

winds of at least 30 knots are necessary to form blizzard conditions.

The majority of clouds in the Antarctic are of the ice-crystal type and water-drop cloud is rare, Low Stratus is quite frequent where there is moisture in the lower layers. Cirro-stratus, Alto-stratus, cirro-cumulus and alto-cumulus clouds are common. An optical phenomenon known as 'White-out', in which the horizon is obliterated, is experienced over large sheets of unbroken ice and with one or more decks of uniform stratus. This is usually present with an upper air trough and precedes a storm.

Changes in temperature are extensive and considerable. Changes often occur within a month's time, due to movement of migratory systems. The range of temperature is about 30°C in summer and 35° to 75°C in winter.

Winds are mainly katabatic at the surface and gradient winds aloft. Often there is a sudden increase of wind for 3 or 4 hours without any change in pressure but accompanied by a marked decrease in visibility, due to imbalances of the katabatic and gradient wind forces.

Mr. Gray said that forecasting was very difficult at present, and persistence of prevailing weather for known periods varying from as much as 3 to even 20 days or more, was generally used. Thus if the prevailing weather lasted for more than 3 days it could be expected to continue for at least 7 days and so on.

29 October 1959

### 1. A Recorder for use in Remote Areas

by C.J. Summer

Mr. Summer of the Division of Meteorological Physics, C.S.I.R.O. Aspendale, the first speaker, divided his talk into three parts.

Firstly the need for devising the instrument, next the description of the instrument and lastly the testing of the instrument.

He said the Water Resources Board required a cheaper recorder than the one presently available for recording over long periods without attention. An instrument was needed which would satisfy the following requirements.

- (1) It should be adaptable for recording water level, rainfall, temperature, humidity etc,
- (2) It should have a battery operated clock,
- (3) It should be timed by the sun at noon,
- (4) The recording arm should move in a straight line.

Mr. Summer then described the recorder in detail and explained its operation with diagrams.

Regarding testing of the instrument he said it had first operated for eight weeks without attention. It had now operated for eight months and the battery was still effective.

The timing device had also worked satisfactorily.

## 2. Dew and its Measurement

by B.G. Collins

Mr. Collins also of the Division of Meteorological Physics, C.S.I.R.O. Aspendale, the second speaker, first set out the reasons for which the measurement of dew was important. He stated that moisture deposited on plants was of general interest in the study of the water economy of plants. Moisture was deposited by condensation from the air, distillation from the ground below and at the tips of grass blades.

Dew amounts to appreciable quantities in certain places. In Transvaal dew on the grass is equal to or more than the rainfall. Dew is important and significant in plant growth in arid zones.

Estimates of dew could be made by calculation and by direct measurement. Direct measurement of dew may be done by the following methods.

- (1) By weighing the soil before and after deposition of dew,
- (2) Absorbing the dew on to filter-paper and weighing,
- (3) By the dew balance - i.e. by weighing the dew formed on a disc,