

of thundershowers would extend from NE India even into the U.P. and these would be more marked in the eastern districts.

A weather forecaster is very much interested in the time sequence between the starting of SE-ly components in upper winds at places east of Long. 78° E. and along N. Madras coast and the subsequent weather in the east U.P. I have been unable to collect statistics. The changing of the wind directions to SE-ly on the east coast of India, the weather in the east U.P. and Chota Nagpur may be contemporary happenings of the weather pattern. It may not be logical to count the time interval after the setting in of the SE-lies. The pressure departure chart may be a better indicator. When a wave of a negative pressure departure passes eastwards across the country, this may be taken as an indicator of the passage of the low pressure area of the western disturbance. This low would some times induce the SE lies. However, an interval of 24 to 36 hours can be assumed to be the approximate time between the starting of SE-ly upper winds at lower levels east of Long. 78° E. and weather in the east U.P.

A comparison of the periphery of the rain belt with the free line curves drawn in Fig. 1 is quite close. Such instances can be easily multiplied. It is hard to determine theoretically the fanning out of the moist stream by orography of the central parts of the country. It should be possible, however, to carry out a model experiment in a tank or in a wind tunnel.

Squalls near Jubbulpore. Jubbulpore is situated at the crossing of two valleys formed by 0.5 km. contours (SW to NE and nearly SE to NW). The moist feed is directed along either of the valleys to the south of the place. When a 'cold front' of a low pressure area of a western disturbance passes to the north it brings in westerly or northwesterly winds. Owing to a sort of funnel effect of the valleys, more moist and more cold air are put into juxtaposition and produce thunderstorms of more than usual intensity in the neighbourhood. The squalls produced in the pre-monsoon months at Jubbulpore are more severe than in many places in the Central Province; and tornadoes also occur occasionally (*vide* May 1936).

1, 2 and 3. Malurkar, "Forecasting Weather In and Near India," 1945, Bangalore, p. 102; Malurkar, Technical Note No. 1, p. 3. *Ind. Met. Dept.; Curr. Sci.*, 1947, **16**, 139, and 1948, **17**, 112, and under 1 see also Mal and Desai, *Technical Note No. 25. Ind. Met. Dept.*, 1947. 4. Malurkar, *Curr. Sci.*, 1947, **16**, 139. 5. —, *Proc. Ind. Acad. Sci. (Bangalore)*, Sec. A 1943, **18**, 20, and 23. 6. —, "Forecasting weather etc." *loc. cit.*, p. 112.

Note—The cost of printing this contribution has been defrayed by a generous grant from the Rockefeller Foundation for the publication of results of scientific work made to us through the kindness of the National Institute of Sciences, India—*Ed.*
