

# SCIENCE

FRIDAY, NOVEMBER 9, 1888.

THE PAST SEASON has been one of unusually successful activity with the United States Fish Commission, a review of whose work is published elsewhere in this issue of *Science*. Probably the most important accomplishment during the year has been the establishment, at Gloucester and Wood's Holl, of stations capable of hatching four hundred million codfish-eggs, and which, with favorable weather, may be expected to put at least one-fourth of that number of cod-fry into the Atlantic Ocean during the present season. The problem of restocking the coast of New England with inshore cod, which has become so scarce except in Ipswich Bay, has been definitely solved. It is only a question of time, and a very short time at that, before codfish can be made to be more plentiful on the coast of New England than they were years ago, and a lost industry restored that will be worth millions of dollars to that section of the country. The only probable causes of delay are bad weather during the hatching-season, and anchor-ice, which kills the small fishes. It is known that only an infinitesimally small proportion of the fry hatched out at the fish-commission stations, and put into the rivers and lakes and the ocean, ever survive to reach maturity. It is only by planting an enormous quantity of the fry that the supply of fish is increased. It is claimed, that, of those artificially propagated, a much larger proportion survive than when the eggs are deposited naturally in the stream. In order to ascertain whether the number of small fishes to survive might not be enormously increased, Commissioner McDonald placed in a pond in Washington, in June, two million shad-fry. Eight hundred thousand of these are still alive,—breathing fishes from three to four inches long each. These will be kept until spring, and then placed in the Potomac. As a rule, they will by that time be able to take care of themselves. The remarkable success of this experiment may cause an entire change in the methods of artificially propagating shad. A new scheme of gathering up the small indigenous fishes hatched in ponds and lakes on the borders of Western and Southern rivers after their annual overflow, and planting them in the rivers, which, in many cases, have been depleted by over-fishing and the destructiveness of the floods, was put into successful operation this year. A hundred thousand fishes were thus rescued from sure death, when, later in the season, these lakes and ponds dry up. On the Pacific coast the steamer 'Albatross' has done the preliminary work of developing the extremely valuable halibut-fishing grounds that lie off the coast of Washington Territory and Vancouver's Island, convenient to the ports of Puget Sound, defined the boundaries of several deep-sea codfishing banks off the coast of Alaska, and will devote the winter to similar work in lower latitudes. The results of her first season's work are expected to be of very great economic value to the Pacific coast. These are but a few of the branches of work accomplished by the United States Fish Commission during the past season, though probably the most important. This commission is the most profitable of all the bureaus of the government, and ought never to lack for money.

ON NOV. 2 the following telegram was sent from Zanzibar: "Couriers from Tabora bring direct news from the Stanley expedition, a portion of which was met at the end of November, 1887, by Arabs trading between Lakes Victoria Nyanza, Mvutan Nzige, and Tabora. These Arabs met Stanley's rear guard at a point west of Mvutan Nzige, south-east of Sanga, just as the expedition was preparing to cross extensive swamps. The Arabs did not see Stanley.

The detachment seen consisted of thirty men. They stated that Stanley was two days ahead. The expedition had suffered greatly on the march through a thick forest, where it was impossible to advance more than a mile and a quarter daily. They had also suffered in the marshes, where many had disappeared or died. Forty were drowned in crossing a great river flowing from east to west. One white man had died. Stanley was obliged to fight some tribes that refused to supply him with provisions. The expedition had often halted in the expectation of receiving re-enforcements from the Kongo. The rear guard, at the time met, had only been on the march five days after a halt of three weeks, due to the illness of Stanley and a great part of the escort, who had been attacked with fever. The Arabs estimate the total strength of the expedition, after all losses, at two hundred and fifty men. The health of Stanley was then good. The rear guard, which consisted of natives of Zanzibar, stated that Stanley had decided that he would no longer advance in a north easterly direction, but would strike toward the north, hoping to avoid the swamps. After getting a certain distance north, he intended to take an oblique line to the eastward, and go straight to Wadelai, where it was thought he would arrive fifty days later,—about the middle of January, 1888. The Arabs were of the opinion that the expedition was still strong enough to reach Wadelai." We hesitate to accept this news as authentic, as it corresponds too closely to the views recently expressed in numerous newspapers, particularly regarding Stanley's intention to turn northward. Sanga, which is mentioned in this despatch, was visited by Junker in 1882, and marks the south-eastern limit of our knowledge of this region. The Arabs, who claim to have met part of the expedition, must have penetrated beyond the limits of Unyoro. It will be remembered that on Lake Mvutan Nzige and Muta Nzige no information was obtained by explorers regarding the regions farther west, and that there seems to be little communication in this direction. Therefore the report would imply that the Arabs had recently succeeded in opening this country to their trade. Besides this, their route must have led along Lake Mvutan Nzige, where Emin had re-established, a year since, his influence. Therefore it seems somewhat remarkable that no mention is made of Emin Pacha. Another despatch which was received on Aug. 1 in Zanzibar is undoubtedly an invention. It was stated that two messengers had arrived there who had left the interior about the beginning of April, and who reported that Stanley had not arrived at Wadelai up to that time. The messengers stated that in the month of March Emin Pacha did receive some vague and indecisive news of the explorer, which had filtered through from tribe to tribe, but that the reports were very conflicting. Some declared that Stanley, after losing a number of men and a large portion of his supplies, was hemmed in by hostile tribes between the Mabode country and the Mvutan Nzige, while other rumors were to the effect that he had been attacked by the tribes in the Matongora-Mino district, and after several conflicts had diverted his course in an unknown direction. The wording of this despatch is almost exactly the same as that of another received about fifteen months ago, and therefore it cannot be accepted as genuine.

## THE ERUPTION OF KRAKATOA.

THE Krakatoa committee of the Royal Society has made its final report,<sup>1</sup> which forms a large quarto volume, and contains a mass of material of the greatest interest. After the remarkable phenom-

<sup>1</sup> The Eruption of Krakatoa, and Subsequent Phenomena. Ed. by G. J. SYMONS. London, Trübner.