

and August significant temperature changes are unlikely either first or second period, unless decided departures from normal exist, with indications pointing strongly to change in the opposite direction. A stationary forecast for both first and second periods would have been best over 90 percent of the time in June, July, and August. The number of significant temperature changes in South Carolina in the summer was smaller than the number in North Carolina. This was not due to the whole State of South Carolina getting either warmer or colder less frequently, but to the larger number of occurrences in North Carolina when a section of the State showed a significant 24-hour temperature change.

From these statements it can be inferred that rarely is a "colder" or "warmer" forecast needed for South Carolina in the summer and, further, that attempts to forecast significant changes in portions of this State are not likely to be successful during that season of the year. Most of the significant changes that do occur in South Carolina during the summer are in the northern half of the State, with more in the northwestern part than in the northeastern and with these changes occurring most frequently at the higher elevation stations.

CONCLUSIONS

1. This study shows, as would be expected, that significant temperature changes in the Carolinas are most frequent from November to February, are uncommon from June to August, and are, in most months, more frequent in the areas of higher elevation in the western por-

tions than elsewhere in these States. It shows that significant first-period temperature changes may be expected on nearly 6 days out of 10 in the months of November to February in North Carolina, but on only slightly over 3 days out of 10 in the same months in South Carolina; also, that a significant temperature change occurs on only 1 day out of 10 in the summer, first or second period, in these two States. It is found that large changes are more likely to occur with falling than with rising temperature.

2. This study has dealt only with significant temperature changes within 24 hours (first period, 8 a. m. to 8 a. m., and second period, 8 p. m. to 8 p. m.). Many smaller changes, and some larger changes occurring at other hours, have not been considered. It is believed, however, that the data offered are of interest to the general public, showing an important characteristic of the climate of North and South Carolina. Such data are helpful to the forecaster.

LITERATURE CITED

- (1) Hann, Julius, Handbook of Climatology, pt. 1 (Tr. by Ward), p. 6.
- (2) For examples of extended treatment of temperature see: Shaw, Sir Napier, Manual of Meteorology, vol. II (1936). ch. IV. Hann, Julius, Handbook of Climatology, pt. 1 (Tr. by Ward), chs. I, VII, XII, XIV, and XV.
- (3) Climatological Tables, MONTHLY WEATHER REVIEW.
- (4) United States Meteorological Yearbook, Weather Bureau.
- (5) Cox, H. J., Weather Forecasting in the United States, ch. VI.
- (6) Tannehill, I. R.: Severe Cold Waves on the Texas Coast. MONTHLY WEATHER REVIEW, February 1928, pp. 41-46.
Recovery from Subnormal Temperatures. MONTHLY WEATHER REVIEW, September 1928, pp. 363-367.

NOTES AND REVIEWS

I. R. TANNEHILL. *Hurricanes, their Nature and History*. Princeton University Press, 1938.

This book, by the Chief of the Marine Division of the United States Weather Bureau at Washington, deals particularly with the tropical cyclones of the West Indies and the southern coasts of the United States; however, it includes in nontechnical form the essential facts about tropical cyclones in general. The book contains a large amount of information that is not otherwise accessible except in numerous scattered publications, many of which are now difficult to obtain, and in official records.

The introductory chapter is a general description of the principal phenomena of tropical cyclones and of the methods by which information concerning them is obtained. The following six chapters contain detailed discussions of the winds in the hurricane; the destructive storm waves which frequently accompany hurricanes along the coast; facts and theories relating to the origin and maintenance of the hurricane; the tracks followed by the

West Indian hurricanes, with charts showing the tracks of all tropical cyclones known to have been of hurricane intensity from 1874 to 1933, inclusive; rainfall and barometric pressure in tropical cyclones. Chapter 7 is an account of the precursory signs of an approaching hurricane. The destructive effects of hurricanes are described in chapter 10; and chapter 11 discusses precautionary measures on land and sea by which losses of life and property may be reduced. Chapter 9 is devoted to statistics of the annual frequency of West Indian hurricanes.

In chapter 8, discussions are given of the tracks of five hurricanes which followed abnormal paths. The remaining four chapters are essentially a history of all tropical storms of record in the West Indian region from 1493 to 1937, including detailed accounts of many of the most memorable storms, chronological lists, and a year-by-year account, with charts, of all storms during the 20th century.

A brief bibliography and an index complete the volume. —Edgar W. Woolard.