

Gulf Stream by the officers of the United States Coast Survey, have all added much to our knowledge of the physics and biology of the ocean.¹

GERMAN EXPEDITIONS.
"GAZELLE."

The German War Ship "Gazelle," under the command of Baron von Schleinitz, circumnavigated the world at the same time as the Challenger, and was accompanied by Studer and Børgen, to whom, as well as to other investigators, we are indebted for an account of the observations made during the cruise on currents, deep-sea temperatures, pelagic organisms, deep-sea deposits, and coral islands.²

"DRACHE."

In the years 1881, 1882, and 1884, the ship "Drache" carried on investigations in the North Sea, the physical, chemical, and biological results being made known through reports by Jacobsen, Gumbel, Möbius, and others.³

GERMAN POLAR EXPEDITIONS.

The International Polar Expeditions between 1882 and 1883, especially the German Polar Expedition to South Georgia, yielded important meteorological and biological results bearing more or less directly on the science of Oceanography.⁴

"NATIONAL" OR PLANKTON EXPEDITION UNDER HENSEN.

In the year 1889 the "National" or Plankton Expedition spent from July to November in the North Atlantic, chiefly engaged in the study of the surface fauna and flora after new methods suggested and carried out by Professor Hensen,⁵—an extension, in fact, of the important marine work carried on for many years by the Kiel Commission. This expedition was accompanied by a scientific staff consisting of Krümmel, Brandt, Dahl, Fischer, Schütt, and Eschké. The collections have been placed in the hands of a large number of specialists, and the detailed results are now in course of publication.

NORWEGIAN NORTH ATLANTIC EXPEDITION.
"VÖRINGEN."

During the summers of 1876, 1877, and 1878, the Norwegian North Atlantic Expedition, in the "Vöringen," was despatched for the scientific investigation of the region lying between Norway and Greenland, under the direction of Professors Mohn, G. O. Sars, and other Norwegian experts. In the first cruise, from June 1 till August 26, 1876, 98 soundings were taken, the greatest depth being 1861 fathoms; in the second cruise, extending from June 11 till August 23, 1877, 160 soundings, 27 dredgings, 9 trawlings, and 37 serial temperature observations were taken, the greatest depth being 2005 fathoms; in the third cruise, extending from June 15 till September 4, 1878, 117 soundings, 15 dredgings, 24 trawlings, and 57 serial temperature observations were taken, the greatest

¹ See Reports of the U.S. Coast and Geodetic Survey; J. E. Pillsbury, The Gulf Stream and its Investigation, Rep. U.S. Coast Survey for 1890.

² Die Forschungsreise S.M.S. "Gazelle," Berlin, 1889.

³ See Die Ergebnisse der Untersuchungsfahrten S. M. Knbt. "Drache" in der Nordsee, Berlin, 1886.

⁴ Die International Polarforschung 1882-1883, Die Beobachtungs-Ergebnisse der Deutschen Stationen, Süd-Georgien, Bd. ii., Berlin, 1886; Die Deutschen Expeditionen und ihre Ergebnisse, Bd. i. and ii., Berlin, 1890 and 1892.

⁵ See Die Ergebnisse der Plankton-Expedition; Pt. i. O. Krümmel, Reisebeschreibung der Plankton-Expedition, Kiel, 1892, etc.; also V. Hensen, Ueber die Bestimmung des Planktons oder des im Meere treibenden Materials an Pflanzen und Thieren, Fünfter Bericht d. Komm. zur Wiss. Unters. d. deutschen Meere, in Kiel, für die Jahre 1882-1886, Berlin, 1887; Krümmel, Die Plankton-Expedition im Sommer 1889, *Verhandl. d. Gesellsch. f. Erdk. zu Berlin*, Dezember 1889; V. Hensen, Einige Ergebnisse der Plankton-Expedition der Humboldt-Stiftung, *Sitzb. d. k. preuss. Akad. d. Wiss. zu Berlin*, Phys.-Math. Cl., Bd. xiv. pp. 243-253, 1890; see also E. Haeckel, Plankton-Studien, Jena, 1890.