CHAPTER ONE

ORIGINS

The British educational system of the last quarter of the nineteenth century was in a state of innovation and development that was not to be equalled until the second half of the twentieth century. Our particular concern in setting forth the history of The City University is with events following approval in Council by Her Majesty Queen Victoria, in the year 1891, of certain “schemes” enacted under the City of London Parochial Charities Act, 1883 (46 and 47 Vict. ch. 36, section 7). These schemes provided, in considerable detail, for the setting up and maintenance of the major London Polytechnics and the Royal Victoria Hall Foundation (The Old Vic). The two schemes of direct interest to us were those relating to The City Polytechnic and Robert Kitchin’s Charity.

In order to set these schemes in their context, it is necessary briefly to examine, in the perspective of history, some at least of the influences and events that brought them into being. These influences and events range from George Birkbeck and the founding of the Mechanics’ Institutes to the City and Guilds of London Institute, from the denominational schools via the Board Schools to the opening of Finsbury Technical College, from the Societies concerned with the promotion of education via the international exhibitions to the state’s involvement in technical education on a large scale.

George Birkbeck

The year 1801 is perhaps as far back in time as can usefully be considered here. In that year George Birkbeck, then teaching science in the Andersonian Institution in Glasgow, found that the workers producing the scientific instruments that he required were eager to receive technical education in connection with the work they were doing. This led him to set up a mechanics’ class. The term “mechanic” had, in those days, a connotation of skilled “tradesman” and so the interest of these workers in the science that lay behind the technical skills acquired by apprenticeship was not surprising. Of the second year’s course it was reported, “The course of lectures undertaken this winter for the instruction of the operatives has been attended by more than five hundred, from nearly all of whom, by the direction of the managers one shilling was received in granting the ticket of admission”. ¹
The classes founded by Birkbeck were the inspiration for the London Mechanics’ Institution and indeed for other similar institutions elsewhere in Britain. The London Mechanics’ Institution was founded at a meeting at the Crown and Anchor Tavern in the Strand in 1823. It was, and its successor remained, an institution devoted to part-time, evening, adult education. Dr. Birkbeck was its first President. In 1866 the name was changed to Birkbeck Literary and Scientific Institution, about which we will have more to say later.

Birkbeck was not alone in his concern for the education of his work people. In 1816 Robert Owen opened a school at his model factory and settlement at New Lanark. This provided education for children under twelve years of age and evening classes for adults.

**Schools**

It is probable that all the towns and larger villages of early nineteenth century England had schools of some kind or other. These schools were not free, both enrolment and attendance being voluntary and depending on parental awareness and ability to pay. One penny per week was a common charge even in the schools that were set up as charity schools. In a specimen budget for a labourer of the 1870’s earning twelve shillings a week plus four shillings gained by his wife by needlework and the occasional petty earnings of his children, giving an average total family income of seventeen shillings per week, rent is shown as two shillings per week and schooling for the four children, four pence per week. Thus school attendance will have had the effect on the family income both of the loss of the amount paid and of the wage foregone by the pupil not working, for child labour was then the norm. One can assert, therefore, that very few pupils came from any section of the population beneath the lower middle or skilled artisan class and that a very small percentage of eligible children actually attended school.

Although there existed various types of school, ancient grammar schools, “public” schools, religious denominational schools, “dame” schools, and charitable trust schools in various degrees of effective operation, there was no nationally organized system of education in England until the third decade of the nineteenth century. Then, in 1833, the first state grants in aid of education were made. It is true that the Health & Morals of Apprentices Act of 1802 had a requirement in it for instruction in the three R’s, but this applied only to pauper apprentices in textile factories, and, in any case, was not enforced. Change became possible after the First
Reform Act of 1832 and there followed the two Acts of 1833 that together really started state control of education. These were the "Althorp" Factory Act which prescribed two hours schooling a day for children working in textile factories, coupled with the small beginnings of a full-time enforcement inspectorate, and the Appropriation Act, which provided £20,000 for school buildings. This, the first state grant in aid of education, was made to the National Schools Society (Church of England) and the British and Foreign Schools Society (Nonconformist churches).

Another potent factor in the extension of education was the Sunday school. Sunday schools attracted much higher attendance than did day schools for the obvious reason that they involved no loss of wages. The pupil spent all day Sunday learning to read and write and to carry out simple arithmetical calculations. The other six days of the week were spent working in industrial workshops. Such schools had grown from the work of Robert Raikes and others in the preceding fifty years.

The upper classes were catered for by the Public Schools which reformed themselves following the work of Thomas Arnold at Rugby. Their growing function came to be to train the sons of the newly wealthy middle class to play their part in administration and government at home and throughout the Empire. In several cases the foundations arranged amoeba-like growth, with new schools for local children devoted to an utilitarian curriculum, split off, as in the case of Alleyn's School stemming from Dulwich College. Other "middle-class" schools grew up to provide education more in keeping with the times than did the older foundations. The Central School at Finsbury was one such to which we will refer again. It was set up by the Middle Schools Corporation of Rev. William Rogers in the 1840's and was financed on the joint-stock company principle.

Whilst females could acquire elementary education, the (Taunton) Schools Inquiry Commission of 1864-68 found only thirteen endowed secondary schools for girls in the whole country. The North London Collegiate School for Ladies was founded in 1850 and the Cheltenham Ladies College in 1853, where, five years later, Miss Beale was appointed and began to emulate Miss Buss in North London in making a lasting development in secondary education for girls.

**The Influence of the press and libraries**

Two other influences on the dissemination of education that must be mentioned are the advent of cheap printing for a mass market and the evolution of the public library system. Enormous growth in the output of
cheap printed publications followed the application of the steam engine to the printing press in 1814, when “The Times” was first produced in this way. The works of Charles Dickens, which appeared in monthly parts from 1836 onwards, “The Penny Magazine”, “The Penny Cyclopaedia”, “The Library of Entertaining Knowledge” and “The Library of Useful Knowledge” were all part of the educational movement that characterised G.M. Trevelyan’s “age of transition from aristocracy to democracy, from authority to mass judgement”; and, he went on to add, “for literature and thought such conditions were propitious”. In 1855 the “stamp tax” was removed and by 1861 “The Daily Telegraph” was selling 141,000 copies a day.  

The Public Libraries Act of 1850 permitted boroughs to spend the product of a halfpenny rate on the building of public libraries. The peculiar and traditional local governmental organisation of London meant that whereas Manchester, Birmingham and other large towns, that had become municipal corporations under the Municipal Reform Act of 1835, now got on with the provision of public library services that grew in excellence, London having no centralised administration, lagged behind. Much of London, indeed, had to wait until the early 1900’s before the Library Acts were adopted. The vested interests of The City of London Corporation had delayed the unity of administration that had come about in other towns after 1835. The London County Council was not formed until 1888 and the 28 London Metropolitan Boroughs were set up in 1899. Thus, in London, it was the Mechanics’ Institute Libraries and Subscription Libraries that contributed to adult education in the nineteenth century rather than the public libraries. The foundation stone of the Finsbury Public Library was laid in 1890.

The 1870 “Forster” Education Act

It is certain that what was known as the “religious question” bedevilled the development of education in England up to 1870. Control of education by the established church with denial of educational opportunity to non-conformists, Catholics, Jews and agnostics, who could not subscribe to the thirty nine “articles” of the Church of England had led to the other religious groups setting up their own schools and colleges. Whilst many of these seats of learning were more enlightened than those of the establishment, opening up additional areas of thought, as study of the history of science and industry in Britain amply illustrates, nevertheless the consequences of the strength of feeling engendered by doctrinal differences at this time should not be underestimated. Germany and France
had removed education from ecclesiastical control long since, but in England the problem remained with us until the 1870 “Forster” Education Act. This Act was made possible and necessary by the extension of the franchise by the 1867 Parliamentary Reform Act. “Now we shall have to educate our future leaders” remarked Robert Lowe, the first Member of Parliament for London University.

The 1870 Act set up Board Schools. The name derives from the popularly elected School Boards that were the instruments of management. Local rates were levied to meet the cost. It was enacted that religious teaching must not include the catechism of any denomination. In continuing and increasing the grants to denominational schools, the state perpetuated a situation where usually there was no choice in a village, there was just one school, of course, that of the Church of England. In the town there was normally a Board School to which to send the children, if so preferred. The School Boards after a successful period of great progress were abolished in 1902 by the “Balfour” Education Act that transferred control of education to County Councils and County Boroughs and with wider educational areas the area of parental choice extended.

The Board Schools early on began to play their part in the provision of elementary scientific education by means of evening classes. They became “organized science schools” of the Department of Science and Art and received payment by results direct from the government. As to the schools themselves, they were so well built by the School Board for London, for example, that they still stand and are in daily use over a hundred years later.

The 1870 Education Act did not prescribe free universal compulsory elementary education. Fees of up to ninepence a week could be charged, parents were encouraged, not compelled, to send their children to school. It was the 1876 (Sandon) Act that enacted parental responsibility for sending children to school, under a maximum penalty of five shillings and employers were forbidden to employ children under ten at all and those between ten and fourteen years for more than half time under a penalty of forty shillings. It was not until the 1880 (Mundella) Act that School Boards became liable to frame bye laws governing attendance and it was not until 1899 that a minimum school leaving age of twelve years was enacted.

The Universities

At the opening of the nineteenth century there were two English universities, Oxford and Cambridge, entry to which was nominally restricted to members of the Church of England. Scientific and technical
studies suited to the needs of the growing middle class engaged in commerce and industry were excluded, the curriculum being classical and mathematical. Thus this influential group of the population, together with the Nonconformists, Catholics and Jews, and the “education” lobby, campaigned for a new university that would be undenominational and “modern” in its curriculum. This campaign focussed its attention on the “great London University” idea put forward by Thomas Campbell in a letter to The Times early in 1825. Subscriptions were invited and the support was such that the building of London University in Gower Street was commenced in 1827.

Entirely secular, “that godless institution in Gower Street”, to use Thomas Arnold of Rugby’s phrase, was under attack from the outset. In 1828, the Duke of Wellington, then Prime Minister, chaired a public meeting at which the foundation of a rival college for London, soundly based on the doctrines of the Church of England, was agreed. Thus King’s College, in the Strand, had its Charter by 1829 and was opened by 1831, supported by the Tories. The Nonconformist London University was supported by the Whigs and unchartered until 1836 when it received a charter as University College, London, and in the same year the University of London, solely an examining and degree granting body with power to affiliate other colleges, was chartered. By the 1870’s Convocation was seeking closer links between affiliated Colleges and the University, development of research, admission of women and the foundation of University Chairs. The subsequent history of the University of London, in so far as it impinges upon that of The City University, will be touched on later.

Not only the Public and Endowed Schools, but also the ancien universities, were subjected to investigation by Royal Commissions in the middle years of the nineteenth century. Thereafter, with due caution, reforms were put in train. Life at an unreformed university in 1855 is graphically pictured in Sir Walter Besant’s autobiography. “When I went up”, he wrote, “the fellowships and the scholarships had been thrown open but only recently, so that the society was mainly composed of those who held close fellowships . . .”, “they had a very faint tincture of culture; they were quite ignorant of modern literature; they knew absolutely nothing of art”. “As regards science, their contempt was as colossal as their ignorance. They vegetated at Cambridge; their lectures were elementary and contemptible”. “. . . they divided the posts and offices of the College among themselves; they solemnly sat in the Combination Room for two hours every day over their port . . . and they waited patiently for a fat college living to fall in”.7
Higher education of women was but slowly facilitated. Queen's College, London, being set up in 1848 and Bedford College in the next year. The syllabuses evolved gradually to full university standard and University College, London, did not admit women until 1870. The early Oxford and Cambridge ladies' colleges date from 1869, Girton, 1871, Newnham, 1879 Somerville and Lady Margaret Hall. Mention has to be made, too, of Maria Grey and the National Association for Promoting the Higher Education of Women and the foundation, in 1877 of the Maria Grey Training College. Degrees of the University of London were not awarded to women until 1880, as compared with 1920 for Oxford.

The first Chair in Engineering in an English University was that instituted at University College, London, in 1841, but Glasgow University had set one up somewhat earlier. The Cavendish Laboratories at Cambridge were opened in 1871 and the Oxford Clarendon Laboratories were completed in 1872. Thus the older universities were slow to reform and even slower to develop engineering faculties.

The Royal Society of Arts, The International Exhibitions and The Department of Science and Art

In 1754, there was founded the Society for the Encouragement of Arts, Manufacturing and Commerce. The title is self-explanatory but the great success the Society of Arts achieved stressed the need for encouragement and certification as a means of improving standards of training, encouraging effort and combatting nepotism. In this, the Society was part of a great wave of interest in certification that would enable new classes of the population, newly enfranchised, to play their proper part in commerce, industry and government. The Trevelyan-Northcote Report of 1854 which led to the introduction of competitive examinations for Civil Service posts was part of this same pressure for social change.

Subjects examined in the wide range of education encouraged by the Society of Arts, included mathematics, mechanics, botany, physiology, chemistry and commercial subjects. In 1872 technical subjects were added. Later the City and Guilds of London Institute took over much of the examining. The Royal Society of Arts was largely responsible for the concept of the Great Exhibition of 1851, at which time it was fortunate in having Albert, the Prince Consort as President, for he took up the idea and promoted it with vigour.
The Royal Institution and The British Association for the Advancement of Science must be mentioned, in passing, for their work in the promotion of scientific and technical education. The Royal Institution was incorporated in 1800 as a body "for the promotion of science and the diffusion and extension of useful knowledge". It was, of course, where Humphry Davy and Michael Faraday conducted their experiments and, in addition to laboratories it had and still has a lecture theatre and a library. The British Association for the Advancement of Science was founded in 1831.

But to return to 1851; when the Great Exhibition was opened in Paxton's superb Crystal Palace in Hyde Park by Queen Victoria and Prince Albert, the uninformed were too delighted by the wonder of the setting and the exhibits to notice that Britain no longer had the absolute lead in technology. It was the first international exhibition of its kind, of course, and the quality of engineering skill and production of our foreign competitors was apparent to the experts. Soon Lyon Playfair and others were drawing attention to the problem which was clearly seen to be one of technical education. Playfair was one of the Commissioners of the 1851 Exhibition and a joint Secretary of the Department of Art and Science from 1853 to 1858. In "Industrial education on the Continent" he wrote that European industry was bound to overtake Britain if she failed to change her outlook and methods. The 1867 Paris Exhibition confirmed the fears of 1851; the quality of British craftsmanship in many cases proved to be substantially below that of continental workmen. The 1851 Exhibition had, however, proved to be not only a boost to nationalism but also a great economic success with £186,000 profit, (equivalent to £3.7 million in May, 1979). This sum, together with a further £150,000 voted by Parliament was used to purchase the South Kensington estates that subsequently provided the site for the museums as well as Imperial College and the Royal Albert Hall.

The Department of Practical Art had been set up in 1853, as part of the Board of Trade, from an existing body. The Department of Science was first set up in 1854 and the two were amalgamated in 1857 as the Science and Art Department and placed under the Education Department of the Committee of Council. There were Joint Secretaries; Sir Henry Cole (Art) and Lyon Playfair (Science). There were difficulties between the two and Cole became the sole Secretary in 1858. In his "South Kensington to Robbins", Michael Argles quotes from Wemyss Reid: "If to Sir Henry Cole belongs the credit of having placed the Art Department upon the lines on which it was subsequently developed, to Playfair no less belongs the honour of having given form and substance to that part of the scheme"
which was specially related to the establishment of a national system of scientific education. Under the Prince Consort, he may be said to have been the father of the Science Department”. 8

State educational provision in both science and art had its origins in William Ewart’s 1835 proposal for a Parliamentary select committee “to inquire into the best means of extending a knowledge of the Arts and of the principles of design among the people (especially the manufacturing population) of the country”. “This Committee recommended the setting up of a school of design, the Government provided £15,000 for this purpose, and the first school was opened in rooms in Somerset House in 1837. By 1851-52 the grant had increased to £15,000 every year and the various schools of design were being administered by the Board of Trade. They were taken over by the new Department of Science and Art in 1852-53.9

Examinations were instituted and payments by results were made to schools. Teachers qualified in science were obviously in very short supply at this time and so, in 1859, the Science and Art Department set up examinations for science teachers the amount of whose pay then depended on the number of their pupils passing the Department’s examinations. In 1862 a “Revised Code” was issued which was a sort of rule book of the Department. It differed from an earlier codification of rules drawn up from the Minutes of the Committee of Council by enshrining the payment by results principle.10 This system of payment lasted until 1897.

The Foundation of The City & Guilds of London Institute and The Finsbury Technical College

Founded in 1878 and incorporated in 1880, the City and Guilds of London Institute for the Advancement of Technical Education was set up jointly by the Corporation of the City of London and the Livery Companies in order to try to plug a gap in the educational system, for there was only the Royal College of Chemistry, set up in 1845, and the School of Mines (1851). There had been mounting criticism about the way in which the Livery Companies spent the interest on their inherited invested wealth on very grand banquets for themselves. After all, each livery guild was set up to protect a particular craft and trade and its practitioners; but, by controlling membership by the device of “patrimony” and by “buying-in”, the Livery Companies had become exclusive clubs. By the 1870’s, therefore, they were under attack in a social climate that was against nepotism and undemocratic procedures.

The original purpose of the livery guilds had been very different. The masters, or liverymen, got together for self-protection, for social security
(including alms in bad times), for controlling the market and for maintaining craft standards. The freemen were the qualified craftsmen who had completed their "masterpieces" and had thus progressed from apprentice, the lowest of the three groups in a guild. To be fair to the Livery Companies, times had changed, apprenticeship in times of great mobility of workers was not what it was. Factory production, even of the same commodity, needed different skills to production by craftsmen in a small workshop. The real purpose for the existence of the Livery Companies had disappeared. In 1872 the Lord Mayor and the Companies were discussing the problem.

Gladstone, in 1875, added his powerful voice to those urging action. He said: "What was the object for which those Companies are founded? Do you suppose they are founded for the purpose of having dinners once a year, once a quarter, or once a month? Do you suppose they were founded for the purpose of dealing out little sums of money to certain applicants and then having it recorded of them how much good they had done? Nothing of the kind. Eleemosynary works are noble works — amongst the noblest, indeed, given to men. But to be eleemosynary work it must be the work of an individual, not of a company".[11] He went on to say that the Companies were founded to develop crafts and trades, the very thing the Government was then being called on to provide out of taxes — technical education — and he challenged them to play their part.

Therefore, in looking round for socially acceptable ways of spending some of their income, the obvious choice for the Livery Companies was technical education. Thus in 1877 they formed a joint Committee with the City Corporation for this purpose and experts were consulted and reports prepared. The first grant of money from the resultant City & Guilds of London Institute, came in 1879, and was made to the Cowper Street School that we have mentioned above. This money was for the appointment of "two comparatively young men to organize classes in chemistry and physics ... viz H.E. Armstrong and W.E. Ayrton."[12] Earlier there had been an effort made at the Finsbury School to form an evening trade college which had failed through lack of funds. The same basement classrooms were to be used and additional money found to build laboratories and workshops on an available plot nearby. Classes began in November of the same year. "After a long struggle he (Armstrong) persuaded Ayrton and the Council of the Institute to agree to have a composite building in which all the first-year subjects (mathematics, engineering drawing and elementary workshop practice, chemistry and physics) were common to all students; specialisation was deferred until the
second year. There was an entrance examination, but no externally controlled examinations." 13

Thus, at Finsbury Technical College, Armstrong and Ayrton attempted bridging the divide between pure science and the practical applications of it. Philip Magnus was their gifted Director and in 1880 there were 422 students studying physics and chemistry in very cramped conditions. In May 1881 the foundation stone of the purpose built building of Finsbury Technical College was laid and the opening was in February 1883. By then not only physics and chemistry but also mechanics and applied art were taught. The City and Guilds Institute, however, had additional aims to achieve. In 1879 it took over the administration of the technical examinations of the Society of Arts and "in 1882, 1961 candidates were examined in 38 subjects." 14 The other major aim of the Institute that reduced its support for the Finsbury project was the setting up of a Central Technical College.

A peppercorn rent secured a three acre site for such a college on the South Kensington estate that had been acquired by the Commissioners of the 1851 Exhibition with the profit from the exhibition together with additional government funding. Meanwhile the Royal College of Chemistry and the Royal School of Mines set about moving to South Kensington. Finsbury Technical College was seen by some as serving only a local need. Its working class students came from the surrounding factories and workshops. Yet its very position meant that the Livery Companies were happier in spending money there, rather than well outside the City of London, at South Kensington. The Drapers' Company, for example, certainly wanted the City and Guilds Institute to develop the Croydon Street College in preference to a Central Technical College at South Kensington and they offered their own money accordingly.

In the event, both Finsbury Technical College and the Central Technical College were built. The former was essential to accommodate the enormously successful existing temporarily housed college. The latter was essential as the national high level technical college that would constitute the prestigious summit to the work of the Institute in technical education; that is to say its examining work and its support of provincial colleges. But whereas the Finsbury building cost £35,000 to build and equip, the Central Institution cost £120,000.

Conclusion

The growing population of Britain in the third quarter of the nineteenth century was coping with a quite unprecedented flood of technical
innovation and its application to industry and transport. British society was one that knew poverty and the poor social conditions born of rapid unplanned growth, but it was a society that believed in itself. It believed that things could only get better in the best of all possible worlds. The social mores of the population, too, was inbued with the concepts promoted by Samuel Smiles in his “Self-Help” (1859). Some people, at least, as we have shown, believed that educational provision must be developed to provide for all the needs of industry and the administration of the world-wide empire. Women, too, must be given educational opportunities. This growing educational provision, as we have seen, was a mixture of private enterprise and public services with growing state interest in standards. It was not provided free.

As to the reasons for the self-confidence to which we have referred there was British command of the seas and British controlled ports as the outlets for trade all over the world. Between 1850 and 1864 “real wages” in Britain had grown by one third, there was growth in overseas trade, growth in production, and English agriculture was booming. The mid-Victorian prosperity of Britain, particularly in the period from 1848 to 1873, was the time when the phrase “workshop of the world” most truly applied.

The Depression of 1873-1914 was the period of the great development in provision for education. Successful industrial competition from European countries that had better organized and more thorough technical education systems than had Britain was the spur to action. Perhaps we should once again take this lesson to heart! Royal Commissions sat and reported, pressure groups publicised the need, and one of the resultant foundations was the Northampton Polytechnic Institute.
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