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Future Progress in Television

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WHEN broadcasting first started in 1921, a great deal of speculation was rife as to what form the new art was to take and what could be expected from it. For a long time, broadcasting was rather crude, and no one had a definite idea what it was really all about. Only a good deal later did paid advertising creep into the programs, and we are still traveling along this road; either in the way of direct advertising, which seems to be on the decline, or the indirect form of advertising, better known under the term of "sponsored" programs. But, even today, exactly what ultimate form commercial broadcasting will take is not known, because changes are occurring continually while the art is progressing.

In television we are faced with a similar situation; for, just at present, no one knows exactly what it is all about, or what television will really mean to the world at large.

It is probably a foregone conclusion that, sooner or later, all broadcast stations will be sending out television impulses in one way or another. A number of stations—as, for instance, WGY and WRNY—are now broadcasting true television programs; while others—such as 8XAV at Pittsburgh and 3XK at Washington, D.C.—are broadcasting only "radio movies." The latter is not true television, according to my definition, because it is not "instantaneous sight at a distance," but rather "canned" sight.

When WRNY went on a regular schedule, August 12 last, with television, a tremendous amount of interest was created immediately in business quarters. One leading department store sent its representative to the station, to find out if it were possible to televise a fashion review which the store was sponsoring. The management was told that, unfortunately, this is not as yet possible, because the art has not progressed sufficiently; and, even if it had, there are not yet enough television receivers to make it worth while to put on such a review.

Another advertiser wanted to know whether the station would accept a contract to televise the images of articles of merchandise, interspersed with music and sales talk. A large publishing firm wanted merely to televise the cover of its latest book. A certain advertising agency wished to build a program around a well-known brand of cigarettes, televising the actual cigarette package from time to time.

Of course, most of these things are feasible today, in a way, and there is little doubt that, in the not-too-distant future, such commercial considerations will provide additional revenue for broadcast stations; but, at this time, simply because there are not enough television receivers in use, it would not be a paying proposition for advertisers, and they will be told so by any honest station management. Perhaps within six months, perhaps within a year, such commercial, "sponsored" television broadcasts will become an every-day occurrence and no one will think otherwise of them.

Of course, the serious difficulty with television today is that, at least on a single broadcast channel, we cannot have sound and vision at the same time. No simultaneous broadcast is yet possible. The few stations that are now broadcasting television have trouble even to switch rapidly from "aural" programs—those which can be heard—to "visual" programs. WRNY was perhaps the first that managed to alternate the "aural" program quickly with the images that are being televised. Less than a fraction of a second now intervenes during the switching from television to regular broadcasting, but this is, of course, not the final solution. We simply *must* have simultaneous television and "aural" broadcasting; but it is doubtful that we can have this on single broadcast channels for some time to come, unless an entirely new invention is made, and this, as yet, does not seem to be in sight.

It is, of course, quite possible to do it on two or more broadcast channels; but then, again, at the receiving end, we would need apparatus tuned in to different wavelengths, and that is evidently rather difficult to incorporate into a single set, although not impossible. While simultaneous television and "aural" broadcasting will

be comparatively simple on the low-wave channels, the trouble here is that for some years, this must be a strictly experimental enterprise; because, even though the larger manufacturers were to put forth a combined television and broadcast set to operate on the low waves, most of the listeners in the country would not be able to get such programs with their present sets. It would take years before such a change, from higher waves to lower waves, could be completely effected.

At one time, it was thought that broadcasting on the low waves would be the one cure-all for every radio ill. Unfortunately, this is not the case, mainly because there is such a thing as "skip distance." In large cities, it would be most difficult to receive the short waves and, on such wavelengths, few stations could be operated successfully as locals. A short-wave broadcast station located in New York or Chicago might be very powerful; yet no one in the same city could get the broadcasts at all, due to the "skip-distance" effect. The programs probably would come in much better two hundred miles away than twenty miles from the transmitter.

Of course, all of this discussion presupposes the dispelling of the synchronization bugaboo which, at the present time, is the nightmare of all television experimenters. It is like a similar situation which prevailed in the early history of radio, away back in the coherer days, when it was almost impossible at times to decipher the simple signals of the coherer, on account of static and other troubles. Very often the signals became totally unrecognizable, just as today, because of imperfect synchronization, the signals on the television disc are often badly blurred and unrecognizable. So, just as in the old coherer and crystal days the amateur had to use his imagination in order to decipher the code messages, so the present-day television experimenter must use his imagination to recognize the visual images. But these, of course, are the usual infantile diseases of a new art and will be speedily overcome as others have been overcome in allied arts.

That we will require an entirely new technique of televising various subjects, is, of course, a foregone conclusion. Just as there is a "radio personality"—because certain voices and certain sounds broadcast well and others do not—so it will be in television. Not everything is fit for televising; this holds true of faces as well as of objects. The matter of the subject, is, of course, all important. It was quickly found at WRNY, that certain faces, for instance, did not televise well at all. For instance, subjects with eye-glasses are entirely hopeless, because of their reflection. Oily skins broadcast better than dry skins. A woman with a large hat became a total loss during transmission, while a woman with a small close-fitting hat or none at all was far superior as a subject.

Also, if the subject is too small—such as for instance, a small toy monkey—it becomes unrecognizable. But on the other hand, if the subject is too large, the whole of it cannot be seen in the receiver, because of the small size of the image. Those received at the present time are usually only about one and one-half by one and one-quarter inches, being limited by the extent of the plate of the neon lamp, and size of the rotating disc.

On the other hand, engineers are now beginning to remedy the condition last mentioned, through enlarging the image by means of special lenses. Most of the trouble seems to lie in the fact that, at the present time, the neon tube does not give a sufficient amount of light to permit of enlarging the image; but this is also being overcome gradually. We probably will be soon using a multiplicity of tubes, concentrating their light on one part of the disc, and then enlarging the received image by means of lenses; or else improved tubes, giving greater light, will be developed.

It is quite possible that, before a year has passed, the 24-inch disc will have shrunk to a 5-inch diameter and the much smaller and sharper resulting image will be enlarged and thrown on a screen. Such television scenes will be much better in detail and more easily visible than the admittedly-crude images received at present.

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from Stations WRNY (326 meters) and 2XAL (30.91 meters) on various radio and scientific subjects.