

ological Survey, but is constructed on the same scale. These maps are sold at the cost of paper and printing. A somewhat similar plan, requiring five to eight sheets, might perhaps be adopted with advantage in this State. Each city, town, and village should, so far as possible, be found entire upon some one sheet; but to secure this, the original plates must be combined and re-arranged, and adjoining sheets must be made to include the same territory to some extent.

"It is desirable that a wall-map of the whole State should be published, in addition to the atlas form just mentioned. A map about $3\frac{1}{2}$ feet by 5 feet in size would include the whole State, with Block Island in its true position. This could be easily arranged, provided the State authorize some arrangement for such publication."

The three States of Massachusetts, Rhode Island, and New Jersey have thus been the first to secure, by a wise co-operation with the United States Geological Survey, good topographical maps of their whole territories. It is one of the most important objects of this institution to make a good map of the United States, without the aid of which no geological work can be carried on satisfactorily. On account of the wide extent of our country, this enterprise is enormous, and requires a long time for its accomplishment. By the co-operation of States the work which is of the greatest importance can be accelerated, and it is to be hoped that other States will follow the example set by three of their number, the good results of which may be seen from the map of New Jersey, so far the only one published.

THE GREAT STORM OF MARCH, 1888.

IT is only after a long period has elapsed that it is possible to describe accurately the meteorological conditions that prevailed at a certain time over a large area, particularly over extensive parts of the ocean: therefore it has not been possible until recently to write the history of the great blizzard that visited the Atlantic States from March 11 to 14, 1888. Lieut. Everett Hayden, who is in charge of the Division of Marine Meteorology of the Bureau of Navigation, has undertaken this work, and presented the results of his interesting study in the fifth of the "Nautical Monographs." The book, which contains the original observations made by masters of vessels in full, is bound in leather to enable it to stand the rough handling incident to use aboard ship, where books in ordinary cloth bindings are quickly ruined. The list of observations shows how valuable is the aid that voluntary observers aboard ships give to the work of the Hydrographic Office. The history of this memorable storm is based almost exclusively on their reports: therefore the endeavors of the Hydrographic Office to enlist as great a number of masters as possible as voluntary observers, and to increase the general interest in marine meteorology among mariners, deserve the greatest possible success. It is well known how much more readily a man will undertake such observations if he knows that they are actually used, than if he believes that they are buried among a vast amount of material: therefore the plan of publishing a monograph of a remarkable gale, with a complete list of observations appended, will, aside from its scientific value, instigate many a mariner to continue or to take up meteorological observations at sea.

Lieut. Hayden represents the meteorological conditions over the Atlantic coast and the adjoining parts of the ocean in four charts, showing lines of equal pressure and of equal temperature. In order to make the maps clearer, temperatures above freezing are represented in pink; those below freezing, in blue; the depth of shade increasing with the departure from this point. In this way the advance of the cold wave from the interior towards the seacoast is shown with admirable clearness, and the meteorological events are easily understood. In the text, the history of the storm is traced from March 11, 7 A.M., when a long trough of low barometer, extending from the west coast of Florida up past the eastern shore of Lake Huron, and far northward, was advancing eastward, causing strong north-westerly winds on its western side. At 10 P.M. this line had advanced eastward as far as the 74th meridian. The cold north-westerly gale, as it is now sweeping over the great warm ocean-current, carrying air at a temperature below the freezing-point over water above 75°F., is rapidly gaining strength, and be-

comes a fierce hurricane. An area of high barometer, which was at Newfoundland the previous day, is slowing down, blocking the advance of the rapidly increasing storm, and about to hold the centre of the line in check to the westward of Nantucket for days, while a terrific north-west gale plays havoc along the coast from Montauk Point to Hatteras, and until the right flank of the line has swung around to the eastward far enough to cut off the supply of warm, moist air pouring in from the north-east. The special value of Lieut. Hayden's description lies in his clear treatment of the influence of the warm, moist Atlantic air upon the development of the storm. He sums up the observations on this argument as follows: "The storm has called attention anew to the sudden deepening of depressions upon reaching the coast, and the corresponding increase of energy to be expected, — a lesson that should be borne in mind by every navigator leaving port with a falling barometer, and other signs of a storm. It has reminded us of the vitally important influence of the Gulf Stream in causing such increase of energy, and to the necessity of closely watching this great warm ocean-current, and noting any abnormal conditions of volume, velocity, temperature, and position; especially so during the spring and autumn months, — the periods of most rapid change in the conditions of oceanic and atmospheric circulation. The storm has established in most unmistakable terms the importance, not only to our extensive shipping interests, but to the people of all our great seaboard cities, of the establishment of telegraphic signal stations at outlying points off the coast, — at St. Johns and Sable Island, to watch the movement of areas of high barometer, upon which that of the succeeding 'low' so largely depends; and at Bermuda, Nassau, and various points in the West Indies and Windward Islands, that we may be forewarned of the approach and progress of the terrific hurricanes which, summer after summer, bring devastation and destruction along our Gulf and Atlantic coasts." Discussions like the present will contribute largely to arousing and keeping alive an interest in these researches, the practical and scientific value of which cannot be overestimated.

BOOK-REVIEWS.

Allen and Greenough's Latin Grammar. Revised by J. B. GREENOUGH and G. L. KITTREDGE. Boston, Ginn & Co. 12°. \$1.35.

ADVANTAGE has been taken of the opportunity offered by the necessary recasting of the plates of this book to have such improvements made in it as the advance of grammatical knowledge and the experience of the schoolroom have shown to be advisable. The revisers have simplified the statement of principles, so far as a preservation of strict correctness would admit, but without any approach to a mechanical method of treating the science of language. Many explanations and suggestions, in text and footnotes, have been added to those given in previous editions, for the benefit of teachers and advanced scholars.

In the revision of this work, the needs of the classroom have evidently been kept constantly in view, resulting in great accuracy, combined with clearness and simplicity of statement. Although the matter of the book has been simplified, the size of the book has been increased, for simplification sometimes necessitates expansion. Many things taken for granted or merely suggested in the old edition have been expressly stated in this revision. Much new matter will be found, marking, in many particulars, a substantial advance. Thus, the chapter on word-formation has been entirely rewritten, many new points being presented; the treatment of the temporal particles has been recast; the section on reflexive pronouns has been rewritten; and the chapter on words consists in great part of new matter.

Some other subjects, in the treatment of which the new edition will be found more satisfactory than the old, and to which the especial attention of both student and teacher may be called, are included in that part of the book between Sections 248 and 332. There is also much new philological matter, which is nearly all printed in small-type notes, being intended more for the advanced student than the beginner.

Very numerous cross-references have been furnished in this edition, by means of which the ramifications of a construction,