

greater even when the head is less, showing the utility of proper wing walls on sluices.

To determine the height of the waterfall in a running stream a small temporary dam, unless one exists, must be made, so as to secure a still surface. Take two poles sufficiently long to reach from the bottom of the water to the required line level. Make a plain mark or notch on both sticks, at a distance from the upper end equal to the distance of the intended line level above the water, marking that distance in feet and inches. Push the poles down through the water into the earth at the bottom until the notches are both at the level surface of the water, care being taken to have the poles plumb and at a convenient distance apart. Sight across the tops of these two, and set as many more as may be desired to run the line of level to the desired point, and the tops, being ranged accurately by the first two, will show a water level so many feet above that of the water. It is estimated that this is a more accurate way than the use of the ordinary spirit level.—*Boston Lumber Trade.*

CURIOUS STORY OF A QUICKSILVER FIND.

The California Borax Company once had a good business in borax and sulphur, but the competition of other and more available fields gradually drove them out of the business, and for the past five or six years the California Borax Company has rested from its labours at Borax Lake. It has preserved its organisations and its property, and yet was held at little worth by stockholders beyond the value of the real estate and the privileges owned by the company. During the renewed search for quicksilver, stimulated by the recent advances in the price of the article, the lucky thought struck some one to assay the dark porous, coke-looking rock which covered much of the ground of the California Borax Company. The result of that first assay was so encouraging that other samples were assayed, with still more gratifying results.

The facts were made known confidentially only to seven capitalists and friends, who made the California Borax Company an offer for their entire property. During the negotiations nothing was dropped which could put the Borax Company on its guard. On their side they had what they once believed astounding wealth in borax and sulphur, but these dreams of perpetual dividends had been dissipated for years, and an offer equivalent to 10 dollars a share for the stock all round seemed a very good chance of washing their hands of an unproductive property.

The sale was completed to the entire satisfaction of the vendors; but no sooner was it concluded than they learned that they had sold for a mere song what is believed to be the richest and most promising quicksilver mine in the world. It is needless to say there was much dissatisfaction on one side and corresponding elation on the other. Those who were out thought that the "ins" should have given them a show, and the "ins" said that the Borax Company should have informed themselves of what their property was worth—the old company could not expect the lucky finders of the treasure to go to the directors and say: "Gentlemen, you have quicksilver at Borax Lake, and are neglecting a fortune." To make the matter more vexatious, some of the Borax Company have been intimately connected with quicksilver mining, and ought to have made the discovery themselves, but do not appear to have given it a thought. Yet, where there were large quantities of borax, of sulphur, of soda, soda springs, and medicated waters, was not the unlikely spot in California to look for cinnabar.

The sulphur banks are found to contain, by assay, forty, fifty, and in some cases sixty per cent. of the valuable liquid metal. The assays of ore, taken almost promiscuously from chunks of the material of which these banks are composed, yield more than the selected ores of the New Almaden ever did even in its best days. Add to this, that the prices which now rule in the quicksilver market are double, or more than double, what the New Almaden got for its production when a little of its stock was a small fortune. Two car loads of this sulphurous ore have been brought to San Francisco, and will shortly be reduced, which will solve the last problem. Can the ore be easily reduced, or is it rebellious? The assayers and analysts say, that from the facility with which it assays, so far from being rebellious, it will, in their judgment, prove as easy to work for quicksilver as it is for sulphur. The new owners are in high spirits, and will, as soon as they have satisfied themselves with the preliminary experiments, erect

first class reduction works, furnaces, etc., and go into the business on the largest scale.

The prospect of a large increase in the production of quicksilver is good news for miners, especially American miners, for unless new and important discoveries had been made, either the business of silver mining must stop at its present limits, or the price advance to that point which would prevent all milling of low grade ores. This question of quicksilver for the future, says the *Post* of San Francisco, is one that has harassed the miners for years, and during the past few months the advance in price has made it assume the most formidable proportions. The question of who is the seller and who the buyer is secondary. The fact that hundreds or thousands of tons of ore yielding from forty to sixty per cent of metal are lying in loose banks in Lake county, ready for shipment to any reduction works that can resolve them into a merchantable article, is the important fact. New Almaden only produced 11,042 flasks in 1873, and New Idria and the Redington 11,708 flasks between them. All the other quicksilver mines in the State, including Cerro Bunito, San Luis Obispo county, which produces about fifty flasks per week, do not produce over 500 flasks per month. The New Almaden yielded, in 1865, with forty-seven per cent. ore instead of five per cent., which it is now working on 47,194 flasks. If the Borax Lake answers to its present promises it will, when fully developed, and the requisite works erected, yield 100,000 flasks a year, and be a far more valuable property than all the present quicksilver mines in the world.

The area of the Borax Company's estate, which it has now parted with, is 4000 acres, well wooded, finely watered, and with nine miles of frontage on the lake. There are many buildings on the ground, but most of them have gone to wreck for want of occupation. The site is very beautiful for residences, hotels, and sanitariums, and when the mining business makes ample returns, there is no doubt the company will build up a town that, while profiting by the business of the mines, will become a pleasant and fashionable resort.

It may be remembered that some years ago the American baby jumper attracted considerable attention in England, becoming rather popular with many people; but one after another of those worthy gentlemen whom one does not like to have to see professionally, but to whom one flies in sickness, pronounced against it, and its popularity fled. A few weeks ago, however, Mrs. Catherine Tardy, of Paterson, New Jersey, applied for a patent for what she calls an "improved baby-exercising corset." Her account of the invention is thus worded:—"This is a device which will enable mothers, nurses, and others having the care of children to let them exercise by moving their limbs without creeping about the floor. It consists of an improved baby-exercising corset formed of two parts, connected in front by a cord or lace, and in the rear by cords, straps, or ribbons, and provided with long loops at their upper edges. The long loops enable the attendant to support the child while standing in an erect position." Of course, like all inventors, Mrs. Tardy hopes to make a little fortune out of her device; but from what we know of the medical profession, though lazy nurses may approve of the corset, the gentlemen of the pill and draught will ignore the nurses, and try to protect the rising generation from compressed lungs and bandy legs.

By a series of experiments Mr. Robert Hunt has succeeded in proving that heat does not continue increasing in proportion to depth. Down to 100 fathoms it certainly does so, to the extent of 1 deg. for every 50 ft. But in the second 100 this falls to 1 deg. in 70 ft.; and in the third to 1 deg. in 85 ft. It follows that since great depths do not necessarily involve excessively high temperature, coal working can be carried on below the level previously considered possible. This is practically proved at Charleroi, in Belgium, where coals are won without any difficulty at the stupendous depth of 4000 ft., or about three-quarters of a mile. By including the quantity remaining in our coal fields down to that level, the supply would probably be sufficient to last for another 1000 years, even at the present rate of consumption. But it is quite possible that before long considerable saving will result from more economical methods of burning fuel. The quantity of coals required to produce a ton of pig iron fell to 51 cwt. in 1872 from 60 cwt. in 1871—which implied a saving of 9 cwt. per ton on a total production of nearly seven million tons.