

Panel for Historical Engineering Works Newsletter

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Celebrating Thomas Newcomen, Steam Engine Pioneer by the Editor

This year's Smeaton lecture was delivered in July by Dr Jim Andrew who looked at the background to the exploitation of steam as a source of power. He focused on Thomas Newcomen's developments and how his engines worked. Perhaps contrary to popular perception, it was Newcomen who had developed the first truly successful steam engine, shortly after 1700 and it was described as 'an epoch making invention'. He used the lecture to examine later improvements to Newcomen's engine, particularly those of John Smeaton, and how study of the engines' shortcomings led to James Watt making his significant contribution to steam power. He also covered the perhaps surprising continuation of the building and use of Newcomen engines into the nineteenth century, long after James Watt and others produced much more powerful and economic steam engines, countered some naive stories about how the engine was perfected and concluded on the achievements of Thomas Newcomen and his team.

Dr Andrew, studied Mechanical Engineering and Applied Mechanics at Imperial and has a PhD in economic history, he is a longstanding member of the Newcomen society and has for many years contributed to the organisation and activities of the society's Midlands Branch.



The Smeaton Lecture
Dr Jim Andrew and his two brothers © ICE

The Smeaton Lecture was one of a series of events organized across the country to mark and celebrate the three hundredth anniversary of Newcomen's pioneering work. His achievements were also described in addresses held as part of the University of Portsmouth's public lecture series in May and at the Black Country Museum in July – the total audience to the three lectures is estimated to be well in excess of 500 people. Three conferences were also organised. One in Wales in July at the National Waterfront Museum, Swansea was on the theme of 'Power Progressed – the Potential of Strong Steam Power'. A second held in May at the Discovery Museum, Newcastle concentrated more on the later legacy of power generation and the third held fittingly at Dartmouth was on the Life and Works of Thomas Newcomen.

Thomas Newcomen is one of Dartmouth's most famous sons. He was born in 1663, into a family with strict Baptist beliefs and, throughout his life, Thomas was a highly active preacher. He worked as an ironmonger and inventor and worked closely with his partner, a fellow Baptist, Jon Calley. He developed a scale model of his engine in his workshop in Dartmouth around 1710 and the first working engine, built near Dudley Castle in the South Staffordshire coalfield, followed two years later. By the time of his death in 1729 there were over a hundred engines working all over Europe. Despite significant improvements by Watt and others, Newcomen engines continued to be built and operated well into the nineteenth century.

A Newcomen engine, parts of which date from 1725, is on public display in Dartmouth. It was donated by the British Transport Commission to the Newcomen Society in 1963 and erected within an old electricity sub-station.

Bicentenary Celebration of Laigh Milton Viaduct

Information from Roland Paxton



Attendees at K&TR200 Celebration with Plaque
© East Ayrshire Council

Celebrations took place at the beginning of July to mark the bicentenary of the opening of Scotland's first public railway and the world's oldest surviving public railway viaduct – East and South Ayrshire's Laigh Milton Viaduct.

Provost Jim Todd unveiled a plaque generously gifted by the Institution of Civil Engineers to mark the occasion. He said: "In the 19th century the railways became the backbone of Britain, leading to the expansion of towns like Kilmarnock and Troon. The Kilmarnock and Troon Railway was a huge project in its day costing the Duke of Portland £150,000, which equates to at least £80m today. However, the benefits to the whole area were incredible."

"We are very proud to have this magnificent monument to Victorian engineering in our area and are committed to ensuring it has a viable use in the future and that it is safe for the public to use. "On behalf of the people of East Ayrshire I would like to thank Professor Roland Paxton of the Institution of Civil Engineers Panel for Historical Engineering Works, who was the driving force behind the restoration of the historic Laigh Milton Viaduct and his fellow

conservation project directors, for their hard work and commitment to preserving this incredible structure for future generations."

In 1992 Professor Paxton with invaluable help from others, initiated the Laigh Milton Viaduct Conservation Project and work to restore the viaduct by Barr Construction commenced on site in 1995. The viaduct was officially re-opened in 1996 and in 1999 was honoured with a Saltire Society 'Commendation' for its skilful conservation.

Professor Paxton, who designed the K&TR200 plaque, said: "In initiating and organising the K&TR200 plaque the Institution recognises the railway's outstanding historical significance and wishes to encourage the viaduct's custodians and owners since its conservation in 1996, East and South Ayrshire Councils, to develop its public potential as a national tourist attraction and as a safe crossing of the river for a footway / cycleway facility."



Professor Roland Paxton with K&TR200 Celebration Plaque
© East Ayrshire Council

Officially opened on 6 July 1812 the Kilmarnock and Troon Railway was constructed for the fourth Duke of Portland, William Bentinck, to transport coal to his specially built harbour at Troon mainly for export to Ireland.

The line is steeped in history; it was Scotland's first public railway to transport passengers, initially in privately-owned horse drawn carriages, between Kilmarnock and Troon.

The project engineer for the railway and the Laigh Milton Viaduct was William Jessop, who was responsible for large scale projects including the Grand Canal of Ireland, the Ellesmere Canal with its renowned Pontcysyllte Aqueduct, the Caledonian Canal with Telford, and the West India Docks – the first large wet docks built in the Port of London.

Jessop's viaduct carried the railway over the River Irvine until 1847 when it was bypassed by a timber viaduct designed on a larger radius curve for improved steam locomotion by engineer John Miller, dubbed by Professor Paxton 'Scotland's Brunel' whose great-great grand-daughter, Mrs Paula Clarke, attended the bicentenary event.

This remained the line until 1865 when it was replaced by the present one on an even greater radius curve to facilitate faster travel which still carries freight and passengers between Kilmarnock, Troon and beyond.