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## Editorial

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The theme for this issue of *Engineering History and Heritage* is limited-access highways and was chosen partly as the 50<sup>th</sup> anniversary of the opening of the first motorways in the UK was being celebrated, but mainly in recognition of the construction, across the developed countries of the world, of extensive motorway networks. Motorways is the UK name for such limited-access highways, and they are known as autostrade in Italy, expressways/superhighways in the USA, autoroutes in France and Autobahnen in Germany, to mention but a few.

These highways shared common characteristics in being designed exclusively for motorised vehicles with limited connections to the public road networks, usually grade-separated junctions, and bypassing the major conurbations. These designs were a step-change for highways and were born out of the burgeoning traffic numbers in the early 20<sup>th</sup> century after the invention of the internal combustion engine and utilisation of mass production techniques. People increasingly had access to a fast-moving vehicle and were frustrated, particularly on long-distance journeys, by the barriers and congestion created by having to mix with slower moving forms of traffic such as pedestrians, cyclists, horse-drawn traffic, animal herding, etc., using the same routes. Traditionally, all traffic of whatever mode had equal access to the public road and invariably passed through the centres of major and minor conurbations.

The need for a separate motorway network was not confined to the UK and indeed other countries implemented such networks much earlier than the UK as will be established later. There are references to the need for motorways in the UK from 1902, but the construction of the first motorway there was not completed until December 1958, a little over 50 years ago, and a long time after Italy and the USA!

The first paper in this themed issue, David Orr's review of the Antrim Coast Road's civil engineering legacy (Orr, 2010), is not, perversely, about a motorway but sets out the improvement of a road which had limited access by nature of its topography. This degree of access meant that most goods out and provisions in had to be by boat from the small villages at the mouth of each of the seven Co. Antrim glens. The provision of the new Coast Road by the engineer William Bald using innovative techniques for the era truly transformed the whole area, opening it up to the rest of the 'world' and tourism. The economics of the area were greatly enhanced.

The next paper, by Colin McKay, sets the scene as to the equipment and techniques that were available in the larger road design offices in the UK in the 1950s and gives some idea of how great the challenge was that construction of the motorway network presented (McKay, 2010). I do have fond memories of working with similar equipment and processes in my early road engineering days. Computers were in their infancy and occupied large rooms rather than the desktops of more recent days.

J. Patrick Harshbarger explains the background to two pioneering American roadways that together were catalysts in the development of the American modern 'superhighways' (Harshbarger, 2010). The first of these is the proposal by Thomas Coleman du Pont to construct an innovative 100-mile-long motorway in the State of Delaware at his private expense. The highway was constructed between 1911 and 1923 and introduced the concept of the bypass – to facilitate 'the long-term interest of efficient through travel and eliminate congestion'. The second roadway is Route 1 extension, 'a motorway planned like a railroad', which was one of the earliest instances of economic theories of location and operation being applied to an unrestricted-use vehicular highway.

We are indebted to Mike Chrimes for providing his masterly description of the development of the Italian autostrade in the interwar achievement (Chrimes, 2010). This may well be the first time that such an extensive description has appeared in English. The first 21 km of the 50 km route from Milan to Varese and Lake Como was opened in 1924 and ranks, possibly, as the first true motorway internationally. The paper then goes on to describe the full extent of the autostrade network developed in this period and the methods tried to finance them.

In the UK there was a realisation around 1994 that whilst the development of the canal and railways communications systems had been well recorded, little was known about the major communications network, the motorway system, and Sir Peter Baldwin (former Permanent Secretary to the Minister of Transport) formed a group of people with knowledge of the motorway network and created the Motorway Archive Trust. This was a registered charity whose aim was to seek out all existing records, documents, photographs, etc., and have them archived in Public Record Offices for the education of future generations. The UK was split into ten regions and teams were established for each of them. Summaries of the archived documents, photos, etc., and contemporaneous accounts and

recollections from those involved were prepared. From these, three hard-backed books were published (Baldwin and Baldwin, 2004; Brindle and Porter, 2002; McCoubrey, 2008). A further book has been published dealing with the operation of the motorway network (Johnson, 2008), and seven more detailed descriptions of the individual regions have also been published. The national series of books have been published by Thomas Telford and all of the books can be ordered through the Motorway Archive website at [www.ukmotorwayarchive.org](http://www.ukmotorwayarchive.org). The website carries a synopsis of the content of the three national books and progressively provides an index of what and where the material is archived.

It is interesting, therefore, that the fifth paper, from Timothy Davis, is about the documenting of New York's Bronx River Parkway (Davis, 2010). This seminal development in the history of the modern motorway was opened in 1925 and is described through the use of interpretive drawings from the Historic American Engineering Record (HAER). The HAER extends to an increasing number of America's historic roadways.

The sixth paper, by Harry Yeadon, outlines the Preston By-pass, the first motorway in the UK (Yeadon, 2010). The author was one of the original Motorway Archive Trustees and is very well placed to describe the development of the Preston By-pass as he was one of a decreasing number of engineers who were actually involved with the work on the ground. He describes how the route was conceived, planned, standards derived, construction completed, and the lessons learned on the way. It should be borne in mind that this was among the first motorways to be constructed in the UK. It had not been attempted hitherto and hence the standards appropriate to the UK had to be drawn up from basics.

The final paper, by Robin Soper, describes the development of the M1, Britain's first inter-urban motorway (Soper, 2010). The author was directly involved with the firm of consultants who planned, designed and supervised the construction of some 83 km of the M1. Road projects of this size had not been attempted before and it is notable that a single contractor completed all four contracts comprising the 83 km section of the M1 by November 1959; that is, in only 19 months.

The works in the UK were largely influenced by those pioneering examples carried out in Italy and the USA in the 1920s and 1930s. The German Autobahnen system was markedly similar to

that of Italy's Autostrade. The seven papers in this special issue are an eclectic mix of the standards, methods and equipment in use at the times these pioneering limited-access highways were constructed. They are interesting and informative and merit careful consideration. I commend them to you.

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