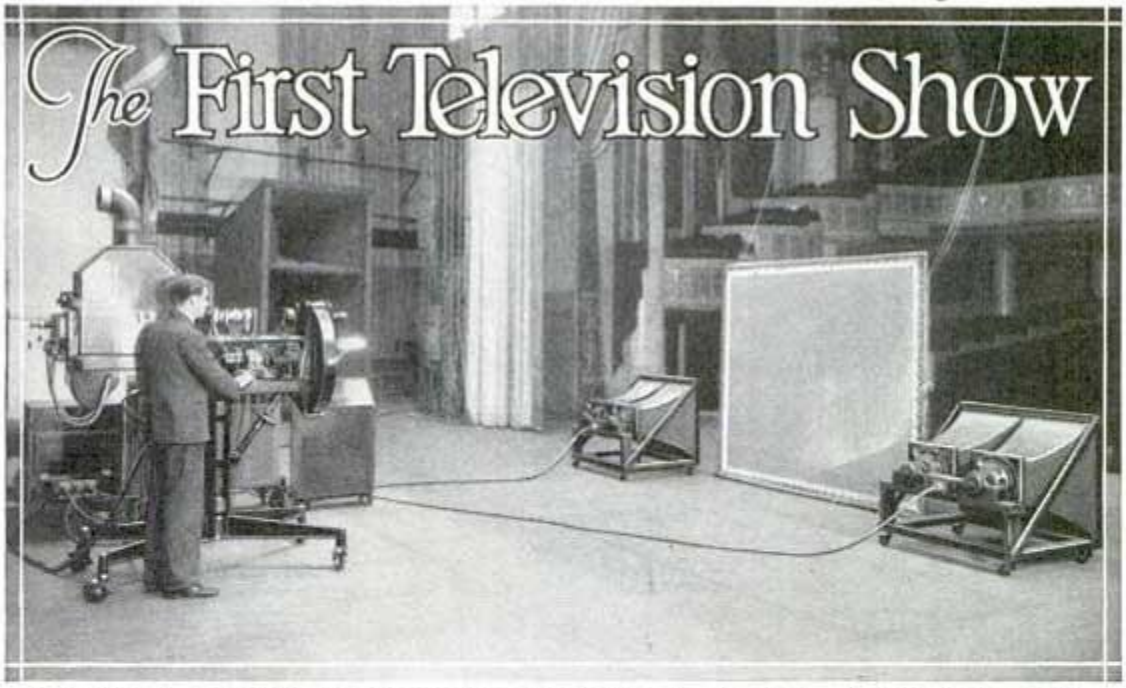
Popular Mechanics Magazine
REGISTERED IN U. S. PATENT OFFICE
WRITTEN SO YOU CAN UNDERSTAND IT
Vol. 54 AUGUST, 1930 No. 2

880

The First Television Show



R. D. Kell, Operating Television Theater Projector, Showing How the Picture Is Projected from Backstage; beside the Screen Are Loud Speakers for Reproducing Accompanying Radio Voice

A DARKENED theater, a curtain pulled back to reveal a screen, six feet high and seven feet long—forty-two square feet of silvery wall—and the world's first talking television show in a regular theater was on.

The projection apparatus was behind the screen and, not in the rear of the theater as with the movies. On the left side of the stage, a green spotlight shed its ghostly glow over an announcer standing beside a microphone. Then out of the dark boomed a voice:

"Is that you, Trainer?"

"Here we are!"

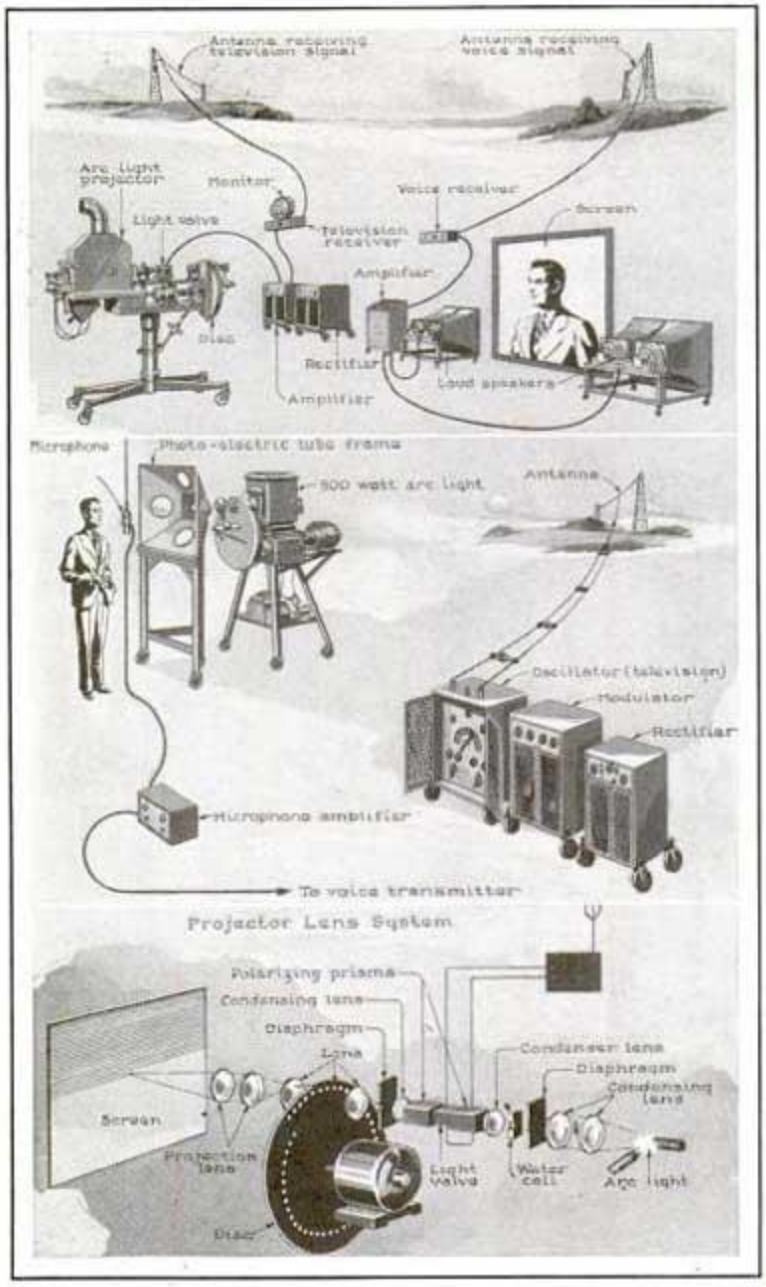
Merrill Trainer's moon face, wearing a broad grin, double its actual size, flashed on the screen.

"Let's see some smoke," commanded the stage announcer. "Light a cigaret!"

Trainer, who was more than a mile away, listening through a telephone, although his voice came back to us loud enough to be heard all over the 2,500-seat theater, was seen to light a cigaret and puff vigorously. A cloud of smoke filled the upper half of the screen.

As the master of ceremonies, Trainer then intfoduced several vaudeville teams and soloists. The team partners also were separated by the distance between the theater and the improvised laboratory studio. Yet they enjoyed an instantaneous exchange of thoughts, so that it was possible for them to sing synchronously, as if both stood on the stage before the audience.

The significance of television in the realm of entertainment became still clearer, when an orchestral leader, John Gamble, gave the title of four selections to his musicians in the orchestra pit. And lifting his baton, they saw him order the first chord of music. From the distant laboratory, Gamble conducted his men with no more difficulty than if he had been in the theater. The crucial test of his conducting and the synchronism of Dr. E. F. W. Alexanderson's apparatus came when the orchestra played a cuckoo



Courtesy General Electric Co.

Top to Bottom, Complete Receiving Layout; Complete Transmitting Apparatus, and Detail of the Receiving Layout

song. Gamble alternated with the drummer and pianist in blowing out notes such as cuckoos sing.

Save for one slight interruption, the program continued for over an hour. The audience heard and saw mezzosopranos, comedians, monologists, as well as Gamble and Trainer. Everybody lost interest in the mechanics of television; the realism was convincing enough to make them forget they were entertained by wavelengths and lenses. What the showman calls "emotive force" came out into the theater. Those who sat before the television screen were moved by the symbols of laughter and pathos.

Brought to the finale, audience and spectators were escorted backstage. The television projector is a vivid arc light inclosed in metal. As it comes out of the illuminating chamber, the beam of light is condensed to a pencil's diameter. It passes through a tiny aperture in the diaphragm, then through a water cell. Now it reaches the vital stage in the Alexanderson system of television. After coming out of the water cell and polarizing prisms, the beam meets a wonderful device—invented by Dr. August Karolus, of Leipzig, Germany—popularly called a "light valve."

The Karolus cell makes life-size television possible. It has the ability to turn an intense beam of light on and off at high speed. Another explanation describes the cell as a flask filled with nitrobenzol, which literally twists a beam of light. In the Alexanderson system the Karolus valve displaces the neon tube, used in other systems of television. Its role in television is similar to the loud speaker's in radio receiving.

The subject to be "televized" stands before a rectangular opening, each side of which has a photo-electric cell. On the outside of the studio wall stands a four-legged apparatus supporting a scanning disk, about the size of a bicycle wheel, a

synchronized motor and an arc light incased in metal. This scanning disk, unlike the one at the theater, does not contain lenses in its forty-eight apertures. The openings are just plain holes and the disk rotates at a speed which allows 40,000 apertures to pass before the lamp beam in one minute.

From where he stands, the subject sees a flickering light coming through a two-inch aperture. At most, the illumination falling on the subject is very dim. In fact, he is plunged into almost complete darkness. But since no actor likes to perform under such conditions, Doctor Alexanderson was faced by a real problem until he devised a method of illuminating the tiny studio, the use of dull blue incandescent lamps making it possible to increase the illumination. Since blue neutralizes the orange gelatin covering the photo cells, the vital pulsations suffer no interference.

Several broadcasters are now sending out television signals, and they are being received hundreds of miles away. But they are merely silhouettes a few inches high. Attempts to broadcast halftone images over long distances are still unsuccessful, according to Doctor Alexanderson. It is difficult enough to send a television "still," but if moving figures are attempted, the reception is blurred. Without making absolute predictions, he does, however, hold forth hope.

The General Electric laboratories are in constant communication with the short-wave station VK2ME, at Sydney, Australia. Recently, a world's record for television reception was established when the Schenectady short-wave station transmitted a black rectangular design on a white postcard. Almost instantaneously, the design was rebroadcast by VK2ME on a wavelength of 28.8 meters and received in Schenectady, the complete circuit requiring about one-fourth second.

Popular Mechanics, August 1930