



FIGURE 10.—Change in 700-mb. height (drawn at intervals of 100 ft. with centers labeled in tens of feet and zero isopleth heavier). Height falls in the eastern Pacific and western North America accompanied warmer weather in the United States.

ference in amplitude and temperatures then were lower than those for the month (fig. 5).

This period was highlighted by a severe storm which developed in the Midwest on the 11th and then swept eastward. Heavy rains fell in the Southeast, but to the north there was snow from the central Plains to the Atlantic coast. Blizzard and near-blizzard conditions prevailed in the Northeast where strong winds piled the snow into deep drifts and traffic was disrupted for several days in some places. Snow depths of a foot or more were reported throughout Pennsylvania, southeastern New York, and portions of southern New England and northern New Jersey. The most widespread cold of the month accompanied and followed the storm, with daily minimum temperature records set on the 14th at Evansville, Ind. ( $-6^{\circ}$  F.), Pittsburgh, Pa. ( $-6^{\circ}$  F.), and San Antonio, Tex. ( $15^{\circ}$  F.); and on the 15th at Elkins, W. Va. ( $-12^{\circ}$  F.), and Richmond, Va. ( $0^{\circ}$  F.).

Marked weakening of the ridge in western North America and a southwestward movement of the Low

near Baffin Island (fig. 9A) increased the westerlies across the United States in the latter half of the month. To some extent this change was related to evolution of the circulation elsewhere in the hemisphere. In the Atlantic, for example, the deep trough of the first half of the month was replaced by a ridge. This effected retrogression of the wave pattern across Europe, Asia, and the western Pacific. Westward motion of the principal Pacific trough to the Asiatic coast was also associated with a strengthening of the Siberian ridge. The increased wave spacing across the Pacific combined with retrogression of the eastern Pacific High to produce a trough in the Gulf of Alaska and increased cyclonic flow to the south.

These changes in circulation are readily seen in figure 10, which presents the change in 700-mb. height from the first half of the month to the last half. Note particularly the large area of height decreases in the eastern Pacific and western North America.

The entire country became warmer, with only the Southeast and a few small areas in the West showing below normal temperatures (fig. 9B). Warming began in the Northern Plains and Far West, and by the 20th nearly the entire Nation was experiencing above normal temperatures. Record daily maximum temperatures were established at many stations in the central Plains and Middle Mississippi Valley, mostly in the period January 21 to 23. Among these were St. Louis, Mo., and Evansville, Ind., each with  $70^{\circ}$  F. on the 22d. This "January thaw" caused a rapid disappearance or reduction of the snow cover left by the severe storm discussed earlier.

Storminess increased along the west coast in the last half of the month from the presence of the eastern Pacific trough. One storm, intensifying rapidly as it moved in from the Pacific on the 19th, brought winds of 72 m.p.h. to Tatoosh Island, Wash., and the lowest sea level pressure ever recorded at that station (967 mb.).

#### REFERENCES

1. U.S. Weather Bureau, "Normal Weather Charts for the Northern Hemisphere," *Technical Paper No. 21*, Washington, D.C., 1952, 74 pp.
2. W. H. Klein, "Principal Tracks and Mean Frequencies of Cyclones and Anticyclones in the Northern Hemisphere," *Research Paper No. 40*, U.S. Weather Bureau, Washington, D.C., 1957, 60 pp.
3. U.S. Weather Bureau, *Weekly Weather and Crop Bulletin, National Summary*, vol. LI, Nos. 5 and 6, Feb. 3 and 10, 1964.

#### CORRECTION

Vol. 92, March 1964, p. 146: Reference 4 should read: J. F. O'Connor, "The Weather and Circulation of January 1963—One of the Most Severe Months on Record in the United States and Europe," *Monthly Weather Review*, vol. 91, No. 4, Apr. 1963, pp. 209-217.