



Centenary of the Institution of Royal Engineers

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ON 22 May 1975 our Institution will celebrate the hundredth anniversary of its establishment as a Society under the name of "The Royal Engineer Institute", having for its objects "the general advancement of Military Science and more particularly for promoting the acquisition of historical and scientific knowledge in relation to Engineering as applied to military purposes". Field-Marshal His Royal Highness Prince George William Frederick Charles, Duke of Cambridge, Commanding-in-Chief of Her Majesty's Army and Colonel of the Corps of Royal Engineers, became the Institute's first Patron, and Lieut-General Sir Frederick Chapman, the Inspector General of Fortifications, the senior Royal Engineer appointment in the Army at that time, the first Institute Committee's Chairman.

Before any living plant, being or indeed a society can see the light of day nature demands a process of generation, and this was so in the case of the Society under the name of The Royal Engineer Institute.

The years following the end of the Napoleonic wars witnessed a remarkable renaissance in the field of pure and applied sciences and in engineering throughout Europe whilst overseas there was a rapid opening up and expansion of colonial territories. Sapper officers serving at home were not slow to follow closely these scientific and technological advances and to study how they could be put to military use. At the same time those serving abroad in colonial territories often found themselves the only professional engineers and surveyors in the land and personally responsible for its development.

A vast bank of both knowledge and experience was thus built up in the Corps and it was decided in 1837 to publish "occasional papers on subjects connected with the duties of the Corps of Royal Engineers in order that scientific and professional knowledge could be made more generally known to Royal Engineer officers serving in different parts of the world". The subscription to cover the printing and postage costs of these papers was ten shillings a year. All Royal Engineer officers and officers of the Honorable East India Company Engineers subscribed and many contributed papers to the series. At first the circulation of these papers was limited to those officer subscribers. Soon however the papers' high standard attracted wide interest and copies were purchased by civilian professional bodies and military libraries throughout Europe and in the United States of America. The first Editor of these *Professional Papers* was Lieutenant (later Lieut-General Sir William) Denison who was destined to achieve fame in high government appointments in Australia and in India. He can rightly be considered as the Founding Father of our Institution and the editions of his *Professional Papers* the seeds from which it germinated.

During the period about which we have been talking three important British professional Engineering Societies were formed. The oldest of these was that of the Civil Engineers. John Smeaton (1724-1792) who built the Eddystone Lighthouse and other notable structures was, it is believed, the first to call himself a civil engineer and thereby sever his profession from that of the military engineer—the oldest of the engineering disciplines. An Institute of Civil Engineers was formed in 1813 and it was incorporated by Royal Charter in 1828 which made it the world's first engineering society. Thomas Telford (1754-1834), the builder of the Menai Straights Bridge, became the Institute's first President. Among its earliest Honorary Members were several famous Royal Engineers and the Institute's highest award—the Telford Medal—has been awarded to Sapper officers on many occasions. In 1860 Charles Mamby, the Secretary to the Institute, was instrumental in the formation of a Volunteer force called the Engineer and Railway Staff Corps, an historic Royal Engineer

unit that exists to this day in the T & A VR. The second branch of the modern engineering profession—mechanical engineering—was derived from the inventions of James Watt and the British textile mechanists and machine tool industry of the nineteenth century. The mechanical engineers formed their own Institute in 1847 and the Corps has since then provided two of its Presidents. In 1897, at the suggestion of the Council of the Institute of Electrical Engineers, a Corps of Electrical Engineer RE Volunteers was founded and Dr John Hopkinson, the then President of the Institute, was commissioned to raise and command this new Corps, designed to help the Submarine Miners work the defence electric lights then being developed. Somewhat later the Institute of Electrical Engineers was formed in 1871 from the Society of Telegraph Engineers. Three Royal Engineer officers were among its Foundation Members and the Corps has since provided six Presidents of the Institute. Both the Institutes of Mechanical and Electrical Engineers were in due course also incorporated by Royal Charter, and all three Institutes built for themselves spacious headquarters in London.

The aims of these Institutes were threefold. Firstly they kept their Members informed of major engineering projects and technical developments by holding Meetings at which papers were presented and discussed; information was disseminated through *Institute publications* and each Institute built up a *library of works of a professional nature* to which members could refer. Secondly they set professional standards for their particular discipline, and acted as examining bodies, and thirdly they laid down ethics of conduct to be observed by their members. The requirements for membership of these Institutes included being of good moral character, having particular educational qualifications and having practised in a responsible capacity for a stipulated period. Membership was graded from student to full membership and each Institute kept a Register of its members. Inclusion on this Register was often a pre-requisite for employment in certain professional appointments. A recognized status had thus been given to these branches of the engineering profession. Each Institute introduced *Medals and Prizes* as a reward for outstanding competence and maintained a *Benevolent Fund* to assist in cases of financial distress among its members.

When these Institutes were formed there was nothing derogatory about the word "institute". The name was however changed in 1922, it being considered that the term institute had become synonymous with the work-house and an inappropriate title for august professional societies. The word Institution took its place.

During all this time the Inspector General of Fortifications was closely watching the effects of the introduction of the breach-loading cannon and rifle firing high velocity, flat-trajectory projectiles. Their Lordships at the Admiralty were slowly replacing their famous wooden walls by ironclads, and sail was gradually giving place to steam in the Royal and other Navies, and on land a completely new design of low-silhouette seaward fortifications and field defences had to be evolved. The operations of a signal service, a responsibility first placed upon the Corps during the Crimean War (1854–56), had grown enormously. Submarine mining, which consisted of the electrical firing of mines placed to defend Naval bases and commercial ports was being developed and also the introduction of defence electric lights (searchlights) to illuminate enemy targets. The railways in the United Kingdom had sprung up at an unbelievable and rather disorganized rate. Some form of central control had become necessary and Major-General Sir Charles Pasley, of Chatham fame, had been appointed the first Inspector-General of Railways. Sapper and General Staff Officers were busy studying how railways could be used to hasten the mobilization of the Army, increase its mobility in war and help in its maintenance. Sapper officers, without any official backing, had become personally interested in ballooning and the possible introduction of an Air Arm into the Army. Sapper officers and soldiers had been actively employed on the 1-inch to the mile survey of the United Kingdom and had completed a 6-inch to the mile survey of Ireland. Captain Francis Fowke, under the sponsorship of the Prince Consort, had been given the task of designing several cultural public buildings. The Victoria and Albert Museum in London, the Edinburgh

Museum of Science and Art and the Dublin National Gallery had been built to his design. His final work, erected in honour of his patron, was the Royal Albert Hall which he designed but died before its completion, the building with its great dome being finished by another Sapper officer Colonel (later Major-General H Y D Scott). Overseas in Canada Colonel John By between the years 1826-32 had constructed the Rideau Canal, a waterway using two river systems and a series of lakes, locks and masonry canals stretching 130 miles from Ottawa to Kingston. Two of the dams in the waterway were in their day the highest man-made dams in North America. In 1858 Lieut-Colonel Moody had been sent with a company of Royal Sappers and Miners to British Columbia to develop the Colony, a task which they had carried out with considerable skill in face of great difficulties. Other Sapper officers had carried out remarkable works in the development of Australia and New Zealand. It was however in the Sub-continent of India that the military engineers carried out their major civil works: the Great Trigonometrical Survey of the country; the construction of Grand Trunk Roads; the building of the State Railway systems, which included bridges greater than Telford's Menai Straights railway bridge, and its attendant electric telegraph systems, and vast irrigation projects, the largest being the Godavary Delta, the Kistra and Orissa irrigation systems were the work of a Sapper officer, Colonel (later General) Sir Arthur T Cotton, a leading hydraulic engineer of his day.

It was about this time that the Corps of Royal Engineers set up an Institute of its own to become the custodian of the Corps' long and distinguished history and to disseminate among its members professional knowledge, gathered from such a wide and ubiquitous field. To this end a Royal Engineer Institute Committee was set up in 1870 to study how this could be brought about.

The Secretary of State for War had to be persuaded as to the need for such an Institute and a building had to be provided in which it could operate. Fortunately the Corps had the full backing of the C-in-CHRH The Duke of Cambridge for the project.

It was decided that membership of the proposed Institute should be limited to Royal Engineer officers on the Active and Retired List of both the Regular Army and of the Auxiliary Forces. The tasks of the Royal Engineer Institute would not embrace all of those which the Institutes of Civil, Mechanical and Electrical Engineering had taken upon themselves. The status of the professional military engineer in this country had been established in Norman times and had never been questioned since then. There was, therefore, nothing for the proposed Institute to do in that respect. Furthermore it could have no say in the standard of educational attainments required by those commissioned into the Corps, their further training, their promotion in their profession or their ethics of conduct. Such matters were already the province of well-established departments of the Army. The subject of Corps benevolence was being studied elsewhere. The main task of the Institute would as a result be limited to the dissemination of knowledge among its members, a task analogous to that of a "Learned Society". In such Societies membership is not graded as was the case in the professional engineering Institutes. It was agreed, therefore, that there would be no grading of membership in the Royal Engineer Institute. It was further agreed that stress should be laid upon the acquisition of historical as well as scientific/technical knowledge because so many lessons could be learned from the successes and also from the failures of by-gone military engineering activities. As a means of disseminating this information it was decided to publish regularly a quarterly *Royal Engineer Journal* in addition to the *Professional Papers*, published only occasionally. The first *Journal* was published in August 1870. It was a combination of what we now know as the *Journal*, *List* and *Supplement*, containing historical and professional matters of interest primarily to officers of the Corps, a Register or directory showing the appointments of serving officers and addresses of those on the retired list and domestic Corps news. The occasional papers however continued for some time as the main professional publication. The September 1970 issue of the *RE Journal*—the Centenary Number of the *Journal*—described in detail the somewhat intricate way in which the

present day *Journal*, *Supplement* and *List* evolved from the original *Journal* and the gradual assimilation of the professional papers into the *Journal*.

In 1871 a Royal Commission on Military Education approved the provision from public funds of a building in Brompton Barracks, Chatham to provide accommodation for the proposed Institute, a lecture theatre and classrooms for normal instructional purposes. Lieutenant (later Sir Montagu) Ommamney was selected as the building's architect. The foundation stone was laid by HRH The Duke of Cambridge on 28 May 1872. The construction of the building was entrusted to Colonel J W Lovell, Commanding Royal Engineers, Chatham. It was completed on 31 December 1873 the cost being within a few shillings of the estimated £21,000. Inflation was not a bugbear in those days! After the completion of the building the Committee submitted its final report on how the proposed Institute should function and be organized. It was approved in its entirety by the Commanding-in-Chief and the Secretary of State for War. A precis of the report was formally accepted at the 22 May 1875 Annual General Meeting of the Corps and the Royal Engineer Institute saw the light of day at that moment.

HRH The Duke of Cambridge graciously consented to be the Institute's first Patron and Lieut-General Sir Frederick Chapman, the Inspector General of Fortifications, became the first Chairman and Captain R H Veitch the first full time Secretary to the Institute and Editor of its publications. He was also responsible for the publication of the *Corps Funds Report* (the Yellow Book) for submission to the Annual General Meetings of the Corps and other Corps domestic duties.

And how has our Institution conducted itself during the hundred years since its formation?

It has changed its name and the title of some of its publications. In 1881 it was decided at an Annual General Meeting of the Corps that an "s" should be added to the name of Engineer for all Corps Associations. The Institute thus became the *Royal Engineers Institute* and its *Journal* the *Royal Engineers Journal*. In 1922 keeping in line with other professional bodies the word Institute, whose meaning had become debased, was replaced by the word Institution and the title Institution of Royal Engineers was adopted and the style Chairman of the Institution changed to President of the Institution of Royal Engineers.

On 27 February 1923 the Institution was incorporated by Royal Charter under the Sign Manual of George the Fifth, by the Grace of God of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India. On granting the Royal Charter HM King George V graciously consented to be Patron of the Institution and subsequent Monarchs have, in their turn, graced the Institution with their patronage.

During the hundred years of the life of the Institution the development of the art of military engineering has marched hand-in-hand with developments in the civilian engineering profession. Very close contact has therefore been kept with professional Institutions by the inter-change of publications and by the holding of Joint Professional Meetings at their London Headquarters when papers of mutual interest were presented and discussed. Recently Joint Branch Meetings have been held at various centres throughout the United Kingdom to further and widen this contact. Many erudite members of the civilian professional Institutions who have served as Sapper officers in the Reserve Army have become Members of Council of our Institution where their competent advice has been greatly valued.

In the field of the dissemination of historical knowledge the Institution has published, in nine volumes, a history of the Corps from Norman times to 1948, histories of the Royal Sappers and Miners and of Submarine Mining and early military flying, histories of the East India Company and Royal Engineers in India, a history of the Indian Sappers and Miners, a history of the Royal Engineers in Egypt and the Sudan and a wide range of works on particular Sapper wartime tasks and domestic and sporting activities. Whenever practicable articles of an historical nature of general interest have been included in the *Journal* and *Memoirs*, published in the *Journal*, of

deceased Sapper officers are often in themselves of great historic interest. The Secretary to the Institution is charged with keeping up to date the Roll of the Corps which contains the names and records of promotion of all officers commissioned into the Corps since 1759 when officers of the Corps were first given military rank in addition to their engineer grades.

Recently a RE Historical Society was formed to maintain unit histories and records of Sapper activities. This record of today's happenings becomes tomorrow's history. The Institution is now recognized universally as the best source of all information on British Military Engineering and on the past activities of the Corps and works carried out wherever Royal Engineers have served. Such information is in constant demand from all kinds of sources and it is only very seldom that a comprehensive answer cannot be given, and given quickly.

The Institution's publications, and in particular its *Journal*, have been the main medium for the dissemination of scientific knowledge in relation to Engineering as applied to military purposes.

The *Journal* today has a circulation of about 4,000. About 3,600 copies are distributed to Institution members. The rest are sent to the major professional institutions in this country, and to certain Universities, as well as to the various Staff Colleges, the Royal Military College of Science, most of the Arms Schools, the RMA Sandhurst and overseas to certain Staff Colleges, Arms Schools, Universities and Military Engineering Colleges of Commonwealth Countries, the United States and other NATO countries, the Republic of Ireland, Spain, Portugal and some South American countries—a circulation greatly exceeding Denison's *Occasional Papers*. With such a ubiquitous reading public we must do all in our power to retain the high standards set in the past and this will depend entirely upon the excellence of contributions for publication submitted by Institution members.

The present day *RE List* is a combined Institution/AG7 publication. AG7 is responsible for the Sections dealing with officers on the Active List and the Institution is responsible for the other Sections. The *List* used to be published quarterly and gave a complete world wide RE Orbat showing all engineer staffs and units and the names of officers posted to them. For reasons of security this detailed information is no longer given and, for reasons of economy, publication was first cut to two *Lists* a year and has now been reduced to one.

The *Monthly Supplement* has since 1905 been the official organ of the Corps in which is published extracts from *Army Orders* and *London Gazettes* affecting RE officers, Corps notices, Births, Deaths and Marriages and reports on social and sporting activities. For reasons of economy alas the reporting of sporting activities has had recently to be curtailed which is a great pity since many of the reports sent in had a particular historic value in their own right and were often most entertaining and witty.

The first *Royal Engineer Journal* of 1870 was printed by T Woolley of 26 High Street, Old Brompton. When this firm folded up the printing of Institution publications was carried out in London. The separation of the Editor from printers so far away however produced many difficulties and, after a short and unhappy time, printing was entrusted to W & J Mackay Ltd of Chatham in 1888. This firm has remained the printers of all Institution publications, including Corps Histories, ever since—a most remarkable record covering three generations of the Mackay family. Their new printing works were opened a few years ago at Lordswood in a large clearing in the wood in which the RE Drag had hunted for many years. The new works are the most modern of their kind and the close, happy personal liaison at all levels, so essential to efficient and “on the dot” publication, is still as it always was, which is a felicitous augur for the future.

The First World War did not in any way interfere with the printing of Institution publications. Indeed the copy for the *Journals* during those war years was greater than ever before. The heavy air attacks on the Chatham Dockyard of the Second World War caused the departure of the School of Military Engineering from Brompton Barracks to Ripon. The staff of the Institution however remained put and, despite the

air-raids and the destruction they caused, the publication and distribution of the *Journal*, *List* and *Supplement* weathered the storm. More recently problems have arisen due to industrial disputes in the printing industry. During one of these disputes no National or other newspapers were printed for a time. The publication of a *Monthly Supplement* would have suffered a similar fate had not Mr Mackay Miller and the apprentices of his firm personally set up the type for it and run it off. To help him the *Supplement* was kept down to bare essentials and it was the slimmest one ever printed. However the tradition of never failing to publish was preserved.

On the formation of the Royal Engineer Institute a Library was established in London and Branch Libraries set up in other military centres at home and overseas to make available to Institute Members "information of a scientific and technological character bearing upon problems of national defence". Over the years these libraries grew in size and added to their holdings biographies of famous statesmen and soldiers, historical works and books on travel. The Second World War saw the closing down of all these Libraries. Many of the volumes from them were created and stored in the cellars below the Headquarters Mess at Chatham. After the war the laborious task of unpacking and sorting them was undertaken. The lecture theatre in the Institution Building was converted into a Corps Library which now contains the Roll of the Corps, a complete set of all Institution publications, many historic documents and over 30,000 books. It also contains several albums of photographs of great Corps history interest. Branch Libraries were not re-established.

The Royal Engineers Museum was set up in its present location in Brompton Barracks by the Institution in 1912, taking the place of a model room and small Museum previously run by the School of Military Engineering. Its aim is to display in a visual form the development of military engineering and the development of the Corps of Royal Engineers and its outstanding achievements in peace and war. Today it is among the foremost Military Museums in the land. One of the most interesting collections displayed is that of the obverse and reverse of every campaign medal awarded since such medals were first awarded, each medal having been won by members of the Corps from the rank of Sapper to General Officer. Only a Corps with "Ubique" as its motto could produce such a unique collection of battle honours.

The Institution is now also responsible for the maintenance of certain Corps Memorials and the administration of funds set up to provide Medals and Prizes for professional competence and for outstanding contributions to the *Journal*. In 1921 the Institution took over responsibility for the administration of the RE Kitchener Scholarships Fund which exists to help in the cost of the education of the children of deceased Royal Engineer Officers and Other Ranks. Many such children have been helped by this Fund and been sent to schools that their fathers would have wished, thanks to this help and the courageous self-denial of their mothers. With the recent reorganization of Corps Benevolence the Royal Engineers Association has been able to assist financially in many of these cases.

The provision of sufficient funds to pay for the many Institution spheres of action has always been a problem. In the early 1950s it became possible for members to covenant their subscriptions to the Institution which, because of its educational role, had become a Registered Charity. The Institution was thus entitled to recover the income tax paid by members on the amount of their subscription. This greatly increased the actual value to the Institution of such subscriptions. Shortly afterwards however the Inland Revenue disallowed this scheme in our and other cases and it was decided to appeal against their ruling. Thanks to the good offices of Lord Nathan, who took up our case, and the skill of an eminent QC briefed by him on our behalf, the appeal was sustained in February 1959. The scheme was allowed to continue and claims for back payments were met. It is essential to the financial stability of the Institution that all members should covenant their subscriptions so that full advantage of this heaven (government) sent opportunity to increase subscription income can be taken. It is a heartening thought that the great majority do so. Thanks to the Council's careful and enlightened management of Institution investments their capital

value and the income derived from them have over the years steadily increased. It has, however, been difficult to keep pace with the present inflation. To achieve economies the scope of the Institution's publications, on which a large percentage of its income is spent, have had to be curtailed.

Ever since the Institution saw the light of day in 1875 at Chatham it has received the full support in every way from successive Commandants and their staffs. The Institution offices, the Corps Library and the RE Museum are located in the Commandant's "hunting country" as are many of the major Corps Memorials. It would be highly improper at this time not to acknowledge the debt of gratitude the Institution owes for this century of never-failing help in large things and in small.

Finally it would be inappropriate not to mention the devoted and dedicated service rendered by the Institution staff. Comparisons can be odious but in this respect the names of the following long serving Chief Clerks should be mentioned. Mr Sampson (1885 to 1921), Captain Hurwitz (1921 to 1945) and Mr Mills (1947 to 1965), as should that of Mr Jennings who was the Publications' Clerk from 1951 to 1968.

What about the next hundred years? With the rate of growth of scientific knowledge in relation to engineering and the changing role of our Armed Services it is difficult to foresee the future. However so long as the Corps of Royal Engineers exists surely its professional competence and mystic will be maintained and its Institution will, in the words of its Royal Charter: "diligently continue to disseminate knowledge connected with the Science and Art of Engineering in its application to military purposes and thus provide a most valuable source of information of a professional kind to all who are engaged on the defence of the Realm".