

## JOINT COLLOQUIA

3 October, 1957

## Some aspects of Meso-meteorology

by F.A. Berson

Dr. Berson of the C.S.I.R.O. Division of Meteorological Physics, outlined methods of synoptic analysis on the meso scale and gave a synthesis of meso scale pressure patterns which could be interpreted in terms of the processes inside and outside a thunderstorm cell or cluster. He spoke of the novel feature of the wake (tornado depression) and the problem of the pressure surge line when it became dissociated from the precipitation region. Slides illustrated the thunderstorm highs and wake depressions associated with an intense squall front earlier this year which was accompanied by several tornadic storms over Victoria and New South Wales.

Some statistics were given on the Australian problem of the high frequency, in perfectly dry conditions, of abrupt changes (jumps) in the elements, especially in pressure. Slides were shown illustrating a meso "high", a meso scale vertical circulation at the nose of an advancing cold front and a stationary meso scale wave on a front.

31 October, 1957

## Outbreaks of antarctic air over south-east Australia

by K.T. Morley

Mr. Morley, of the Bureau of Meteorology, defined a cold outbreak over south-east Australia as producing snow-cover down to low altitudes (2000 ft and below). He maintained that such conditions only occurred with certain types of surface pressure distribution which dictated a recent air trajectory from the Antarctic continent. He illustrated this by slides of a situation when air was thought to have moved more or less due north from the Antarctic continent to reach south-east Australia as a cold outbreak. The air arriving over south-east Australia on the following day, when conditions moderated, was considered

to have had a trajectory also from the Antarctic continent but from the south-west over a longer path. The air arriving on the next day was considered to have followed an ocean path from the west-south-west or west.

A formula similar to that used for a study of the modification of air over Boston Harbour was used to estimate the modification of air following these trajectories. This modification was compared with modification of the air in the North Atlantic as obtained by Craddock.

Mr. Morley drew on the recently increased network of upper air observations over the Antarctic to outline some features of the circulation there.

In the discussion it was pointed out that the speed with which the air came from the south was the major factor influencing the intensity of cold outbreaks. Mr. Morley said that the formula used for estimating modification took this into account by allowing for the time spent over a water surface of a given temperature.

28 November, 1957

#### Meteorological instrument developments overseas

by H.N. Brann

Mr. Brann, of the Bureau of Meteorology, gave details of some of the developments in meteorological instrumentation he had seen on a recent visit to the U.K., U.S., France and Canada.

In U.K. and U.S.A. four different weather radar sets, designed specifically for meteorological purposes, were available commercially. In addition two new radar wind-finders were available in U.K. The newer American radio-theodolite, which operates on 1680 mcs/sec was a very accurate instrument which tracked the radiosonde automatically printing out its elevation and azimuth readings every minute.

The Canadian Meteorological Service aimed at eliminating radiation errors in radiosonde temperatures by using black and white temperature elements. In Canada, a standard barometer, a very fine piece of instrument design, had just been completed.