

Each carrier has two 8-inch rubber-lined sheaves running on alternate ropes, to equalize any jarring and prevent explosions.

The first cost of the tramway, which is about 600 feet long, in comparison with a complete system of lead piping, is very much in favor of the former, which, with its designed immunity from the dangers of explosion, should commend this method to the attention of those engaged in the handling of high explosives.

ERUPTION OF THE VOLCANO OF ETNA.

On Sunday, July 10, an earthquake, followed by an eruption of Mt. Etna, caused considerable damage to the town of Nicolosi, on the south side of the mountain, and eight miles northwest of Catania. The advices show that the stream of molten lava flowing from the volcano increased in width and volume during several days, being near the crater over fifteen yards wide, and at a distance therefrom dividing into two streams. A large area of cultivated land has been laid waste and great destruction has been wrought among the vineyards. The villages of Nicolosi and Belpasso it was thought would doubtless be totally destroyed, and three days after the outbreak over twelve thousand people had left their homes and were encamped in the fields. Vesuvius is now also reported to be unusually active, throwing up lava abundantly.

The aspect of Mount Etna and vicinity since its eruption in 1879 is shown in the accompanying illustrations. Thriving cities, with numerous cupolas, are stretched out at the base of the mountain, and numerous villages, with long-pointed steeples, lie scattered over the lower region. These form a vast panorama, and terminate at a confused assemblage of conical hills, which formerly were so many craters. Above these we see rising, immense and majestic, the cone of the volcano, which overtops the clouds and forms the highest point of the island. The cultivated zone of Etna extends beyond 3,900 ft.

From this limit vegetation rapidly grows poorer, and, toward an elevation of 6,500 feet, becomes very rare. However, up to the base of the central cone, that is to say, at about 10,000 feet, the vegetable kingdom is still represented by four small plants, whose botanical names are as follows: *Robertsia taraxacoides*, *Artemisia atnensis*, *Senecio atnensis*, and *Tanacetum vulgare*. The slope of Etna is very slight up to an elevation of 3,200 to 4,000 feet, and in general makes an angle of only 15 to 20 degrees with the horizon; beyond this it rapidly increases, but at 9,500 feet the inclination of the ground is suddenly interrupted by a sort of plain covered with black sand. This is the *Piano del lago*. At 1,300 feet to the north of this plain rises the cone of the central crater, at the foot of which is the astronomical observatory and the *Casa Etna*, a small hotel designed for travelers who make the ascent of the volcano. The mouth of the crater of Etna is nearly 6,000 feet in circumference, since it was enlarged by about 1,800 feet at the eruption of 1879. The interior of the crater exhibits the aspect of a large cup filled with scoriae and lava, among which are interspersed numerous fumaroles. At the bottom of the cup, at a depth of 200 feet, there is seen the aperture of the eruptive channel, which usually has a diameter of about 650 feet.

Mount Etna is situated on a tertiary formation, and is almost entirely composed of volcanic materials. On the eastern side of the mountain is a vast depression known under the name of the *Valle del Bove*, about six and a quarter miles long by three miles wide. Its depth at some localities is more than

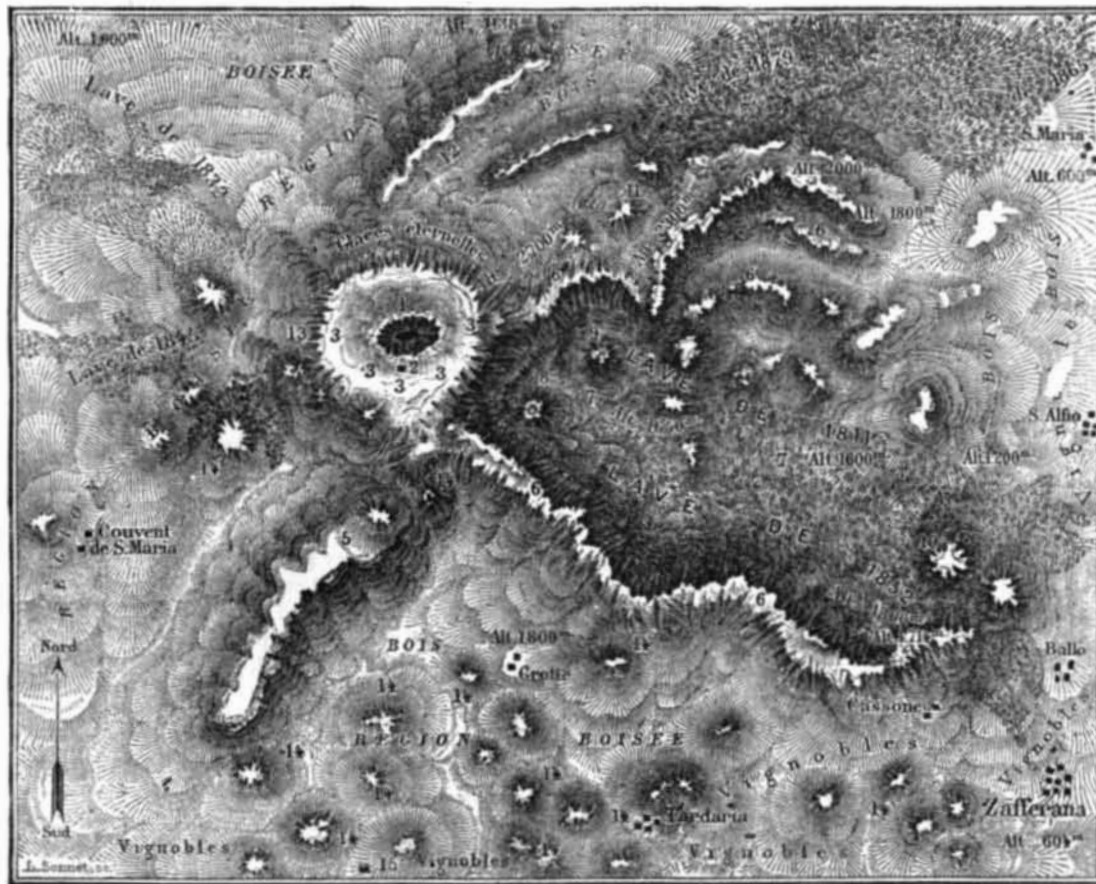
three thousand feet, and its sides are surrounded at the north, south, and west by high rocks, several of which exhibit characteristics of aspect that are truly admirable.

Some of these rocks are formed of a very black lava, which well imitates antique serpentine. Others exhibit a color of a dark red, due to the oxidation of ferruginous matter. Moreover, the alteration of the mass of mineral is so advanced that it exhibits a whitish color similar to that of carbonate of lime, and there are also places where the lava is of a characteristic yellow color, which has caused the rocks wherein it is found to be styled *mountains of gold*.

Along with this, the rocky chains which border the Valle del Bove present a greater interest, in that they are almost all composed of several alternating strata of lava intermingled with banks of earthy materials and traversed in all directions by numerous veins of

eruptive mouths, but the stream on the south side of the mountain did but little damage. From the eruption on the north side, by the evening of May 29, the lava had flowed 6¼ miles, destroying the bridge of Passo Pisciaro and crossing the postal road between Randazzo and Linguaglossa. After the evening of June 1 the force of the eruption began somewhat to abate, and by June 6 it was practically at an end. The lava stream ran nearly seven miles from its source, and ultimately stopped 500 yards from the River Alcantara, and about half a mile from the village of Mojo.

At its termination it is 23 feet in breadth and nearly 32 feet in height. The lava stream entered the bed of the Pisciaro torrent with a velocity of from four to five meters a second, which was reduced to two meters a minute in the lower valley of less inclination. In seventy-six hours the lava had flowed more than six miles from its source.



1. Central crater (16,800 feet altitude). 2. Astronomical observatory. 3. Plain of the Lake. 4. Montagnola (8,660 feet). 5. La Schiena dell'Asino. 6. Rocks bordering the Valle del Bove. 7. Valle del Bove. 8. Eruption craters of 1852. 9. Crater of 1811. 10. Monte di Calanna (4,200 feet). 11. Craters of 1879. 12. Valle del Leone. 13. Other craters of 1879. 14. Ancient craters. 15. Casa del Bosco.

MAP OF THE UPPER REGIONS OF ETNA.

other and more recent lavas, the origin of which can be easily explained. For it is well known that when one of the sides of the mountain bursts to give passage to the incandescent matter, there results usually around the principal fracture other radiating fractures which decrease in size as they are prolonged to varying distances; and the liquid lava then penetrates these secondary fractures, fills them, and seals them up on solidifying. Thus, by examining the position of these strata and veins, there may be constructed a very extended chronology of the old eruptions.

The eruption of 1879 was considered by Prof. Silvestri, in a report made to the Italian government, to have been in a stage of preparation or partially suppressed development for a period of five years. It broke out May 26, there being craters on the north and south sides of the mountain, the latter having eight

then allowed to dry, and when strictly dry it is stripped off in the usual way.

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A Big Model for the World's Fair.

At the World's Fair at Chicago, next year, will be a complete model of the entire plant of the H. C. Frick Coke Company, of Scottdale, Pa. This company employs many million dollars capital in their business, and is the largest of the kind in the world. The contract for the model has been let to the Jones Bros. Company, of Cincinnati, Ohio, who are experts in the making of models. Its estimated cost is between three and four thousand dollars. The plant will occupy a

space about 20x50 feet, made on scale of one twentieth of an inch to the foot, and will be an exact facsimile of the original, including boilers, engines, piping, elevated tracks, cupolas, cars and all other machinery, and will be in operation. The motive power, however, will be electricity.

BRICKS are extensively manufactured in Japan for home consumption, but a small quantity has been exported as a venture to Vancouver, and should the demand there justify further exportations, bricks could be shipped thither as ballast at nominal rates. Mr. Layard mentions that the wages paid at the largest of these factories range from 20 to 25 cents per day for men, and from 10 to 15 cents per day for women.



1. Edge of the central crater. 2. Astronomical observatory. 3, 3, 3. Rocks bounding the Valle del Bove. 4. Mount Rossi. 5. Village of Nicolosi.

MOUNT ETNA SEEN FROM THE PORT OF CATANIA (SOUTH SIDE).