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NATURAL HISTORY.

THE FLYING-FISH.

Some of our young readers may perhaps be surprised to hear that there is such a thing in the world as a fish that can fly. It is, nevertheless, very true. We must not, however, suppose that this fish is to be seen flying about the air like a bird. It flies but a short distance at a time, seldom more than sixty or seventy yards; and this very near to the surface of the water. Indeed what appears to be wings is nothing more than fins, but these are much longer than in other fish, and can be moved, in some degree, backwards and forwards, so as to answer the purpose of wings.

This fish would soon be devoured by its savage enemies, if Providence had not furnished it with this extraordinary means of escaping them. It probably cannot continue long out of water. It keeps dipping down, and thus moistens its wings, and moreover gets fresh force for another spring into the air.

The air bladder in this fish is unusually large, which gives him great lightness, and thus particularly fits them for continuing in the air.

These fish are common in hot climates.

COMMON THINGS.

No. 6.—OXIDS.

Some will be inclined to ask, perhaps, what is the connection between the head and the subject of this article; in other words, whether oxids are common things. They may be answered, that they are some of the most common things in the world. Late discoveries in science have led to the belief, that every particle of dust is an oxid—that sand, lime, clay, potash, soda, and many other common substances, are oxids. Most ores of the metals are oxids. Nearly all the paints are either oxids, or salts formed from oxids. The rust of iron, the dross of lead, are combinations of those metals with oxigen. Water has sometimes been called the oxid of hydrogen. Perhaps some might be disposed to rank sugar and alcohol under the same class of bodies.

The word oxid, is a general term to express the combination of oxigen with other substances, especially the metals, but in a less quantity than in an acid. The oxid of iron is perhaps a more common coloring matter in the animal, vegetable, and mineral kingdoms, than any other substance. If rocks and solls were entirely free from the oxid of iron, they would probably in most cases be white; quartz almost always contains some iron, and when it does not it is white or transparent, or both.

Many persons who read this article, will probably recollect of having seen that portion of boards on buildings and fences, which is directly under the nails by which they are fastened coloured black. This may always be observed on chesnut boards, and it always arises from the oxid of iron combining with a substance called gallic acid, contained in large quantities in chesnut wood, oak bark, tea, and numerous other vegetables.

Nearly all the iron ores, which are used to produce the iron of commerce are oxids of iron, and the principal business in reducing the ore to a metalic state, is, to free them from their oxigen, which is done by exposing them to a high heat, when connected with charcoal or some other combustible, which, in the process of combustion, takes the oxigen from the ore, and by that means reduces it to metalic iron.

The oxid or dross of lead, is much less difficult to bring into a metalic state. In lead tube manufactories, and for many other purposes where lead is melted in large quantities a great portion of it becomes dross, which, if it is mixed with charcoal, and burnt, returns to a pure metalic lead. By burning a red wafer in a candle, and still more by throwing a little red lead upon a burning coal, small globules of lead will be produced from the oxid.

A gentlemen who was acquainted with the nature of the dross of lead, procured a large quantity of it, a few years since, for little or nothing, from a lead tube manufacturer, who considered it as useless. By a very easy process, the purchaser restored the dross to pure lead, and sold it as such to the manufacturer from whom he procured it. The one, of course, reaped the benefit of his knowledge of science; the other suffered the evil of his ignorance of it.

Knowing the nature of oxids, and the cause of rust upon iron, brass, copper, lead, &c. and that it is produced by the action of oxigen upon the metals, and generally from oxigen contained in the atmosphere, we should be led of course to cover the surface of articles made from them, with varnish, oil, wax, or some other substance, to exclude them from the air.

The oxids are so numerous, and such constant agents in the domestic and useful arts, that a general notice of this kind can do little more than give a glance at them, and prepare the way for a separate and more particular account of the various kinds, with the mode in which they are formed, their application, modes of using them, means of avoiding the evils arising from them, &c.

THE ARTS.

PRINTING.

Three kinds of printing, conducted upon different principles, are now extensively used in this art of arts. These are type, copper-plate, and lithographic printing. In types, the ink is applied to their most extended surfaces, when they are pressed on the paper to leave the ink in the form of letters. In copper-plate printing, the most extended surface of the plate is made perfectly clean, or free from ink, which is left only in the lines, indentations, and cavities formed by the engraver, into which the paper is forced by hard pressure to receive the ink.

The secret of lithographic printing is in the fact, that oil will unite with oil, and not with water. The lines, sketches or drawings, are first made on the smooth surface of the stone, (in Greek *lithos)* a compact limestone, with ink, or crayon, containing oil. After the drawing is completed, and the stone placed in the press, it is sprinkled with water, which is spread by a sponge, and wets the whole surface of the stone except the drawing; that being made of oil, is not affected by the water. After the sponge follows the ink roll, many times repeated, which ink, being of oil, unites with the oil in the drawing, but does not touch the surface of the stone covered with water.

After the ink is applied, the impression is not obtained by the mere pressure of the type on the paper as in type printing, nor by applying a roll to it with great force, as in copper-plate printing, but by a scrape with a rounded edge, passing over a piece of leather, with great force, under which is the paper to be printed.

To be Continued

HUMAN SYMMETRY.

The symmetry of human character, as it is formed by its Creator, is transcendantly beautiful and sublime. The physical, intellectual, social and moral powers of man, are so beautifully blended and wisely fitted to exercise and strengthen each other, that the principal business of the parent and teacher is, to preserve this proportion, and to bring these powers to act upon each other.

Each power is strengthened by its own exercise, and all are strengthened by exercising each other. The child strengthens his muscles, and learns to walk, by walking; he cultivates his voice, and learns to sing, by singing; he strengthens his mind, and learns to judge by examining, comparing, and drawing conclusions: he cultivates his social faculties, by free and friendly intercourse with other members of his family, or