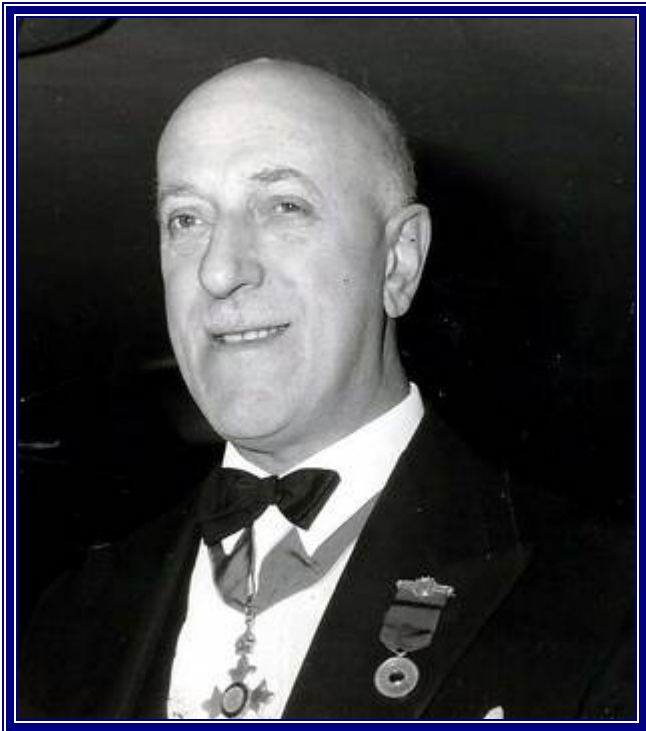


JOHN ROBERT KELL & OSCAR FABER & PARTNERS

By EurIng Brian Roberts, CIBSE Heritage Group



John Robert (Rob) Kell 1902-1983
President IHVE 1952



Dr Oscar Faber CBE 1886-1956
President IHVE 1944-45

Rob Kell was born in Hertfordshire in 1902, educated at St Albans school, became an engineering apprentice in 1921 and later worked for the heating and ventilating contractor F Broadhurst Craig.

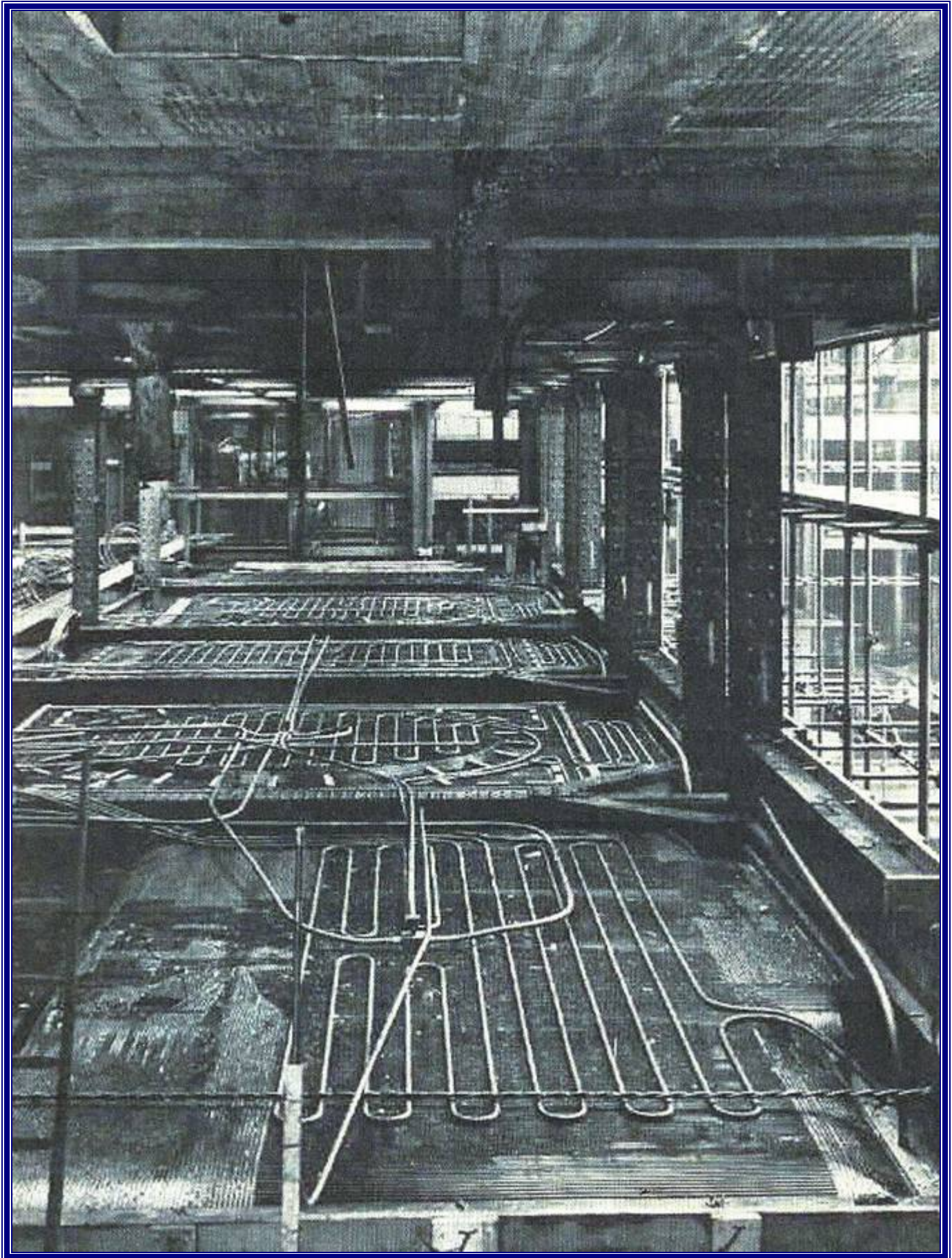
In 1926 he joined the office of the consulting engineer Dr Oscar Faber and shortly after was made responsible for the design and supervision of the mechanical and electrical services during the rebuilding of the Bank of England, the appointed architect being Sir Herbert Baker. The existing Bank was considered to be the most important work of the architect Sir John Soane. Kell's work on the Bank was to prove very different from anything he had done before. Fortunately, Rosser & Russell were appointed as heating contractors and Drake & Gorham as electrical contractors and they translated the design concept into detailed M & E drawings. Kell's responsibility included co-ordinating these engineering services with the architect. Though lacking experience, he successfully used common sense to solve many a complicated problem.



The Bank of England (left) in 1890

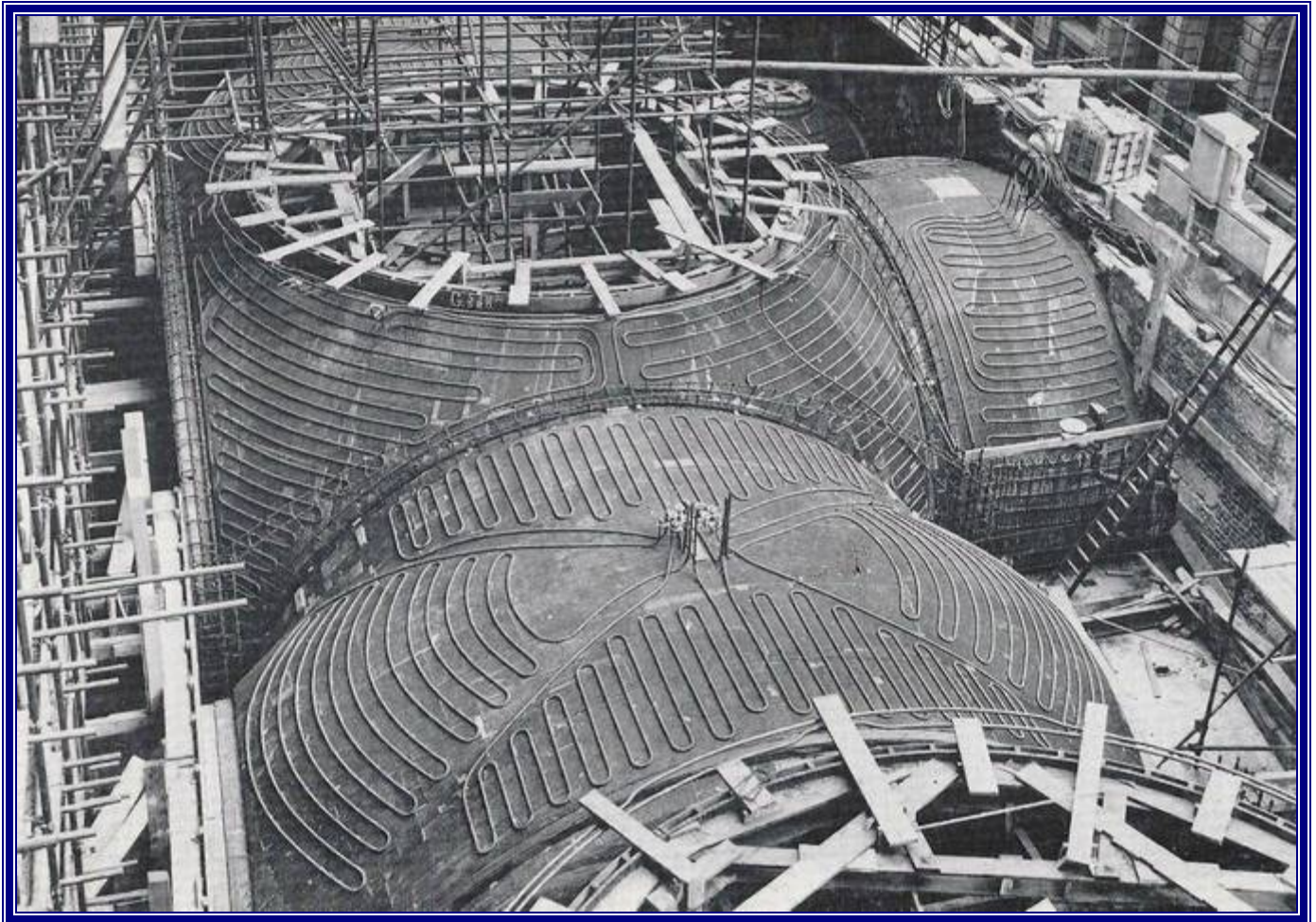


The Bank of England in the 1930's



Installing panel heating at the Bank of England: "The pipes are laid on the shuttering before the concrete is placed. Note the ribbed rubber sheeting to give a key for the plaster, and also the fixing of reinforcement over the pipes....
...the pipes in this instance are copper."

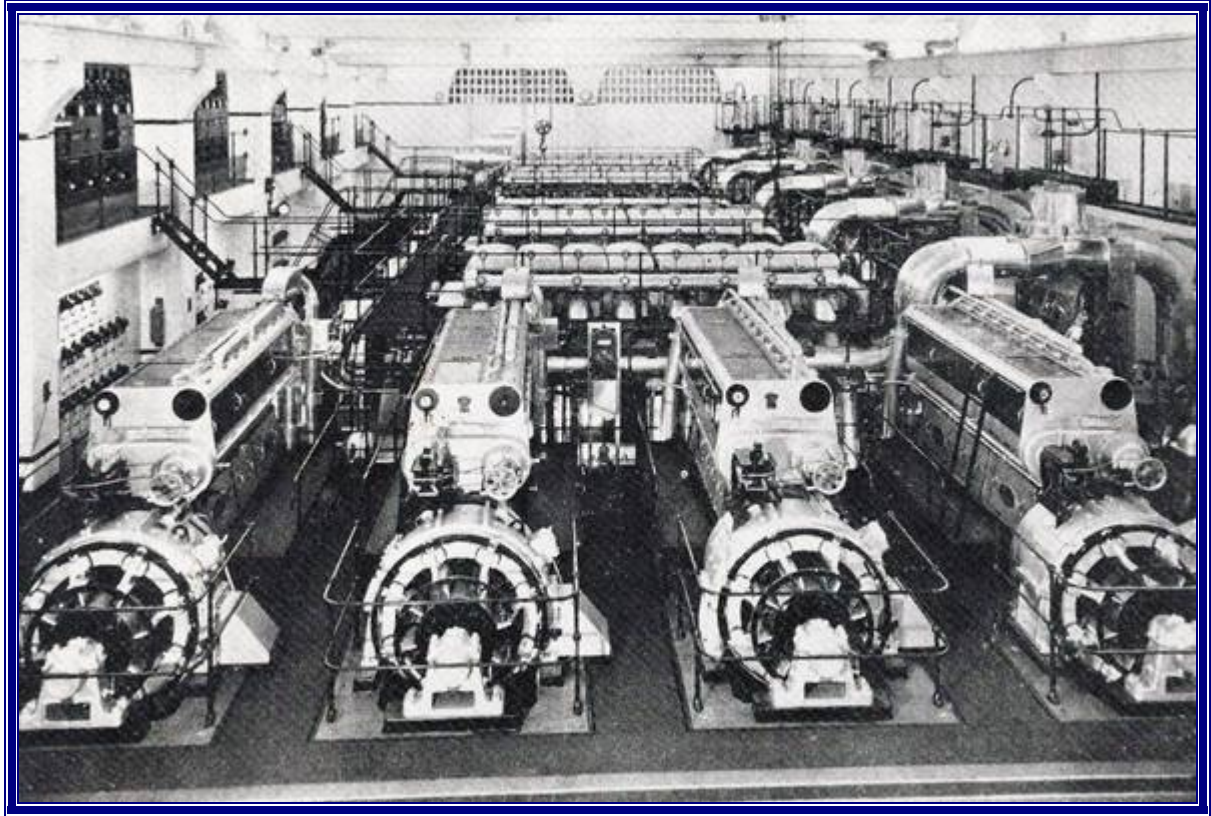
From 1925 onwards, panel heating was becoming popular. The proprietary rights were held by Crittall with Rosser & Russell being a licensee. Kell visited a number of existing installations and noted these used either steel or a form of lead piping and saw a number of disadvantages since the Bank “was expected to last for some hundreds of years.” Both he and Faber decided that using copper, recently available in 150 foot rolls, was the way to go, being free from risk of external corrosion, and the long lengths permitting branch connections to risers to be made without the need for any joints in the branches.



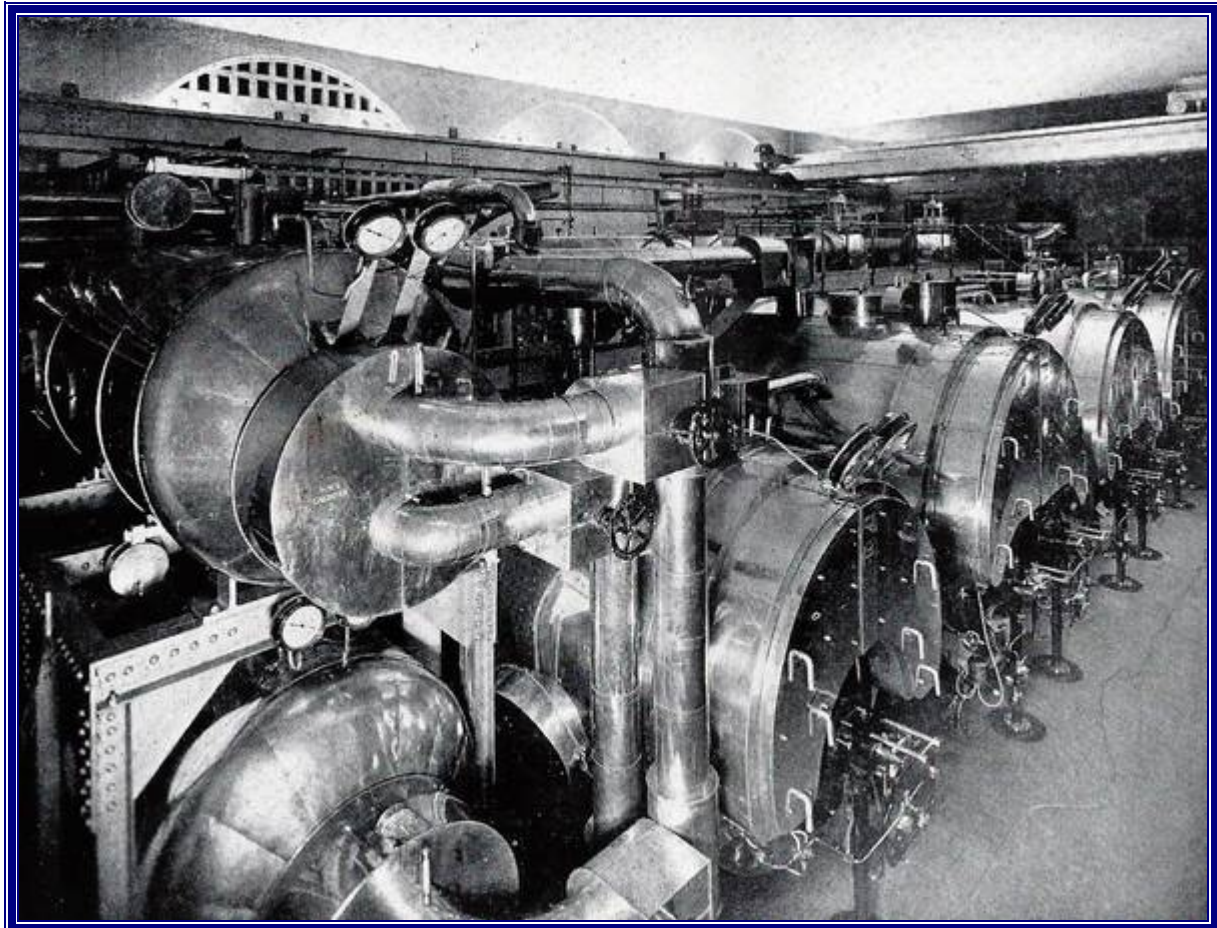
Small-bore copper piping being used on the famous Soane domes, a feature of the banking halls

Kell was also involved in the design of the air conditioning system which employed a carbon dioxide refrigerating plant and in the installation of two artesian wells with deep-well pumps which fed low level water storage tanks from which water was pumped to tanks in the roof for supplying down services and the hot water calorifiers.

However, Kell’s most important contribution to the Bank’s engineering services was in the planning of the electricity generating station and the associated heat reclaim system. He found it possible to utilise the water used to cool the generator diesel engines as a source for the low temperature hot water at 44 degC circulating through the panel heating system. This increased the efficiency of the generating station by about 30%. A further economy of another 15% was obtained by delivering the exhaust gases from the engines into waste heat boilers. With electricity generation efficiency from the diesel engines at 30% a remarkable overall efficiency of 75% was achieved. The waste heat boilers were backed up by oil-fired main boilers. The whole of this engineering equipment plant was laid out in a spacious two-storey high plant room.



The Generating Station at the Bank of England (by Drake & Gorham)

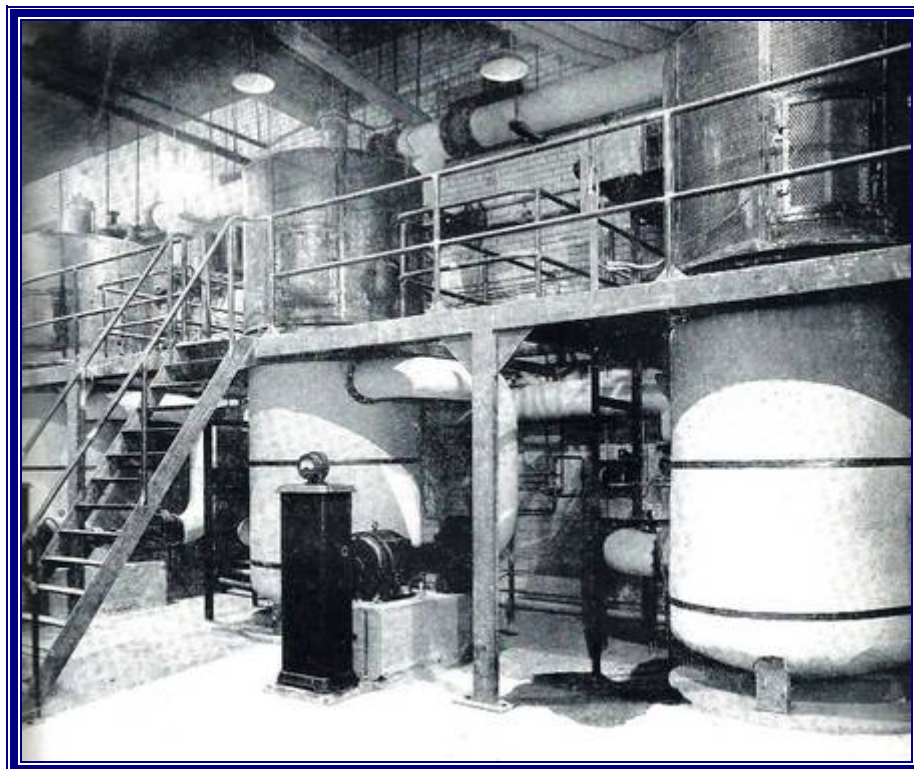


Oil-fired Boilers at the Bank of England

Rob Kell's next big challenge came in the mid-1930's, to design the heating and ventilation for the new Earl's Court Exhibition Centre, "a building containing approximately 50 million cubic feet covering 12 acres and divided into a number of large halls which can be merged or separated as required....The main central hall was 250 ft span, 400 ft long and 115 ft high" (JIHVE, March 1938). To arrive at a satisfactory method of supply air distribution, Kell arranged a series of tests in collaboration with Norris Warming and Keith Blackman which resulted in the adoption of rows of high-level jet nozzles delivering air at "a velocity of 2300 ft/min....giving a length of blow of about 130 ft for a nozzle of 3 sq.ft aperture" The heating requirement was met by an electric thermal storage system employing three Bastian & Allen electrode boilers of 14,000 total kVA.



Earl's Court Main Hall with ventilation nozzles at high level



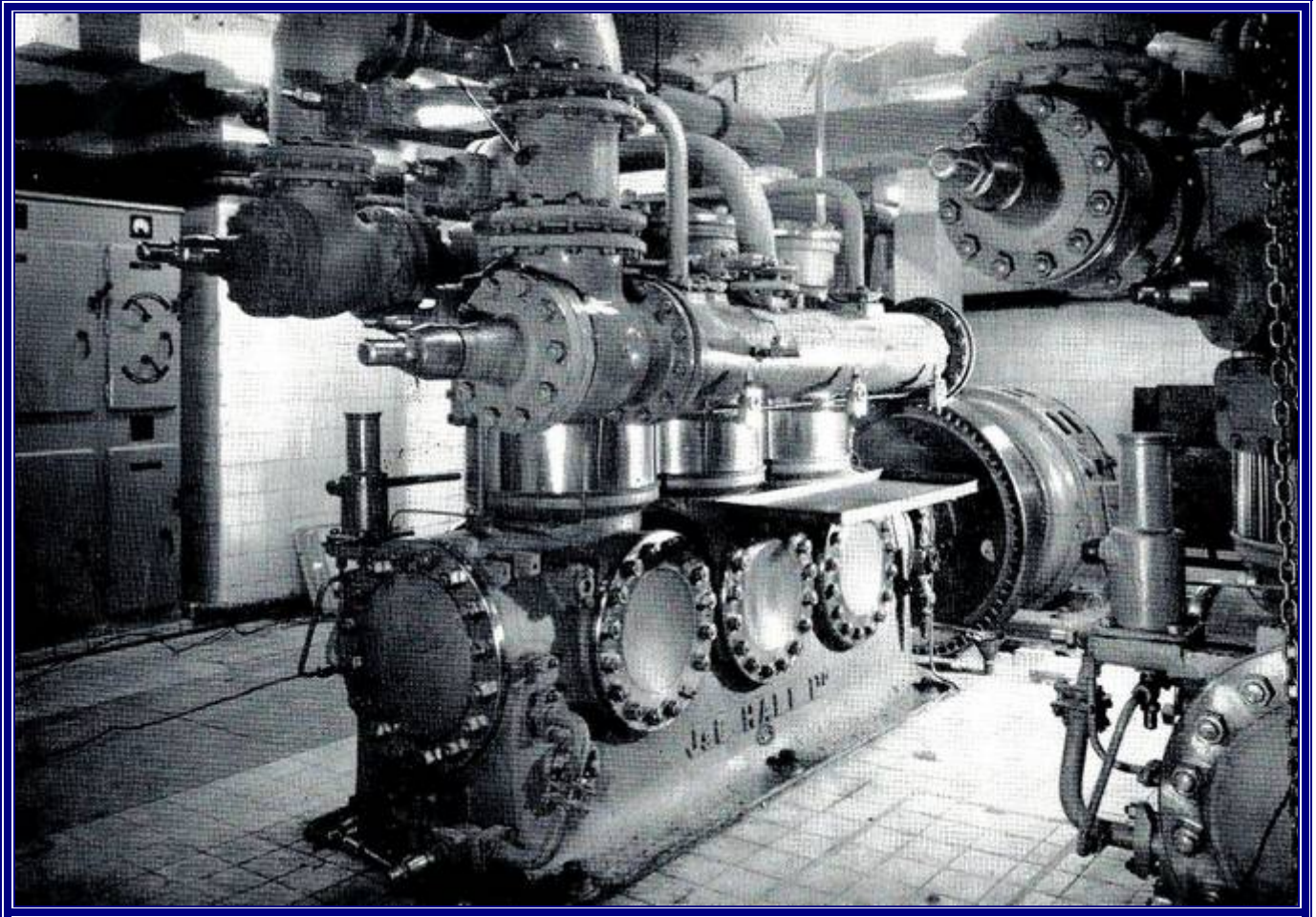
Electric thermal storage system at Earl's Court

The year 1936 was a particular highlight for Kell, seeing the publication of the book *Heating and Air Conditioning of Buildings* which he co-authored with Oscar Faber. This triumph was the making of Kell and the foundation of the M&E side of the consultancy which he was to create and manage for the next thirty years.

After the war, the consultancy was appointed to carry out the engineering services and structural work for the rebuilding of the House of Commons which reopened in October 1950.



Pump Room at the new House of Commons (installed by Benham & Sons Ltd)



Refrigerating Compressors for the air conditioning at the new House of Commons (J&E Hall machines)

On Friday 19 March 1948, John Robert Kell with others was taken into Partnership by Oscar Faber and there followed a significant increase in M&E work starting with a five-year programme for the New Lloyd's Building, opened in 1957. A notable feature was the air conditioning of the Underwriting Room, "probably the greatest single space in the City at that time, being 340 ft long, 139 ft wide and 38 ft high" (JIHVE, May 1960). Refrigeration was provided by three centrifugal water chillers with a total capacity of 1950 tons (6855 kW). A control room with extensive mimic diagrams was provided. The role of the plant engineer was paraphrased in verse:

*The underwriters in the Room
Have found their comfort such a boon,
Their metabolic rates are gauged
By subtle and unusual ways
For in his room of Eau de nil,
Not one complaint can be concealed
From flashing lights both red and green
As though upon a vision screen.*

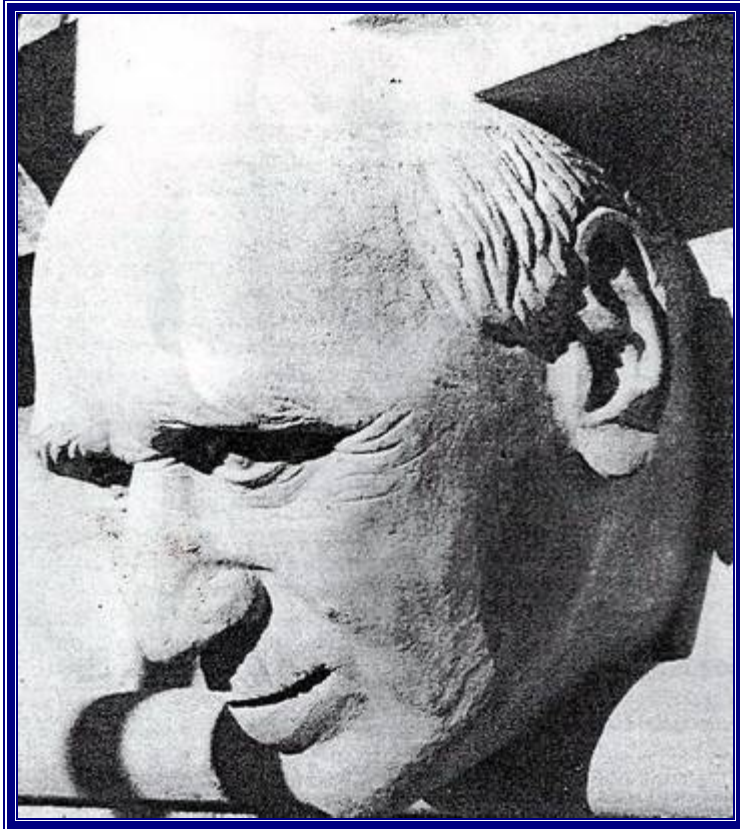
In 1955 came the appointment for the engineering services for the Wales Empire Pool in Cardiff, to be completed for the 1958 Empire Games. However, in 1956, in the middle of the design stage, Oscar Faber died. His firm continued with important new projects: the new Barclays Bank Head Office in Lombard Street, English Electric House in the Aldwych and the Texas Instrument Factory in Bedford.



Lloyd's Underwriting Room in 1971

Kell had a long involvement with cathedrals. In 1937 he improved the heating at St Albans Cathedral. In 1945 he arranged the new heating for Canterbury Cathedral and in 1948 he updated the heating of St Paul's Cathedral. He dealt with the heating of many older cathedrals, notably Chester and Durham. Kell also served as Chief Warden at the Abbey Church of St Albans and is commemorated by his likeness in stone amongst the busts and gargoyles on the Cathedral Roof.

John Robert Kell became an Associate Member of the IHVE in 1928, a full Member in 1935 and was elected to the Council in 1944. Kell was made a Partner of the Faber practice in 1948. He served as the IHVE President for 1952-53 and was awarded the Institutions Gold Medal in 1968. Rob Kell died in 1983.



John Robert Kell in stone on the roof of St Albans Cathedral

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