COMING INVENTIONS
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Television and the Telephot

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THERE are certain inventions which, altho not as yet existent, we may take for granted will be invented some day without any doubt whatsoever. While the layman may not believe in the science of prediction, still there are quite a few things in physics that can be prophesied ahead of time quite safely. There are many inventions which have been predicted in the past and which are quite certain to be realized in the not too distant future. That they have not already appeared is by no means the fault of science, speaking generally, but simply because certain minor phases in the various endeavors have not as yet advanced sufficiently to make such inventions possible. A point in case:

Jules Verne, almost fifty years ago, predicted the submarine down to the last bolt. His prediction, of course, was laughed at and called impossible. At that time it was impossible, for the simple reason that the technique had not advanced sufficiently to make such a boat possible. Furthermore, Jules Verne had quite a clear conception how the ultimate submarine would be constructed, and he so described it in his marvelous book, "20,000 *Leagues Under the Sea.*" Of course, in those days the internal combustion engine had as yet not been invented, which was one of the chief drawbacks and which is the reason that at that time the submarine was not feasible. Neither had the storage battery been invented, and Jule Verne's idea of propelling a sub-sea boat by means of primary batteries alone, while feasible on paper, was not practical.

Another case in point is that of the planet Neptune, which had never been dreamt of until Le Verrier, the famous French mathematician, in 1846, by mathematical deductions, not only predicted that there *must* be another planet beyond Uranus, but he also predicted—on paper—just where in the heavens the planet might be found. His prediction proved correct, and the planet Neptune was indeed found almost exactly in the region where Le Verrier had deducted that it must gravitate. This was one of the most astounding scientific predictions ever made, but this instance, of course, was founded upon the exact science of mathematics.

Another case in point is that we know to-day that our list of elements is not quite complete. There are several gaps as yet of certain elements which have never been seen by man. Not only do we know that there must exist such elements, but we also know the *physical properties* of them, should they be discovered some day, which no doubt they will. When we therefore make the assertion that certain inventions are coming, we make it on a safe, scientific ground, because such discoveries surely will be made without doubt.

The subject of the present article "*Television, or Seeing at a Distance,*" is one of these inventions. Numerous inventors have busied themselves trying to invent an apparatus or machine whereby it would be possible for one person to see another while talking on the telephone, but so far nothing practical has resulted. The future instrument on which the name "Telephot" (from the Greek *tele*-far, *photos*-light) has been settled, is supposedly an apparatus attachable to our present telephone system, so that when we speak to our distant friend, we may see his likeness not only as an immovable picture, but we will see his image exactly as we see our own image when looking into a mirror. In other words, the apparatus must faithfully follow every movement of our distant friend whether he is only five blocks away or one thousand miles. That such an invention is urgently required is needless to say. Everybody would wish to have such an instrument, and it is safe to say that such a device would revolutionize our present mode of living, just as much as the telephone revolutionized our former standard of living.

Most inventors who had been working in the past on this problem, failed to bear in mind a very important consideration.

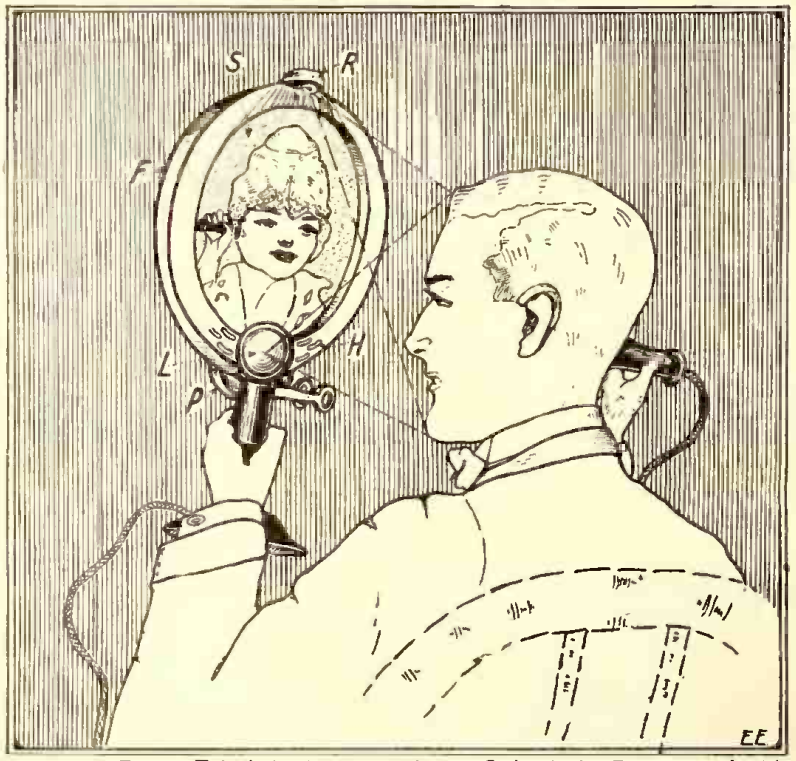
If the Telephot is ever to be a success, it must of course be possible to attach it to the present-day telephone lines. That means that the instrument must of necessity work in conjunction with the telephone and the ground for a return "wire," which is the same thing as two wires. Over these two wires to-day, we do not only speak, but "Central" also rings your bell. In the case of a "pay-station" telephone, quite a few more functions are accomplished over these two same wires. It is also possible to-day to telegraph and telephone *simultaneously* over two wires neither one or the other being affected. Why then should it not be possible to also send *translated* light impulses over these two wires at the same time that the voice impulses are translated over them?

In most of the schemes offered by inventors heretofore, a plurality of wires was necessary; in some cases *several thousand pairs of wires.* No matter how well such an instrument might work, this alone would doom it to certain failure. Another point is that the future Telephot must not be a cumbersome machine requiring motors and all kinds of other cumbersome machinery, difficult to operate by the layman.

The future instrument must work the same as the telephone. In other words, all the subscriber has to do is to lift the receiver off the hook, and he will immediately see his friend just as if he were talking to him in the same room. All these requirements may seem hard on the inventor, but they are absolutely necessary as a simple reflection will show.

The writer also ventures to say that no Telephot will ever amount to anything that necessitates the use of selenium. As is well known in nearly all past suggested television schemes, the selenium cell in one form or another was used. The underlying idea of these schemes is that light rays of the object striking the selenium cell varies the resistance of the same, and these various impulses are then sent over the line to be translated into a picture by various means and manners at the receiving end. The trouble with the selenium cell is that it is not sensitive enough, and on account of its inertia does not work fast enough. Also in most of the proposed television schemes, a multitude of selenium cells is required, which again means a plurality of wires, thereby dooming the scheme at once. There must be something else besides selenium that can translate light impulses into electric impulses. Indeed, such a scheme is already existent, nature having worked it out millions of years ago. And while it is not electrical, it illustrates what we are driving at.

The animal eye is the most marvelous television apparatus ever invented. Moreover, it is non-electrical. If we look at an object, the latter is thrown into our eye, which is nothing but a marvelously efficient camera, but instead of a photographic plate, the impulses are thrown up on the *Retina* which records the object, not only in black and white as does the



What the Future Telephot Will Look Like In Order to be Practical. Light R Throws Light on Speaker's Face and is Reflected Into Lens L. Instead of a Mouthpiece, the Holes H of the Sensitive Transmitter Inside of Frame F Pick Up the Speech. The Picture of the Distant Person Appears on Screen S.

without necessitating any more wires than there are used now. As everyone knows, the subscriber's telephone is connected with *two* wires to the central station. Each telephone instrument therefore requires *two* wires, or otherwise one metallic wire,