

Television in America

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Mr. Scott-Taggart continues his interesting and highly informative first-hand account of television "on the other side," with his impressions of the Farnsworth and N.B.C. systems

THE Farnsworth Laboratories are a modern organisation employing about thirty engineers. They have a transmitting station and studio a few miles away, and they were good enough to arrange a demonstration for me. It may seem a little odd that two of the principal television concerns in the States had nothing working without notice, but as experimental work is constantly going on and apparatus being dismantled, it is not so surprising after all. Probably my advent at both places was a nuisance and an interference with routine work.

Philo T. Farnsworth is one of America's television geniuses. He came—years ago—from California where he worked on his own, and became employed by Philco for several years in their television laboratories. He is now running his own concern, Baird, in England, are associated with Farnsworth and have a licence or working arrangement with him. The E.M.I. have the benefit of R.C.A. research, so we can in this country fairly claim to get most of the benefits of American television activity.

Warmly Welcomed

I was warmly welcomed by the Farnsworth engineers and saw both receiving equipment and, later, the transmitter and studio. The demonstration was especially interesting as it was an actual demonstration by radio—in other words, the real thing. On the general prospects of television they seemed as non-committal as everyone else I have spoken to in America. They hope and believe, but they do not know. I raised the question of picture size and its associated technical problems, but here again they thought I overstepped the importance of dimensions. It should be borne in mind that an increase of size, if insisted upon, might involve a complete torpedoing of present cathode-ray technique on which high-definition television has been based, although the R.C.A. projection system seems to have saved the situation.

The broad future of television in the States is complicated by the absence of monopoly and licence fees. There is less optimism than in Britain, although there is a feeling that "it is bound to come." The business manager of Farnsworth thinks that children will be the greatest customers of television. The scope for cartoons (Mickey Mouse and Co, unlimited) will be enormous, and children will insist on parents getting television sets. There may be something in this. Children's love of

pictures will certainly be a craving that television should be able to satisfy. And American children, at any rate, get what they want, bless their little hearts. Mum and Pop may hate television, but if Junior has his heart set on seeing the pictures—well, he'll see them.

As regards picture dimensions, Farnsworth's were ready to stretch a point, and 18 in. by 15 in. was mentioned as a good size. But their own picture as demonstrated to me was only 7 in. by 5 in. They said they were getting 12-in. tubes made. As 15-in. tubes are quite common in Britain, I felt Farnsworth were being a trifle slow.

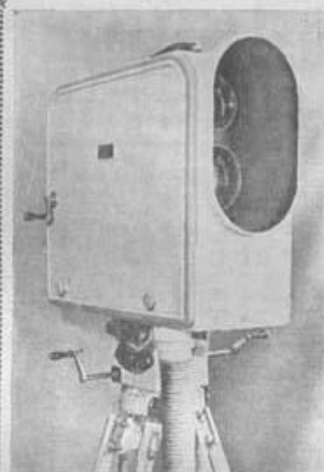
They demonstrated their system, but I must say the results were inferior to those of Philco which I had seen the day before. The announcer seemed to have some difficulty in keeping his eyes open, and when I went to their transmitter and stood in the bright lights I was not surprised. But the studio man entirely disagreed with my comment about the severity of the lighting and said one soon got used to it. I was glad I hadn't to.

I asked for a few tests to be made while I was at the receiving end. A newspaper was held up. The headlines came out poorly and adjustments were made, but when the headlines were made clearer the white parts of the newspaper became patchy with black. The synchronism was also indifferent.

Somewhat Disappointing

The detail I saw at Farnsworth's was considerably less than at Philco's, and I must admit to some disappointment. It is very difficult to have to make criticisms or comparisons when one has been welcomed and given information. But I have in each case revealed myself in advance as a critic who proposes to compare the results he has seen.

I do not know whether the apparent inferiority of results is due to the Farnsworth camera tube, which some people are inclined to think is less effective than the Iconoscope of Zworykin. But, apart from this possibility, one is at a loss to explain differences between systems. There is obviously much common ground, and Farnsworth has so obviously and admittedly contributed to the progress of television that to comment at all critically of a hastily-arranged demonstration may give a false idea of his work. There is no doubt that there is no ableer television engineer in America than Farnsworth.



Germany is making good progress in the development of television. Here is a close-up of the Farnsch big-picture electron camera shown at the recent German Radio Show.

The N.B.C. demonstration was given in New York. The National Broadcasting Corporation are associated with the R.C.A. (Radio Corporation of America), and are carrying out "field" tests for the R.C.A.—Victor people who do the real research. Their position is rather similar to that of the B.B.C. relative to Marconi-E.M.I. They experiment and suggest, but do not do any major research. I visited Mr. R. M. Morris, the young head of the Experimental Dept. of the N.B.C. He is automatically in charge of television. Incidentally, he knocked on the head the idea that American concerns throw open their concerns and give all their technical knowledge freely to those who come to study them. He mentioned that only the previous day someone had called with the idea of studying their studio systems and acoustic technique. He had been forced to explain that the acquisition of their knowledge had cost much money and time, and that their accumulated experience was an asset they proposed to keep to themselves. Possibly all this was a hint to myself. At any rate, I had been carefully vetted by several departments and finally approved before I was allowed to board him in "Radio City" and get the "low-down" on television from the organisation that will probably be the first to put it over when the time comes.

A Film Employed

The demonstration on this occasion was not a reception from the station on the Empire State Building, but from the next room, and the results were solely obtained from film. The film was scanned on to an Iconoscope (which you may know is a very simple appearing affair which looks like a square, thickish plate mounted in a glass bulb). Presumably conditions were ideal for a demonstration. The size of the picture was about 9 in. x 7 in., or less.

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and the colour was greenish-gold. Personally, I disliked this colour very much, but the N.B.C. seemed to like it. There were large, dark shadows in patches over certainly half the picture, and though less noticeable when things were happening, they remained. On inquiry I was told it was "the usual black spot of the Iconoscope."

A Useful Comparison

I was shown a film of a school under water, the pupils wearing bathing costumes. It was a film I had already seen at the cinema, so I was able to compare results. It came through quite well. I was then shown a news reel—obviously a very recent one. An interview with the Rev. Mr. Jardine was highly topical. He was very easily recognizable from his newspaper photographs. He thought the marriage of the Duke of Windsor would be happy because it was founded on a spiritual basis. Amelia Earhart also came through well—unhappily, for the last time. There was no trace of jitter or failure of synchronization, but the general results were, in my opinion, poorer than those of the B.B.C. and worse than Philco's.

The N.B.C., however, seemed to feel that they had put over a good show and that television had definitely reached the

entertainment stage. Here, again, the idea that the picture was too small was rendered rather woefully, and once again I was told that you would not get any more detail into a larger picture, and so forth.

I asked Mr. Morris what were the prospects of better television. He told me I had seen a 90 per cent. perfect picture under present conditions, and he did not see how present conditions could be altered. This was highly depressing news after what I had seen, but during the last ten years I seem to have heard equally pessimistic statements—although Mr. Morris himself did not appear to think there was anything pessimistic in his remarks, as he believes we can do very well under the present conditions.

Already the problem of wavelengths has arisen in the U.S.A. There is the usual scramble whenever new parts of the spectrum are found useful. The agreed standard in the U.S.A. for television pictures is 441 lines and 30 pictures per second. This seems the limit that television can handle, and that only with a big effort. The band width used by the N.B.C. is 2.5 megacycles each side with 1 megacycle reserved for sound, a total band in the order of 6 megacycles. No approval for this has yet been granted by the United States authorities, but it will be sought at a conference at Havana in November. Present technique, according to the N.B.C., could not handle a wider band width even if it were allowed. In

other words, we must be satisfied with 441 lines, and if this does not satisfy, then we must just express regret.

Throughout my inquiries into television in the States I found no trace of any system other than those using the cathode-ray tube. No mechanical system was being developed, although they had all read about the Nippon system.

Progress is Leisurely

The public reaction to television in America cannot be ascertained, as there is no service. Technical progress does not seem to be of a whirlwind character. Everybody seemed to be leisurely in their pursuit of the ultimate goal which they all seemed to feel was nearly reached. To me there seemed far too much satisfaction, and I felt glad that in England we had a public service to keep the companies on their toes and in close contact with public opinion.

No doubt a great deal of the successful elements of television in England are due to American investigators; but, nevertheless, my final reactions are that British television seems to have a better chance of success as a finished product. If in any respect we are behind the best that is available in the U.S.A., it is something we can easily put right. We are marching on the high road to a successful public service; America is still in the laboratory. For once they are going to learn from us.

J. S-T.