

After Television, What?

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**“Those Who Refuse to Go Beyond Fact Rarely Get As Far As Fact” -
- - HUXLEY**

TELEVISION, which has been in the making for the last twenty-five years, and the perfecting of which has been freely predicted in many technical articles by many writers, as well as by myself, is now a reality. No longer need we look into the future for it. Although not perfected so that it can be attached to every telephone or to every radio set, television is, today, in a state comparable to that of radio, when its principles were first laid down by Heinrich Hertz, in 1888, and to that of Bell’s crude telephone, in 1876. It will take a few years to develop the television apparatus out of the laboratory stage, and much work as yet remains to be done. This is always the case when bringing the laboratory product to the final and practical everyday use with any instrument or technical appliance. It may take two years and even five years before every telephone and every radio set is finally equipped with its television attachment, but you may rest assured that this generation will soon personally witness the appearance of this stage of the art. There can be no doubt about it. But, and we may ask this question soberly,—“After television, what next?”

It is now possible to hear and see a person over a wire line, or over the radio. We have, therefore, made it possible to *transport two senses*, so to speak, to a distance, the two senses being sight and hearing.

In these days of wonder and achievement, we should ask ourselves the question, “What other of our senses is it possible to transport a distance, and, from our present-day knowledge of science, is it possible to transport any of them at all?”

The remaining senses are smell, taste and touch. Now, then, of course nothing can be said to be impossible, although some things are highly improbable. Thus, the next of the senses on the list being smell, is it possible to smell at a distance? I might say that this is not impossible, although highly improbable. From a technical standpoint, it may be quite possible to build an instrument highly sensitive to odors, which instrument would be able to distinguish between the most subtle variations of various smells or odors. The next step would then be to amplify these, which presumably could be done by means of vacuum tube amplifiers. After that, transmission could be effected electrically by many ways not known.

At the receiving side the impulses would be stepped up and some means would have to be provided to unscramble the odors. We can imagine, for instance, 5,000 small tanks at the receiving end, each of which would release, upon a contact being made, an amount of odor depending upon how much was wanted, as indicated by the impressed signal. Thus it would be possible to *recreate* at the receiving end, odors or smells similar to those sent out from the transmitter. All perfectly possible, but, and here comes the big question mark, why would any one want to do it? It would cost a million dollars or more to build such an apparatus, and to what good? So I would say, "Not impossible, but highly improbable."

The next sense to be transmitted would be touch. Again I will say, "Not impossible, but somewhat improbable." It should be a simple thing to construct an electrical apparatus operated at a distance, to transport the sense of touch, in some ways. For instance, it is possible, today, to build an apparatus that, by means of television, would enable mechanical fingers to open the combination of a safe. You would watch by television a mechanical hand, of which you would operate a duplicate at the sending end, and you could thus open or close the combination of the safe without much trouble. This is not impossible, nor is it improbable, but, as with the transportation of the sense of smell, there would not be many uses for such a device.

We have with us today the science of *telemechanics*, which means, operating either by wire or by radio an apparatus at a distance. Some years ago, before television was invented, I described the radio-controlled television plane, which will make it possible, in a not-far-distant future, to operate an airplane without a human being on board, and which, being provided with television apparatus, will enable a distant operator to see and guide the plane over enemy territory and drop bombs at any desired instant, although no one be on board the airplane.¹ We may call this "touch at a distance" and, in fact, it is just that. This is not only quite possible, but will be done in the next few years.

But when it comes, for instance, to actually *feeling* the texture of a piece of cloth, at a distance of a thousand miles, this would seem to be highly improbable, at least for practical purposes.

¹See **A Radio-Controlled Television Plane.**

The remaining sense, namely, taste, may be classed with the transportation of the sense of smell.² It is not impossible, but highly improbable. A machine can be invented whereby, just like the one explained under odors, certain impressions are made upon certain media, when certain foods or liquids are placed upon it. The tongue, by dissolving certain of the ingredients of the foods or liquids, gives the sensation of taste. The counterpart of an electrical tongue would present no insurmountable difficulties to a clever physicist, and it is possible to transmit such impressions, in the form of electrical impulses, to a distance. Here, at the receiving apparatus, the impulses could release from tanks or some such other apparatus liquids to simulate the transmitted taste impulses. This is not impossible, but the whole thing would be the height of foolishness, because no one would want to do it, as the expense would be entirely too high.

It might be possible for a New York merchant in this way to taste the quality of Chinese tea 6,000 miles from New York, but why would he wish to do it after all? And certainly, if he had to pay the cost of doing it, he probably would think twice before attempting it.

Coming back to television, what application this interesting invention will take in the future can only be dimly guessed at. There was a time when we were talking first about radio telephony, when it was conceded by practically all of

²Gernsback's editorials in the previous and subsequent issues of *Science and Invention* argued that modern science could at once exceed and deceive the senses. On the one hand, the question that "philosophers and scientists in general have for centuries been asking themselves, whether it is not possible that, outside of our five senses, there could be still higher senses," had become possible to explore in a rigorous and experimental fashion:

We know so little about our own anatomy, we know so little about certain glands, and certain other component parts located in our bodies, that it is impossible at this time to say that any one of these may not be for a purpose that as yet can not even be comprehended by us. While it seems improbable, it is not impossible that at some future date human beings may be able to communicate with each other by means of some simple apparatus which is neither sound, nor heat, nor radio. That it will be by some vibratory method is not doubted by scientists today, but just how it will be brought about we are entirely too ignorant to know.

Hugo Gernsback, "Are New Senses Possible?" *Science and Invention*, 15, no. 1, (May 1927): 7.

And yet the very sciences that seemed to promise a new understanding of the human sensorium produced an estrangement from the new phenomena we were sensing when it came to our lived, embodied experience. Science, in effect, deceives our senses when the "magic" of cutting edge technology renders invisible processes tangible and induces affects that we shouldn't trust:

As time goes on it becomes apparent that our senses are becoming more and more involved directly due to scientific progress. ... Many new illusions have come about, all illusions, by the way, that strangely tend to aid progress and help in many cases to further elevate the human race. For instance, you pick up a telephone receiver and listen to your friend talk. The engineer knows better and will tell you that you hear no such thing. You do not hear the voice of your friend at all. It is simply an auto-illusion. ... We should never trust our senses too much in these latter days of scientific progress.

Hugo Gernsback, "Modern Illusions," *Science and Invention*, 15, no. 3, (July 1927): 201.

us who had a hand in the shaping of its destinies, that the logical thing would be talking by radio to our friends. Thus in the first book ever written on the subject: “The Wireless Telephone,” published by me in 1908, before there was a Radiotelephone, I could see only one use for the coming invention and that was a parallel to the wire telephone. I did not dream of broadcasting, nor did any one else.³

The same may be said of television. Right now we are glibly talking about television attachments on our telephones, and radio sets. We may be all wrong, and the new art of television may turn into entirely different directions, undreamt of today. Science has the habit of doing the unforeseen, and often throws our best and most logical predictions on the scrap heap.

³See **The Wireless Telephone**.