## HILLSIDE MINING IN COLORADO.

The mineral wealth of California, Colorado, and Nevada is such as to render it probable that there will consequently be an increase in the values of all commodities, owing to the vastly increased amount of the precious metals which will, during the next few years, be brought into the market. Moreover, the labor interests of this country will be largely affected by recent discoveries, as the want of employment in the Eastern States creates a steady flow of travel to the El Dorado of the Great West.

The San Francisco *Chronicle* reports as follows:

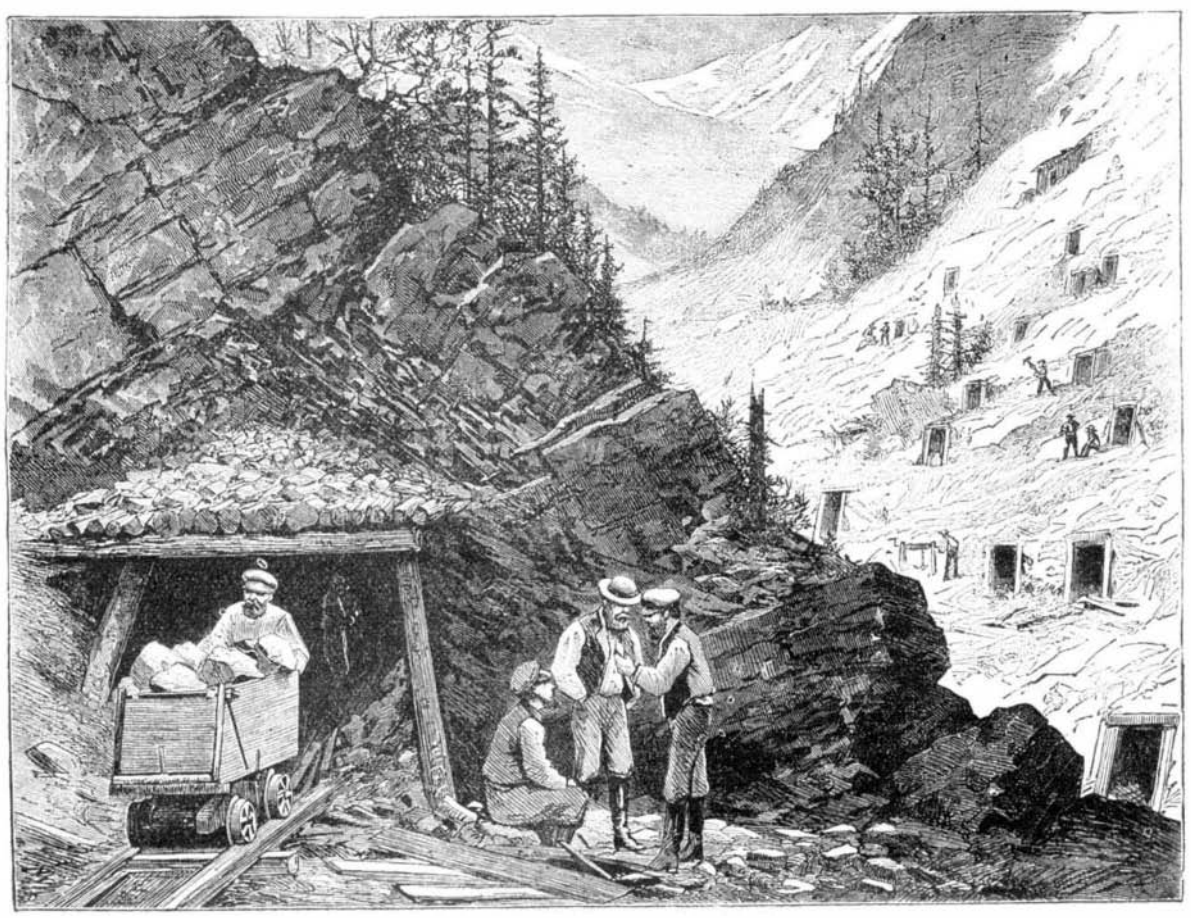
"The recent wonderful developments on the Comstock are far ahead of anything before made on that famous lode. The great *bonanza*, or ore body, running through the Consolidated Virginia, California, and Ophir mines, seems to be improving in all directions. The general character of the ore is the same as in all mines—being a mixture of red chloride and sulphuret ores. The California mine has come suddenly forward as the richest mine on the Comstock, and Belcher and Crown Point, producing over a million a month, are thrown into the shade by the developments in the mine above mentioned. Mining experts who have visited the lower levels place most astounding estimates on the amount of bullion in sight. Some of these [illegible] that in the Consolidated Virginia there is, [illegible] the mine above the 2,000 feet level, over $[illegible],000,000 worth of ore, or about $27,000,000 in dividends. The estimates of the value of the ore in the California vary from $50,000,000 to $150,000,000.

"Plenty of ore is found in the Consolidated Virginia, assaying on an average $600 per tun. At one place the ore body is found to be 140 feet wide.

"In the California mine the discoveries are attracting universal attention. Quite recently the north drift on the 1,500 foot level was connected with the south drift on the same level in the Ophir, thoroughly ventilating the mine and creating a fine circulation of air. The cross cut from the bottom of the south winze on the south line of the Ophir, 60 feet below the 1,465 foot level, is developing a more valuable body of ore than anything yet found in that section, no longer leaving a doubt that the California has one of the richest and most extensive ore bodies ever discovered on the line of the Comstock.

"The ore in the Ophir is the same as that in the Consolidated Virginia, showing that both companies are at work on the same body. On the 1,466 foot level the *bonanza* is constantly expanding, and the value of the ore is almost daily increasing. It is estimated by those who have taken the pains to make the necessary measurements that there are now in sight, on the 1,465 and 1,300 foot levels of the Ophir, not less than 150,000 tuns of ore. Specimens are here found that are so pure as to be malleable on some of their surfaces. A specimen taken out here lately assayed over $8,200. It is thought that the ore in this drift will average $1,200 per tun. At last accounts the face of the drift was in the same material."

Our engraving, taken from *Harpers' Weekly*, shows the manner in which mining is carried on in the mountainous districts where the lodes lie above the surface of the valleys, embedded in the hills. Many of the slopes are literally honeycombed by these horizontal workings, and the labor expended in prospecting for paying ores, frequently without adequate result, has been very great. But in the aggregate, the yield of the gold and silver has been enormously profitable to the Colorado miners, and the occasional failure of a lode, or an unsuccessful prospecting scheme, is not likely to discourage so hardy a race.



## HILLSIDE MINING IN COLORADO.

### The Cause of Earthquakes and Volcanoes.

The interesting paper of Professor Robert Mallet on the above subject, an abstract of which was first published in this country (we believe) in the *Science Record*, January, 1873, is attracting much attention. We will briefly recapitulate the points of the new theory.

The various relations and points of connection between volcanic phenomena, earthquakes, and lines of mountain elevation imply that they are the results of the play of one set of cosmical forces which have been brought into operation by the gradual cooling of the earth from an incandescent sun-like state to its present condition. His argument is as follows: As the cooling of the earth proceeded, the crust gradually thickened and contracted less and less as the temperature became lowered. The hotter nucleus, on the other hand, contracted more, being at a higher temperature than the crust and having a higher co-efficient of contraction for equal loss of heat. By this process, which is still going on, the crust of the earth would shrink at one rate, and the vastly hotter central portion at another and greater rate; and cavities would be formed between the crust and the nucleus, cavities which would be inevitably filled by the crushing down of the solid crust on the more swiftly contracting nucleus, by the force of gravitation, which is sufficient to crush the hardest rocks; and as the solid crust follows the shrinking nucleus, "the force expended in mutual crushing and dislocation of its parts is transformed into heat," by which, at the points of crushing, the rocks are heated even to fusion. The access of water to such points determines volcanic ernption. These points of crushing may occur at various depths in the solid crust. He then proceeds to measure the amount of actual contraction by the annual amount of heat lost by radiation into space, which is sufficient to liquefy 777 cubic miles of ice into water at 32°, and comes to the conclusion that less than one fourth of total annual loss of heat would suffice to produce the contraction necessary for his hypothesis. The actual amount of annual contraction is estimated at a reduction of three fifths of an inch, an amount too small to be measured by any astronomical method, and yet more than enough to produce all the volcanic phenomena now to be observed on the surface of the earth.

### Aggregate Steam Power of the World.

Dr. Engel, director of the Prussian Statistical Bureau, has been making estimates, on such statistical data as is available, of the total horse power of steam engines in the world, as every country has tolerably correct railroad statistics. Dr. Engel thinks that the following returns with reference to locomotives is not far from right:

| | Year. | Numbers. |
|---|---|---|
| United States | 1873 | 14,223 |
| Great Britain | 1872 | 10,933 |
| Zollverein | 1871 | 5,927 |
| Russia | 1873 | 2,684 |
| Austria | 1873 | 2,369 |
| Hungary | 1869 | 506 |
| France | 1869 | 4,033 |
| East Indies | 1872 | 1,323 |
| Italy | 1872 | 1,172 |
| Holland | 1872 | 331 |
| Belgium | 1870 | 371 |
| Switzerland | 1868 | 225 |
| Egypt | 1870 | 212 |
| Sweden | 1872 | 185 |
| Denmark | 1865 | 39 |
| Norway | 1871 | 34 |
| Total | | 45,467 |

It may be assumed that there are still four or five thousand additional locomotives in countries from which no statistics have been received, so that something like fifty thousand engines of that description, of an aggregate of 10,000,000 horse power, are now in use. Dr. Engel estimates all the engines in use—locomotive, marine, and stationary—at about 14,400,000 horse power.

Assuming that the above statistics are approximately correct, it would appear that one third of all the steam engines and steam power in the world are employed in the United States. This will, in some degree, account for the extraordinary industrial progress of this country and the high rank it maintains in all departments of practical engineering. The population of the United States is 40,000, while the aggregate population of the other countries above named exceeds 350,000,000.

### Extraordinary Inundation of the Nile.

The Nile inundation for 1874 reached a higher level than has ever been the case within the memory of man. On the 10th of October, whole villages along the banks, it seemed, must be swept away; and had it not been for an immense levy upon the population for workmen, the losses and destruction would have been enormous. No less than 700,000 people were set at work opening ditches and channels for the flood. It was only by the protracted and severe effort of this multitude that the danger was averted.

### Greenhouse and Window Plants.

Ventilation is one of the most important things to look after at this season, as by a little injudicious opening of ventilators many choice plants may be ruined. Always open on the side opposite to that from which the wind blows. When the weather is very cold and freezing, air enough will enter through the little cracks to afford the necessary ventilation.

Water should be applied only when the soil is dry; and then give an abundance, otherwise the plants will soon perish. Shower the foliage once or twice a week, except during the coldest weather.

House plants nsually suffer from the dry, dusty atmosphere of the rooms in which they are placed. If showered occasionally, and the thick-leaved kinds wiped off with a damp sponge, they well grow much better.

Wardian cases or ferneries are now in general use among plant lovers, as they enable one to grow a few ferns and other plants very readily and with but little attention, except to shade from the direct rays of the sun. But little water is needed after that given the plants when first set out; if any mold appears, the case should be opened for an hour or two every day.

Bulbs that have made good roots may now be brought up from the cellar, and in six weeks' time will give an abundance of flowers.

Succulents, such as echervias and tender sempervivums, will winter in a cool part of the greenhouse, if kept dry. Water should only be given sparingly.

Cactuses coming into flower will require plenty of water, and those at rest scarcely any.

Insects should be looked after closely; give the house a thorough smoking once or twice a week, to kill the green fly and other pests.—*Agriculturist.*

### Sheet Metal Pipes.

M. Vanche Denis, of Gaulier (Ardennes), France, says the *Ironmonger*, has invented a system of manufacture of lap-jointed metallic pipes, by forming a bend in and turning up the longitudinal edges of a long, narrow sheet of metal. By curving this band by the aid of a special shoulder piece, and then passing the band, thus prepared, between a series of grooved pulleys, which draw toward each other, and clasp and press together the edges of the metal band, curved so as to produce a cylinder, he makes a pipe with perfectly tight joint, and of the required diameter.

CLOSING CRACKS IN CAST IRON STOVES.—Good wood ashes are to be sifted through a fine sieve, to which is to be added the same quantity of clay finely pulverized, together with a little salt. The mixture is to be moistened with water enough to make a paste, and the crack of the stove filled with it. The cement does not peel off or break away, and assumes an extreme degree of hardness after being heated. The stove must be cool when the application is made. The same substance may be used in setting the plates of a stove, or in fitting stove pipes, serving to render all the joints perfectly tight.

W. R. S. says: "In making a rubber joint, take a piece of chalk and rub it on the side of the rubber and flange where the joint is to open; and when required, they will come apart easily, and not break the rubber, although the latter may be burnt and hard. Repeat the chalking before screwing up, and you will have as good a joint as ever, and the rubber can be used a great number of times. I have seen a blacksmith measure a piece of iron and put chalk marks where he wanted to cut it; he then put it in the fire and heated it to a bright red, and the chalk was still there, unaffected by the heat."

A CURE FOR BRIGHT'S DISEASE.—Dr. Hegewald says: Half pint, thrice daily, of a fresh infusion of the leaves of *asplenium scolopendrium*, L., is a most successful treatment in Bright's disease. This is the hartstongue or spleenwort, and is said to be popular, in Devonshire, England, and elsewhere, for its medicinal virtues.