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## Memoranda of Vesuvius and its Neighbourhood.

By the Rev. Henry Scadding, D.D., Cantab. Read before the Canadian Institute, March 25th, 1854.

Those who have visited Saratoga will perhaps remember the High-Rock Spring. It has its name from the circumstance that its water, containing much lime in solution, has formed a mound of calcareous matter some five feet high, with a well-defined central throat, up which the fluid column in former times ascended. This conical hillock must have had its beginning from the water in the first instance rising with force through the surface of the soil, and depositing a sheet of calcareous matter. The same process going on from year to year, minute strata accumulated, until the present altitude of the mound was attained. The falling of a tree then caused a fracture in the mass, since which occurrence the water, instead of flowing over the top, has found a lateral outlet.

We compare indeed small things with great, and slight with enormous energy; but the High-Rock Spring may serve to illustrate the manner in which volcanic hills are formed. An aperture is found, in a fissure we will suppose, in the crust of the earth; fluid matter is forced up from below, and, as it spreads itself out around the orifice from which it issues, it becomes solid: another ejection takes place: another thickness swells the dimensions of the growing mound: the process is repeated, until, in a succession of years, or in some instances in a few hours, a mountain is accumulated. A central channel is preserved, up which fresh matter still ascends, except when the energy below diminishes or a side-vent is opened.

All the mountain chains upon the globe, indeed, were probably thrown up by the force which we still see active in volcanoes. But with the majority of mountain chains there does not appear to have been any explosion. The elastic gases have lifted the superincumbent strata without forcing for themselves a passage. In many regions of the globe, semi-fluid granite just protruded itself through long fissures in the overlying deposits, and became set—a ponderous ocean at the time, in some localities at least—tending to depress and perhaps cool the uprising mass.

The mountains which we call volcanoes have, especially in regard to their upper portion and cone, grown by the accretion of ejected volcanic substances. In some volcanoes these ejections continue to take place from the original orifice or crater; in others, the interior force has become diminished, so as to be capable of thrusting the molten fluid only up to a certain point, where it continues in a state of ebullition either visible to the eye, or concealed by a crust of solidified lava; in other, lateral openings are formed at points below the ancient crater; and in others, the volcanic energy seems to have worn itself out.

Of the last class are the extinct volcanoes of Auvergne and Velay in France, of Catalonia in Spain, of the Eifel district in Germany:—of the next to the last are *Atna*, the Peak of *Teneriffe*, and *Cotopaxi*:—of the next preceding, *Kirauea* in *Hawaii* is an example:—and of the first mentioned numerous class, *Vesuvius*, the mountain in respect to which I am about to offer a few memoranda, is a type.

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*Vesuvius*, as compared with other active volcanic mountains, takes a low place, being only 3947 feet in height, while *Antisana*, in *South America*, the highest active volcano on the globe, is 19,137 feet high.

But although *Vesuvius* is one of the humblest of volcanic mountains, it has from many circumstances received peculiar attention. It is conveniently accessible to European observers. It is situated in the midst of a region rich in associations mythic and historic, unrivalled for physical beauty, and altogether strongly attractive to every imaginative and thoughtful person who has it in his power to visit foreign lands.

It is a memorable moment when, on waking in the morning and finding the steamer in which you have been travelling still and at anchor, you are told that you are in the Bay of *Naples*. You hasten to the deck. You take an excited survey of the widely-sweeping panorama which overwhelms the eager eye. Ships in crowds are near you, and craft with the obliquely-set lattice yard-arms. Boats are moving silently on the surface of the iridescent water, which is giving back from the eastern heavens the kindling glories of the rising sun. Sailors are rowing ashore: you hear the regular creak of the row-locks as they work their oars, contrary to custom, with their faces towards the bow. Fishermen are paying out their long nets, hand over hand, indulging at the same time in a low chant-like song. In front of you, terrace rises above terrace of cheerful habitations, crowned with monastic edifices and massive fortifications. Behind you are castles and encircling moles—one bearing a colossal figure with hand upraised to bless (*St. Januarius*)—another sustaining a lantern or pharos-tower, whose light still gleams down towards you along the surface of the water, though the day comes on apace. To add to the excitement of the scene—drawing again on the incidents of a morning indelibly impressed on my own recollection—a royal salute is fulminated from the castle on the left, which is no sooner ended, than responsively from another in the far distance on the right, a similar series of explosions takes place, each detonation following late after the quick scintillation of the flash, making the deck on which you stand to shake, and reverberating finely among the hills. Be it understood that the King has had an additional Prince born within the palace which you see yonder near the shore, and a festival of sixteen days has been proclaimed—sixteen days which, every morn and every eve, are to be signalized by similar stunning demonstrations, by illuminations also, and reviews and music, and whatever else may constitute a *Neapolitan* holiday.

But of all the objects which attract the attention as you gaze around the grand panorama before you, two mountains, side by side, close upon the right, isolated, of purple hue, and well-defined from base to summit, rivet at last the eye. On the morning already referred to, the glow of daybreak had outspread itself immediately behind them. The planet *Venus* was splendidly conspicuous vertically over them, looking as if she had been a meteor, shot up and held suspended at the culminating point. And there she remained beautifully visible for a considerable time after the surrounding constellations had “paled their ineffectual fires” before the rising sun. Over the easternmost of the two mountains rested what appeared at the moment to be a dark cloud, varying considerably in form, looking in shade quite black in parts, and occasionally rolling up pitchy volumes, like the smoke issuing from the great funnel of an Atlantic steam-ship when fresh coal is being put on below, the whole mass becoming at last magnificently fringed with fiery gold, as the sun gradually emerged from behind it and pierced its murky folds. These twin-mountains together form *Vesuvius*.

I observe in the ancient, so-called classic maps, that the name