HERIOT-WATT UNIVERSITY

LAUREATION

BY PROFESSOR PAUL JOWITT · THURSDAY 17 JULY 2003

Chancellor, I have the honour to present, for the degree of Doctor of Engineering, Professor Roland Arthur Paxton

It is often said that an Accountant is someone who knows the cost of everything and the value of nothing. Roland Paxton is not an accountant. Roland Paxton is a Civil Engineer, and a Civil Engineer is someone who knows the value of everything but importantly, how to strike a bargain. I will return to this later, but I simply ask all of you here today to imagine what is the best bargain you could get for a pound?

While you are all thinking about that, I will tell you that Roland Paxton is a Jekyll and Hyde character. He has led two lives, which explains why he is still a young man in his prime despite his three score years and ten.

Roland was born in 1932 in Altrincham Cheshire, attended Altrincham Grammar School and then went to work as a Cartographical Surveyor for the Ordnance Survey until 1955. During this period he had a brief spell of National Service in the Royal Artillery – an odd choice for a man who would become – and as you will hear in a moment – a leading Conservationist.

From 1955 he worked as a Civil Engineer in Local and Civic Government, engaged on the planning, design, and construction of major drainage, sewerage, road and bridge works. After studying civil engineering part time he graduated in 1959 from the Manchester College of Science and Technology, now UMIST – whoever said part-time learning was the educational innovation of the 21st century? And as a member of the British Speliological Association – a society devoted to the study of caves – he surveyed the newly discovered and immense East Gill cave system in 1954.

Roland Paxton is by nature a keen and accurate observer – most of us are content just to look at things, but Roland Paxton has acquired a far better gift – that of being able to see things and recognise their importance. And if all the new Heriot-Watt Graduates here today, whatever their discipline, emulate that skill – of being able to see and observe rather just to look and spectate – then their contribution to society will be all the more useful.

Roland's first civil engineering task was at the then state-of-the-art extensions to the Davyhulme Sewage Treatment Works in Manchester. He was introduced to six ladies of the night, whose names were Mabel, Doris and so on. Actually Mabel and Doris were really just 2 of 6 very attractive and very new 1250HP dual fuel (sludge gas or diesel) pump engines and were named – unbeknown to the Manchester City Fathers – or maybe not! – after some well-known local ladies of pleasure.

(In a Lancastrian accent)

"Paxton: If you go over there and you'll find two sewers. Make arrangements to have their effluent introduced to the new works via that pumping station".

And so he did. The two sewers turned out to be 13ft and 10 ft in diameter and running 2/3 full of the foamy brown stuff. It might have been "heavy" but it wasn't Boddingtons Best...

After that job was done he then went on to oversee the Leicester Eastgate Ring Road Underpass, the River Soar Flood Relief Scheme and from 1965 until his retirement in 1990, he was Senior Principal Engineer with Lothian Regional Council.

In Edinburgh, Roland Paxton worked in a variety of Highway and Transportation projects, including the planning of the Western Approach Road (partially along the lines of the former Caledonian Railway), the part Pedestrianisation of Princes Street and the development of a Cycle Path along part of the former Edinburgh and Dalkeith Railway. In so doing was responsible for preserving Scotland's' oldest railway tunnel at St Leonards and the oldest surviving Beam Bridge at Braid Burn.

Here then are the clues to the other side of Roland Paxton's character.

Put simply, Roland Paxton is Britain's leading civil engineering historian, in fact, he is probably the worlds' greatest living expert on the history of civil engineering. You see, for all the time he was carrying out a very successful, though if he will forgive me for saying so, rather a normal career for a leading Civil Engineer, Roland was developing an unequalled body of knowledge about civil engineering history, infrastructure, and its contribution to society.

This was accompanied by his voracious appetite for collecting associated books, articles and memorabilia, to the extent that he probably has one of the largest, most comprehensive and historically valuable private collections in the UK and beyond. It has at times led him to contemplate a structural re-assessment of the load bearing capacity of his loft.

Roland's library and collection of memorabilia consumes not only a large part of his life, but also every corner of his home. It is just as well that Roland has enjoyed the unstinting support for the past 47 years of his wife, Ann. We are delighted that Ann is here today. We also welcome his daughter Karen – an Architect with her own art and design practice in the Lake District, and her husband and their two children, Ben and Kirstin, both of whom are talented young flautists. Roland's other daughter, Adele is a Lawyer turned accomplished International Opera Singer who has sung with Jose Carreras at the Royal Opera House, Covent Garden. Adele now lives and works in Connecticut but is unfortunately unable to be with us today.

Roland's passion is not just that of an addictive and acquisitive collector of books. They have become a personal database of unparalleled importance and which he deploys with great skill and effect in his conservation work. His knowledge is encyclopaedic and his mental search engine of his collection is quite unbelievable. Google? The World Wide Web? Forget it!

In 1990 Roland retired from Lothian Regional Council and came – at my invitation as the then Head of Civil Engineering at Heriot-Watt – to become an Honorary Senior Research Fellow, and later an Honorary Professor – to pursue his interests in Civil Engineering history and heritage issues. And just as importantly, to help imbue our students with an appreciation of the heritage and contribution of their chosen profession. His lectures on the history of civil engineering continue to be an invaluable and much appreciated feature of the first year course.

Roland Paxton has had a long connection with Heriot-Watt. In 1975 he was awarded – again after studying part time – an MSc for his thesis on the life of Thomas Telford – the 1st President of the Institution of Civil Engineers, designer of the Dean Bridge in Edinburgh and the Caledonian Canal. His external Examiner was Professor Sir Alec Skempton FRS of Imperial College.

And 24 years later, in 1999, he was awarded a PhD for a brilliant thesis on the work of the Scottish engineering dynasty of engineers – the Stevenson family – which included the author Robert Louis Stevenson and his grandfather Robert Stevenson, the designer of the Bell Rock Lighthouse.

Roland's external examiner was again the legendary Alec Skempton. I was, if only nominally, Roland's PhD supervisor. At the PhD viva, my role was to help Skempton to make the coffee...

In between all this he co-authored, edited and published a book – "Bright Lights – the Stevenson Engineers 1752-1971" – as well as writing several contributions to the Dictionary of National Biography. If there was an example of the saying if you want something doing, ask a busy man, Roland Paxton is that example.

There isn't time today to give a complete list of Roland Paxton's scholarly and conservation contributions to the enlightenment, recording, preservation, conservation and the wider appreciation of the world's civil engineering heritage, so I will confine this to a tale of two bridges – The Forth Bridge (which is an international icon of both Civil Engineering and Scotland itself, and which almost everyone here will have heard of), and the Laigh Milton Viaduct, which I guarantee almost no-one here has heard of.

If the Forth Bridge is the world's most famous railway bridge, where, might you ask, is the oldest? Until Roland Paxton demonstrated its provenance in 1992, no-one knew it was somewhere near Kilmarnock: the 1811 Laigh Milton Viaduct on the Kilmarnock and Troon Railway. Unfortunately, the railway had long since gone and the viaduct was on the verge of collapse. In fact it was about to fall down.

Undaunted, Roland set up the Laigh Milton Viaduct Conservation Trust, and then personally bought the bridge for a pound. Can you imagine his wife's reaction when he came home that day and said:

"Ann? Ann! I've bought this bridge for a quid. It's in the middle of nowhere and it's going to cost a million pounds to restore it. A bargain... What's for dinner?"?

He then set about – and succeeded – in raising the £1.1m pounds to restore it. The Kilmarnock and Troon Railway might no longer exist, but the bridge is now resplendent. Railtrack/Network Rail? – eat your heart out...

Which brings me neatly to the Forth Bridge, which celebrated its centenary in 1989. Roland Paxton organised the Forth Bridge Centenary Symposium – including a bridge design competition for schools and in which he inveigled me into being a judge – and he gave the opening lecture at the Edinburgh International Science Festival in 1990.

He edited the defining modern text on the Forth Bridge which has now become a collector's item, including a version translated into Japanese. And when, after railway privatisation, the Bridge's repainting schedule fell far behind that required, Roland Paxton was instrumental in successfully campaigning for its proper maintenance.

In 1996 he was appointed to an MBE in the Queen's New Year's Honours list for services to the history of civil engineering. He is a Fellow of the Royal Society of Edinburgh. From 1992-2002 he served on the Royal Commission on the Ancient and Historical Monuments of Scotland – the first Civil Engineer to do so.

He is a Trustee of the James Clerk Maxwell Foundation, a former President of the Edinburgh Bibliographical Society, a Founding Trustee of the Forth Bridges Visitor Centre Trust, and Chairman of the Institution of Civil Engineers' Panel for Historical Engineering Works.

In 1999 he was awarded the Institution of Civil Engineers' Garth Watson Medal in recognition of his crucial work on the history of civil engineering and the preservation of civil engineering heritage. In 2001 he was awarded their Robert Alfred Carr Medal for his paper on the Miliennium Link – the £78m Regeneration of the Forth and Clyde and Union Canals Restoration, characterised by the emblematic Falkirk Wheel.

As well as giving innumerable invited lectures in the UK, he has undertaken many invited lecture tours overseas – particularly in the USA and Japan, where he has become almost as well known as he is in Britain. He was named by the American Society of Civil Engineers 'College of Fellows Lecturer for 2000' and was recently awarded their 2003 History and Heritage Award, the first non-US citizen to be so honoured.

Roland Paxton has made major contributions to civil engineering history, the understanding of its rich heritage, and the conservation of many engineering artefacts that have contributed to a civilised society.

And so, Chancellor, in the name of the University and by the authority of the Senate, I invite you to confer the honorary degree of Doctor of Engineering on Roland Arthur Paxton.