THE WEEKLY MIRROR.

VOL. I.] HALIFAX, FRIDAY, MARCH 27, 1835. [No 11.

NATURAL HISTORY.

THE SWORD-FISH.

The more we examine the works of Providence, the more full of wonder they seem to be. The contrivance which is shewn in the formation of every animal, so that its form may suit its nature and its habits, the climate in which it lives, and the situation to which it belongs, shews indeed the work of an Almighty hand. This is seen in every animal which breathes; though we are often too thoughtless to consider it; and often, indeed, through ignorance, we do not understand it. Whenever we examine attentively any one of the creatures which move upon the earth, we find that there is sufficient cause to excite our admiration of its great Maker; and it is with this view that a little attention to the natural history of animals may be made so useful as well as so agreeable a study.

The sword-fish is a very large and powerful animal, often growing to the length of twenty feet, and upwards. He has no teeth and no scales, so that, notwithstanding his size, he might, on these accounts, appear a defenceless animal; and hardly able to procure for himself a prey sufficient to sustain a body of such large dimensions. He is however furnished with a wonderful weapon, which makes him a very powerful and very formidable creature. This weapon is, in fact, the upper jaw lengthened out to such an extent as to form a hard, strong and sharp sword. With this weapon these fish are able to attack larger ones than themselves, and even the whale stands in awe of the sword-fish. We may judge of the power of this animal by the following account:—

In the year 1725, some shipwrights, when repairing a ship, found part of the sword of one of these fish. It had passed through more than eight inches of the timber. The workmen declared that they could not, by less than eight or nine strokes, drive an iron pin of the same dimension to the same depth; and this had been done by one stroke of the sword-fish, without any shock being felt by the persons in the ship.

There is, in the British Museum, a large piece of timber from the bottom of a ship, with the sword of this fish quite through it. The ship was an East Indiaman, (the Leopard.) The fish was killed by the violence with which he drove himself against the vessel.

It is said that the sword-fish and the whale never meet without coming to battle, and that the sword-fish generally begins the quarrel. If the whale can get a blow of his tail to take effect upon the sword-fish this usually finishes him at once; but the sword-fish generally contrives to avoid this stroke, and to plunge his weapon into the sides of the whale. When the whale sees a sword-fish darting at him, he dives to the bottom of the water, and the sword-fish follows him; and then he rises to the surface, and thus the battle goes on and lasts for a long time. The whale has so much fat and blubber upon him that he does not suffer from his wounds so much as we should expect.

COMMON THINGS.

No. 5.—SALTS.

The ocean is one vast store of mineral substances in the state of solution. The most abundant mineral in this great liquid deposit is common salt, which is supposed to constitute about one twenty-eight part of the whole ocean. Numerous other salts, such as glauber salts, epsom salts, salt petre, alum; indeed there is reason to believe, that every mineral which is soluble in water, is contained, in greater or less quantities, in the briny deep.

Besides the ocean, where common salt is found in such quantities as to keep it from putrefaction, mines, hills, and even mountains, are composed of the same useful substance.

In Poland, the salt mines have been worked for three or four centuries at least. They are now carried to a great depth, and extend several miles under ground. They are entered by six shafts five or six feet in diameter, which lead to various accommodations beneath, such as chambers, chapels, and altars, ornamented and supported by pillars, the whole being constructed of salt.

Beneath these mines are numerous springs and streams, not only of salt, but of fresh water, which supply the numerous hands engaged in them. In some instances hydrogen gas is formed in such quantities in these mines, as to produce disastrous explosions.

Though the salt mines of Poland, and the neighbouring countries, are more numerous and have been longer wrought, than any other in Europe, they furnish this useful and necessary material in much less abundance at present, than those of Cheshire, in England. The science, skill and enterprize of the English, not only furnish their own tables with salt as they do with most other articles of sustenance and luxury, but they place 'Liverpool salt' upon many of our tables, and even upon those in the vicinity of the salt mines of Poland.

In Spain, the deposits of salt rise into hills and even mountains, of great elevation and extent. The same useful and necessary substance is found in great quantities in Africa, frequently dispersed through the soil.

In North America, the deposits of rock salt have not been discovered in many instances rising above the surface of the ground, but beneath the surface it must be extensively diffused. Salt springs are discovered in numerous places, in different parts of the country. Some of these springs are upon, or within a few feet of the surface; others are procured by perforating the earth five or six hundred, and in some instances eight or nine hundred feet, from which depth the salt water rises from a source probably not well understood, and discharges itself in a stream upon the surface, in sufficient abundance to supply extensive manufactories of this article of domestic and political economy.

In some of the natural deposits of rock salt, it is found sufficiently pure for use, and requires only to be reduced to a powder; in most instances, however, it is first dissolved in water and then evaporated. When the material is procured from springs or the ocean, the manufactory of it is little more than evaporation, which is produced both by the sun and artificial heat.

In the West Indies, and many places upon the coast of America, where water for the manufactory of salt is taken from the ocean, the evaporation is effected by the heat of the sun. The brine is let into artificial ponds or vats, where it is exposed to the rays of the sun, until the evaporation precipitates the salt into crystals in the form of cubes, that being the shape in which the muriate of soda, (common salt) crystalizes.

The process of crystallizing common salt is different from that of most other salts:— As hot water dissolves very little more of common salt than cold water, it can be crystallized, or brought into a solid state, only by evaporation; of most other salts, such as glauber salts, (sulphate of soda) epsom salts, (sulphate of magnesia) alum, (sulphate of alumine) copperas, (sulphate of iron) blue vitriol, (sulphate of copper) and many others; hot water holds in solution much larger quantities than cold water. Consequently, as hot water which is saturated with any of the last mentioned salts becomes cool, it throws down the mineral which is dissolved in it, in the form of crystals of different shapes, each salt having a form of its own, where it crystallizes.

Taking advantage of these different principles in crystallization, the manufacturers of salt form, from water taken from the ocean, common salt during the summer, by evapora-