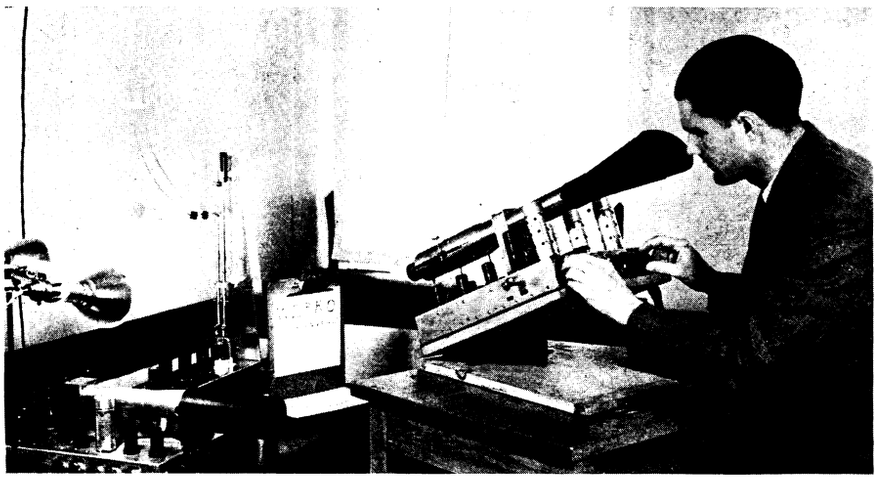

LATEST IN "HAM" GEAR

A television transmitting and receiving system built around a new iconoscope camera tube developed by RCA is here being adjusted by an amateur. On the table to the left is receiver. Transmitter is in background.

RADIO

Cheap Television Camera Permits Amateur Television

Complete Transmitting System Can Be Built for $300 Or Less With New Seven-Inch Cheap Iconoscope Tube

TO THE conversations by voice and by dot-dash, now sent out by amateur radio stations, may soon be added the squeals of sight transmission. Electronic television, using basically the same method as that employed by professional stations, is now made possible with the production of a simplified and relatively inexpensive iconoscope tube, the "eye" of television cameras.

The new tube, developed in the Harrison laboratories of the Radio Corporation of America, is about seven inches long, compared with 20 inches for the professional iconoscope. They are quite different in appearance, the amateur tube resembling a tapering drinking glass, with the top sealed.

In use, the face of the tube takes the place of the film in a camera, a small lens focussing the image upon the sensitive surface. This is transparent, and the light passes through to the back, where it is sprayed by a stream of electrons, moving across the picture in 120 horizontal lines, at a speed of 300 miles an hour. Electrical impulses are generated, corresponding to the lights and shadows. Thirty times each second the picture is completely covered, so that many pictures are sent in a second.

In the professional systems, each picture is divided into 440 or more lines. Thus, the amateur system does not give the detail of the more elaborate apparatus, but the view is about as clear as a newspaper halftone.

A cathode ray tube, for viewing the picture, has also been developed with similar characteristics to the transmitter. In demonstration equipment built by RCA engineers, this tube is placed immediately behind the iconoscope where it immediately reproduces the picture being sent, and therefore serves as the finder on a camera. This cathode ray tube can also be used in the receiving equipment, where it gives a picture about two inches in diameter. However, a larger receiving tube may also be used, giving a correspondingly bigger picture, though with no more detail. Technical details of the apparatus used both for transmitting and receiving are included in a series of articles now appearing in *QST*, official publication of the American Radio Relay League, national organization of amateurs.

The amateur iconoscope tube will retail for slightly under $25, and a complete transmitting station can be built for $300 or less, depending upon the equipment the amateur already has available. Those who now have transmitters using the 2½ meter wavelength, can easily adapt them to send television alternately with sound. Existing amateur licenses permit television transmission on the 2½ meter band, and shorter waves.

Radio amateurs and others can obtain technical information about the new tube by sending a three cent stamp to SCIENCE NEWS LETTER, *2101 Constitution Ave., Washington, D. C., and asking for the Iconoscope Bulletin.*

Science News Letter, June 22, 1940

ENGINEERING

Modern Automobile Design Constitutes Safety Hazard

MODERN automobile design may make an aesthetically pleasing car, but many of its features detract from a car's safety, Dean A. Fales, associate professor of automotive engineering at Massachusetts Institute of Technology, told the meeting of the Society of Automotive Engineers in White Sulphur Springs, W. Va.

Steeply sloped windshields and rear windows are objectionable, he found, because they gather more dirt, and in some cases even cause double vision, where interior reflections produce two images of a traffic light, for instance. They may, on sunny days, cause blinding reflections of the sun for drivers of other cars.

Rear vision is so limited in many recent cars that backing becomes difficult, he stated. The large blind spots in the rear quarter prevent drivers from seeing overtaking cars, and side-swipe accidents result.

While the use of sealed beam headlights gives better illumination of the road at night, placing the driver closer to the road subjects him to increased glare.

"The lower cars give the driver a false sense of security and no passenger car can be built low enough that some drivers cannot leave the road and turn over," he said. "Seating positions in the older cars and busses and trucks give the driver better vision and enable better maneuvering in congested traffic, as well as placing drivers out of the headlight glare zone."

Science News Letter, June 22, 1940