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Captain Von Löwenörn

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with water, it produces a great many eatable mushrooms, which in Italy are served up at the tables of the great as delicacies. It needs excite no wonder that mushrooms should grow on the *pietra fungaja*, since a multitude of fruitful mushroom seeds are intermixed in this soft stalaçites, as well as with the hardened turf found near volcanoes.

For the information of those who may be desirous of making mushrooms continually grow up from the *pietra fungaja*, and of increasing the quantity, it may be necessary to remark, that this effect will be produced, if, according to the experiment of M. Gleditsch, the mushroom-stones kept in cellars be moistened with water in which mushrooms have been washed*.

XIII. *On the Volcanic Island thrown up in the Neighbourhood of Iceland. By Captain VON LÖWENÖRN, of the Danish Navy †.*

IN the spring of the year 1783, a volcanic island, thrown up in the neighbourhood of Iceland, excited no little attention. According to the account of the sea-captain, who first saw it, exactly at the time when it first arose, smoke and flame seemed to rise from the sea, but no land or island was to be seen. It needs excite no wonder, therefore, that the observer was thrown into the greatest consternation, as he says himself, when he beheld the sea on fire! He and the whole crew therefore concluded that the end of the world had arrived, and they all began to prepare themselves for the awful moment: but, as they heard no trumpet, and as the sun shone in the firmament with his usual brightness, after considering what the phenomenon might be, they at last concluded that Iceland had been swallowed up by an earthquake; that this was a remainder of it; and that the flames arose from Hecla, the well-known volcano of that island. Full of this idea, they were just on the point of re-

* Does not this furnish a hint to those who rear mushrooms in gardens on beds of horse-dung? EDIT.

† From *Geographische Ephemeriden*, 1799.

turning, in order to convey intelligence of this event to Denmark; but very luckily they soon after discovered the coast of Iceland.

The place where this volcanic eruption was seen, lies only $7\frac{3}{4}$ nautical miles, fifteen to a degree, from the south-west extremity of Iceland. Hitherto they had seen no land, but recognising Iceland, the ship reached the place of destination, and completed her voyage. Other ships, which arrived later, saw a small island from which the eruption had arisen; but it always exhibited, as might naturally be expected, a different appearance. The same year smoke and flames were seen to arise from the nearest part of the opposite coast of Iceland.

As there have been many instances of such eruptions from the sea producing islands, this event attracted the notice of government, and the year following orders were given to the ships bound to Iceland to examine the new island; but it had entirely disappeared, so that no traces of it were to be found. Towards the conclusion of the year, however, an unfortunate accident happened, which, without doubt, was occasioned by sunken rocks forming a part of the island which had disappeared.

A Danish ship of war of 64 guns, called the *Infödretten*, was expected from the East Indies, and intelligence had already been received that she had sailed from the Cape of Good Hope; but after that period no farther account was heard of her till the year 1785, when some vessels returning from Iceland reported, that some fragments of this ship, together with the long-boat, had been driven ashore on the coast of that island. According to every account, and by comparing the different circumstances, it appears to me certain that the above ship was wrecked on these rocks, then no longer visible above the surface of the sea. It is impossible that such a large boat could have been conveyed from a ship without the hands of men, unless the ship had been dashed to pieces. This boat was not only driven to land entire, and in good condition, though without any person in it, but there was found in it a box filled with wax candles. At the distance of about a quarter of a mile from the boat there were

found various pieces of the same ship, which could be easily known by some distinguishing marks. These parts, of different forms and sizes, would not have been thrown on shore so near each other if the misfortune had happened at a greater distance; the billows, currents, &c. would certainly have driven them on shore at places more remote from each other. Besides, these fragments were driven on shore by a wind which blew in a direction from these rocks, and nothing else of this misfortune had been perceived on the coast.

From all these circumstances I conclude that this vessel had experienced a very bad voyage home from the Cape of Good Hope, for that year easterly winds were exceedingly prevalent in the northern seas. A great many ships, and particularly men of war, preferred going round Great Britain to the passage through the Channel. It is probable that the ship in question may have been in want of some necessary, such perhaps as fresh water. The captain, besides, was well acquainted in Iceland, where I myself was with him, some years ago, as lieutenant on board a ship which he then commanded, and on this account he probably intended to run into some of its harbours, but unfortunately struck on the sunken rocks, the remains of the volcanic island. In this distressed situation the crew, no doubt, had recourse to the only probable means left for saving their lives by hoisting out their long-boat, and while employed in this labour the ship, it is likely, went to pieces, and the people were lost, as none of them were ever seen or heard of.

During my expedition to Iceland in the year 1786, I made it my business to make some researches in regard to this volcanic island, though at that time no suspicion was entertained that the above ship had been wrecked in this place; for this conjecture was only a consequence drawn from my researches.

When I arrived in Iceland, where, on account of the business entrusted to my charge, as well as on account of the observations which I was obliged to make for the improvement of charts, I found it necessary to remain some time with my ship in Holmens-hafen, and had at my disposal a small vessel which was lying there, I ordered Lieutenant,
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now Captain Grove, to cruise about with this small vessel in the neighbourhood of the place where the volcanic island had been seen. He remained there some days, and though he often sounded with a line of more than a hundred fathoms, found no bottom, so that he lost all hope of making any discovery; but, just when he was about to return, he observed, contrary to all expectation, that the waves broke over some rocks lying exactly level with the surface of the water. As he now entertained no doubt that he had found what he had been sent in quest of, he took the bearings and distances from the nearest part of the coast of Iceland, and transmitted to me an account of his observations.

When the business of the expedition was ended, and I was about to return at the end of the summer, I resolved to visit this interesting point myself, and to ascertain its real position by actual observation. I took my departure, therefore, from some small islands, or rocks, which lie before Cape Reikianös, the south-west extremity of Iceland, and the outermost of which is called the Grenadier's Cap, distant $3\frac{3}{4}$ miles south-west from the Cape. As the weather was exceedingly favourable, I was so fortunate as to obtain its latitude by the meridian altitude of the sun, and its longitude by a timekeeper. Though the timekeepers which I carried with me were not of the best kind, as I had quitted the same day one of the ports of Iceland, where I observed their rate of going, their relative errors could not be of great importance. I determined, therefore, the position of the rock called the Grenadier's Cap at $63^{\circ} 43' 40''$ north latitude, and $25^{\circ} 35' 40''$ west longitude from the meridian of Paris. This agreed pretty nearly with the observations of Verdun de la Crenne, Borda, and Pingré*; especially as I have good reason to believe, that, from a want of sufficient knowledge of the coast of this country, they placed Cape Reikianös three minutes too far north, as they make the latitude to be $63^{\circ} 55'$. As I found also, by the most accurate observations that could be made at sea, that these dangerous rocks lie 47° in a direction south-west from the true meridian, and just four-

* *Voyage fait par ordre du Roi en 1771, 1772.*

miles from the before-mentioned Grenadier's Cap, the positions of these rocks will be $63^{\circ} 32' 45''$ north latitude, and $20^{\circ} 2' 50''$ west longitude from the meridian of Paris.

As I now proceeded to get a sight of these rocks, Captain Grove, who was on board my ship, concluded, from his former observations, that we could be at no great distance from them, having now quite lost sight of the Icelandic coast; and the before-mentioned rocks, which lie to the south-west from Iceland, though the weather was clear, being now scarcely discernible. My companion, therefore, asked whether it was prudent to advance so straight upon it. While we were talking on this subject the people called out, and immediately every eye was directed to the spot, where we saw before us the waves breaking over a rock. We immediately put about ship, and heaved the lead, which was in readiness, and found the depth twenty-six, and soon after forty fathoms, but a little farther no ground was to be found with a line of a hundred fathoms. Some tallow had been put into the bottom of the lead, as usual, to enable us to determine the nature of the bottom by the substances which adhered to it. By these means we obtained small fragments of stone which were entirely lava, or of a volcanic nature. The rock is not large, and the water around it is exceedingly deep. Its height is exactly equal to that of the surface of the sea, or rather a little lower; and for that reason it cannot be seen till one approaches very near to it, or when the waves break over it.

The origin of the volcanic island, which was seen in this place in the year 1783, I explain in the following manner:—The rock which now remains formed the crater, which at that period threw up flames and smoke. The large quantity of lava which issued from it, being accumulated on the bottom of the sea around the crater, may at length have been raised above the surface of the sea, and even to a considerable height. But as this volcano lies in a part of the ocean where prodigious billows prevail, and roll over each other throughout a wide extent of sea, it is probable that such a structure would soon be destroyed by their violence, especially as there is a great depth of water around it, in which it might easily
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be overturned. It is known also that the same year a considerable quantity of pumice-stone and volcanic substances of the like kind, the specific gravity of which was lighter than that of water, was cast on shore in Iceland, and found floating on the sea by mariners.

Had the eruption taken place in a calmer sea, and the depth around it been less abrupt, the thrown up mass would have consolidated itself by its own weight, and would have in time become an island; of which we have had instances in the Archipelago, in the East Indies, and different parts of the ocean. Had it taken place on the continent, or in an island, it would have formed a mountain. It is not necessary that a volcano should always arise from a mountain: volcanoes have been seen to burst forth in plains; but the invariable consequence is, that the volcanic matter, by being accumulated, and, as it were, piled up, forms a mountain. Now, as the violence of the waves may have easily washed away the loose matter accumulated round the crater, there is no absurdity in supposing, that, as the billows rolled over the mouth of the crater, the fire was at length overcome by the water, and the volcano extinguished.

The crater, consisting of rock, has remained. It is well ascertained that a rock existed in this place before the eruption; and it is confirmed, by late observations, that it exists still. An obscure notion prevailed among the seamen who frequented Iceland, that there was a blind rock* in this neighbourhood called *Fugle-Skiör* (Bird's rock). This name I have retained in my charts, though the existence of it is denied by many seamen; because they passed without seeing it. But, under such circumstances, the testimony of one who has seen it is of more weight than a hundred who deny its existence because they did not see it. This confirms me in the opinion that the crater had existed long before in the same state.

To conclude, it may not be superfluous to remark, in order to strengthen this opinion, that, nearly in the same direction from the south-west extremity of Iceland, as already mentioned, there are five small islands or rocks, the outer-

* Rocks lying under the water, and which are therefore more dangerous, are by seamen called *blind rocks*.

most of which lies at the distance of $3\frac{1}{2}$ miles from Cape Reikianös. Between these the water is deep; ships which go to, or come from, the west side of Iceland, commonly pass through them, when they first get sight of the land and rocks. By the Danish seamen they are called *Fugle-Skiör*, because they are frequented by a great number of sea-fowl; but by the inhabitants they are called *Eld Eyarne*, (fire islands.) May not this afford reason, to conjecture that in former times they had volcanic eruptions? and the volcano which appeared in the year 1783 may probably have existed long before.

XIV. *Experiments on some peculiar Matters drawn from Animal Substances treated with the Nitric Acid.* By C. WELTER*.

THE author having treated silk with the nitric acid, to obtain from it the oxalic acid, was surprised to find that at the end of his process he obtained a silky-looking salt of a golden-yellow colour, and which, on the approach of a piece of red-hot coal, exhibited all the effects of gunpowder. As he made the experiment only once, he thought it of importance to give a particular account of the process, in order that it might be repeated.

On one part of silk he poured six parts of nitric acid of the shops, adding a little concentrated nitric acid. After it had rested two days, he distilled this mixture. He then poured what had passed into the receiver, on what remained in the retort; and filtered the whole. The oxalic acid crystallising on the filtre, he put the whole again into the retort, and added a pretty large quantity of water, which had served to wash the filtre. He distilled off a part of the water; but as the residuum did not crystallise, returned, by elevating the receiver, what had passed over; and, after repeating this operation several times, obtained for residuum an acid liquor of the weight of the silk employed, and which contained small granulated crystals.

This liquor shewed no traces of the oxalic acid. It was yellowish, and communicated that colour to the fingers and

* *Bulletin des Sciences*, Vol. II, No. 1.