

## SCIENCE:

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Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

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## REVIEW OF THE WORK OF THE "PILOT CHART."

WITH the December number the eighth year of this publication begins, the first number having appeared in December, 1883. The various changes and improvements that have been made in the chart since that time are strikingly shown by a comparison between a late copy and that first issued. The most conspicuous additions are the following: steam and sailing routes; region of equatorial rains; table of barometer normals and percentage of probable calms for each 5°-square; storm diagrams, with brief rules for action to avoid a hurricane; cautionary and storm signals in use along the Atlantic and Gulf coasts of the United States; the tracks, names, and dates of derelicts; list of dangerous obstructions to navigation along the coast, and of charts published and cancelled during the preceding month; regions of observed and predicted fog. Besides these additions and other less striking ones, the greater portion of the forecast meteorologic data has been thoroughly revised, and brought up to date; while the review is now prepared with very much greater accuracy and completeness, owing to the far greater number of observers who now send in regular reports to the United States Hydrographic Office, and the hearty approbation and support received from masters of vessels of every nationality.

During the last three years, especial efforts have been made to publish promptly, and make practically useful to navigators, the results of the many reports that are made, thus giving to each and every observer the benefit of the combined experience of hundreds

of observers, and at the same time securing a wide and international circulation for data relating to the ocean. In this attempt two objects have been kept in view by the Hydrographic Office,—first, to give, in clear, practical form, as much late and important news as possible to navigators, and to aid them by every means in their power in lessening the dangers of the sea and increasing the safety and success of commerce; second, to attract the interest and attention of other classes of people to the life and duties of the officers and men of the navy and mercantile marine, and thus to insure a fair hearing and some attention and sympathy in any reasonable effort to improve the status and prospects of seafaring men and others directly interested in commerce. That these efforts have been successful to some extent, seems to be indicated by the support that their work has received from masters, owners, and agents, as well as from the public generally; and numerous quotations might be made from home and foreign reviews, and from public and private statements by recognized authorities, showing general recognition of the fact that this publication has achieved success in a new and untried field, and has been creditable to the United States. Not the least of the valuable results that have been achieved is the general recognition of the benefits to be derived from the use of oil in preventing heavy seas from breaking on board vessels,—a result universally attributed to the reports that have been published on the "Pilot Chart."

The subject of derelicts at sea, and the danger therefrom to commerce, has been emphasized in the same way; and some authorities are of the opinion that the recent marine conference owed its inception largely to the interest caused by the continued publication of such data.

A feature of the "Pilot Chart" that deserves special mention is the occasional publication of a supplement devoted to some subject of immediate importance. This plan was first tried in September, 1887; and since that time several supplements have been issued, each of which has attracted much favorable attention, and has been widely quoted. The following is a complete list of those published thus far:—

September, 1887, West Indian Hurricanes.—Diagrams and text explaining the circulation of the wind in a hurricane, with brief rules for action.

December, 1887, Transatlantic Steamship Routes for December.—The plan for steamer-routes recommended in order to avoid collisions, with a brief discussion of the winter storm-belt of the North Atlantic.

March, 1888, Water-Spouts off the Atlantic Coast of the United States during January and February, 1888.—Positions of water-spouts plotted on a small chart, with reports quoted in full, and a discussion of the subject.

August, 1888, Derelicts and Wreckage in the North Atlantic.—A history of the great log-raft, with a complete list of reports received from vessels that sighted the logs as they spread over the ocean, together with a graphic record of the drifts of the most notable derelicts.

February, 1889, The Derelict American Schooner "W. L. White."—An account of the transatlantic voyage of this notable derelict vessel, with all reports received, and a chart showing the track of the vessel and the general drift of Atlantic currents.

October, 1889, The St. Thomas-Hatteras Hurricane of Sept. 3–12, 1889.—Ten small charts, with accompanying text, illustrating the progress of this great hurricane from St. Thomas to our coast north of Hatteras, with a complete list of vessels from which reports were received in time for use in this connection.

During 1890 no supplements have been issued, but a large number of reprints in black and white have been made of the various diagrams and printed matter accompanying the chart. These have been widely circulated and republished, notably by the *New York Herald*, the *Boston Post*, and the *Liverpool Journal of Commerce*, to which papers the Hydrographic Office feel especially indebted for valuable assistance and support.

It is proposed to publish with the January chart a supplement devoted to the subject of ice in the North Atlantic during the season of 1889–90. This will contain charts showing the positions and dates of icebergs and field-ice reported during the past season (perhaps the most notable ice season on record), for which the data at