John Rennie in Scotland 1779-1821

Society of Antiquaries of Scotland after dinner presentation on 30 November 2012 by Professor Roland Paxton FRSE, Heriot-Watt University
Here lie the mortal remains of
JOHN RENNIE
CIVIL ENGINEER
F.R.S.  F.A.S.
Born at Phantassie in East Lothian
7th July 1761
Deceased in London 4th Ocr. 1821
THIS STONE
is dedicated to his private virtue
and records
the affection and the respect of
his family and his friends
but
the many splendid and useful works
by which
under his superintending genius
England, Scotland and Ireland
have been adorned and improved
are
THE TRUE MONUMENTS
OF
HIS PUBLIC MERIT
Waterloo—Southwark—Bridges
Plymouth Breakwater
Sheerness Docks &c. &c. &c.
Rennie’s birthplace, Phantassie, East Linton
David Loch’s school examiner’s report on Rennie at Dunbar High School in 1778.

Rennie was at Edinburgh University 1780-83 – studied part-time under Professors Robison and Black FRSE 1788 FRS 1798

man of the name of Rannie. He was intended for a mill-wright, and was breeding to that business under the famous Mr Mackell at Linton, East Lothian. He had not then attended Mr Gibson for the Mathematics, &c. much more than six months; but on his examination, he discovered such amazing powers of genius, that one would have imagined him a second Newton. No problem was too hard for him to demonstrate. With a clear head, a decent address, and a distinct delivery, his master could not propose a question either in natural or experimental philosophy, to which he gave not a clear and ready solution, and also the reasons of the connection between causes and effects, the power of gravitation, &c. in a masterly and convincing manner; so that every person present admired such an uncommon stock of knowledge amassed at his time of life. If this young man is spared, and continues to prosecute his studies, he will do great honour to his country.
Rennie’s Scottish Projects. His early work included: mills and millwork (green) canals, harbours water supply (blue) roads, bridges, Railway (red)
9-mile Crinan Ship Canal 1794-1809 and Lune Aqueduct 1798

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Edinburgh and Glasgow Canal project – Rennie’s line (brown) connecting Leith harbour. Baird’s line (green) begun 1817
Rennie’s Queensferry ramped pier improvements 1808-17.

Note Hawes (Newhalls) and Longcraig piers
Queensferry patronage in 1811 from Rennie’s report

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<td>Dogs</td>
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It appears from an account kept by the superintendant, that during the year ending 15th May 1811 there crossed at the Queen’s-ferry two hundred and twenty-eight persons every day throughout the year. And on some days so many as four hundred and forty-seven were ferried over. There passed during the same year by far the greater part of which travelled along the Great North Road. The value of the goods intended for sale amounting to near 400,000l., making a total of insurable property conveyed by this communication of about 900,000l.
Hawes Pier, Queensferry in 2008
Leith docks entrance lock as preserved in 2010
Leith docks in 1838 – note Rennie’s entrance lock and docks (left) and dry dock (right)
Bell Rock Lighthouse - Stevenson’s design (left) 1800-06 and as-built (right) under Rennie 1807-10
Bell Rock Lighthouse as erected 1807-11. Slow progress until beacon built alongside, then completion of masonry in 13 months.
Bellrock Lighthouse progress 1809 – note innovation
Bellrock Lighthouse kitchen – note floor dovetailing
Dynasty of Engineers

The Stevensons and the Bell Rock

Roland Paxton
Rennie’s Berwick Pier and lighthouse 1808-24. About 30 ft wide and 2000 ft long cost £63,000 – still in service
Plymouth Breakwater 1812-47
Kelso Bridge 1801-04
72 ft spans (elliptical)
Musselburgh Bridge 1806-8 widened in 1925 on downstream side by Blyth & Blyth, Edinburgh
Musselburgh Bridge 1806-8 in 2010

Cree Bridge, Newton Stewart 1812-14 – cost £8234
Glasgow, R. Clyde, Hutcheson Bridge Proposal 1815
(120 ft – 140 ft- 120 ft spans: ribs 48-66 ins deep)

Ken Bridge, New Galloway (90ft. max) 1820-24. Extensive water-way as earlier bridges destroyed by floods in 1806 and 1815
Rennie’s Bridge of Earn 1819 as widened with concrete in 1925 retaining the elliptical shape of the original arches visible under the bridge.
Union Bridge, Paxton 1819-20. Rennie advised on the strengthening of the tower and abutment. Capt. Brown, Engineer
The world’s oldest suspension bridge still carrying vehicles
Southwark Bridge 1814-19 – 240 ft centre span - largest ever erected in cast iron. Weight c.5400 tons - cost £0.66m
Waterloo Bridge 1811-17 – then *the finest bridge in Europe*, cost £1M. Note balusters. Under demolition from 1934, note temporary spans. Rennie also designed new London Bridge in 1821 - built after his death.
London Bridge opened 1831 cost £2.5m. 150 ft span arches. Sold in 1968 for $2.5m now at Lake Havasu City in Arizona
Rennie Memorial, East Linton, including Waterloo Bridge baluster (not seen) and James Rennie, at its relocation at Phantassie in 1981 (left). 1936 memorial on bypass (right)