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NATURAL HISTORY.

THE CAMEL.

The camel is a very large animal, and can carry very large burdens on his back, sometimes as much as a thousand or twelve hundred pounds. The people who live in the very hot countries, and are obliged to take long journeys over the burning and barren sandy deserts, would not know what to do without the camel. The camel moves slowly, but he can travel a very great distance with but little food or water; and this is of particular consequence in the journeys through the deserts, where there is very little food to be had, and where water is very scarce.—Providence has formed the camel in a manner exactly suited to the work which it has to perform. It has a tough spongy sort of foot which is never found to crack, and this is of vast importance in hot climates and long journeys: and it has, besides, a stomach so formed that it can contain a great quantity of water in reserve, by which it is enabled to moisten its food; if it had not this, it would perish, in a hot country where it could find no water to drink. The camel is of a mild and gentle disposition, and easily taught to do such services as are required of him.

It is a delightful study to think of the perfect and excellent manner in which the Almighty has formed every creature, according to its necessities and the place where it is to live. The contrivance of something within, which can retain a supply of water, would be of no use in a country like ours where water is every where to be had; but it is of very great use indeed in a burning climate where water is so very difficult to be found. This shews the great power and goodness of the all-wise Creator of all things.—And every animal that exists would prove the same thing if we examined it carefully; and this thought ought to raise our minds to devout admiration of all the works of our great Creator, and of pious gratitude for all his mercies.

COMMON THINGS.

No. 7.—METALS.

Upon what can we fix our eye, which does not contain a metal, or bear its mark? Even the precious metals, how common? though perhaps not quite so abundant in the hands of every one, as he would like. Over how many thousand feet of the surface of common things is gold spread?

The tin mines of Cornwall have made themselves known by their inexhaustible treasures, all over the world. And what is there that does not contain iron? The rocks are coloured by it. Plants and animals contain it. It even constitutes a part of our blood, and of course circulates in all our veins—What instrument or article is there in civilized society, which does not bear the mark of iron?

Besides gold, silver, tin, and iron, we have copper, lead, zinc, antimony, bizimuth, cobalt, platina, manganese, arsenic: all useful in the arts and comforts of civilization, and many other bodies which are called metals.

And what are metals? What distinguishes them from other bodies? One thing which distinguishes them from all other bodies, is their *weight*. The heaveist metal weighs 23 times as much as water; the lightest of the common metals weighs more than 6 times as much as water.

The metals also possess greater *strength* than any other substance; and iron is the strongest of the metals, and on that account is in common use where great strength is required.

The metals are *malleable;* they can be beaten into leaves. Gold which can be beaten into leaves 280 thousandth part of an inch in thickness, is most malleable; and silver, next. Copper, lead, tin, and iron, can also be beaten or rolled into leaves.

The metals are *ductile;* they can be drawn into wire. A single grain of gold has been drawn into a wire 500 feet long. Iron and silver are exceedingly ductile. Copper, lead, and zinc, can also be drawn into wire.

Metals are *fusible;* they can be melted by heat. Mercury is fusible at the common temperature, and at the coldest temperature of the atmosphere we experience in this country. Lead, gold, silver, and copper, are melted without difficulty, iron with some difficulty, and platina with much.

The metals are *soluble;* many of the acids will dissolve some of them, and all can be dissolved by some one or two acids mixed. When once dissolved, they can be changed into various forms diffused through a great space, and spread over a great surface. A piece of copper, as large as a pin's head, dissolved in nitric sulphuric or acetic acid, may be so minutely divided, as to be diffused through a gallon of water. and by the aid of a little ammonia, give it a most beautiful and delicate blue. One ounce of gold, dissolved in nitro muriatic acid with the aid of ether, can be made to gild the whole surface of a wire which would reach round the earth.

The metals are *oxidized.* Some of them combine with oxigen readily; it is even difficult to prevent this combination. Manganese is almost always found in the state of an oxid, and it is difficult to reduce it to a metallic state. Iron oxidizes in the common atmosphere, more rapidly if moistened with water, and still more so, if moistened with an acid. Lead and copper oxidize to a very slight extent in the atmosphere, and entirely by the aid of heat or some acid.

There is a beautiful *variety* in the properties, and consequently in the uses of the metals. The properties of iron, for example, admirably fit it for edge tools, besides many other uses to which it is applied. It is hard, strong, elastic, capable of being welded and tempered, and of receiving the power of magnetism.

When the properties of this metal, which is perhaps the only one essential to the arts of civilization, are known, a full explanation is given of the endless and innumerable uses made of it.

The great malleability of gold, and its resisting oxigen under all ordinary circumstances, are two properties wisely and beautifully united in that precious metal, and in some measure make amends for the small quantities in which it is found upon the earth, compared with lead, copper, and some other metals.

THE ARTS.

BREAD.

In a previous number it was remarked that the whole vegetable kingdom was composed of three simple elementary substances, viz. oxygen, hydrogen, and carbon. Of these three starch is composed. And starch constitutes a large part of most grains, and many roots. Into some of the grains, especially wheat, and in less quantities rye, another substance, entirely unlike starch enters. This is called gluten, which is also composed of oxygen, hydrogen and carbon.

The starch and gluten composing wheat can be easily separated either in the grain or flour. The starch is soluble in water and the gluten is not: consequently, if kernels of wheat be retained in the mouth for a short time, the starch will be dissolved and removed, leaving behind the gluten. Or, if a gill of wheat flour be put into a cup, and exposed to repeated washings, pouring off the water after it is applied, it will gradually dissolve, and carry off the starch from the flour, leaving the gluten by itself. The gluten is unlike starch in being insoluble in water, but it is tenacious and elastic, resembling India rubber.

To the gluten we are entirely indebted for light bread. The flour of Indian corn, rice, potatoes, and many other vegetables, though