



Book review

The Elan Valley Railway – The Railway of the Birmingham Corporation Waterworks

C. W. Judge. Oakwood Press, Usk, UK, 2004, ISBN 978-0-85361-517-0, £12.95, 295 pp.

This book details the development and operation of the Elan Valley Railway, but in so doing provides a valuable insight into the construction of the Elan Valley dams – built on the River Elan and Claerwen.

The chairman of the Birmingham Water Committee recognised the value of pure water. He stated to the committee ‘Gentlemen there has been yet another outbreak of smallpox and diarrhoea in our City; we need pure water ... I propose that we undertake a survey of possible sources of supply.’

The supply needs of Birmingham doubled between 1876 and 1891, and the streams and wells could not meet demand.

Sir Robert Rawlinson ordered a project to be carried out to critically examine whether water could be brought from Wales to Birmingham. The report suggested that if the City of Birmingham did not action the possibility, then this may result in London using the area chosen – there was competition even then.

Thomas Martineau, chairman of the water committee, engaged James Mansergh to work ‘secretly’ to survey the proposed area and submit a detailed report. In 1890, he finalised his report and concluded with the statement ‘that no better source could have been found or desired.’ Royal Assent for the scheme was received on 27 June 1891.

Some 71 square miles (184.6 square kilometres) of gathering grounds were purchased and six reservoirs, a model village, a new chapel and church, and also a 73-mile (116.8 km) aqueduct to allow water to gravitate to a new reservoir just within the City of Birmingham at Frankley were proposed.

The dams/reservoirs were to be called

- Pant-y-Beddau dam and reservoir
- Cil-Oerwynt dam and reservoirs
- Dol-y-Mynach dam and reservoir
- Cabon-Coch dam and reservoir
- Pen-y-Gareg
- Craig-Goch.

Mansergh provided two estimates for the scheme: one with two pipes to Birmingham and one with five pipes.

- The two-pipe scheme would cost £3 340 700.
- The five-pipe scheme would cost £5 654 953.

Mansergh also submitted a set of notes to the water committee on December 1892, which demonstrates an interesting view of the works and contractors. Mansergh advised against using a contractor and also recommended the use of a resident engineer who had worked with him for 8 years in Teesdale, George Yourdi.

Mansergh made the following statements.

- It was stipulated that the work be done in a sound and faultless manner.
- The works were unique and it was practically impossible to draw up a specification.
- A contractor would find claims for extras ... ‘Nowadays with the big contractors likely to tender for such jobs, extra claims became a fine art. I believe they employ experts who from the moment a contract is commenced are engaged exclusively in devising and formulating such claims ... I believe the work would probably be somewhat more cheaply done without, than with, a contractor.’

So not much has changed in the twenty-first century. Also, Mansergh had views about supervision. He said that there should be one principal resident engineer to supervise the whole works – George Yourdi – with an engineering assistant, and a shorthand and copy clerk; then, on each of the three reservoirs a junior resident engineer and assistant, and a clerk. He also would probably appoint an assistant to work in the four offices; ‘one of my pupils who had already some office experience, but who of course would receive no pay.’

The salary for Yourdi was likely to be about £550 per year and the other resident engineers’ salaries would be about £300 per year. In fact, Mr Yourdi requested £600 per annum to start, increasing by yearly increments of £75. He expected to be provided with a house and free coal as well as a pony and trap. He also required six weeks’ holiday – 4 in the summer and 2 in the winter – and expenses.

A model village was built for the works. The quality of buildings and facilities was much better than the navvies of the time were used to, but Mansergh energised the importance of good-quality facilities. Water supply in itself was going to be a problem and so Mansergh proposed a reservoir on the Nant-y-Gro stream about half a mile above the Caban dam site. The concrete gravity dam was to hold 500 000 gallons. Mansergh wanted water to be piped to every house and to be able to provide free hydrants. This dam was later used by Barnes Wallis and his team and was blown up as a trial/experiment for the Dam Busters’ raid on the Ruhr Valley dams.

The suspension bridge, which was manned by a guard 24 h a day, cost just over £1000 to build (the bridge was replaced twice in its lifetime). The village had a hospital, an isolation hospital, bank, post office, school, church, public hall, public baths and wash houses. By March 1895 there were more than 1000 navvies and other tradesmen in the village and this figure later climbed to more than 1500. The village had its own fire brigade, electricity to all the main buildings and street lighting all run from a hydro power generator at Cabon-Coch dam. Yourdi took a tour of major projects, including the Manchester Ship Canal and Standedge tunnel, with the intent of making his village the best of sites around.

A significant amount of the book, as one might expect, covers the route of the railway and the engines and rolling stock. In so doing, it provides a vast array of fascinating photographs, showing the plant at work and the dams under construction. Mansergh and Yourdi between them had to request more engines and rolling stock as the job progressed.

In its time, the works in the Elan Valley were described as the eighth 'wonder of the world'. The book describes the dams as reported to the Birmingham Water Committee in June 1908.

Dol-y-Mynach dam is recorded as incomplete – with the foundations having been built to a level of 830 ft (249 m) OD. The book states that eventually the dam will be carried up to 900 ft (270 m) OD; 'It has a reservoir with an area of 26 acres and contains 150 million gallons. When completed it will have a top water area of 148 acres and a capacity of 1640 million gallons.' It states that the dam will have a height of 101 ft (30.3 m) and a length of 938 ft (281.4 m). It remains to this day an unfinished dam, waiting for Severn Trent to complete it.

Two further dams were proposed in the Claerwen Valley – Cil-Oerwynt dam and Nant-y-Beddau dam – but they were never constructed, being superseded by one large dam finished in 1952 and called Claerwen dam.

The original estimate of the entire scheme was £5 851 000 and it appears that the works were completed, even with some extra works that included the filler beds and the foundation of the Dol-y-Mynach dam for £5 884 918.

This book gives a fascinating insight into a large engineering project – well worth a read.

A K Hughes