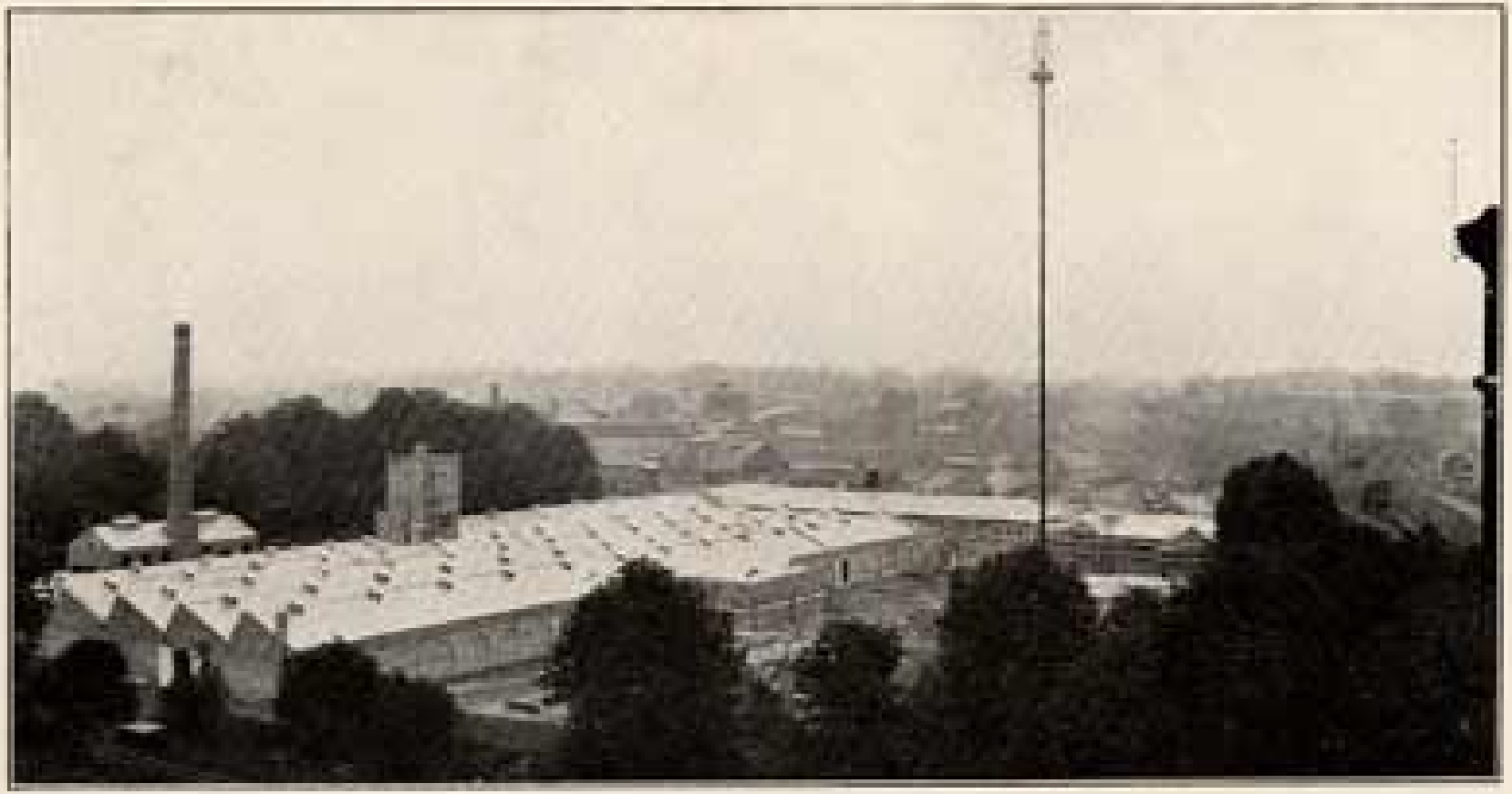
The New Marconi Works Chelmsford Essex



Rear View of New Marconi Works.

Souvenir of the Visit of the Delegates to the International Radio-Telegraphic Conference to Chelmsford on the Occasion of the Opening of the New Works for Marconi's Wireless Telegraph Co., Ltd., on Saturday, June 22, 1912

MARCONI'S WIRELESS TELEGRAPH CO. Ltd
MARCONI HOUSE, STRAND, LONDON, W.C

The New Marconi Works

THE PRESENT DEVELOPMENTS

of wireless communications, although sufficiently striking, are, compared with what the future holds in store, merely in their infancy. How much this development is due to the enterprise of Marconi's Wireless Telegraph Company, Ltd., the student ot contemporary events can have no difficulty in ascertaining. In 1898 the Marconi Company acquired a factory at Chelmsford, in Essex, for the manufacture of the apparatus covered by Mr. Marconi's patents. The Company's business steadily expanded, and the works were enlarged from time to time to cope with the increasing business. For many months the Chelmsford factory had been kept at work night and day, but even this expedient did not enable it to cope with the continued increase of business. It was then decided early this year to erect new works capable of the output which is required. Ten acres of freehold land conveniently situated in Chelmsford were purchased whereon to erect new works, and they were in full working order seventeen weeks later. The ground was pegged out on February 10th, the bricklaying was begun on February 26th, and the buildings, floors, and piping

The New Marconi Works

were practically completed early in May. In that time 2½ million bricks were laid, 400 tons of steelwork were erected, and 9,000 loads of earth were carted; sewers were diverted, a well sunk, and the railway company's lines extended across a road and brought along a specially constructed siding. Some idea is thus obtained of the great task which lay before the architects (Messrs. Dunn & Watson) and the builders (Messrs. Cubitt & Co., Ltd.), who are both deserving of the highest praise for having successfully accomplished their task in record time.

The site is alongside the Great Eastern Railway Company's main line to Colchester, and is separated from their goods yard by New Street, but a connection is taken across the road to a double siding which runs along one side of the works for the entire length, with a roadway between the two tracks.

Fronting the street is a two-storey block, comprising general offices, showrooms, a large drawing office, and rooms for other purposes. This building is of brick with stone facings; its dimensions are 200 ft. long by 40 ft. wide, and it has a handsome main entrance ornamented with stone carvings. Artificial heating is effected by low pressure hot water radiators, and the ground floor is constructed of tongued and

grooved ash blocks laid over concrete. At one end of the office block is a separate building with accommodation for a caretaker, mess rooms for the workpeople, and a large club room. Between the office block and the works buildings is an instrument test room of fireproof construction, with a flat concrete roof, and the main works buildings measure 466 ft. in length by 150 ft. wide. The roof is in five 30 ft. spans of the saw tooth design, and the unglazed portions are covered with green slates on felt and match-boarding. The Rendle system of glazing has been adopted. The walls are of Fletton bricks inside and stock bricks outside.

Two rail loading docks with turntables are provided in the packing department, and the siding equipment is furnished with two electric capstans and two weighbridges.

The side of the works adjacent to the sidings is occupied by the power test room, the packing department, and the carpenters' shop. Next to these departments are the finished parts and raw material stores, and a shop for riggers and tinsmiths. The raw material stores communicate with the machine shop, with the condenser and winding shop, and with the carpenters' shop through serving windows, while the finished parts stores have the power test room on one side and

the assembling and machine shops on the other. The flooring throughout is of interlocked ash blocks laid in pitch over concrete, except in the power test room, where a granolithic floor is provided owing to heavy machinery which has to be handled. This department is served by a five-ton three-motor overhead travelling crane, for which the runways extend over the loading docks in the packing department. The dimensions of other shops are as follows: assembling shop, 90 ft. square; machine shop, 187 ft. by 90 ft.; condenser and winding shop, 112 ft. by 90 ft.; carpenters' shop, 60 ft. by 120 ft. All these shops are capable of being extended to double their present size, but the testing and packing departments and the stores will be large enough when these extensions have been made.

A water tower, carrying a tank of 8,000 gallons capacity, is built over the packing department for ordinary service and for the supply of the Grinnell sprinklers which are fitted throughout. This tank is filled from a borehole 400 ft. deep, extending into the chalk, and lined with 6 in. steel tubes to a depth of 333 ft.

The shops are heated by low pressure hot water radiators, while some 65 wooden shafts give natural ventilation through the

roofs. There is a power-house, 73 ft. by 33 ft., beyond the sidings, with a circular brick-stack 120 ft. in height by 4 ft. 4½ in. in inside diameter at the top. A cooling pond for condensing purposes is provided close to the power-house, with a water surface area of 10,000 sq. ft., and a depth of 4 ft. The pond has been rendered water-tight by clay-puddle.

Two masts, 450 ft. in height, with aerials between them, will be erected. These masts, which are 3 ft. in diameter, are built up of ⅜ in. pressed steel plates, having four external flanged vertical joints to the round, with angle rings to connect the sections horizontally. There are five sets of insulated stays connected with four steel anchors. The anchors are set in 100-ton concrete blocks, at a radius of 220 ft., and the central foundation block weighs 120 tons. At present a temporary mast of similar construction has been erected.

DEMONSTRATION

A demonstration of transmission and reception will be made during the afternoon between Poldhu and the New Works, communication being maintained by means of a 15-kw. Ship Set, which will be installed in the showroom, to the main

aerial from the tubular mast. This set gives a musical note of 400 cycles per second and by means of change over connections on the condenser bank and jigger primary, and the corresponding change of jigger secondary and aerial tuning inductance, allows transmission to be effected on a range of wave lengths from 600 to 2,800 metres.

Mounted against the north wall of the showroom will be found a standard 5-kw. Battleship Set. This has a spark note of 250 per second, and a very wide range of wave length adjustment, which can be obtained rapidly by changing over the plug condenser connections and the plug jigger primary connections. There will also be shown a Valve Receiver having a range from 600 to 1,800 metres, which, by means of an additional tuning box, can be extended to 3,000 metres if necessary. Two 5-kw. sets will be shown, one with a spark note of 700 per second and the other 400 per second. The feature of the second set is that it provides a quick change over by means of a suitable switch in the high frequency primary circuit and aerial circuit from one wave length to another. The complete transmitting plant of a 1½-kw. Ship Set will be shown in a cabin specially designed for this class of work, and in another part of the showroom there will be on view a new ½-kw. Cargo Set. The latter is extremely compact, and its circuits are designed to take the smallest space permissible consistent with efficient insulation for the power and wave lengths used. In order to economise floor space the high speed motor converter runs vertically with a horizontal disc on the top of its shaft extension, which provides a note of 300 cycles per second.

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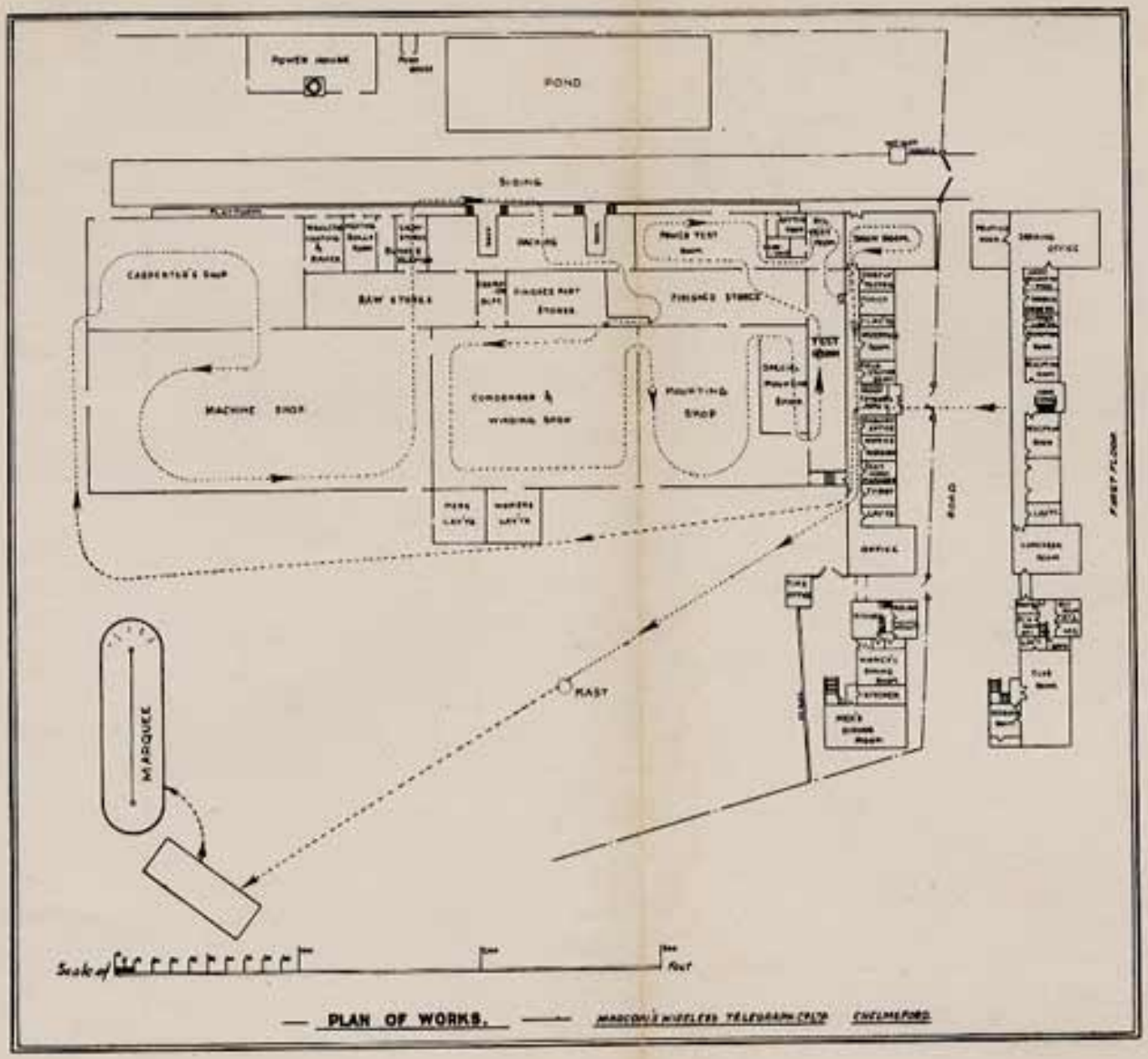

— PLAN OF WORKS. — MARCONI'S WIRELESS TELEGRAPH CO.LTD CHELMSFORD.

ENTRANCE

The direction of the arrows indicates the route of inspection on Saturday, June 22nd