was almost wholly due to settling of the snow on the ground; the actual density increased but little up to 8 p. m. of the 28th and does not appear to have exceeded 12 per cent. The rate recorded up to 8:30 p. m. of the 28th is fairly uniform and the total during the preceding six hours was 0.46 inch; this, as already explained, must be deficient, hence, accepting the official total of about 2.5 inches between 8 p. m. and 12.30 a. m., the amount falling after 2:30 p. m. was at least 8 inches, which brings the total of the storm to at least 33 inches. An equivalent or larger amount probably could have been obtained by the measurement, at regular intervals, of snow falling upon a suitably exposed platform that could be swept after each measurement. The shrinkage of depth of snow on the ground at times will equal the rate of fall; it is due chiefly to settling, but partly to evaporation, and is obviously most rapid at the end of the storm, but continues indefinitely. The shrinkage following the recent storm as shown by daily measurements at 8 p. m. is as follows, the figures representing depths: January 29, 23 inches; January 30, 19 inches; January 31, 17 inches.

The capacity of a recording snow gage preferably should be sufficient for the largest fall probable in one storm. That of the standard model of the instrument in operation during the recent storm is about 14 inches and the area of the receiver is 1.4 times that of the collecting funnel; consequently, to enlarge its capacity to 28 inches, it will be necessary to increase the depth of the receiver to 21 inches and the height of the instrument from 26 to 35 inches. If the instrument can be inspected twice a day the capacity can be increased to 18 or 20 inches only, with small probability of loss, since, as already indicated, the receiver can be partially emptied without disturbing the recording mechanisms. An instrument of this capacity will be 30 inches high instead of 26, and its receiver 15 instead of 11 inches deep. If the capacity of the recording gage during the recent storm had been 14 inches instead of 8, the loss of record would have been limited to the period of five or six hours ending with 9:15 a. m. of the 28th.

The small catch of the gages on the roofs confirms experience; the catch of roof-exposed gages is always deficient except when fairly dense snow falls during a calm—a condition of very rare occurrence—and generally, even when the conditions might be considered favorable, measurements on a roof are seldom better than estimates. The use of such data (always subject to correction) is advisable only when an approximate value is desired for immediate use. Deficient values from a recording gage, as already stated, can be corrected to agree with more accurate totals obtained by sampling; but it will be far better to expose all gages on the ground in a suitable place and discontinue entirely all attempts to measure snow on roofs. The best results are obtained when gages on the ground, whether used for rain or snow, are equipped with Nipher screens and placed inside an inclosure, made of coarse wire cloth, the walls of which are about 1 yard high and distant about twice their height from the gages; but even one good installation of this kind, suitable for most circumstances, may be inadequate during extremes of wind or weather and require to be supplemented by measurements at several other places. The standard of measurement for snow should be that of the "section" cut from snow on the ground (preferably by a sampler, although the overflow receiver of the standard 8-inch gage will do), the water content of which is determined by weighing.

UNUSUAL DISAPPEARANCE OF GLAZE AT TOPEKA, KANSAS.

By S. D. FLORA, Meteorologist.

[Weather Bureau, Topeka, Kans., Jan. 11, 1922.]

The night of December 23–24, 1921, witnessed an unusual phenomenon in the way of disappearance of glaze at Topeka with temperatures continually below freezing.

A misting rain on the 22d, falling with temperatures ranging from 19° to 26°, had frozen as it fell, coating sidewalks, paved streets, trees, wires, and even unsurfaced country roads with a film of ice, or glaze. While less than a measurable amount of rain fell and the film was quite thin, nevertheless it was exceedingly slippery and a great many automobiles were badly damaged by skidding into each other or into curbs, and many pedestrians suffered painful falls. This condition obtained from early morning of the 22d until past 11 p. m. of the 23d, with no noticeable diminution of the ice coating, the weather meantime being damp and raw, with a tendency to fog.

About midnight of the 23–24th, when the temperature was down to 17°, the ice film began to disappear and by daybreak it was entirely gone, except in a few patches where the wind did not have free access to it, to the astonishment of people who had slipped and skidded their way home the evening before.

As the temperature fell steadily from 17° at midnight to 5° at 8 a. m. of the 24th and the ice was gone before there was any chance of warming by the sun's direct rays, the plausible supposition is that it had been evaporated, though the absence of details with respect to the vapor content of the air at the time makes it impossible to corroborate this theory.

There was no shift of the wind, which was from the north all night, to account for the advent of a drier stratum of air. The barometer also made no change in its tendency, but continued a steady rise, which began at 2 p. m. of the 23d, with a station pressure of 28.82 inches, and culminated at 11 a. m. of the 24th at a station pressure of 29.36 inches.

The sequence of weather as read from the daily weather maps was as follows:

22d. Light southerly winds, with sprinkles of rain.

23d. Wind shifting to north and northeast, with falling temperature.

24th. Wind shifting to northwest, with lower temperature. It is possible this tendency to a northwest wind over the surrounding country brought a drier stratum of air, though no measurements of its moisture content at Topeka are available.