Treasury, 20 October 1870, PRO T1/7063A/7293, papers in group 18844.

The fate of all these maps is a mystery. The writer knows of two surviving sets in the RGS Map Room, one in the Bodleian Library Map Library (bound in with the other 58 maps, plans and diagrams), and one in the British Geological Survey Library. HMSO sought to have all sets coloured and cased for another £600, but here the Treasury drew the line, limiting the number so treated to 100 and the cost to £100. Among them are the RGS sets. See Controller, HMSO to Treasury, 20 October 1870, loc cit, also Treasury to HMSO, 26 November 1870, PRO T1/7063A/7293, papers in group 20917. Uncoloured sets were still available on demand in 1884. See letter, HMSO to Bodleian Library, 9 April 1884, with Bodleian set.

24 Treasury to War Office, 21 June 1869, in PRO T24/7. The Treasury explicitly sanctions expenditure on all eight items: although two had been engraved, none had been zincographed.
25 Pole to Treasury, 22 April 1870, loc cit.
26 Ibid. Pole had visited Southampton to chivvy Sir Henry James, and we seem to hear the echo of that confrontation in Pole’s words. Although Pole’s duties included superintendence of the Commission’s publications, he is not always reliable on the subject. In the same letter he refers to one OS map as having been ordered ‘at an early period’, whereas in 1867 two were, in fact, authorised.
27 Ibid.
28 Controller, HMSO to Treasury, 20 Oct 1870, loc cit.
Acknowledgements
The author is grateful to the following for their patience and their generosity with help and advice:
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Extract from Map Y2, Contoured Map of the Thames Basin, showing shaded contours and grey layering. (By courtesy of the Royal Geographical Society.)
Ordnance Survey at the Tower of London, 26 June 1991

by Yolande Hodson

The Ordnance Survey's Bicentenary Birthday party, for two hundred friends and staff, was held at the Tower of London on Wednesday 26 June. The venue was highly appropriate, for the Tower was the Survey's Headquarters for its first fifty years, from 1791 to 1841. The friends comprised either representatives of institutions which had some relevance to Ordnance Survey, such as the British Cartographic Society or Royal Geographical Society, or were individuals who represented some aspect of the Ordnance Survey's past or present. It is a matter of some regret that this Society was not included in the list of invitees; however, your erstwhile Hon. Sec. was present wearing her OS Historical Consultant Hat, and her obvious connection with the Charles Close Society did not go unremarked during the evening.

The event was superbly organised, and even the atrocious weather, which had caused queues of guests to huddle outside under the 'courtesy' magenta and white OS umbrellas (these were rapidly taken off us in the marquee), held off for the necessary two hours and produced some watery sunshine in time for Her Majesty's arrival. The marquee, sited on the raven's lawn on the south side of the White Tower, was open to the elements on the side facing the river, and many a female guest froze in the unexpectedly fresh air, but the Queen, clearly aware of the constantly cool conditions in her riverside Royal Palace, appeared in a not quite magenta warm wool coat and dress.

She and the Duke of Edinburgh were escorted around a selection of tableaux depicting Ordnance Survey scenes past and present; the Science Museum had lent Colby's compensating bars for the occasion, and OS staff, in early nineteenth-century Royal Engineers uniform, were on hand to explain its workings. Other depictions included the Ramsden 18-inch theodolite (1795), and John Paddy Browne, dressed in 1960s gear at a scribing table; unfortunately, yours truly did not recognise this particular scene and complimented him on having achieved a striking likeness to Ellis Martin.

The tour of inspection over, (Prince Philip having been overheard to ask if OS maps were really necessary), the Royal entourage gathered at the central podium for the speeches and presentations of the evening. The main feature of this part of the proceedings was the presentation of two framed maps, one to the Queen and one to Prince Philip. Because these were produced especially for the occasion, and no other copies will be printed, it may be useful to describe them briefly here.

The map presented to the Queen was a facsimile of six-inch Aberdeenshire sheet XC, Glenmuick Tullick and Glen Gairn, published 31 March 1869, covering Balmoral; it differs from the original in the insertion, top right, of an oval vignette of Balmoral castle. In the centre of the bottom margin is printed in three lines 'Presented to Her Majesty the Queen / on the occasion of Ordnance Survey's Bicentenary / Tower of London 26th June 1991'.

The Queen's map, it has to be said, is unremarkable. The Duke's, on the other hand, showing the Balmoral estate, is an eyeful of bright green, purple, blue, magenta and pink. His first comments on seeing it are reported to have been uncomplimentary, but it was noticeable that he spent a considerable time examining it.

Although undoubtedly crude in appearance - the lettering is so inelegant as to appear to have been stencilled - the map is, in fact, a one-off product of a special survey undertaken by the local OS surveyors at Aberdeen, who provided updates of the necessary Master Survey Drawings for the four 1:10,000 and twelve 1:2500 sheets involved.

The surveyors spoke to Balmoral estate managers and produced a sub-specification, peculiar to the Queen, which included favorite paths for walking the dogs, and certain monuments. This map also breaks new territory for digitising from scratch at such a large scale, (the scale is 1:5000, but this is not mentioned on the map). This created an exceptionally large file size which was then converted by Scitex into conventional repmat: four bits of plastic. Only ten
prints were made and these were done on a proving press on 24 June 1991. The whole exercise cost about £35,000 and took six weeks.

The map has no title and measures 60 x 90 cm between the neatlines with an outer, double-lined border measuring 65 x 95 cm. Within the outer border, bottom right, is printed 'Produced by ORDNANCE SURVEY, Southampton. Crown Copyright 1991.' In the centre of the bottom margin is printed, in three lines, 'Presented to the Duke of Edinburgh / on the occasion of Ordnance Survey’s Bicentenary / Tower of London 26th June 1991.'

There is no key to the map, and the Duke will therefore have to work out for himself that the purple represents exposed rock, and that the faint white lines within the green woodland area indicate the boundary lines of different vegetation types, of which at least four, coniferous, deciduous, open, and close are shown on the MSF. The boundaries appear on the printed map because it was too difficult to remove them from the manuscript. Black symbols for coniferous and deciduous trees, rough pasture and boulders (at least three different shapes of boulder are shown) are combined with brown contours at ten metre intervals. Balmoral castle itself is shown in bright magenta; other buildings are in pink. The finishing touch is a coloured aerial photograph at 1:5000 scale of the castle and immediate surroundings, which is pasted down on the top left corner. With such a wealth of extra detail, this map really has to be the 'Super-plan' of them all, and it is easy to see why it engrossed so much of the Duke's time.

The highlight of the evening came when the guests were introduced, individually, to the Queen or the Duke (each met half of those present). It was a memorable birthday party.
RECENT MEETINGS

THE WORK OF AN ORDNANCE SURVEY REGIONAL OFFICE:
Meeting at Ordnance Survey Regional Office, Bristol, 11 May 1991

About fifteen members attended, and were welcomed by Charlie Beattie. This CCS visit was the first 'event' for the West Region in Ordnance Survey's official bicentenary year.

The functions of the Bristol office

John Miell, regional manager, gave a general description of the work of the office, starting by saying that 'We refer to data collection rather than to survey'. Nationally, there are about 800 surveyors on the ground in the four OS regions: Scottish is the smallest, with only 96 surveyors, but the largest acreage. At Bristol a team of 16 manages 200 surveyors. Bristol is both a regional and a local survey office. The numbers based in the local offices varies: for example, there is one each at Newtown (Montgomery) and Salisbury, 8 at Bristol and 13 at Coventry. 'Based' seems to be the word, as the five men at Truro do much of their work from home. (There is evidently some job satisfaction: one man recently retired after 44 years, mostly working in west Wales, who simply loved surveying and didn’t seek promotion.) Being half-Welsh, Mr Miell is particularly pleased that his responsibilities include the whole of Wales. The main work is the Continuous Revision (CR) of 10,930 1:1250 and 50,347 1:2500 maps, and the Periodic Revision (PR) of 595 1:1250 and 1785 1:2500 sheets. SIM (Survey Information on Microfilm) covers 1263 1:1250 and 2903 1:2500 sheets. (The estimated replacement cost for resurveying and redigitising both a standard 1:1250 0.5 x 0.5 km plan and a standard 1 x 1 km 1:2500 plan is about £4000.) As well as conventional maintenance of the three basic scales, (1:1250, 1:2500, 1:10,000), there is other work, such as collecting land use change statistics on behalf of the Department of the Environment; these statistics are used for answering Parliamentary questions. The region costs about £6M to run.

Map revision depends on the amount of change on the ground, and the object of CR is to record the changes as soon as possible after they take place. Like the rest of OS, Bristol is very cost-conscious, and as it costs about £27,000 to move a man and his family from one base to another, it is necessary to collect intelligence about where the changes are. There is very little statutory guidance for OS activity, apart from the Survey Act of 1841. Some change, for example to field boundaries, is very gradual, and so PR is designed to allow every sheet to be revised at least once every 40 years. (Mr Miell observed that he had been with OS for 33 years, which puts this into perspective!) Against this, CR means that some sheets are visited four or five times a year.

The Ordnance Survey Mission

Mr Miell then described how his office is working as part of the Executive Agency which OS has been since 1 May 1990, and showed a slide of the OS Mission Statement. (1) Operating within the framework of government policy could be both useful and awkward, as one arm was kept behind one’s back by the Treasury: this was 'uncomfortable' for management, though not for the blokes on the ground. (2) Keeping the National Data Archive up to date, (which has superseded the '1980 plan' to replace the county series). (3) Maintain a high reputation for excellence. It is now necessary to ask the customers what they want; no longer is there the constraint of paper and film. (4) Expand the market for ORDNANCE SURVEY products. (5) Maintain a lead in the use of technology. Britain is the only country with national 1:10,000 coverage, and has all its 1:1250 urban mapping digitised. Very shortly the whole of Gwynedd, including the 1:10,000 mapping, will be digitised. (About 2 per cent of the OS budget goes on Research and Development.) (6) Provide the needs of users from the National Data Archive. OS can go out to tender for ad hoc survey work, but it is an 'uncomfortable market', with the highest small business failure rate in Britain in the south-west. As OS does not hire and fire, it is necessary to keep the staff occupied. The 'Full Cost Recovery' objective for OS means that everything must be done in the most cost-effective way: all the staff know how much an hour they cost, this being about £25-£26 per hour for a surveyor, excluding headquarters overheads. ('It would cost you that to talk to a solicitor for five minutes.')

Using outside contractors takes more management. In the last round of contracting, OS Northern Region underbid the external tenders, though OS was forced to put the work out. The contractors are doing quite well with the digitising work.

Points emerging from subsequent questions included the following. Although Global Positioning System (GPS) is available to private surveyors, it can only be used for initial control work, not detail work, and the private sector continues to use established methods. The GPS secondary station network is at a density of about 20-25 miles. Once all GPS 24 satellites are in use it may be different, and surveyors may use 'black boxes' to record co-ordinates. GPS developments may render the National Grid (NG) redundant for certain geodetic purposes, though not as a
reference system.

About 22 copies are printed of each conventional large-scale plan: 6 go to the copyright libraries, 3-4 on standing orders, and the rest stay on the shelf. The costs for the 1:10,000 and smaller scales all have to take account of 'payment' for using the large scale archive.

The background to OS digital mapping
Charlie Beattie opened his discussion of digital mapping by remarking that 'the real star of the show is after lunch'. He is in charge of marketing for the region, and the principal digital mapping customers are the public utilities and local authorities. OS has approximately 120 field offices, and the digital archive will be central to everything they will do. The current criterion for change is 20 house units. OS leads the world in digitising, but seems to progress slowly. Digitising began in 1971, and the sale of data [as opposed to digitally-generated 'hard copy' maps] in 1978. Digitising the 1:1250 is effectively complete; about a quarter of the 1:2500 has been digitised, with completion perhaps in 2001, though the date keeps moving forward. A lot of work was done for OS by Welsh Water, for whom it was a learning process, with much work having to be repeated before it was acceptable for the national archive.

OS data is vector data [i.e. it can be modified by the user, and specific features extracted, as well as simply 'read' like a paper map, but Mendip council have asked for raster data [a sort of digital photocopy; once input, it cannot be modified]; OS poo-pooed raster until recently, but software developments have enabled much more to be done with it. But the bulk of OS work remains vector: point-and-line, referred to NG co-ordinates. The most vital thing is the ability to update, which is where OS's real strength is.

The local authorities have their own perceptions of what is value for money: OS likes licensed access, which offers periodical updating, which the local government accountants don't like, as they don't own the data!1

The most obvious application for digital mapping is for map production, where, obviously, it saves time. The main reason for the customers to invest in digital mapping is Geographic Information Systems (GIS), which are in their infancy, and the data for which will come from other than OS. GIS has the ability to provide spatial information for various purposes: to take the case of a road scheme, different on-screen displays can show what the engineers want, what the accountants want, and where there is least political resistance! Local authorities are not always alive to the possibilities of GIS: advice for treating one: 'like limited ability school-children'. There is a cost-benefit argument: details are turned into information, which by analysis and display provides more information, which provides better control.

Here followed an excellent buffet lunch, following which we split into three groups.

Ordnance Survey field activity
Mr Miel's group started off with the new OS video (OS, 'That's where it's at'), featuring Mike Harding, presumably in his capacity as President of the Ramblers' Association rather than as a humorist.2 The main difficulty is in keeping up with change on the ground where it actually happens. Much is done using aerial photography, which is examined in Bristol rather than at Southampton; new detail is traced off, and taken into the field for completion. Name collection is still important; indeed, OS is investigating, as a possible new product, providing co-ordinates for all 24 million addresses in the country. It is possible to define a building position to within 10 cm, and very easily to within a metre, though different users need different positions; the post office is interested in letter-boxes, the utilities in gas and water meters. Digital mapping is stored in sheet format: the computers in use can only store 300 maps, which in practice is a lot, as nowhere near that number are needed at once by the surveyors. Seamless mapping is yet to be a reality, though the software does now permit edgematching, and Southampton wishes to see all digital maps edge-matched by mid-1992. Bristol can call in any digitised map in the country, including work from other regions, it all being held on-line at Southampton. The structuring of data is now more 'intelligent', exemplified by Superplan, where the computer recognises and colours various types of data.

Digital Field Update System
This was described by David Andrews. The quality of SUSI (Supply of Unpublished Survey Information) and

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1 Here followed a promotional video, for which the Editor of Sheetlines has neither the taste nor the space.
2 It includes him interviewing a Sapper in 1791 using the 1795 18-inch theodolite, the last on an outing from Southampton. Admirers of Mr Harding's art will be glad to learn that he did not write the script.
SIM in the past has not been too good; it derives directly from work done out of doors, added to mapping which may be 20 years old. Digital output means a nice clean plot, which can be either single- or multi-colour. At the moment OS has about 36 different feature-codes; this enables, say, all buildings of greater extent than 50 sq metres to be shown in red, and all smaller in black. The areas of buildings, e.g., can be computed from a closed polygon. Residential buildings can also be shown in red. Change-coding can also be incorporated, so that it is possible to print out only features added since a given date; this is very useful for quality control. There is still a role for interpretation: posts-and-chains count as a fence, posts without chains as isolated posts! The field surveyor works on a Temporary Survey Document, covering the area to be revised, (which very often cuts across sheet junctions). Current tolerances are 0.5 metres for graphical and 0.3 metres for instrumental survey. Care must be taken that all the polygons close, otherwise house stipple is liable to run out into the garden, and thence down the road, and may fill a whole sheet! All the software is written internally; and it is updated about once a month! Though many people are working on GIS software around the world, only OS is working on update software. The OS system is still developing, so it is not yet being sold commercially. Digital field update has now been in use for about six years, but it was officially experimental until September 1990. Nationally, there are about 27 workstations at present [May 1991], but there will be a great many more by the end of the year.

The map is only a small part of a GIS: a single water stop-cock can have a dozen attributes. Most potential users don’t need that level of information, and indeed it can actually be dangerous, in that too much technical information can mask the real answer to the question. Dudley council, for example, keep two levels of information, one for public and the other for technical use. OS supplies the map, the utilities supply the rest. NJUG\(^3\) have a system for dialling in for up-to-the-minute information. Complexities arise because of overlapping responsibilities: for a single job British Telecom may have to deal with three water companies.

**Selling the results**

Charlie Beattie described to his group how, when he arrived at Bristol office three years before, they had worked out a regional marketing strategy, which was approved by headquarters: Bristol was required to get £2M in revenue from SUSI and agents sales. He said that they had already realised that, or he wouldn’t have divulged the information! This year there has been a small reduction, but there is a recession. It is partly a question of persuading users to change from one-off payments to annual licensing.

Various methods are employed. (1) Marketing meetings, on the customer’s premises: these are very cost-effective. (2) Visits to specific targets/customers: very labour-intensive. (3) Open days: these are very useful, and work two ways: local people can drop in during their lunch-break, and it is good business for OS. (4) Exhibitions: OS must be at the big ones, or it looks bad! They are not very effective: you get leads, but not necessarily sales. (5) Public relations: OS tries to do it for free. (6) Joint promotions and paid advertising: this is almost all tied to the agents, who usually call the tune. One possibility is to attract publicity by, say, mapping a new shopping precinct. Such was tried with the new Birmingham concert hall: the *Birmingham Star* printed the OS press-release, with due mention of ‘OS 200’; the *Birmingham Evening Mail* was less satisfactory, coming up with 'Map boob wipes out the city's showpiece', and it failed to say anything about 'OS 200'. The budget for all this is extremely modest - £13,000 - but as a civil service department OS cannot afford to appear profligate.

Mr Beattie then demonstrated OSCAR - Ordnance Survey Centre Alignment of Roads - and how it might be used to reach a car-park in Birmingham. Its development was two years too late: OS was inhibited by being a government department, and having to find customers before beginning work on it. It was sold to Wiltshire, as OS’s timescale suited theirs, but other local authorities have prepared their own equivalent. The flaw in these rival productions is the lack of updating, which is where OS scores, as its field staff are at work all the time, and is far more cost-effective. Offering automatic updates will draw back these potential customers.

The day concluded with some general questions. Mr Miell thought that not more than a tenth of the 225,000 basic scale maps are visited by surveyors in any one year. He agreed that the 'By-passed' plans\(^4\) were a 'significant problem'; it was aimed to 'sweep' them for all change before digitising them. He also agreed that large- and small-scale revision had not been very well integrated in the past. Large-scale revision was arranged independently of the revision of the 1:25,000 'Pathfinder' (Second Series).

The transition to Total Quality Management had not been easy, because of the idea that OS was wonderful, full stop. It was 'a hard nut to crack', but it was much easier to promote amongst the field than the headquarters staff.

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\(^3\) Pronounced 'ennjug': National Joint Utilities Group.

\(^4\) See *Sheetlines* 29, p.18.
At the moment progress was encouraging. The move to Executive Agency status wasn’t so much of a problem.

The showing of detail was discussed at some length: no detail is deleted for the sake of it, and occasional *faux-pas* such as a milestone in the middle of a dual carriageway are drafting errors. The problem is rather how much detail to show. A lot of vegetation depiction is left to the individual surveyor’s discretion as to what is right for the particular locality.

The meeting concluded with the Society’s secretary, Mrs Yolande Hodson, thanking Mr Miell and his colleagues for a ‘splendid day’; CCS was ‘delighted by the quality of your hospitality’. This was neither more nor less than the truth; I hope that those who were not present will nonetheless gain something from the foregoing account.

RICHARD OLIVER

*Ordnance Survey: past, present and future.* Proceedings of the Symposium to celebrate the Ordnance Survey bicentenary, held at the Royal Geographical Society, London on 23 May 1991. Chichester: the Survey and Mapping Alliance. ISBN 0-9517487-0-X. [Copies were distributed to those who attended; these proceedings may possibly be reprinted, and it is understood that some of the papers will appear in the Cartographic Journal.]

It is unlikely that for many years past, or indeed for several to come, so many cartographic eminences, luminaries, notables, semi-notables and notables manqué have been gathered together in one place as on 23 May 1991, for what Barbara Bond, President of the British Cartographic Society, announced as a ‘birthday party’. If nothing else, it would have been remarkable sartorially, with several notable scrubfags, such as the Editor of *Sheetlines* appearing in a three-piece suit. Two bow ties and a kilt, the last worn by Mr Beattie of Ordnance Survey, were observed. Also to be seen, and eaten (not all did) was a birthday cake, cut by Peter McMaster, DGOS, decorated with a map of part of the Lake District. (The obvious suspect for the subject matter denies all responsibility.) A few fragments are shown below: this is thought to be the first time that a cake has been reproduced by xeroxygraphy, although, bearing in mind that one Osborne temporarily emerged from obscurity to deny Sir Henry James the honour of inventing photozincography, the Editor will be glad to hear from anyone who can establish a prior claim, either for themselves or others.¹

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¹ No claims will be entertained for cakes xeroxed at or after 10.20 p.m. BST on Saturday, 3rd August 1991.
The papers as delivered sometimes differed somewhat from the published version, which latter forms the basis of the following review; what follows reflects the opinions of its writer rather than necessarily those of the Charles Close Society as a whole. Considerations of space mean that some papers are treated more cursorily than others.

A 'Keynote' address
Following a preface by Barbara Bond, the collection starts with 'Mapping the nation - meeting its needs', by Tony Baldry, M.P., Minister for the Environment and the Countryside. The historical part is not of comparable accuracy to that of the maps: it was in 1862 that the Government finally adopted William Roy's visionary objective and gave Ordnance Survey [!] the remit to produce mapping for the whole country at both large and small scales. ... Some 80 years later it was the turn of the Davidson Committee to steer Ordnance Survey in a new direction. There is no mention that the Davidson Committee was appointed in the first place as a result of strong complaints about the arrears of revision of Ordnance Survey maps, due to the short-termism of ministers largely drawn from Mr Baldry's party, though possibly I am being unfair in drawing attention to this point. Candour compels the admission that most of the rest of this address is taken up with with fairly harmless platitudes; no doubt so great a one does not have to worry about reproducing copyright mapping, or feel the need for a decent intermediate-scale topographical map. This address is strictly for students of politics, not cartography, and one cannot overstate the relief of

Ordnance Survey: past
... which starts with Yolande Hodson, 'Board of Ordnance Surveys, 1683-1820'. This provides a most useful summary of developments leading up to the emergence of the Ordnance Survey in the late 18th century, and although some of the ground has been covered before, there is still much here worthy of wide circulation. I have to say that although Mrs Hodson sticks loyally by '1791' as the 'foundation date', this paper merely reinforces my long-held view that to take the purchase of Ramsden's theodolite as the starting-point seems to be the triumph of form over substance, and that it is really misleading to think in terms of a rigid 'foundation date' for the Ordnance Survey. (I also suspect that had those above him been able to foresee what that £373:14s:0d paid to Ramsden would lead to, they would have told the Third Duke of Richmond that, not being short of a bob or two, if His Grace was so keen in protecting Ramsden from the full rigour of market forces, he could jolly well pay for the thing himself.)

Ian Mumford, 'Monochrome to polychrome at the Ordnance Survey in the 19th century' is also most useful, and though it includes a tour of some familiar Mumford territory, the route is new. An important point is that the Ordnance Survey lagged behind almost every other European country in adopting lithographic and colour-printing...

... which of course were an absolute pre-requisite for the subject-matter of John Paddy Browne, 'Map cover art and the Ordnance Survey's popular image'. Divorced from the slides, this paper loses a good deal, but his Map Cover Art (Ordnance Survey, £10.95) gives one a lot more! (I must admit to some scepticism as to whether the covers really are all that important in selling maps, and I wonder whether the growth in sales after 1918 was not simply due to fundamental increased demand. OS sales also boomed in the quarter-century after 1945, the period Mr Browne considers, with some justification, as the nadir of map cover artistry. The covers of many successful commercial maps, such as Bartholomew's or Geographia's, have often been less than inspiring.)

Ordnance Survey: present
... starts with Michael Ives, of British Gas, 'The application of OS digital maps in a large utility GIS system', which has this much in common with the previous paper, that it loses much away from the slides. There is no compensating publication, though in view of the style of writing, (e.g. 'the major emphasis is now on a carpet of continuous, structured geography ...'; and there are 'time structures'), I suspect I am not alone in feeling this is not the loss to the literature that it ought to be. It is the persistent problem in 'professional' papers; a triumph of form over substance, both in the very existence of the paper and in its content. There is nothing professional in failing to com-

\[2\] Sic. It should of course have begun on the dominant, so in fact Mr Baldry's address was in the sub-dominant throughout, and therefore at best tonally ambiguous. This attempt to be erudite which merely proves the opposite goes back to at least Charles Dickens, Hard Times, opening of chapter 5. Still, I suppose we should be grateful that nobody attempted to orchestrate anything.

\[3\] At the time of writing; they change so frequently these days.

\[4\] But I forgot: HADRIAN!!

\[5\] This is presumably the result of Total Quality Management in the DoE?

\[6\] Luncheon was taken at this point. I have rarely had such difficulties in getting a second glass of wine. Still, as one speaker was lured away for an interview promised to last five minutes, but which took an hour, by which time lunch was over, I suppose I was lucky.
municate as accessibly as possible; though when I come across such verbal furnishings as 'carpets of geography', I do wonder whether I am not the victim of a massive, very deadpan joke. Anyway, look here, these digitised OS large-scale plans are jolly useful to British Gas, enabling them to produce, for example, very interesting diagrams showing inequalities in gas pressure in the mains.

Richard Buxton's 'Geographic information in local government - is the Ordnance Survey really necessary?' also loses something in cold print. Mr Buxton (of Coopers & Lybrand, Deloitte) is of roughly the same age as I, and if his histrionic abilities were as well developed twenty years ago as they are today, the plaudits of the school magazine for his leading part in the school play,7 which some poor chronicler would have to navigate past years later,8 would have been his for the asking. Certainly, this sort of thing is not customary on the platform of the Royal Geographical Society, nor of the other societies concerned with cartography, spatial information and the like, though it might be worth trying. Written out rather delivered extempore, Mr Buxton is less impressive, or memorable.9 What his paper, or performance, boils down to is a complaint that OS digital data is not being made available in the right form. As most of the OS top brass were present doubtless they got the message. Incidentally, Mr Buxton does make a most interesting point, though not one with which I am wholly sympathetic, when he asks why one should pay the same for a digital map of Mayfair and Park Lane as for 'a field in Yorkshire with two sheep and a scarecrow'.10 Curiously, in the subsequent discussion Mr McMaster dismissed this suggestion summarily, though it is the easiest thing in computing to count the number of 'bytes'; even the humble cottage Amstrad does it. Mr Buxton acknowledges that urban authorities would complain; perhaps he pays his poll tax in the country.

Andrew B. Smith, (Manager of Planning, OS), 'Mapping for customers', describes the progress made in carrying out the recommendations of Sir David Serpell's Ordnance Survey Review Committee of 1978-9. It seems to me a fair summary of the position, and, given the obvious constraints of Mr Smith's position as a civil servant, this is one of the papers worthy of wider dissemination. I'm afraid that I must take up one point, of "being there when the customer arrives": where is the 1:100,000 map?91 If Britain is amongst the best-mapped countries in the world, how much worse off must so many of the others be!

Ordnance Survey: future

... starts with Dr M.J. Jackson, Chief Executive of Laser-Scan Ltd, Cambridge, 'Industry aspirations for the Ordnance Survey of the future'. Even a chief executive reports to someone, and Dr Jackson's superiors, reading this, will doubtless say something in the spirit, if not the letter, of 'Well done, our good and trusty servant!'. Laser-Scan being a commercial firm, if with a most high reputation, the rest of us are entitled to be suspicious. Stripped to its essentials, Dr Jackson's paper suggests that the Ordnance Survey of the future be less of a production agency and more of a co-ordinating one. 'Areas which can be cost-effectively handled by industry should be left to industry'. There is not much to back this up, apart from quoting a few recent pronouncements on the importance of GIS to the wealth-creating process. (Laser-Scan dividends?) Two points: first, private industry, at least theoretically, carries a burden which a government agency, under any fair rules, does not: it must make a profit. If Laser-Scan does the job cheaper than, say, Ordnance Survey, then the answer, surely, is that there are probably certain inefficient work practices within Ordnance Survey to be eliminated. Second: Dr Jackson seems to envisage the future Ordnance Survey as more of a co-ordinating and quality assurance agency; but would private industry go along with this, once it had got its hands on the profitable bits? Two or three years ago, in the discussion following a paper at a BCS meeting in London I suggested that there should be in Britain National Map Accuracy standards such as there are in the United States, and Oh!, you should have heard the wails, and felt the fury, as one well-known cartographic figure replied, But who would undertake this? The ORDNANCE SURVEY?!!!

I hope that the other speakers won't object too much if I say that Professor David Rhind, (Birkbeck College), 'The future role of a British national mapping agency' is worth all the other papers put together and shaken up.12 At last we have someone who has considered the problem and speaks openly about it, without a vested interest,13 and with

7 You get the ambience, I hope.
8 I know, I've done it.
9 Connaisseurs of sub-headings and layout might like to seek out the printed text.
10 These are not of course objects permanently affixed to the ground, and this writer cannot recall seeing these features on any OS map. The case of 1:2500 sheet SS 4533 would have been more striking.
11 This customer is getting just a leettle bit impatient.
12 The following was written a few hours before the writer learned of Professor Rhind's appointment as DGOS, and should be read with this in mind, as it would have been heard on 23 May, though of course it now takes on an added significance.
13 Rather the opposite. I hope that exception won't be taken, but when I learned that Professor Rhind was
documentation, though, as he says, it is not easy trying to obtain meaningful statistics about recent Ordnance Survey finances. I do not agree with all his conclusions, in particular that the case for Ordnance Survey continuing to undertake its non-core activities and in-house printing remains unproven, (the same argument applies as for Laser-Scan: Ordnance Survey does not have to satisfy shareholders), but I do agree with the last, 'and most important conclusion, ... that government has made the OS role almost uniquely difficult amongst central government departments by its simultaneous pursuit of annual complete cost recovery and nation-wide detailed map coverage. Only a clarification of government policy will enable OS to achieve consistent and meaningful targets in the future...'. There is not space here to do more than quote selectively; it will be a disgrace if this paper is not widely circulated. ... it is... difficult to form a judgement of whether we are getting good value for money in terms of the inputs consumed,... the entire cost recovery debate is informed by highly misleading figures. Almost none of the costs of assembling the topographic archive... are included as assets in the annual Reports....' 'What any new Director General should do is to commission a study of the replacement cost of the entire useful archive in its present form and in alternative forms, together with the maintenance costs under each option. We need to know the cost of ignoring history if rational decisions are to be made about the shape of the future.' '... the centralism of provision of mapping services - differing from virtually all other nations - has been legitimised by the breadth of usage of OS mapping. The argument is that a single set of products can be used for many different purposes and thus generates very substantial national benefits. Unhappily, "national benefits" is not a very popular yardstick at present, even if it can be demonstrated... the price of OS independence as a government department has been a heavy one since every... thing began to be ruled by the "bottom line": it means that no major government department regards it as its own and fights for it in Whitehall.' Developing Walter Smith’s arguments in a 1979 paper14 Professor Rhind sets forth several reasons why it is at least highly expedient for government to undertake mapping. If OS is to develop new products 'it needs considerable risk capital available'. 'The indications are that OS has an inadequate (or at least an unstructured) "anticipation of need" role compared with some other mapping organisations and is deeply conservative in testing the market.' 'There can perhaps be no objection to additional funds derived from commercial exploitation of tax payer-funded and government-collected information being used to expedite the completion of a task which is desirable but not time-critical. But to risk the success of any data collection process which provides information essential for government's own purposes through inadequate core funding seems both unwise and unreasonable.' There is a useful balance-sheet of OS advantages (such as its substantial assets in already surveyed mapping) and disadvantages (not everyone wants a 'Rolls Royce' service). Professor Rhind concludes that there is 'overwhelming logic' in OS continuing as the collector of large scale data, and at any rate as organiser and arbiter of quality. (Superficially this is practically the same as Dr Jackson’s conclusion; in substance and philosophy it proves to be entirely different) 'The future seems very likely to see a slimmer Ordnance Survey. We can make the reasonable assumption that some staff reductions can be made without disruption to the continuing work of the Survey once all the data are digitised and the organisation is then in a steady state (until new needs and competition perturb it again).' He thinks a reduction in staff from 2500 to 1700 or so probably necessary for 100 per cent cost recovery. He concludes by suggesting that OS divest itself of some non-core (e.g. 1:250,000) mapping and printing, in return for which the government would guarantee at least 50 per cent of annual costs in providing basic topographical information.

The printed proceedings conclude with Peter McMaster, 'Ordnance Survey: the way ahead', the apparent brevity of which was offset by the deliberation of its delivery. The two points of substance are that Global Positioning Systems will facilitate data collection, and that Geographic Information Systems must move towards a common transfer format. He suggests that the use of GPS should be allowed to develop in such a way as to encourage a wide variety of users, enabling any charging to be individually modest. For GIS to be accessible will mean complex support systems.

RICHARD OLIVER


This seminar appears to have been arranged at rather short notice, so that it was impossible to announce it to Charles Close Society members through the normal channels. Nonetheless, a good number were present, for an

one of the six shortlisted for DGOS I thought that, in view of this paper, he could not possibly pull it off. But he has!

excellent day; space precludes an exhaustive report, and so I will try to avoid material which has appeared recently in Sheetlines or elsewhere.

After introductory remarks by Professor Norman Pounds came Professor Paul Harvey, 'British Maps and Archaeology before the Ordnance Survey'. He opened by saying that as far as western Europe was concerned, the map was a late mediaeval invention, and large-scale maps only reached Britain in the mid sixteenth century, and mainland Europe only a little before that. At the same time, there was a consciousness of antiquities, as shown by slides of a twelfth century view-map of Jerusalem and an early fourteenth century one of Rome. England is second to Italy as a source for extant pre-1500 mapping, and he showed slides of mapping of three Lincolnshire villages of the late fifteenth century with historical notes, a view-map of Bristol of c.1480, illustrating its history, and a map-diagram of the Isle of Thanet of the late fourteenth century, illustrating a history of St Augustine; this last includes a boundary determined by the running of a pet deer, a point duly explained on the map. All these proto-maps show a clear interest in both past and present. In the sixteenth century there were three important developments in the history of cartography: the use of maps became widespread; there was a move from the proto-map to the scale-map; and maps were no longer ad hoc: the general reference map appeared. There were many new map-users, and maps began to be made by surveyors, who hitherto had been concerned with written descriptions. The depiction of historical features varied: Saxton's map of Hertfordshire was essentially a surveyed map, and showed only visible features, whereas William Smith was a herald, and his map of the county adds such things as battle-sites to Saxton's base. Norden's Essex of 1594 lacked 'antiquarian rubbish', and was an 'absolutely straight map', whereas his Hampshire map of 1607 includes Roman names and ruined places. The pattern in the seventeenth and eighteenth centuries was for an ever-decreasing number of county maps to include antiquarian information, and such as there was tended to be pushed into the border, either for embellishment or illustration. John Ogilby treated antiquities as he did any other landscape feature: Durham castle and cathedral are not distinctly shown, unlike a castle between Morpeth and Stannington, which was a conspicuous landmark. Benjamin Donn on his one-inch map of Devon of 1765 only shows Roman and Danish 'camps', and then because they are prominent; he omits antiquities on Dartmoor. However, none of this was symptomatic of a decline in interest in the past; it was merely symptomatic of showing what happened to be on the ground, and this was an attitude still prevalent in the early years of the Ordnance Survey.

This was followed by Yolande Hodson, 'William Roy and the Early Archaeological Mapping of the Ordnance Survey'. This provided a splendid panorama of Roy's activity, and it is to be regretted that Sheetlines is not yet in a position to illustrate adequately any of the material displayed. The earliest known map by Roy is a sketch of the field of Culloden of 1746, and it was in the aftermath of this battle that the military survey of Scotland was undertaken. Although Roy was only one of several dozen who worked on this survey, the results are associated with his name; it appears to have been while surveying in the lowlands that his imagination was caught by the many ancient earthworks which he encountered. He used a standard method of depiction for antiquities, a small-scale location map, and a large-scale site plan, a method which had been in military use for at least a century. Many of these surveys include vertical cross-sections as well as plans. The most notable piece of archaeological work of the military survey was the mapping of the Antonine Wall, which recorded much which is no longer visible. In some cases, Roy noted a site when working on the military survey, and returned to it years later to map it in more detail, sometimes also amending the original manuscript of the military survey by scraping and redrawing. During the Seven Years War Roy served in Germany, and produced there some plans of Roman remains which he encountered. On his return to England, he continued to note antiquities whilst compiling 'tedious dossiers' of information for his official work as Surveyor of Coasts, and he continued to map antiquities further north whilst visiting Scotland on family business. By 1773 he had apparently finished compiling the text and illustrations of The Military Antiquities in North Britain, although it was only published, by the Society of Antiquaries, twenty years later, and three years after his death. His interest in archaeology then seem to have lapsed. With hindsight, it is easy to see the depiction of visible antiquities on the early Ordnance Surveyors' Drawings as continuing Roy's work, but there is no hard evidence that this is so; the earliest known OS instructions on depicting antiquities date from 1816, and are probably the result of the collaboration with Sir Richard Colt Hoare in mapping remains on Salisbury Plain, which in itself no doubt owed something to the OS employing a surveyor who had previously worked for Hoare.

Dr Roger Hellyer, 'The Period Maps of the Ordnance Survey: Published and Unpublished', covered some of the same ground as his recent articles, but also included some new information on the physical base maps, which it is intended to publish in Sheetlines 32. Inevitably, this involved much reference to O.G.S. Crawford, and there was more, and without overlap, from Alan Aberg, 'The Ordnance Survey and its Archaeology Officers'. Crawford was the first of these, appointed in 1920, the most far-sighted thing the OS did in that decade; before that OS depiction

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of antiquities had been erratic, with the depiction of deserted mediaeval villages on some early 1:10,560 mapping of
Yorkshire being very good, but with at the same time some 'nonsense' getting on the maps, due to the misplaced
enthusiasm of some local archaeological societies. Crawford took the post because he thought that improving OS
archaeological work would contribute to wider public education, whose interest would be stimulated by a name in
gothic lettering, and raise the profile of archaeology generally. His first job on joining was to remove a large num-
ber of 'fake' antiquities; this touched on place-names, an interest not welcomed by those officially responsible for
OS names. Crawford believed fieldwork to be absolutely necessary, which took his superiors aback, and he seems
to have spent three months a year cycling around, visiting sites. In addition, he offered a support system to amateur
archaeologists, including supplying free maps and even passes under the Survey Act, to gain access to private prop-
erty, and organising a system of unpaid 'Honorary Correspondents'. He saw the possibilities of aerial photography
for archaeological investigation, and as well as procuring photos from the RAF - not easy! - undertook recon-
naissance flights himself, paying his own costs in at least one instance. For much of his time at the OS he was quite
unsupported; only in the 1930s was he given an assistant, and then draughtsmen (for the period maps), a typist, and
finally an assistant, W.F. Grimes, who briefly succeeded him in 1945, though Crawford's effective OS work had
come to an end with the bombing of the OS HQ on 30 November 1940. Early in 1947 Charles W. Phillips was
appointed, and effectively had to build up the Archaeology branch almost from scratch, bar a miscellaneous collec-
tion of maps and air photos. This coincided with the beginnings of the National Grid 1:1250 and 1:2500 resurvey
and of work on the 1:63,360 Seventh Series; it was intended to improve existing information by literature searches,
the system of honorary correspondents (160 by 1954), studying air photos, etc. There were problems with recruit-
ing specialists, but by 1950 the branch had 30 staff, including seven field staff. Organisation was fluid: experi-
mental towns sections were used to work in such places as Salisbury and Winchester, and in May 1951 the whole of
the field staff were concentrated on Hadrian's Wall. Recording was difficult, as the 1:10,560 was not yet available
with the National Grid, which had to be added by hand; a system of index cards of sites was set up, based on the
Grid, which grew to 15,000 cards in 1951 and 35,000 by 1953. The library was reestablished, based initially on Phil-
ips' personal collection. By the mid-1950s Phillips had a well-organised system of recording and field staff, and
the flowlines to ensure that the information collected duly appeared on published maps.

There then followed some discussion, in the course of which Alan Aberg remarked that one of the difficulties with
pre-Crawford OS archaeology was that when the 1:2500 resurvey of southern Britain was made, it was without
reference to any recording on the 1:63,360 Old Series. Dr Catherine Delano Smith observed that the inter-war
'Period maps' now themselves reflect a historical period, and Sir Cyril Fox's divisions of Highland and Lowland
Britain. Alan Aberg observed that the depiction of relief on current historical mapping was complicated by the use
of modern backgrounds, the relief being more discreet on the maps of historic towns than on, for example, the maps
of Ancient and Roman Britain, the latter not entirely satisfactory in his opinion.

Proceedings after lunch, now chaired by Professor John Evans, commenced with Jim Page of Ordnance Survey on
'Archaeological and Historical Maps: Publishing in a Commercial Environment'. He opened by saying that he
thought 'marketing' a better word than 'publishing'. In the early 1980s OS carried out extensive market research
which indicated that many people thought that the maps were excessively complicated, and these far outnumbered
the 'buffs' who revelled in the complexity. The British map and guide market is at present worth about £10 million
yearly, £5 million being for atlases and £3 million for tourist guides. The main purchasers are male, aged 25 to 54
and in social categories A to C2. This is the background against which OS has been reappraising its small scale
maps. In the past such as the Period Maps have been bought for educational and reference purposes, but sales are
falling and production costs rising; these maps are not reaching a popular market, and cannot be justified in the
move to Full Cost Recovery. The objective for OS 'commercial' activity is a minimum return of 110 per cent; this
is only possible for the historical maps by going for a wider market. The brief is to produce mapping which is:
practical, being easy to read, with historical data shown against a current background, enabling comparison of then
and now; informative, with both graphic and textual information, though there will always be compromise in the
level of detail to be shown, and too much detail will actually deter some potential purchasers, quite apart from the
production costs involved; attractive, to look at as well as to use, with 'Historical Map and Guide' used rather than
'Archaeological' in order not to put people off by something too 'specialised', and with a colourful cover to attract
attention; and cost-effective, having to recover 110 per cent of cost, at a price the market can bear. The latest edi-
tion of Roman Britain cost OS £65,000, and Viking and Mediaeval Canterbury £61,000; the national maps at pre-
sent sell for £5-90 each, and the town maps for £3-95. The first map produced was Londinium, in 1981, and there
are now nine in the series, including Bath, Canterbury and York, produced in collaboration with the RCHM. Dis-
cussions are under way for maps of Chester and Oxford, subject to viability. There is also the possibility of pub-
lication on CD-ROM.

Tom Hassall then described 'The Recording and Mapping of Archaeological and Historical Information in
England, Scotland and Wales.' In 1983 responsibility for this was transferred from the OS to the RCHMs;
previously, over 75 OS staff had been employed on archaeological work, mostly on maintaining the card-indexes. The RCHMs were established in 1908, and had their own survey programmes, now integrated with the work formerly done by OS. The English historical monuments record is now fully computerised. There are three groups in RCHME collecting data: one for literature and museum searches, a second for air photo work, and a third for field investigation and survey; all relevant data is passed to the OS. The policy for showing sites on standard map series has changed; many invisible sites are no longer shown, unless of national importance, on the basis that what is interesting is what you can see; and it deters the metal-detectors. The terminal date of 1714 for 'antiquities' has now been abandoned, so that even World War II relics are sometimes shown. Collection mechanisms continue to evolve. 'Antiquity models', simplified versions (particularly since the late 1980s) of the field surveys, are prepared following specific instructions from the OS, at the OS basic scale. Antiquity information is most visible to the public on the small scales, and so it tends to appear there in simplified form in advance of its appeared on the large scales. Until recently survey was by blocks, so that the OS Archaeology branch and field staff could work together in England, though this happened less often in Scotland and Wales. The RCHMs are in the OS production flowline, as they are responsible for proof-checking work, an often considerable labour. The policy for OS archaeological and special maps was set out in 1985-6, of producing small-scale period maps and larger-scale maps of particular districts, to be carried out once the mapping could be digitally generated. The new town maps have been particularly well received. It is intended that these maps be of popular appeal, but of the highest academic standards. Looking ahead, by the mid-1990s all three sets of national monument records will be computerised, and there are new publication possibilities, such as maritime and industrial archaeology. The buildings record could be made available on CD-ROM in relation to a map base. The three Royal Commissions have now agreed a new policy on producing period maps, and have been discussing with the OS the best way for archaeologists and historians to make representations to the OS.

There then followed some discussion, which struck this observer as tending to generate more heat than light, as to who should choose what antiquities are to appear on OS maps; it was apparent that a good many of those present were not entirely au fait either with the policies which guide the OS at present, or with the possibilities and limitations of modern map production techniques, though it must also be said that the OS representatives were hardly as forthcoming as they might be as to the possibility of publicising the guidelines under which they work. One distinguished gentleman asked whether he was the only one dissatisfied with archaeological depiction on the 1:50,000 maps, and observed that the recent map of Hadrian's Wall was a calamity; another observed that Britain was no longer the best mapped country in the world, and that the historical town maps were a 'honeypot policy', 'pandering to the tourist trade'; a third gentleman congratulated the OS on its marketing, deplored the apparent lack of interest in accuracy, and claimed that the Hadrian's Wall text had been written by a Southampton schoolmaster, and a better way was to be had as a free handout. Jim Page said that OS could only show such information as the RCHMs passed on; an young lady employee of OS said that on the 1:10,000 it was necessary to show what is actually on the ground today; Mr Leech of RCHME said that the RCHMs could only pass on information on those sites which had actually been surveyed, and many earthworks, etc, have not yet been adequately surveyed; Mr McMaster, DGOS, said that the OS made general purpose maps, and tried to cater for special interest groups, but got no government support the historical maps, and was very open to co-publication proposals.

The final paper of the day was Dr Robin Boast, 'The Map as the Medium: the Potential of Graphical, Object-orientated Systems on Landscape Studies'. Dr Boast opened by saying that he didn't believe in computers, though he used them; he did know that they could help him as an archaeologist. Unfortunately, the remainder of his paper did not strike me as quite so lucid, and, to judge from the subsequent mild discussion, I was not alone in this. As with Mr Ives' paper on 23 May, one gathered that these computers were a most useful thing, and could produce all sorts of pretty charts; but I knew that already. Half an hour of advice on where to drum up the money for the equipment to produce these wonders might have been more to the point. In the subsequent discussion, Dr Boast's definition of a map was questioned by both Professor Harvey and by Dr Delano Smith, who uttered 'a very loud squark', (her phrase), and said that it was necessary to define what kind of map: computer map, scale map, or what? Until the sixteenth century every map was a specialist, MS map: only with the invention of printing did we get the general-user map. There is a limit to what could go on a map; we needed more maps, not less. This appeared to put an end to a discussion of Dr Boast's paper, and the audience turned once again to the tastier meat of OS-baiting. A gentleman said that OS were right to put marketing at the top of their list: but how was popular appeal to be defined? 'Not so tasteful, in my opinion'. With clever design, it was possible to have four, five or six different levels of information. Mr Page said that the design of the historical maps was actually quite complex. The questioner then referred to the Bartholomew town plan of Edinburgh, which had lots of information, was very clear, and was as good as OS, who hadn't got it right. Nor did he consider the covers as good as when artists had been employed. Mr Page said it was possible that artists would return; things never stood still. A gentleman said that the marketing criteria were too tight, and that there was a need for the archaeological community to have a voice. Mr McMaster said that the OS had eight consultative committees, representing a great many interest groups; and,
for example, landowners and ramblers don't see eye to eye. It appeared that, following the Hadrian's Wall difficulty, a new committee had been established.

RICHARD OLIVER

Charles Close Society Annual General Meeting,
held at the Royal Geographical Society's house, London
20 July 1991

Nearly ninety members, that is nearly a third of the total paid-up membership of the Charles Close Society, attended the Society's tenth annual general meeting. The business part of the proceedings included the award of Honorary membership to three members, Colonel Richard Arden-Close, the only surviving son of Colonel Sir Charles Arden-Close, and Campbell Ballantine, now retired from Ordnance Survey, both of whom were extremely helpful in the early days of the Society, and who have continued to be supportive ever since, and to Guy Messenger, who was until earlier this year the Society's Publications Manager.

This was followed by Tim and Elaine Owen, who are writing the 'popular history' of the Ordnance Survey, due to be published early in 1992: Tim started in Ordnance Survey as a leveler, and Elaine works in the publication branch. They gave us a talk which covered things which they had unearthed, but were unable to include in the book for reasons of space, including a large collection of photographs, including a number of OBOS (Overseas Branch, Ordnance Survey) taken in 1918, which only came to light last year, when they were produced by a representative of a family with five generations of OS service. They have absolved William Roy from the taint of having a natural son, (a fortnight earlier Yolande Hodson had absolved him of Jacobitism), and the disclosure that one of Major-General Mudge's descendents works for the BBC. They quoted John O'Donovan's account of his interviewing a centenarian farm bailiff at the point of death; several of his neighbours were under the impression that he had died already. Sir Henry James was described as the man whom everybody loves to hate, who kept his workers' noses to the grid- or litho-stone, and Sir Charles Close as giving pleasant, orderly leadership, and as warm and sympathetic to World War I sufferers. There followed readings from several letters written by a frustrated leveler, working in Liverpool in 1915 on the Fundamental Bench Mark there, doing the rounds of the city's numerous railway stations, hoping to collect a box of bolts consigned to him. There were also readings from Brigadier H.S.L. Winterbotham's Sidelights, his unpublished handover notes to his successor,1 Brigadier (later Major-General) M.N. MacLeod, who found Winterbotham's style irritating. Amongst other things, Winterbotham referred to 'certain pestilences', which included the map-publishing house of Bartholomew. The talk finished with Thomas Colby's experiences in the house of Mrs Loony in the Isle of Man; apparently there are now seventeen Loony's in the Manx telephone directory. Our chairman, Peter Clark, commented at the end 'That was perfect', an encomium which this observer heartily endorses.

In the afternoon there was the usual map-market, which included John Paddy Browne signing yet more copies of Map Cover Art, and a stall selling other OS bicentenary offerings, including umbrellas, (not needed that day; I brought one to the meeting and bought one there, so went home with two, the sun shining brighter than ever), and an opportunity to inspect the joint CCS/RGS OS bicentenary exhibition, 'An inch to the mile'. I think it will be agreed by those who attended that it was a most successful day.

RICHARD OLIVER

1 The original of this is in the Ordnance Survey library; and this Editor of Sheetlines very much hopes that the Society will do its bit in bringing them to publication.
The Charles Close Society Annual General Meeting
Illustrated

The Annual General Meeting was remarkable not only for the large number who attended, but also for two ceremonies. The first was the cutting of another Ordnance Survey bicentennial cake, once again depicting the Lake District, but scoring over the 'SMA' cake by including 'step-layers' in green and brown, and a cross-section. A fragment of this cake is illustrated below, once again using the wonderful process which may be called provisionally, ('Provisional Editions' being echt Ordnance Survey), PHOTOCAKEOGRAPHY, a process which, it must not be forgotten, is exclusive to Sheetlines, and, indeed, was developed especially for it, (and which, being of somewhat limited application, is being flogged for all it's worth). The second ceremony was a presentation to Yolande Hodson, the Society's outgoing Secretary, in recognition of her work for the Society since its formation. This took the form of a boxed copy of One-inch Seventh Series sheet 137, to date the last Seventh Series sheet printed by the Ordnance Survey, together with a copy of the version of Richard Oliver's booklet on the Seventh Series prepared to accompany the Ordnance Survey boxed sets of these maps.

Sheetlines also offers a photograph of the participants at the meeting at Bristol on 11 May, as well as of other scenes at the Annual General Meeting. This includes what would have been a splendid view of the Ordnance Survey stall, were it not for the crowds in front of the Charles Close Society stall, eager to buy their back issues of Sheetlines, on which a vast sum (both of the Society's capital, and the Editor's free time) has been expended, nothing being too good for THE CHARLES CLOSE SOCIETY. The Ordnance Survey stall was selling umbrellas, amongst other things; these are magenta and white, and, opened out in conditions of precipitation, cannot fail to draw attention to the owner. The Ordnance Survey was also selling Rugby shirts, in the same colour scheme, and bicentenary ties, with the logo near the bottom, which is an inconvenience for those such as the Editor who favour waistcoats or pullovers. Also committed to film and developed by Boots are several of the Society's Committee Members, enabling (reproduction permitting) ordinary members to recognise them in the street.

Photographs c Copyright Richard Oliver
Full Cost Recovery in operation: on the left, David Watt presides over the Charles Close Society stall; behind him, the Ordnance Survey are selling umbrellas, amongst other things; a prospective purchaser examines Map Cover Art; on the right, potential purchasers inspect Guy Messenger's completion work on the One-inch Old Series carto-bibliographies [negative R.92/10]
Yolande Hodson, outgoing Secretary, and Peter Clark, first and so far only chairman, cutting the cake. [negative R.92/20]

An after-the-cake-cutting scene, containing very little cake, but a high proportion of Cartographic Notables [negative R.92/23]
From left to right: Dr Roger Hellyer, the new Membership Secretary; John Paddy Browne, author of Map Cover Art; Elaine and Tim Owen, authors of the popular history of the Ordnance Survey; David Archer, the new Society Secretary; Yolande Hodson; Peter Clark. (The Editor of Sheetlines is to be seen behind the camera, for those able to perform the necessary reversal.) [negative R.92/32.]
REVIEWs

The Old Series Ordnance Survey Maps of England and Wales, Volume 8, Northern England and the Isle of Man, with introductory essay by J.B. Harley and R.R. Oliver and carto-bibliography by Richard Oliver, Lympne Castle, Harry Margary, 1991, 34.5 x 24 cm, pp. lxxii, 126, illus, price £25 (plus £4.00 p&p), hardback, SBNA 0 903541 45 9.

Numerically, if not quite chronologically, this is the last volume of Harry Margary’s monumental series, and after seven instalments in the same vein a reviewer can do little but repeat what readers already know. The introductions have been written by Brian Harley, with Yolande Hodson collaborating in volumes one to three and Richard Oliver in volumes six to eight, and all have been superbly illustrated by Rodney Fry. Together they form the most lucid, comprehensive and scholarly history ever published not only of the Old Series but of virtually the whole Ordnance Survey up to 1874. All the authors are established masters of their subject. Perhaps their hardest task has been simply to keep their narrative under control, and in particular to match the regional arrangement of the published facsimiles with a stream of historical events that was for the most part essentially national. By some mysterious literary sleight of hand they have succeeded. Topics of general interest, like the copyright issue, can be traced to the appropriate volume without too much difficulty, and all seven essays can be read consecutively with almost no sense of either repetition or omission.

As it happens, volume eight presents few problems in this respect. The one-inch sheets for northern England are separated from their predecessors not only by a simple east-west boundary - the famous Hull-Preston line - but by two great historical watersheds, the battle of the scales and the battle of the hills. From 1847 the Old Series was derived from Ordnance Survey maps of 1:10,560 or larger. Thomas Colby, in a characteristically ingenious argument, had justified the new scales as an opportunity for lightening the detail on future one-inch sheets. Nobody asked him how often small-scale cartographers had been known to take such opportunities. In the event, the reduced one-inch was predictably crowded - though not overcrowded, unless we apply this term to hills that had obviously been sketched at the full six inches to a mile. Any complaints under this last head were anticipated by the decision to publish a second version of the map with relief shown only by the new-fangled contours and by spot heights. Harry Margary has remained faithful to the hachured edition, but the “outline” form is illustrated on page 11 and given parity of treatment in the cartobibliography.

There is room for comment on only one point of detail in Harley and Oliver’s excellent introduction. The curious layered sheet shown on page xxvi has many unpublished counterparts, made for use in the Survey’s Dublin office as a guide to the density of shading required for the one-inch hill map. The best explanation for the oblique lighting of the contours on these Irish “zone cards” is that the draughtsmen using them were expected to modify their shading by a north-west sidelight. How this connects with British experience is a question for others to decide. Nor is it clear how the layered contours were related to the earlier experiments in relief depiction described (but unfortunately not illustrated) on page 144 of Close’s Early Years.

After the essays come the cartobibliographies, started by Harley and Hodson, continued by J.B. and B.A.D. Manterfield, and now in the course of completion by Richard Oliver. In the present volume this heroic enterprise has grown to more than five times its length (sheet for sheet) in volume one. A major cause of its expansion has been an increase in the number of bibliographical units to be processed. From the 1830s the Survey made life considerably more difficult for future scholars by publishing the one-inch map in quarter sheets rather than full sheets. Then there is the need in northern England to distinguish hills, outline and sometimes unfinished impressions. Another factor is the much larger number of repositories now contributing to the collation. It is hard to turn these closely packed pages without speculating, however fancifully, on the prospect of a complete Old Series census.

Of the facsimiles themselves one need say only that even the darkest hachuring maintains the Margary standard. When volume 6 for Wales appears in 1992 the whole series will take its place at the summit of English map-historical achievement in the second half of the twentieth century.

J.H. Andrews

When the 'Preliminary Edition' of Sheet 78 was reviewed in Sheetlines 27 it was observed that it represented a revolution in Irish cartography. A superficial glance at its successor might suggest that it was just a smartened-up reissue using brighter printing inks and offering its reader a lot more tourist-directed information on the map face, in the margin and on the reverse. Closer examination reveals that not only has a readjustment of the sheetlines brought the whole of Lough Leane and the town of Killarney onto this sheet but that there has also been an extensive revision of the cartographic specification. (This incidentally meets most of the criticisms made in the previous review.)

Relief representation still depends upon uniform 10 metre contours but these are now supplemented by a close stipple to denote cliffs and by spot heights placed on almost all summits as well as on many prominent spurs. The needs of mountain safety are also served by fine black lines representing walls that run up the mountainside above the limits of cultivation, (but these are not explained in the map margin). The use of lighter colours for contours, water and woods, as well as the disuse of ruling, has improved the legibility of names while, offshore, areas that dry out at low tide are now stippled. Three categories of woodland are recognised ('Coniferous Plantation', 'Natural Woodland' and 'Mixed Woodland'), and six categories of road, track or path. Additional tourist-directed information on the map face includes the boundary of the Killarney National Park and the Kerry Way, helpfully distinguishing those sections that are waymarked from those which are not.

There is a very comprehensive key to the symbols (apart from the curious exception noted above) in the margin, and these are explained in Irish, English, French and German. The explanations of the grid, magnetic data and the very comprehensive sheet history (OSGB please copy?) appear in English only. Cartobibliographers may be concerned that whereas the history note refers to the map as First Edition 1990, the Government of Ireland copyright note is dated 1991. Part of the margin is occupied by the integral cover, the front of which displays a photograph of The Macgillycuddy's Reeks, while on the back there are two index diagrams, one showing all Ireland and the other Kerry with the western sections of Counties Cork and Limerick at a larger scale.

The reverse of the sheet is devoted entirely to tourist-directed text. Much of this appears in three languages (English, French and German), but 'The Mountain Code' and 'The Kerry Way' (a descriptive itinerary) appear solely in English. This reviewer has suggested elsewhere, tongue in cheek, that printing such information on the back of a map serves the producer's commercial objectives by ensuring it remains usable at the end of one holiday fortnight! In this case, while the information is well presented it contains much that would be more appropriate in a general Irish tourist brochure. If the latter had been omitted perhaps French and German rambers could have been given more encouragement to seek out the Kerry Way.

Winterbotham once suggested that the cartographic reputation of the Killarney one-inch sheet owed as much to the finger of God as to the hand of man. The new 1:50,000 map shows the fine detail of His handiwork with a completeness and accuracy not previously attained. For this we can thank the new technology and the uncompromising way in which it has been exploited by OSI. What the new map fails to do is to convey to the eye the degree to which these mountains dominate their surroundings. A comparison could be made with the treatment of the Cuillins, and their neighbours, on OSGB's 'Island of Skye' Half-inch Special District (Relief) Map of 1932. Although in geometrical terms the basemap material then used was inferior to the data exploited by OSI, the combinations of layers and shading employed served to create an immediate vision of how these majestic mountains lord it over their neighbours and give a better feel for the landscape overall.

These remarks are not intended to belittle OSI's efforts but rather to sound a note of caution, lest as more and more topographic maps are derived by computer technology from digital databases, the achievements of traditional cartography may be discarded for the convenience of their producers; much as Henry Ford said of his Model T: 'You can have any colour you like so long as it is black'. In the meantime we must welcome OSI's efforts to develop and improve upon their 1:50,000 specification and look forward to seeing the first of the 1:25,000 sheets that they promise are to be produced for selected areas.

C.I.M.O'BRIEN

References


[As well as the innovations mentioned above, the following appear on this sheet: voltages on power lines (see e.g. V 976944), railway mileposts with mileages (see V 965925, e.g.), and clearances, in metres, through underbridges (see V 967921, e.g.). These last are a novelty on a map in these islands but have long been a feature of the Michelin 1:200,000 of France, and indeed the possibility of providing this information, notably for the giraffe-transporting classes, was mentioned in an Automobile Association TV advertisement a few years ago.

Mike Miller advises that a 1:25,000 map, 'Macgillycuddy’s Reeks', has just been published by the Ordnance Survey of Ireland in conjunction with the Dermot Boucher Hayes Commemoration Trust, available separately or in a plastic case with a booklet with twelve walks in the area, described by John Murray. It is hoped to include a review in a future issue.]


In Sheetlines 28 I observed that Harry Margary's *The County of Kent* in 1801 marked a new departure, being a facsimile in floppy atlas form. Though true for Ordnance Survey facsimiles, that was generally more enthusiastic than correct, as, for example, Prior's 1777 Map of Leicestershire was reissued thus in 1984. Nonetheless, 'floppy atlas' is still synonymous with the bewildering variety (in format, if not of basic cartography) of large-page road atlases turned out by the Ordnance Survey, Rand McNally, Bartholomew and others, which presumably owe their immense popularity less to their page size and more to their inexpensiveness. If 'floppy atlas' is ever to mean anything less ephemeral and more up-market, then it will in part be due to the present publication, which extends the volume of Ordnance Survey facsimiles into much less familiar territory, both in location and subject matter, than one is normally accustomed to.

Peter Chasseaud's interest in Western Front mapping and survey will be well known to most CCS members, and, apart from a number of articles in *Sheetlines, The Map Collector* and elsewhere, he has already issued a list of the 1:10,000 Western Front trench maps, (reviewed in *Sheetlines* 18). This work is preparatory to his publishing a full-scale history of Western Front survey and mapping, the sources for which are extensive, and which should be a major cartographic historical event when it appears. Many years ago, he conceived the idea of an atlas of Western Front mapping, and here it is. Although expensive by the standards of the floppy road atlas, *Topography of Armageddon* is cheap in relation to that of original trench maps, and has a permanent value, though if you think that a floppy atlas ought to be ephemeral you can take comfort in its being issued at the time of the 75th anniversary of the Battle of the Somme. The memorial dedications on the title page show that it has a more long-term value.

The main bulk of the work is nearly 200 pages of whole-page reproductions of Western Front mapping, partly in single-colour whole tone and partly in half-tones, predominantly at 1:10,000, though with some 1:5000, 1:20,000 and 1:40,000 coverage as well. Most of the originals have been drawn from the compiler's own collection, though a few from the Public Record Office have also been used. Although most of the originals were in more than one colour, the cost of colour reproduction would have been prohibitive, and in any case there is far less of a problem with areas of flat colour than there would be in reissuing ordinary coloured British OS maps in this manner. The captions to the extracts are brief, but help set them in context without going into details which are much more fully and satisfactorily covered elsewhere.

The maps are of course the main attraction, and as with every facsimile they will sell it rather than any verbal trimmings, but for those of us for whom maps are interesting as medium as well as message there is a most useful prefatory essay on the development of Western Front survey and mapping, which merely sharpens the appetite for the book when it eventually appears, together with what is modestly described as a 'Preface' by Alan Sillitoe, who proves to be a map and trench-map enthusiast as well as a well-known author. The 'Preface' is in fact a most

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absorbing essay on map- and trench-map discovery, and can stand well by itself. Indeed, it might inspire a book of map-discovery essays by other writers, which would provide an interesting sidelight on cartographic history as yet practically absent. At the back there is an excellent note by Ian Mumford on 'Trench maps in the public domain', which as well as indicating where to find the maps, indicates how the various collections developed.

This atlas should prove most welcome to those with an interest in the cartographic as well as the military history of 1914-1918. It is cordially recommended.

RICHARD OLIVER

*Ordinance Survey 1:625,000 Routeplanner map, BB Edition, 1991*

Thus another OS mystery has been revealed: what would happen with the letter print code system once Z had been reached? We learned of AA in 1988, but was this to be succeeded by AB, or BA, or BB, or something else? Now we know. This is the fourth Routeplanner to be digitised, and after the oversimplification of detail on the first, the OS has gradually continued to rationalise the information given, not all of it, of course, to do with roads. In the Z edition, minor roads were reinstated that many considered should never have been removed in the first place. In the AA edition, railways were reinstated, after nine years' absence. The OS has gone one stage further now, and added the Channel Tunnel (at least as far as the loxodrome between French and National Grids - then what happens?). For some reason, the names of the English Channel and North Sea had both got lost: these have now been reinstated.

There are two important changes to road information on this issue: the illustrations of motorway junctions with limited interchange have been replaced with a list, and all telephone boxes have been cleared from the map. This is probably an extension of OS policy that this is a map for planning routes, and is not designed for use in the car. One would hardly plan the use of emergency telephones. They remain in the OS atlases, but I cannot help feeling that this map is used in the car rather more than the OS suspect, and the deletion of these telephones here is a retrograde step. They do not clutter the map, and the 1:625,000 database from which the map is derived must keep their locations up to date with considerable ease.

Some slight liberty has been taken with the revision date of road information (November 1990), in that the M40, not completed until January, is shown as open. No-one could complain at that, but it is a pity that the enormous amount of ancillary road re-numbering and re-classification that accompanied its opening has not appeared on the map. Also shown as complete is the M20 Maidstone-Ashford, still unopened in April 1991. There are other minor errors, and perhaps members will identify others known to them by personal experience. I would cite seven. The "proposed opening date" has been omitted from the "Motorway under construction" entry on the south sheet symbols panel (the natural corollary to having shown as open the only unopened ones?). As to roads, the M42/M5 interchange is marked as limited: this is no longer so. The continuation of the M42 around Ashby is now the A42 (a road number last in use before the war), and is a dual carriageway. The A46 dual carriageway leading from the M40 towards Stratford should end at the junction of the A46/A439. I sympathise with the OS over their problems in mapping the new bypass around Alcester, since in the space of three miles, the Ministry of Transport has contrived to use two lane road, wide two lane road, four lane road and dual carriageway. But it would be of assistance to users if the Routeplanner had at least depicted the bypass as attached to the Stratford road, and detrunked the road through Alcester itself. The dual carriageway into Newcastle upon Tyne from the north should continue along the renumbered B1318 south of the new A1 western bypass, as is demonstrated by the Newcastle town inset map. North Oxford roads are extremely complicated at this scale, but it is incorrect to show the A40 joining the A34 as a continuous dual carriageway: the A40 becomes single carriageway west from the Banbury Road junction.

Finally, I cannot resist recommending to students of OS methodology the depiction of the A33 Winchester to Southampton road, which is currently being upgraded from dual carriageway to motorway.

ROGER HELLYER
Some bicentenary reviews


The Ordnance Surveyors’ Drawings (OSDs) are the surviving record of the field surveys made between c.1784 and 1837 of southern Britain which in due course provided the basis for the published 1:63,360 Old Series map. They are mostly at 1:31,680 scale, though limited areas are at 1:21,120 or 1:10,560. A few have gone missing, but all the rest, some 350, are held by the British Library, Map Library (BLML). Although the basis for the Old Series, the published maps frequently omit certain details, such as field boundaries or land use, and are often in a later state of revision. The OSDs are thus an important source in their own right, filling a gap between the first wave of 1:63,360 county surveys in the later 18th century on the one hand, and the second wave of county surveys, and the earlier publications of the Old Series, in the first third of the 19th century on the other. Though the published Old Series maps are now well served in facsimile, by Harry Margary (early states) and David & Charles (mostly later states), the OSDs have hitherto got no closer to a mass audience that the occasional illustration.

Early in 1990 Research Publications of Reading issued on microfiche the whole of the surviving OSDs. Although welcome in principle, the enterprise was flawed in practice, as potential purchasers were confined to libraries and institutions, fiche readers being hardly a common domestic adjunct, and the fiche were monochrome negatives, of often highly coloured and heavily hachured or hill-shaded originals. For conservation reasons, these fiche, or else bromide monochrome positives, are what one normally has to use at the BLML, and so the situation cannot be considered at all satisfactory. If anything Research Publications aggravated rather than solved the problem.

Now we have a taste of something better. Whether they were inspired by the Research Publications issue, or by the official bicentenary of the Ordnance Survey, I do not know, but the London Topographical Society have issued four of the drawings (numbers 127, 130, 151 and 152) in coloured facsimile. Coverage is off-centre, in that it extends south-west to Effingham, but north-east only to the southern fringes of Epping Forest. I can find no mention of photographer or printer, but whoever was responsible has done an extremely good job: no better start in reproducing rather than travestyng the OSDs than this could be imagined. One has the real feel of the originals, including the occasional cracks and chips on the paper. Purchase is very strongly recommended. Although the format is large (about 62.5 by 89 cm) two of the drawings have had to be divided (there is a small overlap), but however one looks at it, four drawings at £6 each or six at £4 each, they are very good value for money. They can readily be removed from the soft covers for display, mounting or what-you-will, though being on heavy (about 150 gsm) paper they won’t bender-fold readily.

The introductory by Yolande Hodson is of the standard we have come to expect from the leading authority on the OSDs, and though it inevitably overlaps to a degree with what has been written elsewhere, it includes detailed notes on each drawing, including some notes of differences between them and the published maps. Though the cartobibliography of the published maps may be approaching completion, it is apparent that another big job lies ahead, of investigating changes between the OSDs and the published maps and (where they exist) the intermediate revision sheets. The essay includes an account of the measurement of the Hounslow Heath base in 1784, together with several illustrations of geodetic operations: this is regrettable but inevitable, in that Paul Sandby’s famous depiction of Ordnance surveyors near Loch Rannoch c.1749 had few successors before the 20th century. For a long time the 'Ordnance Survey' image was that of the 'Great Trigonometrical Survey', and it is somewhat ironic that what is being celebrated in 1791 is a date far more important to the geodetic rather than the topographical side which is what most people associate with 'Ordnance Survey' and which has always consumed far more of the effort.

So far, so good. I suspect that most purchasers will be interested in the message rather than the medium, of London 190 odds years ago, and they won’t be inconveiniened by the extraordinary way in which Mrs Hodson’s essay is presented, on three pages each of the same massive dimensions as the drawings! The only to read the introduction is to lay it on a large table, or a bed, and bend over. Even a comparative youth such as I is likely to be more than usually anxious to hurry to the bottom of each column, and I can imagine some potential readers losing all patience. Overall, this publication is far more domesticated than the Ordnance Survey's boxed reissue of the Seventh Series, (it can be rolled up, for instance), but the OS issue at least has the introductory essay in an A4 sized booklet, and something similar would have been most welcome here.

Still, please don’t let that discourage you from purchasing: I gather that margins have been run rather close, and that the London Topographical Society is anxious for a rapid turnover! Despite that, I hope that this will not be a flash in the pan, but rather that it will be the first of a long series of reissues of the OSDs by enterprising publishers,
with, of course, the aim of having the whole permanently available, in a form commensurate with the importance of the originals.

Of course, there is a yet more pressing facsimile need: for the issue of the Military Survey of Scotland (the 'Roy map') of 1747-55, also held by the BLML, and in an excellent state of preservation. Once again, we really need the whole map, but a set of half a dozen extracts covering the principal centres of population, on the model of the facsimile under review, would be a good start. Anyone game?

RICHARD OLIVER


David Archer's reprinting of the 1924 Ordnance Survey catalogue represents a significant new departure. Hitherto, most reprinting of Ordnance Survey material has been restricted to the maps themselves, facsimile reproduction of catalogues and indexes being rare.

The purpose of this review is not to so much to provide a critique of the content of this catalogue, since its reproduction in a virtually unaltered state puts the choice of the content beyond editorial decision. Rather, this review examines the interest and utility of the information it provides to the map collector and to the historian: to this end, it assesses the choice of this particular catalogue for reprinting.

This catalogue effectively forms a comprehensive guide to virtually all Ordnance Survey maps and publications issued from the Survey's foundations in 1791 until the volume was issued in 1924 including many superseded publications. Previous catalogues had been rather bulky affairs and separate editions were published for Scotland, Ireland, and for England and Wales. The 1924 catalogue remained the only such comprehensive guide to the Ordnance Survey mapping for the whole of Great Britain in one volume until a new style and much abbreviated successor came to be produced annually from 1967. The volume provides detailed descriptions of the content of each main map series from one-inch which it notes 'constitutes a complete record of the topography of the country'; to the 25-inch maps on which it is boasted 'all field enclosures are shown'. It also provides county-by-county listings of information on the 6-inch and 25-inch county series surveys, dates of revision and second revision. In each county, sheet numbers are given of 'plans too open for publication' and of 'partially filled plans' for sale at reduced prices. This reprinting also incorporates some index diagrams to small-scale map series which were not included in the original catalogue, thus enhancing still further its value as a source of reference to the map historian and collector. As a further point of interest, it should be noted that the catalogue was unique in having a decorative cover, a feature which complements the newly fashionable interest in map cover art.

This facsimile also contains much material which makes it of interest to those with concerns beyond the history of government mapping. The list of 'Agents' is a case in point, showing how the map trade's distribution networks operated at the time. The main body of the catalogue also includes the prices of the maps in various styles from paper copies to those 'mounted on linen in sections to fold'. The printing of prices in the catalogue gives a glimpse of those luxurious days of low inflation when the inclusion of such material would not unduly shorten the shelf-life of the publication.

The volume even contains information of novelty interest on the ephemeral publications of the Ordnance Survey including a number of peculiar cartographic items such as the *Baronial maps of Ulster*, being a facsimile of the 1609 original; and even some wholly unrelated non-cartographic wares such as the *Black Letter Prayer Book*.

In the interests of balanced criticism, it should be noted that the 1924 catalogue, unlike some of its predecessors, does not list the 25-inch sheets required to cover each parish; although, admittedly, such information may have limited utility. Furthermore, it does not contain the quarter-inch scale graphic indexes showing the six-inch and 25-inch map county series sheetlines. The reprinting of the latter, in particular, would form a most useful follow-up to this facsimile.

David Archer has made a wise choice in selecting the 1924 Ordnance Survey catalogue for republication as his contribution to the Ordnance Survey's bicentenary celebrations. The facsimile makes a welcome companion to the many reprinted and extant old Ordnance Survey maps available to the collector and map curator and also contains much that will interest the general historian. This reproduction, which combines clarity of presentation with handy compactness, is made available at a price which is within the reach of the modest collector of Ordnance Survey
maps. In reprinting the last of the old large catalogues, let us hope that David Archer has established a precedent for such publishing ventures in years to come.

DAVID FLETCHER

[**** As Sheetlines closes for press, we learn that David Archer is reissuing the volume of Quarter-inch indexes to the 1:2500 and 1:10,560 of England and Wales of circa 1905, with an introductory essay by Richard Oliver. It is hoped that it will be available in October: enquiries to David Archer, The Pentre, Kerry, Newtown, Montgomeryshire, SY16 4PD.]


This is a useful souvenir of a quite remarkably good exhibition. It's a pity it will probably be over by the time you read this. I don't think that there has been an exhibition like it before, or that there will be another for a good few years. It set a very high standard. As catalogues go, this one is quite cheap, and if stocks are left over after the exhibition is over, I advise you to snap one up. It isn't a comprehensive record of the exhibition, in that although there's a list of exhibits at the back, by no means all the captions are included, nor are all the 'antique' items illustrated. (Very interesting was the juxtaposition of early with modern OS mapping.) Still, it would have cost a lot more than £1:50 had they been. There are one or two minor slips, such as transferring Orford from Suffolk to somewhere around Cromer in Norfolk on page 39, (the sort of thing publishers have a habit of inflicting on authors at late proof stage), but this is far outweighed by the large number of 'new' illustrations, including a portrait of Colby quite different from that in Close's Early Years, and one of Robert Kearsley ('Tithes') Dawson. He looks a reasonable, if slightly intellectual chap, though I gather that a photo of him taken shortly before he died shows him rather disgruntled-looking; why, it's hard to imagine, for if ever there was a man in OS history who at the end came out on top, then it was R.K. Dawson.


It's a funny thing, but nobody has ever written a book, or even a pamphlet, on the OS one-inch map, and there haven't been that many articles in the journals. Close, Winterbotham, Harley and others have had their say in various more general books, and there have been plenty of detailed studies of various aspects in the past twenty years, but no-one seems to have got round to synthesising all this stuff. There was a rumour in the mid-eighties that the OS were going to commission just such a book, but it evidently didn't come to anything. Presumably it would have been rather like Map Cover Art. A pity. Still, Map Cover Art has been such a success that perhaps they, or some other publisher, will reconsider.

Meanwhile, here's a very useful stopgap. Unlike the catalogue of the Tower exhibition, which in the end gives you rather less, verbally, than was in the exhibition, this gives you a lot more, in that the exhibits at the RGS only had brief descriptive labels, which was fine if you knew about them already, but a bit tough if you didn't. To find out you needed this catalogue. Once you'd got it you were really away. Even if you have to miss the exhibition, it's still worth getting hold of the catalogue, as it gives you an idea of the extraordinary variety of the OS one-inch world; not just the regular topographical maps, but all the hangers-on and the ephemera. Like quite a lot of CCS publications, this one goes for content rather than style, so there are only a few illustrations, but lots of solid reading.

It starts off with a general section by Richard Oliver on the development of the map, followed by a short one on conventional signs. Readers of Sheetlines will be relieved to learn that in order to include things like the Fifth Relief and the experimental Killarney-related style of 1913-14 he had to use the Reading area, rather than the one further to the north which he espouses with dreary regularity. That's followed by Yolande Hodson on relief, and I don't know which I'd rather choose, Yo on William Roy or Yo on relief. This time the emphasis is on the Lake District, as the Fifth Relief was almost the only relief style the OS didn't try in those parts. After that we have Chris Board, 'Mapping Topographical Change', showing how the OS has shown the changes in west Middlesex since the early 19th century. Fascinating, provided you don't get too depressed by the spread of bricks and mortar. If you do, then you'll be glad for once that there's only one illustration, and that's early thirties, before all the open space went. Tim Nicholson describes district and tourist maps, with a mix of maps and covers. Ian Mumford des-
cribes 'Making the map'. This section probably suffers the worst from under-illustration, as so much of what was on show was, well, visual. You can't really reproduce a three-colour map printed from copper, or those specimens from the 1855-6 report. Peter Clark describes 'Marketing the map', and Karen Cook the geological maps. There's a surprisingly variety of generations of these. Peter Milne describes one-inch maps of Scotland and Mike Miller those of Ireland, which are comparatively brief, because there was always a strong family resemblance between the various sorts of one-inch, although the OS got up to some things in Scotland and Ireland which they never did in England and Wales and which may come as a surprise to some of you.


I'm sure you'll forgive me if I say that I get a bit confused about all these atlases the blokes and blokesses down at Southampton keep churning out. The first of them came out in 1982, and we all bought it (or scrounged review copies), and the success clearly went to their heads, as, like the subject of a Victorian teetotal tract, it went from one thing to another. After getting the one that actually includes a bit by Duncan 'Zircon' Campbell in it, I dropped out.

I came across this one at the exhibition in the Tower, and, slightly dazed by the exhibits, found myself writing out a cheque for it. 'Bicentenary Edition', (with the OS coat of arms, that nice thing with the Tower of London which they hardly ever seem to use), it says on the cover, and when you go to the back of the title page, (that exclusive preserve of CCS members, librarians and copyright lawyers), you find it's the 4th edition of something which came out in 1987. Anyway, you get more than the usual warning that you may have stumped up the purchase money but don't own the copyright; you discover that about half the British publishing world seems to have a stake in it. Well, not half, but in an OS bicentenary atlas you don't expect most of the street maps to be by George Philip. It's also a bit 'off', (like jap-made Union Jacks), that it's 'Printed in Italy'. And to think that the Second Land Use Survey wasn't allowed to use overseas printers for its version of the 1:25,000 because the Ordnance Survey wouldn't licence its remapt for use outside the U.K....

Anyway, I know there's a vocal majority in the Charles Close Society who are actually interested in maps, and want to know if this atlas actually contains any by the Ordnance Survey itself. Well, it does, but it's the revamped 1:250,000 'Routemaster' mapping of 1985 inflated to 1:190,080. That's right, it's old, Sunday's cold mapping, not the slap-up digital mapping they did last autumn for the floppy atlas. Not even collectable-old. Just over-priced old. Talk about all-dressed-up and nowhere to go. Just to rub it in, the bit of the M40 which goes round Ot Moor is completely missing from page 43, and it's only 'under construction' elsewhere. If you're one of those eccentric people who uses the National Grid, you may like to know that the grid figures only appear at the corners of each opening, and the gazetteer at the back uses alpha-numeric references. At first I thought the grid lines were there just to make it look pretty, and it was only when I was double-checking before sitting down to write a rude letter to the OS that I noticed the grid figures at all.

So is it really worth bothering with, you. Well, yes, with the proviso that in terms of getting value for money you'd best wait until it's remaindered, or starts turning up second hand. You can find out why [and why the editor of *Sheetlines* is running this review] if you turn to pages 178-81. They contain 1:50,000 maps of the Channel Islands. I never knew they existed. Anyway, they do, and here they are, though they don't look quiet like the British 1:50,000. The names are in Univers, all right, but there are no contours, no foreshore info, no 'tourist information', (I thought they'd forgotten how to make a 1:50,000 map without this: still, must be a dying art), and no orchards, just woods, and the roads are uncased: the yellow ones have had some black added so that they stand out, though they look a bit bilious. It's worth seeing, just as a variation on what we're accustomed to.

'VIATOR'

***** Does anybody know anything more about this 1:50,000 mapping of the Channel Islands? For example, whether it is available in sheet form anywhere? Answers, please, to the editor of *Sheetlines*.

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The latest number (volume 28, no.1, June 1991) of the *Cartographic Journal* differs from the usual format, in that it is a celebratory issue for the Ninth General Assembly and Fifteenth World Conference of the International Cartographic Association, to be held in Bournemouth in late September.¹ Save for a few reviews and like sundries, the whole issue is given over to what is effectively a review of contemporary British cartographic activity. Articles of particular Ordnance Survey interest, and comprehensible to intelligent lay readers, are as follows.

W. Fellingham, 'Draughtsmen and Databases: Ordnance Survey into the 1990s' starts with some extraordinary 'history', but otherwise is a useful summary of recent OS digital developments. D. Bunyon edits 'The United Kingdom Hydrographic Office', which performs a similar function for that department. B.J. Fitzgerald, of the Mapping and Charting Establishment (RE), which employs a number of CCS members, describes 'Mapping for the Military - a time of change', and reveals *inter alia* that MCE uses a 'HELL scanner'; the acronym seems most appropriate for a military department. M.J.D. Brand, its Director, describes 'Ordnance Survey of Northern Ireland since 1987', which proves to be largely the creation and operation of a sophisticated GIS, and is much to preferred to the skinny account in *Sheetlines* 30. J. Budd of English Nature describes 'Mapping in the NCC, 1988-91', which is illuminating on the virtues and limitations of certain OS products, and, I think for the first time, reproduces an old National Grid 1:2500 sheet in facsimile, if at a reduced scale, and gives the lie to one American cartographic writer's contention that 'a map can lie but cannot joke'. This one will have you in stitches. T. Campbell describes 'The British Library's map collections and the national topographic memory', and describes the difficulties and solutions to the problem of storing and accessing large amounts of digital data generated by OS and others. A. Godfrey describes 'The Godfrey Edition: The first 10 years', which continues the story told in *Sheetlines* 24. It is unfortunate that publication deadlines meant that the diagram on page 61 has a blank for London sheet 48, (St Johns Wood, 1894), which appeared a short while ago, and which I found to be a particularly recommendable map.

RICHARD OLIVER

**NEW MAPS**

*Ordnance Survey*: New publications between 1 February and 31 July 1991 included:

Conventional paper maps:

1:25,000 'Pathfinder', Second Series, first publications: 109 (NG 78/79), in colour and outline; 601 (NZ 40/41) in outline only.

1:25,000 'Pathfinder', Second Series, revised sheets: 94, 1300, 1316 (all edition B).

1:50,000 'Landranger', Second Series, fully revised sheets: 93, 104, 118, 129, 164 (all edition B).

The publication report for July 1991 lists an 'H1' edition of 1:250,000 'Routemaster', (Sixth Series), sheet 9. It has been a long time since a new edition of a 1:250,000 was last published without getting a new letter.

It is understood that copies of sheet 164, edition B, which are interesting in square SP 5523 are in a minority, and collectors are advised to secure them. Blackwells of Oxford have obtained a stock of 2500 without such interest in that square in a special non-standard cover. (All copies are interesting in square SU 6898.)

**Digital mapping:**

'Superplan': The March 1991 issue of OS *Publication News* announces that the Full Superplan Service is now in operation in London, and replaces all conventional large scale 'products'. *Superplan Instant Printout* is obtainable either on paper in National Grid sheets or as copycards, and is from microfilm which has been laser-plotted from digital data; each film is replaced after approximately 20 house-units have been digitised. *Superplan At Scale Plots* are single plots in NG sheet format at nominal map scale on paper or film, individually produced. *Customised Superplan Products* can be plotted either by NG sheets or 'site centred': in other words

**THE TYRANNY OF SHEETLINES IS OVERCOME!**

The customer can specify scale (1:200 to 1:5000), map size (A4 to A0) and detail to be shown, and plots can be rotated to suit map shape. Squares TQ 27, 28, 37 and 38 were available thus from 7 May 1991 and over the area encircled by the M25 from mid-August, from OS agents. Superplan (Birmingham), confined to the administrative City thereof only, is available from the HMSO bookshop thereat, and conventional maps thereof remain available. The April 1991 *Publication News* announces a *Limited Superplan Service* in certain areas, which replaces SUSI (Supply of Unpublished Survey Information), though all other conventional large-scale products remain available.

'Oscar' (Ordnance Survey Centre Alignment of Roads), 'a digital road centre line network', is announced in the July 1991 *Publication News* as now available for Cheshire, Cleveland, Hampshire and Wiltshire, 'and for most

¹ The reason for holding the ICA proceedings in Britain is obvious enough; the reason why they are being held thirty miles from Southampton is that there will be South African participants in the proceedings, and apparently this was strongly objected to by influential voices in the University of Southampton.
towns and Cities over 100,000 population in Great Britain, though the appended list of 5 x 5 km 'tiles' available from 24 July implies a very interesting understanding of 'most'.

1:250,000 digital data for the whole of Great Britain was announced in April; it has 24 feature groups, and is officially recommended for GIS use.

1:50,000 Trial Digital Map Data was announced at the same time: two 20 x 20 km blocks, around Canterbury and Dover, are available; trial data includes communications, settlement, hydrology and relief.

Also announced in April is a co-publication with Marshall Cavendish, Out and about, in 96 weekly parts at £1.50 each, giving ideas for walks, devised around themes. 'Walking has become one of the most popular pastimes in Britain... you do not really need any special equipment, not even red socks!.'

The Godfrey Edition

Between 1 March and 5 August 1991 coverage was extended to the following: Baldock; Baxenden & Green Haworth [Accrington]; Bedford; Blandford Forum; Haddington; Hadley (Shropshire); Hitchin; Huddersfield; Kendal; Ketley (Shropshire); Luton (Beds); Monken Hadley; Poole; Twickenham; Ware (Herts). Irish 1-inch 2nd edition sheet 32 is published with plans of Belleek and Pettigoe on the back. Coverage of Birkenhead and NE Wirral and of Cumberland towns is now complete. (Catalogue: 57-8 Spoor St, Dunston, Gateshead, NE11 9BD.)

Congratulations

are offered to the following members:

To Mr PETER McMMASTER, Director General, Ordnance Survey, on his being made a Companion of the Order of the Bath. The Southampton Echo reports our Honorary Member as saying 'This came as a complete surprise, but unquestionably this has been awarded to me on behalf of the whole department... The quality of the work they do is excellent. I was bowled over.' Formerly an officer in the Royal Engineers, and subsequently called to the Bar, Mr McMaster has been described as something of a polymath, and indeed such a diversity of experience is something one would associate more with the Ordnance Survey in the nineteenth rather than in the twentieth century. He has held the post of Director-General since 1985, and retires next year.

To Professor DAVID RHIND, on being appointed the next Director General, Ordnance Survey. Professor Rhind has been a member of the Society since its formation, and whilst the Charles Close Society cannot claim to have had a hand in his appointment, it is nonetheless with enormous satisfaction that Sheetlines records this development. He is the first 'academic' to be appointed DGOS: born in 1943, he holds the degrees of B.Sc. from the University of Bristol and PhD. from the University of Edinburgh; was a Research Fellow at the Royal College of Art from 1969 to 1973, working with the Experimental Cartography Unit; was Lecturer, then Reader, at the University of Durham, 1973-81; and has been Professor of Geography at Birkbeck College, University of London, since 1981. It is due to him that we have been able to use the facilities at Birkbeck for our annual general meetings, and it may be recalled that he spoke to the 1988 AGM on 'The Ordnance Survey and digital mapping: a history'.

To Dr ROGER HELLYER, (recently elected CCS Membership Secretary), rather belatedly, for the Survey and General Instrument Company Award, presented at the British Cartographic Society's annual symposium in 1990, for his article 'The archaeological and historical maps of the Ordnance Survey', in the Cartographic Journal, vol 26, no.2, December 1989, pp.111-133. (It will be recalled that some of this material appeared earlier, in Sheetlines 20 & 21.)

To Miss MARGARET WILKES, Head of the Map Library, National Library of Scotland, for the 1991 IMCoS-Tooley Award, which has been awarded in recognition of her services to map users and map curators, including the organisation of the Edinburgh Three Day Events each autumn from 1981 to 1990. Those who have variously used NLS, participated in the Three Day Events or heard her speak on maps will find themselves in cordial agreement.
NOTES, QUERIES AND ODDS AND ENDS

The Ordnance Survey aerial photography archive

OS News for May 1991, p.5, reports that the aerial photography of England to 1970 is now held by the Royal Commission for Historical Monuments (England), which is soon to move to Swindon. RCHM(E) has a computer indexing system ideally adapted for cataloguing this collection. (The similar collections for Wales and Scotland were transferred to Cardiff and Edinburgh some time since.) The OS collection of contact prints now begins in 1971; as a result of a recent economy, the collection of post-1990 prints will be less than complete in the short term, as in future the library collection will be formed from prints no longer needed by the field surveyors.

A round puzzle

Richard Dean writes: 'OS maps are full of faithfully recorded curiosities, and the attached [from Yorkshire 1:2500 sheet CLXXI.1, Revision of 1932] caught my eye recently. No doubt the local historians in Harrogate can explain it. The effect is reminiscent of the "magnifying glass" cover used on the 1:25,000 maps [H.113]. This might prompt others to send in similar eccentricities.' [Curious indeed! The 1:50,000 map (sheet 104, SE 287542) shows that parcel 115 is on top of small hill, but presumably the full explanation is more subtle than that.]

1:7920 map of London, edition D

following the brief notice in Sheetlines 30, page 23, Mr H.J. Patterson Rutherford writes that this map 'perpetuates a topographical falsification (no less) found in earlier editions ... whereby, at every intersection of road and rail, road is shown uppermost: this absurdity can be seen at its plainest at such places as Vauxhall and at Charing Cross and Cannon Street Stations; at Vauxhall station an 8-track overbridge carrying the former London and South Western Railway main line out of Waterloo is particularly evident on the ground! When I raised this matter with O.S. some years ago their "explanation" was that Police, etc, drivers prefer their maps this way: true, they (O.S.) now break the line of the street ... but one is initially given a totally misleading impression of the position at the intersection in
question; is this unique in the annals of OS, I ask myself.'
(That they apparently like their maps this way does not seem to speak too highly of the map reading abilities of the police and others! It is possible that the advent of street maps in CD-ROM form (see *Sheetlines* 28, p.17), which are particularly favoured by such users, could see (a) the plague spreading, and (b) the 'falsification' removed from the ordinary 'hard copy' maps. There is probably a small book to be written on railway depiction on OS maps; one curious anomaly noticed by the editor recently, on the One-inch map current when he was born, and indeed only a couple of hundred yards from his birthplace, is on New Popular Edition sheet 105, at 54/275081. Compared with earlier maps, Weelsby Road Halt (closed in 1940) has been removed, but the adjacent level crossing on the A.1030 remains, although the latter had been replaced by an overbridge in 1933! No doubt this 'anachronistic' revision was due to checking the railway stations against a timetable in the office, rather than on the ground. It would be interesting to hear of similar instances.)

**OS International**

'On 1 April 1991 the Overseas Survey Directorate of Ordnance Survey became OS International. This change of name reflects the rapidly changing emphasis of Ordnance Survey's work outside Britain. OS International will project a significantly more commercial approach to the still important work of air photography, survey, and mapping, and will expand its advisory role to areas such as cartographic training, land registration, and survey legislation, and into the burgeoning topics of Geographical Information Systems and Land Information Systems, Remote Sensing and Digital Mapping.

'OS International increasingly sees its future customers as being drawn from a wider field than those funded by the Overseas Development Administration, though it will continue to provide an advisory role to ODA and will always be ready to undertake work for the developing countries of the Third World. Numerous visits overseas have both maintained links with individual survey departments and are developing new relationships with aid agencies.

'OS International's strengths lie in the expertise of its personnel, its technical resources, and its databank of information on sixty or more countries, which represents a unique collection of air photographs, survey data, maps, and international boundary data, available, with few exceptions, for reference by all concerned with development and research programmes.'

*(From OS News no.110, May 1991, p.4. (c) Crown copyright.)*

Even in the digital-GPS-and-GIS age map-making is not without its down-to-earth analogue side. *OS News* for April 1991 includes 'Letter from an Absent Friend: Surveying in St Vincent' by Dave Gittus. He and Mike Cox were selected from some thirty applicants to go to St Vincent (Windward Islands) in November 1990 to survey 48 sq km. 'Our job was to update some existing 1:2500 maps and to field complete 24 sq km of new mapping. Unfortunately the aerial photography used in preparing the maps was ten years old. On the periphery of the villages quite a bit of development had taken place and the area of cultivated land had extended considerably. Once into the forests we were mainly concerned in following tracks that eventually became narrow paths as they climbed from the villages into the hills. Some of these paths lead us to small plots of Marijuana plants. We quickly skirted around rather than risk confrontation with local farmers. Our travelling time usually amounts to about three to four hours and we walk for about five hours covering about ten to fifteen miles depending on steepness. Friday we spend in the office drawing up our fair copies to send back to UK.' The marijuana plants and the climate apart, early Ordnance Survey fieldwork in these islands must have been rather similar in many ways.

'*We're on the Map'*

Ian O'Brien writes: 'Recent visitors to Ordnance Survey's agent in Oxford might have assumed from this slogan that OS had relaxed its practice of omitting the name of commercial enterprises from its maps. It referred however to the issue of copies of 1:50,000 sheet 164 (Edition B, 1991) in a special cover headed

Ordnance Survey
Blackwells
Landranger 164

on which a photograph of the bookshop *circa* 1905 took the place of the usual colourful contemporary scene. Inside the cover there are notes on "The History of Blackwells in Oxford" and "Blackwells and the Ordnance Survey", the latter incorporating a monochrome reproduction of Arthur Palmer's District Map cover of 1921. It will be interesting to see if this publication presages a wider return to the former practice of putting OS maps into sales agents' covers.'

*An apology*

Richard Oliver apologises to all those shocked by his profane lanaguage at the AGM; but really, had they toiled as he did to ensure that the *Sheetlines* reprints would carry both the original and continuous pagination, only to find
that one volume had had the former deleted by the printers, they might well have expressed themselves strongly, too.

**The definite article and a definite defeat**

Following the complaint from a reader in *Sheetlines* 29 (p.26), your Editor has been studying intensively the use, or not, of 'the' in front of 'Ordnance Survey', the various bicentenary meetings and publications having provided plenty of scope for this. In general, hardly anyone not employed by (the) Ordnance Survey omits the definite article, and indeed several OS staff appear to use it habitually. At the SMA meeting at the RGS on 23 May both past Directors-General present, Brigadier Brian Irwin and Mr Walter Smith, seemed positively to wallow in it, and though on that occasion the present DG, Mr Peter McMaster, avoided it, at the meeting at the Society of Antiquaries on 6 July he was heard at least twice, in opening his response to questions, to refer to 'the Ordnance Survey'! Baffled, your Editor turned to the draft version of *Conventions to be used when writing texts for Ordnance Survey publications: a guide for authors*, (Cartographic Library, OS, April 1991), on page 39 thereof appears the following delphic advice: 'Ordnance Survey (the name): The definite article (The) is omitted from map titles, paper headings, book covers, title pages, trade marks and logos when the name forms part of the publication's title, e.g. *Ordnance Survey Motorising Atlas, Ordnance Survey Bench Mark List*. The definite article may be used to assist the 'flow' of a sentence, e.g. 'In the early years of the Ordnance Survey...'. When the definite article appears as part of a publication title, and that title is being cited in some new text, the complete title should be given even if the use of the definite article is at variance with current practice. *Ordnance Survey* may be abbreviated to OS (no full stops) but should not be abbreviated to The Ordnance nor to The Survey when, in the latter case, it might be confused with 'the survey' - meaning the operation of surveying. The term Ordnance Surveyor should be avoided and an alternative means found to describe someone working for the Ordnance Survey. In future, the Editor proposes to follow these conventions, with the provisos that (1) attention will be paid to 'flow', and (2) 'flow' will be particularly favoured for references to the Ordnance Survey relating, in whole or part, to the period anterior to 1 January 1980!

'My friend Ossie...'

Ian O'Brien draws the Editor's attention to an article titled thus, by Lincoln Allison, in the August-September 1991 issue of *The Countryman*. 'It is a light-hearted commentary on the Landranger Series by a walker who obviously enjoys a love/hate relationship with it: 'Sometimes, indeed, you feel like hurling the little chap into the bog he never told you about, and leaving him there to rot.''

**Early lithographed Ordnance Survey maps**

Richard Dean draws attention to a 1:2640 (24 inches to 1 mile) map of Derby, the title of which is reproduced opposite, (at a much reduced scale), and observes that 'In appearance the map is very similar to the early OS 1:2500 colour printed sheets'. (There is a copy of the whole map in British Library, Map Library, Maps 2075 (1), and in Derbyshire Record Office of the north-west part only, ref. 843 2/P2.) It was lithographed by Standidge and Co., Old Jewry, with water, roads, buildings and gardens (multi-colour 'herringbone' stripes) shown in colour. How far this is 'an Ordnance Survey map' is open to debate; however, presumably the initiative for printing the map in this form came from the Derby Local Board of Health rather than from the Ordnance Survey. Derby was one of some 28 towns mapped at 1:528 (10 feet to 1 mile) for the local Boards of Health on a repayment basis by the Ordnance Survey between 1850 and 1853; most of these were accompanied by 1:2640 plans. In a few cases, (notably Alnwick, Barnard Castle and Berwick-upon-Tweed), the 1:528 plans were engraved by the Ordnance Survey, and at Alnwick the 1:2640 plan was also engraved. At Woolwich, the Local Board of Health had at least some of the 1:528 plans lithographed, by a private firm, but this does not appear to have been done at Derby. The lithographed version of the Derby map makes an interesting comparison with the several hundred tithe maps lithographed by Standidge between c.1838 and 1850; it has Standidge's customary border with inset rounded corners, the title style is Standidge rather than OS, and not until about 1920 would a municipal coat of arms get even as far as an OS map cover, (that of the Town Map of York: H.74), but the cartographic style is distinctly OS; an interesting contrast to the tithe maps, which Standidge produced in a fairly standard house style which almost certainly conceals a wide variety of individual local mapmaking practices! Though it would be tidy to interpret this 1:2640 mapping as a parent for the 1:2500 scale adopted shortly afterwards, in fact the 1:2500 appears to have been "bred out of" the 1:2376 (1 inch to 3 chain) scale; and the colour-printing of a few urban 1:2500 plans in the late 1850s (Annan, Darlington, Durham, Hamilton, Jedburgh, Lanark, Longton; any others?) was probably undertaken because it was more cost-effective than the usual practice of hand-colouring. Nonetheless, it would be interesting to learn of any other 1:2640 lithographed Board of Health maps.
Map of
THE BOROUGH OF
DERBY,
WITH PORTIONS OF
DARLEY, LITCHURCH,
AND
Little Chester,
SURVEYED BY THE BOARD OF ORDNANCE FOR
THE LOCAL BOARD OF HEALTH.
A.D. 1852.
'Public Roads' and 'Occupation Roads' in early 1:2500 Books of Reference

Michael Holroyd writes: 'J.B. Harley, in The Ordnance Survey and land-use mapping (1979) pointed out that the Books of Reference accompanying the early 1:2500 maps distinguished arable from pasture, a distinction not made on the maps. Some of the books, (e.g. Ormside, Westmorland, 1859; sample page reproduced by Harley) distinguish between "Public Roads" and "Occupation Roads" (i.e. private roads); is this another distinction not made on the maps? Was the information obtained by inspection or from some local informant, and how reliable is it? A later book (Yateley, Hampshire, 1872) shows simply "Roads", which appear to include occupation roads. Did this reflect a change of policy, perhaps in response to complaints about misclassification? Another of Harley's sample pages (Detling, Kent, 1866) shows a "Parish Road" as distinct from several "Public Roads"; what was this? As far as the Editor knows, no 19th century OS 1:2500 map or plan distinguished between public and private roads, any more than it distinguished arable or grass cultivation. The difference between 'public' and 'parish' roads at Detling is baffling! Presumably the information was obtained from parish clerks or surveyors. That the distinction was no longer made by 1872 may have been a change following a confidential Committee of Enquiry by the Board of Works into the OS of 1870-1 (see W.A.Seymour (ed), A History of the Ordnance Survey, (1980), p.162), which criticised some of the minor detail recorded on OS plans.

The 'Surrey Hills' 6-inch maps

Michael Holroyd asks where he can find an index to these, (mentioned in Sheetlines 7, p.6). As far as I know, he can't! There are bound sets of these maps in the British Library, Map Library, Maps 144.e.12, and in the map room of the Royal Geographical Society. The maps, printed initially between 1861 and 1868 for military use only, but on sale to the public by 1873, and indeed for many years afterwards, covered a band of country about eight to twelve miles in width between Maidstone, Reigate, Guildford, Aldershot and north of Reading, and were printed with outline in black and hachures in brown, and with buildings, roads and water bodies handcoloured. There were two number series, 'West of Dorking' and 'East of Dorking', which suggests that the series was not so much planned as extended when opportunity offered. The topography was taken mostly from the tithe surveys, and an accuracy disclaimer appeared on each sheet!

Another apology

The Editor of Sheetlines apologises for the rather large number of references to a certain category of nearly 12,000 non-OS maps in this of all issues of Sheetlines, and hastens to reassure his readers that this is merely a coincidence, rather than a subtle scheme by certain of its members to subvert the Charles Close Society.

Stamped upon

Many readers will be aware that on 17 September the Post Office will issue its Ordnance Survey Bicentenary special issue, of four stamps, each bearing a One-inch or 1:50,000 extract of the environs of Ham Street in Kent. Some readers will have noticed that the Old Series extract on the 24p stamp somehow, well, does not look quite right. Sheetlines is indebted to Yolande Hodson for having ascertained that in fact the original was specially reengraved on steel, and that an intaglio print therefrom was used to provide a starting-point for the stamp. The other stamps are: 28p, from New Series, Third Edition, Large Sheet Series; 33p, from the Seventh Series, in 10 colours; 39p from the current 1:50,000, Second Series.

LETTERS TO THE EDITOR

A military miscellany

Tony Baggs writes:

David Archer's paper in Sheetlines 29 reminded me of a source of 'unusual' maps which I have not seen mentioned in print. In 1957, as a National service officer, I spent six months on a course at the School of Military Survey. Most of our time was spent of field survey, cartography, photogrammetry and so on, but it was thought desirable that we should know how the results of our future efforts would be reproduced, and so for two or three weeks we were printers. To demonstrate that we had learned something the six of us on the course were split into two groups and each had to print a map from scratch. We photographed the original material onto glass negatives, printed it down onto zinc plates which we had ground and sensitised and then set up and ran the lithographic presses to produce a three-colour map. In our case it was a reprint of a six-inch sheet near Aylsham in Norfolk, with brown contours and green woodland. There was no special imprint to show when or where it was produced and most of the 200 copies which were run were chopped up for scrap paper. There were two of those courses each year and there were others for regular survey officers and for tradesmen printers. For all I know there are still trainees at Hermitage printing funny editions of OS maps to confuse the collector. I still have a half-inch of the Isle of Wight, which is a reduction of the standard one-inch, that was produced by contemporaries and two special revisions of 1:2500 maps of part of Hampshire which I and four or five others made for the Game Conservancy during a post-
National Service training fortnight.

During another Reserve training fortnight I had to go to the Map Depot at Ascot and in the course of lunch-time conversation it was revealed that the army had decided that it was going to pulp its entire stock of 1:25,000 maps of the British Isles with the military grid overprint. Apparently the demand for them was almost non-existent and they were cluttering up the warehouse. As an academic who was constantly having to buy 1:25,000 maps I was horrified at the waste of something so useful and I was told that I could take away anything that I wanted. With very little time before I had to leave I dashed around the warehouse and climbed up the racks in a search for sheets for the TL square, which I was then working in, but it was a frustrating and not entirely successful hunt. Presumably very few copies of the military edition have survived: I have not checked whether the Royal Geographical Society or the Copyright libraries have them. Destroying unwanted maps is a constant problem in the army, where stocks of outdated editions are not distributed and there is no wish to let them fall into the wrong hands. It was Military Survey folklore, which I remember being told within five years of the occurrence, that when Britain left the Canal Zone eighteen million maps were declared surplus to requirements. A large fire was lit at the base of a cliff and load after load of maps was gently bulldozed over the top so that they broke up and became more combustible.

A plea for a uniform system of map library name abbreviations
Roger Hellyer writes:

May I make a plea for the development of a uniform system of abbreviations of map library names? Each of us who use these institutions for research purposes inevitably develops a personal system, and then on publication casts around in vain for a system which has universal franchise. The longer this situation continues, the more confused will it become as more people publish, and more collections, even private ones, become accessed.

In my principal discipline of music, for years now we have employed a system of library sigla developed by Répertoire International des Sources Musicales, and very little scholarly work is now published without their use. They have become universally known, or at least accessible. The RISM system consists of a symbol for the country, (GB for Great Britain, F for France, etc) separated from its suffix by a hyphen. This prefix is presumably unnecessary for map libraries if considering only the United Kingdom and Eire. The suffix employs upper case letters for the place: L for London, LE for Leeds, LV for Liverpool, E for Edinburgh, EX for Exeter, etc., and lower case for the library. By far the major advantage with map libraries would be the ability to use the single letter 'g' for distinguishing a geography department library of a university from the university library itself, which would be 'u' - hence Cu or Cg for the two important Cambridge collections. It is probably impossible to achieve total consistency (certainly this has been the situation in music), but it should be possible to arrive at agreed abbreviations, such as Cjc for St John’s College, Cambridge, or Ob for the Bodleian Library, Oxford, and, if it ever got to personal collections, STh or STrh for that of the writer. Public libraries would use the letter 'p'.

The disadvantage would be that universally known abbreviations, like BL, would become Lbl, LSE Lse, RGS Lrgs, PRO Lpro, NLS perhaps En and Nlw Abn. But in the short term, perhaps survival of universally used abbreviations such as these would not matter.

Perhaps the CCS committee could enter into discussion with the RGS, the BCS, and any other organisation who may wish to have a voice on this? I write this letter to Sheeelines now in the hope that members may voice opinions on which their committee might act. Does the present confused situation matter enough for it to be altered anyway, and if so, how? After many years of its use, I would certainly recommend one based on music's RISM library sigla.

The Editor of Sheeelines thinks that this is well worth members' consideration, and as a CCS committee meeting may be held in late October, asks that they bear that in mind when deciding whether or not to write!

'States, substrates and versions'
Guy Messenger writes:

In response to David Archer's criticism in Sheeelines 30 of Richard Oliver's guide to the OS One-inch Seventh Series map, that there is no consistency in the use of the terms 'state', 'substrate' and 'version' in recent cartobibliographies, although I cannot claim originality in using the first two freely in my monograph on the Third Edition (Large Sheet Series) (LSS), I think I can claim consistency. If indeed I did borrow 'substrate' I cannot now recall where I borrowed it from. 'State' of course means 'printing state' and in maps this refers to the content of a map within the neatline. As used by the authors of Harry Margary's Old Series Ordnance Survey reproductions, the meaning is extended to include the surrounding printed borders and matter printed both in and outside them. That this matter is sometimes dated helps to define individual states, and one important contribution to the scholarship of cartobibliography was the recognition by the authors of other means than printed dates by which states could be defined.

In my monograph I pointed out that in the LSS, revision of the content of the maps came to an end at the start of the First World War, but that both dated and undated printings could be recognised originating from the period 1914 to 1926, (which was when the LSS was finally superseded). I used 'state' to designate any printing identifiable by means of a printed date or by a revision of the matter printed within the neatline, and 'substrate' for any printing in
which there was some alteration of marginal matter but no change in printed date or in the map's contents. The most usual way in which a subset differed from its parent state was in the printed price and the copyright statement.

I never found any reason to make use of the term 'version' in the Monograph, though I might have done so for the special printings of a few sheets in a restricted numbers of colours for use by schools and colleges. But if I had been dealing with the engraved New Series Small Sheet Series I should certainly have found this term useful to distinguish two 'hills' versions (black and sepia) from the outline version. And I for one find nothing illogical in the use of this term to distinguish the six-coloured from the ten-coloured versions of a single state of a Seventh Series sheet.

I might add that the evolving nature of OS maps over nearly 200 years might be expected to generate changes in the use of descriptive terms.

Second-hand sources for maps

Paul Swindell writes:

Good sources for interesting OS maps are hard to come by in Newcastle upon Tyne, which is the area in which I live. I am therefore restricted to scouring second-hand bookshops and the various mail-order outlets available. If any other readers could recommend some good sources, especially in northern England or London, I would be very grateful.

Please send any reply to the editor of Sheetlines in the first instance. It would be useful if members living elsewhere in the country experiencing similar difficulties were to write likewise!

National Grid references on signposts

During that always rather fraught period between Going to Press and Being Distributed, the Editor received the following from David Webb, which forms a neat pendant to the note in Sheetlines 30 (p.22) on co-ordinated oil drums, ('Drumming it in'):

As well as being interested in Ordnance Survey maps, I do a little photography and belong to a camera club. At a recent meeting one of the slides projected was of an unusual signpost. I made enquiries, it was in Dorset, and so I made a visit to record one or two. There appear to be two types, possibly more, but I saw two different types of finger post there. The first and possibly the earlier is just a circle at the top with 'Dorset C.C.' on the circle. The other style has a circle and a bar across, not unlike the Underground symbol, with 'Dorset' at the top, the name of the spot, village or crossroads across the middle, and, the interesting bit for all you Ordnance Survey map collectors, is a six-figure reference number at the bottom of the circle, for the place where the sign stands. I have not seen this in any other county, but perhaps some of you out there can write in and let us know if there are other counties with this style of signpost, or if there are any other unusual types, bearing in mind the gradual disappearance of the finger post. It is however a good sign to see that Dorset is retaining the tops where possible and incorporating them with the new style 'fingers'.

In Sheetlines 30, the 'gridded' signposts at SD 804600 and SD 836513, in the West Riding of Yorkshire were mentioned: 'are there others'? Philip de Paris, a resident in the county, adds: 'Dorset is littered with these, they are such a common sight that it has never occurred to me to inventory them.' Apparently they were the brainchild of a County Surveyor, in the early days of the National Grid. Does anyone know of others elsewhere in the country?

Additions and corrections

To Sheetlines 30:

p.11, 1-inch: John Langford writes to point out that:
- I-2: the final total of combined sheets was in fact 170.
- 1-3-SC: sheets 36 and 129 were not contoured; sheet 187 was issued in the 1950s with 'Third Edition' in the top margin, and a 1990 revision date. (Copy in Manchester Central Library.)

p.21: Mr H.J. Patterson Rutherford points out that, pace the implication in OS News, Dr J.B. Harley's Ordnance Survey maps: a descriptive manual (1975) was published wholly by OS, rather than jointly with another publisher, and that, as the Foreword makes clear, it was directed at a popular market. Perhaps, as it is not to be republished and is perhaps not as 'commercial' as the deity of Full Cost Recovery decrees, the Descriptive Manual is nowadays officially a non-book!

To Richard Oliver's Guide to the New Popular Edition, etc:

- page 31, New Popular sheet 127, edition 1052: outline edition unique number in column 9 should be read '1052'.
To Richard Oliver's Guide to the One-inch Seventh Series:
page 29, sheet 95, edition A: column 7 should read 'H'.
page 32, sheet 110, edition B/*/*/: column 6 should read 1/68 [NOT 1/67].
page 46, 'Lake District' tourist map, edition C6/*/: details are as for edition C6/*, except that Rights of Way date is 1 Jan 1980.
page 33, sheet 116, edition B: column 7 should read 'HL'.
page 35, sheet 130, edition B: column 7 should read 'HL'.
page 37, sheet 143, edition B: column 7 should read 'HL'.

(Thanks for drawing attention to these are due to David Archer, Roger Hellyer, A.A. Lee, and Christopher Moss.)

To lists of maps on Place's waterproof paper, (see lists in Sheetlines 23, p.25, Sheetlines 27, p.25 and Sheetlines 28, p.19):
Roger Hellyer is now able to list the following states which were issued on Places Paper, and is grateful for the assistance of Messrs Adams, Bleasdale, Nicholson and Sanderson:

One-Inch E&W Popular Edition sheet 37 - 4000/31 - cover type 2
One-Inch E&W Popular Edition sheet 97 - 3500/32 - flat
One-Inch Scotland Popular Edition sheet 19 - 3500/30 - cover type 2
One-Inch Scotland Popular Edition sheet 72 - 2500/30 - flat
One-Inch Popular Edition - Aldershot Command (GSGS 3907) - 17900/31 - flat
One-Inch Popular Edition - New Forest (GSGS 3907) - 2200/31 - flat
Quarter-Inch Third Edition (New Series) 8A also appears in cover type 3

Early 1:50,000 educational extracts: John King's request for information, (Sheetlines 30, page 24), had an interesting result. He received a complete list of these, obviously of official provenance, with no covering letter, and in an envelope with a smudged postmark! The list is summarised below: anyone wanting a copy of the whole should write to the editor of Sheetlines, enclosing a stamped addressed envelope.

Extracts from the following 1:63,360 7th Series sheets, enlarged to 1:50,000, with relabelled contours and altitudes: sheets 26, 49, 54, 55, 60 (x2), 61, 67, 70, 76, 78, 82, 83, 85 (x2), 92, 93, 94, 95, 96, 98, 103, 104, 116, 121, 125, 127, 129, 141, 143, 147, 153, 155, 156, 161, 165 (x 2), 167, 172, 176, 178, 182; North York Moors.

Extracts from the following 1:25,000 first series sheets, with relabelled contours and altitudes: NY 22, SD 77, SD 97, SK 61, ST 17, ST 45 (x2), TF 41, TQ 15.

PUZZLE CORNER

As this is a special bi-centenary issue, Sheetlines has two puzzles.

The first is supplied by Guy Messenger. 'Brian Adams' article on islands (Sheetlines 29) reminds me of an anecdote in a book called Prep School by James Kenward. The setting is a classroom in a country boarding school in about 1921. It is a Sunday morning during the summer term and a room full of ten to eleven year olds in Eton suits is struggling to finish its weekly letters home before the bell rings to summon them to collect their straw hats and parade for Church on the front drive. One of them has finished his letter with a quarter of an hour to spare, and in accordance with his usual custom whenever he has leisure to muse, he is drawing a map of a South Sea Island, and musing upon Islands in general. Thirty years later he recalls the conclusion he reached on that distant summer Sunday morning. I wonder how closely you can approach his conclusion if challenged to complete the following proposition:

*The Geography book says that an Island is a piece of land entirely surrounded by water; but a REAL ISLAND is .......

(Maximum 15 words, please.)'

The second puzzle is this. In December 1989 Ordnance Survey announced the completion of the 1:25,000 Second Series ('Pathfinders') with the publication of sheet 1362 (SX 54/64). In July 1991 they announced in the publication report under 'Pathfinder Maps, First Publications' sheet 109 (NG 78/79). Both announcements
were in fact correct? Why? (No prizes for the correct answer, but it had the editor of Sheetslines bemused for quite some minutes!)

No-one managed to come up with a convincing answer to the puzzle in Sheetslines 30 (p.25), as to what Chandler’s Ford, Chingleput, London, Nellore, Romsey, Southampton and Winchester have in common. Apart from the error that Winchester should be Dorchester (for which the Editor apologises), the answer is that they all appeared on the Arthur Palmer-designed Ministry of Transport Half-inch map cover (H.14), though admittedly not all at the same time, or in the same country. The three Indian ones appear on the cover of Road Map, Madras Residency, scale 1 inch to 20 miles (1:267,200), published by the Central Survey Office, Madras circa 1928, which uses a close copy of the familiar Arthur Palmer design, even down to including the nuts in what was the A31 in Hampshire, and an unnumbered road to Madras in the Raj, though Palmer’s initials are omitted. (Chandler’s Ford and Southampton become ‘Nellore 109’, and Romsey and Dorchester become ‘Chingleput 24’.) The dark orange paper of the cover inhibits reproduction, but inside the front cover is a petrol advertisement, including a distinctly European-looking lady motorist, and inside the back are traffic signs. Though map covers taking a hint from the Ordnance Survey are common enough (a version of the standard ‘medallion’ cover (H.96.4) was used by B.K.S. Air Survey Ltd when they republished the 1:31,680 map of Jersey in 1960), such a direct ‘crib’ is new to the Editor’s experience. It need hardly be said that had it merely been reported and not seen, the editor would have assumed that it was a hoax! Sheetslines is indebted to David Archer and Andrew Cook for drawing attention to this curiosity. Incidentally, the original Arthur Palmer illustration appears to be based on the road junction at SU 427245, south of Hursley, Hants, but a wood (faithfully exported to India) has replaced the buildings on the north-west side.

Cartographic Discoveries

Another early large-scale survey progress index
Roger Hellier writes:

I have recently located two indexes in the University Library at Edinburgh that seem parallel cases to the most interesting nineteenth century quarter-inch index that Richard Oliver described in Sheetslines 29, p.27. These are at the ten-mile (1:633,600) scale, and are entitled Index Shewing the State of the Ordnance Survey of Argyllshire and Buteshire: Published on a Scale of Six Inches to a Mile...on the... The other, similarly titled, is for the Shetland and Orkney Islands. It would be logical to assume a third, for the Outer Hebrides. The mapping is generalised with sketched coastal outlines and roads drawn on rough alignments. Triangulation points, county and parish boundaries and names are shown, together with some important physical names. One-inch and six-inch sheet lines are drawn.

If the information required for completion of the boxes is any guide, the Argyllshire index would seem earlier than that described by Richard. The only subjects covered are detail survey and contouring of the six-inch map, and an even more abbreviated ‘Surveyed, Drawn, Published’ for the 1:2500. But the Shetland and Orkney Islands index is altogether more complex. Its Initial Point is Foula in Sheet 54, from North Sheet line 2700 feet, and from East Sheet line 8000 feet. The reference sections have lists of details which are probably worth quoting in full, because they would seem to encapsulate the methods and processes whereby the OS brought a map from field survey to publication, and, quite probably, the order in which each job, including engraving, was done.


Boundary: Perambulated / Sketch Maps drawn / Completed

Detail Survey: Surveyed, but Trig. Distances not received / Trig. Distances received, but not Surveyed / Surveyed / Detail Plotted / Detail Examined on the Ground / Fair Plans drawn (whether computed or not) / Finally Examined on the Ground by the Officer / Forwarded to the Levelling Division

Kevelling & Contouring: Town Levelled 1/500 Scale / Levelled 1/2500 Scale / Levels inserted on Plans / Plans forwarded to O.S.O. Southampton / Six Inch Photos received / Contoured / Contours examined / Six Inch Dry Proofs received / Six Inch Dry Proofs Contours inserted on / Six Inch Dry Proofs forwarded to O.S.O. Southampton

Hill Sketching &c.: Hills Sketched / Hills Examined / Hills Drawn for Engravers / Hills Forwarded

Publication 1/2500 Scale: Plans received / Examined / Sent to Detail Division with Remarks /
**Boundaries on an early index to large-scale plans of Lincolnshire**

*Richard Oliver writes:*

Above, Roger Hellyer refers to my note on a 1:253,440 scale index covering south-east England of c.1870; this includes parish boundaries in counties such as Oxfordshire which were not surveyed until some years afterwards, and which I surmised must have been taken from the Index to Tithe Survey version of the 1:63,360 Old Series. Since then, I have taken another look at an undated 1:253,440 index to the 1:2500 county series sheets covering Lincolnshire, a copy of which is in Roger’s collection; a small portion of it is reproduced on the next page. It presumably dates from the mid-1880s, as it refers to the 1:2500 and 1:10,560 of the county as ‘being published’, (the official survey dates for the county are 1883-8) and, as it is priced 2d. and lacks any reference to stages of map production, was obviously intended for use by agents and the general public. I had noticed before that the mapping of parish boundaries was incomplete, and had assumed that this was because the 1:2500 survey was likewise incomplete; but I now see that in fact they correspond exactly to those on the Index to Tithe Survey. (See, by contrast, the extract from a 1938 diagram, opposite, below.) This raises the possibility of a considerable part of England and Wales having been covered in similar style, and I would be most interested to learn of any such which readers may light upon.

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**A NATIONAL GPS NETWORK FOR GREAT BRITAIN**

*by Ian Greenway, (Geodetic Surveys Branch, Ordnance Survey)*

There has been much press interest recently in the future of OS Trig. pillars. OS no longer needs most of the 6100 pillars and is busy considering their future. The consultation exercise with interested parties and the public in general is part of the review. Why does OS no longer need the pillars?

The answer, in a word, is ‘GPS’.

**GPS**

The Global Positioning System (GPS) is a satellite navigation and positioning system operated by the United States Department of Defense. It was designed and paid for by the military, but anyone with a suitable receiver can collect the signals from the satellites.

The accuracy of position, as determined by a single GPS receiver, is about 30 metres; fine for navigating yachts but not of sufficient accuracy for surveying. However, the use of several receivers collecting data from the same satellites simultaneously improves accuracies, and the result is vectors (in three dimensions) giving the difference in plan position and height between the receivers. These are accurate to about one part in one million in distance: 1 mm for a 1 km line. This is a greater accuracy than has been possible from other survey methods.

There are other advantages in using GPS: it is weather-independent; it gives three-dimensional results; and the stations being occupied do not need to be intervisible: the sole requirement is for all the receivers to have a clear view of the sky and therefore collect data from the satellites without interruption.

**Why OS is observing a National GPS Network**

The advantages outlined above are available from GPS whatever the conditions and whatever the stations used. GPS could be used to re-coordinate the existing triangulation stations. This, however, would not allow us to take advantage of all the cost saving available from the use of GPS. The accuracy would be achieved, along with a consistent datum throughout the country; this is not the case with National Grid because of the limitations of the computer hardware and software available when the retriangulation was adjusted in the 1950s and 1960s. The two main savings realisable by a new control network would be:

1. There is a substantial cost to maintaining the trig. pillars, which are attacked by a combination of vandals and the elements;
(2) the trig. pillars, because they have to be intervisible with the neighbouring stations, are sited on hilltops, and other trig. stations are on the roofs of buildings. This increases the time and effort necessary to reach the stations.

A decision was therefore taken in 1990 to replace the trig. network with a brand new GPS network. The network stations would be ground stations, not open to vandals or the elements. (The trig. pillar was designed to be a stable base for the theodolites during observations. GPS receivers and antennae are much lighter than the kit used during the retriangulation and are not moved during observations. This means that a tripod can provide a sufficiently stable base and that the cost of building large station monuments is no longer necessary.) The marks would be by the roadside, reducing occupation times. The network replaces the primary and secondary trig. network; a description of how it fits into the continuous revision process is given below.

The observing scheme
The country has been split into eight observing blocks. To avoid the problems which arise from computing a network in several blocks, however, the final computation will be of the network in its entirety, something which has only very recently become possible for networks of this size.

Because the network is more accurate than anything which has gone before, the stations controlling the network need to be correspondingly accurate. There are six British stations in a 93-station scheme covering the whole of western Europe which is called the European Reference Frame (EUREF). Observations made in 1989 and 1990 also extended the scheme northwards and westwards to North America via Iceland and Greenland. That scheme was in turn controlled by highly accurate measuring systems which make use of extremely expensive equipment which it is not practical to use at anything more than a very small number of sites. EUREF allows a common control network to be used throughout Europe: entirely consistent with 1992 and the free market! It may also allow the use of a common mapping datum between countries. OS is currently investigating this possibility in discussion with other national mapping organisations.

Stations are at approximately 20-25 km spacings, although this is increased in the more remote areas. One of the main functions of the network is in the provision of minor control for survey work. Therefore, each 1:1250 area of mapping is surrounded by four network stations. Existing primary and secondary trigs are included in the network: these will allow a link between the old and the new control systems. Fundamental Benchmarks (FBMs) are also included; GPS is a three-dimensional system and the opportunity is being taken to bring together the previously separate plan and height control networks.

The station marks are mainly substantial concrete blocks in which are emplaced brass bolts, the centre of which defines the station. Existing marks are used when convenient, so a small number of pillars are included. The important things are:
(1) a clear view of the sky, with little possibility of obstruction in the future;
(2) easy access, (roadside, driveable to in any weather);
(3) no interference from electro-magnetic waves (e.g. radars).

Work so far
By 1 June 1991 four blocks had been completed, and the remaining four blocks should be complete by the end of 1991. In total, approximately 15 man years will be spent on the network observations, a small fraction of what must have been spent on the retriangulation. GPS observations are very predictable; they are not interrupted by weather; instrument failures are rare; and the necessary length of observing session can be calculated in advance. There have been few problems with atmospheric disturbance such as the recent magnetic storms.

The observers have had to cope with a variety of weathers, including snow when in Somerset and Devon early in 1991, and high winds in Norfolk late in 1990. These led to a receiver (and operator) almost ending up on the wrong side of the sandbags being used as coastal defences!

The speed of the network observations can be gauged from the fact that the 'East Anglian' block (which includes Ipswich, Northampton and Lincoln) took only three weeks with eight receivers.

There hasn't been the large number of memorable incidents which occurred in the retriangulation: the predictability of GPS has seen to that. The part involving the hardest work has been the inclusion of existing primary and secondary trigs. Many of these are on the hills and mountains, involving arduous walks for the observers who drew the short straws. (Current GPS equipment for geodetic work weighs about 20 kg and needs a car bat-
tery to power it; a full day’s observations may require two batteries.) It may seem slightly romantic afterwards, but certainly not at the time: the drawback to GPS being an all-weather system is that stations have to be occupied whatever the weather! This is the last time that many of the primary stations will be used, (and, in many cases, the first time that they have been used since the retriangulation).

Remaining work

The Central Scotland, Highlands, Central Wales, and Cornwall blocks are now all that remain. That may seem an odd order in which to do the work but the last three blocks, which do not include many large population centres, were not part of the original network and have only recently been approved. Their inclusion means that we have a truly national network for Great Britain, (including the Isles of Wight, Anglesey, Guernsey etc!).

Much work remains on the computation of the observations. Standard GPS schemes to fix minor control can be run through automatic computing processes. A first order network demands much more careful processing and adjustment. As with all GPS schemes, the vectors are processed in the field to validate the data, but subsequent refinements and adjustments are the responsibility of Survey Comps Branch.

Once the computation of all the blocks is complete, they will need to be adjusted to the EUREF control. At present, the EUREF computations are being made at various places across Europe, including the University of Nottingham, where OS is funding the work as part of our commitment to Research and Development.

Uses for the Network

Of course, the network wouldn’t have been created without a purpose. The main role for GPS in OS is in the provision of minor control for large scale mapping. The system has proved its accuracy and cost-effectiveness when compared with other methods since its first use by OS in 1987. (That isn’t to say, of course, that older methods are neglected; the method to be used for each task is assessed and the most effective solution chosen.) The network will allow minor control stations to be fixed more cheaply and more accurately. The new stations will be fixed directly from the highly accurate network stations, which are by the roadside. This removes the need to climb hills and towers to use the trigs; it removes the inaccuracies inherent in the readjustment of the triangulation; it reduces reconnaissance time.

Other uses for the network will be in scientific work such as monitoring tide gauges and, from them, sea levels. The network is tied to the rest of Europe and so has a role in international and intercontinental schemes (which GPS has made possible) to determine and monitor the shape and size of the world.

The future

The GPS satellite constellation is not yet complete; several more satellites in orbit will strengthen the observations and make them even more accurate. More sophisticated receivers and computational procedures will reduce the cost and increase the accuracy of using the system still further.

New adaptations of the technique will allow survey detail to be fixed by GPS; an antenna attached to the air survey aircraft will reduce or even remove the need for ground stations to control air photography. GPS may well also have a role in providing heights above sea level, hitherto the preserve of spirit levelling. The GPS network will play its part in all this.

The future for trig. pillars is less rosy. Current thinking is that primary trigs will be maintained, (they provide a vital link between the old and new systems), along with those pillars used as GPS network stations and those required for map revision. Another category requiring maintenance will be those pillars which Information Branch decide are necessary for Public Relations purposes. The remaining pillars (a substantial number) are of no use to OS and their removal would not cause substantial public disquiet. They will not be maintained and will be removed if their condition deteriorates to unacceptable levels. The new policy, possible because of the GPS network, will show substantial cost savings for the Department in years to come.

(Reprinted, with some editing, from OS News, July/August 1991, pp.22-4. (c) Crown copyright 1991.)
The Battle of the Scales: contemporary opinions and modern reconsiderations

by Richard Oliver

It is impossible to write even the most brief account of Ordnance Survey history without reference to the 'Battle of the Scales', but to do full justice to the subject would call for a whole book or thesis. Here, I am only concerned with certain details; I am not concerned with how the dispute arose, how it was conducted, or how it was resolved, save incidentally. Perhaps, however, being the time of the official bicentenary of the Ordnance Survey, this is a good opportunity to point out that the Ordnance Survey in its present form is fundamentally what it is because the basic scale for cultivated rural areas is 1:2500, and that this scale was adopted as standard because it was considered to be more cost-effective than the 1:63,360 ('One-inch'), on the grounds that though it might cost more to the Exchequer, that would be more than offset by taxpayers not having to make their own ad hoc surveys.

The Battle of the Scales: what was it?
The Battle of the Scales was a priori the dispute in the middle of the nineteenth century as to what was to be the basic scale of survey for the Ordnance Survey of Great Britain: whether a 1:31,680 field survey for a published 1:63,360 map, and nothing more; or whether, for rural survey, 1:10,560 ('Six-inch'), or some scale in the range 1:2640 (24 inches to one mile) to 1:2376 (one inch to three chains), such as 1:2500; for towns, whether 1:1056, (five feet to one mile), 1:528 (ten feet to one mile) or 1:500; and whether ground forms should be shown by hachures or contours. These considerations were technical, but implied in the choice of scale was also the more fundamental and wide-ranging question as to what the role of the Ordnance Survey was to be: whether fairly marginal to national mapping needs, as implied by the 1:63,360, or in a position to supply nearly all such needs, as implied by the 1:2500. (Though the disputes about urban scales and relief representation were important, it was the question of rural scale which was at the core of the dispute; when in 1857 a vote in the House of Commons forced the temporary substitution of the 1:10,560 for the 1:2500, the question of urban scales was not then raised, and when it was, the 1:500 (authorised in May 1855 in place of the 1:1056) was allowed to continue.

Who invented the term?
The term 'Battle of the Scales' would appear to have been invented by Alexander Doull, in or before August 1853, when he used it in his reply to the Treasury's circularising on the scales question:

What may, with propriety, be designated the battle of the scales, has now existed for the past twelve or thirteen years. It has not been argued with very great fury all that time, it is true, but neither has it made much progress, and the conflicting and, in some respects, extraordinary evidence which has been accumulated (the laboured opinions of some great men suspended upon a few 'ifs' and 'buts'), does not did fair for a speedy or a very satisfactory resolution.

The memorable battle of the gauges, in connexion with railways, was fought with far more determination and talent, and consequently exhausted the energies of the respective combatants much sooner, and died away without producing any practical effect. It is to be hoped, however, that the battle of the scales will result in something more beneficial and more permanent.

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2 Ibid., pp.224-5.
3 Ibid., p.179.
4 [This is a curious remark, since the practical effect of the Battle of the Gauges, clearly apparent by 1853, was to establish 4 ft 8.5 ins (1.435 m) as the standard gauge for all save extensions to the Great Western system, which was allowed to retain its 7 ft 0.25 in gauge. RRO.]
5 The original of this is in Public Record Office (PRO) T1/5847A/02437, papers in group 16657; it was printed in Correspondence respecting the Scale for the Ordnance Survey and upon Contouring and Hill Delineation, B.P.P. (H.C.) 1831 (1854), XLI, 187, p.144.
Doull had formerly been a Sapper, working on the Ordnance Survey of Ireland, but by 1837 he had fallen out with the Board of Orinance, and had set up as a land surveyor and civil engineer. Based at Chatham, during the next decade he made 42 tithe surveys in Kent and Essex, 38 of them to 'First Class' standards, and most of them in a style very close to that of the Ordnance Survey, and by 1853 he was engineer to the South Eastern Railway. The full text of his reply to the Treasury’s questions shows that he regarded the question of scale as ultimately social and political rather than merely technical.

**How long did it last? A summary of opinions.**

As shown by the quotation above, Doull regarded the Battle of the Scales as having begun in 1840 or 1841. The Treasury had sent out with its circular soliciting opinions on the optimum scale printed copies of various papers, including some relating to the adoption of the 1:10,560 as the basic scale in northern Britain in 1840, and the reaffirmation of that scale in 1843 following a suggestion by Lieutenant Robert Kearsley Dawson, (formerly of the Ordnance Survey and now the Assistant Tithe Commissioner with special responsibility for maps). Writing in the 1930s, two Ordnance Survey Directors-General, Colonel Sir Charles Close and Brigadier H.S.L. Winterbotham, both took 1840 as the starting date for the 'Battle', and both took 1863, when on 14 March the cabinet authorised the resurvey of those parts of England and Wales hitherto only published at 1:63,360, as its finish. This was followed by the Ordnance Survey in various official publications, by Dr J.B. Harley in his widely-circulated *Historian's Guide*, and by the writers in the semi-official history of the Ordnance Survey, and has generally been adopted by the Ordnance Survey in summary accounts of its work. Rather interestingly, Winterbotham quoted, without apparently noticing the discrepancy, an account of the 'Battle' written in 1882 by a predecessor, Major-General A.C.Cooke, which seems to confine the episode to 1853-55. Colonel Sir Henry James, appointed Superintendent of the Ordnance Survey in 1854 and an active participant in the 'Battle', regarded it as over by 1859. Recently, it has been suggested in both an academic journal and in more popular publications that the scale question was only resolved by the report of the Davidson Committee in 1938. Although it is to be suspected that this rests on a misunderstanding of a phrase in the semi-official history of the Ordnance Survey, nonetheless the fact that it has been made at all implies that it ought to be examined.

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7 A good example of Doull's style is the map of Bapchild, Kent, in PRO IR 30/17/16. Information in this paper on tithe surveys derives from the University of Exeter/Leverhulme Trust Tithe Survey Index project, directed by Professor R.J.P. Kain.


10 Gladstone to Hamilton, 14 March 1863, in PRO T1/6451B/17170.


18 On p.15 of *Triangle*, no.21, Summer 1991, (published by the Youth Hostels Association, St Albans).

19 Seymour, *op. cit.*, p.262: 'Once again the question of scales became a cause of controversy'.

How long did it last? A historian’s opinion

The writer, in his study of the mid-nineteenth century Ordnance Survey, treated the Battle of the Scales as beginning in May 1851 with the proceedings of the Select Committee on the Ordnance Survey of Scotland, and its questioning the utility of the 1:10,560 scale, and as concluding on 11 September 1858 with the reauthorisation of the 1:2500 scale by the prime minister, Lord Derby. His grounds for this were, first, that the 1851 Committee was appointed to investigate the slow progress of the Scottish survey, and only in the course of the Committee’s proceedings, rather than in its terms of reference, was the question of scale raised, and that, second, after September 1858 there were no further changes of policy as regards basic scale. Whilst not denying that the question of Ordnance Survey scales was disputed, or at least conspicuously not a matter of concensus, before 1851 and after 1858 (and, indeed, after 1870), he adheres to his opinion that the term 'Battle of the Scales' should be confined to the period 1851-8; nonetheless, he considers it to be at least useful to consider the alternative interpretations, and some objections to them.

The cases for and against the 'Battle' lasting from 1840 to 1863

This presumably takes its starting date from Doull’s contention, quoted above, that the dispute had begun in 1840-1, i.e. at the time of or just after the authorisation of the 1:10,560 as the basic scale for northern Britain, in place of the 1:31,680/1:63,360, and its finishing date from the authorisation of the 1:2500 resurvey of southern Britain. It gains some support from the Tithe Commissioners having tried in 1842-3 to have the 1:2376 scale substituted for the 1:2376 in northern England, but not Scotland; this led to an internal investigation by the Treasury which reaffirmed the adoption of the 1:10,560, but not to any public debate. However, this episode is best interpreted as a sequel to the dispute in 1837 about the scale and specification of the maps needed for tithe commutation purposes; partly because of drafting inadequacies in the mapping clauses of the Tithe Commutation Act of 1836, and partly because the need for mapping for tithe commutation seemed to the Tithe Commissioners an excellent opportunity to have the work carried out in such a way that it would be suitable as a general rather than an ad hoc survey, they urged the making of a survey at 1:2376. This survey would have been confined to England and Wales, and would have been made by civil contractors rather than by the Ordnance Survey.

The Commissioners were unsuccessful, and had to be content with dividing the tithe maps made subsequently into First Class Maps, which were tested and found accurate enough to be admissible as legal evidence of the limits of tithe areas, and Second Class Maps, which were the rest. First Class Maps covered only 1451 of the 11,783 tithe districts, or about 12 per cent of the whole by number, though probably only about 7-8 per cent of the total tithable area, but in practice the tithe surveys acted as a stop-gap national large-scale survey of most of England and Wales pending the making of the Ordnance Survey 1:2500. If the episode of 1842-3 is to be considered part of the 'Battle', then so must be that of 1837, as the object then was a national large-scale survey; that it would not be the Ordnance Survey doing the work was a comparative detail, and to ignore this episode is to take an inappropriately limited view of Ordnance Survey history, and one which implicitly devalues the political content of the scales debate, in favour of its technical aspects. Similarly, as '1840' appears to have been adopted as a starting date by Close and others on the grounds that the 1:10,560 was authorised then, it is reasonable to carry the starting date of the 'Battle' back to at least May 1837, when Colonel Thomas Colby, the then Superintendent of the Ordnance Survey, wrote that those Scottish interests urging the start of the

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22 The original papers relating to this are in PRO T1/4777A/25274, T1/4909/26797 and WO44/702; some were printed in Correspondence respecting the Scale... in 1854.
24 This statistic has been obtained by the Exeter/Leverhulme Tithe Survey Index project, and is here published for the first time.
25 This is an impressionistic figure gathered by the writer whilst working on the Tithe Survey Index project, given pending precise computer analysis.
26 Oliver, thesis cit., pp.86, 163, 284, 286.
27 In justice, it is described in Seymour, op. cit., pp.112-3, but that is an exception to the general rule.
survey of that kingdom should carefully consider at which scale they wished the survey to be made.\textsuperscript{28}

The terminal date of 1863 appears at first sight a useful one at which to conclude the 'Battle', being as it is the date at which the 1:2500 resurvey was authorised, but its utility diminishes if one considers, first, what was not authorised on 14 March of that year, and, second, the precise nature of what was authorised. What was not authorised was the 1:2500 mapping of those northern counties (to say nothing of Ireland) which had been mapped at 1:10,560 between 1841 and 1853; only when the resurvey authorised in 1863 was nearing completion was work started on providing these counties with 1:2500 mapping, and then it was technically classified as 'revision', in order to meet possible Treasury objections.\textsuperscript{29} This leads to the second point: what was authorised in 1863 was fundamentally financial in nature, and a tedious but necessary piece of administration. In December 1853, W.E. Gladstone, then Chancellor of the Exchequer, had foreseen that the resurvey of southern Britain, with its concomitant expense, was implicit in the scales dispute,\textsuperscript{30} as it would be impossible to deny the 1:2500 to southern Britain were it to be granted to the north, and he saw it as a financial rather than a technical question; he took the same line when the authorisation of the resurvey was in prospect in 1862-3.\textsuperscript{31} The correspondence between James and the Treasury following the authorisation of the resurvey merely emphasises this point,\textsuperscript{32} and to see the Battle of the Scales as ended by the authorisation of the 1:2500 resurvey is to take a superficial point at the expense of missing a more subtle one.

\textit{The case for the scales debate continuing after 1863}

This is best considered by briefly describing the history of the various scales employed or suggested at various times since 1863,\textsuperscript{33} bearing in mind that, despite urgings by the then Director-General, Brigadier M.N. MacLeod,\textsuperscript{34} in 1938 the Davidson Committee recommended the continuance of the \textit{status quo} as regards scales, but the adoption of a metric National Grid,\textsuperscript{35} and that the Ordnance Survey adopted a metrication policy in 1969.\textsuperscript{36}

The 1:500, 1:528 and 1:1056: after 1894 these scales were no longer maintained at national expense, but could be revised on a repayment basis. Sixteen such revisions or surveys were undertaken between c.1895 and 1910.\textsuperscript{37} The 1:1056 plans of London were later maintained in conjunction with the Land Registry; the remainder were officially regarded as obsolete by 1924, and as superseded by the 1:1250 photo-enlargements,\textsuperscript{38} though in practice at least some stocks were still being maintained by reprinting in the late 1930s.\textsuperscript{39}

The 1:1250: from 1911 onwards some photo-enlargements from 1:2500 were produced, initially mainly for Land Valuation purposes, though the sheets were placed on sale, and by 1924 the Ordnance Survey was actively encouraging their use.\textsuperscript{40} Although in 1938 the Davidson Committee recommended a 1:1250 resurvey of urban areas, which was to be the main work of the Ordnance Survey for many years, this appears to this writer a regularising of the position

\textsuperscript{28} Extract from Colby to Byham, 16 May 1837, in PRO T1/4060.


\textsuperscript{30} Gladstone to Trevelyan, 10 December 1853 in papers in group 25106, in PRO T1/5847B/25437.

\textsuperscript{31} See papers in PRO T1/6451B/17170, and Oliver, \textit{thesis cit.}, pp.246-51.

\textsuperscript{32} PRO, \textit{loc. cit.}, and Oliver, \textit{thesis cit.}, pp.251-62.

\textsuperscript{33} It has not been thought necessary to give exhaustive references to sources for most of the statements in this section.

\textsuperscript{34} Seymour, \textit{op. cit.}, pp.261-2.


\textsuperscript{36} Seymour, \textit{op. cit.}, pp.327, 352-3.

\textsuperscript{37} This figure has been deduced from various Ordnance Survey Catalogues.

\textsuperscript{38} \textit{Catalogue of Maps and other Publications of the Ordnance Survey}, (Southampton, Ordnance Survey, 1924), p.11.

\textsuperscript{39} E.g. of Stoke-on-Trent: copies in OS Record Map Library.

\textsuperscript{40} \textit{Catalogue}, 1924, p.11; this contains a list of all the 1:1250 photo-enlargements produced up to that time, but I know of no convenient list of enlargements prepared after 1924.
analogous to the recasting of the 1:2500 on National Grid sheetlines, rather than as a decision about scale per se.

The 1:2500: the most fundamental changes after 1863 were the decisions in the early 1970s not to maintain this scale in certain marginal areas, most notably the military training grounds on Salisbury Plain, for which in future 1:10,000 would be the basic scale, and not to publish in future coverage at this scale of areas also mapped at 1:1250,41 though as for many years the 1:2500 of such areas had been obtained by direct reduction from the 1:1250, the decision was perhaps not wholly radical. Nonetheless, neither of these developments appear to have been provided for by the Davidson Committee.

The 1:10,560 and 1:10,000: after 1969 the former scale was phased out in favour of the latter. In the early to mid-1950s the official policy was that in certain uninhabited parts of the Scottish Highlands the 1:10,560 would be replaced by the 1:25,000 as the basic scale, a decision apparently taken within the Ordnance Survey, but the 1:10,560 was reinstated as the basic scale in those areas in 1956.42

The 1:12,500: MacLeod suggested to the Davidson Committee that this scale replace the 1:10,560, but there appears to be no evidence of any more substantial demand.43 It is true that 1:12,500 mapping of some urban areas, obtained by direct photo-reduction from the 1:10,560, was produced for military purposes during World War II (series GSGS 4157), but it is not clear that there was any connection between this and MacLeod’s proposal; no further significant mapping at this scale appears to have been produced after 1945.

The 1:25,000: the origins of this are somewhat complicated, but the position at the time of the Davidson Committee’s proceedings was that this scale was being produced, of limited areas, for military use only, and that though there was pressure from both the War Office and MacLeod for national coverage,44 the Davidson Committee only recommended its experimental production, to test public demand. Instead, following the production in 1940 of a provisional edition for military use (GSGS 3906), work started in 1943 on a redrawn civil edition, which was published from 1945 onwards without passing through any such experimental phase. Colonel Seymour, writing in the semi-official history, observes ‘It remains something of a mystery as to why the series was ever made at all.’45 The possibility of abandoning this scale has been considered several times, most recently in 1981-2, and the story of the development of this map must by itself render any contention that the Davidson Committee settled scales controversies wholly untenable.

The 1:63,360 and 1:50,000: following the adoption of metrication in 1969 the latter scale was adopted in place of the former in 1971, though the alternatives of 1:75,000 and 1:100,000 were also considered, and it was originally intended that the new map retain imperial contours and spot-heights.46

The 1:100,000 and 1:126,270: national coverage at 1:126,720 (‘Half-inch’) was authorised in 1902 in response to War Office pressure and to a Treasury disinclination for any official requirement for this scale to be met by purchasing stocks of the Bartholomew publication.47 After a period in abeyance pending redrawing, it was abandoned in 1961 because of a shortage of draughtsmen.48 As Seymour observes,49 at that time Bartholomew continued to provide national coverage at this scale, but now there is no alternative commercial 1:100,000 or 1:126,720

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42 Seymour, op. cit., p.300.
43 Ibid, pp.262-3.
44 Ibid, pp.262-3.
47 See "The "Half-inch" at Tewin', Sheetlines no.9, April 1984, pp.14-16.
49 Seymour, op. cit., p.328.
national mapping published in sheet form, and 1:100,000 photo-reductions from 1:63,360 or 1:50,000 have had to be produced as a basis for county administrative diagrams of England and Wales; these photo-reductions can hardly be considered a reasonable substitute for an ad hoc 1:126,720 or 1:100,000 topographical map, and, again, here is a development which does not seem to have been provided for by the Davidson Committee.

The 1:253,440 and 1:250,000: the latter scale was substituted for the former in 1957-62, and more recently has served as a basis for various enlargements and reductions, mostly in atlas form, published at scales varying from 1:126,720 to 1:316,800. The justification for the Ordnance Survey continuing to maintain mapping at this and smaller scales has recently been questioned by the Director-General-designate.\(^\text{50}\)

The 1:633,600 and the 1:625,000: the former scale was replaced by the latter in 1942. The same questioning of justification applies to this as to the 1:250,000.

It appears to the present writer to be a reasonable inference from this summary that the Davidson Committee did not resolve any scales dispute; rather it made recommendations, some of which were followed, some of which were not, and some of which were exploited.

**Conclusion:** *what period is covered by the Battle of the Scales?*

The writer suggests that the term 'the Battle of the Scales' be confined to the period from 1851 to 1858, as corresponding to the period when the Ordnance Survey of Great Britain was decisively transformed from being peripheral to national mapping activity to being at its core. A starting date of 1840 for the 'Battle' cannot be justified by reference either to developments within or without the Ordnance Survey, and indeed any suggestion that the 'Battle' was in progress in 1842-3 must take cognisance of a related dispute, not immediately involving the Ordnance Survey, in 1837. A finishing date of 1863 confuses the form of cabinet authorisation with the substance of what was being authorised.

Although there is an element of truth in contending that disputes about scale continued into the period of the Davidson Committee in the late 1930s, that Committee did not put an end to such disputes. The history of the 1:25,000 map is sufficient to disprove that. This writer concludes by contending that, first, disputes about scale have marked most of the Ordnance Survey's history, certainly from the later 1830s onwards, and second, that the use of the term 'the Battle of the Scales' is best confined to discussion of the period from 1851 to 1858, and that it is best justified by the political and social rather than the narrow technical considerations.

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\(^{50}\) David Rhind, "The future role of a British national mapping agency", in *Ordnance Survey past, present and future*, (Chichester, SMA, 1991).