quently we take reading $B = 7{\cdot}326$ with the lever resting against **b** and enter it in column 3. As $(7{\cdot}326 - 0{\cdot}541) \times 2$ would evidently strike above the upper end of the rod, the observer now makes a new pointing on say 5·000 with the lever remaining against **b** which is entered in column 2, and he afterwards completes the set of four readings by passing the lever successively to pins **c** and **d** and taking the corresponding readings, viz.: $C = 8{\cdot}3925$ and $D = 11{\cdot}785$ which are entered in column 3 by the recorder.

The third sight taken is a foresight from station 49 on rod **F** at point 10. As before, after having found out by trial that the horizontal optical axis will strike the rod a little below figure 5, the lever is butted against pin **b**, and the telescope set perfectly level with the aid of the micrometer screw—when the two readings $B = 4{\cdot}876$ and $B = 4{\cdot}873$ are taken consecutively with the telescope and level respectively in the erect and inverted and in the direct and reversed positions; also readings $C = 8{\cdot}383$ and $D = 11{\cdot}902$ with the lever successively held in position by pins **c** and **d**. As 11·9 less 4·8 is equal to 7·1, it is evident that a new pointing B is necessary for taking reading A. The lever is therefore returned to pin **b**, the intersection of the cross wires directed to figure 9·000 on rod which pointing (B) is entered in column 2, and the lever handle lowered so as to strike pin **a**, when reading $A = 1{\cdot}974$ is taken and recorded.

Next in order comes another foresight, viz.: that from station 49 to rod **F** at point 11, when a similar set of operations is performed; this time beginning with direct and reversed level readings: $D = 11{\cdot}826$ and $D = 11{\cdot}830$ and ending with reading $A = 1{\cdot}494$; an extra pointing $B = 8{\cdot}000$ having had to be made.

The last of the set of four sights required from station 49 for precision levelling and distance measuring or general surveying purposes, is a back sight on rod **E** at point 8. In this case it is found that it is best to take the direct and reversed level readings with the lever arrested by pin **c**, viz.: $C = 9{\cdot}156$ and $C = 9{\cdot}160$, so that one pointing may suffice for the whole set of four.

If it is important that the correct positions of the levelling turning points be established, points Nos. 8, 9, 10 and 11 have again to be sighted, for the purpose of registering the directions indicated by the verniers, as shown in column 6.

Sights are now taken to rod **F** at station 50 and to rod **G** at points $9\frac{1}{4}$ and $9\frac{1}{2}$ and the directions of those points duly noted. A single rod interval is deemed to be sufficient for the determination of each one of the points last named, which are specially described in the column headed "Notes, etc.", The interval read is that $\overline{AB}$, which affords $\frac{1}{100}$ part of the distance R.

From station 50 the first sight is again taken to the station last occupied, viz.: 49, for the purpose of setting the tacheometer right in reference to the meridian or axis of ordinates fixed upon at the start, and also for verifying the distance between the said stations as measured from station 49; the upper limb or interior circle having previously been clamped with vernier C set at the figure read from station 49—when the telescope was pointed in the opposite direction—increased by 180 degrees, or at 243°+11′.