Sheetlines

The journal of
THE CHARLES CLOSE SOCIETY
for the Study of Ordnance Survey Maps

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THE CHARLES CLOSE SOCIETY
for the Study of Ordnance Survey Maps
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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, Sheetlines, is recognised internationally for its specialist articles on Ordnance Survey-related topics.
## Forthcoming events

1. Professor R J P Kain
2. The BCS Historical Military Mapping Special Interest Group
   - Mike Nolan
3. Visit to Defence Geographic Centre, Feltham
   - John Davies
4. Wired for maps
   - Gerry Jarvis
5. Uncle Joe knew where you lived (part II)
   - John Davies
6. ‘New one-inch series’ and parish boundaries
   - Richard T Porter
7. Dating early Bartholomew half-inch maps
   - Jean Davidson
8. When is a National Park not a National Park?
   - Bill Henwood
9. Tidal Tales
   - John Cole
10. Blanket coverage?
    - Philippa J Corrie
11. Cyberspace or bust!
    - Roly Hann
12. The Charles Close Society expedition to Belfast, 2005
13. The 2005 Annual General Meeting
14. The *Reichsamt für Landesaufnahme* and the Ordnance Survey (part II)
    - J L Cruickshank
15. Not in them thar hills!
    - John Cole
16. Survey methods: corrections and additions
    - John Cole
17. Reviews
18. Kerry musings
    - David Archer
19. Letters
20. New maps
    - Jon Risby
Forthcoming events

Places are available on all remaining meetings scheduled for this year, and these are listed below. To book for all meetings except the Soviet military maps study day on 8 October, contact Gerry Jarvis, Rulow House, Buxton Old Road, Macclesfield, SK11 0AG, telephone 01625 611594, or email visits@charlesclosesociety.org.uk.

Tuesday, 30 August

Badley Library, Larkhill

Another visit to the School of Artillery library, where we always receive a warm welcome. This date is the day after the annual one-day opening of Imber village.

Saturday, 8 October

Soviet military maps study day, Cambridge

The second part of John Davies’s story of Soviet mapping appears elsewhere in this issue. This is a follow-up study day at the Map Department, Cambridge University Library, with speakers including Henry Dodds (presenter of the BBC Radio 4 programme, Balalaikas in Blackpool). There will also be a discussion forum and an opportunity to examine the Soviet maps and corresponding OS maps. For more information and to reserve a place, please contact John Davies on jomidav@btinternet.com or 020 8504 1766.

21-23 October

Harmston workshop weekend

This workshop, at Harmston, near Lincoln, is intended to give members an opportunity to tackle an unfamiliar map series, using the French 1:50,000 (Type 1922) as an example. The result will not include a cartobibliography, but should result in a series description for Sheetlines. Basic accommodation will be included in the price.

Saturday, 19 November

CCS 25th Anniversary at the British Library

A commemorative meeting, with a series of presentations in the morning, and a display of maps from the British Library in the afternoon.

Professor R J P Kain

Our heartiest congratulations go to a long-time member of the Charles Close Society, Roger Kain, Montefiore Professor of Geography and a Deputy Vice-Chancellor at the University of
Exeter, on his well-merited award of a CBE in the Queen’s Birthday Honours, for services to scholarship.

Professor Kain’s work includes the definitive studies of the tithe files and tithe surveys of circa 1837-1851, a study of the enclosure mapping of England and Wales in the eighteenth and nineteenth centuries, a history of English mapping, and an electronic map of historic parish boundaries of England and Wales, based on the Ordnance Survey one-inch New Popular Edition.

**The BCS Historical Military Mapping Special Interest Group**

*Mike Nolan*

The Historical Military Mapping Group (HMMG) is a forum for those interested in any aspects of the history of military surveying and mapping. It is run as a special interest group of the British Cartographic Society (BCS) by its convenor, Dr Peter Chasseaud. Membership of the BCS is not a requirement for membership of the HMMG. Membership is open to anyone interested in the subject and is free. However, the BCS may charge non-BCS members a small fee for distribution of the group’s newsletter when this gets underway.

**Next meeting**

The next meeting of the HMMG will be held during an evening session of the BCS’s 42nd Annual Symposium at the University of Plymouth, on 2 September 2005, in the Portland Square Building adjacent to the Sherwell Centre. Anyone attending the symposium is welcome to attend. Nearer the date, full details may be obtained from the BCS Administration Officer, Ken Atherton, on (01823) 665775 or at admin@cartography.org.uk.

**Next visit**

The next visit of the HMMG will be to RAF Duxford on 7 October 2005 to see some of the Imperial War Museum’s (IWM) collection of military maps, including Haig’s 3D maps of the Western Front, World War II planning models, and a range of military maps from the Boer War to the Falkland Islands War, held there. This visit is being organized by Christopher Hunt of the IWM. Attendance, which is free, will be limited. Full details may be obtained from Christopher Hunt at cjvhunt@iwm.org.uk.

**Next seminar**

Following its successful seminar on Combined Operations and D-Day surveying and mapping held at the National Maritime Museum, Greenwich in June 2004, the HMMG is planning to hold another seminar at Portsmouth University in late May 2006. The theme of the seminar is not yet finalised but it is likely to cover a miscellany of minor milestones in the history of military mapping to demonstrate the wide range of members’ interests. Full details will appear in the next, December 2005, issue of *Sheetlines*.
Visit to Defence Geographic Centre, Feltham, 15 April 2005

John Davies

It is a problem familiar to many map collectors: what do you do when the collection outgrows the space available? But not everyone can solve it as elegantly as DGIA did. When they outgrew their Tolworth home, the MoD sold the land to a developer and used the proceeds to move to purpose-built premises in Feltham. And they took all 1.5 million maps with them, without mislaying a single one. Not only that, but the exact whereabouts of every one of them was known at all times, in case of an urgent demand.

The Society had been the guests of DGIA (Defence Geographic and Imagery Intelligence Agency) at Tolworth about three years ago and were now privileged to have the opportunity to visit the new site. Peter Jones (DGC Deputy Director) and David Watt (Desk Officer for collection over east Europe and CCS member) welcomed the group, explained the history and current role of the organisation now known as Defence Geospatial Intelligence (DGI), no longer a Defence Agency, and gave an escorted tour of the Defence Geographic Centre (DGC).

DGI is the second largest employer of cartographic staff in UK (after OS) and has the second largest known collection of current maps in the world (after the USA). The organisation is primarily interested in current maps, as the purpose of the collection is to provide the MoD and other government departments and agencies with up-to-date maps to support any operation or activity anywhere in the world. The objective is to maintain topical topographic worldwide land coverage (above high water mark) at appropriate scales and to make it available instantly on demand. For example, when the Indian Ocean tsunami devastated S.E. Asia on Boxing Day, DGC were immediately able to provide suitable maps for humanitarian aid and relief operations.

Original maps are acquired by various means, centrally and locally. In many cases, maps are exchanged with similar organisations overseas under a ‘memorandum of understanding’. In other cases maps are purchased through dealers or even – where rare opportunities suddenly arise – on local market stalls. The DGC also creates and prints its own maps where none suitable exist, or to provide sufficient numbers of copies for operations.

The Library is housed in the MacLeod Building, named after the eminent surveyor and geographer Major General Malcolm Neynoe MacLeod who pioneered field printing of maps in the trenches during WWI and later became Director General of OS. DGI moved into the building in 2003, in an exercise planned with military precision. The statistics are certainly impressive; in addition to 1.5 million paper maps, there are 34,000 sets of reproduction material (photographic plates, etc), 80,000 books and documents and 120 staff housed in 17,000 square feet of map store, 15,000 sq. ft of archive store, 4,000 sq. ft of repmat store, 3,000 sq. ft of digital library and 25,000 sq. ft of office space.

The map store is organised by the Parsons system of classification, whereby areas of the world have a code letter and each country is given a number. For example, Europe is code C, Far East is D, Africa is E and so on. Within Europe, England and Wales is C17, Belgium C28 and Norway C36. The Parsons system was devised internally in MoD in 1946 and has proved its effectiveness ever since.

The store holds about 600,000 different items, of which about 40% are unique copies and there are generally no more than four copies of any item. It is climate controlled but not to BS archive standards, as most materials are stored for only a few years, until superseded.
‘What happens to discarded copies?’ we wanted to know. The answer is that relevant material goes to the National Archives, with much of the remainder going to the deposit libraries (such as BL) and various universities.

Coverage is as wide as possible and to whatever scale is considered appropriate; one particular purpose of the maps is to record the definitive position of all international boundaries. The DGI is the MoD authority for the alignment of the boundary; the FCO is the authority on the status of boundaries.

The Geospatial library has about thirty staff organised on a regional basis and is responsible for cataloguing up to 20,000 new items per year and managing and delivering digital, paper and reprographic materials. They have the responsibility for vetting newly acquired material from new or unknown sources to ensure the veracity of the content. Increasingly the organisation is acquiring soft copies as well as paper copies, which require quite a different type of management for storage, retrieval and reproduction.

David Watt had arranged a small exhibition of cartographic curiosities and items of interest from the DGC collection and elsewhere. This attracted considerable interest and lively debate. Prize for the most unusual map has to go to the extract of 1:25,000 map of Switzerland, described as from ‘private wardrobe’. It is printed on the silk lining of a Gieves and Hawkes Savile Row suit. Very elegant, but possibly a trifle chilly when you need to consult the map in the field.

We thank Peter Jones and David Watt for their hospitality and most especially Liz Manterfield (Head, Geospatial Library) and Lyn Fitzgerald (DGC Visits Co-ordinator) who voluntarily spent their Saturday afternoon looking after us.

Wired for maps

Gerry Jarvis

A Basic Course on electronic cartographic materials for map curators, librarians and archivists, presented by the Map Curators Group at National Library of Scotland in Edinburgh on 1-2 June 2005.

I decided to attend this course for my own satisfaction, because of an interest in computing and digitisation generally. More particularly I am currently putting my collection of photographic slides and negatives on to my computer, to be followed eventually by music records and tapes. I had no plans before this course to digitise my collection of maps, and this course has not changed my mind.

Apart from my personal interests, the CCS Committee several years ago received a small bequest, which we considered investing in copying rare and at risk maps we encountered, obviously subject to approval of the owners. But we soon realised then that we were not in a position to develop this idea as we would have liked. I thought this course might give me further insight into this subject.

It is not my intention to write up this course in Sheetlines, as I do not think it would be relevant for most members. All the handouts will be published by Tinho da Cruz in the next edition of of Cartographitt, the newsletter of the BCS Map Curators’ Group. But there were
a couple of presentations, some parts of which I thought might interest members, and these are covered below.

Chris Fleet, from the National Library of Scotland, gave a very interesting presentation as far as I was concerned, called ‘Seeing the world in pixels: practical essentials for successful map digitisation projects’. He produced a five-page handout, which would need to be reproduced in its entirety to make sense of the subject. But this covered file formatting, and I decided this might be worth mentioning. The notes which follow are my interpretation as far as photography is concerned. Many digital cameras default to JPEG, which is a lossy format. I don’t intend to define lossy, but no problem if you merely want to print your photographs. However, if you want to archive your photographs, with possible enhancements to the original image, then this format does introduce limitations. A better format to save in is TIFF, which I use for older photographs, which need enhancements. And it was interesting to learn that this is the format used by most libraries. JPEG and TIFF are available in most software packages, including Paint Shop Pro and Photoshop.

Chris mentioned an interesting development on JPEG called JPEG2000, which can be lossy or lossless. It is a developing standard, and is well written up on the web, if you want to follow up this format.

Tinho da Cruz will be known to those of you who follow the ordnancemaps group. He gave an interesting talk on ‘Where on the Web is that? A brief guide to internet-based resources’, and I have taken the liberty of listing below the sites he mentioned for browsers amongst you.

The Map Curators’ Toolbox:

This can be found from www.cartography.org.uk, the British Cartographic Society’s website, by clicking on ‘Interest Groups’, ‘Map Curators’ and ‘Curators Toolbox’. It consists of twenty-three sections spread over eight main pages.

Oddens’ Bookmarks – the cartographic gateway: http:// oddens.geog.uu.nl/index.php

The History of Cartography website: http://www.maphistory.info

David Rumsey’s mega-site: http://www.davidrumsey.com/

National Library of Scotland map pages: http://www.nls.uk/maps/

The British Library: http://www.collectbritain.co.uk/

Perry-Castaneda Library Map Collection – many non-copyrighted maps:
   http://www.lib.utexas.edu/maps/

UK Election Maps: http://www.election-maps.co.uk

Google Maps: http://maps.google.com/


lis-maps:

A forum for discussing news, ideas, issues, policies, and practices related to maps and spatial data librarianship. See http://www.jiscmail.ac.uk/lists/lis-maps.html

To join lis-maps just send the message
   Join lis-maps <your name>

as the only text in the body of an email addressed to jiscmail@jiscmail.ac.uk
According to BBC radio recently, the Red Army was poised to launch an invasion over Blackpool beach in 1976. This was the supposition of the presenter, Henry Dodds, and his interviewees after examining the Soviet military map of the town. Whilst this is probably not strictly true, it illustrates the excitement generated when one encounters these unfamiliar maps of familiar places.

The Soviet maps are indeed fascinating and the level of detail and the accuracy is quite staggering. The more one studies the maps, the more questions they raise. In the previous article we described the scope of the global mapping project in general and the maps and town plans of Britain in particular. Here we concentrate on the town plans to try to answer the question ‘How did they do it?’ and more specifically, ‘Does the claim that the mapping “is almost entirely an adaptation of Ordnance Survey material” stand up to scrutiny?’

The entire Soviet mapping project was a military secret, so any attempt to say what was done and how is inevitably based on circumstantial evidence and speculation. For that reason, it must be emphasised that what follow are the personal opinions of the writer, based on study of the maps and first-hand oral information.

The emergence of the maps

Before discussing the content and sources of the maps, it is interesting to note how they come to be available in the west today.

During Soviet times, maps (at all scales of all world locations) were stored in 25 military depots throughout the USSR, where they could be quickly accessed by locally-based officers if needed. When the USSR collapsed in 1992, the fate of these maps depended on where they were stored.

Those in depots in Belarus, Russian Federation and Ukraine remained under Russian control. Gradually channels of communication were established with dealers in US in order to start earning hard currency. Those dealers, notably Omni Resources and East View Cartographics, acquired large volumes of paper maps and subsequently sold them to libraries and collectors in the west and continue to make soft copies available through the Internet. The Russian government restricted what was made available and, for example, maps of Russian territory at 1:50,000 and larger were not released.

It was a different story in Latvia, though. In 1993 Aivars Zvirbulis, a keen orienteer in the town of Cēsis, 100 km east of Riga, had acquired a second-hand printing press in order to print orienteering maps and a catalogue for an artist friend. He heard a rumour that a couple of Russian officers were disposing of quantities of waste paper for pulping. On investigating, he learned of the existence of the Soviet map depot and discovered that its complete contents, over 6000 tonnes, had been ordered to be destroyed. He was intrigued and negotiated with

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1 Part I appeared in Sheetlines 72.
3 Ordnance Survey statement to British Cartographic Society, September 1997, has been moved and is now at http://www.cartography.org.uk/Pages/Membership/DesignG/Copyrit5.html
the officers to buy about 100 tonnes. These were moved by palette load to the yard of his printing house where, unfortunately, neighbourhood children set fire to them. Only two or three tonnes were saved and of the surviving stock, many were training maps or were not of interest (Aivars was particularly interested in large scale maps of Baltic countries and western Europe and smaller scale maps of elsewhere).

He showed some of the maps at a 1993 cartographic conference in Köln, attended by some Russian visitors, former KGB officers, who were astonished to see them. They threatened to cause real trouble, but were powerless to do so.

Aivars went on to start the Jana Seta map shop and publishing company. The Soviet maps were not intended as a core part of the business and he sold them cheaply – and continues to sell the remaining stock to this day at €2 each at the shop in Riga.5

The other Baltic city where the maps are available is Tallin where Aleksander Lesment, a former Soviet ‘officer-topographic’ who came to Estonia in 1993 can supply small scale maps of much of the world in paper or electronic form.6

How were the maps compiled?

One simple explanation could be that they were largely copied from Ordnance Survey maps. That is what the OS stated in 1997 when they effectively banned them by declaring that they contravened Crown Copyright. However, consideration of how the Soviets went about things and close examination of the content convincingly suggests otherwise.

For an understanding of the effort the USSR military invested in the world mapping project, the story appearing in On-Line Pravda in February 20037 is instructive. This describes the shock caused in Sweden by the recent publication in the newspaper Aftonbladet of illustrations of Soviet maps, dated 1987, of Stockholm and Karlskrona (the main Swedish naval base). The detailed maps were of very high quality (‘better than the creations of the best Swedish military mappers’) and showed all defensive installations and depths of secret waterways.

The publication in the Swedish newspaper ruined two myths at once: the Swedish production is always of better quality against the Russian one, and Sweden managed to conceal very important information about its coastal defence from Russians. The published maps contained the information even about the berth length and the depth at secret naval bases, not to mention the location of secret mine fields. Christer Holm, a military intelligence chief, had to acknowledge that it was the first time, when they saw such revealing information about Karlskron army base. He added that the maps were most likely drawn on the base of secret agents’ information.

Tore Foshberg, the retired chief of the counterintelligence department of the Swedish secret police, told reporters about the way the exposed maps were drawn up. Russian Central Intelligence Administration and KGB agents (there were up to 45 of such agents at the Soviet Union embassy in Stockholm) would go on a tour around the country. During their short journeys they would check loading capacities of bridges, they would also measure the

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5 Thanks to Aivars Beldavs of Jana Seta map shop, Riga for this information. Contact him at aivarsb@kartes.lv. Jana Seta web site is at www.kartes.lv.
6 Eastnor Ltd, PO Box 3191, 10505 Tallinn. Contact Aleksander Lesment at lah@hot.ee.
7 see http://all.newsfromrussia.com/society/2003/02/21/43579.html.
distance between trees in a forest. Such information was necessary to plan the moves of the Soviet incursion army on the territory of Sweden. Soviet diplomats would arrange picnics in the places of strategic interest, they would be very friendly and sociable to the local population. “One of them, military attaché Pyotr Shiroky, went to a beach near Stockholm one fine day in the summer of 1982. On that beach he started a conversation with an excavator driver (as if incidentally), who was resting on the sand nearby. As it turned out, the driver dug trenches for the cables, which were connected to mine fields. However, there was a Swedish secret agent on the beach too. He heard the entire conversation”, Tore Foshberg remembers.

The article goes on to describe the origins of the KGB agents in Sweden:

It is curious that KGB and Central Intelligence Administration used a specific category of so-called duplicate people in order to set up the intelligence network in Sweden. In the 1930s thousands of communists with their families emigrated from Sweden to the USSR. They came to live in the Soviet Union, because they admired the new country. However, romantic foreigners’ lives in the Soviet Union ended up in a very sad way: they were killed in GULAG (a system of Soviet concentration camps). However, a lot of their children survived the horrific period of the Soviet history. They started going back to Sweden in the 1960s. Some of them left Sweden when little babies. Their relatives were left to take it for granted that a grown up man, who came back home all of a sudden, was that very ‘baby Sven,’ whose communist parents left for the USSR years ago.

As a rule, those new Swedes did not speak Swedish very well. It was an absolutely natural thing for children, who lived in the Russian environment, and who lost their parents at a very young age. As a matter of fact, there could be no better way to send secret Soviet agents to Sweden under the disguise of re-emigrants. The newspaper Dagens Nuheter has recently published a story about one such agent, 33-year-old Karl Ulof Svanson. He was born already in the USSR, but then he returned back to Sweden in 1961. His relatives were so happy about his return; they could never imagine that Karl was actually a KGB major. Karl lived in Sweden for several years and then disappeared as suddenly as he appeared there. The Swedish counterintelligence managed to learn about him incidentally, from the memoirs of a former senior KGB agent, who escaped to the West.

Tens of agents like Karl were supposed to work on the preparation of the Soviet Union incursion in Sweden. They would check their data over and over again, collecting the information for drawing up detailed maps of the country.

Interestingly, the maps which caused the shock in Sweden had been picked up ‘for a dollar’ in Riga.

Turning to the UK, we have no evidence of Soviet picnics in Kent, but it is surely probable that similar efforts were made. The Chatham map, for example, shows not only the full details of the Royal Naval Dockyard and the river depths, but also the dimensions, river clearance, carrying capacity and construction of the Medway bridges.

The Radio 4 program included an interview with Oleg Gordievski, former head of KGB station in London (and later defector). He claimed to know nothing about the maps and, shown an example, said he had never seen such a map before. It is impossible to know whether or not this is true.

There are about eighty known British and Irish town plans at scales of 1:10,000 or 1:25,000, mostly dated between about 1970 and 1990. We have examined many of these to derive the hypothesis given below. Plans of other European cities such as Calais,
Copenhagen, Helsingborg, Helsinki and Santander and several in India have also been studied for comparison.

The style of mapping and the use of colours, symbols, naming conventions and so on are identical for all the maps for the entire twenty-year period. The Indian cities have fewer street names, but otherwise it is not possible to identify the country or the city without translating the name. This suggests that the cartography was done to a very tight specification using a standard set of information gleaned in each country. Obviously publicly available local mapping would be of very variable quality; possibly the Russians assumed that it would be falsified, as theirs was. It is likely, therefore, that such local maps (including OS maps) were largely ignored.

Assuming that the picnicking diplomats didn’t carry theodolites and plane-tables, then how were the maps created? The following set of assumptions has been evolved and tested against the British town plans and is now offered as a working hypothesis. Below is a summary of the findings and an explanation of how they were arrived at. The Dublin map largely conforms, but has some odd attributes which are discussed later.

**Summary of probable sources of map content**

The following list shows the probable derivation of the various types of content of the maps:

1. General topography and layout of roads, built-up areas, fields, forests, quarries etc: aerial reconnaissance.
2. Road classification and numbering: probably road atlases with supplementary information.
3. Outline of coasts, rivers, lakes, canals, etc: aerial reconnaissance.
4. Railways and ferries: largely derived from 1920s County series six-inch maps.
5. Spot heights, bench marks and contours: derived from 1920s County series six-inch maps.
6. Place names: local street atlases.
7. Annotated details e.g. widths, heights, clearance etc: probably visual inspection.
9. Proposed roads, etc.: unresolved.
10. Index of ‘strategic objects’: local investigations, trade directories and other publications.
11. Descriptive text: local investigations, trade directories and other publications.

**Explanation of these findings**

*General topography and layout of roads, built-up areas, fields, forests, quarries etc.*

In general, the features shown on the Soviet maps do not correspond to those shown on Ordnance maps which were then currently available. Typically, new developments or specific details appear on the maps which do not appear on OS maps until later revisions. Just a few examples will suffice to illustrate this:

- Blackpool (compiled 1974, printed 1976) shows fourteen such features which do not appear on OS until 1977 or 1981 editions (or, in some cases, at all).
1 (above): Extract from Bournemouth & Poole (1:25,000 scale, compiled 1986). The unnamed road running approx. north-south parallel to Burton Road and The Avenue, Poole does not exist and does not appear on any published British maps. It has evidently been deduced by the cartographers from the aerial view of the layout of the gardens.

2 (upper right): Canford Heath from Bournemouth & Poole (1:25,000 scale, compiled 1986) and ...

3 (lower right): ...the same area on the contemporary OS map (1:25,000 Outdoor Leisure Purbeck, revised 1984, published 1985).

Note the very different depiction on the two maps of the housing developments north and south of B3074, the ponds and industrial area north east of the A3049 flyover and the disused railway west of the flyover. These two illustrations alone are sufficient to prove the contention that the Soviet maps were not derived from OS material.
• Cambridge (compiled 1986, printed 1989) has eleven, including the Cambridge Science park which first appears on OS town plan of 1995.

• Oxford (compiled 1972, printed 1973) has at least six examples.

The only reasonable explanation for this is that the topography and layout of roads and towns is based on aerial surveillance, either satellite imagery or high-altitude ‘spy planes’. The technology is known to have existed at the time, as the ‘U-2’ incident demonstrates. (The US was operating high altitude reconnaissance flights over the Soviet Union using U-2 spy planes. On 1 May 1960, a U-2 piloted by Gary Powers was brought down, causing a major diplomatic incident and lasting damage to US/USSR relations). The first Soviet spy satellite (the Zenit) was launched in 1962.

More evidence that the maps are based on aerial images rather than published material comes from the Bournemouth map. There are actually two versions of this, one at 1:10,000 scale (compiled 1972, published 1974) the other at 1:25,000 scale (compiled 1984/6, published 1990). Both maps show a non-existent road parallel to Burton Road, Poole (Fig. 1). This does not appear on any map or street plan, but perusal of an aerial view in GetMapping.com reveals garden boundary hedges which look as if they could enclose a roadway.8

Incidentally, the Oxford map, although compiled in 1972 does not show the Marston Ferry link road which opened 1971, implying that the aerial images pre-date this (or possibly carelessness).

Road classification and numbering

The Soviet maps show European road numbers which do not appear in British maps but are found on official lists and some European road atlases.9 For example, the London map (printed 1985) names the M11 as both ‘M11’ and ‘E112’, the A12 as ‘12’ and ‘E8’ and the A127 as ‘127’ and ‘E108’. In fact, these particular E numbers were officially abandoned in 1983. There are also some examples of wrongly numbered roads, for example:

• Chester map has A51 east of the city named as ‘55’.

• Huddersfield map has A643 east of Outlane and A640 west of Outlane both named as ‘13’.

• Glasgow map has A740 shown as ‘T40’.

Otherwise, the numbering of A roads (omitting the A prefix), trunk roads with T suffix and motorways is generally similar to that shown on widely-available road atlases. Motorway junction numbers are not shown.

Outline of coasts, rivers, lakes, canals, etc

As with general topography, the depiction of water features does not directly correspond with OS maps, suggesting that these also are derived from aerial reconnaissance. A few examples are:

• Glasgow: banks of Clyde estuary not as OS.

• Blackpool: shape of Marton Mere and surrounding drainage channels not as OS.

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8 Thanks to CCS member Tony McCartan for spotting this.
9 For a list of European road numbers see http://homepage.mac.com/longueville/lijste.html.
4: From London (east sheet) 1:25,000 scale compiled 1979
Note the area where the B170 (Roding Lane) crosses the motorway. The Soviet map shows motorway works area just to the north and a lake to its west which do not appear on OS maps until later editions. The three ‘running tracks’ on the Soviet map are symbolic for sports fields. The Central Line tube stations are marked with M symbol (shown as ‘Sta’ on OS) and the M11 is named also E112. Spot heights 17 (by B170) and 19 (SW of railway/motorway crossing) are on both maps, derived from earlier six-inch ‘County series’ map.

5: As shown on OS (1:25,000 sheet TQ49/59 revised 1983, published 1985)
- London (printed 1985): has water filled sandpits in Roding valley (alongside M11) which are not shown on 1983 OS maps but are on later versions (Figs. 4, 5).

**Railways and ferries**

The railway lines, stations, sidings and ferry connections shown on the Soviet maps are generally considerably out of date. Old information appears to have been used and added to the aerial images, even where the line would no longer have existed at the time (although it may be that track bed, for example, would have been visible). As far as can be judged, the information seems to correspond to the old ‘County’ series six-inch OS maps of the 1920s, although some updating has occurred. Signals are shown at frequent intervals along lines, as shown on the old maps, although many of these would have been dismantled by the 1970s. Some examples to illustrate this:

- Blackpool (1976): railway network north from Poulton-le-Fylde serving chemical works north of Stanah, including two jetties in River Wyre, all shown as old OS, not on contemporary OS. Wardleys ferry across River Wyre also shown as old OS; conversely, the line running east from South Shore is shown on current (1971) OS but shown as disused on Soviet map.
- Oxford (1973): ferries SW of New Marston, and at Kennington and North Hinksey are as old OS and are not shown on recent maps.
- Newcastle sheet (compiled 1974, printed 1977) shows six ferries across the Tyne between the city and Tynemouth, of which only one (Shields ferry) is on contemporary OS maps.
- Glasgow sheet (compiled 1975, printed 1981) has six ferries over the Clyde between the city and Erskine Bridge of which only three appear on contemporary OS maps.

Many maps have instances of railways shown as normal lines which are shown as disused, dismantled or ‘freight line, siding or tramway’ on contemporary OS maps. Examples include

- Glasgow: line running south west from Neilston.

On the Manchester sheet, the area adjacent to Dairyhouse Farm (near Dunham Massey) is shown as having railway sidings, but this is blank on contemporary OS maps.

There is a symbol in the specifications for ‘electrified passenger line’ but this rarely occurs on the maps. One map where it does appear is the Chatham, Gillingham and Rochester sheet. This sheet has other instances of additional annotation (e.g. clearance on Medway bridges) which suggests it had special attention due to the proximity of the Royal Naval Dockyard.

**Spot heights, bench marks and contours**

There is considerable consistency between the positions and values of spot heights and benchmarks on the Soviet maps and those shown on the old six-inch OS County series. Many of these are omitted from the later National Grid series six-inch sheets and others have changed values due to re-levelling etc. The height values are converted to metric to one
decimal place and the contour lines appear to be interpolated from these, mostly at 2.5 metre intervals.

Oddly, the Cambridge sheet contains heights from two different editions of the OS six-inch maps. Some of the values are taken from the 1903 edition, others from the edition published in 1924, after re-levelling. This can be seen in two adjacent spot heights near Grantchester.

**Place names**

The study was confined to district names within urban areas, as these can most easily be traced back to a source, due to the positioning of the name and, indeed, the choice of the names themselves. The general conclusion is that place names are for the most part derived from combining information from all available commercial street atlases and town plans. However a number of cases are found where the names appearing on the Soviet maps may be in common currency locally, but do not appear on any contemporary published maps or plans.

Some interesting examples:

- **Blackpool**: the following names are shown on the Soviet map and appear on Geographia but not OS maps: Holmes, Whiteholme, Grange Park Estate and Mereside Estate. Conversely, Anchorholme appears on all scales of OS but is not on the Soviet map.
- **Cambridge**: Red Cross, Haverfield, Kings Hedges and Douglas House all appear as district names on the Soviet map but not on OS, Geographia or A-Z. Soviet map has Brooklands (suburb east of city); this is named as Brooklands on 1983 Geographia but Brookfields on OS, A-Z and 1987 Geographia. Newtown is located near to Fen Causeway on Soviet and Geographia maps, but near to Botanic Gardens on OS and A-Z.
- **Oxford**: Barton Estate and Sunnymead Estate appear as district names on Soviet plans but are not named on OS or any of Geographia, Geographers or Barnett’s maps. Sandyhill is named on Soviet map; this is Sandyhills on OS, Geographia and Geographers and Sandyhill Estate on Barnett’s. St Ebbe’s is named on Soviet map, this is a commonly-used name locally but does not appear on any map except Barnett’s and old six-inch OS.
- **Teesside map** (compiled 1973, printed 1975) has Preston upon Tees, Eaglescliffe Junction and Acklam Garden City. Former appears as Preston-on-Tees on OS and street plans; other two do not seem to exist as place names on any published map (so far seen).

**Annotated details e.g. widths, heights, clearance, surfaces etc**

Some maps have annotation giving the widths of roads, rivers and canals; the length and width of bridges and tunnels; construction material for bridges and surface material for roads. This information is generally sparse, but where it does appear there is often an abundance in the same locality. This could imply that special exercises were undertaken in certain cases, but there is no obvious reason why this should be so.

For example, the Edinburgh map has about twenty instances of road widths, mostly on the eastern fringes of the city; Blackpool has five in two localities; most maps have none. In a few cases, road surfaces are indicated (usually asphalt).

As noted earlier, the Chatham, Gillingham and Rochester map has the dimensions and height of the two Medway bridges shown. They are also indicated as being of reinforced concrete. The Thurrock map shows the dimensions of the Dartford Tunnel, whilst the
Liverpool map has the width of the Leeds and Liverpool canal annotated as ‘18 metres’ in three places; presumably this is a mistake (possibly 18 feet?).

The curious case of the Reserves: The Oxford map has the words ЗАПОВЕДНИК ОКСФОРД at Old Boars Hill to the south west of the city, in similar sized typeface to important place names. This translates as ‘Reserve (or Preserve) Oxford’. The land here is marked on larger scale OS maps as belonging to the Oxford Preservation Trust. The Liverpool sheet has ЗАПОВЕДНИК СПЕК (‘Reserve Speke’) at Speke Hall (National Trust property) and the Manchester and Huddersfield sheets have ЗАПОВЕДНИК (‘Reserve’) on National Trust land at Marsden Moor in the Pennines.

It is not obvious why this was considered useful information, unless the Russian term implies land reserved for military use.

Hydrographic information

Submarine depths and underwater obstructions cannot be seen from the air and they cannot be discovered by picnicking diplomats, so it is natural to suppose that they must have been taken from Admiralty charts. However, apart from three specific cases, there is hardly any similarity between the information depicted on the Soviet maps and the respective Admiralty charts.

The three cases of close similarity are a short stretch of the River Medway (Figs. 6, 8), Granton Harbour (Edinburgh) and Dover Harbour. All the other areas examined (fifteen harbours and estuaries round the British and Irish coasts), simply do not correspond.

It has been suggested\(^\text{10}\) that the marine data is taken from captured German WWII charts. If so, it has been updated, as many navigation channels have the legend ‘Dredged to xx metres (19yy)’ where yy is a recent (60s, 70s) year.

Proposed roads, etc

Roads under construction, such as the Edinburgh southern by-pass and sections of M62 and M66 are shown as such, even when not shown on contemporary OS maps. Presumably they could be observed from the air or derived from other road atlases etc.

However, one road is shown in dotted lines (indicating either proposed or under construction) that was never built and does not appear on any map or atlas so far seen. This is on the Teesside map, running SW from old A19 (now A135) south of Stockton, crossing the Tees at grid reference 437155 to join A1045 south of Thornaby. The source of this information is not known.

Index of ‘strategic objects’

All the maps have selected ‘strategic objects’ identified, colour coded (black for industrial plants, purple for administrative premises and green for items of military significance) and indexed.

The Chatham, Gillingham and Rochester sheet has 70 such, including 22 factories, 8 transport facilities, 6 barracks / military schools, 15 depots / utility plants, 6 post offices, 2 police stations and various buildings such as airfield, broadcasting studio, customs house, town hall. The Dublin map has 63, including airfield, prison, Ordnance Survey office, Observatory, Court, Bank of Ireland, 20 factories, 9 barracks, 13 port, bus or train depots / stations and 7 colleges.

\(^{10}\) by CCS member ‘Anon’.
**Chatham Royal Naval Dockyard and River Medway**

6 (above): from Chatham, Gillingham & Rochester; 1:10,000 scale, 1982.
7 (left): from one inch sheet 172, 1964, © Crown Copyright NC/00/1340.
8 (right): from Admiralty Chart 1835 River Medway, 1:6000 scale, 1977.

This short stretch of the Medway is one of the very few places where the Soviet maps correspond to the respective Admiralty chart. In this case, the spot depths, the bathymetric contours and the submarine cables are similar, as is the annotation ‘Dredged to 4.9 metres’ and the names South St Mary’s Wharf and Upnor Jetty. The buildings and railways, however, are quite different. In the stretch of river immediately east of here— as in practically the entire country—the hydrography on the Soviet maps differs from Admiralty charts. In the 1960s the OS maps blanked out the dockyard, but the detail did appear in later sheets.
Plumstead Marshes, Woolwich

10 (below): as shown on contemporary OS (1:50,000 sheet 177, East London, 1978), © Crown Copyright NC/00/1340.

The Soviet map shows the Thamesmead development more advanced, but also has a 'cable tunnel' under the Thames to Barking (which appears only on Admiralty charts) and two 'strategic objects', 341 'Atomic Centre' and 322 'Television tower'. Neither of these appears on any published material. This area had once been used for weapons testing by the nearby Woolwich Arsenal, but this had supposedly ceased by the 1960s when the land was sold for housing.
Most of the industrial premises have the product identified and many have the companies or proprietors named.

Some strange anomalies are found, however. The airfield marked on the Dublin map is in fact the racecourse in Phoenix Park and there is no evidence on any published map that this was ever used for aircraft. Similar unlikely airfields appear on the Liverpool map (the reclamation ponds by the river at New Ferry) and the Blackpool map (the Royal Lancashire Showground). The Cambridge map has the residential housing development at Harvey Court identified as the law courts, presumably due to misinterpretation of the name.\footnote{11} Strangely, the Dublin map does not identify Leinster House, seat of the Irish Parliament.

These lists would appear to be compiled from a combination of sources such as trade directories, street plans, various reference books and, probably, visual investigations.

Descriptive text

Another impressive feature of the maps is the Description of the Locality. Typically, this runs to about 1500 - 2000 words, with considerable detail about the population, topography, climatic conditions, vegetation, communications, housing types, districts and layout of the city, utilities, industrial production, ‘communal enterprises and sanitation facilities’ and so on. The text for Birmingham includes the observation ‘railroad tunnels may be used for cover [with locations and lengths] and also many working and abandoned coal mines and quarries’.

The source of the information is likely to be the same as for the Strategic Objects, above.

\textit{The Dublin Map}

11: Dublin City Centre (1:10,000, compiled 1970). Street tramways are shown although these were abandoned in 1949. The Liffey is annotated as 47 metres wide and the banks are shown as suitable for moorings. Strategic buildings identified include Bank of Ireland (2), General Post Office (37), Trinity College (29), Four Courts (53), but not Leinster House or Custom House (‘Мемориум’ north of river by railway bridge).

\footnote{11} Thanks to Charles Aylmer, Head of the Chinese Collections at CUL, for spotting this.
The Dublin map (compiled 1970, published 1980) (Fig. 11) is a bit of an oddity. The area covered by the OSI 1:25,000 Dublin District map (1948) is shown in detail and the district names correspond exactly. The areas outside the boundary of the OSI map – and recent developments – are rather crudely drawn and have no street names and sparse detail. The contour interval is thirty metres and there are few spot heights. Those that are shown are (more or less) similar to earlier OSI six-inch maps.

The Soviet map also shows street tramways, which appear only on the 1928 Bartholomew street map (although there are several differences between the networks shown on the two maps). The city trams were abandoned in 1949 and the Howth Head tramway (also shown on the Soviet map) was abandoned in 1959.

What seems to have happened is that a recent aerial image has been superimposed on an earlier detailed map, with little or no additional information added other than what can be seen from above and no updating of the older information.

**Conclusion**

Possibly this assumption about the origin of the Dublin map gives a clue to the real answer, especially when considered in conjunction with the Crewe and Wolverhampton maps.

These two are the only British town plans so far seen which pre-date the satellite age. Crewe was printed in 1957, Wolverhampton in 1963. The style, colouring and conventions are different from the later maps. However, the source material named on the Crewe map includes 1:10,560 survey of 1910 and the Wolverhampton map names a 1:10,000 survey of 1942. The former is the old OS County series six-inch map, the latter, presumably, captured German WWII map.

It is possible, therefore, – and this is pure speculation – that all the cities were originally mapped during the 50s and 60s from similar material and that the maps from the 70s and 80s are based on these old plans with current aerial images superimposed to bring the topography up to date, with the addition of latest intelligence for strategic objects and so on. This theory fits neatly with the findings of this investigation, but there is no direct evidence to support it.

The Ordnance Survey 1997 statement says that the mapping ‘is almost entirely an adaptation of Ordnance Survey Crown copyright material. It was produced without the permission of Ordnance Survey and thus it infringes Ordnance Survey’s Crown copyright’. As demonstrated above, it is not that simple. As far as the later town plans are concerned, most of the content has been sourced independently and any OS material that was used (heights and railways) was already out of copyright (and potentially out of date) at the time.

*I am very grateful to the following for valuable advice and information: Paul Ferguson, Map Librarian, Trinity College Library, Dublin; Nick Millea, Map Librarian, Bodleian Library, Oxford; Anne Taylor, Head of Map Department, Cambridge University Library.*

*In the Appendix on page 38 of Sheetlines 72, I omitted several items from the list of holdings of the Bodleian Library, for which I apologise.*

*There will be the opportunity to examine the Soviet maps and corresponding OS maps and to learn more about the circumstances of their production at a study day to be held at Cambridge University Library on Saturday, 8 October. See page 1 for more information.*
'New one-inch series’ and parish boundaries

Richard T Porter

David Archer’s unidentified newspaper cutting1 on the Fifth (Relief) Edition is from The Times, 15 August 1931, page 11. An abridged follow-up letter on 22 August, page 6, reads:

ONE-INCH ORDNANCE SURVEY MAPS
The new 1in. Ordnance Survey sheet has the county and parish boundaries on it. The “Popular” series shows no such boundaries. The new issue will therefore restore to the many who are concerned a series of coloured 1in. maps suitable for local government purposes. For some time past we have had only the black and white series available for the purpose.

Mr. J. S. Alford, M.Inst.C.E.,

In fact, county boundaries were shown on the Popular Edition. If the sense of his letter has not been altered during editing, once Alford had gone to the outline sheets2 for parish boundaries he would naturally have used these for county boundaries also, and hence lost interest in them on the Popular Edition.

Parish boundaries were restored on a dozen Popular Edition sheets in the 1930s.3 As three of these were 1930 reprints, with a further three in 1931, and the great majority of reprinted sheets never did show parish boundaries, Mr Alford does not seem to have been responsible for the restoration and did not, apparently, know of it. Three years earlier, however, he had helped to persuade the OS to differentiate heights on Liverpool and Newlyn datums.4

Most of the dozen ‘restored’ sheets fall in three blocks in the Monmouthshire, Buckinghamshire and Somerset areas, but no complete counties are involved, so the raison d’être is not obvious. The sheets I noted from the Catalogue, with dates of first appearance of the restored parish boundaries, are:

<table>
<thead>
<tr>
<th>Sheet No</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>91</td>
<td>1934</td>
</tr>
<tr>
<td>94</td>
<td>1928,5 1930</td>
</tr>
<tr>
<td>95</td>
<td>1932</td>
</tr>
<tr>
<td>102</td>
<td>1935</td>
</tr>
<tr>
<td>103</td>
<td>1933</td>
</tr>
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<td>1931</td>
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<td>1931</td>
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<td>1938</td>
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<td>130</td>
<td>1935</td>
</tr>
<tr>
<td>140</td>
<td>1930</td>
</tr>
</tbody>
</table>

Rob Wheeler also comments:
The ‘Correspondent’ whose review of the Relief Edition was published in Sheetlines 72 was remarkably knowledgeable on the technical method by which relief was depicted. His dislike for vermilion roads was a view seldom expressed outside the Ordnance Survey6 and his reference to the classic Trajan alphabet is strangely reminiscent of Winterbotham’s A Key to Maps, page 78 – which was only published five years later. Did the correspondence perhaps bear a Southampton postmark?

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1 Sheetlines 72, 50.
3 Hodson, op.cit., Catalogue, 283ff.
4 Hodson, op.cit., 98, footnote 23.
5 Hodson, op.cit., ‘1928’ from page 173; ‘1930’ from page 328.
Dating early Bartholomew half-inch maps

Jean Davidson

Following a visit to Duncan Street in 1971, Peter Bartholomew provided me with some general rules to aid the dating of their earlier half-inch maps.¹

1889 - 1911 Address on cover is ‘Park Road’; from 1911, ‘Duncan Street’.
until 1936 Scotland (sheets 1-29) and England & Wales (sheets 1-37) are separate series.
1937 - 1942 Still separate series, but with new 25 sheet layout for Scotland. Maps coded, e.g. ‘D4’ as well as sheet number.
1942 onwards Single series for Great Britain, laid out as above but sheets numbered 1-62.

From 1911 to 1945 there should be a clue as to the date of the map. This is in the form of a code, e.g. ‘A14’, which means that the map has been printed in the first half of the year 1914. [‘B’ indicates the second half of the year.] This code is found either in the top left hand corner, the bottom left hand corner, or centrally at the bottom of the map. From 1946 onwards, the date of printing should be shown at the bottom of the map, usually under the colour note.

### History of half-inch prices

<table>
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<td>3/6</td>
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</tr>
<tr>
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<td>1/-</td>
<td>2/-</td>
<td>-</td>
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<tr>
<td>1903</td>
<td>1/-</td>
<td>2/-</td>
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<td>1912</td>
<td>1/6</td>
<td>2/-</td>
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<td>1920</td>
<td>1/6</td>
<td>3/-</td>
<td>4/-</td>
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<td>1947</td>
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<td>1950</td>
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<td>4/-</td>
<td>6/-</td>
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<td>6/-</td>
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<td>1953</td>
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<td>5/-</td>
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<td>1957</td>
<td>3/-</td>
<td>5/-</td>
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<td>4/-</td>
<td>6/-</td>
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<tr>
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<td>4/- (20p)</td>
<td>6/- (30p)</td>
<td>15/- (75p)</td>
</tr>
<tr>
<td>1971</td>
<td>6/- (30p)</td>
<td>8/- (40p)</td>
<td>20/- (£1)</td>
</tr>
</tbody>
</table>

¹ For details of England & Wales sheets printed from 1891 to 1904 see Eugene Burden’s article in *Sheetlines 56 – CJH.*
When is a National Park not a National Park?

Bill Henwood

The run up to the designation early in 2005 of the New Forest as the first new National Park in England for over fifty years caused the Ordnance Survey a problem, which necessitated remedial action on the Landranger maps of southern Hampshire.

The boundary of the New Forest had long been shown on a number of one-inch maps, though its exact status was never made clear. On the Popular and Fifth edition one-inch Tourist Maps it was depicted by bold green dashes. There was no New Popular Tourist Map¹ but an early HMSO guide to the New Forest² included a one-inch map depicting the New Forest Perambulation (boundary) by a black line. A Seventh Series Tourist Map followed, using green dashes, which were soon replaced by a solid green line. The boundary changed considerably through time, notably along the shore of Southampton Water.

When the southern block of 1:50,000 sheets was first published in 1974, the yellow band symbol was introduced for the boundaries of National Parks. It was also used for the New Forest, though care was taken on sheets 184, 185, 195 and 196 to describe the symbol as ‘New Forest’ instead of ‘National Park’ in the legend on the A edition and reprints of these First Series sheets.

With the publication of the northern block of 1:50,000 sheets in 1976, the yellow band also began to be used to mark the boundaries of Forest Parks in Scotland. When sheets 184, 185, 195 and 196 were converted to Second Series specification between 1980 and 1983, the now standard text ‘National Park or Forest Park’ was used in their legends, though the New Forest was neither of these. Evidently no one complained, because new editions and reprints bore the same description until the specification changes of 2002, when Forest Parks became delineated by purple instead of yellow bands. The legend was adjusted accordingly, the text in the boundaries section now only stating ‘National Park’. This was clearly wrong in relation to the New Forest, for which the yellow band boundary continued to be used.

Things got trickier as moves to make the New Forest a National Park gathered pace, because the National Park would have a quite different boundary, and cover a much larger area than the historic Perambulation. The temporary solution to this conundrum is to be found on Landranger sheets 195 and 196, D2 editions, both published in July 2004, which together cover the greater part of the New Forest. On these, the text in the legend is quietly altered from ‘National Park’ back to ‘New Forest’, finally correcting the twenty-year-old error and belatedly avoiding confusion. But just nine months later, the D2 reprints of sheets 195 and 196 have substituted the new National Park boundary for that of the Perambulation, and the text in the legend has reverted, correctly this time, to ‘National Park’.

The addition of the National Park name and boundary is an example of the extent of change appearing on maps described as ‘Reprinted with minor change’, and supports Jon Risby’s decision to include ‘bar’ reprints in the lists of new maps in Sheetlines.³ My list of all 1:50,000 ‘bar’ reprints since 1974, with summaries of the changes to be found on each, is kindly hosted by Lez Watson at http://www.watsonlv.addr.com/my_hosting/LandrangerBarReprints.htm.

³ Sheetlines 70, 66.
The implications of the term ‘revised’ together with a date or dates has been discussed on a number of occasions in Sheetlines and certainly in depth in issue 51. My personal preference had hitherto been the revision box diagram of the Seventh Series one-inch which according to its legend would be hatched, or stippled (virtually always the fully revised hatching) together with date or dates.

Years ago I regarded this as unimpeachable truth but sadly have discovered it not to be the case regarding low water tide lines or channels. My faith was initially shaken by the very first Sheetlines article I read,¹ but subsequently I have completed my own comparisons of all New Popular with (mainly) first edition Seventh Series sheets for England and Wales and a limited number of Scottish Sevenths with the previous Popular edition.

The low water tide line or channel on the following Seventh Series maps is partly (or as much as 90% in a couple of cases²) that of the New Popular and probably the Popular edition before: 56, 59, 67, 75, 88, 89, 105, 107, 162, 165, 172 and 173. In all cases these are unstable areas of sand and mud, but remembering that the Seventh Series revision took place when air photographs were readily available it is felt that even a more up-to-date approximation would have been better value than the state of the tide line some twenty years before, especially in view of the amount of revision claimed.

There are likely to be additional Scottish Seventh Series sheets with unrevised low water marks, especially as this was noted on the A (first revision) of sheet 72, Dornoch: ‘Fully revised 1955-56 except for low water mark’.

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**Tidal Tales**

**John Cole**

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**Blanket coverage?**

I saw this map, held by friends Liz and Duncan, in a charity shop. It was by Bartholomew, copyright 1990, and of the British Isles. It was huge, folded and measured approximately four feet by six feet, with Ireland on a separate much smaller (also folded) sheet. I simply had to have it, although it hardly fits in with the rest of my collection of Popular, New Popular, and Seventh Series. What I am going to do with it is not immediately clear, but how could I leave this extraordinary map languishing there? So I am now the proud owner of a single duvet cover (Scotland, England and Wales) and pillowcase (Ireland).

Philippa J Corrie

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² Sheets 75 and 88.
Cyberspace or bust!

Roly Hann (aka VENDOROS49)

For several years I have been haunted, possibly even traumatised, by an outrageously stupid mistake I once made in my domestic arrangements. In late 1995 I purchased a new computer and printer while there were still two teenage children living at home. This was of course in the pre-broadband days when the family telephone was dead when the computer was in use, and every second of on-line use was carefully recorded by the fat cats at BT. The first telephone bill to arrive was double the previous one. Various excuses were made about the novelty soon wearing off, cheaper rates will be available, etc. etc. The next bill doubled again. I was speechless. I cancelled the direct debit to AOL. BT shares weakened as a result.

However socially agreeable it is for one’s son and daughter to spend hours ‘talking’ to new friends in Melbourne, Toronto and Denver, there is a price to pay – and I was paying it. In all honesty my wife would put a different spin on this tale in that she crept up behind me in the study when I was playing International Trivial Pursuit against a group of people in North America. Her attention had been attracted by some mild cursing from me about how unfair the sport questions were because they were always about ice hockey teams and baseball leagues.

During the intervening years my friends and colleagues dealing in books have joined the various websites to market their stock. For years I have been bombarded by advice to put my maps on the net and reach a worldwide customer base. My defence has been that OS maps and publications are of no interest to anyone outside the UK and hence I would be wasting my time and money. I was deaf to all the compelling evidence about the benefits of selling on the net. Secretly they must have regarded me as a Neanderthal or a Luddite.¹

Earlier this year I finally gave in under the weight of all the evidence. I purchased at a paternal price my daughter’s unwanted nearly new computer. (“Daddy! It’s six years old, for heaven’s sake”). Next was necessarily a digital camera: no problem, it works itself and makes all its own decisions. A friendly computer nerd helped me understand which buttons to press and what at one stage seemed impossible is now humdrum.

I studied the market for a few weeks to check which maps sell and which maps don’t and realised there was no rule of thumb with this. The auction room scenario applies. If two or more people want an item, up goes the price. If only one person is interested the price stays low. So some maps sell above book fair prices and some sell below.

Within days of checking the auction website there appeared a copy of Burns’ Country, the only map missing from my Tourist art cover collection. I have been searching for a copy for years and could not believe my good fortune. Having broadcast the gap in my collection far and wide I then had a whiff of doubt. Was one of my computer literate map friends playing a cyberspace hoax on me? Having bid a hefty sum the map arrived a week or so later and it is now resting alongside Scott’s Country, just like in Map Cover Art!

One soon becomes familiar with the world of user IDs, passwords and emailing. So ‘Dalailama88’ turns out to be Chris, a customer of mine, and ‘Haydnsikh’ is Dave, a regular at the Farnham Book Fair. To my non-book and map friends I have possibly become an eBay bore but I hope the condition will soon stabilise.

¹ I must offer a sincere apology to Mr Takeshi Aoki of Kanagwa, Japan – one of my first OS customers on eBay who is now the, hopefully, contented owner of possibly the only copy of Description of Small Scale Maps, 1935 in the Far East.
² These are spoof IDs. Rest assured loyal customers, your secrets are safe with me.
The Charles Close Society expedition to Belfast, 2005

Last year’s trip to Dublin proved so enjoyable that Gerry Jarvis really had no alternative but to organise an expedition to visit OSNI and kindred institutions in Belfast this year, using the excellent accommodation that he had found on the attractively verdant campus of Stranmillis University College.

We received a very warm welcome everywhere that we visited and our hosts were incredibly generous with their time. As well as the two ‘official’ days in Belfast there was an opportunity beforehand for some members of the party to explore the Ulster Folk and Transport Museum, while an optional postscript to the tour added a rail trip south to Dublin for a visit to the Irish Railway Record Society, arranged through Brian Biddiscombe’s good offices.

The whole programme provided a delightful and stimulating few days and our thanks go to Gerry and to all our hosts. Meanwhile, in the pub, plots were hatched for future overseas expeditions, with the ideas becoming ever more adventurous after each pint ... – CJH.

4, 5 and 6 June, ‘Prehistory’
Brian Biddiscombe

I thought I had limited my liability by volunteering to write up the Dublin visit, but I reckoned without Gerry Jarvis! He decided to break new ground in these visit reports by asking me to recount what we decided to call the ‘prehistory’ of the Belfast trip – to demonstrate the opportunities for extra excursions which Society visits can offer the more adventurous.

As the earliest arrival in Ulster on the Saturday I invested £13 in a ‘Freedom of Northern Ireland’ road and rail ticket. This was accompanied by one of the finest public transport maps I have ever seen, marred only by a superimposed national cycle network across terrains where no trains or buses might venture. This bonus day gave the chance of a train trip from Belfast to Portrush, and on to (London)Derry after lunch. Here an open-top bus offered a city tour quite impartially including views of the traditional gable-end murals of both communities in the Bogside and Waterside areas – tourist features today, which would have needed an armed guard a few years ago! Sadly the OS-based route map was totally misleading, not on account of ‘the troubles’ but because double-deck buses have been banned from the exposed Foyle Bridge after high winds blew over a lorry last year. I returned to Belfast by Goldliner Express coach and met Gerry for an excellent Chinese meal before we adjourned to our comfortable base in the Halls of Residence at Stranmillis University College.

Gerry and I had Sunday to ourselves before the rest of the party arrived and an advantage of belonging to more than one enthusiast group revealed itself. An Ulster friend and fellow-member of the Transport Ticket Society kindly gave us a 100+ mile lift to the Giants Causeway via the spectacular County Antrim coast road: the Mull of Kintyre was hazily visible across the boundary between the British and Irish OS grids. We next took a trip on the re-opened Giants Causeway and Bushmills Steam Railway and filled in the time before departure admiring a hand-coloured map of the Irish railway system at its maximum in Edwardian days. The same (Bartholomew?) map reappeared at several locations in the next few days.

By Monday morning three more members of the party had arrived and we again patronised Northern Ireland Railways, this time to Cultra, the home of both the Ulster
Transport Museum and the Ulster Folk Museum. Both are splendid examples of modern museum-keeping and each could have filled a whole day even without the numerous exhibited maps! By afternoon the blazing sunshine and steep hillside were beginning to defeat our attempts to view every reconstruction of Ulster rural life, so we adjourned at closing time to the nearby resort of Bangor in County Down. Here a repast of fish, chips and beer set us up for the rigours of the real visits next day…

Tuesday, 7 June, Ordnance Survey of Northern Ireland
Gerry Jarvis

We had a very short walk from where we were staying at Stranmillis University campus to the Ordnance Survey of Northern Ireland (OSNI). I had just sat down to listen to the initial presentation by Stan Brown, acting CEO, pro tem, when I realised that I had not asked anyone to write up the first session, hence another report from me.

It is perhaps appropriate, as it enables me to thank Stan Brown for agreeing to the visit in the first instance. He also gave me several other contacts, which formed the remainder of our visit to Belfast. Our contact with Stan arose from his writing to Peter Stubbs, our webmaster, where we then referred to the ‘UK Ordnance Survey, the United Kingdom’s national mapping organisation’. Having recognised this error, and corrected our website to show that there was a large island to the west of England, Scotland and Wales, Peter wrote to me suggesting Belfast as a possible visit. His suggestion went into my pending file until this year. I must also thank Eddie Sims on Stan’s staff, who made all the local visits arrangements for me, thus saving me a preliminary visit.

Stan introduced himself as the acting CEO, following the departure of his predecessor, and explained that he was not really a surveyor, having trained as a chemist. He then gave a masterful presentation on the OSNI, both historically and its current role in Northern Ireland in a digital world. Eddie Sims kindly sent me the slides of Stan’s talk so that my report would not be too inaccurate. But I have decided that a more detailed write up of his presentation on the OSNI would be appropriate, and this will appear in a subsequent issue of Sheetlines. So what follows is a brief listing of some of Stan’s highlights.

Northern Ireland has a unique system of small land areas called ‘townlands’, of which there are some five thousand, outside of the larger towns, where they are seldom used. Many country residents still identify themselves with their name plus the name of the townland, even though postcodes exist! OSNI have an extensive database for their digital mapping, which includes pointer address files for 800,000 properties. This information is common to both OSNI and the Royal Mail. The total population of Northern Ireland is 1.7 million.

Sales in 1994 amounted to £1.5 million, and the estimate for 2005 is £8 million. OSNI have Fair Trade Accreditation from HMSO. They produce some 18,000 maps annually, with 14,000 units of change. All of this work is supported by 167 staff.

Digitisation was completed in 2000, and now 96% of their sales is digital mapping, with the majority of printing contracted out. Their comprehensive mapping data base is done using
Oracle, and they plan to have web access completed by the end of 2005. Stan said that the staff are given a considerable degree of personal empowerment, which has worked very successfully.

Stan was followed by Ken Stewart, who gave us a presentation on Geodetic Survey and the GPS network. The first triangulation of Ireland as a whole was undertaken between 1824 and 1832. The original baseline at Lough Foyle, when connected to the Salisbury baseline, was accurate to 0.39 ft. The OSNI was established in 1921, and they undertook a re-triangulation of Northern Ireland in 1952. This was followed by a primary triangulation of the whole of Ireland between 1962 and 1964, with adjustments in 1965 and 1975. All mapping is based on the Irish Grid.

Ken then discussed satellites and GPS. A new zero control network was set up for Ireland called IRENET95. A passive GPS network was set up then consisting of 172 stations throughout the whole of Ireland, with ETRF coordinates accurate to 20 mm. There is also now an active network of continually operating GPS receivers operated by OSI [10], OSNI [3], and the Commissioners of Irish Lights [3]. As part of the OSNI mapping toolkit, there is a coordinate converter, Grid InQuest, available on the Quest Geo Solutions Ltd website.¹

Gerry McLaverty then gave us a talk on Aerial Photography. OSNI lease a Piper Aztec, and the only major problem they normally encounter is bad weather, as aerial photography requires clear skies. This was mentioned in what was, I think, the warmest and driest week of the year for me! Their flight plans are programmed into a computer, which enables auto camera fire. From a height of 5000 ft, they can produce 1:2500 mapping; whilst from 2500 ft the maps can be produced at 1:1250. The photographs are overlapped by 60%, which enables stereo photographs from which heights can be calculated with their software. OSNI use a Photoscan 2001 roll film scanner, which produces results at 1200 dpi in TIFF format. With BKS Survey Ltd, they are working on a Northern Ireland Orthophoto Mapping project at 1:10,000.

OSNI also have a five year project using a US satellite, but it covers Northern Ireland only once per eighteen days, and the weather is often cloudy.

John Moore then talked about Field Survey. This is conducted on an ‘on demand’ approach to updating, but they plan to cover urban areas every five years, and rural areas every ten years. Systeco hand-held computers are used for surveying, linked directly to the database. They currently have twenty such computers, and a field staff of thirty surveyors.

We were then shown over the Archive area by Drew Ferris, with a feast of interesting maps. Drew mentioned that they work closely with the Northern Ireland PRO. They have a total of 64,000 records including bound copies of six-inch scale mapping for 1820 to 1860.

Finally Stephen Evans gave us an insight into GIS, using ESRI Arc-View. For members who would like a more details of this subject, I found the web gave good coverage.

In his introduction Stan Brown had mentioned how the partition of Ireland had split OS into three different organisation models, built on a common history, and with a close cooperation on many issues, but quite different funding and structural regimes. Having had the privilege of now visiting all three, that is certainly true. But all three work to a high professional standard, and I can only say how much I have enjoyed visiting each organisation.

¹ Go to http://www.ggs1.com/software/gridig.php to download the free PC version of the software, which also handles transformations from OSGB National Grid co-ordinates.
Our second visit was to the Geological Survey of Northern Ireland, conveniently located in Colby House, the same premises as OSNI. We were welcomed by Terry Johnston, a geologist of thirty years’ standing. Terry gave a brief history of GSNI, founded in 1947 following the realisation of the need identified in the war to survey and map the indigenous resources of the nation – particularly coal and other minerals. It was also recognised that the earlier activities of the Geological Survey of Ireland had not progressed following partition in 1921. Currently staff number 27, with the operation core-funded by the Department of Enterprise, Trade and Investment and with other variable funding from commissioned research. Technical posts are British Geological Survey staff members and a close working relationship exists with the Geological Survey of Ireland.

Increasing environmental awareness, driven both by EU directives and landscape tourism, has led to an increasing focus on sustainability and conservation of resources. However the need for economic development, and for this to be supported by good geoscience information, is as strong as ever. Commercially workable gold deposits in the west of the country are being explored; the geology supports hydrocarbon (gas and lignite) resources; and the exploration and planning of the exploitation of other mineral deposits are vital. The result is a fascinating mix of ‘traditional’ geological surveying work, mapping and databases coupled with the development of landscape heritage initiatives such as *Landscapes in Stone* – where geological information is presented in vivid colours with popular notes, all without any ‘dumbing down’ of the basic information. Patrick McKeever from GSNI has achieved international recognition as a UNESCO adviser on Geoparks for this work.

Mike Young, Project Manager for the Tellus Project took us through this exciting, massive (and expensive – £6 million) geochemical and geophysical countrywide mapping project. Starting in 2004 and due for completion in 2006 this involves soil, stream sediment and stream water land survey and airborne electrical and magnetic survey. Some key statistics for rural areas: soil samples will be taken at 20 and 50 cm depths every alternate square kilometre; airborne survey will be conducted using overlapping flight paths 200 m apart at a height of 55-90 m, flying some 90,000 line-km. The result will generate more detailed geological information than ever before, which can be used to establish baseline figures for pollution and basic resources and underpin decisions. Output will be in map form, images and digital databases. One interesting insight into the need for this work is the concern over landslips and understanding the underlying mechanisms at work.

Ian Mitchell, Mapping and Publications Manager, had then prepared a selection of historical and published mapping and other products, starting with the mapping contained in the 1:250,000 Griffith geological survey. Sir Richard Griffith (1784-1878) was immensely influential in many fields of Irish engineering, mapping, geology and land valuation and his 1855 Geological Map was described as ‘on every count – cartographic, aesthetic and geological – a truly superb map’. Ian also produced the much praised 1:50,000 *The Causeway Coast* from the *Landscapes from Stone* series and sets of 1:50,000 and 1:63,360 geological maps. An opportunity to purchase their publications was enthusiastically taken up and their stock was rapidly depleted! A fitting end to a most interesting and professionally handled visit.
Wednesday, 8 June, Queen’s University Belfast
John Seeley

The next day we again walked through the leafy suburb of Stranmillis, this time to the annexe location of QUB’s Centre for Data Digitisation and Analysis. There Paul Ell, Director, and Ian Gregory conducted for us a research seminar occupying most of the morning and very much hitting our mark.

Their general brief, as a research unit of the University, is to capture for Geographical Information System (GIS) databases an added temporal / historical dimension, expanding them into ‘historical-geographical’ or ‘geographical-historical’ databases, whichever way round the user may want. The major focus of their current work is the Great Britain Historical GIS Project, a collaborative venture based at the University of Portsmouth. This fully-functional GIS, taking more than five years to build and costing £0.5 million, is hosted by EDINA at the University of Edinburgh and now available at www.visionofbritain.org.uk, but only for Great Britain, not yet for Ireland!

Paul and Ian showed us that the database works smoothly on a suitable PC or workstation. They have added these historical dimensions: the 1851 census; Poor Law statistics from 1850, 1970 and 2000, with mapping of Poor Law Unions; place name gazetteers; parish / county / rural district council, postcode, parliamentary constituency and other mapping.

Full text of the nineteenth-century Imperial Gazetteer has also been scanned in and, most significantly for us of the Charles Close Society, those two essential Ordnance Survey one-inch map series, the nineteenth-century Old Series and the twentieth-century New Popular edition. Land use maps and various other geographical goodies, such as ‘travellers tales’ (in text form), have also been scanned in as well. Map extracts at various scales are crucial to the operation of the new GIS. We were shown how they can be zoomed in and out by the user. With a pointer it is possible to locate a place in a large scale extract, zoom out to a larger area at a smaller scale, change the location, and then zoom back in again to a different small area in large scale: viz, true spatial travelling is possible but not, regrettably, time-travelling (yet!). While this is being done, a wealth of supporting pictorial, text and archive material is available on screen and this changes when zooming.
The Centre puts this GIS to good use in research programmes, and Dr Ell has co-authored *The Atlas of the Great Famine* and *Atlas of Victorian religion (in Ireland)*, which we saw. He has also kindly provided us with a full list of their initiatives and activities.

We were also shown the scanning and capture of data by optical character recognition (OCR) equipment, at highest speed and best quality, and in addition proofreading by Centre staff of text, intended for the database, which had been scanned from bad documents or read in from handwritten sources. Much of that work is, of course, by way of contract for various customers and will not always be published or publishable.

Time flew by for most of us that morning, and it was altogether rejuvenating for some to be given again the academic flavour of a research seminar. Thank you, QUB.

**Public Record Office of Northern Ireland**

**Nick Jeffery**

Last of the Belfast visits was to the Public Record Office of Northern Ireland where Valerie Adams, Head of Education, Learning and Outreach, was our enthusiastic host. The ethos of PRONI is to be open and welcoming and, by permitting us privileged access to almost all areas and activities, this was totally fulfilled.

Valerie gave a brief history of PRONI, starting from 1922 when the original Dublin office, which was located in the Four Courts, suffered almost total loss of records by fire. The Public Records Act (Northern Ireland) 1923 established the legal basis for a Belfast office and the principle that public records were defined to include private archives. This encouraged major estate archives to be deposited, led by the first Governor of Northern Ireland, the Duke of Abercorn. PRONI differs from normal UK archives in that no large county archives exist.

Major holdings include the Primary Valuation of Tenements – to give the Griffith valuation of Ireland conducted between 1847 and 1864 its proper name. This is of vital importance in Irish history research as a census substitute as the majority of nineteenth century Irish census records have not survived. However a project to put the 1901 and 1911 censuses online is in hand. Other holdings include court records, wills, poor law and other administrative records.

The number of maps held by PRONI is estimated at some 30,000 in total. Valerie had laid out a selection of most interesting historical maps including the Plantation of Derry (1622) and the Barony of Cary at 40 perches to the inch (1734). We were also taken ‘behind the scenes’ to the map stores, a most impressive array!

More directly OS-related is a massive ongoing project to digitally scan in some 21,000 Ordnance Survey maps from 1840 to 1984. This project follows the theme of the morning’s visit to the Centre for Data Digitisation and Analysis – the scanning in of historical records and making them searchable and accessible. We were privileged to see the scanning in
action, with some 140 maps being scanned per day and diligent quality control to ensure that the end product is of high quality.

This work has in turn highlighted the need for the conservation of many records and Joe Downey and his team demonstrated a number of techniques for conserving records which have deteriorated, whether through age, poor storage or physical damage. The range of materials and equipment and the competence of his staff were such as to make the ‘before’ and ‘after’ appearance of a number of items remarkable, all without in any way losing the integrity of the original.

So ended what was without doubt the most varied and interesting set of visits I have been fortunate enough to participate in during my short membership. I am sure all attendees would wish to express their very grateful thanks to all our hosts and organiser Gerry Jarvis for making this possible.

Thursday, 9 June, Irish Railway Record Society, Dublin
Brian Biddiscombe

Just five of us were left to partake of Gerry’s proffered ‘add on’ of a hectic day in Dublin at the end of the Belfast tour. This involved missing breakfast at Stranmillis (though well remedied at Belfast Central Station) to catch the 0800 Enterprise train to Connolly station in Dublin and the newly-opened Luas tram to the Irish Rail headquarters at Heuston station, upstream on the River Liffey. Thanks again to the benefits of overlapping membership between societies we were able to accept an invitation which had proved impossible to squeeze into last year’s Dublin programme. Our hosts were the Irish Railway Record Society who enjoy a close relationship with Iarnrod Eireann, managing the non-statutory archives of the former Irish railway companies among a host of other activities.

The IRRS Chairman, Michael Walsh, the Hon. Archivist, Brendan Pender and the Assistant Librarian, Norman Gamble, took us genially through an Aladdin’s cave of material, handsomely stored in archival conditions in the former railway goods office. These volunteers gave us their time without stint and we were delighted when they joined us for lunchtime bar snacks in a nearby (recommended) pub. Maps and plans based on nineteenth century OS material naturally featured strongly in the ‘goodies’ they laid out for us, but we were welcome to browse wherever the fancy took us in roomfuls of books and documents – a base which any enthusiast society might envy!

An item of particular interest was the beautifully bound Appendix to the 1838 Report of the Royal Commission on Railways in Ireland. This was a unique attempt within the British Isles to propose a planned rail system on the continental model. Of course this failed, but the supporting evidence of these early Victorian commissioners bore an uncanny resemblance to the latest mapping techniques we had been shown in Belfast a day or two previously. Here were very clear representations of Ireland’s physical terrain, population densities before the Famine, manufacturing resources, raw materials and diagrams of actual and prospective passenger and freight flows, all plotted on base maps of Ireland 170 years ago without benefit of computers. To do justice to this extraordinary atlas would require a good deal of research for a separate article, but it already serves to illustrate the wealth of material held in Irish archives. I suspect Gerry is already working on another Dublin visit!

Pictures by John Davies, Chris Higley, Gerry Jarvis and David Webb.
At OSNI, film taken from the air is read by a high-speed scanner and assembled into overlapping images, which may be seen in 3D using special lenses.

Historic mapping is still cherished at OSNI; incorporated into databases by Ian Gregory at QUB, and scanned to produce digital images at PRONI.
Charles Close Society members at the Public Record Office of Northern Ireland with Valerie Adams, Head of Education, Learning and Outreach

Brian Pender and Michael Walsh, our hosts in Dublin, with a small corner of their archives
Faces at the AGM
pictures by Yo Hodson

Vanessa Lawrence, OS Director General, with Chris Board

Ian Mumford (left) and Brian Adams (right) receive honorary membership
At the members’ map market, (above left) Peter Haigh gets a chequebook out for David Archer; (above right) Roger Hellyer, on the left, is seen with Brian Garvan, and (below) Mike Cottrell has found a popular bargain, which is being admired by Peter Stubbs and Paul Laming.
The 2005 Annual General Meeting

108 members of the Society gathered at Southampton for the AGM on 14 May. Ordnance Survey gave us a tremendous reception, from providing sticky Danish pastries with our coffee to pulling in the Director General on a Saturday morning to address us.

John Richardson, Manager of the Business Centre, welcomed the Society to Southampton, then Vanessa Lawrence, Director General and Chief Executive, spoke on ‘Ordnance Survey and Great Britain’s twenty-first century geography’. She pointed out that geographic information systems now underpin much of daily life with, for instance, OS digital data providing information in emergency services’ cabs and the mapping on your mobile phone. A telling example of GIS in industry came from a plot of the track of a well-publicised storm across the country, compared to the locations of householders making insurance claims. Those close to the path of the storm had their claims settled without delay, those many miles away were asked for further verification – and most dropped their claims rather rapidly.

Given her audience, Vanessa could not ignore the history of Ordnance Survey and showed a delightful 1949 newsreel clip of aerial survey over London. She characterised the organisation between 1791 and 1971 as focussing on paper maps. This focus then changed to digital data files, i.e. just digitised lines from the map, but since 2001 OS has concentrated on producing a full spatial database. The OS Mastermap database now holds 440,000,000 features. Great emphasis is placed on keeping the database up to date, with 5000 changes daily. The current database no longer holds just topography: it also has imagery, an integrated transport network layer and address information, and by 2007 OS expects to use one single seamless database.

Ordnance Survey’s basic business is now the collection, maintenance, integration, processing and supply of data. Applications using this data are then developed by partners, rather than by OS itself. Early digital maps had not looked good. The cartography was letting down the product and an OS cartographic team now works with their partners to improve cartographic standards in digital products.

The Director General told us that it was the house style that the organisation should always be referred to as ‘Ordnance Survey’ or ‘OS’; never ‘the OS’. New products now have ‘OS’ in front of their name: Explorer maps showing access land being re-badged OS Explorers. OS had worked closely with the Countryside Agencies to publish maps showing access land. She had been asked to deputise for Alun Michael, Countryside Minister, at the launch of the new rights under the Countryside and Rights of Way Act. She had found a room full of disappointed journalists who told her that there were only two possible stories that day, the minister being confronted by pro-hunting demonstrators or OS not having published the maps on time. Since neither had happened there was nothing to write about!

This was an impressive address and Vanessa Lawrence dealt with the subsequent questions in a masterly way, even including an abstruse query about Ordnance Survey Datum, Newlyn. We had been left in no doubt about the modernisation of her organisation, and to ensure that she did not forget its history, Richard Oliver presented her with the newly published edition of his Concise Guide with its list of distinguished Directors General from Williams, Mudge and Colby to Lawrence.

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1 This and other fascinating clips from the complete Pathé newsreel archive, [www.britishpathé.com](http://www.britishpathé.com), may be downloaded free of charge. As there is a mis-spelt caption, search on ‘Ord* Survey’ to find the three principal OS items.
We then moved on to the formal business of the AGM. The minutes and annual accounts will be found in the *Almanack*.

The honorary officers reported on a flourishing society, now in its twenty-fifth year. An anniversary celebration will take place in November. Membership stood at over 550 and record numbers were attending the AGM. Both Chris Board and David Parsons thanked the many volunteers whose hard work made the Society’s success possible. The past twelve months had seen the publication of *Military maps*, the new hardback edition of the *Concise guide* and an enlarged guide to the Seventh Series, as well as three editions of *Sheetlines* and the *Almanack*. John Seeley, in Gerry Jarvis’s unavoidable absence, reported on a varied series of visits, including the Society’s first, and most successful, excursion to Dublin, and outlined Gerry’s programme of future visits, one of which would be a similar trip to Belfast. It was noted that membership numbers 999 and 1000 had been reserved for the honorary memberships which had been accepted by the Chief Executives of the two Ordnance Survey organisations in Ireland.

Nick Krebs reported on another prosperous year and received a well-merited vote of thanks for his continuing long service as Treasurer. Despite the Committee’s best endeavours to reduce the Society’s funds with the ambitious publications programme, our reserves had been boosted by the arrival of the first four years’ worth of Gift Aid repayments.

The final report came from Roger Hellyer, chairman of the newly constituted archives sub-committee. He, too, was able to report good progress, both with the production of digital images of unique, or very rare, maps and with the catalogue of the Charles Close Society’s own archives at Cambridge.

The formal business concluded with our marking the distinguished careers of three very longstanding members of the Society by conferring honorary membership on Brian Adams, Peter Clark and Ian Mumford. This gave great pleasure to their many friends in the audience and we were delighted that Brian and Ian were both present, and in sprightly good form, to receive their awards in person.

At this point Rodney Leary, whom we thank for much behind the scenes administrative work to make this day such a success, announced that if we turned left out of the meeting room a free lunch was available, whereas if we turned right, the Ordnance Survey map shop had just opened and would give us a generous staff discount. An indescribable look of indecision spread across members’ faces until it became clear that the map shop would remain open throughout the afternoon – and, of course, it did a roaring trade alongside the competing delights of the many treasures (and a few bargains) on sale in the regular members map market.

We are extremely grateful to Ordnance Survey, and to Vanessa Lawrence and her staff who came in to work on a Saturday, for their very generous hospitality throughout the day (culminating in tea and cream scones just before we departed). Here is an impressively efficient, but very friendly organisation. If we are, indeed, their ‘unofficial fan club’ then they certainly know how to keep their fans happy.

Next year the AGM returns to the excellent accommodation and delightful surroundings of the Harley Centre in Ludlow, but your Editor does admit to a certain fondness for Southampton AGMs. On both occasions that we have been there, he has heavily overspent at the map market, and then returned home to find a £50 Premium Bond prize from ERNIE!
The Reichsamt für Landesaufnahme and the Ordnance Survey; a comparison of two mapping organisations between 1919 and the Second World War (part II)

J L Cruickshank

In the first of this pair of articles I gave a narrative of the development of the Reichsamt für Landesaufnahme. In this concluding article I shall compare the Reichsamt with the Ordnance Survey in a number of key areas, concentrating on those that affected their performance in the Second World War.

Photogrammetry

It is well known that German skills and experience in both terrestrial and aerial photogrammetry remained far ahead of those in Britain. Indeed, although the Reichsamt had used aerial survey to produce 1:5000 mapping of the lower Oder in the 1920s, and Berlin had been mapped at 1:4000 from the air in 1928, the British Geographical Section, General Staff (GSGS) had to develop aerial survey techniques with improvised equipment during the Second World War, and it was not until the 1950s that the Ordnance Survey tentatively adopted aerial survey for large scale urban mapping. In contrast, the Reichsamt had from the outset an active photogrammetry group. During the 1920s and 1930s the Mitteilungen regularly printed articles on aerial survey and photogrammetry, and featured detailed reports of photogrammetry conference presentations from other countries. Just as the Swiss firm H Wild of Heerbrugg worked closely with the Swiss Federal Survey, the Reichsamt (and other German surveying organisations) worked closely with Carl Zeiss of Jena who continued to develop improved optical surveying and plotting equipment. From the 1920s the German national airline, Lufthansa, provided a commercial aerial photography service. Franz Novatsky, the head of the Photogrammetrische Abteilung of the Reichsamt, developed and published methods for establishing triangulation networks from aerial photography. Aerial survey expertise and equipment were immediately available for military needs when war broke out.

Despite this technological lead, it may not have been used to best advantage. During the early part of the war the Luftwaffe obtained extensive aerial photo coverage of Britain (and elsewhere) which has subsequently been used for many civilian purposes. Nevertheless, as in Britain, there were competing claims on the available aerial photography, and difficulties for

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2 F Nowatsky, ‘Bildtriangulation zur Bestimmung von Paßpunkten’, Mdr/L, 16 (1940), 47-68.
mapping organisations in getting the images they needed. Making images available to external mapping organisations was not seen by Luftwaffe intelligence officers as a priority. The Luftwaffe had its own mapping organisation that was, to an important extent, in competition with both the Reichsamt and the Army’s Kriegskarten und Vermessungswesen. The difficult question of what payment should be made for the reproduction and use of Air Ministry copyright images had also to be resolved. Only in June 1943 was a decree made that aerial photography could be requisitioned by the Reichsamt and that Air Ministry images could be used (subject to restrictions) without payment of copyright fees.³

Ordnance Survey has never adopted terrestrial photogrammetry. The Reichsamt itself, being a North-German surveying organisation, also had little experience.⁴ The techniques had however largely been developed by Swiss, Bavarians and Austrians for Alpine mapping, and the Reichsamt had ready access to this expertise.⁵ Between the wars the Deutscher und Österreichischer Alpenverein (German and Austrian Alpine Club), in particular, had produced a number of photogrammetrically surveyed 1:25,000 maps of the eastern Alps. During the 1930s the Alpenvereinskartographie was under the general direction of Prof. Dr Richard Finsterwalder, then of the Technische Hochschule, Hannover.⁶ In 1939 Finsterwalder was nominated to membership of the Forschungsbeirat für Vermessungstechnik und Kartographie, a research committee under the chairmanship of the President of the Reichsamt to co-ordinate all the cartographic research bodies in Germany. He also contributed articles on alpine and German colonial surveying, and on the mountain-research programme of the Alpenverein, to the Mitteilung of the Reichsamt.⁷ The close links at this time between the German government and what in 1938 became simply the Deutsche Alpenverein, combined with the pan-Germanist philosophy of the organisation, eventually led it to be proscribed by the Allies in 1945.⁸ The Kartographisches, früher Militärgographisches Institut in Vienna (which from 1938 became HVMA XIV) had also been an early pioneer of

³ ‘Beschaffung von Luftbildmaterial für den Vermessungsdienst. Runderlaß der Reichsminister des Innern von 1 Juni 1943 – Vla8209/43-6853 (Luftbildbeschaffungsraber)’, MdrRL, 19 (1943), 142-148. This decree had to be made in conjunction with the Reichsminister der Luftfahrt und Oberbefehlshaber der Luftwaffe (Herman Goering).

⁴ Most of Prussia is very flat.

⁵ Das Reichsamt für Landesaufnahme und seine Kartenwerke, Berlin, 1931, 22 and Tafel 5.

⁶ Prof. Dr R Finsterwalder is, for example, credited with the ‘Gesamtleitung’ of making the map ‘Südblatt (Hoch Stubaib)’ of the two-sheet Karte der Stubai Alpen (Hauptausschuß des Deutschen und Oesterreichschen Alpenvereins, 1937). He continued to work on the Alpenverein maps after the war until his death in 1963, being credited for the stereoplotting of the Ostblatt of the Wetterstein- und Mieninger Gebirge map (1960). The 100th anniversary of his birth in 1999 was celebrated with a Festchrift on High Mountain and Glacier Research: K Brunner & W M Welsch (eds), Hochgebirgs- und Gletscherforschun zum 100 Geburtstag von Richard Finsterwalder, Schriftenreihe des Studiengangs Vermessungswesen der Universität der Bundeswehr München, Heft 62, Neubiberg, 1999. Richard Finsterwalder should not be confused with Prof. Dr Sebastian Finsterwalder (1862 - ), of Munich, an earlier pioneer of photogrammetry who surveyed the Vernagt Glacier in Tyrol in 1888-89, was still publishing in the 1930s, and whose 80th birthday was celebrated in MdrRL, nor with Prof. Dr Rüdiger Finsterwalder, also of Munich, who subsequently supervised the Alpenvereinskartographie from 1966 to 1997.


⁸ The Austrian Alpenverein was to be re-founded in 1947; the German Alpenverein was not re-founded until 1950. Notwithstanding very close co-operation they remain separate organisations to this day. For a recent account of the history of the Alpenverein maps see: K Brunner, ‘Die Kartographie im Deutschen Alpenverein’, Kartographische Nachrichten, 51 (2001), 17-22. This includes references to several earlier accounts, but skips silently over the wartime period.
terrestrial photogrammetry and, despite having been stripped of its equipment and much of its personnel at the break-up of the Danubian Monarchy, had re-established its skills by surveying and plotting the early sheets of the new Austrian 1:25,000 survey. These were all of Alpine areas, principally in Salzburg and East Tyrol. Nevertheless, despite the clear German advantage in this technology, it proved in the event to be of little value in fighting the Second World War, in which active fighting did not reach the high alpine lands.

Printing

Ian Mumford based his doctoral thesis on the premise that the history of lithography as used for printing maps had not been written. He proved the point, but despite the breadth of his thesis he left a number of twentieth-century topics untouched, including the development of offset lithography. He did discuss the very detailed published descriptions of the printing techniques of the Reichsamter, although his purpose was principally to use them to illuminate what nineteenth-century practice had been, particularly with regard to lithographic engraving. A point he left unstated was that Reichsamter practice in the 1940s preserved techniques that had been abandoned (if they had ever been adopted) by other organisations, including the Ordnance Survey.

There is as yet no published overview of the evolution of the Ordnance Survey’s reproduction and printing techniques during the twentieth century. Descriptions of particular series include discussions of the form of their master reproduction material, but the actual processes used to print the maps are seldom identified. Unlike most continental mapping organisations the Ordnance Survey had originally made little use of lithographic stones. In the nineteenth-century it had not used stones for the master record of any series, but had generally relied on engraved copper plates produced either directly by engraving, or (increasingly) by electrotyping of an older engraved plate. The exception was that most large scale plans were lithographically printed from zinc plates photographically generated from drawn originals. Printing from stone had been reserved for the production of derived sheets intended solely for military purposes. With the preparation of the New Series colour-printed map at the turn of the century the OS did begin to print civilian maps from stone, but the master document remained the engraved plate. Although the second edition (revised 1901) of Methods and Processes Adopted for Production of the Maps of the Ordnance Survey does mention transfers to stone and printing from stone, especially for colour printing, these

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10 Terrestrial photographometry had been used by the Militärgographisches Institut to map much of the Balkan peninsula during the First World War: see Mühlberger, op cit. Whether this coverage was extended during the Second World War I do not know. The technique was used to survey some enemy fortifications early in the Second World War. Assaults on these fortifications proved unnecessary and the surveys were not used in action. See Franz Ackerl, ‘Verfahren zur Vermessung von Befestigungen aus großen Entfernungen’, Fachdienstliche Mitteilungen des Osteren Fachgezetsen des Militärgographischen Dienstes, 5, (1972), 35-53.

11 Ian Mumford, Milestones in Lithographed Cartography from 1800, unpublished PhD thesis, Reading University, 1999, 77 et seq. An equivalent work covering offset-lithographic map production is badly needed.

12 This paragraph is based on the accounts in the following works: Tim Nicholson, The Birth of the Modern Ordnance Survey Small-scale Map, Charles Close Society, 2002, 1-3 and 18-19; Sir H James, rev. D A Johnson, Account of the Methods and Processes Adopted for Production of the Maps of the Ordnance Survey, London, 1902, esp. 170, 173-4, and 185-188; and A Y Hodson, Popular Maps, Charles Close Society, 1999, which includes, as chapter II, a particularly valuable discussion.
appear as brief after-thoughts following long descriptions of zincography. Thereafter, however, transfers to stone became progressively more important as colour printed maps came to dominate the Ordnance Survey’s output. For the Popular Edition one-inch map of England and Wales the immediate master documents were lithographic stones, although the distant origin of the map remained the nineteenth century engraved plates. During the early 1920s engraving was abandoned at the Ordnance Survey and all but one of the engravers were sacked. The master documents of the Scottish Popular one-inch map were drawings on paper. From these, photographic glass negatives were prepared which constituted the master material. Metal printing plates were in turn prepared photographically. The complexity of these different processes and of their evolution, however, obscures an underlying simplicity. By 1932, if not earlier, printing directly from stone had become exceptional at Ordnance Survey. Rotary offset-lithographic printing from zinc plates was the normal production process; indeed it was so normal as to be unstated. During the Second World War the Ordnance Survey’s Southampton headquarters was to become progressively less important as a printing facility. Its pre-eminent role became the production of enamelled-zinc offset-printing plates for use elsewhere in Britain or the world.

The reproduction material and printing processes were starkly different in Berlin. The Preußische Landesaufnahme, which had originally drawn its maps on stone, had for some decades before the First World War been transferring existing reproduction material from stone to copper plates by photo-etching, and had still been preparing plates for new sheets by hand engraving of copper. The justification for this was that copper plates were both easier to revise and, when used directly for printing, gave finer line quality. Notwithstanding these principles, few direct impressions from the copper (or master stones) were made. The vast majority of the maps printed, whatever form the master material took, were in fact produced from lithographic transfers to machine stones. Nevertheless all the small-scale series were cast on very small sheet-lines. This permitted copper plates to be used for printing multi-coloured maps, but meant that huge numbers of individual sheets had to be maintained. During the 1920s the Reichsamt continued these policies, in part because there were few newly surveyed or revised maps to be engraved, but also perhaps because there was little money to buy new equipment. In 1925 the Reichsamt’s stone and plate store contained about 12,000 lithographic stones, 5000 copper plates and 16,000 aluminium plates. Of these, the copper plates and about 3800 of the stones constituted master copies. The aluminium plates were for offset lithographic printing, but many of these may have been prepared for military purposes during 1914-18. The Reichsamt never used zinc printing plates, although zinc had been used in Field Printing Units during the war. During the inter-war period the use of offset

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14 Kleffner, ‘Der Kupferstich und die Karte 1:100,000’, MdRfL, 2 (1926-27), 17-25. These arguments are almost exactly those given in support of the engraved Ordnance Survey maps before their demise.
15 The size of sheets varied with latitude, but a 1:100,000 sheet might measure 30 × 28 cm between the neat lines, or less. This is less than two-thirds of the printed area of an OS New Series one-inch sheet. Sheet sizes for the 1:300,000 series, which was engraved on stones, were larger (N55 Stralsund measures 44 × 37 cm), but were still much smaller than inter-war British quarter-inch sheets.
16 The master copies for the series at 1:25,000, at 1:300,000, and at 1:800,000 were stones. The 1:100,000 and 1:200,000 maps were engraved on copper. The small number of 1:50,000 maps were partly on stones and partly had been transferred to copper plates by photo-galvanography. For reasons of cheapness the new 1:5000 map was intended to be drawn, before being transferred to aluminium plates by photoalgraphy. ‘Das Reichsamt für Landesaufnahme’, MdRfL, 1/1 (1925), 3-19, esp. 13-15.
While his generalisation has some truth, the reality was a good deal more complex. Although described in the printing handbook produced by the Austrian Survey in 1930, colour offset printing was also used during and after the 1914-18 war in Germany, but during the post-war period it seems to have lost ground because of coarser line quality, and also perhaps because edition sizes were so much smaller.

Subsequent technical development led to the introduction of two-colour offset-litho presses. In Britain these were widely available by 1929, in which year a four-colour machine was exhibited. Although described in the printing handbook produced by the Austrian Survey in 1930, two-colour machines were first mentioned at the Reichsamts in 1938, when they were described as a new innovation. The set-up time of these machines was apparently substantially longer than for single-colour presses. Their use was therefore stated only to be viable for editions of 10,000 copies or more ‘that in normal times do not come often.’ Despite their introduction, flat-bed printing remained the usual means of production. In 1937 there were only thirteen offset-printers at the Reichsamt as against forty stone-printers (plus four full-time stone-polishers amongst members of other lithographic trades). Even in 1941, printing was limited to production of the 1:25,000 sheets, for which a coarser line quality was felt unimportant. From about 1930 the Reichsamts started to experiment with a variety of new ways of generating master reproduction material for the 1:25,000 and 1:50,000 maps, so avoiding the cost of hand-engraving copper plates. Nevertheless most production printing continued to be done on flat-bed presses (Steindruckschnellpressen) using transfers to machine stones.

17 Das Reichsamt für Landesaufnahme und seine Kartenwerke, Berlin, 1931, 47-49 and Tafel 12.
20 In 1929 it was stated that during the 1914-1918 war, by the uninterrupted work of twenty-one Schnellpressen, including twelve offset presses (and so by implication nine flat-bed presses), 65 million map sheets of an average size of 50 × 70 cm were printed in Vienna: Mühlberger, op cit., 208. Kretschmer (op cit., 13) quotes the same output figures, but mentions only eight rotary offset presses.
22 The handbook for reproduction technicians (Reproduktionstechniker) of the Austrian Survey provides detailed instructions both about single colour offset printing and about two-colour offset lithography presses: Rudolf Sauer, Reproductions-technisches Handbuch, Vienna: Kartographisches, früher Militärgeographisches Institut, 1930, especially 205-208.
two years into the Second World War, offset printing only occupied just over three pages of text at the end of a forty-page article on printing at the Reichsamt. The continued use into the distant future of the old-fashioned Steindruckschnellpresse alongside offset-machines was assumed.²⁵

**Organisation and Remit**

There were very striking differences between the survey organisations of the two countries in the clarity of their remits and the stability of their organisations. In Britain, the Ordnance Survey’s business was to map Britain alone. In peacetime, colonial and overseas mapping, and maps for military purposes, were not the Ordnance Survey’s business. In wartime, the Ordnance Survey’s role was different, but in the run up to the Second World War almost all its senior staff had experience of its 1914-18 wartime role. In fact, because British military mapping during the First World War had been developed from small beginnings by a group of very junior officers, it was this same group that had become the senior officers of both Ordnance Survey and GSGS during the 1920s and 1930s. In 1940 most had only recently retired from military service (at low military retirement ages). Many were still very much active. The organisations still reflected their ideas and experiences. In truth, despite retrenchment, organisational change in Britain had been modest. The structures of both Ordnance Survey and GSGS were recognisably similar in 1918-19 and 1939-40. Organisational change became an issue during the Second World War, but even then the changes were evolutionary rather than revolutionary.²⁶

In contrast, the Reichsamt was an entirely new organisation created in 1919-21. As a civilian organisation, it was fundamentally different to its military predecessor. It had to establish its new role from scratch. Furthermore from 1933 onwards the Reichsamt was subject to continual change in its organisation. The German Army General Staff too was a body that had had to be rebuilt from almost nothing.²⁷ As war approached, the Reichsamt’s roles in wartime had to be defined, as had to be the role of the new military mapping body. Most of the leaders of German mapping organisations during the First World War had been older and more senior than those on British side. Not only had most retired at the end of that war, but their obituary notices were starting to appear in the Mitteilungen.²⁸ Thus not only was their experience less relevant, much of it was no longer available. One result of the lack

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²⁵ H Bosse, ‘Der Kartendruck’, Mdrfl, 17 (1941), 113-153, but specifically 148-151. There are two paragraphs about the preparation of offset printing plates, one on p 137 and one on pp 140-141.


²⁷ It should be appreciated that not only did the Army (Heer), Luftwaffe and Navy (Kriegsmarine) all create their own General Staffs, Hitler also established a further General Staff (Oberkommando der Wehrmacht) to impose his directives over all of them. It should also be appreciated that the command relationships between these different staffs differed between different theatres of war.

of clarity about the Reichsamt’s role was that at the beginning of the war it was subject to a multitude of internal and external demands that could not simultaneously be satisfied.

The size of Britain did not change (other than by coastal erosion and deposition), but in the 1920s Irish Home Rule did substantially reduce the area to be mapped by Ordnance Survey. There were very few changes in the administrative divisions of Britain, and while the boundaries of some large towns were extended during the inter-war period, the mapping of these changes was regarded as a minor issue. Alterations were readily incorporated on the successive new editions of the small-scale maps, and were merely another element in the backlog of change to be incorporated on the large-scale plans. There was no political imperative to map such changes with any urgency. In Germany, however, the area the Reichsamt was required to map expanded rapidly, particularly from 1938 onwards. There were enormous political pressures to map new boundaries and new place-names, especially in the territories newly incorporated into the Reich, because mapping was seen as an important assertion of sovereignty. The publication of maps with German place-names was similarly a symbol (and an assertion) of German identities for the places. The magnitude of the task created by this sudden (and unplanned-for) expansion in the area to be mapped by the Reichsamt had no parallel for the Ordnance Survey.

When war broke out the Ordnance Survey was able to solve the problem of keeping up-to-date mapping secret very simply; it just stopped selling maps to the public. Most of the large-scale maps were in any case well out of date. Some limited piecemeal large-scale revision (the ARP revision) was plotted on six-inch maps, but this was targeted at wartime administrative needs and the sheets were distributed on a ‘Restricted’ basis. Military and other strategically important installations had in any case been omitted from maps for public sale since the nineteenth century. In Germany a much more cumbersome process was adopted. Maps remained on sale, but in February 1940 an order was made that no published map should show any revision of economically or militarily important information more recent than 1933. In particular, new roads and railways could not be shown. This had the effect that almost any map that had recently been revised now had to be un-revised before it could be made publicly available once more. This created an immense but fundamentally unproductive task that was probably pointless, and no doubt dispiriting, at a time when other tasks might have taken priority.

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29 Similar considerations have led to the continuing availability (see Part I) of German mapping of the parts of the Reich lost sixty years ago.
30 Once preparations for an attack on the USSR had to be made, the area needing to be mapped became vast; in essence all Europe west of the Urals. The Mitteilungen are however silent about how this problem was dealt with and which organisation did it. Some mapping was derived from Russian originals, but accurate Russian-made topographic mapping of Russia has always been secret. Maps that were copied for the German Army attack on Moscow proved to contain deliberate misinformation about the road system, and its relationship to gorges and swamps: see K Brunner, ‘Geheimhaltung und Verfälschung von Karten aus militärischen und politischen Gründen’, (in) D Unverhau (ed), Kartenverfälschung als Folge übergroßer Geheimhaltung? Eine Annäherung an das Thema Einflußnahme der Staatssicherheit auf das Kartenzusammen der DDR, Archiv zur DDR-Staatssicherheit, Band 5, Münster: Lit Verlag, 2002, 161-175; and see Kyrill D Kalimow, Sovietmarschälle haben das Wort, Hamburg, 1950, 161-5.
32 Pre-war policy and practice in Britain had in fact been highly inconsistent. See A Y Hodson, Popular Maps, Charles Close Society, 1999, 157-168.
33 'Verordnung über die Veröffentlichung kartographischer Darstellung vom 6. Februar 1940', and 'Erste Durchführungsbestimmungen zur Verordnung über die Veröffentlichung kartographischer Darstellung vom 6. Februar 1940', MdrfL, 16 (1940), 42-45. See also the Annual Report to 31. 3. 1941, MdrfL, 17 (1941), 245.
That this was felt necessary reflected the German propaganda aim of maintaining an illusion of peace and normality amongst the civilian population of Germany. To those in Germany, the sudden conquests of France, the Low Countries, Denmark and Norway in 1940 appeared to happen without noticeable cost, just as had been the case when Czechoslovakia and Poland were occupied in the previous two years. Peacetime activities were required to continue, and to a very great extent the populace were not informed of the magnitude of the struggle that was under way. A corollary of this was that Germany’s economy was not run on a war basis until surprisingly late in the war, and thus industrial output in Germany did not peak until 1944. In Britain, on the other hand, the events of the summer of 1940 made it clear to all that ‘there was a war on’, and that many peacetime activities had to be shelved in favour of ‘the war effort’. This requirement to focus all activity on the war was universally accepted; the end of production of maps for civilian purposes was just one minor aspect of this.³⁴ This unity of purpose (remembered fondly by those who experienced it) was an important element in the eventual Allied victory.

Even after the tide of the war turned, projects that were essentially civil continued to occupy the Reichsamts and its subsidiary mapping bodies. From the middle of 1941, the rising death toll on the Russian Front became obvious from the honour rolls printed in every issue of the Mitteilungen (and most other periodicals). The defeats of the winter of 1941-2 in Russia were followed by further defeats on all fronts and, in the winter of 1942-3, by the disaster of the siege and fall of Stalingrad. Yet as late as 1943 a magnificent tourist map, the 1:25,000 Granatspitzkarte des Deutschen Alpenvereins, was published by HVMA XIV in Vienna. This was a large-format mountain map in five colours, showing way-marked paths and Alpenverein huts, and was derived from six pre-war sheets of the new Austrian 1:25,000 survey.³⁵ The Granatspitze is in central Austria and was far from any immediately likely scene of military operations. In Britain there had been no new printings of existing tourist maps since the beginning of the war, and any proposal to prepare a new tourist map at this time would have been inconceivable. Even in August 1944 (after the D-day landings), a set of different multi-colour trial-printings of part of one Bavarian 1:25,000 sheet (6234 Pottenstein, in Franconia) were published in the Mitteilungen, along with many photographs of the area. The accompanying text gives an account of attempts to perfect the precise representation of relief in this picturesque limestone Karst area using hill-shading and differing contour intervals; interesting work, perhaps, but in the context of the war a complete waste of time and resources.³⁶

Small-scale mapping
The Reichsamts and Ordnance Survey had given very different priority to the small-scale mapping of their countries. Hindsight often shows peacetime generals to have made preparations to fight the previous war again, rather than the next one. While examples of such preparations contributing to the early reverses of France and Britain in the Second World War have been widely discussed, equivalent failures on the German side have less

³⁴ In fact, during the later part of the war, copies of the military maps of Britain (many of which included much more up-to-date revision than the pre-war civilian issues) were released for public sale. See R Hellyer and R Oliver, Military Maps; the One-inch Series of Great Britain and Ireland, Charles Close Society, 2004.
³⁵ The fourth edition of this map (Granatspitzgruppe, Alpenvereinskarte 39, 1988) covers a smaller area and (at least in my copy) has a much coarser line quality. It is also very coy about the publisher of the 1943 edition.
often been noted. However there was a profound difference in the nature of warfare between the First and Second World Wars, and thus in the mapping required. In the First World War, position (trench) warfare developed on almost all fronts. On the Western Front, on the Alpine Front, in Macedonia, and at Gallipoli it predominated. For such warfare large-scale mapping based on accurate and precise trigonometrical control had become crucial.

During the 1920s, in order to take advantage of the growing demand for motoring maps, the Reichsamt issued some of its 1:300,000 sheets with additional road information as the Deutsche Motorfahrer Karte. This series was re-launched in the 1930s as the Reichs-Auto-Karte.

In the light of this, throughout the inter-war period the Reichsamt devoted much of its very limited resources to large-scale surveys of its own territory and the improvements to its triangulation networks that they required. As a consequence, small-scale mapping was to a great extent neglected. The obsolescent 1:100,000 map with hachures was maintained and gridded; its intended replacement, the 1:50,000 map, did not progress beyond a few experimental sheets. The new but incomplete 1:200,000 map with contours was abandoned
for much of the period, while the older hachured 1:300,000 was maintained. On these maps the black plate carried both the grid and most of the topographical information. Any revision involved difficult changes to this very crowded black outline plate. Particularly for the 1:300,000, for which the master reproduction material was engraved stones, this could be a very cumbersome process indeed.37

Yet the Second World War turned out to be a war of movement, often fought over substantial distances. Motor transport, armoured vehicles, aircraft and artillery all moved faster, and acted over longer ranges, than twenty-five years earlier. Large-scale mapping turned out to be less important than good quality small-scale mapping extending over wide areas. The ability to produce provisional mapping that could be revised rapidly and repeatedly in the light of new information or better surveys proved immensely important, particularly for operations outside home territory.

Between the wars the Ordnance Survey had neglected large scale mapping in favour of developing its small-scale series. The 1:63,360 Popular Editions of England & Wales and of Scotland had not only been completed, but were in process of replacement by further new series. Two successive 1:253,440 series had been completed for the whole of Britain. The styles of these multi-coloured maps, and their reproduction methods, had been developed in an environment of forced economy, speed, and efficiency.38 The reproduction material for relief portrayal was, in particular, fully separated from that of other categories of information, and all maps at 1:10,560 and smaller scales were contoured throughout.39 Despite its brief return on the Fifth Relief Edition of the one-inch map, hachuring had finally been abandoned. Other categories of information appeared only on one or other coloured plate. Sheet sizes were large. Legibility was good, even in poor light. These were exactly the sort of maps that turned out to be required for the Second World War. The civilian maps of the Ordnance Survey were not uniformly gridded, but a system had been developed by GSGS whereby a grid (and other military information) was overprinted in purple on otherwise civilian maps.40 Despite the practical disadvantage of requiring an extra pass through the printing press, and the more theoretical disadvantages of the grid being only indirectly (and perhaps approximately) related to the base map, the system proved legible, flexible and adaptable.41 Revision or replacement of the base map did not require modification of the grid plate. A coloured overprint bearing a grid (and for maps at junctions of grid zones, different coloured overprints) became characteristic of much Allied Second World War mapping. Simply by
replacing the grid overprint with a different one, graticule editions of the same maps for air use were also readily produced.

In comparison, the old-fashioned small-scale mapping of the Reichsamtwas cumbersome and inflexible. The fine detail of the black plates required good light to be read. The extensions to the Reich before war broke out proved difficult to map adequately within the time allowed, while the mapping prepared of areas outside the Reich was un-gridded and inadequate for military purposes. The small sizes of the series-sheets proved to be impractical; progressively larger compilation sheets had to be created. The immense extensions to the area to be mapped at small scales, particularly in the east, challenged all the peacetime assumptions of the Reichsamtw. How those challenges were met in wartime is, however, not revealed in the openly published documents used for this study.

**Civil-military interaction**

It would be ridiculous to write an analysis of the interrelationships of the Reichsamtw with its military and Luftwaffe counterparts from the publications available for this study, just as it would be ridiculous to base an account of the interactions of the Ordnance Survey and GSGS purely on published material. Nevertheless some questions and areas for future enquiry do emerge.

That Kart II. of the Reichsamtw produced ungridded maps of Britain and elsewhere for military use suggests (at the very least) poor liaison between the civil and military organisations. Rather than military considerations being able to dictate the specifications of the maps produced, the Reichsamtw seems to have been allowed to produce the maps it felt able to supply. The establishment of Kart II. without trigonometric or compilational personnel seems to have been a minimalist response to an instruction to prepare mapping of other countries. Vollmar, the President of the Reichsamtw, probably had a perfectly clear idea of military needs. He had been a serving officer until his appointment in 1934, and had previously been the military representative on the Beirat für Vermessungswesen and the liaison officer between the Reichsamtw and the Reichswehrministerium (Ministry of Defence). Nevertheless he seems to have seen his role as firstly to defend the Reichsamtw against efforts to fragment it, and only secondly to provide a service to other agencies. While this was probably entirely normal (and necessary) behaviour for a peacetime head of a civil-service office, it significantly hampered military preparations for war. Vollmar’s outranking of the Chief of the military department must however have assisted him in asserting the primacy of the civilian body, and in retaining control of Kart II. and its personnel, even when its tasks were military. Rivalry and conflict between the leaders of military and civilian mapping bodies existed in Britain, but it may well have been even greater in Germany.\(^{42}\) The deliberate creation of overlapping responsibilities (and the separation of chains of responsibility from chains of command) were characteristic of Nazi government; inter-departmental feuding frequently resulted.\(^{43}\) The effects of this within the German mapping services, and of the shifting balance of power between the services, merit further examination. In 1941 Hemmerich was promoted to Generalleutnant, and by 1943 he was asserting the supremacy of his military mapping body over all the national mapping bodies of


occupied Europe, including the civilian bodies in Germany. A Führer-order of 1942 even apparently authorised him to take command of the Reichsamt and all the Hauptvermessungsabteilungen, although he never felt able to take that step.  

Vollmar may have had further reasons to feel under threat from expansion of the armed forces, and in particular from any war. On the outbreak of war, the benefit of the rapid expansion of the number of apprentice cartographic craftsmen at the Reichsamt during the late 1930s was almost entirely gained by the Army. The first batch were only due to return from military service in the autumn of 1940, by which time Poland and France had fallen and the war was very much under way. Traditionally, in both Germany and Austria, service in the military mapping bodies was seen as a peacetime posting for front-line officers and men. On general mobilisation, these would all would return to their units. The trigonometrical and topographical departments would be closed down during hostilities, leaving only the cartographic department to function as a map printing unit in the state capital. This was very much what had happened at the outset of the First World War, both in Berlin and Vienna. The establishment of front-line military surveying units had been a subsequent innovation during that war. There was no previous precedent to indicate what would happen to a civil mapping authority that was largely staffed by retired military officers and men. In the event the Reichsamt and all its departments did continue in being during the war, but there is no mention in the Mitteilungen of any of its peacetime apprentices returning from the colours. The long lists of deaths in action indicate that many never resumed civilian life, while the postings given also show that the army did not usually use their cartographic skills.

At the beginning of the war Ordnance Survey also lost large numbers of personnel to active service units, although in the absence of universal compulsory military service the loss of recent trainees was only partial. On mobilisation, Ordnance Survey lost seventeen Royal Engineer officers and 500 other ranks, plus a further 180 reservists, territorials and militia. Furthermore, within six months a quarter of the two-and-a-half thousand civil assistants had been called up. However the Ordnance Survey had a larger initial number of staff than the Reichsamt, and was also initially able to make good some of its losses by recruiting new staff from civilian printing firms, while women and boys were soon recruited as trainees. In Germany there was no equivalent pool of skilled workers to recruit because of the very specialised lithographic printing techniques used by the Reichsamt. Essentially only workers in the private sector cartographic industry had the skills required, and regulations had already

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been made to prevent them being poached by the Reichsamt. I have found no sign that the Reichsamt felt able to recruit women. The attitude of the Nazi state to women in the workplace was shaped by its early membership. The original core of the party had been a socially very conservative group characterised as small shopkeepers, foremen and supervisors. The woman’s role was proclaimed to be ‘Kinder, Kirche, Küche’ (children, church and kitchen). Her foremost duty was to bear children and to propagate the master race. It was most certainly not to compete with men for jobs. Nevertheless, despite Nazi dogma, employment and training opportunities for women did eventually increase during the war, as men had to be replaced in the workplace and as breadwinners. It is possible that they were eventually recruited by the Reichsamt, but that their employment was not publicised.

Post-war developments

Finally, the greatest difference between the two mapping authorities was that the Ordnance Survey survived the end of the Second World War. Indeed, despite the destruction of much of its survey archive (and history) in an air raid, the OS might have been said to have had a good war. It had risen to many challenges successfully, and rose to more in the post-war period. It continues to flourish sixty years later.

Like all the institutions of the German Reich, the Reichsamt für Landesaufnahme ceased to exist following the defeat of 1945. Nevertheless, some continuities can be traced through the meltdown of social and administrative structures that followed the conquest of Germany, its four-power occupation, and its subsequent rebirth as two smaller countries with radically opposed political systems. Following the end of the war part of the Trigonometrische Abteilung found itself an operational base at Bamberg in northern Bavaria. After several changes of name, it was relocated in 1950 to Frankfurt-am-Main and renamed once more as the Institut für Angewandte Geodäsie (Institute for Applied Geodesy). Erwin Gigas, the former head of the Trigonometrische Abteilung, became head of the new organisation. In West Berlin the Amtliche Anstalt für Kartographie und Kartendruck was established as a successor to the Kartographische Abteilung. From 1954 it was co-ordinated with the Institut für Angewandte Geodäsie, and from 1956 was merged with it. In the decentralised federal structure that was created for West Germany the production of all maps of scales larger than 1:200,000 became the responsibility of the separate Länder, but the Institut retained responsibility for smaller-scale official mapping, geodetic and cartographic research, special projects for federal bodies, and international co-ordination. It also continued to supply unreviewed copies of German mapping of the lands lost to Germany at the end of the war. Following the reunification of Germany west of the Oder-Neisse line, it was (in 1997) renamed as the Bundesamt für Kartographie und Geodäsie, and as such continues to this day. Nevertheless it is a much diminished organisation in comparison with its predecessor. It has no primary surveying or mapping functions and its output of small-scale derived maps is overshadowed by the much larger output of the private sector. In geodesy its role is

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47 In one of Hitler’s speeches, the emancipation of women was condemned as an idea made up only in the Jewish intellect. Speech of 8 September 1934, reprinted in Ute Benz, Frauen im Nationalsozialismus, München: Verlag CH Beck, 1993, 42.

48 The roles of women, and womens’s work, in the Nazi state are discussed in Ute Benz, op cit., see especially pp 35-36. See also T Mason, ‘Women in Germany 1925-1940; Family, Welfare and Work, Part II’, History Workshop Journal 2 (1976), 5-32.

49 The current 1:200,000 sheet lines conform rigidly to an old-fashioned grid pattern with tiny sheet sizes. Most sheets are ten years or more out of date.
research, and in this it is subordinate to the *Deutsche Geodätische Kommission*. In all of these roles it has no real British equivalent. Perhaps, however, its weakness reflects a weakness in the *Reichsamt* between the wars. The leading role of the *Reichsamt*'s trigonometrical department and the lesser status of its cartographic department were reflected in the structure of the post-war body, especially in the very belated inclusion of the successor to the cartographic department in what had become explicitly a geodetic organisation. The strength of the Ordnance Survey has been that geodesy has always been subservient to the production of maps.

**Note on Sources**

I have to emphasise that in writing this (exploratory) account of a foreign mapping organisation I have relied on printed public sources rather than archival material. As should be obvious, the weaknesses of this approach are considerable, not only for the period of the war but also for the run-up to it. Nevertheless what is perhaps surprising is how much information entered the public domain, even after the Nazi seizure of power. Answers to many of the questions arising from the present account will however only emerge from archival work, while some of my interpretations of the published material may also require adjustment.

I am also acutely conscious that the German-language literature on the history of cartography is very large, while my access to it has been much more limited than it deserves. The period under examination is still however an uncomfortable one for many Germans, and I have found little recent work on the *Reichsamt* to set alongside the Society’s work on the Ordnance Survey.\(^5^0\) If nevertheless there are significant publications and sources that I have missed, I would be grateful if they could gently be drawn to my attention, if possible with photocopies, or the names of UK libraries holding them.

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\(^1\) Also arsenic, haematite, iron, manganese, mispickel, ochre, wolfram, uranium and zinc.
Survey methods: corrections and additions

John Cole

The following update the lists of 1:1250 survey methods in Sheetlines 56, 64, 67, 68 and 69:

1949  chain survey: add Corringham, Stanford le Hope, Stockton and Thornaby on Tees

1951  chain survey: add Gateshead

1953  chain survey: add Osset, Redcar, Tynemouth and Whitley Bay

1955  chain survey: add Batley, South Shields

1956  chain survey: delete Hamilton

1960  tachy: add Romford

          air machine: add Fleetwood, Blackpool, Lytham and St Annes

1961  tachy: add Hamilton

1962  tachy: add Hornchurch

1959  tachy: add Hyde

Although Romford and Hornchurch have been retained in the tachy category there is some doubt about this. Similarly there is doubt about Wrexham (1958) and the Blackpool area as example maps show revision point fixation with air graphic in mind.

The recently republished Ordnance Survey maps: a concise guide for historians mentions that the town centres at Montrose, Stranraer and Stonehaven were surveyed at 1:1250 and the rest of the built up area at 1:2500. Sheetlines 65 quoted the National Grid references of six maps (two for each town) involved. A visit to the OS website in June 2005 indicates a change of situation at Stonehaven. Maps are now classed as:

A:  1:1250 mapping (or 1:2500 mapping to this standard),
B:  1:2500 overhauled maps,
R:  1:2500 reformed mapping,
C:  1:10,000 mapping.

At Montrose and Stranraer the town centre maps are classed as AB and the surrounding 1:2500, B (not yet covered by the reformed programme). But at Stonehaven seven maps are now shown as AR indicating that they had been added to the small town / peri-urban area which is now complete.

Northallerton is also quoted as having the town centre surveyed at 1:1250, but in this case complete maps SE3693NE and SE3694SE are at this scale. This also applied at Dawlish, SX9576NE, SX9676NW; Todmorden, SD9342NE, SD9424SW, and Easton (Isle of Portland), SY6871NW & NE. At Fortuneswell (Isle of Portland) four maps are at 1:1250, SY6873NW, NE, SW & SE. At Bridgnorth, there are six, SO7192SE, SO7193SW & SE, SO7292NW, NE & SE and at Teignmouth, four, SX9373SE, SX9473SW, SX9372NE, SX9472NW with a further two, SX9372SW & SE at Shaldon village on the other side of the river mouth. As these areas were all surveyed at 1:1250 during 1987-89 it is assumed the maps concerned have only been available as digital printouts.

Twenty five inch map

To the provisional list of 1951-56 resurveyed towns should be added: Bo’ness, Broxburn-Uphall and Linlithgow (West Lothian).

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1 This corrects the amendment in Sheetlines 69.
Reviews


The first edition of this book was welcomed in Sheetlines 37 (August 1993) with an enthusiasm that the present reviewer found wholly appropriate. Although Richard Oliver’s revised text is nearly half as long again as the original, its basic structure has remained the same, imposing three kinds of order on what beginners will doubtless perceive as the chaos of Ordnance Survey cartography. First we proceed through a succession of scales (twenty-seven in all), from 1:500 to 1:1 million, noting the advantages and limitations of each and following their publication histories. A second sequence is that of individual landscape features, discussed in alphabetical order from ‘administrative boundaries’ to ‘Woodland Trust land’ and surfacing again later in a long table of Ordnance Survey abbreviations. Finally, the Survey’s output is classified by location, with lists of British towns and counties specifying scales and dates of the most historically useful maps available for each. All this is achieved with remarkably little repetition: Oliver was probably wise not to develop a fourth classification by historical periods, though this possibility is covered to some extent in a brief introductory chapter, highlighting a certain tendency for the rest of the book to say less about the early nineteenth century than readers of an older generation might have expected.

Within this broad framework we may briefly note the main changes in the new edition. Apart from some rearrangement of text and graphics the most conspicuous innovation is a short but useful chapter on principles of Ordnance map interpretation, explaining what can happen to a cartographic record as it passes slowly through the Survey’s processing machinery and also distinguishing various kinds of error, real and apparent. Existing chapters have been updated, and there are a number of new illustrations. The baffling developments of the last twelve years are bravely confronted: here the easiest facts to understand are generally the most negative, among them the disturbing news that ‘in 1997 the whole concept of “editions” was abandoned’. (The latest map-date in Oliver’s long list of towns and counties is 1989.) The treatment of earlier periods has been amplified partly by quoting previously unknown departmental instructions and partly by drawing on specialist historical studies, most of them published in Sheetlines. Some of the results are of localised importance, like the ‘bracing’ of small ponds in Cheshire (p. 75) or the recording of mid-nineteenth-century field names in the North Riding of Yorkshire (pp. 85-6). Lastly, there are a number of new passages mitigating the rather severe historiographical judgements previously passed on the smaller scales, though the author’s central message remains clear: unlike collectors of Ordnance Survey maps, landscape historians will find most to interest them at 1:2500 and above.

To summarise: Oliver’s tabulated information will never lose its value. His descriptive and narrative text can be expected to give satisfaction for many more years. After that, it might be better for the next historian’s guide to be built on new foundations.

J H Andrews

This book, which was previewed in Sheetlines 69, is a work of which authors and publishers may be proud. The coloured reproductions of town plans, ranging in date from Speed’s map of 1610 to the Ordnance Survey Town Map of 1920, are preceded by a short, but vital, introduction, setting the maps in their context of the development of the city of Lincoln and of the history of cartography.

The quality of the reproduction sets a new standard (and should be an example to some commercial publishers of coffee-table books of ‘decorative’ old maps). There is always a quandary in reprinting old maps: should one reproduce the historic faded document, stains, tears and all, or should one digitally manipulate the image to, as far as possible, restore the map’s original pristine condition? Here we have an excellent compromise, the original dissections, library stamps and what looks like some unfortunate Sellotape damage are still visible, but the crisp line work and other detail leap sharply from the page. Where necessary gridded borders have been added to part sheets and a scale bar, which would have been split across a page boundary, has been moved – but in such a way as to leave the new work perfectly obvious. The colour is bright and pleasing while giving, as far as one can judge without having seen the originals, an impression of accuracy.

Thirteen different plans of Lincoln are reproduced, but most of these are large sheets and, reprinted at their original size, spread across several pages. Despite the generous page size, Padley’s plan of 1883 occupies eighteen pages. The authors have designed the page breaks with care, using a standard dissection where possible, and have allowed some overlaps between pages, but this leads to the atlas’s one inevitable drawback. These maps were designed as single sheets and one just longs to join them back together again and spread them out, side by side!

The book will certainly be bought by anyone interested in the history of Lincoln, but it can also be recommended to members with an interest in town plans generally and, certainly, as an exemplar to anyone planning to publish other reproduction mapping.

Chris Higley


The Motorway Archive Trust (registered charity no. 1078890) is a body that has been set up to record the justification, forward planning and construction of the British motorway network. To date, it has produced two excellent publications under the name The motorway achievement. In volume 1, part 3: The orientation of motorways, there is a section devoted to the role of Ordnance Survey titled ‘The contribution of Ordnance Survey to Britain’s
motorways’ by P R T Newby, editor of *The Photogrammetric Record* and formerly Manager of Photogrammetry and Survey Computations, Ordnance Survey.

The chapter presents the insights, supported by extensive research, of a highly qualified member of the staff of Ordnance Survey who spent a full year in its service. That span of service coincided with profound and continuous development of the technologies of mapping, from traditional triangulation and measurement by tape, through aerial photography, to application of satellite-based global positioning system (GPS). This stream of change was fed and accompanied by the simultaneous explosion in information technology and computing. Both these revolutions were contemporaneous with the massive expansion of road transport serving a changing economy and society, with its particular manifestation in a motorway programme which has needed to use maps from the earliest stages of advocacy, through the first half of the twentieth century, to detailed design of works through the second half and, promptly upon completion of each component, to the continuing task of informing the public correctly of the network’s availability. The chapter includes several OS map covers and sections of maps for which full copyright approval has been obtained. For members interested in historical information and archived information, there is section that gives comprehensive details of the various archive centres.

The publication is expensive to buy but can be borrowed through the public library system using the inter-library loan agreements. I recommend any CCS members interested in roads and motorways to read it. For anyone wanting more information on the Motorway Archive Trust, there is a website [www.ukmotorwayarchive.org](http://www.ukmotorwayarchive.org) hosted by the Institution of Highways and Transportation (IHT) at [www.iht.org/motorway](http://www.iht.org/motorway).

David C Kimber

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**Kerry Musings**

David Archer

What should we do with our ever-increasing Publications Fund? Spend it. But this invariably increases the amount in the fund. Try publishing maps, as well as fund increasing books. After all, maps should be of interest to members, and would sell at a lower price than double figure monographs. It would enable us to exploit our newly acquired ability to work in colour, and if they were successful, at least the fund would increase at a slower rate. Maybe.

So, what maps would we publish? Ordnance Survey maps of course. Less common, hard to acquire maps, which members would be pleased to have in some form or other. I am not thinking of the maps currently being photographed by the society, with copies lodged in various locations, but rather, dare I say it, slightly more desirable items which might sell more copies (well, we must try to retrieve a bit of the outlay, surely). There are a lot of very interesting and attractive little known OS maps, which I believe, some of the membership would appreciate having brought to their attention. A lot of people appear to collect covers rather than maps, whilst only a few pick up hints in *Sheetlines* as to the existence of maps.
probably far more interesting than any cover. Due to the lack of coloured illustrations, quite spectacular maps, often issued in dull buff covers, or never seen in OS covers at all, are just ignored. Such items would give a vast amount of pleasure even if owned as a well produced facsimile. I really do feel that we have made little attempt to introduce the membership, especially those new to Ordnance Survey maps, to the wonders of what exists away from the mainstream OS series. Yes, a flavour exists in many places, but mostly given in descriptive text that only hints at the cartographic gems concerned. Maps are so obviously a visual thing and can only be appreciated when seen whole, not as extracts and not described in words. I have always found members of our society to be more than generous with information and help, never secretive, but sometimes I am uncomfortable when asked about a less common map. One could so easily say “Oh, yes, everyone knows about that”, but it would be cruel and untrue. A more accurate comment would be to say that some of the more knowledgeable members are aware of it, some have a copy, but that it has never been given prominence in the literature. It is not being kept a secret, just that it seldom gets mentioned. And the best way to publicise such maps is to make them available in a series of top quality, full colour reproductions: Ordnance Survey’s Classic Maps.

For those of a nervous disposition, read no further, but I would put all such maps into glossy, brightly coloured, standard sized OS card covers. It would be wrong, in my opinion, to try and replicate the originals. Dull brown covers are not really very attractive, even with a nice illustration on the front, and I would hate to think that anyone was ever to be misled into thinking one of our maps was an original. So make sure they are not fooled. Each would have an illustrated essay about the reproduced map and where it fits into the OS story. Photographs, line drawings and sections of other editions of the map could all be used. Obviously, there would be details of the society, and I am certain that membership would increase through this method of advertising. The last issue of Sheetlines contained a review of The Trafalgar Way, a map along the lines of, but not really what I envisage, except for the cover. I bought a copy from the OS shop at the AGM and have been told that shelf stock ran out towards the end of the day. The map is contained within a colourful glossy cover with a picture of Nelson on the front, giving a feeling of what is inside. My idea would be to have cover designs based on the originals if possible, with a full sized reproduction of the map plus an introductory essay inside. A combination of the Ordnance Survey, David and Charles, Harry Margary, and Alan Godfrey approach.

Start with the 1920 six-inch town map of York. A beautifully clean, crisp, glossy cover design by Arthur Palmer (reinstating the red border, omitted from Map cover art, and unusual in not featuring trilby man). The map is a fine example of this series, with the clear depiction of detail and a super range of gentle colours. The street index could be on the reverse of the sheet and would be a certain bestseller in York, should we be looking for revenue. Then we could have the War Department Land on Salisbury Plain, 1898, at two inches to one mile. Lovely light, fingerprinty horizontal hachures, larger than usual lettering, and very wide, deep yellow roads combine to give the feel of a cartographic version of a large print book. A wonderful thing and possibly one of my top three all time favourites. Or, consider the Glasgow District experimental sheet from 1914. An irregular, black squid of a Glasgow is nicely centred on the paper, with red veins and black tentacles reaching out to all parts of the sheet. Other family members, Dorking, Killarney and Ilkley just cannot compete with it. So let us make it more accessible and everyone can enjoy a copy. I would not necessarily publish the rarest maps, but go for slightly more common examples, seeking
those which have an interesting history or deserve to be better known and are nice to look at. Although Scotland in Roman Times (cover title: The Forth Clyde and Tay: Roman period) and The Solar Eclipse are rare items, the actual maps are very boring, and would probably not be big sellers (I know that revenue is not the main point of the exercise, but neither is it the intention to exhaust the fund).

My current choice for the first ten maps would be:

1. **Map of the County of London**, 1926. 1:20,000. Coloured edition showing secret information for use during the General Strike.
2. **South Wales and the Border in the Fourteenth Century**, 1932, NE sheet. Two miles to one inch. From probably the most unusual set of civil maps printed by the OS.
4. **War Department Land on Salisbury Plain**, 1898. Two inches to one mile. Coloured edition, with contours and horizontal hachures.
5. **East Anglia**, 1914. 1:25,344. Coloured edition with super red, green and blue detail showing telegraph lines, material used for bridge construction and watering places for traction engines.

If it was felt necessary to really justify such productions, we could publish maps to coincide with AGMs, and hold our meeting somewhere on the map. In addition to a cartographic essay, details and location maps for the AGM venue would be shown, as well as places of interest and things to do in the area. After all, when we met in London, Brian Garvan set a precedent by producing a neat little AGM map and these would be in the same vein, but the funds now held would enable a much more ambitious project. A copy could be given free to every member and eventually a complete run of classic/AGM maps would be cherished. A decidedly inferior, but still acceptable product would have an integral cover, having the map one side with text and cover design on the reverse, folding to a standard size. And if they do not break even, why worry? If we were determined to be tight with the purse strings, we might decide to finance such publications from the annual interest earned on the fund, leaving the capital intact for book publications. Should the initial intention be to have a map every few years, my guess is that they would be a success, with annual productions following. But beware, for most of us any such map lacking the magic six words, ‘Printed at the Ordnance Survey, Southampton’, could only be a disappointment.
Letters

Uncle Joe’s view of Croydon

John Davies is to be congratulated on all the work he has done to collate some basic facts on the Soviet maps of the UK. There are some drafting errors in the 1:100,000 Soviet depiction of Croydon, such as the omission of a road across Langley Park, but the extraordinary use of black for New Addington, essentially a residential, council estate calls for comment. Did the Soviets know something we didn’t know?

I would also question the relative importance given to Penge as opposed to Streatham. Such maps deserve close study, not so much as indicators of source materials, but for what they say or don’t say about the ways in which Soviet cartographic editors interpreted the evidence they were using.

Chris Board

John Davies’s article is fascinating, and I thought I would touch on a few points.

First, place names appear to be phonetic rather than letter-by-letter transliterations, e.g. on the 1:100,000 London map Bekenem, Stretem, Perli, but Lyuisem (Lewisham) is a strange anomaly. On this map Surrey is rendered as Soorrei, but on the ‘Plan of Metro [not ‘subway’] Lines’ Surrey Docks is Sarri Doks.

Second, it’s well known that the Russian for railway station is Vokzal, named after the Vauxhall pleasure gardens. However, Vauxhall is rendered as Vokskholl on these maps—and on the Metro map it appears where Pimlico should be.

Third, on the 1:100,000 map all buildings are marked in brown, except for the large New Addington council estate in black. Cartographic evidence of the class struggle, perhaps?

Last, they may be very accurate, but the 1:100,000 map omits my street of birth—clearly not a target!

Michael Mellor

The Soviet Underground map, an extract from which is reproduced in Sheetlines 72, is very interesting. As regards dating I would suggest somewhere in the region of 1974. It shows Pimlico station (but see below!), opened later than the rest of the Victoria Line Brixton extension on 4 September 1973. It also shows the Northern City Line still as part of the Underground. The Jubilee Line (then running from Green Park to Charing Cross rather than to Westminster), which opened in 1979, is not shown.

The map has some shortcomings as a means of enabling Soviet troops to find their way around. Apart from the quaint transliterations (‘Does zis train go to Eindzhel [Angel]?’), there are some downright errors. It is understandable, if misleading, that where two lines run parallel (such as District and Piccadilly from Ealing Common to South Kensington, Bakerloo

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1 Sheetlines 72, 36.
2 This was temporarily closed before transfer to BR in 1975, though it was still shown, as a BR line, on the Underground map for years afterwards so perhaps this does not prove much.
[now Jubilee] from Wembley Park to Baker Street) they are shown as one line. The District is not shown as going to Ealing Broadway, there is a non-existent interchange shown at White City and there is the totally spurious line shown from Angel to Barbican (the former of which is in deep tube, the latter in cut-and-cover!). Most interesting are the mistakes on the Victoria Line Brixton extension. Brixton is shown as East Brixton, and Vauxhall and Pimlico (or ‘Timlico’ as it appears) have been interchanged across the Thames; perhaps the map had been hastily updated from an earlier version?

Alan Cubitt

John Davies comments:
The explanation for the use of black for New Addington is that conurbations are coloured orange, but built-up areas outside conurbations are coloured black on 1:100,000 maps (and grey on other small scale maps).

The Royal Geographical Society

The copy of Ptolemy’s *Cosmographia* on view to CCS members on 11 March\(^3\) contains hand-coloured woodcut maps from the 1482 edition but bound with re-set text of 1486 (both editions printed in Ulm) and the earliest known facsimile globe (as distinct from flat gores) is datable to ca 1842-47.\(^4\)

For more information on the Fordham Collection, which extends from the mid-sixteenth to the mid-nineteenth century, see the catalogue\(^5\) copies of which I am still selling – with MS corrections – from the Map Room at £2.00 per copy plus postage.

I can also forward the news that (as I write this mid-April 2005), from May this year over 4,500 of the Picture Library’s images will be viewable online at http://images.rgs.org.

Finally, I (the undersigned) am the Curator of Maps; the Society’s Librarian is Mr Eugene Rae.

Francis Herbert

The mystery of Gars–bheinn

K S Andrews in his article, *Trig pillar building party*,\(^6\) raised an interesting question of why there is no pillar shown on Gars-bheinn (1:50,000 sheet 32) when his copy of the pillar party’s one-inch map shows that a pillar there was intended, and designated a tertiary triangulation number 24/T69.

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3 *Sheetlines* 72, 8.
4 See my illustrated article ‘The earliest known facsimile globe’ in *The Map Collector* of Winter 1987, 41, 22-23.
6 *Sheetlines* 71, 16.
Gars-bheinn is the summit defining the southern end of the great horseshoe of the Black Cuillin ridge, which is the Mecca for climbing enthusiasts all over Britain, and is the start of the traverse of the Cuillin main ridge, comprising eighteen main summits, fourteen of which are over 3,000 feet. Some dedicated and accomplished mountaineers can do this in a day.

I was on trig reconnaissances on Skye in 1956. My colleague, Ken Funkie, and I hired a boat from Elgol and I was dropped on the shore near Eilean Reamhar at the nearest point to Gars-bheinn; about a mile from the summit on the map and a climb of 895 metres (2934 feet, not quite a Munro). Ken carried on in the boat to the island of Soay and sited a trig on Beinn Bhreac and having completed it, he picked me up from the shore of Loch Scavaig on the way back.

I had sited the trig on the summit, to be tied in to the old trig (of the original nineteenth century triangulation) which was under a well-built cairn, and I recorded details and advice on the best route to the summit. This was rough in places but not difficult, although I warned that when carrying loads it was advisable to go in pairs. There were other trigs on the Cuillin such as Bruach na Frithe, which we had just sited, and others in mountainous areas which were higher and with more difficult access, so Gars-bheinn did not represent a particular problem.

On returning to HQ at the end of the 1956 season, Trig Superintendent George Bellamy said “We are going to use helicopters on Skye next year for pillar building, so show me at which trigs a helicopter can land”. This was news to us, so we had to recollect the ground condition at each of the points we had sited. We later learnt that in practice the pilots often hovered close over the site and released the carefully packed loads of material without needing to land. Although, despite the footnote on the pillar builders’ one-inch map, they did land when the surveyor alighted. But the great news for the pillar builders was that the task of man-hauling materials to the summit would not be necessary.

At the end of 1957 I learnt that the pillar on Gars-bheinn had not been built, but the observing diagram was amended to show that the cairn on the summit had been designated an ‘intersected point’. This would give a perfectly satisfactory fix as the surrounding trigs were spaced well for the angles of intersection. This was unusual as intersected trigs were normally inaccessible points, such as church spires and monuments, which could not be occupied.

That season of pillar building using helicopters was experimental. George Bellamy was involved personally in the organisation and it was important to achieve economy to prove that the expense of hiring helicopters for remote or more inaccessible trigs in mountain areas was justified. However, weather in Scotland was unpredictable. Sherrif Nicholson, one of the pioneer climbers in the Cuillin wrote

If you are a delicate man,
And of wetting your skin you are shy,
I’ll have you know, before you go,
You had better not think of Skye.

There could be days when the weather grounded a machine with consequent expensive delays. The wind was always a consideration with the helicopters, especially near a summit where up-draughts and down-draughts could make landing quite tricky. This is where I believe the decision was made to cut out the pillar on Gars-bheinn and make it an intersected trig. In the end, the first helicopter season was a great success and the Director General sent his congratulations to all who had been involved.
The owner of a large part of Skye including the Cuillin was the head of Clan MacLeod, Dame Flora MacLeod of MacLeod of Dunvegan Castle, who gave permission for the pillars to be built and for the use of helicopters there. At a later stage she gave permission for air marking of the trigs in preparation for air photographs to be flown for the 1:10,000 resurvey. The marking involved a whitewashed cross defining the pillar (and the cairn) which showed up clearly on the air photo.

*Phil Broomfield*

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**Our Society**

Our Constitution,\(^7\) in describing the object of the Society, refers to ‘… research into the maps, plans and other activities of the Ordnance Surveys …’. While, on a semantic point, I am not sure that ‘maps’ can be an ‘activity’, it is a truism that the ‘other activities’ are almost all of them essential to the mapping process.

Field survey (triangulation, levelling)\(^8\) and air photography are, in addition, distinct fields of endeavour in their own right, and of course have multifarious uses besides mapping. Over the last two years, the second limb of our ‘object’ – these ‘other activities’ – has been barely represented in *Sheetlines*, amounting to around 2% of the technical items, far less even than the non-OS material. This contrasts, for example, with the 24% of the main text of the 1971/2 and 1972/3 OS Annual Reports that is devoted to triangulation, geoidal sections, crustal movement, levelling, and air photography.

A slight amendment of the full name of the Society would make it more compatible with our object, avoid the risk of unjustified limitations on its activities, and help to encourage non-cartographic research. We should then be *The Charles Close Society for the Study of the Ordnance Survey and its Maps* – the singling out of ‘maps’ emphasising the primacy of this topic but also clarifying that maps are but one aspect of the whole gamut of OS topics open to the researcher-members of the Society.

I think that people will, when necessary, relate ‘Ordnance Survey’ *tout court* readily enough to whichever of the three descendants of the nineteenth-century organisation may be relevant to them at the time. In any case the plurality is partly spelt out in the ‘object’ paragraph, though this does not distinguish the two Irish Surveys: could it do so?

*Richard T Porter*

*Whether or not members wish to follow up the suggested name change, the Editor hopes that this letter will spur some of them into writing up research into the ‘other activities’ which he will be delighted to publish in future issues of Sheetlines.* – CJH

\(^7\) See *Almanack 2005*, distributed with this issue of *Sheetlines*.

\(^8\) I include topographical survey work with the mapping.
**New maps**

*Jon Risby*

This list covers small scale maps published between 17 March and 6 July 2005. They are listed by series, and in sheet number order. The columns are as follows: Sheet No. / Title / Edition / Copyright date / Full revision date (except for Explorer maps) / Latest revision date / Date of publication. There is also a list of those maps due for publication by OS (by series and in order of their proposed publication).

After the list of OS maps is a résumé of maps published by Alan Godfrey between March and July 2005.

**OSGB maps**

New editions noted 1 in column 6 are ‘Reprinted with minor change’
New editions noted 2 in column 6 are ‘Revised for selected change’
New editions noted 3 in column 6 are ‘Revised with selected change’
New editions noted 4 in column 6 are ‘Revised for significant change’
New editions noted 5 in column 6 are ‘Revised with significant change’

Where details are shown in italics I have not been able to confirm the details by seeing the map itself, and therefore information is based on Ordnance Survey’s list of new publications. I hope that I shall be able to confirm information in the next edition of Sheetlines.

**Landranger – new editions**

<table>
<thead>
<tr>
<th>Sheet No</th>
<th>Title</th>
<th>Edition</th>
<th>Copyright date</th>
<th>Full revision date</th>
<th>Latest revision date</th>
<th>Date of publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Stornoway &amp; North Lewis</td>
<td>C1</td>
<td>2005</td>
<td>2005</td>
<td>13/05/05</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Cape Wrath, Durness &amp; Scourie</td>
<td>C</td>
<td>2005</td>
<td>2002</td>
<td>2005</td>
<td>17/05/05</td>
</tr>
<tr>
<td>10</td>
<td>Thurso &amp; Dunbeath</td>
<td>C1</td>
<td>2005</td>
<td>2005</td>
<td>09/06/05</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Thurso, Wick &amp; John O’Groats</td>
<td>C1</td>
<td>2005</td>
<td>2002</td>
<td>2005</td>
<td>10/06/05</td>
</tr>
<tr>
<td>12</td>
<td>Gairloch &amp; Ullapool, Loch Maree</td>
<td>C</td>
<td>2005</td>
<td>2001</td>
<td>2005</td>
<td>08/04/05</td>
</tr>
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<td>13</td>
<td>Glen Carron &amp; Glen Affric</td>
<td>B1</td>
<td>2005</td>
<td>2001</td>
<td>2005</td>
<td>07/04/05</td>
</tr>
<tr>
<td>63</td>
<td>Firth of Clyde, Greenock &amp; Rothesay</td>
<td>B1</td>
<td>2005</td>
<td>2005</td>
<td>19/05/05</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Girvan, Ballentrae &amp; Barrhill</td>
<td>C2</td>
<td>2005</td>
<td></td>
<td>2005</td>
<td>22/06/05</td>
</tr>
<tr>
<td>81</td>
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Explorer – new editions

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All of the above show Access Land. No full revision date is given. They are published in the new style Explorer cover.
OL22  New Forest  B1  2005  2004\(^2\)  2005\(^1\)  05/04/05
OL29  Isle of Wight  B1  2005  2004\(^2\)  2005\(^1\)  05/04/05
124  Hastings & Bexhill  B1  2004  2004\(^2\)  2004\(^1\)  01/03/05
130  Salisbury & Stonehenge  A1  2005  2004\(^2\)  2005\(^1\)  06/04/05
131  Romsey, Andover & Test Valley  B1  2005  2004\(^2\)  2005\(^1\)  06/04/05
145  Guildford & Farnham  B1  2005  2004\(^2\)  2005\(^1\)  14/06/05
147  Sevenoaks & Tonbridge  B1  2005  2004\(^3\)  2005\(^1\)  13/04/05
155  Bristol & Bath  A1  2005  2004\(^2\)  2005\(^1\)  01/06/05

The maps above are noted ‘Reprinted with minor change’ and show Access Land.

**Tour Map series – new editions**

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| 14| Northumberland         | B     | 2005  | 2004\(^5\) 2005\(^1\) 21/3/05

**Irish maps**

**Discoverer maps – new editions**

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| 29| The Mournes    | C edition  | Feb 2005
| 12| Strabane       | C edition  | 07/03/05
| 18| Enniskillen    | C edition  | 07/03/05
| 28| Monaghan       | C edition  | 07/03/05

**Discovery maps – new editions**

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| 25| Sligo (E), Leitrim, Roscommon | 3rd edition  | 21/03/05
| 50| Dublin, Kildare, Meath & Wicklow | 2nd edition  | 21/03/05
| 78| Kerry          | 3rd edition  | 18/03/05
| 26| Cavan, Fermanagh, Leitrim, Roscommon, Sligo | 2nd edition  | 09/05/05
| 43| Dublin, Louth, Meath, Westmeath | 3rd edition  | 09/05/05
| 31| Mayo           | 3rd edition  | 13/06/05

**Irish maps – new editions**

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| 1 | Holiday Map North  | 07/03/05
| 2 | Holiday Map West   | 18/03/05
| 3 | Holiday Map East   | 18/03/05
| 4 | Holiday Map South  | 18/03/05
|   | Ireland Touring Map| 03/06/05
|   | Ireland Driving Map| 03/06/05

**Forthcoming OSGB maps**

The following maps have been announced for publication.

**Landranger – new editions**

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<table>
<thead>
<tr>
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| 64| Glasgow, Motherwell & Airdrie | D1     | 04/07/05
| 116| Denbigh & Colwyn Bay  | C3     | 11/07/05
| 90| Penrith, Keswick & Ambleside | C2     | 18/07/05
| 91| Appleby-in-Westmorland | C1     | 18/07/05
| 96| Barrow-in-Furness & South Lakeland | C2     | 18/07/05
124 Porthmadog & Dolgellau
160 Brecon Beacons
88 Newcastle upon Tyne, Durham & Sunderland
114 Anglesey
135 Aberystwyth & Machynlleth
170 Vale of Glamorgan, Rhondda & Porthcawl
75 Berwick-upon-Tweed
97 Kendal, Morecambe, Windermere & Lancaster
171 Cardiff, Newport & Pontypool
94 Whitby, Esk Dale & Robin Hood’s Bay
92 Barnard Castle
117 Chester & Wrexham, Ellesmere Port
118 Stoke-on-Trent & Macclesfield
137 Ludlow, Church Stretton & Wenlock Edge
140 Leicester, Coventry & Rugby
152 Northampton & Milton Keynes, Buckingham & Daventry
101 Scarborough, Bridlington & Filey
139 Birmingham & Wolverhampton
161 The Black Mountains
162 Gloucester & Forest of Dean
163 Cheltenham & Cirencester, Stow-on-the-Wold
164 Oxford, Chipping Norton & Bicester
172 Bristol & Bath, Thornbury & Chew Magna

Explorer – new editions

302 Northallerton & Thirsk
304 Darlington & Richmond
305 Bishop Auckland
306 Middlesbrough & Hartlepool
308 Durham & Sunderland
316 Newcastle upon Tyne
325 Morpeth & Blyth
339 Kelso, Coldstream & Lower Tweed Valley
299 Ripon & Boroughbridge
300 Howardian Hills
301 Scarborough, Bridlington & Flamborough Head
323 Liddeshope & Kershope Forest
332 Alnwick & Amble
340 Holy Island & Bamborough
346 Berwick-upon-Tweed
OL9 Exmoor
OL20 South Devon
OL28 Dartmoor
109 Bodmin Moor
110 Torquay & Dawlish
111 Bude, Boscastle & Tintagel
114 Exeter & the Exe Valley
126 Clovelly & Hartland
128 Taunton & Blackdown Hills
139 Bideford, Ilfracombe & Barnstaple
140 Quantock Hills & Bridgwater
153 Weston-Super-Mare & Bleadon Hill
101 Isles of Scilly
102 Land’s End
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All of the above *Explorer* maps are being reprinted with the inclusion of Access Land. Republication of the remaining maps, for eastern England, is anticipated in November 2005.

More information can be found on the Ordnance Survey website (via the Map Shop pages) or at [http://www.countrysideaccess.gov.uk](http://www.countrysideaccess.gov.uk).

**Travel Maps – new editions**

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**Forthcoming Irish maps**

**Irish Discovery maps**

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Irish maps and guides

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Alan Godfrey Maps

Details of Alan Godfrey’s reprints of old OS maps are available from Alan Godfrey Maps, Prospect Business Park, Leadgate, Consett, DH8 7PW, tel. 01207 583388, fax 01207 583399, or from their website at [http://www.alangodfreymaps.co.uk/](http://www.alangodfreymaps.co.uk/). Maps may now be ordered directly from the website.

The columns are as follows: County / Sheet number / Title / Date of map / Month of issue.

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England and Wales one-inch

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