60 ft.; lat., 20° 21′ S.; long., 175° 28′ W. position of Sandfly Island, for we saw it rise. Got back again just too late to enter the reefs to Tonga. Anchored at Nukualofa at ten A.M. on the 15th. We had lovely weather all the time, a nice S. E. wind, and every one seemed highly gratified with what he had seen.'"

THE RECENT COLD WAVE.

THE accompanying minute maps are reduced from daily weather-charts published by the signal service, and represent certain features of the weather during the passage of the recent severe cold wave. The series of six maps (figs. 1 and 2), designed to show the changes of temperature from Jan. 7 to Jan. 12, are crossed by a heavy line that marks the altitude of 0° F. as determined by the observations at 7 A.M. on successive mornings.

FIG. 1.

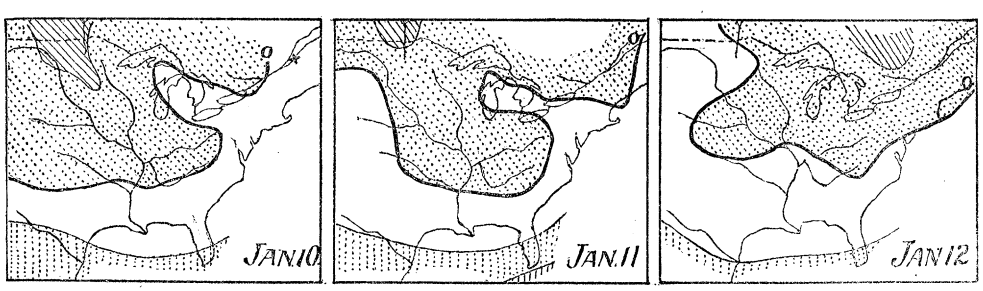

FIG. 2.

To the north of it, the dotted area extends to the isotherm of 30° below zero; the space shaded with lines, farther north, being colder still. The unshaded part of the maps contains the temperatures between 0° and 30° above; the next belt covers temperatures from 30° to 50°; and in a few of the maps, temperatures above 50° appear in the extreme south.

On the morning of Jan. 7, a storm-centre of moderate intensity lay in southern Texas, having come across northern Mexico from the Pacific; at the same time an area of high pressure, with very low temperatures, stood in the far north-west. As is stated by Lieutenant Woodruff in his recent note on cold-waves, areas of high pressure extend to the south and east with their low temperatures, while the antecedent storm-centres move off to the north-east. The wave here considered belongs to the third of Woodruff's classes, inasmuch as it first spread southward to Texas, and then east and north-eastward to the Atlantic coast. On Jan. 8, when the storm-centre was near Mobile, a fine 'norther,' such as would have delighted Redfield, swept down the plains to the Gulf, and Galveston was only about ten degrees warmer than Duluth. The zero isotherm stood just west of the Mississippi, running nearly north and south for about seven hundred miles. During the next three days, while the storm moved off over Labrador, the cold wave crept up the Ohio valley, where the temperature then stood distinctly lower than in Michigan, two hundred miles farther north. At last, on Jan. 11 and 12, the zero isotherm turned well north over the plains as more moderate temperatures returned.

The most interesting phase of this spell of weather was doubtless that presented on the morning of Jan. 9, when the storm had developed into a true cyclone, with nearly circular isobars, and remarkably low pressure at its centre in southern New Jersey. At this time the barometer

at Philadelphia read (reduced to sea-level) 28.69; it was 30.81 in the anticyclonic centre near Lake Winnipeg, a difference of over two inches in only

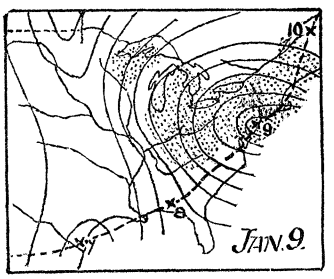

FIG. 3.

1,400 miles. This is illustrated in fig. 3, which gives the isobars for every even tenth of an inch; it shows also the area (dotted) over which snow was falling at this time; and the storm-track is traced by a heavy broken line, with a cross and a date to mark the place of the centre at seven o'clock in the morning while it lay within our territory. The numerous wrecks along our coast attest the violence of the winds at this time. When the monthly weather review for January comes out, we shall hope to find a detailed account of this storm, especially from those stations along the coast that lay close on the path of its centre.

Fig. 4, for the same date, is designed to illustrate the extraordinarily low temperatures brought by the cold wave in the rear of the cyclone. The

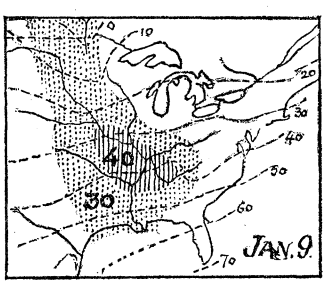

FIG. 4.

mean temperatures for January are taken from Lieutenant Greely's monograph (1881), and drawn in broken lines for every ten degrees. By comparing these with the six temperature maps above, the amount of departure from the normal may be estimated. The departure for Jan. 9 is given by two shaded areas, showing a depression of thirty and forty degrees respectively; this depression being calculated from the mean January temperature at 7 A.M., as given in the chief signal officer's report for 1884. The temperatures reached in the southern states on this and the following days are in all cases close to the recorded minimum of earlier years, and in many cases are lower than any thing known in the signal-service stations there. Altogether, the storm and the cold wave are perfect examples of their unpleasant kind.

W. M. D.

AMERICAN JOURNAL OF ARCHEOLOGY.

THE fourth number of the *American journal of archeology*, which has just appeared in Baltimore, completes the first volume, and fully sustains the high expectations which were entertained of its management. Nearly five hundred pages, illustrated by eleven plates and sixteen figures, have been given to the subscribers; but the quality of the articles is more noteworthy than the quantity. No other archeological journal of any country affords so comprehensive a view of the progress of investigation and discussion. All important reviews and monographs and books are noticed by competent readers and critics, whose names are appended as authority for the statements which are presented. The proceedings of societies are also recorded. Although chiefly concerned with the archeology of civilized nations, prehistoric remains are not neglected; but the effort is made to represent in one journal all the varied movements of the science. The managing editor, A. L. Frothingham, jun., Ph.D., by his complete familiarity with the French, Italian, and German languages, and by his long residence in Rome, has become acquainted with the leading authorities, and has been able to secure their encouragement, and to a considerable extent their co-operation in his undertaking. A list of those Europeans who have already made, or who have promised at an early day to make, contributions to the *American journal of archeology*, includes the names of such well-known persons as Piper of Berlin; Reber of Munich; Michaelis of Strassburg; Schreiber of Leipzig; Ramsay of Oxford; Babelon, Reinach, Müntz, and de Marsy, of Paris; de Rossi, Marucchi, and Helbig, of Rome; Hildebrand of Stockholm; Lambros of Athens; and many more. Many of our countrymen are also enlisted in the enterprise.

With such an array of names, a good series of papers would of course be expected, and the result has been satisfactory. In the latest number the most noteworthy article is, perhaps, that of Professor Merriam, on that remarkable code recently discovered at Gortynia in Crete. So long ago as 1857, an inscribed stone, built into the walls of a mill on the banks of the Cretan river