

Television in Great Britain*

THE report of the Television Committee under the chairmanship of Lord Selsdon, issued last week, seems to have taken the public and most of the experts by surprise, probably due to the fact that during the last nine months, when the Committee was sitting, they had heard practically nothing about television, and the low definition broadcasts that were given did not seem to be of much permanent value. In particular, they find it difficult to believe the following extract from the report: "The time may come when a 'sound' broadcasting service entirely unaccompanied by television will be almost as rare as the silent cinema film is to-day," although the Committee modifies this slightly by saying that, in general, sound will always be the most important factor in broadcasting. The promotion of television, therefore, will not hinder the continual development of sound broadcasting.

Recent advances have contributed largely to the development of a technique whereby the scene to be televised is first photographed on ordinary cinematograph film. It is then developed and scanned by light transmitted through it, and this system is used to provide a method of 'delayed' television when direct scanning by a mechanical device would be difficult or impossible. Equipment is now available in which the cine-camera is connected with the film scanner. The film after exposure is fixed, washed and partially dried. It then passes through the scanner, and after further drying is stored for future use if required. In this way, the new methods of producing rapid and sensitive emulsions for photographic processes have overcome the difficulties due to the comparatively feeble sensitivity of photo-electric cells.

The direct scanning of open-air scenes and studio subjects is now possible without using abnormally powerful illuminating devices. This is done by cathode rays in combination either with minute photo-electric cells or photo-sensitive surfaces. One such device is being developed in the United States, Germany and Great Britain. The image to be televised is focused by means of lenses on to a photo-electric mosaic contained in a cathode ray tube. The cathode ray beam is directed on the surface of the mosaic, and by a method of magnetic control the image is scanned repeatedly. Electrical energy is thus drawn off from the photo-electric mosaic by the cathode ray which is proportional to the light intensity of the picture, and can be transmitted to operate the distant television receiver. The Committee definitely

states that satisfactory reproduction of outdoor moving scenes can now be attained by this method when the visibility conditions approximate to those under which satisfactory cinematograph pictures can be taken. It is assumed that the recording apparatus can be located reasonably close to, and at a moderately constant distance from, the scene which is being televised. It is stated that, even in this stage of development, satisfactory reproduction can be obtained of such scenes as a procession, a lawn-tennis match and the finish of a horse race. The transmission of the view of the whole course of a race or similar event would doubtless present much greater difficulty.

On the day following the publication of the report Baird Television Ltd. gave the first public demonstration of the system as it will be used in the home when the new ultra-short-wave transmission by the B.B.C. begins next autumn. The demonstration was given in Victoria Street, and the Baird transmitters were at the Crystal Palace, a distance of about 10 miles, the wave-lengths used being 7 metres for vision, and 8.5 metres for sound. Two receivers were shown; the sizes of the screens being 12 in. \times 9 in. and 8 in. \times 6 in. respectively. There were about fifty people present and they could see both screens; sometimes the room was darkened, but at other times it was illuminated by ordinary light, the difference in the visibility of the pictures in the two cases being slight.

The larger of the two receivers had to be adjusted several times during the performance, but the smaller one was not touched. We first saw a 'close-up' of the announcer. It was quite a good picture and easily recognisable—quite as good as the pictures seen in the poorer cinemas. He said that the demonstration was to prove that the television of pictures of high definition over a large area is a practical reality, and that the reception of such programmes in any part of the Greater London area is possible by a Baird receiver. This area has a population of more than ten million people. He contradicted the assertions recently made that with ultra-short wave-lengths (4–8 metres) the maximum range is 5 miles. With the present arrangements, satisfactory results are obtained up to 30 miles from the transmitter. The interference trouble, sometimes produced by motor-vehicles, has been successfully overcome. There was no trace of it in the pictures shown in the offices in Victoria Street on a busy afternoon.

The second item in the programme was given by Miss Alma Taylor from the Crystal Palace. She showed some new fashions in hats and various styles of hairdressing. She also, by means of a

* Report of the Television Committee. (Cmd. 4793.) Pp. 27. (London: H.M. Stationery Office, 1935.) 6d. net.

telephone, entered into an animated conversation with a member of the audience. This was real television; we saw and heard two people talking together at a distance of ten miles. We next saw an out-of-doors horse-jumping and racing competition taking place on the terrace of the Crystal Palace. A boxing match was then shown in one of the studios at the Crystal Palace with the attendant crowd and the noise and cheers. These two were done by 'delayed' television. A proof was given that the interval between the occurrences and seeing them on the screen was 35 seconds. Excerpts were also given from several of the well-known Gaumont-British films including "I was a Spy" and "Jack Ahoy". The singing and the sounds of the dancing were reproduced excellently and the flickering was scarcely noticeable although a picture frequency of only 25 pictures per second was used. A complete "Mickey Mouse" film was shown and was almost as good as those shown in the cinemas.

After seeing this demonstration, we agree with the Committee that there is good entertainment value in high-definition television accompanied by sound. We also agree that in general the sound is the more important factor in broadcasting.

Owing to the close relationship which must exist between sound and television broadcasting, the B.B.C. is obviously admirably suited to be the operating authority. The following advisory committee has been appointed to advise the Postmaster-General on points arising in connexion with television and to exercise control over the actual operation of the service: Lord Selsdon (chairman); Sir Frank Smith, secretary of the Department of Scientific and Industrial Research, who will be chairman of a technical sub-committee; Col. A. S. Angwin, assistant engineer-in-chief of the Post Office; Mr. N. Ashbridge, chief engineer of the B.B.C.; Vice-Admiral Sir Charles Carpendale, controller of the B.B.C.; Mr. F. W. Phillips, assistant secretary of the Post Office.

The transmission of high-definition television is practicable only with ultra-short waves, for a wide band of frequencies is required. Fortunately, there is no difficulty at present in allocating suitable wave-lengths—between 3 and 10 metres—for public television in Great Britain. Technically, it is desirable that the transmitting stations should be situated at elevated points. The mast at present in use in Berlin is 430 ft. high, and the question of employing masts of greater height is being discussed in Germany. The Crystal Palace site of the Baird Television Company was chosen because it is the highest point in London. The top of the south tower of the Crystal Palace is 680 ft. above sea-level, and the Baird aerials on the top of the tower give the maximum possible range of

any site in the Greater London area. The premises taken over by the Company cover an area of 40,000 sq. ft. and are all on one open ground floor.

The Committee has come to the conclusion that a start can best be made with a service of high-definition television in London. It points out that there are two systems of high-definition television which are in a relatively advanced stage of development. One of these is owned by Baird Television Ltd. and the other by Marconi—E.M.I. (Electric and Musical Industries) Television Co., Ltd. The Committee suggests that an extended trial of these two systems be made under strictly comparable conditions. They will be installed side by side in a London station and will issue programmes alternately and not simultaneously. Among the conditions imposed are that the price demanded must be considered reasonable by the advisory committee and that the B.B.C. be indemnified against any claim for infringement of patents. The definition also should not be inferior to a standard of 240 lines for scanning and 25 pictures per second. The present experimental transmission gives 30 lines per picture and 12½ pictures per second. The pictures are 'coarse' in texture, and the flickering is objectionable.

The Committee looks forward to the time when there will be a general television service throughout Great Britain. Television broadcasts will be relayed by land line or by radio to substations in various parts of the country. Owners of sound receiving sets will be glad to hear that, during the first experimental period at least, the cost of the new transmission will be borne by the revenue from the existing 10s. license fee. Afterwards a reasonable share will have to be contributed by the Treasury and the Corporation.

The smaller of the complete sound and vision receiving sets made by the Baird Television Company is a cabinet 4 ft. high, 2 ft. wide and 2 ft. deep. The size of the picture is 8 in. × 6 in., and it is sufficiently brilliant to be seen quite clearly with ordinary room lighting. It can be used with any type of high-definition transmission having 100–500 lines and 12–50 pictures per second. It can be seen by ten people in a room quite comfortably. It requires little skill to operate. The selling price will be at first about £50; but when bulk production has been started it is likely to be reduced considerably. As it is operated on ultra-short wave-lengths, there is no trouble with atmospheres. The Company also produces a larger set suitable for an audience of thirty people and having a screen 12 in. × 9 in. These sets are not likely to become obsolete by changes in transmission technique during the next four years. The price will be at first about £80.