*The necessity for careful cloud observations.*—The value of careful cloud observations can not be overemphasized; carelessly made observations of the kind, amount, and direction of clouds are worse than none at all, yet the average observer is likely to be less careful in this than in any part of his work. Detailed cloud observations can tell a great deal when observations by kites and pilot balloons are wanting; but where the latter are available the clouds form useful and necessary supplementary data.

*The wind-shift line.*—It seems worth while to mention again the importance of the wind-shift line as a factor in forecasting. Bjerknes has found it of extreme importance in forecasting precipitation; Clayton,[7] also, along similar lines, shows the importance of lines of convergence of winds as factors in forecasting precipitation, and this paper shows with clearness that the wind-shift line plays no small part in the production of sleet and glaze.

ACKNOWLEDGMENTS.

To Dr. C. F. Brooks, who not only suggested the investigation and outlined the methods, but also was willing at all times to give advice and valuable suggestions; to Mr. Willis R. Gregg, who kindly placed all the available aerological data at my disposal and made helpful suggestions; to Mr. Herbert Lyman, who assisted in the laborious tabulation of data from the original records, which form the basis for the accompanying charts; and to others, who, from time to time, displayed an encouraging interest in the study, I most gratefully acknowledge my indebtedness and express my thanks.

## DEMORALIZATION OF TRAFFIC IN NEW YORK CITY BY SNOW AND SLEET.

The meteorological record of February, 1920, at New York, will long be remembered by reason of the remarkable storm—heavy precipitation which began to fall in the early morning of the 4th instant, and kept it up until the early morning of the 7th. During that period of about 75 hours, 4.45 inches of precipitation occurred. Of this amount 0.37 inch was rain; 2.11 inches of melted sleet; and 1.97 inches of melted snow. The maximum depth of snow and sleet was 17.5 inches, of which 8.8 inches were sleet and 8.7 inches [were] snow.

This is the record of the storm, as noted in Form 1001 of the New York Weather Bureau station, which caused a tie-up of traffic in the city never paralleled in spite of more excessive snowfall on two other occasions. The *Scientific American* of February 28, 1920, pages 219, 232, and 233, gives an account of the methods used to rid the streets of the immense banks of snow or of their foot-deep slushy content. Trucks were hardly able to get about with facility, traffic ways, only wide enough for a single stream of vehicles, were dug, but this resulted in great tie-ups due to efforts to pass; flame throwers, a remnant of the war, were tried, as well as another heat device, but these were so local in their results that they were impractical; the steam shovel was tried, with fair success, where the drifts were deep enough; a newly constructed snow digger was tried with great success but it was impossible to get enough of this type of machine to be of use in the emergency; finally, the fire hose was used with the greatest effect. This experience should warn all large cities where such storms are a possibility, and lead to the provision of adequate equipment for such an emergency.—*C. L. M.*

[7] Note in this REVIEW, p. 83.

## TREMENDOUS SNOWSTORM IN PALESTINE, FEBRUARY 9-11, 1920.

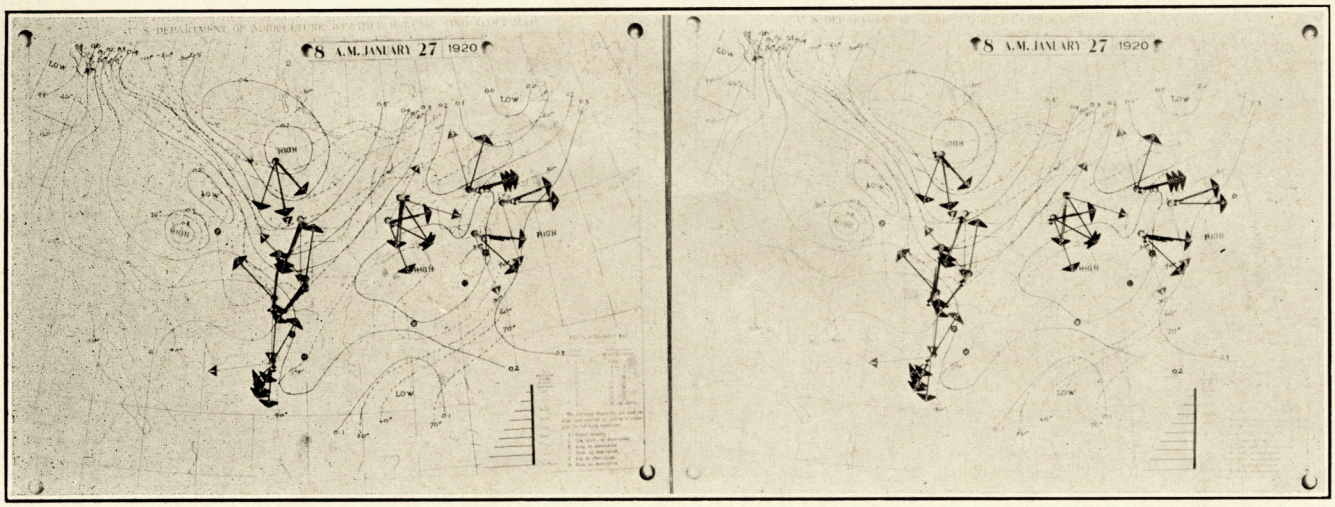
By OTIS A. GLAZEBROOK, American Consul.

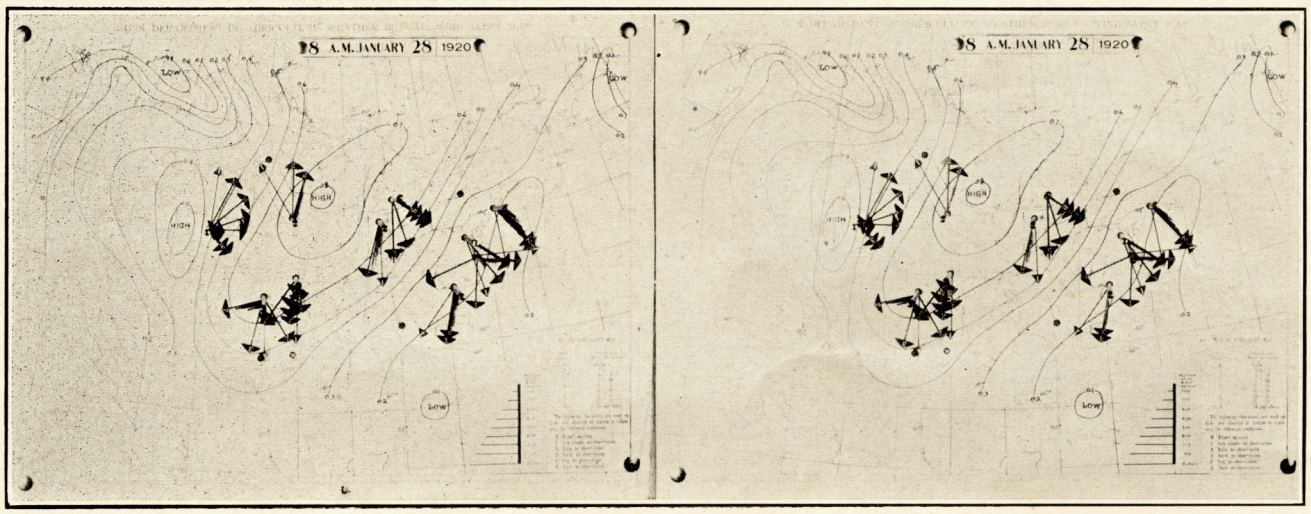
[Jerusalem, Palestine, Feb. 23, 1920.]

On the afternoon of February 9 a maid of the consulate ran into the house gleefully showing a handful of snow which she had pressed into a snowball. It was the first snow she had ever seen. As the weather had been constantly inclement since the middle of November, 1919, I supposed that this was but a snow flurry ending the former rains, as over 27 inches of rain had already fallen, this quantity being far above the average at this time of the year. In 36 hours afterwards, however, Jerusalem and the surrounding country for miles had been mantled by a snowfall which averaged on the level 40 inches, with drifts in many places reaching a height of 10 feet.

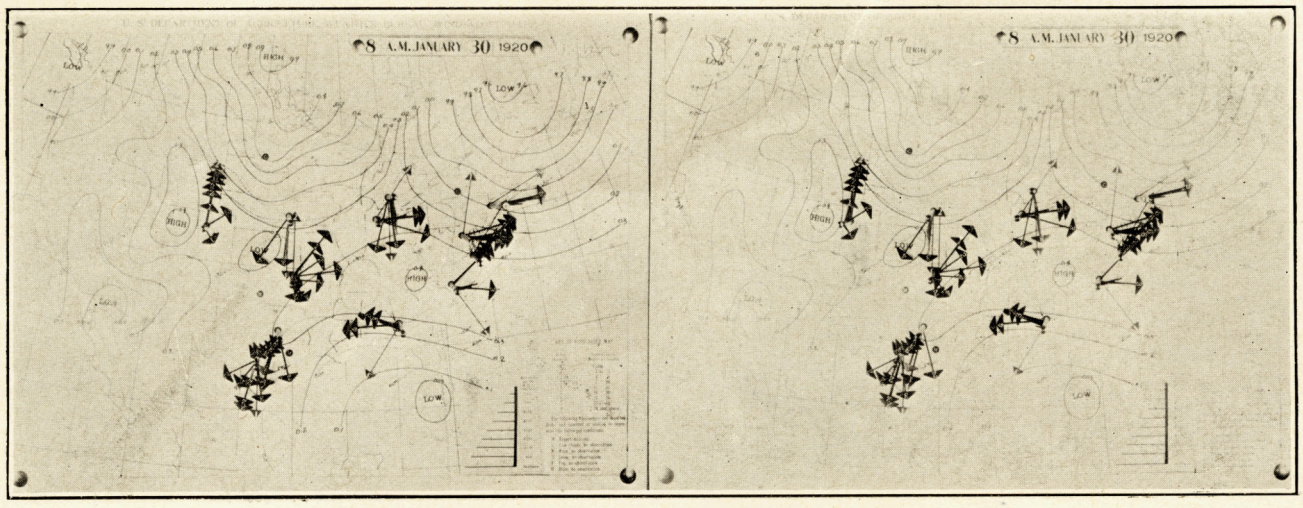
In the memory of the inhabitants of Jerusalem this was the greatest snowfall and the people were absolutely appalled by it. I recall the great blizzard of 1888 and remember many other heavy falls of snow in the United States, but none compared in possibilities of danger to this one. The locust visitation of 1915 falls into insignificance as compared with it. The people of this country being unused to such a phenomenon were totally unprepared to contend with it. There were no snow plows or even snow shovels, and if there had been the population would not have known how to handle them. All communication within the snow limit was interrupted, and the falling of the telegraph wires, the blocking of the railroad and all thoroughfares cut us off entirely from the outside world. Every store was closed. The Felahin could not bring their products to the markets. There was a shortage of bread and a dearth of wood and kerosene, and starvation and freezing faced the people. Fortunately, there is a battalion of Yorkshire troops garrisoning the city. This battalion saved the situation. At once over 700 men were at work with shovels opening the roads and streets in the city and digging out the buried population. When the stores were opened the spirit of profiteering which was already remorselessly abroad in this community—causing the prices of all necessaries, not to speak of luxuries, to increase from five to ten times their former value, having made Jerusalem in the past year possibly the most expensive place in the world, the cost of living being twice as high as in Egypt and in Syria—knew no restraint. In consequence, mob violence was imminent and the military governor was compelled to strenuously reduce the price of bread and other food commodities.

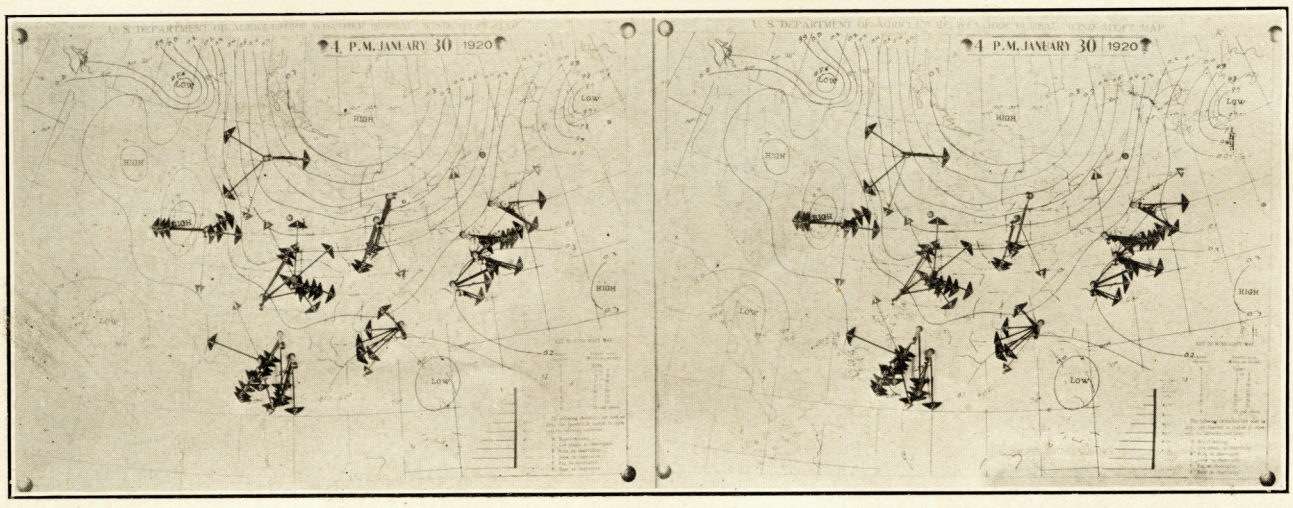
At least 40 houses in Jerusalem were crushed in by the weight of the snow, but, strange to say, the casualty list is comparatively short. When at last unfettered, the inhabitants in general proved equal to the occasion by sharing their own provisions with the poor and improvident. Conditions are now normal, the telegraph and railroad lines being in operation, stores opened, and native products coming into the market. The snow has rapidly disappeared, and except for the continued high winds and unusually cold weather one would not believe that the city had just raised itself from the dead. This blizzard will go down to history as one of the most remarkable and dangerous occurrences in the history of the Holy City, a city by no means unacquainted with extraordinary incidents.

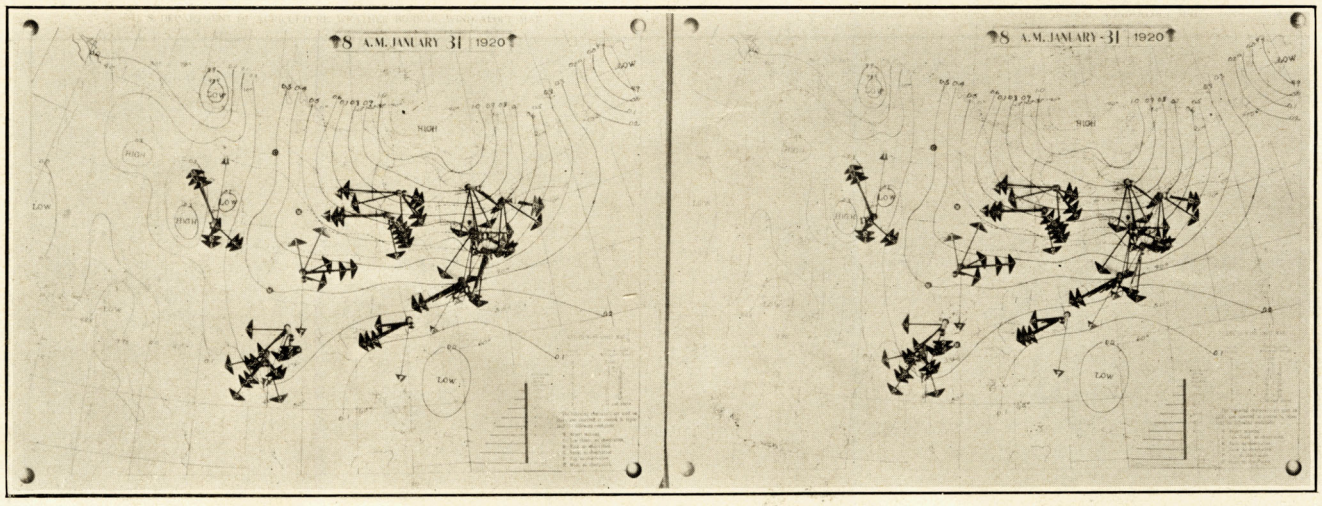


FIGS. 1-3.—Stereoscopic views of aerological weather maps of the United States, Jan. 27; 28, and 29, 1920.




FIGS. 4–6.—Stereoscopic views of aerological weather maps of the United States, Jan. 30 and 31, 1920. Note the wind changes attending the arrival of a severe cold wave in the northeastern United States the night of Jan. 30.