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### A NEW DEVICE FOR GIVING SHORT AND TIME MARKS IN SELF-RECORDING INSTRUMENTS

Self-recording barographs, thermographs and hygrographs at meteorological observatories record continuously the three elements on a paper chart wrapped round a drum run by a clockwork. At the principal synoptic hours, when observations by eye-reading instruments are taken, a short mark is given on the record of these self-recording instruments, by giving a light tap to the pen arm. The chart reading and the eye readings of the thermometers and barometer taken synchronously are later compared at those points, and relative corrections to be applied to the chart readings are arrived at.

The present arrangement of giving short marks are unsatisfactory for several reasons, *viz.*, (i) the length of the mark cannot be maintained constant, (ii) too strong a tap may result in a change of correction, and (iii) the outer case has to be opened every time a mark is given. This disturbs although to a small extent, the smooth working of the instruments.

Attempts have been made to overcome these difficulties by manufacturers of these instruments. In some of the barographs manufactured by Short and Mason, small buttons were provided on the outer case, by pressing which the required marks could be given. The arrangement was not perfect; the length of the mark used to vary according to the position of the pen on chart. The present note describes a device developed at Poona Instruments Division to give time marks without introducing the defects mentioned above. The arrangement described below is found to work satisfactorily.

In the India Meteorological Department microbarograph a brass wheel of  $\frac{3}{4}$ " diameter is fitted to the axle carrying the pen arm and a sliding brass rod with its end tapered at  $45^\circ$ , is held by a light spring loosely fitting

in a brass collar fixed to the outer case of the instrument (Fig. 1). When the case is closed, the tapered end remains at a pre-set distance from the rim of the wheel; the other end projects outside the case in the form of a small button. On pressing the button, the tapered end of the rod pushes the wheel very slightly and the pen makes a neat short mark. The length of the marks can be controlled by adjusting the collar.

The arrangement is similar in the IMD hygrograph, the tapered rod being so positioned that stretching of the hair element is avoided while short marks are given. The marks are thus made downward in the hygrograph. In the IMD dry and wet thermograph also, the arrangement is similar except that the button is fitted to the metal guard of the bimetal element, with provision for adjustment of the length of marks.

The new marking arrangement (i) gives uniform short marks on the record whatever the position of the pen arm, (ii) avoids the risk of sudden shocks to the pen arm as the movement is limited by pre-set arrangements and (iii) does not require the case to be opened.

Fig. 2 shows three typical records where the present marking arrangements have been used.

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