Letters to the Editor

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A NULL DETECTOR FOR PYRHELIOMETER OBSERVATIONS

1. An indigenous electronic galvanometer has been constructed in the Central Radiation Laboratory, Poona to replace imported 'Norma' Galvanometers for pyrheliometric (compensation type) observations. The galvanometer is used to compare the equality of temperature of the two similar strips in the pyrheliometer. The strips are in thermal contact with a thermocouple, whose output is sensed by the galvanometer.

2. Two operational amplifiers μ A 741C manufactured by Electronics Corporation of India are used as d. c. amplifiers to amplify the output of the thermocouple. The amplifiers are connected in cascade and the amplification of each stage is kept low to minimise drift. The output of the amplifier is fed to a 0 to 50 μ A d. c. microammeter through a filter and bridge. The filter, the bridge and the condenser across the meter are used to reduce drift and improve stability. The variable resistor in the first amplifier is present whereas the one in the second amplifier is brought out as an adjustable control to set the deflection of the meter with no input in the middle of the scale. With an input voltage, there is a deflection on the meter which depends on the polarity and magnitude of the input.

3. The accuracy has been tested by using this instrument and Norma Galvanometer as null detector alternately on a clear day for pyrheliometer observations. The heating currents taken by the pyrheliometer measured on a precision milliammeter was agreeing.

No drift was observed in the instrument after initial setting during a pyrheliometer observation period of 3-5 minutes or standardisation period of 10-15 minutes. Even if small drift is present it is automatically compensated as the strip getting heated in the pyrheliometer is interchanged alternately.

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CLOUD BURST OVER CALCUTTA AIRPORT

1. Cloud burst is a sudden heavy precipitation and occurs sometimes over mountainous places. It is explained that when the thermals supporting the Cb cloud are cut off, which may happen when the cloud drifts from one side of the mountain to the other, a cloud burst occurs. The fierce cloud burst over Pahalgam, Srinagar (J & K), in the evening of 20 July 1963 resulted in a sudden flood. According to press reports 40 people were feared to have been killed and a few buildings and vehicles were swept away. One such cloud burst accompanied by a thunderstorm occurred over Calcutta airport on 29 July 1971. The duration of the cloud burst was about 45 minutes and it occurred in the afternoon between 1415 and 1500 IST. Calcutta airport recorded 95 mm rainfall during the cloud burst and for the day ending 0830 IST next day it was 105 mm. Calcutta (Alipore) which is about 10 miles southwest of Calcutta Airport recorded only 1 mm of rainfall.

2. At about 1230 IST the weather radar at Calcutta (Japanese make NMD-451A) detected scattered cells towards WNW at distances of 50-60 n. miles, maximum top being 5 km and towards NE and E at 25-55 n. miles, maximum top