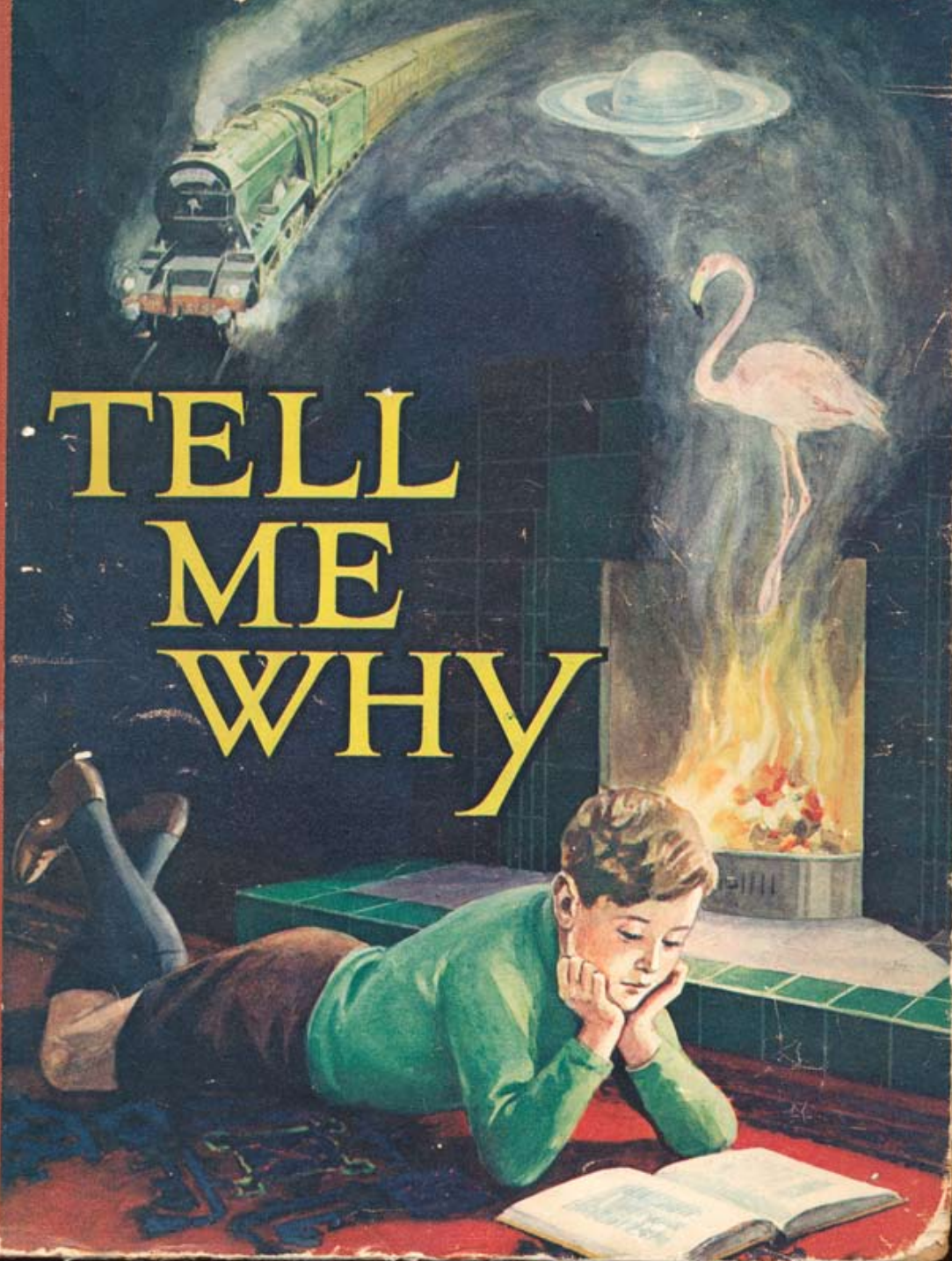
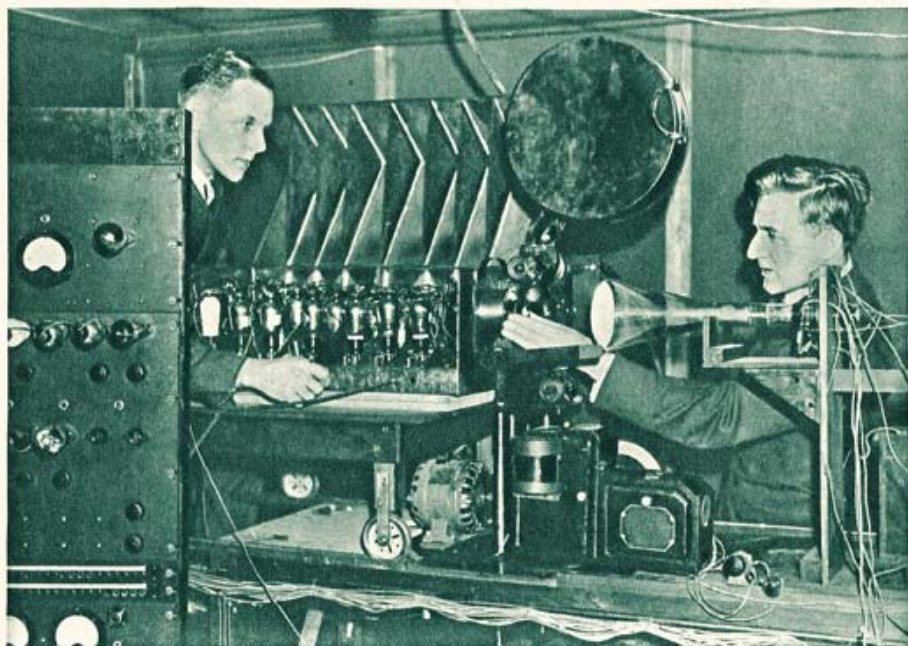


THE · WONDER · BOOK · OF

TELL
ME
WHY





[Sport & General.]

MAKING ADJUSTMENTS TO AN EARLY TYPE OF CATHODE RAY TRANSMITTER.

WHAT WE REALLY SEE IN TELEVISION?

IN television we do not, of course, see the actual people and things at the transmitting end, any more than in broadcasting we hear the actual voices or musical instruments. What we hear is a loudspeaker vibrating so as to produce the same sounds that entered the microphone at the transmitting end, and so in television we see light and shade reproducing the figures which are being "scanned" at the transmitting end. The reproduction differs from the original not only in size, but also in being black and white instead of coloured.

The system used at present by the B.B.C. is called the cathode ray system, in which the screen is the end of a large valve. This screen is coated with a fluorescent material and the light is produced by electrons, leaving the cathode at very high speed, striking the screen and causing a bright spot of light to appear. The light moves about very rapidly to cover the whole picture in response to

TELL ME WHY?

changes of current which are varied in accordance with signals from the transmitter.

The illustration on page 19 shows the operators making adjustments to an early type of cathode ray transmitter.

In television, although you appear to see a whole picture,



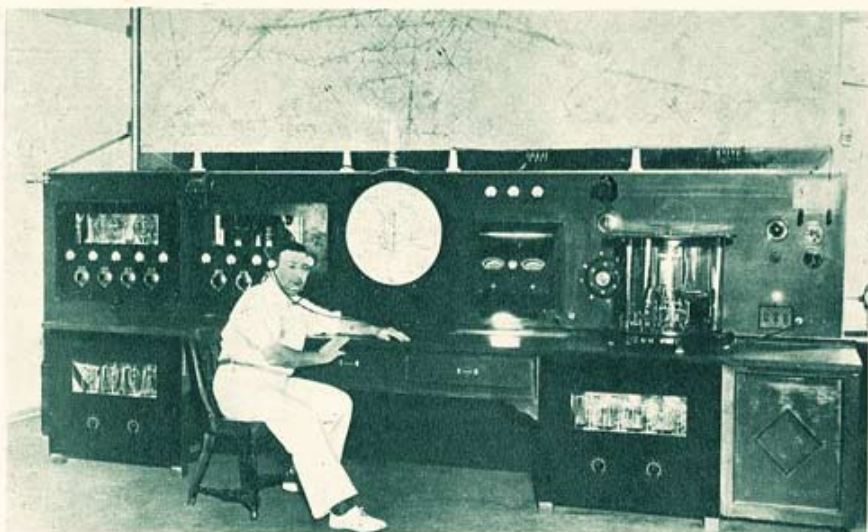
[Sport & General.

The wireless set of the future, which will automatically switch on to any station asked for. It will be controlled by the human voice and equipped for television.

actually, your eye is deceived and what you see is really a very rapid succession of dots of light and shade. If you examine a photograph in a newspaper very closely or with a magnifying glass, you will find that it is made up of thousands of little dots of varying degrees of light and shade. The television screen is covered with dots in the same way, one at a time, but changing so rapidly that the image appears continuous. As with the cinema, deception of the eye is due to the

“retention of vision”; although one dot actually disappears before the next appears, the eye “holds” it so that it seems to be appearing simultaneously.

It is only changes in electric current that are transmitted, these changes being turned into proportionate values of light or shade at the receiving end.



[Wide World Photos.

A wonderful flight-recording device operated by the sounds of the aeroplanes in flight. If a plane approaches, say, a mountain range in fog, the pilot can be told by telephone to alter his course.

WHAT IS NOISE ?

WE all know a noise when we hear it ; but what is it ? Well, first of all it is sound, but not all sounds are noise. A noise is really a complicated sound in which various wavelengths or sounds of different pitch have become mixed up. If you strike a glass, you hear a "pure" musical note, but if you drop half-a-dozen on the floor, you will get a hundred different sounds that produce a noise.

Really, we can almost define noise by saying that it is sound out of place. A drum gives a musical note in a concert hall when it is played at the right moment, but if it crashed in at the wrong moment or is played by your next-door neighbour at midnight, you would say "What a noise !" Some sounds which in themselves are not unpleasant produce a "noise" when they mix or fail to "combine."

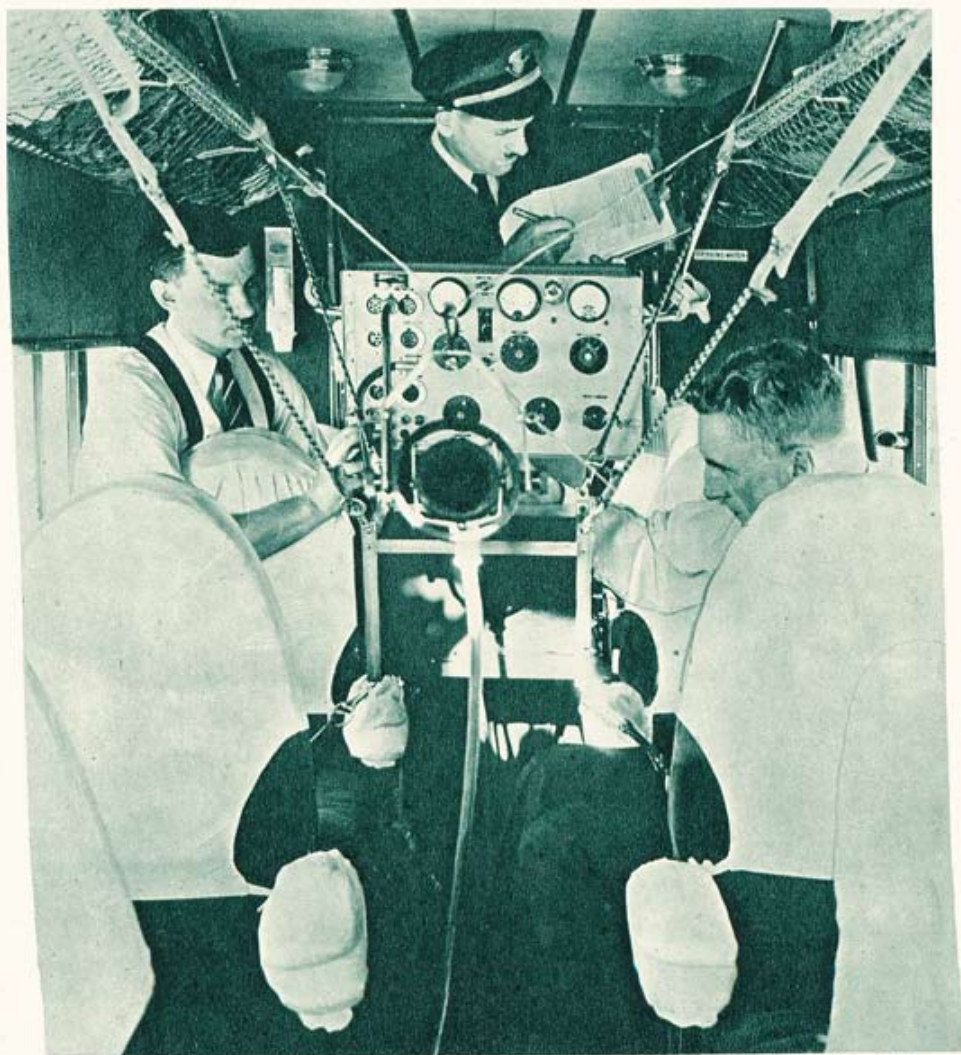
One thing we do know is that noise is bad for us. We may think we are becoming accustomed to it, but all the time it is doing harm. When a test was carried out, it was found that people working in a noisy room were, on an average, twenty-five per cent. less efficient than people working in a silent room.

We now have a means of measuring the intensity of noise, the standard of measurement being called a decibel. Ten decibels is a

WHAT IS NOISE ?

quiet whisper ; twenty decibels, the average of a very quiet street ; fifty decibels, cars passing with the windows shut or ordinary conversation in a room ; and so we go up to ninety decibels for a pneumatic drill and one hundred and ten decibels for a noisy aeroplane.

Noise is produced by irregular periods of compression in the air or other substance, and sound, by regular periods of the same type of action.



[Wide World Photos.]

Sound engineers with an acoustic analyzer measuring noise vibrations, the chief cause of air sickness and high maintenance costs, in an air liner.