

tree, and, amidst that gigantic mass of clouds, the volcanic lightning was frequently visible.

"About five o'clock on the morning of the 16th, we perceived that the lava which had broke out from several new mouths on the south side of the mountain, had reached the sea, and was running into it, having overwhelmed and burnt the greatest part of Torre del Greco.

"On Wednesday, June 18th, the wind having for a short time cleared away the thick clouds from the summit of Vesuvius, we discovered that a great part of its crater had fallen in, and the ashes, which before were as fine as Spanish snuff, were now of such density as to appear to have the greatest difficulty in forcing their passage."

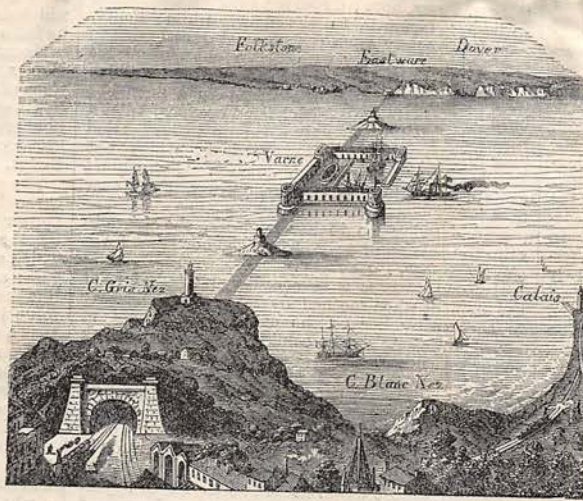
By the 30th of June the violence of the eruption had subsided sufficiently to enable Sir William to ascend the mountain and witness the devastation occasioned.

Some enterprising Englishmen have recently proposed to the King of Naples to undertake the stupendous work of turning the sea into the crater of Mount Vesuvius, and thus drowning it. We doubt the practicability of such an enterprise; but supposing it possible that the science of hydraulics should enable men to engulf Vesuvius, it would be a volcano still, and perhaps as destructive under water as upon the land.

in form; that it should be constructed of stone, and should inclose two roads adapted to ordinary locomotives. The route would extend from Cape Grinez to a point between Dover and Folkestone, passing the Varne bank, which would form the maritime station of the submarine rail.

and a proportionate profit reward the promoter of the enterprise, if successful in their speculation. It is, however, suggested by M. de Gamond that the expense incurred should be borne by the English and French Governments—the tunnel being regarded not as the project of a company, but as a grand public work. Simply regarded as a scientific question, the submarine tunnel is exceedingly interesting. It is no new idea. Engineering skill triumphed over the difficulties of a similar undertaking in the construction of the Thames Tunnel; but the difficulties which would meet the engineer in any effort to bore a tunnel of many miles in extent, below the British channel, are of course very much greater. Whether these difficulties will ever be overcome or not, we cannot venture to say.

The new commercial treaty will serve to increase the desirability of some rapid and certain means of communication between the two countries. Now that the rumours of war have subsided, and that the probability of a long-continued, cordial peace between England and France revives, we may confidently look for a thoroughly scientific investigation of the plan for the proposed tunnel. If, as its projectors affirm, it is really practicable, there is no doubt that England's capital and engineering skill would be found fully equal to the carrying out of the work.



Intermediate Station.

THE SUBMARINE TUNNEL.

Most of our readers will remember the railway mania of 1847, and the scores of speculative schemes which found zealous supporters. The crisis arrived—the bubbles burst—and for awhile even good practical plans were regarded with suspicion. A similar result followed the recent monetary crisis; after so many failures, capitalists would not invest; but the spirit of speculation is reviving, and while the great project of laying a telegraph across the Atlantic is still in abeyance, the proposed canal through the Isthmus of Suez, and the railway through the Andes, are engrossing public attention.

Amongst other schemes which have appeared and disappeared at intervals, now finding confident supporters, and then being condemned as utterly impracticable, is the project of a submarine tunnel between England and France.

So far back as 1802, the engineer of the Matthien mines proposed to the First Consul (Bonaparte) a plan for a subterranean passage which should unite England to the Continent. The plan was communicated by the First Consul to the then popular minister Charles James Fox, as one of those grand triumphs which were within the power of an Anglo-Gallic alliance. Subsequently MM. Payerna, Franchat, Tossif, Favre, Ernest Mayer, suggested different plans for the accomplishment of the project.

In our own day three different methods of uniting England and France have each occupied some share of public attention, namely:—1st. An iron tubular bridge, resting on piles of masonry divided into arches; 2nd. An artificial isthmus, with a canal opened for ordinary navigation; 3rd. A subterranean passage, or submarine tunnel.

The last suggestion appears the most practicable. M. de Gamond has given it particular attention, and the results of his labours have excited considerable interest on both sides of the Channel.

The British Channel has been sounded throughout its extent. The utmost depth of the Channel does not exceed the height of the tower of Notre Dame, Paris (two hundred and thirty-five feet).

The nature of the soil below the bed of the Channel is said to be such as to admit of the formation of a tunnel.

It is proposed that the tunnel should be circular

On the French coast the subterraneous descent would be found near the Rouges-Berner mill, at the foot of Bazinghen hill, near Marquise, and gradually decline to Cape Grinez, where the tunnel would commence under a tower open to the sky.

On the English coast the incline would begin near Dover, and the tunnel would commence at Eastware.

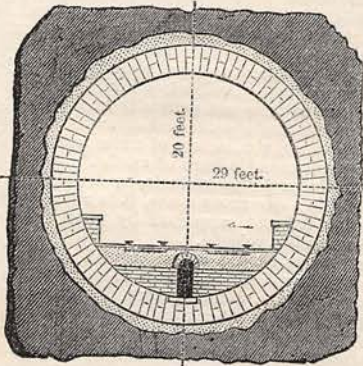
An intermediate station would be erected at Varne, in the middle of the Channel.

The cost of the tunnel is calculated at about six millions of money, and the work would probably occupy six years; but its advantages, if practicable, would amply repay the original outlay. The jour-

THE present hostilities between Spain and Morocco originate rather in hereditary hatred and the antagonism of races than in any special wrong recently inflicted on either. The desultory and savage warfare in the vicinity of Ceuta, now engaging the attention of Europe, is a feeble echo of the fierce struggle for supremacy between the Crescent and the Cross during the middle ages, but without the generous enthusiasm that ennobled it. No great idea has prompted the present action: these two countries—almost equally barbaric, fanatical, and decrepit—having survived their former glories, are exhausting the scanty energies remaining to them in mutual slaughter, without other definite aims than the gratification of their animosities—as ruthless combatants, whose swords have been shivered in their bloody hands, clutch desperately at each other's throats, with feeble but unrelenting hatred. There is a remarkable analogy between the genius and temperament of the Moor and the Spaniard, who are alike grave while passionate; indolent, yet unforgiving; sensual and devout. Thus, the mountains of the opposed continents, though diverse in features, are yet, from common geological character, similarly dark and lurid, as though glowing with secret volcanic heat; but the chasm intervening between those giant masses is not deeper and more difficult to bridge than that formed between the two nations by their respective faiths and traditions; and therefore peace is to be expected, not from any sensible conciliation of opposed interests, but only from the weariness and exhaustion of the combatants.

As little is popularly known of Morocco but the former piratical exploits of its people, with which the adventures of Robinson Crusoe have familiarised us, and the fact of its yielding to us superior leather, some information regarding it may not be unacceptable.

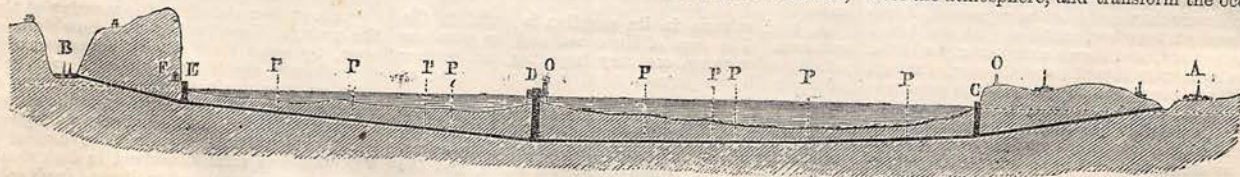
Morocco occupies the north-west angle of Africa, and is traversed by the great mountain range of Atlas. The climate has been determined rather by the vicinity of the ocean and the occurrence of this lofty mountain range, than by the latitude. The snowy summits of Atlas, soaring to the height of 12,000 feet, and visible at the distance of 200 miles, cool the atmosphere, and transform the ocean mists



Transverse Section of the Tunnel.

ney from London to Paris would be made in six hours, without the inconvenience of changing carriages, and the still greater inconvenience of crossing the Channel by packet. Twenty-five minutes in the tunnel would suffice to take us from one side of the Channel to the other, without a chance of rough weather or the possibility of sea-sickness.

A large increase of travellers would be certain,



Line showing the direction of the Submarine Tunnel between England and France: A, Marquise, capital of the department of the Pas-de-Calais, near the beginning of the tunnel; B, Dover; C, the first station in France, Cape Grinez; D, the intermediate station in the Channel, at Varne; E, Eastware, between Dover and Folkestone, first station in England; F, Tunnel of the Dover Railway; O O, Lighthouses; P P P P, Shafts to facilitate the piercing of the tunnel.