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“Some collaboration between OS and
Hydrographic Office in 19th Century”

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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.

Some collaboration between the Ordnance Survey and the Hydrographic Office in the Nineteenth Century

David L Walker and Adrian Webb

Following the recent Society visit to the archive of the UK Hydrographic Office at Taunton, the editor of *Sheetlines* and the UKHO Archive Manager, Dr Adrian Webb, kindly encouraged David Walker to explore this extensive and well-kept resource. Considerable evidence re-emerged of many years of effective collaboration between the Ordnance Survey and the Hydrographer to the Admiralty Board, which this article begins to illustrate.

Previous references to this collaboration

Adrian Webb's DPhil thesis, available online, provides a well-documented account of the arrangements made between the Admiralty Board and the Board of Ordnance from 1808 onwards, resulting in the mutual exchange of relevant maps and charts, shared survey work (especially trigonometric data from the Ordnance and surveys below high water level from the Admiralty) and, occasionally, transport of Ordnance personnel on Admiralty craft.¹ Two histories² of the Hydrographic Office recognise these co-operative arrangements, and AHW Robinson provides the most detailed account, from the eighteenth century until 1855. *Inter alia*, he describes the use by Graeme Spence and Joseph Foss Dessiou from 1795 onwards of the trigonometrical surveys published by William Mudge; collaboration in the Shetlands from 1817 onwards; and long-lasting support by the Ordnance Survey for the 'Grand Survey of British Isles' instigated by the Admiralty's Hydrographer.³

'Insider' histories of the Ordnance Survey have paid remarkably little attention to the collaboration that benefited both organisations. Portlock, Close, Harley in Seymour's *History* and Owen and Pilbeam variously mention the need to resolve a few different results for geographical positions, and recognise the support provided by Admiralty survey vessels for Colby's maritime expeditions. However, Harley describes the survey of the Clyde Estuary in 1838 as a resumption of the trigonometrical survey of Scotland without realising that this was an extension of the secondary triangulation of the Solway in support of the Admiralty.⁴

¹ Adrian Webb, *The Expansion of British Naval Hydrographic Administration, 1808-1829*, University of Exeter, 2010, online at:

<https://ore.exeter.ac.uk/repository/bitstream/handle/10036/116990/WebbA.pdf?sequence=4>.

² Sir Archibald Day, *The Admiralty Hydrographic Service, 1794-1919*, London: HMSO 1967 and GS Ritchie, *The Admiralty Chart: British Naval hydrography in the Nineteenth Century*, London: Hollis & Carter 1967.

³ AHW Robinson, *Marine cartography in Britain: A history of the sea chart to 1855*, Leicester UP, 1962.

⁴ JE Portlock, *Memoir of the life of Major-General Colby*, London, 1869, 38, 69-84; Sir Charles Close, *The early years of the Ordnance Survey*, 1926; republished Newton Abbot: David & Charles, 1969, 66-69, 82; JB Harley in WA Seymour (ed), *A history of the Ordnance Survey*, Folkestone: Dawson, 1980, 79, 101-02, 107; Tim Owen and Elaine Pilbeam, *Ordnance Survey: mapmakers to Britain since 1791*, HMSO, 1992, 24-25.

Other writers are more informative. Harley's introduction to the reprint of Close's *Early Years* mentions that there were various instances of co-operation with what he calls the Hydrographic Department in the first half of the nineteenth century.⁵ His introductory essay to volume five of Margary's *Old Series Maps* quotes the first recorded request from Thomas Colby, Superintendent of the Ordnance Survey, for help from the Admiralty Hydrographer. In May 1820, when sending a dry proof impression of the Lynn and Boston map-sheet, Colby wrote: 'I shall esteem it as a particular favour if you will have the kindness to direct the deficient part of those [sand]banks to be supplied at your offices.'⁶

Even earlier, Rachel Hewitt suggests by reference to Archibald Day and Andrew Cook⁷ that in 1801 'the [Ordnance Survey] map-makers' representation of the Thames estuary was indebted to information from Britain's new Hydrographic Office'.⁸ JH Andrews points out that JW Croker, Secretary to the Lords of the Admiralty, in 1819 advocated a combined geographical, maritime and statistical survey of Ireland – and that when this came about the Admiralty hydrographers used the Ordnance Survey triangulation, while the surveyors used the hydrographers' tracings of the low water line (and even in some cases their submarine contours).⁹ Richard Oliver also makes a nice comparison between the evolution of the two organisations and he explains the context of the secondary triangulation undertaken for the Admiralty from the Solway northwards, starting in 1835.¹⁰

However, the UKHO archive in Taunton contains evidence of a much more extensive (although fragmented) picture and recent research has brought to light aspects of the Ordnance Survey otherwise lost in the fire at the Tower in 1841, or due to the bombing of Southampton in 1940.

The triangulation of England and Wales

As the hydrographers came to depend upon the Ordnance triangulation, it is useful to note how it was made available. Mudge published accounts of his trigonometrical survey, stage by stage, in the *Transactions of the Royal Society* for 1795, 1797, 1800 and 1803. When demand for these particular issues created a shortage, William Faden was furnished with the original copper-plates and allowed by the Royal Society and the Master General of the Ordnance to

⁵ Sir Charles Close, *The early years of the Ordnance Survey*, 1926; republished with an introduction by JB Harley, Newton Abbot: David & Charles, 1969, xvii.

⁶ Harry Margary, *Old Ordnance Survey Maps of England and Wales*, vol V, with an introduction by JB Harley and Richard Oliver, 1986, xiv.

⁷ AS Cook, *Alexander Dalrymple (1737-1808), hydrographer to the East India Company and to the Admiralty as publisher*, PhD thesis, University of St Andrews, 1992.

⁸ Rachel Hewitt, *Map of a Nation: A biography of the Ordnance Survey*, Granta Books 2011, 152.

⁹ JH Andrews, *A Paper Landscape: The Ordnance Survey in Nineteenth-Century Ireland*, OUP, 2002, 13,18 (and this combined approach is described in Adrian Webb's DPhil thesis, referred to above, at pp 131-132).

¹⁰ Richard Oliver, *The Ordnance Survey in the Nineteenth Century*, London: Charles Close Society, 2012, 49,106.

republish accounts of operations from 1784 until 1796 (as volume I) and operations from 1797 until 1799 (as volume II). Then in 1811 the Ordnance entrusted to Faden the publication of Mudge's operations from 1800 until 1809 (which was described as volume III), entitled '*Account[s] of the Operations Carried on for Accomplishing a Trigonometrical Survey of England and Wales*'.¹¹

From 1795 until about 1816 this information was made available to surveyors, as well as map- and chart-makers including Joseph Foss Dessiou¹² and Graeme Spence. Dessiou, a former master in the Navy, collaborated with William Faden from 1804 in the publication of charts and joined the Hydrographic Office in 1828. He used Mudge's trigonometrical survey as a basis for some of his charts (eg *figure 1*)¹³ and made handsome tribute to Mudge's survey in the title plates (eg *figure 2*).

After Spence retired as the Admiralty's 'Maritime Surveyor' in 1804, he was employed to adjust earlier hydrographic surveys to bring them into line with Mudge's trigonometrical survey. Figure 3¹⁴ shows part of one of these charts, published in 1811 among the earliest of the modern genre of 'Admiralty charts'.

It is of particular interest that only those trigonometrical points shown in red in figure 4 are described as principal or even as secondary points in Mudge's volume III, published in 1811.¹⁵ So it is possible that Spence was provided by Mudge with unpublished information and also that he might have been enabled to survey the additional coastal points himself.

For at least thirty years after 1811, the 'great points' of the trigonometrical survey, described and delineated in Mudge's three volumes, provided the basis for the secondary surveys made by the Ordnance Survey to support the coastal charts of the Admiralty Hydrographer. The information that the Admiralty provided in exchange appears in those Old Series OS maps which show sand banks, mudbanks and submarine contours, sometimes with the marginal note 'The Shoals from Admiralty Surveys' or 'The Coast below high water mark supplied by the Admiralty'.

¹¹ *Account of the operations carried on for accomplishing a trigonometrical survey of England and Wales, revised from the Philosophical Transactions*, by Capt William Mudge *et al* (vols I and II) and ...*carried on in the years 1800 to 1809*, by Lt Col William Mudge and Capt Thomas Colby (vol III), London: W Faden, 1799-1811.

¹² Susanna Fisher, *From private to official hydrography: the charts and sailing directions of Joseph Dessiou (1743-1822) and his son Joseph Foss Dessiou (1769-1853)*, *The Mariner's Mirror*, 2005, 91:3, 389-409.

¹³ *Chart of the Coast of Cornwall from Rame Head to Tintagel Head*, 1811, revised 1816, UKHO, A514 Db.

¹⁴ *Coasts of England and Ireland from Portland to Dungarven*, Hydrographical Office, 1811, UKHO, OCB 4 A1.

¹⁵ *An Account of the trigonometrical survey carried on in the years 1800 to 1809*, by Lt Col William Mudge and Capt Thomas Colby, vol III, London: W Faden, 1811, 179-184.

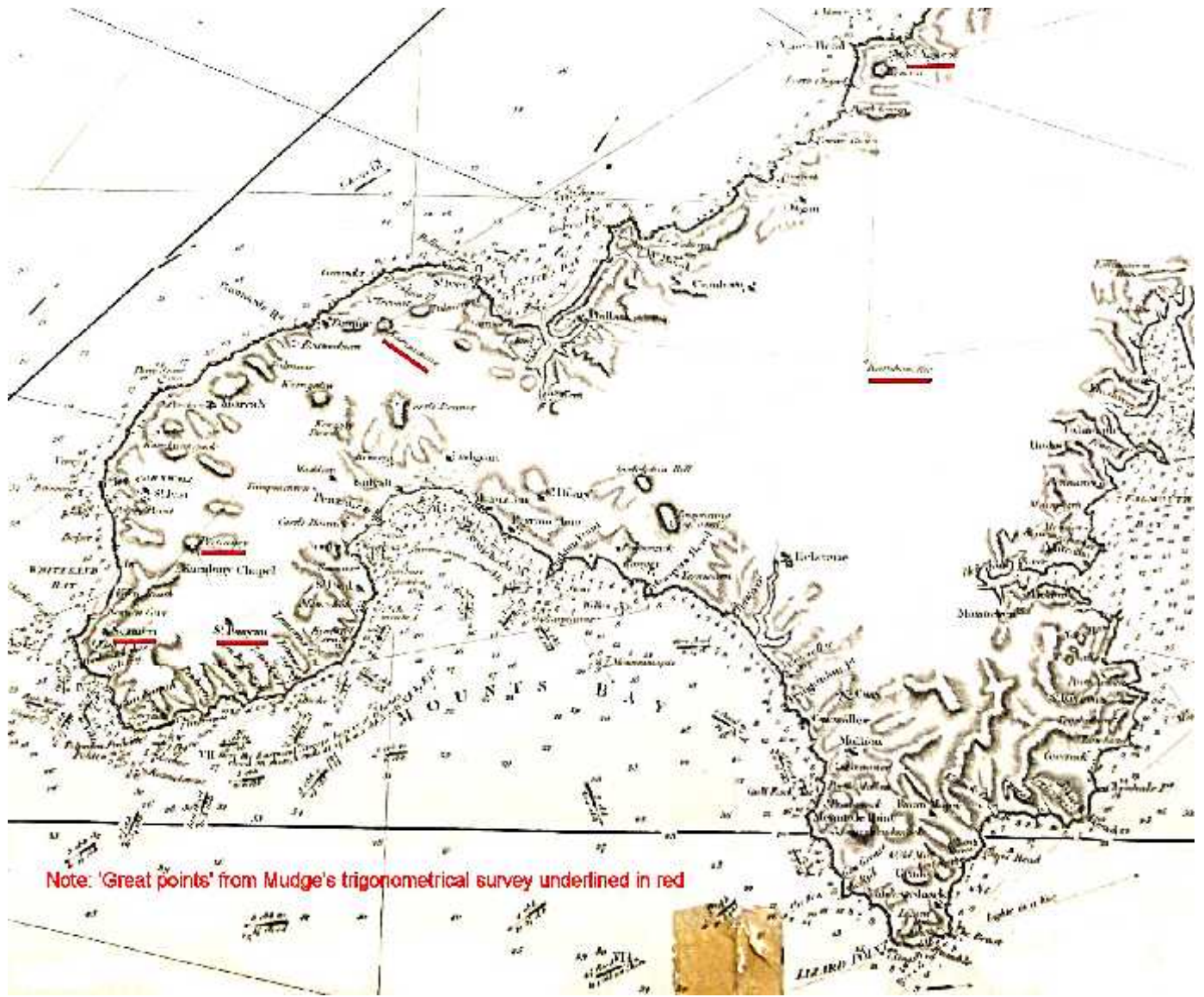


Figure 1 (above) and figure 2 (below): Part of and title box of Coast of Cornwall etc, 1816 (note 13 refers)

THE
 (Coast of Cornwall)
 FROM
 RAME HEAD TO TINTAGEL HEAD,
 including the
 SCILLY ISLANDS.
Compiled from the best Authorities & accurately taken,
(the whole adjusted)
 TRIGONOMETRICAL SURVEY OF ENGLAND & WALES,
Made by Lieut. Col. Mudge Roy. Artillery
 UNDER THE DIRECTION OF THE BOARD OF ORDNANCE.
 By JOSHUA FOSS DUNSTON, Master Royal Surveyor.
 London:
 Published by W. VALEN, Geographer to HIS MAJESTY, and to HIS ROYAL HIGHNESS the PRINCE REGENT.
 Charing Cross, April 1806.

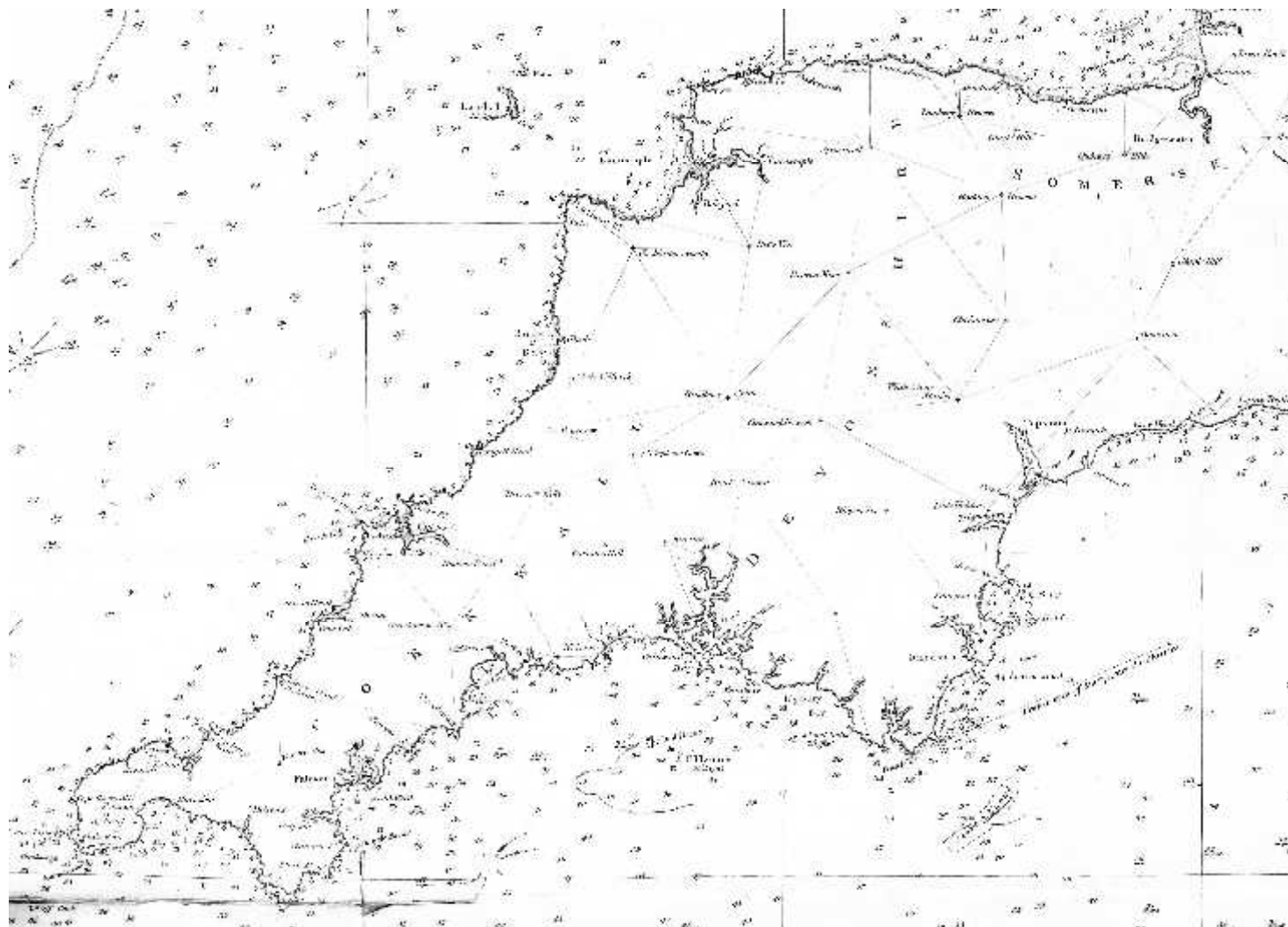
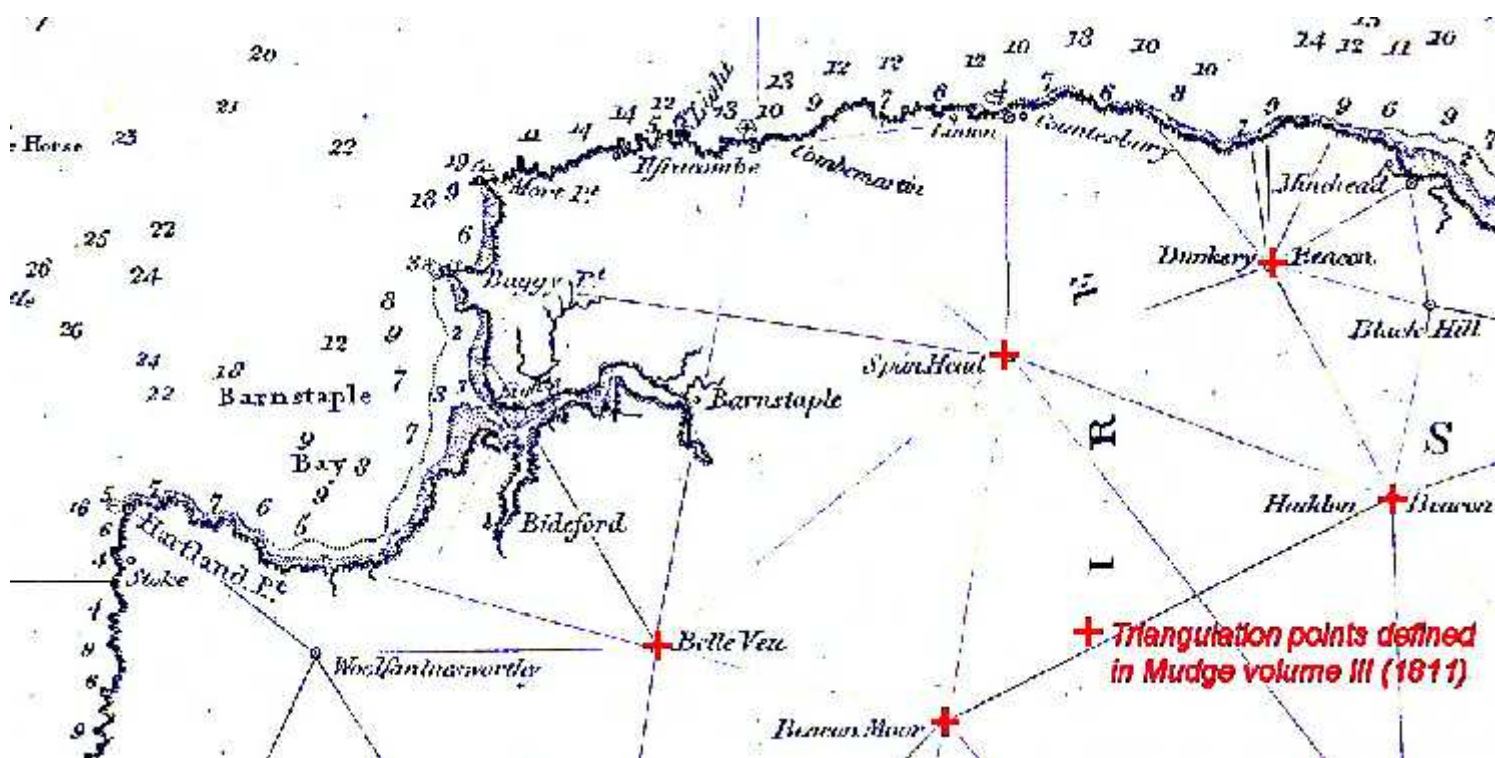


Figure 3 (above) and figure 4 (below): Part of and detail from Coasts of England and Ireland etc, 1811 (notes 14 and 15 refer)



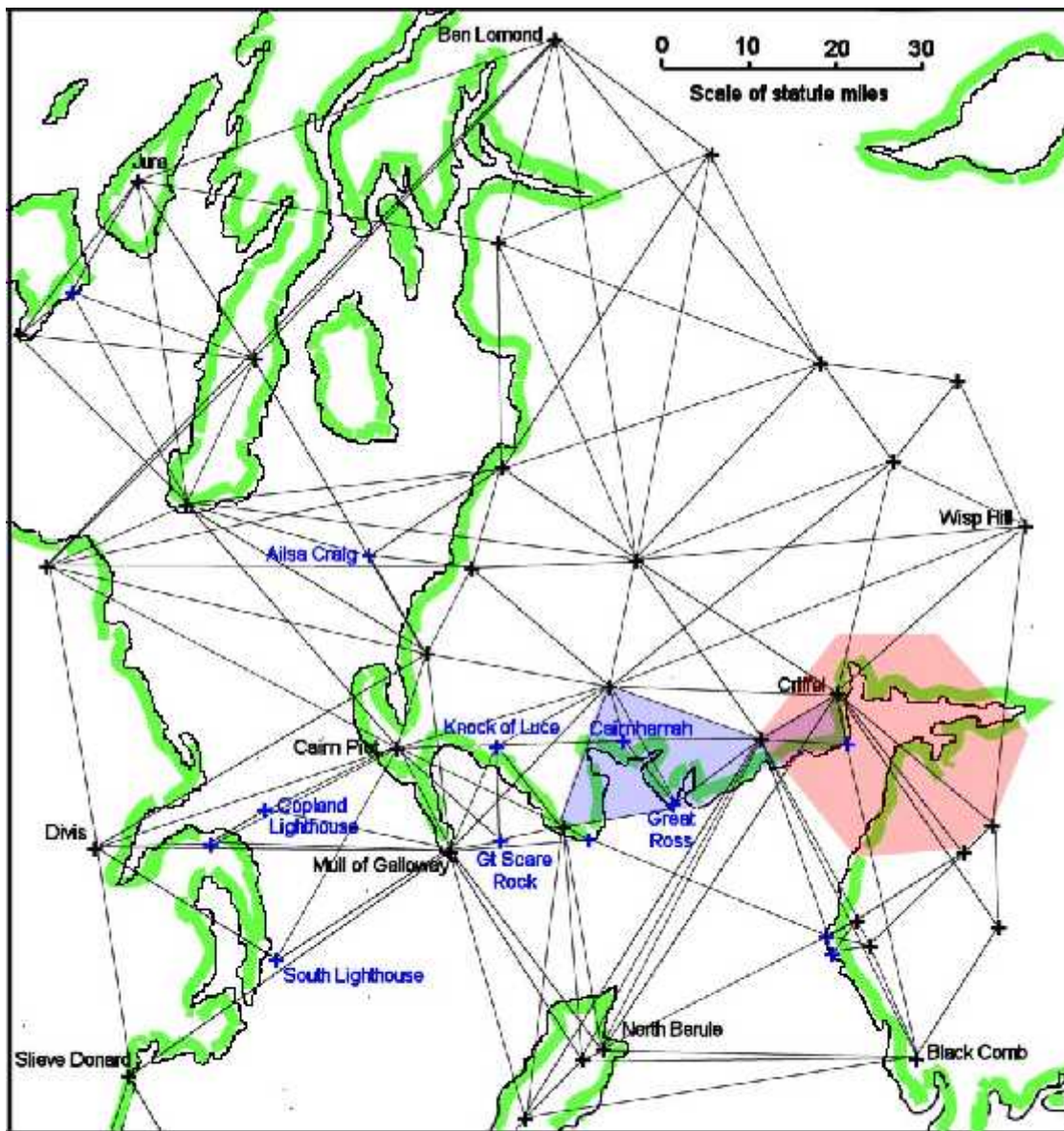


Figure 5 (left):
Coverage of
Henderson's
surveys made in
1835 and 1836
(notes 19, 24 and
26 refer)

Figure 6 (below):
Detail of Isle of
Man from
UKHO, L4926, 1835
(note 19 refers)

Areas covered by Henderson's triangulation diagrams completed in 1835 and 1836

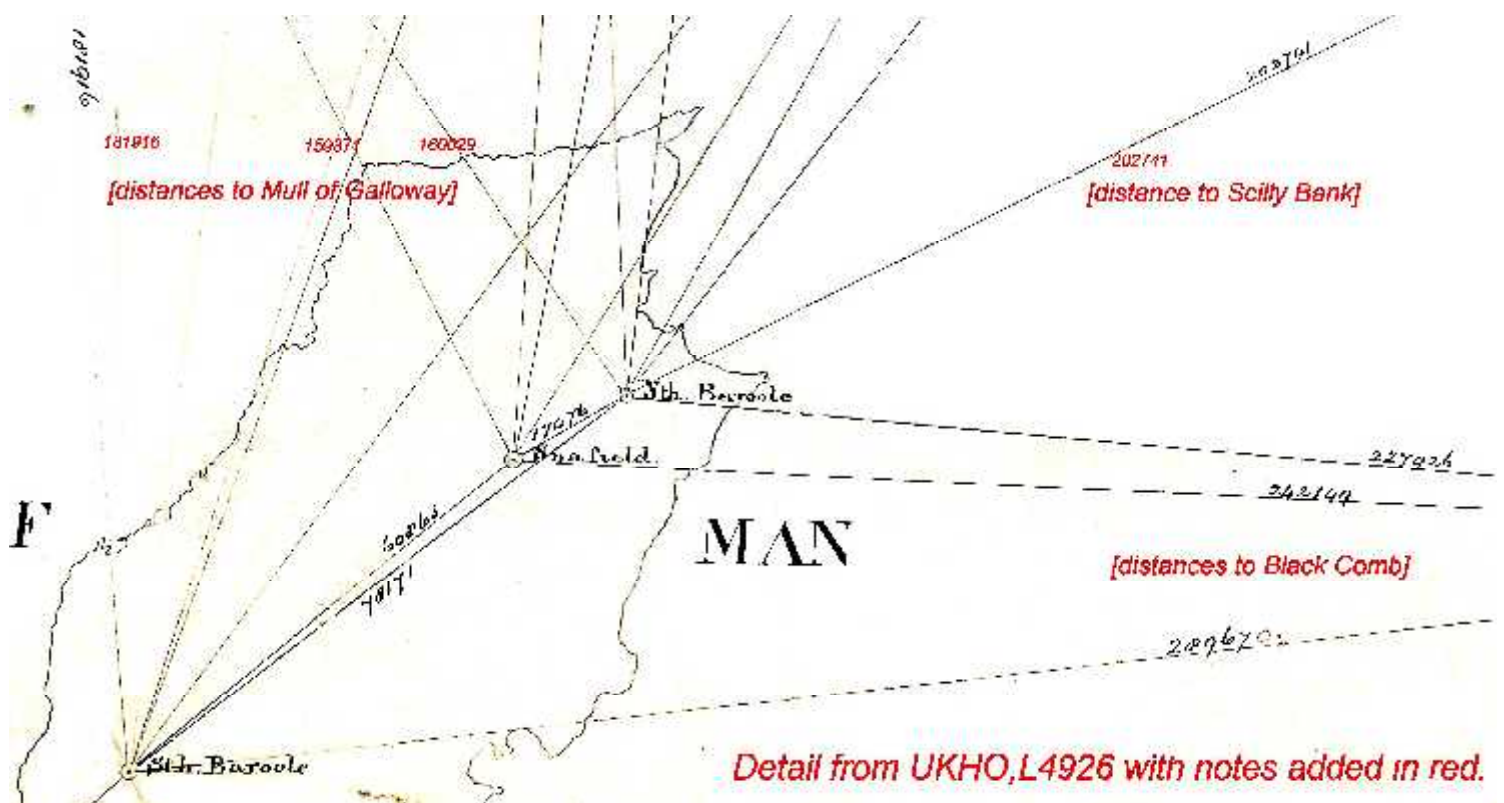


UKHO, L4926

UKHO, L2944a

UKHO, L2944

Principal triangulation points shown in black. Henderson's additional points (on L4926) shown in blue.



Detail from UKHO, L4926 with notes added in red.

Solway Survey from 1835 (by Capt Alexr Henderson RE and Lt CG Robinson RN)

Positions from the OS trigonometrical survey were translated into Admiralty charts in a variety of ways. The following case study provides but one of many possible examples.

By 1809 the primary triangulation of England and Wales had reached the Firth of Forth (via Criffel and Wisp Hill), and in 1815 James Gardner had extended this triangulation to the Firth of Clyde. By 1822 only the north west of Scotland remained, but Ireland then became the priority until the primary triangulation of Scotland was resumed in 1838.

Meanwhile the OS topographical survey continued in England and Wales, and its secondary triangulation was augmented where required by the Hydrographic Office. To this end, in 1834, Captain Henderson, whom Portlock regarded as a key officer in the Irish triangulation, was detached with Sergeant Derbyshire, said to be a capable theodolite observer, and five Sappers on what was described as ‘the triangulation of the Lancashire and Cumberland coasts with the Isle of Man, and part of the coast of Scotland’.¹⁶ By November 1834 he had extended the secondary triangulation of the west coast of England as far north as Whitehaven,¹⁷ and on 31 March 1835 he signed off an extensive triangulation diagram showing the distances between primary and secondary points extending from Delamere to Criffel.¹⁸

Only a week later, Henderson signed off an even more impressive diagram covering the area shown in figure 5.¹⁹ This diagram is of particular interest in regard to Colby’s reluctance to publish the results of the trigonometrical surveys of this period. It may be the earliest complete record of Ordnance Survey calculations of distances across the Irish Sea, and it also appears to be the first position for Knock of Luce, which by 1844 was designated as the Wigtonshire meridian for the first enduring surveys of Scotland. Figure 6, a detail of the Isle of Man from Henderson’s actual diagram, illustrates a few of the numerous distances shown between principal and secondary points. It is unclear which of these distances he calculated from his own observations, and which he recovered from previous work. However, it is clear that the distances from North Berule to Black Comb[e] and Scilly Bank match those in Mudge’s volume III,²⁰ that Gardner’s

¹⁶ TWJ Connolly, *History of Corps of Royal Sappers and Miners*, London: Longmans Green, 1855, 271.

¹⁷ UKHO, Incoming Letters pre-1857, LP1857 C262, Thomas Colby to Captain Beaufort, 29 Nov 1834.

¹⁸ UKHO, L4927, *OS Diagram to Workington, Bengairn and Mt Criffel*, scale half inch to a mile, 31 March 1835.

¹⁹ UKHO, L4926, *Diagram of the Principal Points on the Western Coasts of England & Scotland*, Ordnance Trigonometrical Survey, scale one inch to 5 miles, A Henderson, Capt. Royl. Engineers, 6 April 1835.

²⁰ *An Account of the trigonometrical survey carried on in the years 1800 to 1809*, by Lt Col William Mudge & Captain Thomas Colby, vol III, London: W Faden, 1811, 144.

calculations for south west Scotland were available at The Tower in 1834,²¹ and that Henderson was familiar with the Irish calculations.²²

From June until October 1835, Henderson was engaged, with his six men from the Royal Corps of Sappers and Miners, around the Solway and on the surrounding mountains, where he returned in the summer of 1836.²³ On 17 March 1836 Henderson signed off a triangulation diagram comprising nearly thirty points within the area marked on figure 5 in pink,²⁴ together with ‘a small book containing the distances, angles, &c made use of in its projection, also the Latitudes and Longitudes of the Principal Points’²⁵ and by 17 June 1836 at the Hydrographer’s request (referred to below) he had extended this to cover the area marked in blue from Southernness to Glasserton.²⁶

For some reason, possibly due to the large backlog of surveys waiting to be published, the Hydrographic Office’s progress lagged considerably behind the Ordnance Survey. By April 1835 Robinson wrote to advise Beaufort that he ‘had personal communication with Captain Henderson as you desired regarding the Points and matter that the Ordnance could supply for that portion of coast [of North Wales?], as well as the Solway Frith [*sic*] which you also mentioned, and thereby made myself conversant with the same. I further beg to state that I have been gaining what local information time has permitted since my arrival.’²⁷ Yet he was allowed to spend 1835 completing his survey of the waters around Anglesey, as he wished. In December, in response to a request, he reported that ‘I have been looking over an old Chart of the Solway, and consider the Coastline from St Bee’s head to Carlisle, then proceeding with the Mid Channel Shoals, the Low water feature, and Soundings in the English Channel, would I imagine not be accomplished under £250 unless the hire of Vessels are more reasonable than on this Coast.’²⁸

Eventually, in March 1836, Robinson wrote from Beaumaris to inform Beaufort that ‘I have received Instructions from their Lordships Secretary to proceed to the Firth of Solway, and survey from St Bee’s Head to Wigtown Bay with the various

²¹ David L Walker, *James Gardner – surveyor, computer, publisher and engraver 1808-1840, Sheetlines* 101 (2014), 31-32.

²² JE Portlock, *Memoir of the life of Major-General Colby*, London, 1869, 125, 127, 280.

²³ TWJ Connolly, *History of Corps of Royal Sappers and Miners*, London: Longmans Green, 1855, 273, 281.

²⁴ Capt Alexr Henderson RE, *Diagram of the Ordnance Trigonometrical Points adjoining the Solway Firth fixed for the Hydrographical Department of the Admiralty*, UKHO, L2944, 17 March 1836

²⁵ UKHO, LP1857 H325, Capt Alexr Henderson RE to Captain Beaufort, 17 March 1836.

²⁶ Capt Alexr Henderson RE, *Diagram of Ordnance Trigonometrical Points for the continuation of the Survey of the Solway observed and computed by Capt Alexr Henderson*, UKHO, L2944a, 7 July 1836.

²⁷ UKHO, Surveyors’ Letters, SL 22a, CG Robinson to Captain Beaufort, 2 April 1835.

²⁸ UKHO, Surveyors’ Letters, SL 22a CG Robinson to Captain Beaufort, 22 Dec 1835.

Rivers up to the first Bridge, also that you will be pleased to provide me with a copy of the Ordnance Triangulation in that neighbourhood.'²⁹



Figure 7: Solway estuary, showing points determined in 1836 (notes 24 and 26 refer)

In April Robinson was based in Carlisle, and from May until October in Allonby on the Cumberland coast. Unlike the Ordnance Survey routine, he retired over the winter to Carlisle rather than London, to complete a fair version of his survey of the southern part of the Solway estuary. By April 1837 he was in Dumfries and from May until October in Carsethorn on the north coast, before returning to Dumfries for another winter's desk work recording the northern part of the Solway as far west as Abbey Head.

Although Henderson's diagrams had provided Robinson with the positions of numerous secondary points on each of the south and north coasts of the Solway estuary, as shown in figure 7, Robinson in his reports rather takes his use of these for granted, and there is no record that he was in direct contact with Henderson over this period. Colby, unhappy with the course of events, commented in testy mode to Beaufort:

'...You are aware that very considerable extra expense and delay has already occurred in Captain Henderson's point fixing for the use of the Admiralty, in consequence of my not having been made fully aware of all

²⁹ UKHO, Surveyors' Letters, SL 22a, CG Robinson to Captain Beaufort, 26 March 1836.

*that would be required at the commencement. Hitherto, this inconvenience from partial demands has been unavoidable. The first application was for points preparatory to deep sea soundings in the Irish Channel, the second for a more minute nautical survey of the Solway Firth; the third, for its extension to Wigton Bay. Had all these three applications been simultaneous, much time and expense would have been saved, in the selection and visitation of stations. Now, an application is made for the Firth of Clyde, and I am apprehensive that this is only another commencement of partial applications - In fact that when Captain Henderson has fixed points for one half of the Firth of Clyde, he will be called upon to fix points for the other half, and thus that great expense and loss of time will be again incurred ...'*³⁰

From Robinson's letters it appears that he enjoyed considerable discretion and responsibility (subject to regular reporting) to hire boats, horses and 'instrument men', to set his own programme, and, for example, to advise the directors of the Carlisle Canal Company over the provision of channel lights and buoys. When he identified a suitable candidate as second assistant surveyor, his advice was promptly accepted. When his small theodolite and box sextant needed repair, he made his own way to Liverpool to get them repaired by the makers. When he wrote to Beaufort at the end of the season that 'I have been obliged to exceed my estimate sent up last winter by £30, a Bill for which I have drawn, and trust the work will fully bear me out the expense' it seems that this plea was accepted without the quibbling which usually characterised the Admiralty.³¹

In 1838 and 1839 Henderson's survey party was engaged on the Clyde estuary, defining coastal points for Robinson's subsequent use, and in 1840 was despatched to the Cape of Good Hope for a re-measurement of that meridian. Robinson's work in 1838 included a chart of Kirkcudbright Bay, which showed inland details well before the first OS map of the area, and a chart of Solway Firth which illustrates his use of Henderson's points.³² Over the following years he worked northwards to the Clyde and on to the west coast of Scotland.

Conclusions

This case study illustrates the wealth of material in the UKHO archive, but also the patience required to unravel the various geographical threads. It also provides a reminder that, although history may be written by reference to the Admiralty Hydrographer and the Superintendent of the Ordnance Survey, they depended upon the ability and resourcefulness of officers like Lieutenant Robinson and Captain Henderson.

³⁰ UKHO, LP1857 C184, Lt Col Colby to Captain Beaufort, 12 Nov 1836. Interestingly, AW Robe had responded earlier that 'I have none but what are in daily use here and we have to purchase them ourselves from Gardner who bought the copyright from Faden ...' (UKHO, LP1857 R275, Robe to Captain Beaufort, 18 April 1835).

³¹ UKHO, Surveyors' Letters, SL 22a, CG Robinson to Captain Beaufort, various dates 1836-37.

³² These charts, and many others of the Scottish coast, are available within the on-line map collection of the National Library of Scotland at:
http://maps.nls.uk/coasts/admiralty_charts_list.html.

Members wishing to pursue these matters further are invited to read the Appendix of this paper; to consult Dr Adrian Webb, the Archive Manager, via the UKHO website; and to consider David Walker's database.³³ We thank the UKHO for permission to reproduce the figures; the research room staff for their competent and patient support; the archivists of the past for their enduring bequest; and Dr Richard Oliver for his helpful comments.

Appendix

Notes on relevant sources at the UKHO Archive, Taunton

The website of the UK Hydrographic Office³⁴ provides a high-level guide to its archive. This is supplemented by these notes, which distinguish between, firstly, logs, journals, letters and pamphlets and, secondly, surveys, maps, views and charts. In each case further information is available on the shelves of the research room and on request.

Logs, journals, letters and printed pamphlets

These are listed in the UKHO *Catalogue of Manuscripts*, compiled by Lt Cdr Andrew David RN, which is available in a Word document on application to the Archive Manager. This includes detailed lists of the following series that illustrate various aspects of the collaboration between the Ordnance Survey and the Hydrographic Office:

- ***Minute books (MB 1, MB 2 etc)***

93 volumes of Departmental minute books covering the period 1825 until 1912. Indexed after 1846.

- ***Outgoing letter books (LB 1, LB 2 etc)***

32 volumes covering the period 1815 to 1887; each volume is indexed at the back. LB2 for example includes four letters to Colby and six to Richard Mudge, mostly thanking them for coastal tracings received, as well as requests for geographical positions.

- ***Letters prior to 1857 (Incoming) (LP 1857 A – letters from surnames A, LP1857 B etc)***

An index is available in Excel listing each letter by year and name of correspondent but not its content. Each letter has a unique number. This series contains about 400 letters from Ordnance Survey officers (Colby, Yolland, Robe, Vetch etc) and David Walker has (so far) indexed about half of these 400 letters by topic, places and persons.

- ***Surveyors' letter books (SLB 1, SLB 2, etc)***

From 1866 a series of letter books survives recording letters sent to surveyors from the Hydrographer.

³³ For information on references to OS/HO collaboration, contact d.l.walker@blueyonder.co.uk.

³⁴ <http://www.ukho.gov.uk/AboutUs/Pages/UKHO-Archive.aspx>.

- ***Surveyors' letters (SL 1a, SL 1b, SL 1c, etc)***

Separate file or files for each surveyor's letters and reports sent to the HO, in date order. A fruitful source of detail but not a quick read. This series contains no plans, which were removed to the 'Original documents' series when received (see below). There are summaries of surveyors' reports in SL 101/1 (1825-33), SL 101/2 (1833-48) and SL 101/3 (1848-56).

- ***Miscellaneous letters and papers (MLP)***

The contents of each volume are summarised, and indexed by author. These contain a few relevant papers but are mostly about an impressive variety of overseas survey work and scientific subjects. An electronic list is available.

- ***Miscellaneous survey data books***

A modern catalogue is available. Home Waters are in books 34 (1838), 35 (1841-43) and 41 (1847).

- ***Geographical positions***

A collection of lists of geographical positions (mainly from the 1820s onwards) compiled from a variety of sources that includes for Home Waters: box B, South coast and Channel (41 items) and box C, Scotland (15 items).

Surveys, maps, views and charts

Some catalogues of published Admiralty charts, from 1825 onwards, are available on the UKHO website (referred to above) in pdf format. Catalogues of the complementary collection of surveys, maps, views and charts (including manuscript material) are held in the research room at Taunton. Some triangulation diagrams made by the Ordnance Survey are identified on pages 18 to 30 of the UKHO geographical catalogue of England, Scotland and Ireland but this list is known to be incomplete. The series of 'survey ledgers' (in the research room) is voluminous, but the numerous entries are in chronological order, and Ordnance Survey work is clearly identified as such. Some at least of these references have proved useful.

Charts and MS surveys (described as 'Original Documents') dated before 1826 are gradually being re-catalogued and transferred to The National Archives at Kew, where the catalogue entries are becoming electronically searchable in ADM 352. Part of the collection of coastal and riverine views has been held at Kew for some time and is searchable in ADM 344; a further 20,000 views have been identified for cataloguing and transfer.

Members are reminded that a useful forum for questions and discussion about Ordnance Survey and associated maps and mapping is the Yahoo Group, *ordnancemaps*. This is a public group to which anyone may post and reply. Topics raised here sometimes later find their way into *Sheetlines*; Jack Kirby's article on page 56 is a good example.

You can join online at Yahoo Groups UK or by sending an email to ordnancemaps-subscribe@yahoogroups.co.uk