## Keeping an Eye on Television's Scoreboard

is the heart of a modern television receiver. From its external appearance this tube seems to be a simple device, however there is much more to it than is evident from a casual inspection. The schematic arrangement of the electrodes in a cathode ray television receiving tube are shown in Figs. 1 and 2. The "electron gun" at the small end of the tube produces a beam of electrons and is equipped with an electrical "valve" which varies the intensity of the

beam in accordance with variations in the received radio-television signal. The beam is focused to a spot on the screen at the large end of the tube. Deflecting elements of either the electromagnetic type shown in Fig. 1 or the electrostatic type shown in Fig. 2 deflect the beam both horizontally and vertically in accordance with the synchronizing impulses received along with the picture signal. This rapidly moving electronic beam "paints" a duplicate of the scene being viewed by the television "camera,"

in the transmitting station, directly on the fluorescent screen (S) at the end of the tube. The beam-deflecting elements are either placed around the tube as indicated in Fig. 1, or, built into it as in Fig. 2. The sound ac-companiment of a television broadcast is handled about like an ordinary radio program. Both sight and sound frequencies will be received simultaneously on your postwar television receiver.



ering image of Felix the cat to the clear picture of

the good looking nurse, television has marched steadily on to what will be an important postwar industry and a useful public service.

Felix was the product of motor-driven whirling disks at both the transmitter and the receiver. These early scanning disks cut the image up into 60 horizontal lines, or streaks of light. Mechanical scanners were soon replaced by the electronic system of television, then step-by-step the number of lines per picture were increased until a fairly satisfactory image of 343 lines appeared in 1936. Newly designed equipment soon produced finer pictures of 441 lines, and just previous to Pearl Harbor these had been stepped up to the excellent 525 line television pictures that were on the air from the NBC station in New York City. These three unretouched pictures were photographed directly from the television receiver screens. All streaks have now vanished and continued improvements are being made at several of the large laboratories, within the limits of all-out war production.

A large cathode-ray tube

