Both trades blowing from colder into warmer regions absorb water largely and thus raise the salinity within their areas of action. The western anti-trades which blow on the polar sides of the two trades, passing from hotter to colder regions, should dilute the ocean there ; but they do not seem to act so powerfully in this direction as might be expected. In the belt of equatorial calms between the two trades abundant rains fall frequently and dilute the water very perceptibly.

What has been said thus far about the distribution of surface salinity applies chiefly to the Atlantic, which in fact is far more completely known in this respect than any other ocean. The ac­

companying diagram shows how on the average the surface salinity varies there with the latitude. The bolder curve is drawn after a table given by Buchanan in his part of the *Narrative of the Cruise of the “ Challenger*,” the other after a more extensive table given by Boguslawski as embodying the mean results of many observations by different authorities with reference to standard temperatures varying from 15° to 17°·5 C.,—coast waters affected by the influx of large rivers having been omitted. @@1 In the North Atlantic there is an area of maximum (surface) salinity (S = 1028∙5) between 25° and 35° N. lat. and 30° and 20° W. long. The zone of minimum salinity lies between 15° N. lat. and the equator. In the South Atlantic (surface) there are two concentration centres,—an eastern about St Helena and between that island and Ascension, and a western north of San Trinidad,—both nearer the equator than that of the North Atlantic. As pointed out by Buchanan, a relatively high salinity (not merely on the surface) is quite a characteristic feature of the Atlantic, and in its northern part prevails up to the high latitudes of the Norwegian Sea, which was so thoroughly in­vestigated by Swensden (1876) and Tornöe (1877 and 1878) during the Norwegian expeditions. The salt (and heat) conveying influ­ence of the Gulf Stream makes itself felt up to Spitzbergen (76° N. lat.). On both sides of the Faroe Islands the specific gravity 17 5S17 5 comes up to 1027.0 ; at the Bear Islands it sinks to 10267, and thence farther northwards to 10261. While the Gulf Stream pushes northwards, a current of relatively fresh polar water travels southwards and, creeping along the eastern coast of the United States, forms what is known as the “cold wall.” In passing from the surface to the depth of the ocean the general rule (Buchanan) is that the actual specific gravity *in situ* increases with the depth ; but this does not hold for the salinity (or specific gravity reduced to standard temperature). In places where there is active dilution at the surface *(e.g.,* in the belt of equatorial calms) the salinity as a rule increases down to some 50 or 100 fathoms ; but thence down­wards it follows the general rule, that is, it *decreases* down to 800 or 1000 fathoms, and thence increases steadily to the bottom. In the South Atlantic the salinity of the bottom water has an almost constant value (4S155 = 10257 to 1025'9) ; but northwards it in­creases to from 1026∙16 to 1026∙32 at 2000 to 4000 fathoms (Buchanan).

In regard to the Pacific our knowledge is far less complete. A glance at the curve shows that the (surface) salinity at a given latitude is less there than it is in the Atlantic. In the whole of the Pacific there is only one concentration centre, which lies about the Society Islands, with a maximum salinity corresponding to 4S15·8 = 1027∙19. (W. D.)

SEA-WOLF, also Sea-cat and Wolf-fish *(Anarrkickas lupus),* a marine fish, the largest kind of the family

*Blenniidæ* or Blennies. In spite of its large size, it has retained the bodily form and general external character­istics of the small blennies, which are so abundant on every rocky part of the coast. Its body is long, subcylin- drical in front, compressed in the caudal portion, smooth and slippery, the rudimentary scales being embedded and almost hidden in the skin. An even dorsal fin extends along the whole length of the back, and a similar fin from the vent to the caudal fin, as in blennies. But its formidable

dentition distinguishes the sea-wolf from all the other members of the family. Both jaws are armed in front with strong conical teeth, and on the sides with two series of large tubercular molars, a biserial band of simi­lar molars occupying the middle of the palate. By these teeth the sea-wolf is able to crush the hard carapaces or shells of the crustaceans and molluscs on which it feeds ; but whether it uses the teeth as a weapon of defence and deserves the character of ferocity generally attri­

buted to it would appear to be rather questionable from observations made on specimens in the aquarium at Hamburg, which

allowed them­

selves to be

handled without

in any way re­

senting the loss

of their liberty.

It must, how­

ever, be added

that the small

blennies bite

readily when caught. Sea-wolves are inhabitants of the northern seas of both hemispheres, one *(A. lupus)* being common on the coasts of Scandinavia and North Britain, and two in the seas round Iceland and Greenland. Two others occur in the corresponding latitudes of the North Pacific. They attain to a length exceeding 6 feet, and in the north are esteemed as food, both fresh and preserved. The oil extracted from the liver is said to be in quality equal to the best cod-liver oil. Of late years small num­bers have reached the English markets, where, however, the prejudice which attaches to all scaleless fishes, parti­cularly such as possess a varied pattern of coloration, limits their use as food.

SEBASTE. See Sivas.

SEBASTIAN, Dom. See Portugal, vol. xix. pp. 546- 547.

SEBASTIAN, ST, the patron saint against plague and pestilence, was by birth a Narbonese. According to the Roman breviary his nobility and bravery had endeared him to the emperor Diocletian, who made him captain of the first cohort. Having secretly become a Christian, he was wont to encourage those of his brethren who in the hour of trial seemed wavering in their profession. This was conspicuously the case when the brothers Marcus and Marcellinus were being led forth to death ; by his exhorta­tions he prevailed on them to resist the entreaties and tears of their wives and children. The emperor having been informed of this conduct sent for him and earnestly remon-

@@@1 For the sake of comparison there is shown on the lower part of the diagram the surface salinity curve for the Pacific drawn after Buchanan’s summary tabulation of his results.