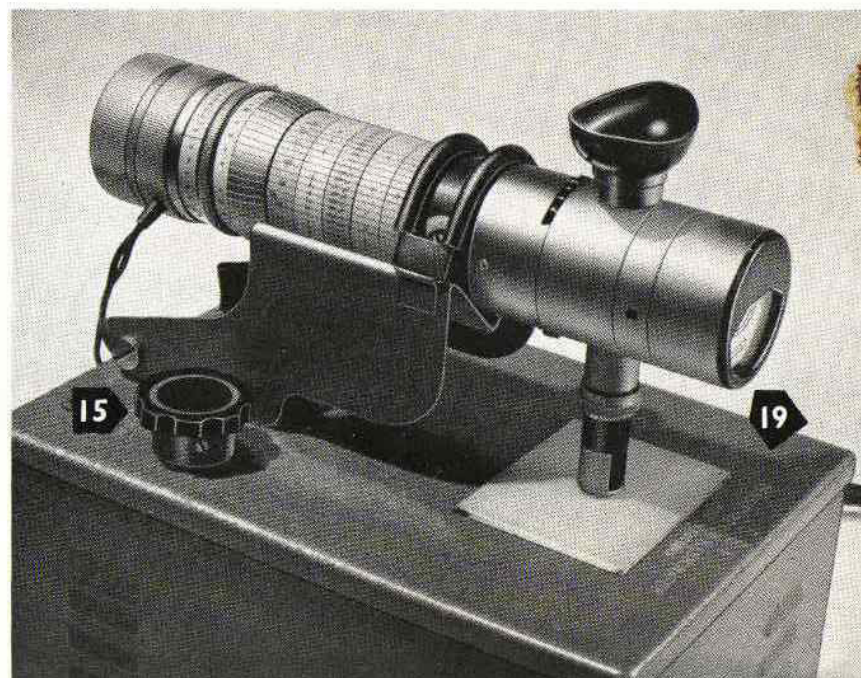


Fig. 3. View of the Scales showing Relative Density Scale and reference mark screw. The instrument is shown recording a density value of 0.23. Arrow (20) points to Relative Density Scale

Fig. 4. View showing Zero Adjusting Screw (15)



TO ADJUST THE ZERO

To enable the relative density scale of the photometer to be used as an absolute scale it is necessary to adjust the brightness of the illuminator. The procedure is as follows:—

10. Turn the operating ring of the photometer until the screw head in the graduated tapered ring corresponds with the zero of the relative density scale. This screw appears opposite 27° on the film speed scale and is in line with the reference mark of the photometer (Fig. 3).
11. Focus the eyepiece on the photometric spot.
12. Set the brightness range selector to the white index mark for densities between 0 and 2.0 (for higher densities, see 17 below), the colour-of-light corrector to the yellow index mark and the photometer rheostat control (Fig. 2) to about its mid position.
13. Look into the eyepiece, press the button switch in the operating ring and turn the densitometer zero adjusting screw (Fig. 3) until photometric balance is obtained.

Note: If the spot is yellower or whiter than the surrounding field, turn the rheostat control until colour balance has been restored. This must be done before the final zero brightness adjustment is made and should, as implied in 12 above, normally be obtained with the rheostat control at about its mid position. The needle of the photometer galvanometer (19, Fig. 4) should not be allowed to go over the end of the scale, but there is no need to use the red 'standard brightness' mark for this work.

TO MEASURE TRANSMISSION DENSITIES

14. Place the transparency, emulsion upwards, on the diffuser and arrange the part to be measured exactly under the aperture of the supplementary attachment (Fig. 2).
15. Look into the eyepiece and make any slight adjustment of the position of the negative which may be necessary to bring the image of the part to be studied over the photometric spot. The cradle stop screw may be used to assist in focusing the image of the negative, but it may sometimes be an advantage not to focus too sharply. Then press the switch button and rotate the operating ring until photometric balance is obtained.
16. Read the density from the relative density scale, using the line adjoining the screw mentioned in paragraph 10 as the reference mark.
17. For densities above 2.0, change to the 'red' range selector and proceed as above but adding 2.0 to the scale values then obtained.

Precautions to be taken in measuring transmission densities

The S.E.I. densitometer is intended to measure 'totally-diffuse densities'; that is to say, the density value should be that obtained when the image