

The greatest coward fires first; so, thinking we had as much pluck as they, we did not lift a gun, though we saw them ever-ready to fire, or rather shoot. We did nothing to make us ashamed to return, and if we have their confidence, we may go further. They had abundance of provisions and sold them at a cheap rate; also cotton of two kinds—one indigenous, short in the staple, but very strong and woolly to the feeling—the other very fine and long in the staple. We brought a number of specimens of their spindles and yarn, and, as it was quite equal to American uplands, did not offer them any American seed. The cotton plant is met with everywhere, and though burned down annually, springs up again as fresh and strong as ever. They grow sugar cane too, bananas, manioc, &c. The men are said by the Portuguese to be very intelligent, but very wild. The women wear the lip ornament, which is a ring, about four inches in circumference, and nearly a quarter of an inch thick, passing through a hole in the lower lip, which is thus made to protrude frightfully. I am thus particular, [the doctor is somewhat waggish], in case our own ladies, who show a noble perseverance when fashion dictates, may wish to adopt lip ornaments."

Of the climate, and the health of the party. Dr. Livingstone, in conclusion, writes as follows:—

"We were warned by the fate of the Niger expedition not to delay among the mangrove swamps of the delta—the very hot-beds of fever. We accordingly made all haste away, and we took daily a quantity of quinine. The period of the year which I selected, though not the most favorable for navigation, was the most so for health, and thank God our precautions were successful. The Kroomen, from Sierra Leone have had more of it than we, until a short time ago, when it was the most unhealthy season of the year even to the natives. Three of us have had touches of the complaint, but are all now quite well. I have never had a day's illness since my return. We find too, that, so far from Europeans being unable to work in a hot climate, it is the want of work that kills them. The Portuguese all know that so long as they are moving about, they enjoy good health, but let them settle down, and smoke, or drink brandy, fever follows and the blame is all put on the climate."

This letter was written in acknowledgment of the author's election as a corresponding member of the American Geographical and Statistical Society.

At the same meeting Mr. Folsom introduced M. Du Chaillu, the African traveler, who read a paper detailing his adventures for four years in Central Africa, under the meridian, among the cannibal and other tribes. The trade of these savages, he said, seemed to be confined to an exchange of dead bodies on which to feed. Human bones were found in large quantities, everywhere around their villages. He was never in danger amongst them, inasmuch as he was regarded as a magician, and they were afraid of him. The tribes of negroes in Central Africa, other than the cannibals, were numerous. He had visited 35 of them, but found, notwithstanding that, the country was generally very sparsely populated.

The gorilla, that terrible monster which bears such an unpleasant likeness to man, formed perhaps the most interesting topic of M. Du Chaillu's lecture. Its existence was long doubted by naturalists, and to America belongs the credit of discovering, or rather re-discovering it. The lecturer exhibited the skull of one of these animals, and gave a description of their habits, size, strength &c., in terms with which, from their frequent publication, readers are sufficiently familiar, but which were listened to on this occasion with new interest from the fact that the speaker had seen and shot them in their native haunts. Their tremendous roar, he said could be heard four miles off, and the beating of their hands upon their chest (a mode of expressing their anger) is audible at a distance of one mile.

THE "DIAMONDS" OF PENNSYLVANIA.—The shipments of coal from the different coal regions in Pennsylvania, except the western part of the State, amounted last year to 7,804,000 tons, which, at \$3.50 per ton in this market, would make its value over \$27,000,000. Adding about 4,000,000 of tons more for the western part of the State, and the value of the entire supply will not be far short of \$35,000,000. This is pretty fair for a single product of the State.—*Philadelphia Ledger.*

#### BOILER INCrustATIONS.

MESSRS. EDITORS:—In the incalculable columns of the SCIENTIFIC AMERICAN I often see various recipes for removing the incrustations of steam boilers, the ingredients usually recommended are molasses, hemlock bark, grease, &c. Now it is not my intention to assert that there is no virtue in these materials, or that they have not produced the desired result; for certainly those men who have tried them would not recommend such recipes to the public unless they had been benefited by them; but I must say that we have tried all those things with little or no effect; therefore I caution those that rely on hemlock bark or molasses to perform the labor which I think they ought themselves to do. When I say "we have tried all," I mean myself and my firemen, for we work together and are not afraid to take a pick and enter the boiler and pick out the scale; and this, I think, is the only reliable way of doing the thing effectually. I offer this as my experience, not thinking that there is anything new in the advice, or that every engineer does not already know it, but merely to point out a simple fact which, though perhaps well known, is often neglected. J. W. II.

Newburgh, Ohio, Jan. 14, 1860.

[We regret that our correspondent has not given us the minutiae of his experience with the substances to which he has referred, as being non-effectual in preventing incrustations forming in boilers. We learn from him that astringent substances and molasses placed in boilers fed with "hard" water, to prevent scale forming, have failed with him, although they have proved successful in many cases; and that his present practice is to allow the scale to form from time to time in his boiler, until it acquires a certain thickness; then his engine is stopped, the boiler water is run out, when he with his firemen get into it and pick off the scale with tools. An awful waste of coal takes place in all boilers affected with incrustations, because these are non-conductors. In tubular boilers it is almost impossible to pick off the scales from the tubes; therefore this advice, while it may be good to some persons, is assuredly not to be considered a standard for governing the practice of all engineers. Substances put in boilers to prevent incrustations are, no doubt, lesser evils employed to obviate greater ills; and so far as this view of the question is concerned, we perhaps agree with our correspondent. Our standard remedy for the prevention of incrustations is the use of pure water. Those who run steam engines in localities where spring and river waters are "hard," should make large reservoirs and cooling ponds to retain rain water for their boiler feed, or should use some apparatus such as that of Mr. Weissenborn, illustrated on page 113, Vol. XI, (old series) SCIENTIFIC AMERICAN, for purifying the "hard" water before it is admitted to the boiler.—EDS.]

DIAMOND CEMENT.—This is a most excellent material for repairing broken china, ornaments, jewelry, and nicknacks. Take half an ounce of gum ammoniac and a tablespoonful of water; melt them together till they form a milky fluid. Then take one ounce of isinglass and six wine-glassfuls of water; boil together till the quantity is reduced one half; then add a glassful and a half of strong spirits of wine. Boil this mixture for three minutes, and then strain it through muslin, adding after, while hot, the ammoniacal fluid formerly made. Finally, add half an ounce of tincture of mastic resin. The cement thus made is best preserved in small phials, in which it sets when cold. When required for use it can be liquified by placing the phial in a cup of boiling water.

WHERE DO SEABIRDS SLAKE THEIR THIRST?—The question is often asked, where do seabirds obtain fresh water to slake their thirst, but we have never seen it satisfactorily answered till a few days ago. An old skipper with whom we were conversing on the subject said that he had frequently seen these birds at sea, far from any land that could furnish them water, hovering around and under a storm cloud, clattering like ducks on a hot day at a pond, and drinking in the drops of rain as they fell. They will smell a rain squall a hundred miles or even further off, and scud for it with almost inconceivable swiftness. How long seabirds can exist without water is only a matter of conjecture, but probably their powers of enduring thirst are increased by habit, and possibly they go without it for many days, if not for several weeks.—*California Spirit of the Times.*

#### A COLUMN OF VARIETIES.

Starch, sugar and alcohol are all composed of carbon, hydrogen and oxygen; starch containing 72 lbs. of carbon to 80 of oxygen and 10 of hydrogen; sugar, 72 lbs. of carbon to 88 of oxygen and 11 of hydrogen; and alcohol, 48 lbs. of carbon to 32 of oxygen and 12 of hydrogen..... There are in circulation in Great Britain 50,000,000 sovereigns and about 120,000,000 shillings. .... The growth of the English race is attested by the fact that, when George III. ascended the throne, in 1760, the population of the British empire, including the colonies, did not number 12,000,000, but the populations in the Old and New World who now speak the English language may be estimated at 60,000,000..... In our large cities many boys and girls are found in wet seasons sweeping the street-crossings. In the city of London these little mud-larks number from 500 to 600 boys. Their earnings and pickings are estimated at about \$15,000 a year..... It is exceedingly difficult to distinguish animals from vegetables among the lower and simpler forms of organic life. Independent motion in one of this class of organisms is so far from being a proof of animal life, that it is rather evidence that the thing is a vegetable..... Microscopic plants and animals are such as are invisible to the naked eye..... The lowest form of microscopic plant consists of a single cell or sac, filled with fluid, and generally containing one or more solid granules. The simplest animal is also a single cell, generally containing no granules. The green slime that spreads itself over stone walls in damp places is made up of one of the lowest forms of plants, consisting of myriads of distinct vegetables, each of which is wholly invisible to the naked eye..... The bright star now seen in the northeast in the early evening is the planet Jupiter. It is nearly opposite the sun, and consequently some 190,000,000 of miles nearer to us than it will be next summer..... The moon, while it apparently revolves from east to west around the heavens with all the stars once in 24 hours, moves from west to east among the stars about 12° in the same time..... In the daguerreotype, the dark parts are the iodide of silver and the light parts an amalgam of silver and mercury..... The hard metal, irridium, which is used for tipping the points of gold pens, is worth, when pure, \$120 an ounce—more than six times as much as gold..... California gold is an alloy, 1,000 lbs. generally consisting of about 880 lbs. of gold, about 100 lbs. of silver, and the remainder of other metals..... The word "California" is formed of two Spanish words meaning hot furnace; and any one who has passed a summer in the interior of that State is ready to believe that it is rightly named, though on the coast a fire is needed every day through the year, the summer being just about as cold as the winter..... Strawberries are sold in the San Francisco market every month in the year..... The republic of Florence, in Italy, issued a coin of pure gold (24 carats fine) weighing about one-eighth of an ounce, and for more than 600 years this coin has not been varied in weight or fineness. A helmet of aluminum has recently been made in France. The soldering and gilding were successfully performed and a light and strong helmet produced. It will resist a blow better than brass, but not as well as steel..... The steamer *Vanderbilt* has made the quickest western passage from Europe to America that has ever been made by any ship, and the *Persia* the quickest eastern passage from America to Europe..... The ferry boats plying between New York and Brooklyn are lighted with gas. It is carried in india-rubber receivers..... Some microscopic plants are covered with a thin film of silica, which is so comparatively indestructible that it will last for many thousands of years after the interior is decomposed. There are large beds of rock composed almost wholly of these coverings of minute plants..... According to the "Watchmaker's Manual," just published by John Wiley, of this city, the number of watchmakers in the United States, in 1850, was 2,901..... Mason & Dixon's line is the boundary line between Maryland and Pennsylvania, surveyed by two able and learned English surveyors at the expense of the heirs of William Penn and Lord Baltimore. It cost the Penn family in the neighborhood of \$100,000. Mason & Dixon measured an arc of the meridian in the course of their surveys; and this measurement is cited now in works on astronomy, having been one of the measurements by which the figure of the earth was ascertained.