

deavored to ascertain the quantity of matter floating in the sea.* It was difficult to make such observations, because one formation passed away after a few months, to give way to others. No such accumulation of full-grown matter as is found everywhere on the land can, therefore, be looked for in the sea.

75.—HYDROGRAPHIC WORK OF THE ALBATROSS IN 1884.

By Lieut. SEATON SCHROEDER, U. S. N.

During the year 1884 the Albatross took 701 soundings, almost all of which were located with sufficient accuracy to give them hydrographic value. During the winter and spring the vessel was employed by the Navy Department in searching for reported dangers in the West Indies and on the way there, runnings lines of soundings across the Caribbean Sea and among some of the islands, noting currents carefully, and establishing the longitude of Cape San Antonio lighthouse, Cuba.

The following are the reported dangers over or near which the depths were found in the positions given :

Name.	Latitude.			Longitude.			Depth.
	°	'	"	°	'	"	
Orion Shoal	34	48	45	72	25	00	<i>Fathoms.</i> 2,482
Ashton Shoal	33	50	20	71	42	00	2,053
Penseveranza Shoal	31	15	42	67	39	10	2,787
Mourand Shoal	24	55	14	65	13	07	3,006
Leighton Rock	17	39	30	73	22	15	2,490
Loos Shoal	17	48	00	73	34	15	2,369
Breakers	12	54	40	66	11	10	2,763
Vigia	12	10	30	66	11	00	2,707
Georgia Shoal*							17
Tribune Shoal	12	11	30	74	27	30	2,057
Powhatan Shoal	11	11	00	75	50	30	1,195
Doubtful	14	53	40	80	20	00	1,151
Sancho Pardo†							
Albatross Shoal	22	49	20	84	15	00	950
Vigia	23	06	00	83	03	45	625
Huntley	30	46	00	78	35	00	470

* Many soundings.

† Off Cape San Antonio; many.

The soundings were such as to prove the non-existence of all except the Georgia Shoal, reported by Captain Holt, of the American brig Georgia, in 1867. An extensive search was made for this, resulting in the discovery of a bank a little to the southward of the reported position, in latitude 17° 36' to 17° 44' N. and longitude 75° 40' to 75° 45' W. The least water found by the Albatross was 17 fathoms.

One hundred soundings were taken off Cape San Antonio, and the shoal reported there may be expunged from the charts.

Six lines of soundings were run across the Caribbean Sea, four be-

* The only person who has done something in this line is Murray, of the Challenger expedition.

tween the Leeward Islands and the main, and diagonal lines on and off the coast of the United States of Colombia. The eastern part of the Caribbean Sea is the deepest; the greatest depth was 2,844 fathoms, in latitude $13^{\circ} 25'$, longitude $66^{\circ} 25'$. Still deeper water, however, was found off the Honduras coast, there being 3,169 fathoms 60 miles SW. of the Grand Cayman.

One interesting discovery was that of a submarine ridge connecting the islands of Santa Cruz and Porto Rico, the least depth on which was 578 fathoms and the greatest 900, while on either side was found over 2,000 fathoms.

Aves Islet, 100 miles westward of Guadaloupe, was found to be the summit of a mountain extremely precipitous on its western slope, and extending in a SSE. direction over 150 miles to the 1,000 fathom curve.

All these features are shown in a plaster cast of the West Indies and Caribbean Sea, made at the Hydrographic Office, Navy Department.

The longitude of Cape San Antonio lighthouse, west end of Cuba, was determined by sextant observations, the longitude being carried by five chronometers from Key West, Fla., and depending on that of the Soldiers' Monument, being $81^{\circ} 48' 25''$ W.

The general results of the study of the currents are as follows:

The general surface drift in the Caribbean Sea is to the westward, being much the stronger in the eastern part, where as much as 3 knots was found off (northward of) the Leeward Isles. The tidal influences at Grenada Island unquestionably extend 60 miles to the westward, and near the shores of Santo Domingo and Jamaica there are many eddies, &c., that may be somewhat tidal. The direction and strength of the wind have an influence upon the exact set of the stream; but it is noticeable that in the eastern portion of the Caribbean Sea the set is generally to the southward of west in the northern part, and to the northward of west in the southern part. For 200 or 300 miles westward of the Gulf of Paria the current ran 2 to 3 knots to about NW. by W., in spite of a NE. breeze.

In the broad channel between Yucatan and Honduras in the west and Cuba and Jamaica in the east the currents are extremely erratic. The amount of northwesterly drift in twenty-four hours was found generally to tally with what vessels have usually experienced there; but during individual hours or portions of a day there were remarkable fluctuations noted. In one instance the current was to WNW. $2\frac{1}{2}$ knots at one time; in less than two hours it was setting feebly eastward, and again in two hours more to SW., and so on. This may be caused by the extraordinary variations in the depth, nearly 3,200 fathoms being found 75 miles eastward of Swan Islet (60 feet high), 3,000 fathoms at 40 miles southeastward of Misteriosa Bank (10 fathoms), and so on.

During the summer and autumn of 1884 the soundings taken by the Albatross were off the coast between Hatteras and Nantucket, in various depths up to 2,700 fathoms. Nothing was found of special hydrographic value.