Barisal Guns.

IN reference to Sir Edward Fry's letter in NATURE for May 7, a fuller account of the mysterious sounds heard at Jebel Musa, and Jebel Nagus, in the Peninsula of Sinai, will be found in Palmer's "Desert of the Exodus," vol. i. pp. 217, 251. The former, which an Arab legend attributes to a fairy maiden, who fires off a gun one day in every year to give notice of her presence, "are," says the writer, "in all probability caused by masses of rock becoming detached by the action of frost, and rolling with a mighty crash over the precipice" (of 3000 feet) "into the valley below." The sounds at Jebel Nagus, which have also a legend connected with them, are undoubtedly due to the friction of rolling sand. From experiments made by the explorers, the degree of coarseness of the sand, the angle of inclination of the slope, and temperature, seem to be the controlling conditions. B. W. S.

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THE SPERM WHALE AND ITS FOOD.

OUR fund of accurate knowledge of the Cetacea being at so low a level, it is to be deplored that trained scientific observers have hitherto had few opportunities for noting under normal conditions the habits of these most interesting animals. And therefore naturalists generally will certainly hail with delight the news of the resolution of the Prince of Monaco to endeavour by all the means at his disposal to make an effective study of that least understood of all the deep sea mammalia—the great sperm whale. An observer like Dr. Scoresby who, while gaining his livelihood by the pursuit of the Greenland whale, lost no opportunity of studying that monster's manners and customs for the benefit of science generally, is still to seek for the world-wide fishery of the cachalot. This may be said without in the least minimising the excellent work done by Surgeons Beale and Bennett, who remain almost the only first-hand authorities we have on the sperm whale. They were not in command, and were consequently at a great disadvantage for making observations; for the whole crew of a whaleship are co-partners in the venture, and the essential business of oil-getting must on no account be hindered, or there is trouble all around. And since their day, unfortunately, British shipowners have had little or no interest in the southern whale fishery, while none who know what a motley crowd constitute the crews of American whalers, will be surprised that no contributions to natural history come from that quarter. I am the more pleased, therefore, that in the course of my career as a seaman, it happened that I was induced some twenty-one years ago to join a whaleship in New Zealand for a long cruise in the Southern and Eastern seas. All the average sailors' usual ignorance of the differing characteristics of different whales was mine; but so interesting did I find the study of these great denizens of the deep sea, under my extended acquaintance with them, that I seized every chance I could obtain to learn whatever I could of them, without any idea at the time of putting the knowledge so gained to any practical use. The first occasion worthy of note here was also my initial encounter with a cachalot. We were cruising the wide stretch of ocean in the South Pacific known as the "Vasquez" grounds, and sighted a small pod of sperm whales, mostly sprightly young cows, under the guardianship of two or three immense bulls. We lowered four boats, and very soon the boat in which I happened to be "fastened" a medium-sized cow, who promptly returned the compliment by rising bodily beneath the boat and ripping the bottom out of it with her hump. Of course our connection with that whale was at once severed, the task of keeping our heads above water, with our boat hardly more than a bundle of loose planks beneath us, being amply sufficient to occupy all our energies until we were rescued. In the meantime the second mate had successfully harpooned and slaughtered another and much larger whale very near to us—so near, in fact, that we weltered in a gory sea lashed into foam by the monster's dying struggles.

Just before she died, we noticed her in the act of vomiting, and several masses of the matter ejected floated all around us. Some of them were exactly like large blocks of blanc-mange of no particular shape, almost white, but in some instances spotted with various colours. Many of the smaller pieces, however, were unmistakably portions of tentacles; lengths bitten or torn off. These it was most easy for me to identify, even under the awkward conditions, having been long familiar with the leaping or flying squid so often picked up on deck during heavy weather, or taken from the stomachs of albacore (*Scomber thynnus*), bonito (*Thynnus pelamys*), or dolphin (*Coryphæna hippuris*). This peculiar sight, although witnessed under such difficulties, made a very definite impression upon me, and as I had always examined the contents of the stomachs of such fish as I caught, so I longed to eviscerate the captured cachalot for a like purpose, although it was evident that she had probably ejected all the food that her maw had contained. Such anatomical pursuits are, however, quite out of the question at sea in a whaleship. Those who would essay the tremendous task of disembowelling a whale while it floats beside the ship, might indeed be rewarded by a find of ambergris worth more than the whole of the blubber and spermaceti, but the chances are not sufficiently inviting to tempt whalemen to undertake such herculean labours in addition to the already heavy toil of "cutting in."

Long afterwards, while cruising in Foveaux Straits, we caught a gigantic cachalot—the largest I think I have ever seen, even in that haunt of monstrous whales. We had an easy capture, for our prize had been previously attacked by some other ship, and in various parts of his body were the *disjecta membra* of seven exploded bomb-lances. Hardly was he fast alongside when one of those furious westerly gales so common on the southern shores of New Zealand sprang up, and it was well indeed for us that we had a good port under our lee. In spite of the load we had to tow, we arrived in Port William early the next morning with our prize all safe, and at once proceeded to cut him in. While engaged in this satisfactory, if filthy, operation, some Maories and half-breeds came off, and civilly asked if they might have the carcase when we had done with it. As it was of no earthly use to us, permission to take it when we cast it adrift was graciously accorded.

By dint of strenuous toil we got to the last joint of the vertebræ by 4 p.m., and, having disjointed it, the mountain of flesh floated majestically away, to be seized immediately by the waiting beach-men, who, with incredible labour, succeeded in landing the carcase near the western horn of the little bay.

That handful of men, six in all, laboured night and day for the best part of a week to get whatever oil was contained in the skeleton, bowels, and fat about the muscles. As we had finished our labour, a grand opportunity presented itself for examining the interior economy of this whale.

The vast cavity of the stomach contained a goodly assortment of cephalopoda in a more or less fragmentary condition; for I should have said that this whale, unlike most, had not ejected his food before his death. Judging from the sizes of the tails and the girth of some of the pieces, I estimated the largest of the squid at not more than six feet long, exclusive of the head. But what struck me as most peculiar was the large quantity of *bony* fish contained in the stomach of this cachalot. Blue and red rock-cod, groper, barracouta, and sea-bream were there—two or three bushels of them. Some were so recent as to be hardly soiled, and none bitten or damaged in any way except by digestive process.

How so vast and comparatively clumsy a creature could

succeed in obtaining such a large supply of active fish is incomprehensible to me, except upon the supposition that in waters like these, where fish abound in such incredible numbers, the cachalot cruises gently about with the great lower mandible hanging down (its normal position). The fish, mistaking the great livid cavernous throat for a cave of another kind, enter therein, to find egress impossible. But this is only a pious opinion of mine, unsupported by evidence other than the presence of fish where none could reasonably expect to find them, except under some such circumstances as I have supposed.

On another occasion we were cruising between Tongatabu (Friendly Islands) and Futuna, or Horn Island. Just before sunset a solitary sperm whale of goodly size was harpooned by us, and immediately sounded to a depth of 500 fathoms. He remained below the surface for about forty minutes, so that when he broke water again it was nearly dark. Of the terrors of that night I might say much, but this is not the place, neither do I think if it were that I could do anything like justice to the subject. Sufficient then to say that his agility and vitality were unequalled by that of any whale that I have met with, and it was well into the small hours of the morning before he gave up the contest. When day dawned we found that his lower jaw was twisted at right angles to his body, the result probably of some terrific conflict in the long ago. The outstanding portion of the jaw was almost covered with limpets of massive appearance, some measuring six inches across the base, and the intervening spaces were filled in with fringing barnacles of great length, giving him the semblance of a hoary beard. This alone was sufficient to endow a creature of such normal ugliness with an uncanny prehistoric sort of look—and there were not wanting members of our crew to exclaim that this was surely Davy Jones himself. But the chief peculiarity about this cachalot, and, indeed, the reason why I mention him here at all, was the extreme hardness and dryness of his blubber. Under ordinary conditions a whale of his size should have yielded at least seventy barrels of oil, but owing, I suppose, to the difficulty he must have had to procure food, it was only with an extraordinary expenditure of labour that we succeeded in extracting from him thirty-two barrels of oil. The opinion of all on board competent to give one was, that being unable to cope with the big squid, owing to the loss of his great weapon, the lower jaw, he had been driven to seek support on such food as he could obtain, and only managed to exist in a state of semi-starvation. Doubtless this accounted for his agility, and his fine drawn body, more like that of one of the Balænoptera than of a cachalot, went far to confirm the idea.

And now I come to the final instance for the present paper, but by no means the least important, at least to my mind, since it has settled several vexed questions for me finally. We were cruising in the Strait of Malacca, between the Nicobars and the Malay Peninsula, and had succeeded in killing a full-sized sperm whale. He had been a tough customer, needing all our energies to cope with him ; but a well-directed bomb closed the negotiations just before sunset. As usual, he had ejected the contents of his stomach before dying, and we specially noticed the immense size of some of the masses floating about. By common consent they were about as large as our hatch-house, which measured 6 ft. × 6 ft. × 8 ft. I must very distinctly state that these masses were not square, but irregularly-shaped masses, bitten or torn off in blocks from the body of some gigantic squid.

The whale was secured alongside, and all hands sent below for a good rest prior to commencing to "cut in" at daybreak. I had the watch from eight bells to midnight, and at about 11 p.m. was leaning over the lee rail, idly gazing seawards, where the rising moon was making a broad lane of silvery light upon the smooth, dark waters. Presently there was a commotion in the sea, right in the way of the moon, and I immediately went for the night glasses to ascertain if possible the nature of it. In that neighbourhood there are several active volcanoes, and at first I judged the present disturbance to be one of these, sending up débris from the sea bed. A very short examination satisfied me that the trouble, whatever it might be, was not of volcanic or seismic origin. I called the captain, as in duty bound, but he was indisposed to turn out for anything short of actual danger, so the watch and I had the sight to ourselves. We edged away a little under the light draught of wind, so as to draw nearer to the scene, and presently were able to realise its full significance. A very large sperm whale was engaged in deadly conflict with a monstrous squid, whose far-reaching tentacles enveloped the whale's whole body.

The livid whiteness of those writhing arms, which enlaced the cachalot like a nest of mighty serpents, stood out in bold relief against the black boulder-like head of the aggressor. Presently the whale raised itself half out of water, and we plainly saw the awful-looking head of the gigantic mollusc. At our distance, something under a mile, it appeared about the size of one of our largest oil casks, which held 336 gallons. Like the rest of the calmar visible, it was of a peculiar dead-white, and in it gleamed two eyes of inky-blackness, about a foot in diameter. To describe the wonderful contortions of those two monsters, locked in a deadly embrace, is far beyond my powers, but it was a never-to-be-forgotten sight. The utter absence of all sound, for we were not near enough to hear the turmoil of the troubled sea, was not the least remarkable feature of this titanic encounter. All around the combatants, too, were either smaller whales or immense sharks, who were evidently assisting in the destruction of the great squid, and getting a full share of the feast. As we looked spell-bound we saw the writhings gradually cease, and the encircling tentacles gradually slip off the whale's body, which seemed to float unusually high. At last all was over, and the whole commotion had completely subsided, leaving no trace behind but an intensely strong odour as of a rocky coast at low tide in the full blaze of the sun. Since that night I have never had a doubt either as to the origin of all sea-serpent stories or the authenticity of the old Norse legends of the Kraken; for who could blame a seaman witnessing such a sight, and all unaccustomed to the close observation of whales, for reporting some fearsome monster with horrent mane and floating "many a rood." An interesting account of the French gunboat *Alecto* falling in with a calmar forty feet in length, lying on the surface in the North Atlantic, once fell into my hands. It told how those on board succeeded in getting a hawser passed round the creature, but in heaving it tight the rope cut its way through the soft gelatinous body, which floated away in halves, and gradually sank. I much regret now that I do not remember anything of the name or date of the publication in which this account appeared. In previous communications of my own to the press on the subject of sperm whales and their capture, I have incidentally alluded to these immense molluscs—*vide Land and Water*, September 29, 1894 ; *Chambers's*, March 24, 1894 ; *Pall Mall Gazette*, September 7, 1895 ; *Sheffield Weekly Telegraph*, November 2, 1895 ; *Good Words*, September 1895—a few of the most recent ones.

In closing these brief notes, owing to exigencies of space, I would like to add that the only place for accurate observations of these animals is at a bay-whaling station, such as the Prince of Monaco visited at Terceira. If he, with the appliances at his command, adheres to his resolve to pursue this great study, we shall soon be in possession of some splendid data. And he, or others on a similar errand, would find the best opportunities in the southern hemisphere, where the number of sperm whales are simply amazing around certain easily accessible spots.

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