

CHAPTER 2: HISTORY OF THE ELECTRIC LAMP INDUSTRY IN THE UNITED KINGDOM

15. The electric lamp industry in the United Kingdom has been the subject of two earlier reports, in 1920 and 1928.* Some of their findings are mentioned below, but we have felt it desirable ourselves to describe briefly the historical background of the industry from early times to the present day. Certain aspects of the history are dealt with in greater detail in Chapters 4, 5 and 6.

16. The commercial development of the electric lamp dates from 1878-9, when Swan in the United Kingdom and Edison in the United States simultaneously invented the carbon filament lamp. United Kingdom patents were granted on both inventions and were subsequently upheld, although the corresponding patents were declared invalid in every other European country.† Patent disputes between the parties in the United Kingdom led to the formation in 1883 of Ediswan,‡ which for some years enjoyed a monopoly of manufacture.

17. When the patents expired in 1893-4 other British manufacturers started to produce, but found difficulty in competing with imported continental and particularly German lamps. In 1905, to meet this foreign competition, the British Carbon Lamp Association was formed; its membership included B.T.H., Ediswan, G.E.C., Siemens,§ Cryselco, Pope's Electric Lamp Co. Ltd. and the Stearn Electric Lamp Co. Ltd. Sales under this organisation were on a contract basis between individual manufacturers and individual distributors, the manufacturers maintaining minimum prices up to the wholesaler-to-retailer stage, but not beyond.

18. Between 1906 and 1909 metal filaments were developed in Europe and in the United States and the tungsten filament lamp soon replaced the carbon filament lamp for most purposes. No other technical development of such widespread application occurred until the introduction in 1930-35 of sodium and high pressure mercury vapour lamps and the invention by British manufacturers about 1935-6 of the modern fluorescent lamp. Important modifications of the tungsten filament lamp were however introduced, including the invention of the gas-filled (or so-called "half watt") lamp, the inside-frosted bulb and the coiled-coil filament (see Appendix 2).

19. Although not themselves responsible for any major development between 1878 and 1935, the leading British manufacturers have from very early times acquired the United Kingdom patent rights under a series of comprehensive agreements with the principal American and German companies. These agreements provide for cross-licensing or assignment of patents and for the exchange of technical and manufacturing experience, against payment of a one-way royalty or fee by the British parties. They are also designed to secure to each side the sole rights of manufacture and sale in their respective home territories. More recently the leading British manufacturers have made

* See Introduction, paragraph (ii).

† Report of the Committee on Industry and Trade (Balfour Committee), Part IV—Survey of Metal Industries, H.M.S.O., London, 1928.

‡ The company's original name was Edison and Swan United Electric Light Co. Ltd.; it changed its name in 1916 to the Edison Swan Electric Co., Ltd., see (a) of paragraph 2.

§ The company manufacturing lamps at that time was the Siemens Brothers Dynamo Works Ltd.; it has since changed its name to Caxton Electric Developments Ltd. and is a wholly-owned subsidiary of Siemens Brothers & Co. Ltd. Siemens Electric Lamps & Supplies Ltd., which at present manufactures lamps (see (a) of paragraph 2), is also a subsidiary of Siemens Brothers & Co. Ltd. Having regard to the continuity of the lamp-making business, we use the abbreviation "Siemens" to describe the company which formerly carried it on, as well as the one that does so now, according to the historical context.

an agreement with the principal Dutch lamp manufacturer which is similar in character, except that there is no provision for exclusive rights in the respective home territories, and no royalty. It is relevant to add that, of the present principal British manufacturers, two were originally subsidiaries respectively of an American and a German concern, a third was, before 1914, closely associated with one of the leading German lamp-makers in the production of lamps in this country and acquired its trade mark through that association, and a fourth is still the subsidiary of a Dutch company. Of the patents acquired through these international agreements those on both the squirted tungsten filament lamp and drawn tungsten wire, and on the inside-frosted bulb were subsequently held invalid in legal proceedings for infringement; the gas-filled lamp patent was upheld.

20. In 1912 B.T.H., G.E.C. and Siemens, in order to improve their technique while avoiding litigation among themselves, entered into an agreement to pool their metal filament lamp patents, and jointly issued licences to some other British lamp manufacturers. The same year these three companies, with Ediswan (all of whom were already members of the British Carbon Lamp Association—see paragraph 17), formed the Tungsten Lamp Association, an association founded primarily on patent pooling, the declared objects of which were to promote and protect the interests of manufacturers of and dealers in electric lamps in the United Kingdom, to conduct and assist in making experiments and research for the improvement of electric lamps, and to enter into agreements with members and wholesale and retail dealers relating to the manufacture, supply and sale of electric lamps.

21. In 1919 the members of the British Carbon Lamp Association and the Tungsten Lamp Association joined together to form the Electric Lamp Manufacturers' Association of Great Britain Ltd.* This should not be confused with E.L.M.A. which in 1933 took over most of the functions of the Electric Lamp Manufacturers' Association of Great Britain Ltd., although the latter is still in being—see paragraphs 26 and 37. The Objects of the 1919 Association were "to formulate, regulate and secure uniformity of practice in the manufacture, sale and purchase of electric incandescent lamps in the United Kingdom in such a manner as to benefit both the trade and public by the adoption of standard conditions of sale and of product". Under these provisions the Association in practice fixed common retail prices and trade terms based on the annual quantities purchased, and maintained a system of exclusive agreements, exclusivity and price maintenance being supported by a register (called the "List Prices Nett Register", but known in the trade as the "Black List") of persons who were only to be supplied at full retail prices.

22. In reporting the existence of these conditions, the 1920 Sub-Committee on Trusts found that the Association controlled between 90 per cent. and 95 per cent. of the output of the industry and that while the Association might not necessarily pursue a policy of inflated prices and inordinate profits as a result of its position, there would be no effective check in the shape of competition should it decide to do so. The Sub-Committee found also that

* In 1920 membership of the Electric Lamp Manufacturers' Association of Great Britain Ltd. consisted of G.E.C., B.T.H., Ediswan and Siemens with Metrovick (who had acquired a former German lamp factory in 1916), the Foster Engineering Co., the Stearn Electric Lamp Co. Ltd., "Z" Electric Lamp Manufacturing Co., Pope's Electric Lamp Co. Ltd. and Dick Kerr & Co. Ltd. Cryselco became a member in 1922 and B.E.L.L. at about the same time. (The company which was called Metropolitan-Vickers Electrical Co. Ltd. in 1920 has since changed its name to Associated Electrical Industries Ltd. and transferred its manufacturing business to a subsidiary company, the existing Metropolitan-Vickers Electrical Co. Ltd. (see (a) of paragraph 2). We use the abbreviation "Metrovick" to describe either company according to the historical context).

“immoderate profits” were being made on the manufacture of lamps before 1914 and the discounts allowed to distributors ought to be reduced. It drew the inference that non-association manufacturers, while still making a satisfactory profit and despite their smaller output, were able to sell at a lower price than Association members. Since, however, Association retail prices were universally adopted the effect of these lower prices was reflected in terms to the reseller rather than in any benefit to the public. The Sub-Committee further drew attention to the close connections between patent rights and the formation of the Electric Lamp Manufacturers’ Association of Great Britain Ltd., to the grant of licences by the patent-owning members of the Association to other members against payment of royalty, to the continued acceptance by members so licensed of patents held invalid in the High Court and to the restriction (normally to a 10 per cent. per annum increase) imposed on the output of lamps manufactured for the home market under licence. The Sub-Committee regarded this method of limiting expansion as more harmful than a simple percentage quota would have been, though they were aware that there were objections to such a system also. The Sub-Committee also drew attention to the danger that the interests of the British industry would be subordinated to American interests, and that an international combination might “control supplies and dominate prices over a considerable part of the world”; and it recommended that “the operations of an Association which so effectively controls an important industry should be subjected to public supervision and control”. Many of the features criticised by the Sub-Committee continued.

23. The production and distribution of lamps in the United Kingdom were thus already regulated to a considerable extent in the years immediately following the 1914–1918 war, the home market being partly protected against competitive imports until 1931 by the gas-filled lamp patent and both before and after that date by the territorial provisions of licensing agreements between the principal British and foreign manufacturers. Although these same agreements had the effect of prohibiting the export of British-made lamps to certain markets, the division of export markets was not a function of the Association, nor did the quota restrictions imposed on licensees of the principal members apply to exports. In other countries war-time expansion of the lamp industry led in the years following 1918 to fierce competition, particularly in Europe where we have been told much business was done at production cost or less.

24. It was to meet this situation that the leading lamp manufacturers of the world in 1925 negotiated the General Patent and Business Development Agreement (referred to in this report by its usual name of the “Phoebus Agreement” and so called after the administrative office—S.A. Phoebus—set up in Geneva), itself the successor of several European price agreements and the outcome of earlier patent licensing arrangements between individual manufacturers and groups and of preliminary consultations over a number of years. All the members of the Electric Lamp Manufacturers’ Association of Great Britain Ltd. adhered directly or indirectly to this agreement. The Phoebus Agreement divided world markets, excluding only the United States and Canada, into territorial zones and gave each party to the agreement in each territory the right year by year to the same proportion of the total business done by the parties in that territory as he had in 1924. It also laid down a common policy on sales and contemplated cross-licensing of inventions, and standardisation. The agreement did not apply in the United States or Canada because the parties, by a series of complementary agreements, recognised the exclusive interests of the General Electric Company of New York (referred to in this report as “the American G.E.C.”) and its licensees in those territories.

The American G.E.C.'s interests in territories outside the United States and Canada were protected and regulated by the same complementary agreements and also by the adherence of certain of its subsidiary companies to the Phoebus Agreement. The Phoebus Agreement was expressed to expire in 1955 but its term was curtailed by the 1939-45 war; new agreements between a smaller number of producers and affecting fewer territories were made in 1941 and in 1948. All these agreements are described more fully in Chapter 4.

25. The Phoebus Agreement contained a provision that outside lamp-manufacturing businesses could be acquired only for the joint account of the parties (see Appendix 8, Article 14). A number of lamp factories were so acquired, and the Phoebus parties sought to meet the competition of manufacturers who were not parties by producing lamps in jointly-owned factories to sell at prices lower than those fixed for their own products: these lamps did not bear any of the parties' usual brand names. We describe the operation of the jointly-owned Phoebus factories more fully in Chapter 8. Before the introduction of the general tariff in 1932 a substantial proportion of the output of these factories was imported into the United Kingdom: thereafter the Phoebus parties' factory in the United Kingdom, Splendor, fulfilled the same function.

26. In 1933 the members of the Electric Lamp Manufacturers' Association of Great Britain Ltd. formed themselves into the Electric Lamp Manufacturers' Association (E.L.M.A.) and were joined by the British Philips Company and Stella, subsidiaries of Philips (Holland). E.L.M.A. is an unincorporated body and a registered trade union,* membership of it being confined to manufacturers. E.L.M.A.'s present membership is shown in (a) of paragraph 2 above, and its objects, organisation and functions and the history of its membership are described in Chapter 3. E.L.M.A. took over and maintained the system of common prices at all stages and of exclusive agreements formerly operated by the Electric Lamp Manufacturers' Association of Great Britain Ltd., and in the years since its formation has laid increasing emphasis on standards and quality of production and entered into a series of arrangements with distributors' associations designed to encourage them to co-operate in its arrangements for regulating distribution (see Chapters 11 and 12). In all these developments the lead has been taken by G.E.C. and the A.E.I. Group, acting in very close co-operation.

27. The members of E.L.M.A. thus sought to meet by higher quality and by exclusive agreements with distributors the price competition of imported—particularly Japanese—lamps and of lamps made by independent British manufacturers. These lower-priced lamps, mostly general service filament lamps, were distributed chiefly through the chain stores, retail prices varying from sixpence to a shilling at a time when the corresponding E.L.M.A. price was 1s. 7d. or 1s. 9d. With such a wide range of prices, the appeal to quality could hardly be expected to deter an increasing proportion of the public from buying the cheaper lamps. The E.L.M.A. members themselves, in response to complaints about their high prices, arranged in 1935 to produce limited quantities of a "Type B" lamp designed to have a lower quality than their normal products and to be retailed at a shilling (see Chapter 9). In 1937 one of the principal independent manufacturers of a one shilling lamp, Crompton, became a member of E.L.M.A., and in 1938 the members jointly acquired the lamp-making interests of Ismay Industries Ltd., including Britannia which had been particularly successful in capturing the chain store trade from the Japanese by producing lamps to sell at sixpence (see

* The Electric Lamp Manufacturers' Association of Great Britain Ltd. remains in existence as the holder of property leases and to fulfil certain educational functions.

Chapter 8). By the beginning of the 1939-45 war, therefore, although there were two (or possibly three) distinct price markets for lamps, they were all supplied by the E.L.M.A. members or by companies controlled by the members, and outside competition in any of those markets was on a very small scale. During and since the war the range of prices has been very greatly diminished by increases at the bottom of the scale and reductions at the top (see Chapter 14), and outside competition has grown substantially in volume.

28. Of the seven non-Association lamp manufacturers mentioned in the report by the 1920 Sub-Committee on Trusts only one, Maxim Lamp Works, remains to-day as an Independent Manufacturer; two, Cryselco and Stella, are now members of E.L.M.A.; one is now a distributor of lamps; the subsequent history of the other three has not been traced. The Independent Manufacturers since that time have generally been small concerns producing a limited range of lamps,* although there have been some notable exceptions. One such company, Crompton, built up a successful trade in lamps at E.L.M.A. prices and also in lamps retailing at 1s. 0d., but became a member of E.L.M.A. in 1937 as part of the settlement of litigation for infringement of patents. The lamp businesses of Ismay Industries Ltd., which made cheap lamps sold in the chain stores, now belong to two of the Controlled Companies, Britannia and Ismay, having been jointly acquired by members of E.L.M.A. in 1938. During and since the 1939-45 war Thorn and Ekco-Ensign have expanded rapidly, and their present position as competitors with E.L.M.A. is similar to that of Crompton before 1937.

29. In the years between 1918 and 1939 the members of E.L.M.A. developed the production of lamp components, and in particular of machine-made glass bulbs and tubing, caps and tungsten and molybdenum wire. Two members, G.E.C. and B.T.H., own the only factories in the United Kingdom producing machine-made bulbs and one of the two cap factories. The other cap factory, set up during the war, is owned by the largest Independent Manufacturer, Thorn, but in general the Independent Manufacturers have continued to rely on the supply of components from outside sources, mainly from imports or, during and since the war, from E.L.M.A. members.

30. During the war the Ministry of Aircraft Production and later the Ministry of Supply assumed control of lamp production, allocating basic materials and available labour between all manufacturers and setting production targets. Control was removed in August, 1945, but a system of voluntary allocation of glass bulbs was reintroduced in 1947 and has not yet been formally wound up. The prices of filament lamps also came under control during the war. From 1940 to 1948 they were subject to the Prices of Goods Act, 1939, by which a trader's net cash profit on the sale of a given type of lamp was restricted to the amount of profit obtained in August, 1939. From 1948 to July, 1949, there was a Maximum Prices Order which imposed a standstill of prices on certain types of filament lamps including general service filament lamps but not motor lamps. Discharge lamps have not at any time been subject to price control and since July, 1949, there has been no statutory control of the prices of filament lamps.

* Usually general service filament lamps or lamps of very limited use.