

sunk in the loose earth is, as shown by the above, somewhat uncertain. It may be observed that most or all of the tube wells examined yield water of a quality between that of pure, soft water, like Croton, and that of the hard nauseous fluid from the surface wells.

California Wants and our Manufactures.

We have received quite an interesting letter from one of our correspondents—Mr. A. Doolittle, of Alpha, Cal.—in which he complains of the depreciation in the character of many of our manufactures recently sent to the Golden State. We will specify some of these:

India Rubber Goods.—The india rubber boots recently exported to California are much inferior to those formerly sent there. As the consumption of these have increased, inferior kinds have been manufactured and sent out to meet the demand for them. The retail price for one pair is from \$7 to \$9, and the same sum for an india rubber coat. After a few days' wear by the miner, the boots come apart in the seams, and the coat leaks somewhere, and thus they are rendered totally useless. India rubber clothing is indispensable to miners, and they are willing to pay a good price for them, but they must be impervious to water. When a miner gets himself wet (and he is constantly exposed to water) by the leakage of his coat or boots, he is liable to become sick. Some good qualities of india rubber miners' clothing are still to be found, but the complaint is, that a great quantity—indeed, the mass—has become bad; and this we desire to tell the manufacturers of such goods, whoever they may be, is a gross imposition, and the wrong will recoil upon their own interests if they do not reform their conduct.

Miners' Picks.—The "Collins" picks have depreciated in character. They are too small in the upper side of the eye, and are liable to become loose. Their stock is good, but they contain too little steel; their axe ends are rather wide and light, and their pointed ends too short and light. The axe end generally bends down; the pointed end wears up with a very few days working. As formerly made, the picks could be repaired by a blacksmith, but now they are so small they cannot be worked over. The sledge hammers sent to California have too little steel on their ends, and soon wear out. As great quantities of picks and other miners' tools are required in California, and vast sums of money are paid for them, the manufacturers of such implements in the East stand a very fair chance of losing this trade altogether. Our correspondent says, he will not buy another box of the kind of picks referred to. Such articles will be manufactured hereafter in California unless better goods are sent there.

Quartz Mining Machinery.—The machinery that had been exported for this kind of mining was ill adapted for the purpose, and all such machinery is now manufactured at great expense in California. The old stamping mill maintains its ground against all other grinding mills. Quartz rock mining is generally looked upon with suspicion as a losing business, as quite a number of companies have failed in consequence of such operations. Last year, however, was a more favorable one for quartz mining, and the prospect is still growing brighter. No doubt much money has been lost for the want of proper knowledge on the part of those engaged in quartz mills, but experience will teach them, and success, we believe, will yet crown their efforts. If the California quartz is as rich in gold as is asserted, surely quartz mining will ultimately pay well, if properly managed. It does so in other parts of the world. Why not in California?

Our correspondent has given us information respecting the late depreciation in the character of certain articles sent to California, and those which are much required in that State. We have directed the attention of the manufacturers of such goods or wares to the subject, with the express object in view of giving them correct information, in order that they may hereafter—for their own benefit, as well as that of the people of California—change their miserable policy, and make and send better goods to their Californian customers.

Americans Raising Sunken Vessels.

Our countrymen have long been distinguished for raising sunken vessels, and for submarine feats in general. A Boston carpenter, prior to the Revolution, made an independent fortune, and at last received the order of knighthood in England, for raising great treasures from some sunken Spanish galleons. A few years since, American submarine divers, after repeated failures by Englishmen, removed the hull of the steam frigate *Missouri*, which was sunk at the mouth of the harbor of Gibraltar. Their character stands very high for marine engineering, and an evidence of this fact is found in their employment by the Russian government, to raise the ships which were sunk at Sevastopol during the famous siege of that city. We understand that the contract was made with Col. J. E. Gowan, of Boston, who achieved so much distinction at Gibraltar, and he has departed with a large corps of Americans to carry out his engagements with Russia. Apparatus has been sent from Philadelphia and Boston to Sevastopol to conduct the operations, and our countrymen are confident that they will succeed in raising the sunken fleet, which amounts to one hundred vessels—large and small—some of these being 84 gun ships. The undertaking is one of great magnitude—the greatest of the kind ever attempted—and will be the means, it is believed, of making the fortunes of the principal persons engaged in the enterprise—Col. Gowan, and those whom he has associated with him.

In raising a sunken vessel, submarine armor and the diving bell are employed to make explorations under water, in order to enclose the vessel so as to shut out the surrounding water. The water is then pumped out of the sunken vessel, and camels are afterwards employed to raise it up—float it. Compact steam engines and centrifugal hydraulic pumps have been sent to Sevastopol, and also some india rubber camels. Marine camels were first employed by the Dutch in Holland about 1690. They consist of two similar hollow water-tight wooden vessels, so constructed that they can be applied on each side of the hull of a ship. On the deck of each, windlasses are attached which work the chains passed under the keel of the vessel to be raised. When the camel is employed, the water is allowed to fill each half of it; and when the ship is firmly attached to it, the water is pumped out, and the buoyancy of the hollow vessels raises it up. A ship drawing fifteen feet water could by this means be made to draw only eleven feet, and the largest man-of-war then in the Dutch service made to pass the sand-banks of the Zuyder Zee.

It has been related that during the war in 1812, some vessels were built in Buffalo harbor for action on the upper lakes, and being of too great draft to cross the bar, they were actually lifted over it with camels, and did good service afterwards under Commodore Perry.

Telegraph to the Pacific.

In the number of the *SCIENTIFIC AMERICAN* for June 14th, 1856, (page 317), we directed attention to the necessity of having our telegraph lines better constructed and more perfectly insulated than they now are. The article arrested the attention of S. P. Gilbert, of Horicon, Wis., who has, through the *Argus* of that place, referred to it, and has suggested the following method of constructing a telegraph line, which has been proposed to be run between this city and San Francisco. He says:—

"The difficulty of keeping a Pacific telegraph line of several thousand miles in length across the western prairies, the uninhabited regions of New Mexico and the Rocky Mountains to California, in working order, suggested to my mind the following plan. The principal points are these:

First—The telegraph cable to be laid in Kyanized wood tubing, at a depth of say two feet under ground.

Second—The cable to be coated with gutta percha the entire length, like the Atlantic line.

Third—The channel of the cable to be dug by a locomotive steam ditcher (of some sort)

two feet deep, and four or five inches wide.

By this plan the line will be perfectly insulated the entire length, and free from atmospheric electricity, from falling trees, from Indian depredations, from prairie fires, and heavy gales. Instead of being strung up, Haman like, fifty cubits high, it will be below the reach of accidents, and at rest in the tube; not subject to tension by its own specific gravity, or the pressure of winds."

This plan of a Pacific Telegraph is worthy of consideration. The kyanized wooden tubes may also be saturated with wax varnish, and thus rendered fully as good non-conductors as the gutta percha coating of the wires. The great objection to this method of constructing a new telegraph line, is its vast expense, in comparison with elevated wires; but when constructed, the cost for keeping it in repair would be much less.

Caribbean and Peruvian Guano.

In the Chemical Department of Brown University, Providence, R. I., some Caribbean Sea guano has been analyzed by Professor A. P. Hill, and found to contain the following ingredients:—Phosphoric acid, 13.50 per cent.; organic substances, .21; lime, 19.10; alkalis, 2; water, .40. Only 2 per cent. of ammonia producing matter was present. Some carbonic and nitric acid, with a little aluminum, were present. The phosphoric acid was in the form of insoluble phosphate of lime. This is a very inferior guano, and our farmers should be made aware of it. The two most valuable constituents of guano are ammonia and phosphoric acid. The genuine Peruvian contains 17 per cent. of ammonia, and 15 per cent. of phosphoric acid, but the former is seven times dearer than the latter. The "Caribbean Sea guano," at twelve dollars per tun, is dearer than Peruvian guano at sixty dollars per tun. This information we have found in the transactions of the Rhode Island Society for the Encouragement of Domestic Industry.

How to Launch the Great Eastern.

The preparations for launching this monster ship are rapidly progressing, and it is expected that she will be ready for launching early in July. The plan intended to be adopted is thus described by Mr. Brunel. In constructing the foundation of the floor on which the ship is being built, provision is made at two points, to insure sufficient strength to bear the whole weight of the ship when completed. At those two points, when the launching has to be effected, two cradles will be introduced, and the entire fabric will be lowered down gradually to low water mark, whence on the ensuing tide, the vessel will be floated off.

The dock is to be excavated, and the leviathan ship is to be dropped gently down into the water. How this monster vessel was to be launched in such a narrow river as the Thames, has been the frequent theme of conversation among nautical architects and engineers. Brunel himself has solved the problem satisfactorily.

Photographic Improvement.

Wm. Mayall, of London, some time since obtained a patent for a composition of barytes and albumen, which the English photographic journals speak of in glowing terms. By the substitution of paper for the metallic plate the advantage that was gained in perspicuity was lost in delicacy. Paper, from its fibrous nature, absorbs the middle tints; and hence in the case of colored works, the artist was forced, by stippling, to supply the defects of the photographer. The chemical properties of ivory render that substance inapplicable to the purposes of the art. But Mayall's compound has the appearance and close texture of ivory, without any of the resisting qualities. The artist executes a work equal in finish to the old ivory miniature, endowed with all the truthfulness proper to photography.

The last number of *Harper's Weekly* illustrates the laying down of the Atlantic Telegraph cable. This is taking time by the forelock, like the account given of an execution before the victim is thrown off the scaffold.

Headache Snuff.

The London *Medical Circular* gives the following formula for a cephalic snuff, which is perhaps equal, if not superior, to any of the snuffs sold for catarrh, sick headache, &c.:—Take Lundyfoot and blackrappee, of each half an ounce; powdered asarabacca, one to two drachms; water, ten or twelve drops; mix well, press the mixture tightly into a small bottle or tin canister, and allow it to repose for a few days. For use, throw a spoonful or two on a piece of writing paper, crush the lumps with the tip of the finger or a knife, and then place it in the snuffbox. A Tonquin bean kept in the box with it is a great improvement. One to three pinches to be taken daily in headache, &c. It is also excellent as an "eye snuff." Asarabacca is a plant found native from Canada to the extremities of North Carolina, yet it is difficult to obtain from druggists. Its leaves dried and reduced to powder have long been used for cephalic snuff. A few grains taken at night produce a watery discharge, which, in many cases, remove headache, ophthalmia, and some paralytic complaints.

Fine Cotton.

A bale of Sea Island, from Charleston S. C., recently sold in this city for \$1.25 per pound. It was purchased to go to Brussels, for the manufacture of lace. It is stated to be the finest cotton ever raised, and capable of making yarn as fine as No. 900. An idea of the quality of this cotton may be obtained from examining common cotton cloth at about twelve cents per yard, which is generally made from No. 36 yarn.

Sugar.

This sweet necessary of life still keeps up in price, but some are of opinion it must come down, because it is asserted that there is a large supply in the market.

The maple sugar product this spring has been large, the season was propitious and it is calculated by statistics received from various districts that the amount will not fall much short of seventy million pounds.

The Comet.

Von Littnow, the great German astronomer, writes to the *Vienna Gazette* that there is still a faint possibility that the great comet of 1556, referred to on our last page, may return, but that its "orbit is so situated that it cannot approach the earth within some five millions of miles." He rates M. Babinet severely for exciting an alarm of the subject.

New Atlantic Telegraph Company.

It is proposed in England to form a new company for a telegraph across the Atlantic, with one relay station at the Azores. The cable is to be laid from the Land's End to Flores in the Azores, where there is to be a station with the relay batteries. From thence another cable is to be laid, either to Halifax or this city.

Screw versus Paddle.

The Peninsular and Oriental Company's paddle-wheel steamer *Ripon* is to be turned into a full powered screw steamer. She has been many years employed in the Alexandrian mail service, and was employed in the transport service during the Russian war.

The Rise in the Price of Diamonds.

This prince of gems, though merely a condensed form of carbon, is everywhere the accompaniment and the representative of wealth. Of late there has been an immensely increased demand for them, and an extraordinary rise in value, amounting within the past year, it is stated, to twenty-five per cent.

Detection of Cotton in Woolen Fabrics.

Dr. Overbeck states that when the fabric is three times immersed in a solution of alloxantin in ten parts water, pressed and dried, then exposed to dry ammonia and washed with water, the wool fibres are dyed carmine color, while the cotton fibres remain colorless.

In the city of Philadelphia paper hangings are manufactured annually to the extent of 1,500 tons in weight, which amount to 3,240,000 rolls of 30,000 yards.