II. CLIMATIC CONDITIONS IN INDIA

India is predominantly a land of tropical monsoon climate, though half of its area lies north of the Tropic of Cancer. The year may be sharply divided into four seasons, viz., Winter (December to February), Summer (March to May), Monsoon (June to September) and Autumn (October to November).

A. Winter (December-January-February)

During winter, temperature goes down below 40°F in the Himalayas and the submontane area of the North. While the maximum and minimum in Panjab are 68.9°F and 40.2°F respectively, at Trivandrum in the South, the January mean is about 72.3°F.

B. Summer (March-April-May)

From early in March, the temperature rapidly increases and pressure decreases. The mean maximum is already over 100°F in the season; by May, the hottest month in most places, it is over 100°F, with means of 85°F - 95°F in the interior, except where modified by altitudes. In extreme South, there is a much more equable regime. Trivandrum mean maximum and minimum in April are 88°F and 77.9°F respectively and the extremes recorded are 93.5°F and 63°F respectively.

C. Monsoon (June to September)

The South West monsoon commences early in June, extends into India in June and July and finally retreats
southwards in September and October. With the advance of summer, insulation increases rapidly over the high latitudes and by the end of May the region of highest air temperature and the lowest atmospheric pressure lies over the North West India and the adjoining areas of Pakistan, Afghanistan, Persia and Central Asia. This low pressure system takes control of the air currents over Asia, so that the southeast trade winds from the south of the Equator, after being diverted into the Arabian Sea and Bay of Bengal, appear suddenly over the west coasts of India and Burma respectively as the South-West Monsoon. The Arabian Sea branch of the south-west monsoon, while crossing the Western Ghats gives copious precipitation over that region and continues to drift eastward across the Deccan and central parts of the country, meeting the Bay branch of the monsoon along the trough of low pressure which extends from Orissa to North West of India. The Bay branch is deflected by Arakkan Yomas and turned in its course so as to skirt the northern side of the low pressure trough while moving along the sub-montane tracts to the south of the great Himalayan barriers.

By mid-summer, the south-west monsoon rapidly withdraws from the country and is termed as retreating monsoon. This gradually leads to the north-easterly air current, assuming full sway over the sub-continent and the adjoining seas by January. The north-east monsoon, as it is called, is associated with rainy weather over
the southern parts of Peninsular India, particularly over Madras from November to the end of January.

While the pattern of rainfall is fairly the same in the rest of the country, there are three anomalous areas with rainfalls in the months which are usually dry elsewhere or rainfall is lacking in months which are wet in other areas. These regions are:

1. The sub-montane Panjab Strip of winter (cyclonic) rain with a feeble extension across the Jumna. The rainfall in January is 0.012 to 0.051 mm.

2. Assam and Bengal with 0.254 to 0.508 plus mm in April to May from the north western.

3. The South East littoral, where the normal rainy months are actually amongst the driest. Fig. 2 shows the rainfall map of India.

D. Autumn (October-November)

By the first week of October, monsoon normally withdraws and the months of October and November are dry in Northern India and in November, temperature drops by 6-10°F. The climatic conditions in India have been exhaustively dealt with by Randhawa (1959).
FIG. 2 RAINFALL MAP OF INDIA (FROM RANDHAWA 1959)