

tinuous. The method is so sensitive that, if a plate is 0.05 mm. distant from the true focal plane, a displacement of the lines is noticed. The camera was originally furnished with a plain index and scale reading to millimetres only, but it was found necessary to rule and apply a vernier to read to tenths, and to estimate to twentieths of a millimetre. The importance of accurate focus in line of sight work cannot be too highly emphasized, for, as the method outlined above shows, any inaccuracy of focus will result in a relative displacement of the star and comparison lines whenever, as often happens, the centres of intensity of the illumination pattern of star and comparison light do not exactly coincide.

Adjustment of Prisms.—Instead of using the minimum deviation device attached to the prism train and allowing any part of the spectrum to be brought into the centre of the field, the prisms were placed so that the ray H_{γ} was central and then rigidly fastened*.

MODIFICATIONS AND ADDITIONS.

The greatest difficulty encountered was that of flexure of the parts, but, in order to guard against every possible chance of systematic displacement, the whole instrument was thoroughly overhauled and changes made wherever it was thought any error could occur. The principal alterations were in the slit diaphragms, the slit, the comparison apparatus and in the addition of various trusses to overcome flexure. These will be described briefly in turn.

* Screws passing through the top of the box and pressing on the top of the prism cells are provided for clamping the prisms in position, but sufficient pressure for this purpose will induce unequal strains in the glass and affect the definition. As the collimator and camera lenses are corrected for H_{γ} , the camera and train were placed to make this ray central, and screws were inserted through the base of the box and the arms of the minimum deviation link-work, clamping the cells firmly to the base without fear of inducing strains in the glass. The strips on the bases of the cells, defining the positions of the prisms were loosened, and the prisms re-adjusted for minimum deviation. After the strips had been tightened, the top plates supplied with cork washers bearing on the prisms, were so adjusted as to introduce only sufficient pressure to hold the prisms in an invariable position without affecting the definition.