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Television, or The Projection of Pictures Over a Wire

By H. Winfield Secor

PROBABLY there is no more interesting, and as yet unperfected, branch of science than that of *Television*, or the process of transmitting and reproducing a scene or a person's likeness over a wire, such as a telephone circuit, so that, for instance, a person telephoning over a line can see on a screen in front of him the person to whom he is talking.

There have been many attempts made to solve this fascinating problem. Several European scientists, including the late E. Ruhmer, of Berlin, succeeded in constructing such an arrangement for the simultaneous transmission and reproduction of living pictures over a wire by utilizing a great number of selenium cells, mounted very compactly in a small flat area.

Selenium, as we know, changes its electrical resistance proportionately to the amount of light thrown on same. Therefore, as every picture is made up of light and dark shadows, it is evident that if such a picture is properly projected on a group of selenium cells that the different cells will change their electrical resistance proportionately to the amount of light projected on them and corresponding conjointly to the light and dark shadows of the view before the instrument. Simply explained, this system works as follows:

Each selenium cell on the transmitter would be connected up with its individual lamp (very small, of course), and thus it is perceived how, at the receiving station a picture or view could be reproduced in black and white and intermediate tones, for the reason that each selenium cell would allow a different amount of current to reach its individual lamp.

This may seem a little ambiguous or complicated to those not familiar with the subject, but what we are driving at may be the more readily perceived or understood by inspecting Fig. 3A. The portrait photographed, reproduced by the half-tone process, exhibited at Fig. 3A, is photographed onto the copper plate used in printing the reproduction on this page, through a finely ruled glass screen. This screen therefore causes the original photograph to be broken up into many small dots. The illustration here referred to, for instance, has about 140 dots to the inch. By looking in an ordinary manner at the photograph here reproduced, no distortion is noticeable, and the picture appears quite natural. Nevertheless, *it is made up entirely of dots*. You can convince yourself of this by inspecting our illustration with a good lens. This brings out the logic of the argument previously referred to, viz., that it is possible, theoretically and practically, to make a machine that will reproduce a picture by such an arrangement of dots or points; whether all of the dots necessary in building up the picture are simultaneously thrown on the screen of the Television apparatus, or whether these dots are successively or very rapidly thrown on the screen, one after the other.

The second view, at Fig. 3B, shows a largely magnified portion of the (marked) eye on the face of the half-tone cut. This shows how the reproduction of the face is made up of small dots, and by closely looking at any newspaper illustration, which is usually photographed through a coarse screen, this *dot make-up* of the picture will be very evident. Some illustrations in magazines and books, which are reproduced on highly polished and specially coated paper, are photographed through such a fine screen that the keenest eye cannot perceive any break-up or dot formation.

As aforementioned, a number of work-

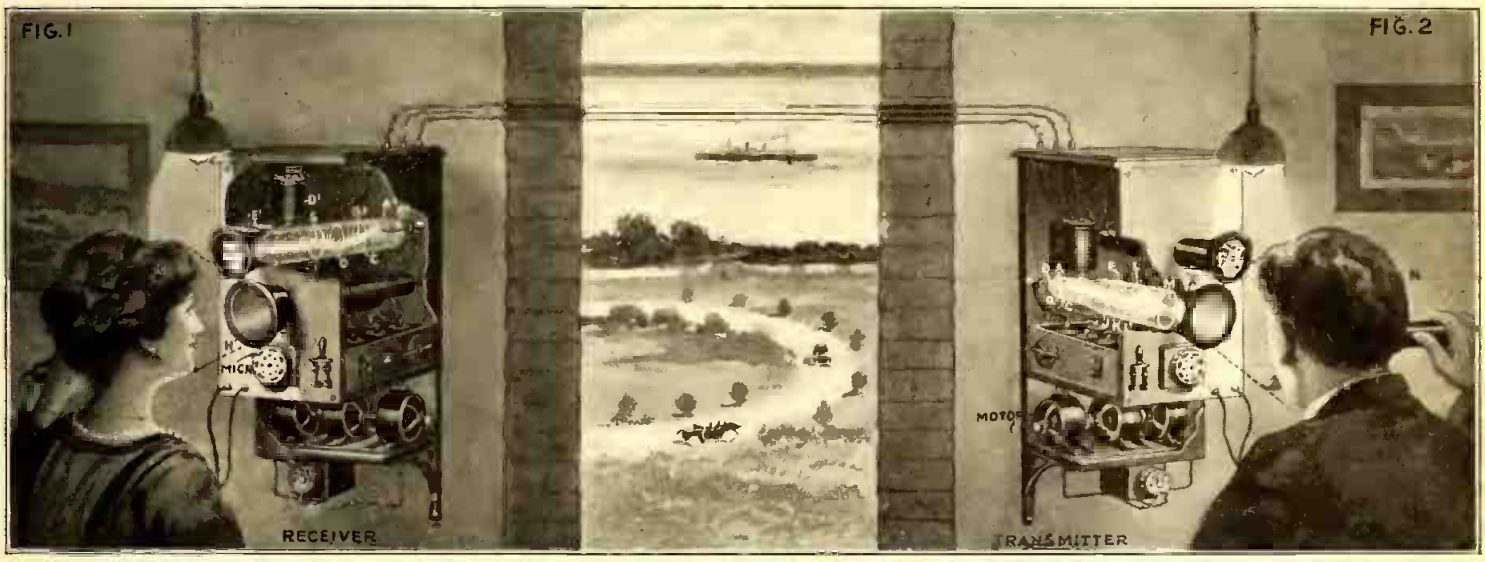

Fig. 1, at Left, Shows Image of Man at Right Being Transmitted and Reproduced on Screen in Front of Lady. Her Face is Transmitted and Reproduced at Fig. 2 (Right) Before Man. Mr. A. A. Campbell-Swinton's Scheme.

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