Editorial

The history of electrical engineering, industrial archaeology, professionalism, and the IEE

1 The background of this special issue

This is the first time a whole issue of a *Record*, i.e. a supplement to the *Proceedings IEE*, has been devoted to papers on the history of electrical engineering. It seems desirable, at this point, to take stock of the development of this subject.

Interest in the history of electricity and electrical engineering is almost as old as these branches of science and art themselves. Early electrical journals, such as *The Electrician*, during the last decades of the nineteenth century, contained many detailed articles on the early history of such topics as telegraphy, electrochemistry, electrical machines etc. A number of historical books were published at surprisingly early dates, an outstanding example being Fahie's 'A history of electric telegraphy to the year 1837' published in London in 1884. Very fine collections of early books relating to electricity and magnetism were made in the nineteenth century, and two outstanding collections are housed with the IEE – the Sir Francis Ronalds and the Silvanus P. Thompson libraries.

As electrical engineering developed, eventually the centenaries of the births of some of its early leaders were reached, giving the stimulus to special historical-review publications, notably the Heaviside Centenary Volume published by the IEE in 1950. Then the centenaries of basic inventions and achievements were reached, for example, that of the first intelligible speech by telephone, celebrated by a special meeting of the IEE in 1976.

Although there was throughout a long period this recurrent interest in electrical history, it was never continuous, and never organised or formalised, until a Professional Group, 'History of technology', (coded S7 since 1970) was set up by the IEE in about 1964, although an informal committee with this name had been in existence for some years, and had done excellent work in arranging occasional lectures on historical subjects. A major step forward in the development of a real forum for the history of electrical engineering was the organisation of regular annual weekend residential conferences, starting with one at Birmingham in 1973, followed by London 1974, Manchester 1975, Durham 1976, Cardiff 1977 and Nottingham 1978. At these conferences, visits are made to local sites and places of electrical historical interest, and lectures and talks are presented and discussed. The proceedings are published, and about 70, mostly original, papers are thus already on record. The circulation is, however, comparatively small, and the S7 Professional Group Committee has for some time been seeking a way of reaching a wider readership. A special journal, at this stage of the development of the subject, would hardly be viable; thus the idea of an occasional special historical issue of the *Control and Science Record* was adopted. It was not desired to limit interest by concentrating the papers on one particular theme; indeed, it would not really have been practicable to fill the issue in this way. Nor was it desired to commission broad reviews of the historical development of the major branches of electrical engineering, thus making the issue a sort of introductory historical text book. Rather, it was decided to invite papers from people known to have been researching various special historical topics, and thus present a volume of current or recent research in the history of electrical engineering. If the response of the membership and of the engineering and historical community generally is favourable, further issues on these lines will follow in due course.

2 Archives in electrical engineering

The study of history is inextricably bound up with the search for and preservation of source materials, usually documents, drawings, pictures etc. This is as true for the history of electrical engineering as for any other branch of history. However, with the exception of the special library collections already mentioned, selected records of the British Post Office, the BBC and just one or two firms, and some special collections of documents, e.g. the Heaviside papers in the IEE library, electrical engineering has not been, in the past, well served in this respect. Important records, e.g. of early power stations, have been destroyed wholesale. It is gratifying to be able to record that matters are now greatly improved. The IEE has taken the initiative in this, in particular in setting up the National Archive for Electrical Science and Technology, formally started in 1974, after a year or two of preliminary work, and now suitably housed and staffed in the main IEE building. Apart from keeping many documents itself, the Archive actively surveys the records of firms and organisations, of county record offices, and other archives, so that a comprehensive index of available records relevant to electrical engineering can be built up.

It is also pleasing to report that many companies, and also the Electricity Council, are taking steps to preserve important records within their own organisations.

3 Industrial archaeology in electrical engineering

A movement originating entirely in Britain which has certainly contributed greatly to the growth of interest in the history of technology is that concerned with 'industrial archaeology'. The name is in many respects not a good one, but it is concise and convenient, and it has certainly come to stay. The movement is little more than a decade old, and it has been an essentially amateur activity. There are now few areas in Britain without their industrial archaeology society; numerous local i.a. journals are published, of varying quality, but mostly very good, with some which are quite outstanding by any reasonable academic standards. A national co-ordination is being attempted through the Association for Industrial Archaeology which publishes the journal *Industrial Archaeology Review*. The movement has spread to Europe and America. Its influence is great; much of the preservation of industrial monuments is due to it. It is still mainly amateur, but professionals and academics play some part in it.

The connection of this i.a. movement with the history of electrical engineering is still tenuous. To a large extent, this is inevitable. Industrial archaeology may be defined as the study of the surviving artefacts of industry *in situ*, and in relation to, or as a contribution to, the history of the industry; both machinery and buildings are involved. In the case of electrical engineering, we have a relatively modern industry and technology which is, in comparison with most earlier industries, quite well documented. The growth of the industry has largely coincided with the development and growth of museums of science and technology, so that many examples of the machinery and instruments are preserved in excellent conditions, and there are usually many contemporary text books explaining their principles and construction. Thus i.a., for this industry, is largely confined to the buildings used, and it can make only a marginal contribution to the history of electrical engineering. This is not to say that it is not interesting in its own right; a study of the buildings used to house the early electricity generating stations, for instance, shows a fascinating variety of forms. But it is significant that very few of the papers presented at the annual conferences on the history of electrical engineering, and none of those included in this special issue, involve industrial archaeology. Nevertheless, historians of electrical engineering would do well to keep in touch with the i.a. movement.

4 Professionalism in the history of electrical engineering

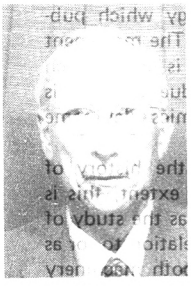
In Britain, practically all those concerned with, or interested in, the history of electrical engineering are electrical engineers by training and/or profession, and the vast majority are either still employed as professional engineers or have retired after a full working life as engineers. The same applies to the authors of the papers in this special issue of the *Control and Science Record*. In Britain, there are very few professional historians of electrical engineering, and probably none without basic engineering qualifications. Indeed, the position is not very different in the history of technology generally. In our most distinguished society concerned with the history of technology – the Newcomen Society – the majority of papers in its *Transactions* are contributed by practising or retired engineers.

This position is in marked contrast to that in the USA. There the leading society in the field – the Society for the History of Technology – is largely run by professional historians, and the majority of the papers published in its journal *Technology and Culture* are written by professional historians, who mostly have no engineering qualifications. The papers are not noticeably more, or less, interesting and intellectual than ours, but they are very different in nature. Concern with people, especially inventors and entrepreneurs, is a common factor, but our emphasis on technical and scientific aspects and the way things actually happened is largely replaced by consideration of commercial, political, social or philosophical aspects of the subject. That this change to professionalism is comparatively recent is well illustrated by a comparison of two special issues of American electrical institution journals: first, the 50th Anniversary issue of the *Proceedings of the Institute of Radio Engineers*, issued in May 1962, and secondly the special historical issue of the *Proceedings of the Institute of Electrical and Electronics Engineers*, issued in September 1976 under the title 'Two centuries in retrospect'. The first of these includes 113 papers under the general title 'Communications and electronics 1912–1962', and almost every one is written by a practising engineer, often one who had been intimately associated with his subject over many decades. The second is rather different; more than half of the authors of the 23 papers are professional historians. (It may be added that, nevertheless, the issue is extremely interesting and technically based, and very suitable for its readership of engineers.)

The trouble, however, with professionals in any field is that they tend to write for their own profession and develop a special vocabulary and a special philosophy, which are generally not very intelligible to those outside their field. Thus, professional historians of technology will, and already do to some extent, tend to write for other historians of technology. We may ask why not? Intellectual activity in almost any field is surely something to be encouraged. However, it seems to the present guest editor that what we want in the Institution of Electrical Engineers is a historical contribution written for electrical engineers, so that the general membership of the IEE will be able to read and enjoy the papers. That is what has been the aim in this special historical issue of the *Control and Science Record*. As we have hardly any professional historians of technology in Britain, the authors are necessarily engineers. It is hard to guess how long it will stay like this; perhaps in years to come we shall have to distinguish between those who write electrical history for electrical engineers and those who write it for historians of technology. A point of importance is that the standards of professional historians are generally very high, with thorough search for source materials and accurate and critical use of them. Engineer historians should aim at no lower standard.

At any rate, we are making more rapid progress and getting more interest in the history of our subject than was the case until recently. The extraordinarily rapid development of electrical engineering, and especially electronics, in the last decade or two has made the past seem rather further away than it used to, and it is as well to try to get it in perspective.

D.G. Tucker
Guest Editor



D. Gordon Tucker gained his B.Sc.(Eng.) in 1936, his Ph.D. in 1943, and his D.Sc. in 1948, all from the University of London. He was with the Post Office Engineering Department from 1932 until 1950, working mostly at the Research Station, Dollis Hill, London, engaged on line transmission and carrier telephone systems. He was with the Royal Naval Scientific Service from 1950 until 1955, engaged on new types of sonar systems. He was Professor of electrical engineering and Head of Department of Electronic and Electrical Engineering at the University of Birmingham from 1955 until 1973, his personal research was mainly in underwater acoustic systems. On retirement, he was appointed Senior Fellow in the History of Technology and Honorary Professor, University of Birmingham, from 1974 onwards.