

of the cotton industry into Australia, for instance, the first step was to discover, from their climatological characteristics, what places should be expected, in the light of experience elsewhere, to be suitable for its growth. Again, certain tropical diseases are found to be confined to places with rainfall above a certain limiting value. The medical organizations are thus forewarned as to the directions in which these diseases are likely to spread, as well as having information which may suggest models of attack on them. In the securing of reliable observations, the Meteorological Bureau is largely in the hands of observers. Poor returns mean a great deal of extra work in the office in the checking and correction or rejection of faulty observations, and in endeavours to supply missing ones. No one of the various observations listed in the routine can be considered unimportant; each may be required for some special investigation. Unreliable observations are a permanent blemish on the records of a station, and observers can be sure that their sins in this direction will ultimately find them out. Unfortunately, no opportunity of rectifying them can occur. Nothing is so depressing or so calculated to waste the time of an investigator as unreliable records. The variations to be dealt with in comparing different seasons or places, or in other researches, are often very small, and any persistent error becomes important. As an example, it may be mentioned that close relationships have been shown to exist between the deviations from normal of the monthly mean pressure at Darwin and the seasons in the Dutch East Indies and Australia, yet these deviations extremely rarely exceed 0.05 inch.

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### PHENOLOGICAL OBSERVATIONS.

Phenology is the study of the sequence of seasonal changes in nature. All natural phenomena, such as the first flowering of uncultivated plants, the migration and song of birds, ripening of fruit, the appearance of butterflies, caterpillars, insects, and so on, are included. Interesting results have been obtained from the study of these phenomena in England and the United States of America especially. Observers should include their observations of such happenings in the weather notes.