

JOINT COLLOQUIA

26th April, 1956

Measurement of Atmospheric Ozone and their Meteorological Significance by C.F. Barratt

Mr. Barrett, of the C.S.I.R.O., Division of Meteorological Physics, described how the amount of ozone in the atmosphere above a given place can be determined from measurements of the absorption of the ultra-violet radiation of the sun. Such measurements have been made for some time in many parts of the world by means of a spectrophotometer designed by Dobson. The ozone is found to be small in total amount and to be mostly in the lower stratosphere; the amount is found to vary with latitude, season and synoptic situation. Atmospheric ozone is formed photochemically from oxygen by the action of solar ultra-violet radiation, but the distribution calculated theoretically disagrees markedly (except above 30 km) with that observed. The theory indicates, however, that, below about 30 km, the ozone is largely protected from photochemical action, so that the amount is strongly influenced by meteorological factors, notably advection, vertical motion, and turbulent transfer. An outline was given of the roles which these processes are at present believed to play in the phenomena. Detailed studies should be helpful in various meteorological problems, including forecasting.

There are three Dobson spectrophotometers in Australia which have been adjusted in the Division of Meteorological Physics. During the IGY, these will be stationed at Macquarie Island, Melbourne and Brisbane as part of a world-wide network.

31st May 1956

Before the colloquium Mr. Unstead of Decca Radar showed a film in which the development movement and decay of rain areas as seen by radar was illustrated by time/lapse photography.

The accuracy of forecast and found winds. by G.T.Rutherford.

The paper presented by Mr. Rutherford, of the Bureau of Meteorology, appears in Australian Meteorological Magazine No. 12 March, 1956; p. 43-60.