



# CAIRT

Issue 5  
June 2004

*Newsletter of the Scottish Maps Forum*

## In this issue:

- **Look at Scotland : Seminar**
- **Bathymetrical Survey of the Fresh-water lochs of Scotland**
- **Pont – new information**
- **Ancillary map trades**

### 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.

For further information, or to be added to the mailing list, please contact:

**Scottish Maps Forum  
Map Library  
National Library of Scotland  
33 Salisbury Place  
Edinburgh  
EH9 1SL**

**Tel: 0131 466 3813  
Fax: 0131 466 3812  
E-mail: maps@nls.uk**



ISSN 1477-4186

© 2004 NLS

Editor: D. Webster    Technical Editor: J. Parkerson

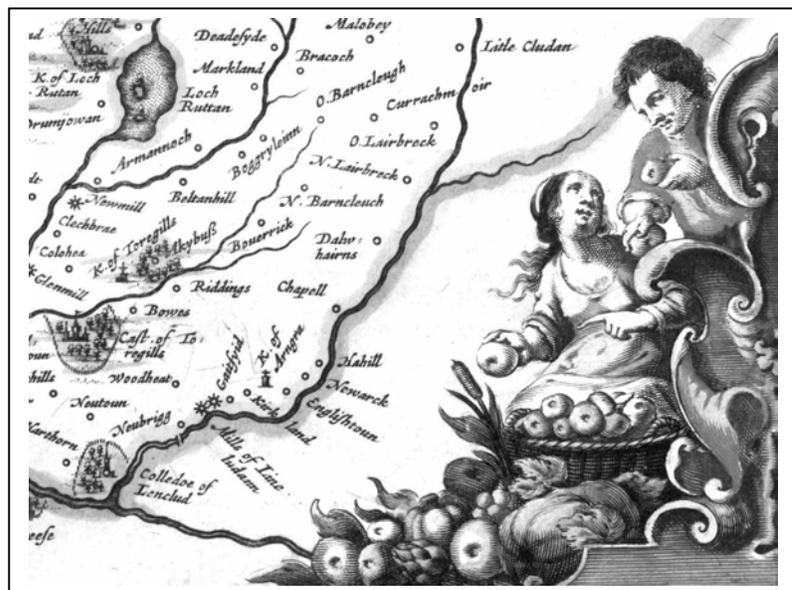
## LOOK AT SCOTLAND and enjoy a feast for the eyes!

Why was Scotland's first atlas published in the Netherlands? Who provided the texts for the atlas? What do we know about the Blaeu firm, who published the atlas?

These questions and others relating to the production of Blaeu's *Atlas Novus* volume 5 in Amsterdam in 1654, will be explored in a seminar to celebrate the 350th anniversary. The Scottish Maps Forum and the Royal Scottish Geographical Society are collaborating with the National Library of Scotland to organise this event on Wednesday 22 September at the National Library's Causewayside Building in Edinburgh. Further details are available from the Map Library at the address on the left.

Speakers include Dr Peter van der Krogt (Utrecht University), Dr Esther Mijers and Dr Jeffrey Stone (Aberdeen University), Dr Alastair Mann (Stirling University), Prof Charles Withers (Edinburgh University), Ian Cunningham and Chris Fleet (National Library of Scotland),

The seminar takes its title from Blaeu's Greetings to the reader: 'Continue now, look at Scotland and enjoy a feast for the eyes'. A feast awaits you on 22 September!



Joan Blaeu. *Praefectura Kircubriensis...*(detail) [Amsterdam : Blaeu, 1654]

## EVENTS

### THE FIRST ATLAS OF SCOTLAND: CELEBRATING THE ANNIVERSARY IN 2004

#### ▪ **January 21**

##### **Launching the Blaeu Website at [www.nls.uk/maps](http://www.nls.uk/maps)**

Over 80 people attended the launch of the website of the Scottish maps and texts in volume 5 of Blaeu's *Atlas Novus* (1654). For the first time the original Latin texts have been translated into English. Little did Ian Cunningham think that an off-the-cuff remark about translating the texts would have absorbed so much time in his 'retirement' (from the post of Director of Special Collections in NLS). He will be speaking about his findings at the seminar on 22 September.



Chris Fleet, Ian Cunningham and Charlie Withers were contributors to the Blaeu Atlas Website

#### ▪ **March 4**

##### **World Book Day**

Each year libraries around the world organise events to celebrate World Book Day. This year Chris Fleet and Diana Webster were on hand for a display of the Blaeu atlas and material associated with it. This was an opportunity to see several copies of the atlas, together with a rare display of one of Timothy Pont's manuscripts.

#### ▪ **April 21**

##### **'Putting Scotland in View': Blaeu's 1654 Atlas Novus and the Nation's Geography**

Professor Charles Withers gave this talk to a full house at one of the National Library's evening lecture series. Some copies of the text of the talk are still available from NLS Map Library, on request



To mark the Blaeu website launch Ian Cunningham was presented with a framed printout of one of the maps by Cate Newton, Director of the Collection Development Dept in NLS.

#### ▪ **September 22**

##### **Look at Scotland seminar**

Celebrating the 350<sup>th</sup> anniversary of the publication of Blaeu's *Atlas Novus* volume 5. See page 1 of this issue for more information.



World Book Day display of the first atlas of Scotland

#### ▪ **December 2004 - January 2005**

##### **Blaeu Atlas Display**

Following requests from people who missed the World Book Day display, it is planned to mount a small exhibition on the atlas with additional related material during Dec 2004-Jan 2005, in National Library of Scotland, George IV Bridge, Edinburgh. (dates to be announced)

## TALKS 2004

**22 September - Edinburgh - National Library of Scotland** - Look at Scotland seminar – see page 1 for details

**27 September - Stanley - West Stormont Historical Society**

Christopher Fleet: *James Stobie and his mapping of the Perthshire Landscape, 1780-1804.*

**12 October - Peebles - Peebleshire Archaeological Society & Tweeddale Society**

Diana Webster: *Putting Scotland on the map.*

**19 November - Grantown-on-Spey - Grantown**

**Museum and Heritage Centre**

Jeffrey Stone: *Early Maps of Scotland.*

##### **PORTOLAN CHART ON DISPLAY**

A cartographic 'treasure' from the National Library of Scotland is to be displayed in a National Gallery of Scotland exhibition. Georgio Sideri's highly decorative sea chart of the Mediterranean coast and Europe was made in Venice in 1560. **The Age of Titian: Venetian Renaissance Art from Scottish Collections** runs from 5 Aug. to 5 Dec.

## Bathymetrical Survey of the Fresh-water Lochs of Scotland

***A century ago, through the perseverance of two men, equipped with a rowing boat, and a home-made sounding machine, Scotland's inland lochs were comprehensively surveyed.***

Over ten years, around 60,000 soundings were taken of all the major Scottish lochs, some 562 in total, resulting in the first detailed charts of all their depths. Through this survey it was confirmed that Loch Morar was the deepest loch in Scotland, at 1,017 feet; Loch Lomond had the greatest surface area (27.45 square miles); and although no monster was discovered, Loch Ness had the greatest volume of water within it (263,162 million cubic feet). The Bathymetrical Survey was not only widely recognised at the time, placing Scotland at the forefront of organised lake studies or limnology, but the resulting published reports and maps are still of major value today.

The inland or fresh water lochs of Scotland long captured the interest of former generations, although before the 19th century reports of their depths and mysteries were based more on myth than on practical observation. For example, on Timothy Pont's map of Strathnaver is his reference to "a monstrous hole, 180 fathom deepe" in Loch Ereboll whilst, more usefully, both the Blaeu Atlas texts (1654) and the later Statistical Accounts (1791 and 1845) have many references to abundant resources of fish in lochs. One of the earliest maps of Scottish lochs with depths is by the military surveyor Joseph Avery of the Great Glen lochs (ca. 1727) in the National Library's Board of Ordnance Collection (MS.1648 Z.3/21).

It was not until the 1860s that actual measurements were systematically recorded, initially by the Hydrographic Department of the Admiralty on Lochs Lomond and Awe, with some depths also recorded along the Great Glen. Further work was done on Lochs Lomond, Tay, and Katrine (Buchan, 1871), the latter partly due to the plans to supply water from there to Glasgow. Buchanan (1887) recorded a depth of 320 metres in Loch Morar whilst researching temperatures and freezing. In 1888, Wilson published an account of Lochs Tay, Earn, Rannoch and Tummel, accompanied by simple contoured maps with soundings, to illustrate his study of the glaciation of the district.

This essentially represented the state of knowledge of the depths of Scottish fresh water lochs at the time Sir John Murray began his systematic survey in 1897, with the assistance of "his young friend", Fred Pullar.

Murray was an experienced oceanographer, who had taken part in the Challenger expedition, exploring the world's oceans, and he was particularly interested in the different physical and biological conditions presented by sea and fresh water lochs. He recognised that a systematic survey of fresh water lochs in Scotland would result in many new additions to scientific knowledge, and would assist the growing number of geologists, fishermen, and engineers who were also interested in these matters. Fred Pullar was the son of John Murray's life-long friend Laurence Pullar, whose family owned the dyeing and cleaning company, Pullar's of Perth, then in its industrial heyday.



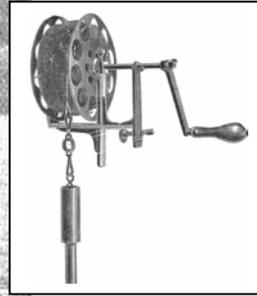
Fred Pullar

The need for the Survey was brought before the Royal Societies of Edinburgh and London, who in 1883 and 1884 made strong representations to the government on the matter. However, the response from the Treasury, whilst acknowledging the value of such a survey, indicated that the work was not in the interests of navigation and so fell outwith the functions of the Admiralty, whilst the Ordnance Survey would confine its attentions to dry land. As Murray concluded, "*we were led to take up this self-imposed task because... there was no hope of the work being undertaken by any Government Department.*" (Murray & Pullar, 1910 vol. 1, p. 4).

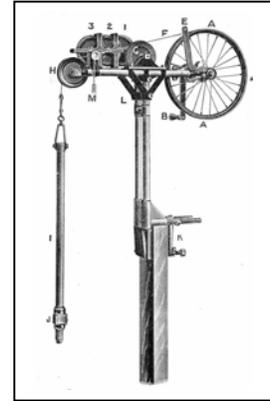
Work began slowly in 1897 on the lochs of the Forth, with some lochs surveyed two or three times with different sounding machines and methods before satisfactory results were obtained. The first attempts at sounding were made with an ordinary hempen hand-line, suitable for shallow lochs, but soon found to be too time-consuming for all deeper waters.



**Above:** Method of sounding (from a photograph by Lady Murray)



**Above:** Small sounding machine for use in small and shallow lochs



**Above right:** F. P. Pullar sounding machine

Fred Pullar therefore constructed a sounding machine, based on bicycle tubing with a drum carrying about 1,000 feet of galvanised wire, the device then fixed to the gunwale of the rowing boat. Lake deposits were also collected in brass tubes attached to the lead of the sounding apparatus.

At the outset the position of soundings was determined by various methods, including sextants, signals to observers on the shore, and running along the transit lines of poles. In the end the best approach was found to be the simplest. The oarsman calculated how far he would usually travel in say 10, 15, 20 and 50 strokes, and then rowed in fixed lines across the loch, stopping at appropriate intervals. The soundings were then distributed evenly across the loch, thus equalising any errors. The results were found to be highly accurate for long, narrow lochs, but less correct in wide lakes without islands. By the edges of lochs, more accurate measurements was performed by stretching tape-lines or cords, several hundred feet in length, from the shore.

A first paper was published in 1900 on the lochs of the Trossachs and Callander district, before tragedy struck. Fred Pullar drowned in February 1901 at the age of 25 whilst gallantly rescuing people who had fallen through ice on Airthrey Loch. It was initially Sir John Murray's intention to abandon the Survey altogether, but at the request of Fred's father Laurence, who donated the sum of £10,000 to a trust to support the project, the work continued.

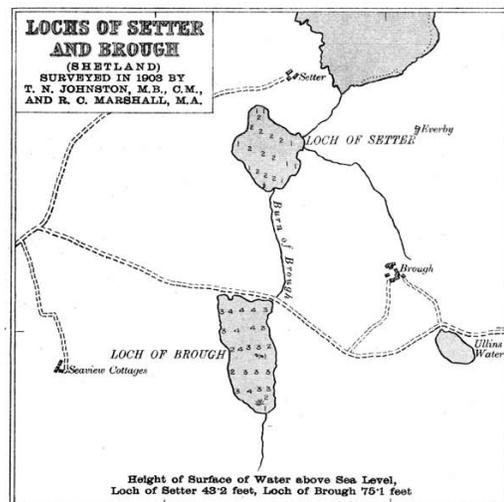
In fact the donation allowed work to continue on a sounder footing with appropriate staff, and many scientific advisors. During 1902 work progressed rapidly on the lochs of the Tay basin, covering 154 lochs, whilst during 1903 some 250 lochs were surveyed. Thereafter, surveying work proceeded more gradually to completion in 1906, with further

biological and physical recording continuing until 1909.

1897-1901	15 lochs
1902	154 lochs
1903	250 lochs
1904	84 lochs
1905	33 lochs
1906	26 lochs
<b>Total:</b>	<b>562 lochs</b>

The choice of which lochs to include was ultimately determined by practical common sense. *"The only Scottish lochs left unsounded were those which had no boats on them, or to which boats could not readily be transported"* (Murray & Pullar, 1910, vol. 1, p. 9).

Obviously the line had to be drawn somewhere, and numerous smaller lochans were excluded. Nevertheless, at the smaller end of the spectrum, we find Loch of Setter in Shetland included, barely 400 yards long, 0.02 of a square mile in extent, on average 1 foot deep, with a maximum depth of two feet!



*Lochs of Setter and Brough – Vol. VI, Plate 95*

Once the survey of a loch was completed, soundings were plotted on clean cloth tracings of donated Ordnance Survey maps, and contour lines of depth drawn in at equal intervals. The areas within the consecutive contour lines were measured with a planimeter, and the volume of water and mean depth calculated. These manuscript maps were subsequently donated to Ordnance Survey, who in turn passed them on to the British Library (Maps.C.21.f.13)

J.G. Bartholomew & Son, by this time at Duncan Street in Edinburgh, then prepared copies from the cloth tracings, which were carefully revised in the Challenger Office in Edinburgh (the Bathymetrical Survey office). They were then reduced by photography to half-size (ie. to the scale of 3 inches to the mile) and transferred to lithographic stones for printing.

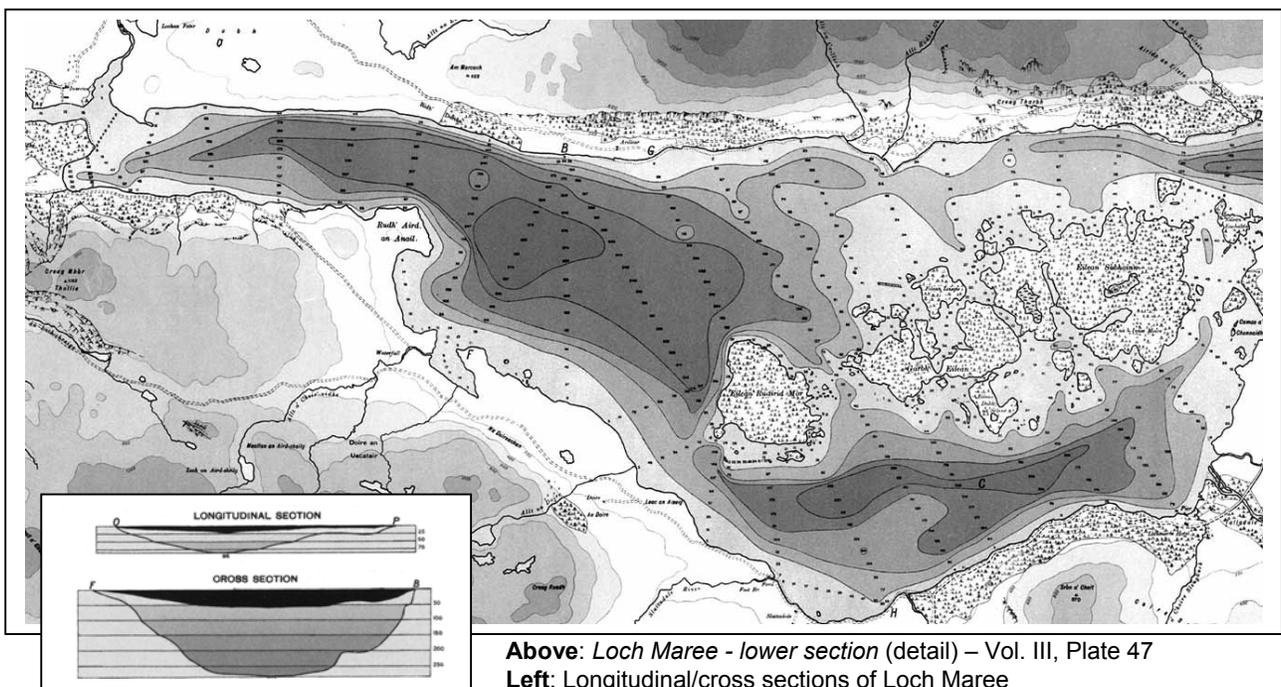
Slightly less than half the maps were published at intervals, with accompanying reports, in the Geographical Journal from 1900 to 1908, with a few also in the Scottish Geographical Magazine. The whole set was brought together as part of the main six-volume publication in 1910 (Murray & Pullar, 1910). There were 233 plates of lochs in total, with approximately half (volumes 3 and 4) showing both surface relief and bathymetry shaded in colour, with those in volumes 5 and 6 showing only bathymetry shaded.

Volume 1 contains statistical tables of the lochs arranged by length, surface area, maximum depth, mean depth, and volume. It also includes numerous chapters dealing with the results of the

survey from a topographical, geological, physical, chemical, and biological points of view. Volume 2 contains descriptions of the lochs, their general physical nature and properties, within the context of their river basins, along with some photographs. Volumes 3 to 6 show the plates of the loch charts themselves.

The accuracy of the soundings have generally been confirmed by later 20th century technology. For example, the Loch Ness bathymetric and seismic survey in 1992 using sonar measurements recorded a depth of 786 feet, only 32 feet more than the Bathymetrical Survey (Young & Shine, 1993). The Survey charts are also obviously an important historical record, especially where 20th century changes in the environment or due to hydro-electric dams have substantially altered the lochs. The Ordnance Survey never undertook detailed survey work on loch depths, and the underwater contours on their maps from the 1900s onwards have been based on the Murray and Pullar charts.

The Bathymetrical Survey also recorded and published much new data on lochs, including studies of the oscillations of water or 'seiches' on lochs, which can affect the water at some considerable depth below the surface without being recognisable at the surface. More than 700 species were enumerated by the Survey, including 450 invertebrates and nearly 200 algae. At least 29 of these species were described as new, and about 50, although not new, were additions to the previously known fauna and flora of the British Isles (Maitland, 1983).



Sir John Murray's life also ended abruptly, four years after the publication of the Survey in March 1914. He was killed instantly when his car overturned near his house in Granton, and he was subsequently buried in the Dean Churchyard in Edinburgh.

**Christopher Fleet**, Deputy Map Curator, National Library of Scotland



Sir John Murray

**Website** <http://www.nls.uk/maps>  
High-resolution colour images of all the map plates from the survey are now available on the National Library of Scotland website, with a new zoomable map-based search interface, and supporting information, on which this article is based.

Computer printouts of the bathymetric charts and other maps on the NLS website are available from the National Library of Scotland (contact details on front cover).

Also original copies of 64 of the charts are still on sale from the Royal Geographical Society, 1 Kensington Gore, London SW7 2AR. Fax: 020 7591 3001. E-mail: [f.Herbert@rgs.org](mailto:f.Herbert@rgs.org)

A (hard to find!) list of available charts with prices is on the new RGS website – [www.rgs.org](http://www.rgs.org)  
Choose Collections – Search the Collection (or Online catalogues) – Maps – at the end of the Maps section 'click here' for sale items – then choose World... Europe, and scroll down to UK.

## RECENT PUBLICATIONS ON SCOTTISH MAPS

**DAH [Dom Augustine Holmes]**. 'Pont's picture of Pluscarden'. *Pluscarden Benedictines*, No. 131, Winter 2003/4, 12-16.

**Christopher Fleet**. 'Scotland's first atlas by Joan Blaeu (1654)'. *History Scotland*, 4(2), March/April 2004, 4-5.

**Christopher Fleet**. 'The Blaeu atlas of Scotland (1654): new translation and website'. *IMCoS Journal: Journal of the International Map*

## Bibliography

Buchan, A. 'Remarks on the deep-water temperature of Lochs Lomond, Katrine and Tay.' *Proceedings of the Royal Society of Edinburgh*, 7 (1871), 791-795.

Buchanan, J.Y. 'Distribution of temperature in Loch Lomond in the autumn of 1885.' *Proceedings of the Royal Society of Edinburgh*, 13 (1886), 403.

Duck, R.W. 'The charting of Scotland's lochs.' *Forth Naturalist & Historian*, 13 (1990), 25-30.

Gracie, J. 'The men who plumbed the depths.' *Scots Magazine*, 140 (1994), 609-617.

Maitland, P. 'Freshwater science.' *Proceedings of the Royal Society of Edinburgh*, Series B, 84 (1983), 171-210.

Murray, J. & Pullar, L. *Bathymetrical survey of the fresh-water lochs of Scotland*. (Edinburgh, 1910).

Wilson, J.S.G. 'A bathymetrical survey of the chief Perthshire lochs.' *Scottish Geographical Magazine*, 4 (1888), 251.

Young, I & Shine, A.J. 'Loch Ness bathymetric and seismic survey.' *The Scottish Naturalist*, 105 (1993), 23-43.

## UNLOCKING THE ARCHIVES

In London the Royal Geographical Society, with the Institute of British Geographers, has launched a major £7.1 million Heritage Lottery funded development 'Unlocking the Archives'. A new study centre (entered from Exhibition Road) opened to the public from 8 June and a catalogue of 250,000 records from many parts of the collection is now online. Their 'resources include two million items – maps, photographs, books, artefacts and documents – that tell the story of 500 years of geographical research and exploration'. The first exhibition to be mounted is *Unlocking the Archives – 500 years of seeing the world*, which runs from 8 June to 17 September (and displays David Livingstone's hat!). See left for contact details.

*Collectors' Society*, 97, Summer 2004, 5-17.

**John Reid**. 'Aspects of Timothy Pont's map of Stirlingshire'. *Calatria: the Journal of The Falkirk Local History Society*, 18, (Spring 2003), 39-54.

**John Reid**. 'The Blaeu map of Stirlingshire: the placenames, Part 1.' *Calatria: the Journal of The Falkirk Local History Society*, 18, Spring 2003, 55-72.  
Part 2. *Calatria*, 19, Autumn 2003, 85-99.

## TIMOTHY PONT - new biographical information

### ***Ian Cunningham reports on two documents which have been discovered in the National Archives of Scotland.***

Mr John Ballantyne has kindly sent me copies of two documents he has come upon in the National Archives. These relate to the repayment of a debt due to Timothy Pont and his wife, and add significantly to our knowledge of Pont.

The first is the registration on 1 July, 1615, of an obligation by Isobel Blacader, relict of Mr Timothy Pont, minister at Donnett, to deliver an acquittance to Alexander Borthuik and Margaret Pont his spouse [Timothy's sister] for 300 merks, 28 March, 1615 (NAS RD1/238, ff.248-9). The second is the record of consignment, on 7 July, 1615, by Mr Thomas Annand, minister at Tung, in name of Isobel Blacader, of the discharge mentioned above, 4 July, 1615 (NAS CS290/41).

From these we gain a definite *terminus ante quem* for Pont's death: 28 March, 1615; and a greater probability than before that the appointment of his successor in the parish of Dunnet in 1614 was due to his death in or before that year (but after 31 May, 1611).

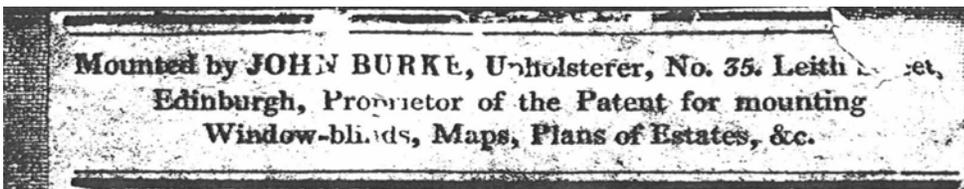
Next we learn that Timothy left children, for Isobel in these documents takes full burden for 'Timothy and Margaret Ponts, her lawful bairns'. Nothing further is known of them, but I should hazard a guess that they were very young at this time and perhaps died soon after: for Robert Gordon of Straloch's reference to Pont's careless heirs (in his letter to Sir John Scot of Scotstarvit, printed among the prelims of the Blaeu Atlas of Scotland) reads as if these heirs were adults and not closely related.

Finally there is the connection with the minister of Tongue. This may be taken to imply that the two ministers of northern parishes were friends because of relative geographical proximity; on the other hand Annand in 1615 was in Edinburgh (as Pont had been in 1611). So there is here no clear evidence on the question of whether such charges were largely sinecures or not.

Ian Cunningham

## NOTES & QUERIES

### ANCILLARY MAP TRADES



The unexpected juxtaposition of upholstery, window blinds and maps on this (enlarged) small label has piqued my interest in ancillary activities associated with the map trade in Scotland. Attention usually focuses on surveyors, draftsmen, engravers, printers and publishers. Little seems to have been researched and written about the other trades which supported map production.

For example many maps were mounted on a cloth (linen or cotton) backing; some were varnished; they could be dissected and folded for easier storage and transportation, or mounted on rollers for display. It is such a roller map, published in 1815, that bears this intriguing label.

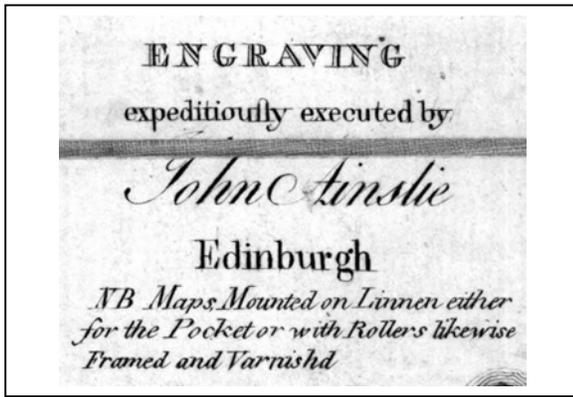
John Burke's premises were at 35 Leith Street until he moved upmarket in the 1820s to 9 St Andrew Square, one of the best addresses in Edinburgh. By the time of the 1833-4 directory, the business and family have both expanded: John junior is at no.8, John & Son upholsterers

and cabinet makers are at no.9 and John senior is next door at no.10. No doubt the rise of the fashionable Edinburgh New Town of Edinburgh had

provided a steady stream of custom.

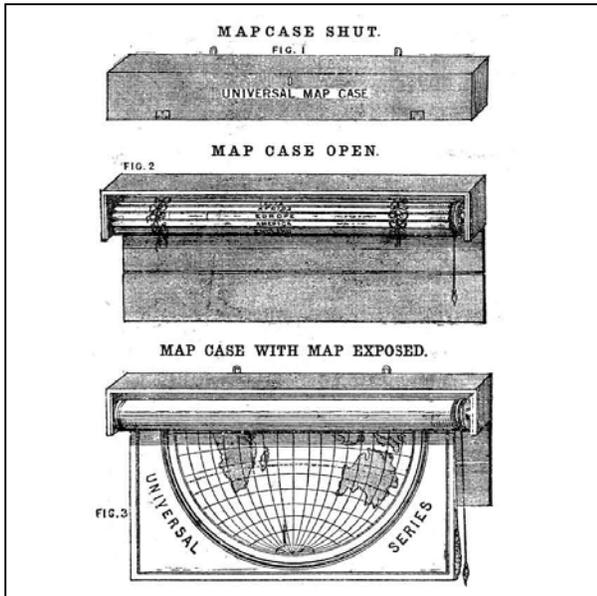
There is no trace of a patent registered by John Burke in the Scottish patent holdings in the National Archives of Scotland, and his name is not listed in Bennet Woodcroft's *Alphabetical Index of Patentees of Inventions 1617-1852* (London, 1854). Possibly he obtained a patent issued to someone else, or the name Burke may have an Irish connection and the patent could be registered elsewhere.

Since this item emerged, other examples have been drawn to my attention. John Ainslie's *travelling map of Scotland shewing the distances from one stage to another*. (Edinburgh, 1783) bears a small advertisement indicating that he gave a full service to provide maps in any form to suit the customer. As well as undertaking estate surveys, drawings can be 'copied, diminished or enlarged', 'maps mounted on Linnen either for the pocket or with rollers', and also 'framed and varnish'd'.  
*Continued on page 8*



Detail from Ainslie's travelling map of Scotland shewing the distances from one stage to another. (Edinburgh, 1783)

Ruddiman Johnston's advertisement in the *Merchant Shipper's and Ocean Traveller's Atlas* (Edinburgh, 1886) lists various services relating to maps and map mounting: varnishing (the scourge of conservation departments today); mounting on rollers; special cabinets for mounting and storing roller maps.



The illustration shows a map case with pull-down roller, hence the connection between maps and window blinds, and prompting memories of school wall maps. Such cabinets could contain several maps; a room in Trinity House of Leith has multiple charts stored in this way.

Post Office directories are also a source of information. 'Map Mounters' merited a separate heading in both the Edinburgh and Glasgow directories (but there is no heading for Map Producers or Publishers). For example to take a couple of random dates, the entry in the Edinburgh & Leith Directory for 1885-6 lists five map mounters, the Glasgow Directory in 1918-19 has four.

**Map Mounters.**

Bartholomew, J., 31 Chambers st.  
 Johnston, T. R., Waverley works,  
 Murrayfield  
 Johnston, W. & A. K., 16 So. St  
 Andrew street. See *Adv.*  
 Malloch, P., & Son, 306 Lawn-  
 market. See *Adv.*  
 Rhind, T., 178 Pleasance and 209  
 High street

Extract from *Edinburgh & Leith Post Office Directory, 1885-6*

Some are map publishers such as Bartholomew or W & AK Johnston; others provide a service for surveyors, engineers and architects, as shown in P Malloch & Son's display advertisement (below). Malloch's business continued into the 20th century as the firm 'Sime Malloch', now ServicePoint, still providing copying and other services for engineers and architects.

**P. MALLOCH & SON,**  
**MAP-MOUNTERS,**  
 306 LAWNMARKET, EDINBURGH.  
 ESTABLISHED 1835.

**S**URVEYORS', ENGINEERS', and ARCHITECTS' PLANS, DRAWINGS and TRACINGS; ORDNANCE MAPS, and INSURANCE CARDS, carefully Mounted and Varnished.

J. Whatman's Best Hand-made Double Elephant and Imperial DRAWING PAPERS kept in Stock, Mounted for immediate use, in single Sheets and joined in Rolls. Web Paper Mounted to Order.

I would welcome information on other pre-1900 ancillary map trades and advertisements relating to them. Please send details to me at the Map Library at the address on the front cover.

**Diana Webster**, Map Collections Manager, National Library of Scotland.

**NLS MAP CATALOGUE ONLINE**

After a long wait for funding, the Map Card Catalogue at the National Library of Scotland is at last going online. Conversion of the cards to computer records began in December. Half the records are already available, and it is planned that all 63,000 records will be loaded by September. As the records have been copied from cards which were produced over many

decades, to different cataloguing rules and standards, a considerable tidying-up operation will follow.

The Card Catalogue contains records for individual maps and atlases, but not sheet maps in series, so this latter information will not yet be available online. Map records are found in the Main Catalogue at [www.nls.uk](http://www.nls.uk).