

[For publication in a forthcoming Northern Lighthouse Board *JOURNAL*]

James Ritson, Surveyor of Skerryvore Rocks, remembered by Roland Paxton*

Robert Stevenson's national reputation as a civil engineer stemmed from his successful erection of the Bell Rock lighthouse by 1811. This enabled him to found the family firm of engineers that practised for 141 years and to establish the Scottish lighthouse service as its chief executive. Essential support for Stevenson's achievement was contributed by the competence and dedication of the Lighthouse Board's Commissioners and work force. Also, and more particularly in a technical context, by his firm's engineers and key assistants such as P. & D. Logan, J. Steedman, F. Watt, G.C. Scott, J. & A. Slight, W. Blackadder, G. Middlemiss and, the short-lived James Ritson (1806-37), its principal surveyor from 1829.

Ritson was born in Lamplugh, Cumberland, on 26th December 1806. His career started with an apprenticeship to land surveyor G.D. Rome of Heathfield, near Annan, who was the *resident engineer* for Annan Bridge designed and built under Stevenson's direction from 1824-27 [see figure]. It was on this project that Ritson met and was befriended by Stevenson's son Alan (1807-65), also about 18 years old, and destined to revolutionize lighthouse optics in the UK, write a standard text-book on the *Construction and Illumination of Lighthouses*, and erect 13 lighthouses, including Skerryvore, 'the world's most beautifully engineered lighthouse' [R. Kinnear - NLB engineer].



Annan Bridge, Dumfriesshire

© R.Paxton

Ritson's competence at Annan Bridge resulted, on completing his apprenticeship, in Robert Stevenson employing him in Edinburgh as an assistant in his private firm. Early work for the firm included drawing up a Sunderland Harbour plan. Also one of Inchkeith isle, the lighthouse on which, in 1835, was the first in the UK to adopt brighter 'dioptric' light [using Fresnel's lens system] after trials by Alan Stevenson at an experimental lighthouse at Gullan Hill [see figure].

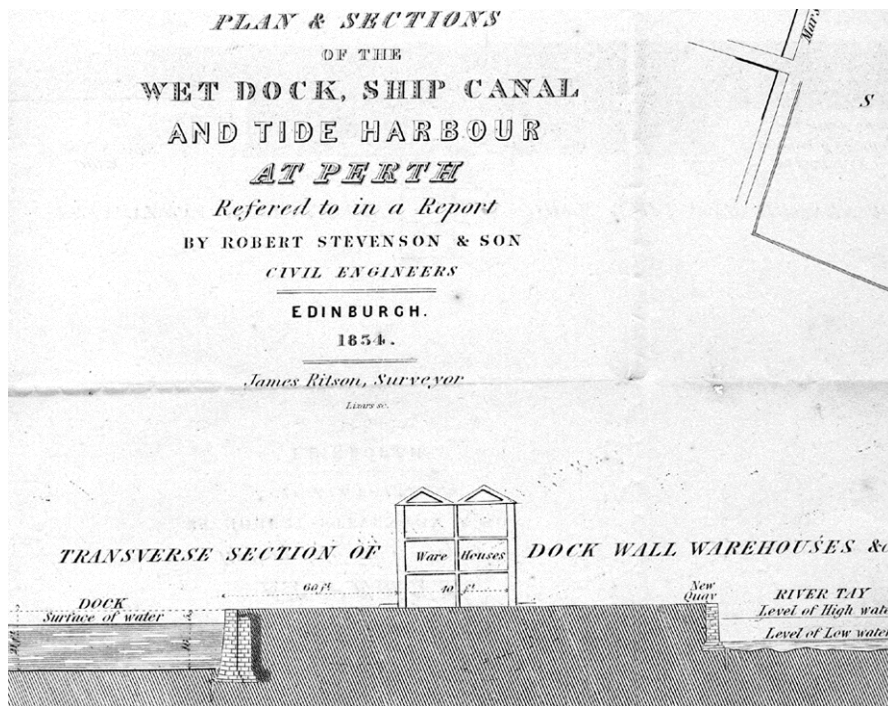
Other intricate projects on which Ritson worked included, in 1831, drawing a map of Dornoch Firth relating to its ferry and, in 1832, Ballyshannon Harbour. He also drew up the most detailed contemporary survey of the *Coast of Scotland with part of England and Ireland*, extending over 500 miles from Shetland to mid-England. This useful chart now historically valuable, was meticulously prepared for the Lighthouse Board under Stevenson direction, and published in 1832 [see figure]. It shows lighthouses, inland navigations and harbours, at a scale of 8 miles to 1 inch, also sea depth soundings, and is the forerunner of the Northern Lighthouse Board's present '*Aids to Navigation*' map.

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Part of *Chart of Scotland's Coast 1832* drawn by Ritson © R. Paxton

In 1833 Ritson surveyed the Tay from Perth to the sea for Stevenson & Son's proposed navigation improvements which led to river deepening and ford removal. In 1834 he drew up the firm's ambitious dock development proposal for Perth [see figure]. It was not executed.

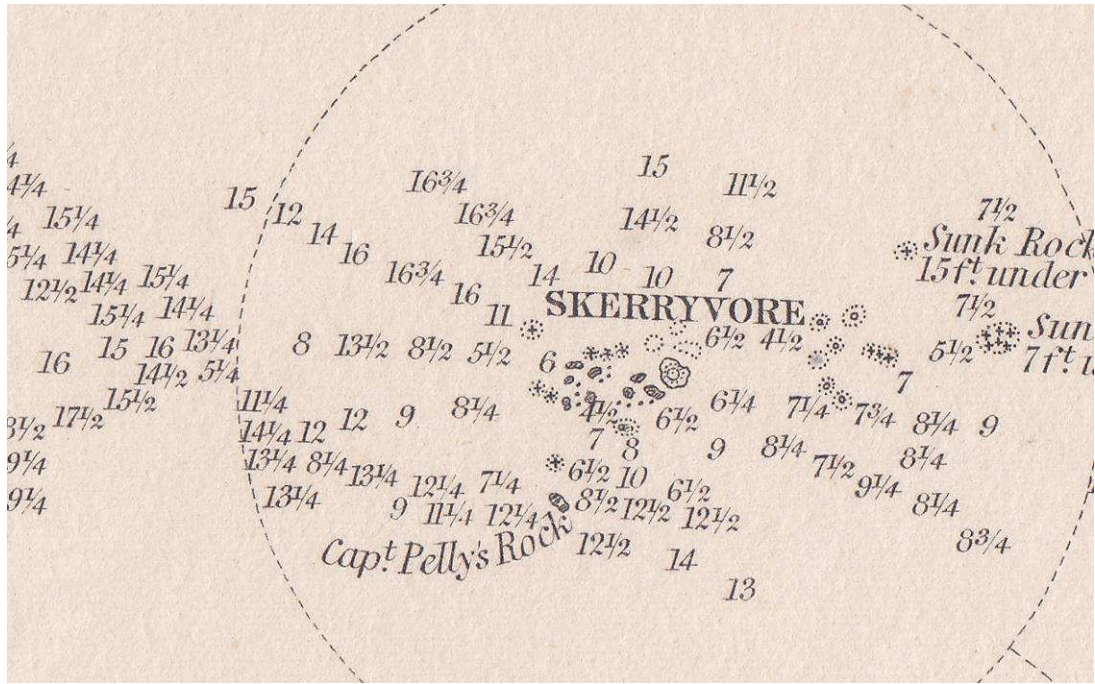


Perth Harbour. Stevenson proposals 1834 surveyed by Ritson © R.Paxton

Ritson was highly esteemed by the firm and in 1834/5 as its 'Principal Assistant Surveyor' entrusted with the task of surveying the often inaccessible and storm-washed Skerryvore reef exposed to the full fetch of the Atlantic 12 miles WSW of Tyree. The survey's completion under Alan Stevenson's direction, involving base line measurement, triangulation, more than 140 rocks and 500 soundings was an incredible feat. The reef was described by Walter Scott after a visit in 1814 as, 'a most desolate position for a lighthouse, the Bell Rock and Eddystone a joke to it'. Ritson's chart, updated to 1846 with Hynish shore station [see figure], was published in Stevenson's classic *Account of the Skerryvore Lighthouse* 1848 [Pl. II].

Stevenson also recorded that it was due to Ritson's 'zeal and intelligence' on the survey that 'so much of the accuracy can be attributed' and, as a fitting memorial to his 'activity and perseverance, prompted by his having leapt over the deep gully crossing the rock when filled by a breaking wave, Stevenson named it 'Ritson's Gully' [see figure - *Stevenson* 1848 Pl. III].

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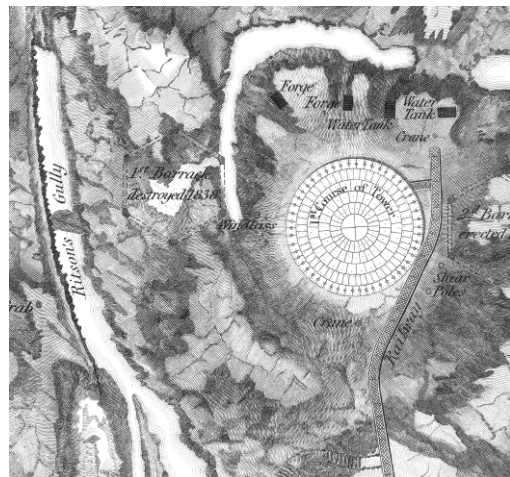


Skerryvore Rocks. A two-mile width of Ritson's survey 1846 [depths in fathoms] © R.Paxton



Skerryvore Lighthouse

© R.Kinnear

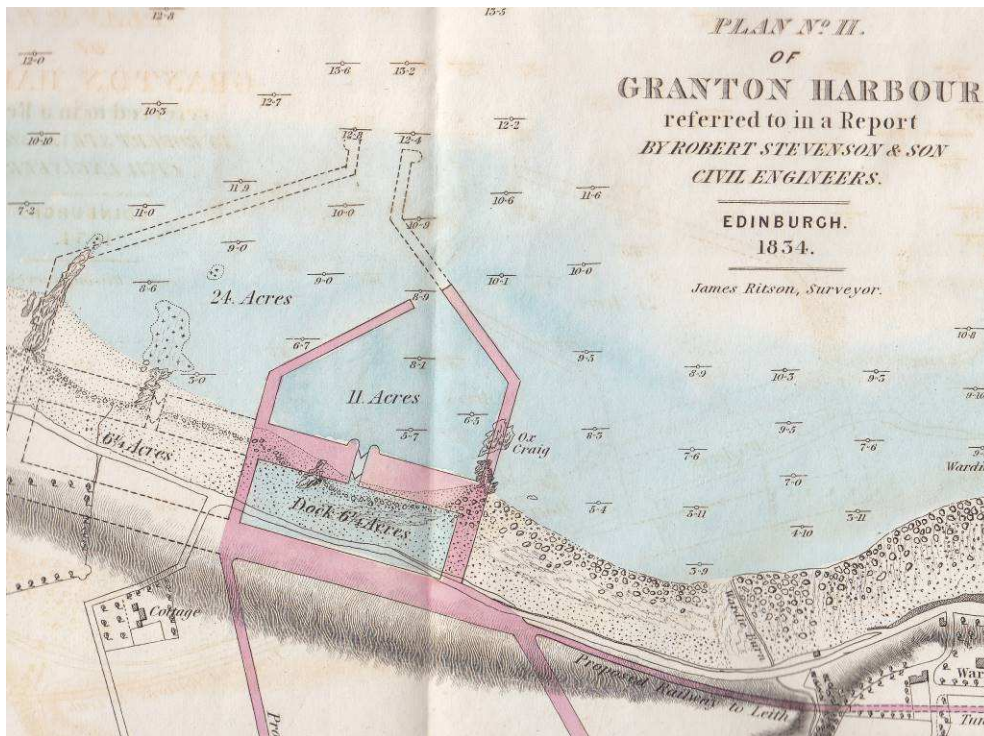


Skerryvore - Ritson's Gully

© R.Paxton

Ritson was particularly busy in 1834 as he also had to survey the Forth from Queensferry to Inchkeith, and routes into Edinburgh, for the firm's Granton Harbour proposals for the Duke of Buccleugh, part of which was underway by 1837. It was while a pier of the harbour [see figure], destined in 1850 to be a terminus of the world's first 'floating railway' ferry, was being built under David Stevenson's direction that Ritson met his death. His diligence in finishing some work in wet weather led to his being 'thoroughly soaked' for hours without a change of clothes which resulted in a fever, pleurisy, and death some weeks later on 20th March 1837.

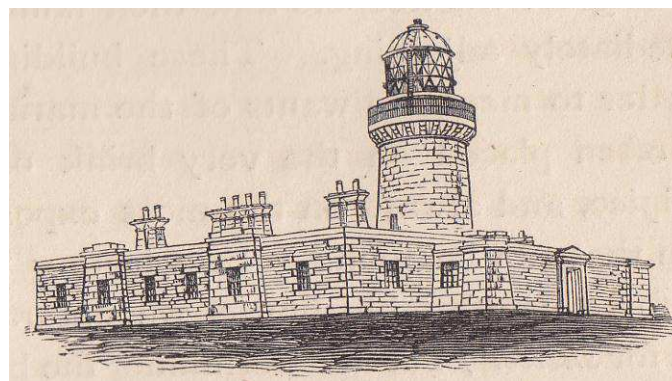
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Ritson's survey of Stevenson and Son's Granton Harbour Proposal © R.Paxton

Soon after Ritson came to Edinburgh to work for Stevenson he met and married Catherine Ruthven of 3 Salisbury Square, Edinburgh, by whom he had six children, three of whom died in infancy. The fourth child whom he named Robert Stevenson Ritson was adopted, raised, and educated by James's elder brother Thomas (1802-62) who was employed by the Northern Lighthouse Board. Alan Stevenson was Robert Stevenson Ritson's godfather, a duty he clearly took seriously from the morally instructive letters he wrote to him from 1847-62.

By 1862 Robert Stevenson Ritson, evidently a competent photographer as David Stevenson, by then Engineer to the Lighthouse Board, was much taken with his 'excellent photographs'. In 1864 David Stevenson used an engraving of one of these, Noss Head Lighthouse [Alan Stevenson 1849], to illustrate 'an ordinary first-class station' in an article in *Good Words*, and, in his attractively produced popular book, *Lighthouses 1864* [see figure].



Noss Head Lighthouse - Robert Stevenson Ritson's image

Postscript. The writer's career as a civil engineer was preceded by that of a surveyor with the Ordnance Survey and, of old mines and caves, for the British Speleological Association, experience from which and of engineering surveying prompted this article. For personal information on Ritson he is indebted to his great, great, grandson, Simon Paterson of Thomas R. Paterson & Sons, Salmon Fishers, Strathy Point, Thurso, mainly from a private publication in c.1890 of 'Letters to Robert Stevenson Ritson' dated 1847-89, two from his uncle William, three from Alan Stevenson, and one from David Stevenson'. Early 19th century surveying artefacts are on display at the **ICE Scotland Museum**, Sir William Arrol Building, School of EGIS, Heriot-Watt University, Edinburgh, EH14 4AS. **Visitors welcome.** See [www](http://www.ice-scotland.com) for details.

Roland Paxton, 16th February 2017

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