

# CAIRT

Issue 11  
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*Newsletter of the Scottish Maps Forum*

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### SCOTTISH MAPS FORUM

The Forum was initiated by the National Library of Scotland in January 2002:

- ♦ *To stimulate and to encourage multi-disciplinary map use, study and research, particularly relating to Scottish maps and mapmakers*
- ♦ *To disseminate information on Scottish maps and map collections*
- ♦ *To record information on maps and mapmaking, particularly in a Scottish context*
- ♦ *To liaise with other groups and individuals with map related interests*
- ♦ *To build on, and to continue, the work of Project Pont*

### CAIRT

The newsletter is issued twice a year. "Cairt" is Gaelic & 17<sup>th</sup> century Scots for map.

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## William Roy's Military Survey of Scotland (1747-55) - new website and book

This year it is exciting to report both a new website and a new facsimile publication of the Roy Map. The new **Roy Military Survey website** ([www.nls.uk/maps/roy](http://www.nls.uk/maps/roy)) is the result of collaboration between the British Library (BL) and the National Library of Scotland (NLS). The Roy map, which is held in BL, was photographed as 35mm slides in 1990, and scanned from these slides a decade later by SCRAN (Scottish Cultural Resources Access Network). These images have been available on the SCRAN website for several years ([www.scran.ac.uk](http://www.scran.ac.uk)) as separate dissections. However finding a dissection and moving from one to another can be difficult.

NLS wished to improve navigation across the sections and to complement NLS's existing website map images with Roy's unique information. For conservation reasons, re-photographing the original was not possible, so the images are those taken from the 35mm slides (some 1,100 in total of each dissection).

*continued on page 7*



*Detail showing Dundee from Roy's map.  
(By permission of the British Library).*

## EXHIBITIONS

### ***MAPPING MOUNTAINS: how the Highlands inspired science***

2007 is the centenary of the publication of the geological memoir of the Assynt area of Scotland, by Ben Peach and John Horne. In celebration there was a meeting of geologists in Ullapool during 12-19 May. Associated with this meeting is the 'Mapping Mountains' exhibition, which relates the fascinating story behind the geological mapping of Assynt and the pioneering work which revealed the process of mountain building.

The exhibition venues are:

**Ullapool:** Macphail Centre,  
14 May - 2 June

**Edinburgh:** Our Dynamic Earth  
7 July–30 August

**Glasgow:** Hunterian Museum  
September.

But if you cannot visit the exhibition, full details of the maps and interpretative panels are on their web pages at

<http://web.ges.gla.ac.uk/mappingmountains>.

Other information about the project is at

<http://www.see.leeds.ac.uk/peachandhorne>

<http://aragorn.leeds.ac.uk/assyntgeology>

### ***FONN'S DUTHCHAS: LAND AND LEGACY***

Some maps are included in this touring exhibition, celebrating aspects of Highland cultural life, past and present, prepared by the national institutions to celebrate the Year of Highland Culture.

**Edinburgh:** National Museum of Scotland  
29 June-2 September

**Stornoway:** Museum nan Eilean  
21 September – 1 December

### **ARTIST IN RESIDENCE**

NLS, in partnership with Henzteeth, an Edinburgh-based business specialising in commercial writing, has received a Scottish Executive Arts and Business Award to sponsor an artist in residence. The artist, Catriona Taylor, has a particular interest in using maps for her inspiration, so was based in NLS Map Library in April-May.

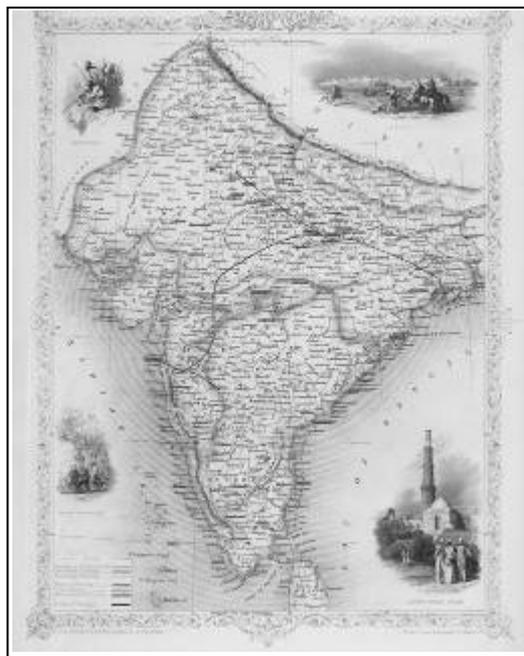
She will be working in her own studio over the summer and has plans to provide workshops around Scotland in collaboration with NLS education staff in the autumn, culminating in an exhibition in NLS in 2008.

### ***TEA & TIGERS: Stories of Scotland and South Asia***



About 20 original and facsimile maps are on display as part of this exhibition, which is on show at the **National Library of Scotland, George IV Bridge, Edinburgh from 30 June- 5 Sept.**

The display is themed around the occupations of Scots in India, such as trader, missionary, engineer, mountaineer, teacher, doctor, or administrator. The maps range from Ceylon (Sri Lanka) in 1815 (with a fetching elephant cartouche), to cholera maps in 1845, an unusual cloth map for visitors to the Delhi Durbar in 1911, and a jigsaw map from the 1950s. Maps relating to transport and communication include Post and Bangy Routes in 1838 (find out what bangy post was) a railway map, and a sequence of air charts following the route from Calais to Karachi about 1930.



▲ *British India in The illustrated atlas, and modern history of the world*, edited by R. Montgomery Martin. London: John Tallis and Co., [1850-55]

## UNLOCKING THE BARTHOLOMEW ARCHIVE

***The National Library of Scotland (NLS) is delighted to announce that the John R Murray Charitable Trust has offered funding of £220,000 over three years (2007-2010) to enable some of the Bartholomew Archive to become more accessible.***

The remarkable archive of the Bartholomew mapmaking firm came to NLS in instalments over many years, but particularly from 1985 when control passed to HarperCollins (part of News International) from Reader's Digest which had bought the firm in 1980. The largest part of the collection was handed over in 1995 when the Edinburgh operation moved to Bishopbriggs in Glasgow.

This material is in several categories, some purchased, some donated or deposited:

1. The Manuscript Archive (donated)
2. The Printing Record (donated)
3. Glass plate negatives (donated)
4. Copperplates (purchased)
5. The Printing Archive (donated)
6. The Firm's Library (purchased)
7. The John Bartholomew Collection - formerly known as the Bartholomew Family Collection – antiquarian atlases (donated)
8. Miscellaneous (donated)

More information about the history of the firm and the contents of the Archive is in a leaflet produced by NLS, which is also on NLS website at [www.nls.uk/collections/maps/collections/bartholomew\\_archive.pdf](http://www.nls.uk/collections/maps/collections/bartholomew_archive.pdf) (PDF: 4 pages; 1.46 Mb)

The Archive is large, occupying well over 300 metres of shelf space and some 200 drawers, plus specialist storage for glass plate negatives and copperplates. Until recently the Library has not had resources to tackle the conservation, sorting and listing of the collection, apart from volunteer work by former Bartholomew staff, including John Bartholomew, and some part-time work by a retired member of NLS staff, and a modest amount of conservation by NLS staff.

This generous donation will be used in two ways:

- to make the Printing Record accessible by conserving and listing it
- to prepare a detailed estimate and plan for tackling the entire Archive, so that further funding bids may be made. A senior curator will be appointed for 8 months to survey the Archive and to prepare the plan.

*Printing Record after conservation ► During conservation, the volumes are disbound, pages are flattened, cleaned and repaired and re-filed separately in two or three boxes, which are easier to handle.*

**THE PRINTING RECORD** contains specimens of items printed by the firm, with a note of the date of printing and the number of copies produced. These specimens are stuck into 177 albums from 1877 to the 1960s-70s, plus boxes to the 1980s. Over the past few years NLS conservation staff have been able to repair and box about 3-4 volumes a year and at current rates it will take a further 25 years to complete the conservation. This new funding will enable two preservation staff to be employed for 3 years, which should allow most, if not all of the volumes to be repaired.

In addition a curatorial assistant will be appointed, also for 3 years, to prepare a list of the contents. Listing the Printing Record is the key to the whole Archive, as it will enable other material to be identified and dated more easily.



▲ *Printing Record volumes before conservation. Volumes in this condition cannot be used without damage.*



Why is this collection so important? For over a hundred years, Bartholomew was one of the world's leading cartographers, internationally renowned for the quality of their work and their innovation.

The various editions of *The Times Atlas of the World* are accepted as models of the cartographic art. Contour layer colouring (where graded colours are applied between contours to indicate height) was introduced in the late 1870s, and the firm refined colour shades so successfully that this method of depicting relief has been adopted worldwide. Thus the Archive is a unique record of cartographic development over more than 100 years.

But, particularly before World War 1, Bartholomew was a jobbing printer, so did work for many publishers and other purposes.

The Archive has unexpected examples, ranging from tickets for a Gladstone election address in the Borders, private and company stationery, advertisements for beer and whisky, thread and carpet factories. There are railway posters and railway stationery - how many of us remember the notice on old trains 'These racks are provided for light articles only - they must not be used for heavy luggage'? Who would have thought that Bartholomew printed huge numbers of strips of these?

Thus the Archive casts light on social history and contributes information about many other book and map publishers. Illustrated here are a few items from the Archive to highlight the unusual range of items. Over the next few issues of *Cairt*, we hope to feature other material from the collection.

**Diana Webster**



▲ The *Printing Record* contains large sheets with multiple illustrations ready to fold and bind into book format. These portraits were produced to illustrate a book which has yet to be identified.

Railway poster for a steamer to the Isle of Man 1887 ►



◀ 520 copies of this comic poster for Philp's hotels were printed on 5 July 1882.



▲ 6480 copies of this cover for *Standard Life* were printed on 25 April 1887. The oriental symbolism and no doubt the bright pink colour were presumably intended to appeal to this market, but the cultural messages appear to be mixed, with cherry blossom and an allusion to a willow pattern!

J & R Clark & Co of Paisley's thread factory is advertised in this poster from the 1870s-80s. ►



## SEMINAR REVIEW

### LANDSCAPE IN THE AGE OF IMPROVEMENT : ESTATE PLANS AND LANDSCAPE CHANGE IN SCOTLAND a review of the Scottish Maps Forum seminar, at Blair Castle on 4 April 2007

Fears of snow on the part of the organisers were unfounded and the only bright white thing to be seen was Blair Castle itself. The setting for this year's Scottish Map Forum seminar was truly magnificent, with the castle stunning in the early spring sunshine, and the be-antlered ballroom adding grandeur to the whole proceedings. Fortunately the speakers were not overawed by the weight of years and past festivities and the day turned out to be both informative and entertaining.

Profesor Smout's talk "The improver's mind" gave the socio-historical context for the rest of the day. He explained how the landowners intended not only to improve their farmland and their profits but also to improve the welfare and morals of their tenants by giving structure to their lives as well as their land. They were prompted by changes in science and philosophy as well as what was happening in other countries. There was a general awareness, perhaps following the Union, that Scotland was seen as backward and moves were made to rectify this. Many plans however ground to a halt in the mid 18<sup>th</sup> century, only to eventually come to fruition later when the economic climate was more favourable. By the early 19<sup>th</sup> century much of Scotland was enclosed.

In his talk "For beauty, effect and profit: landscapes by design" Christopher Dingwall showed us how the successive Dukes of Atholl had embellished their landscape according to their own taste and the fashions and financial requirements of their times. The 2<sup>nd</sup> Duke's plans originally followed the French style with avenues leading out and away from the centrally placed house, as also described in John Reid's "Scots Gardner" [sic]. However he subsequently added ideas from the gardens at Stowe and Blenheim after making visits there, and continually added new elements of statuary or ornamentation as the current fashions took his fancy. The 3<sup>rd</sup> Duke maintained a planting journal and aimed to make the most of his estates for "beauty, effect and profit". Fortunately many of the original plans, laid out by surveyors such as Thomas Winter, survive to enable modern day historians like Christopher to identify the existing elements in the landscape, and piece together how the policies must have appeared at different periods.

At previous Map Forum events people have frequently asked about the techniques used by the surveyors to construct their maps. Diana Webster gave us a necessarily brief overview of the "Mony and divers wayes" of early surveying in Scotland. Basically, surveyors have to measure two elements,

distance and angle, and she ran us through the instruments, such as Gunter's chains, circumferentors and plane tables, and the techniques available to our early mapmakers. Unfortunately, due to lack of documentary evidence it is often not possible to know exactly how the Scottish surveyors worked, but by looking at the techniques known to be available in other countries a fair picture may be drawn of their method of work.

During lunchtime the Atholl estate plans were available to view, kindly watched over and explained by Jane Anderson the Atholl Estates archivist. It was a rare privilege to see these beautiful maps.



© Steve Boyle

Blair Castle had been especially chosen as the venue for this event as a living example of the estate surveyors' art, with the remnants of the careful layouts of succeeding Dukes being observable in the existing policies. Christopher Dingwall was able to help us make the most of this with short tours outside in the lunch hour, bringing to life the splendid estate plans on show.

The afternoon brought further enlightenment with two more very enjoyable talks.

Chris Fleet introduced us to James Stobie, land surveyor and factor to the Duke of Atholl. At the time he was working for them, from the 1780s, the Atholl estates extended to a tenth of Perthshire, so by mapping these, and with the patronage of the Duke, Stobie was able to go on and produce his excellent map of the counties of Perth and Clackmannan. Stobie's maps were key tools in the process of tidying and increasing the productivity of the land. He produced estate plans, their accompanying terrier, plans for legal proceedings in fishing disputes, drawings for new farmsteads, plans for Stanley Mills including the long mill lade

tunnel and the village itself, and valued land and woodland. Stobie gives us a good example of the all round talents of many surveyors of the time, with expertise in mathematics, drawing, engineering and architecture, as well as surveying. In effect he was responsible for reorganising the entire rural landscape of vast tracts of Perthshire!

We were then transported out of Perthshire to the Forth Valley with a comprehensive talk by Professor Bruce Lenman about Scotland's most radical landscape improvement, the draining of the mosses between the rivers Forth and Teith. The draining transformed bogs, "neither liquid, nor yet solid ground", into some of the best, most fertile farmland in Scotland. Two main estates, Blair Drummond and Ochertyre were responsible for the transformation, although each approached it in their own way. Tenants were given favourable rents in exchange for their labour in digging out the peat. A giant water wheel was constructed to raise the water into a lade designed to float away the loosened peat (with subsequent problems downstream!) and tons of lime were dug into the soil to make it fertile. It was a magnificent undertaking.

And so the day drew to a close for many of the delegates with a stroll to the Hercules garden, still bathed in glorious Spring sunshine, escorted by Chris Dingwall once more. One of the delegates was heard to describe this as the "icing on the cake" of a lovely day.



© Steve Boyle

On a personal note, one of the things I always enjoy about the Scottish Maps Forum events is the chance to meet people from diverse cartographic backgrounds. It was very evident, particularly while we were studying the Atholl estate plans, that delegates each had their own sources of enjoyment, picking out the areas of most interest to them and their areas of expertise. From local placenames, through deer enclosures and garden design to the artistry and accuracy of the plans, everyone seemed to find something to catch their attention. It is a credit to the day as a whole that there was something for everyone, and each delegate could go home feeling enriched. While the beauty of our surroundings undoubtedly helped the general contentment, it is to all the speakers that the credit must go for such an enjoyable and educational day.

**Paula Williams**

## RECENT PUBLICATIONS RELATING TO MAPS

**Peter Barber.** 'Putting Musselburgh on the map', pp 327-338 in *Mappae Antiquae: liber amicorum Günter Schilder, essays on the occasion of his 65<sup>th</sup> birthday*. (Utrecht Studies in the History of Cartography, 6). Hes & De Graaf, 2007.

Maps and views relating to the 'Rough Wooing', including the Battle of Pinkie 1547.

**Marilyn M. Brown.** 'The gardens of Glamis: an aerial view' (*Proceedings of the Society of Antiquaries of Scotland*, 135, 2005, 19-39). Makes use of maps and other information to trace garden development.

**Peter Drummond.** *Scottish hill names: the origin and meaning of the names of Scotland's hills and mountains*. [Glasgow]: Scottish Mountaineering Trust, 2007. This new and fully revised edition has extensive references to mountains recorded by early mapmakers, especially Pont and Blaeu.

**Chris Fleet.** 'The military origins of Petit's plan of Perth, 1716' (*Friends of Perth & Kinross Council Archives: newsletter* 19, 2006, 6-8), formerly published in *Cairt* 9.

**John Linge.** 'The Cinderella service: the Ordnance Survey and the mapping of the Antonine Wall. (*Proceedings of the Society of Antiquaries of Scotland*, 134, 2004, 161-171).

**Alison Morrison-Low.** 'It was a dark and stormy night': instrument makers and the northern lights' pp 89-97 in *Who needs scientific instruments: conference... 20-22 October 2005*. Leiden: Museum Boerhaave, 2006.

Traces the development of Scottish lighthouses, using information from charts and other sources.

**Richard Oliver.** 'Unfinished business: the lost Ordnance Survey two-inch mapping of Scotland, 1819-1828 and 1852.' (*Sheetlines*, 78, April 2007, 9-31).

### WEBSITE NEWS: Texts for the *Bathymetrical Survey of the Fresh-Water Lochs of Scotland 1897-1909*

In 2004 NLS mounted the charts from *Bathymetrical Survey* on their maps website. SEPA (Scottish Environment Protection Agency) considered it would be useful for their staff working in the field to have easy access to the texts as well as the charts, and contributed some funding towards the costs of scanning and optical character recognition (OCR), which enables keyword searching of the texts.

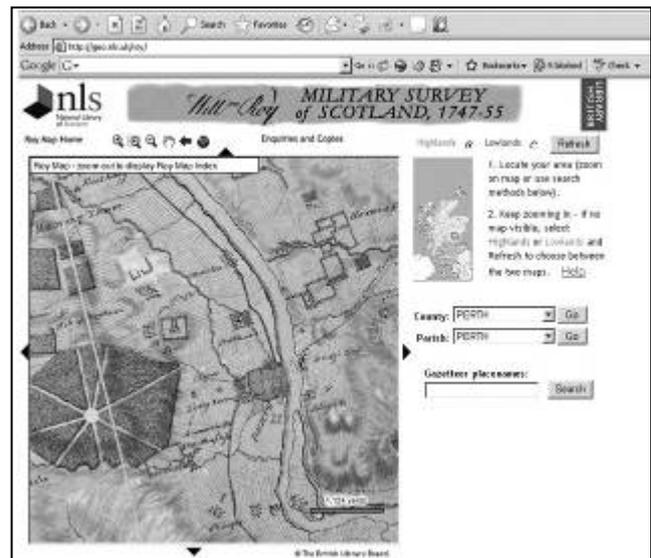
These are now available at [www.nls.uk/maps](http://www.nls.uk/maps)

## William Roy's Military Survey of Scotland (1747-55)

**NEW WEBSITE** (cont. from page 1)  
[www.nls.uk/maps/roy](http://www.nls.uk/maps/roy)

The images were seamed together to form two composite maps, the 'fair copy' for the north, and 'original protraction' for the south. These two composite maps were approximately geo-referenced, that is rotated and shifted to best fit a modern geography of Scotland. The priority for the new website was to present the Roy Map as an authentic facsimile of the original map, so the geo-referencing did not attempt to "rubber sheet" (or distort or warp the original) to fit it better to modern locations.

When approximately geo-referenced in this way gazetteers of counties and parishes, as well as place names from modern 1:50,000 mapping, can be used for basic searching in the Roy Map. (Sadly no gazetteer of names from the original Roy Map has ever been compiled, and was beyond the scope of this project). When zoomed in on the geo-referenced Roy Map, scale and location information is presented, along with the position on an overview map of Scotland. The seamed, composite map can also be more easily panned to view adjacent dissections.



### BACKGROUND TO THE ROY MAP

The main impetus to the Survey was following the '45 Jacobite rebellion, when the Hanoverian military commanders in Scotland had found themselves "greatly embarrassed for want of a proper Survey of the Country" (Moir, 1973). Soon after Culloden, King George II was petitioned to support a Military Survey of Scotland and the primary practical responsibility for this was delegated to the Assistant Quartermaster in the Board of Ordnance, William Roy.

William Roy (1726-1790) was born at Miltonhead, near Carlisle, the son of an estate factor, and for the first two years he was the only trained surveyor on the project. From 1748 Roy was assisted by six surveying parties, with six men within each party, but when compared with the Ordnance Survey a century later, the work was significantly constrained by the availability of men, equipment and time.

The original intention had been to survey only the Highlands, but once this was largely completed by 1752, the Survey was extended to southern Scotland, south of the Forth-Clyde rivers. The outbreak of the Seven Years War in 1755 curtailed operations as engineers were ordered elsewhere. Nevertheless, this was the first time the whole of the Scottish mainland - the islands were excluded - had been mapped at once to the same specification, within just eight years.

The Military Survey was not based upon triangulation, but rather upon a set of measured traverses along important features using theodolites and chains. "Each surveying party consisted of an engineer with an NCO and six soldiers: one carried the theodolite, two measured with the chain; two took the fore and back stations, and one acted as Batman or attendant to the party". The "theodolites" (ie. circumferentors or surveying compasses for measuring angles) were fairly simple, "of seven inches in diameter... with common sights without telescopes" (Arrowsmith, 1807). Only selected landscape features (roads, rivers and lochs) were instrumentally surveyed in this manner, with the remaining landscape features (towns and settlements, enclosures and woodland, as well as relief), being sketched in by eye or copied from existing maps.

Considerable adjustment was required to bring the separate traverses together, following mutual discussion amongst separate surveying parties. According to Roy, the map was rather a "magnificent military sketch, than a very accurate map of the country" in which "no geometrical exactness is to be expected, the sole object in view being, to shew remarkable things, or such as constitute the great outlines of the Country" (Roy, 1785). Notably, the map was never graduated for latitude nor longitude, nor presented with a standard scale, and its orientation was always towards magnetic north, the declination at this date taken to be 19 degrees west.

Drawn in a pen and ink colour wash, it reflects both prevailing military colour schemes and conventions, as well as the individual draughtsmen who worked on it. Paul Sandby (1725-1809), who was described as 'the chief draughtsman of the plan', was later celebrated as a water colour painter and topographical artist, and was undoubtedly responsible for much of the striking Highland relief shading.

The Roy Map has been described as "one of the most intriguing and at the same time infuriating documents available to the researcher into Scotland's past landscapes" (Whittington & Gibson, 1986). Features of interest to an army commander, such as roads, rivers, the positions of villages and hamlets, as well as general land-cover and terrain are remarkably accurate. The designed landscapes around some of the larger country houses and estates are also particularly impressive.

However, the map is inconsistent and less trustworthy when moving to more specific features. The delineation of arable ground is quite inaccurate, and field boundaries are merely conventional, not reflecting their real existence on the ground. There is no indication whatsoever of property ownership, and the detailed form of larger settlements and farms. Numbers of red dots do not necessarily equal the number of buildings, and there are some quite wide inconsistencies in the recording of smaller hamlets and farms, with many missing. Place-names are often quite variable, sometimes reflecting local pronunciation, and often recorded by surveyors who were unfamiliar with Gaelic and Scots. The reliability of the map is considerably enhanced by the supporting evidence of related sources, but in their absence, is more trustworthy for those features that were of military interest.

The Roy Map survives today in two parts, a "fair copy" for the north, and an "original protraction" for the south, overlapping in the Central Belt. Although there were "original protractions" made

of both the maps of northern and southern Scotland, no "fair copy" was made for southern Scotland.

The maps were presented to George II in 1761 and incorporated into the Royal Library in London; the King's Library, as it became known, was gifted to the British Museum in 1828, and transferred to the British Library in 1973. Sometime before 1844, the map was remounted as 38 sheets of unequal size, each backed on linen and split into 2-7 sections, each section made up of six compartments. When placed together, these 38 sheets measure over 10 x 7 metres (35 x 23 feet), height by width.

**Chris Fleet**

More information about the map and a full bibliography appear on the Roy Map website: <http://www.nls.uk/maps/roy/>

**Aaron Arrowsmith**, *Memoir relative to the construction of the map of Scotland...* London 1807.

**Roy, William**, 'An Account of the Measurement of a Base on Hounslow Heath', *Philosophical Transactions of the Royal Society of London*, 75 (1785), 385-478

**Whittington, Graeme, and Alexander J S Gibson**, *The Military Survey of Scotland 1747-1755: A Critique*. Historical Geography Research Series, Number 18. Norwich: Geo Books, 1986.

*A facsimile edition of the **Roy Military Survey**, with publication planned for November 2007, is a collaborative project by Birlinn ([www.birlinn.co.uk](http://www.birlinn.co.uk)) and the British Library, with assistance from NLS. The entire Roy Map will be presented, close to its original size, on 173 colour plates, the first time the map has been reproduced in book form. There will be supporting aids for searching the map, and introductory essays by Yolande Hodson, Chris Tabraham and Charles Withers. Further information will be sent to you in August.*

## ORDNANCE SURVEY MASTERMAP VIEWER

In April 2007, the United Kingdom Legal Deposit Libraries celebrated the signing of an important Agreement with Ordnance Survey. This permits the continued deposit of annual snapshots of the latest and most detailed digital mapping for the whole United Kingdom. From 1998, digital data (called *Land-Line*) was supplied and made available to the public, on standalone workstations in each Library. However, as Ordnance Survey is currently replacing *Land-Line* with *MasterMap*, the Libraries have managed this transition with a new improved web-based system.

*MasterMap* has many advantages over *Land-Line*, not least its feature-level information or metadata, allowing more precise recording of landscape change over time, and the use of colour.

A new customised application available in the Map Library allows all annual snapshots from 1998 to 2006 to be interrogated and compared. Customised A4-sized colour printouts of any area, may be made for private or non-commercial purposes.

See [www.nls.uk/collections/maps/subjectinfo/os-mastermap.html](http://www.nls.uk/collections/maps/subjectinfo/os-mastermap.html) for further information.