

**THE SEAS OF FOG.**

BY EMILE GUARINI.

I have, on more than one occasion, had the pleasure of seeing Switzerland, and, as is indispensable for the tourist (without regret, however), of climbing up some of those summits for which the little Helvetian republic is celebrated. When I say "climb," I employ a very improper word. In Switzerland, in fact, there are so many cable railways, which, for a relatively reasonable fare, carry a person without fatigue to the summit of the highest mountains, that he must be smitten with intense emotion and be fond of fatigue and danger to induce him to run the risk of ascending to almost inaccessible peaks at the cost of thousands of useless efforts.

On foot, then, or upon railway (and there is even an advantage upon railway, since it is possible for a person to contemplate at his ease and without any distraction), the spectacle to be enjoyed, at the summit of the mountains especially, is wonderful, unique.

The two mountains of which the ascent is made by preference are the Rigi and Pilatus, both on the Gothard line, upon the route that leads from Brussels to the beautiful land of Italy. From the top of these mountains, the rising of the sun is one of the grandest spectacles that could be imagined, and, even without sunrise, the panorama that unfolds itself before the eyes leaves the spectator mute and enraptured in the presence of these gigantic manifestations of nature. For several miles round about there are unveiled, in a harmonious whole, villages hanging on to the rocks, hills covered with forests, deep and umbrageous valleys, and sparkling glaciers; and amid this titanic chaos, appears and then disappears the railway, which is scarcely perceptible upon these colossal masses.

But in order that this spectacle may be enjoyed, the fog must not come into play, since in such a case nothing can any longer be seen, or, rather, what is seen is a very different thing from what the tourist came to contemplate upon the desert summits. I had a proof of this the last time that I ascended the Rigi. In measure as I ascended, the weather became worse and worse. Rain, wind, glacial temperature, and fog—all were in evidence. And yet this unfortunate state of things was of some good. Scarcely had I reached an altitude of 3,900 feet, when I saw spread out at my feet something like a sea, of which the huge waves rolled one over another, while here and there the points of the neighboring summits emerged like rocks and islets. It was the "sea of fog" that chance in mischance—that hazard—was spreading out before my eyes.

The accompanying figures are reproductions of two

photographs that were particularly successful. They were not taken from the Rigi, but from Mt. Pilatus. I am indebted for them to the courtesy of the manager of the railway that ascends this mountain. One of them gives a view of the sea of fog at an altitude of 3,280 feet and allows a face view of the panorama of the Bernese Alps to be seen. The other shows the sea rising 1,960 feet higher. A few summits, a few ridges, that of the Rigi-Kulm among them, alone emerge from the flaky immensity.

**Chemistry of Soils as Related to the Yield of Crops.**

The Secretary of Agriculture announces that the Bureau of Soils has just finished an exhaustive investigation of the chemistry of soils as related to the yield of crops. The results indicate that practically all soils have sufficient available plant food for normal crop yields, and that this supply is constantly maintained through natural agencies in the soils dissolving the material of the soil grains. The difference in yield is dependent upon the condition and kind of cultivation and rotation of crops, maintaining certain necessary physical conditions in the soil, under which this plant food can be used by the crop. A bulletin has just gone to press giving the details of the investigation, and discussing the influence of climate, texture of soil, rotation, fertilizers, and soil management upon the yield of crops. The work is based upon analyses by new and exceedingly sensitive methods, by which the amount of plant food in the soil moisture itself, which is the great nutritive solution for the support of crops, has been determined, and not by digesting the soils in acids which attack the inert mineral matter of the soils.

While the conclusions appear to be in conflict with the opinions held for so many years by agricultural chemists, they are in strict conformity with the experience of good farmers in all countries, and with actual facts which have long been established by agricultural chemists. The fertility of the soil is

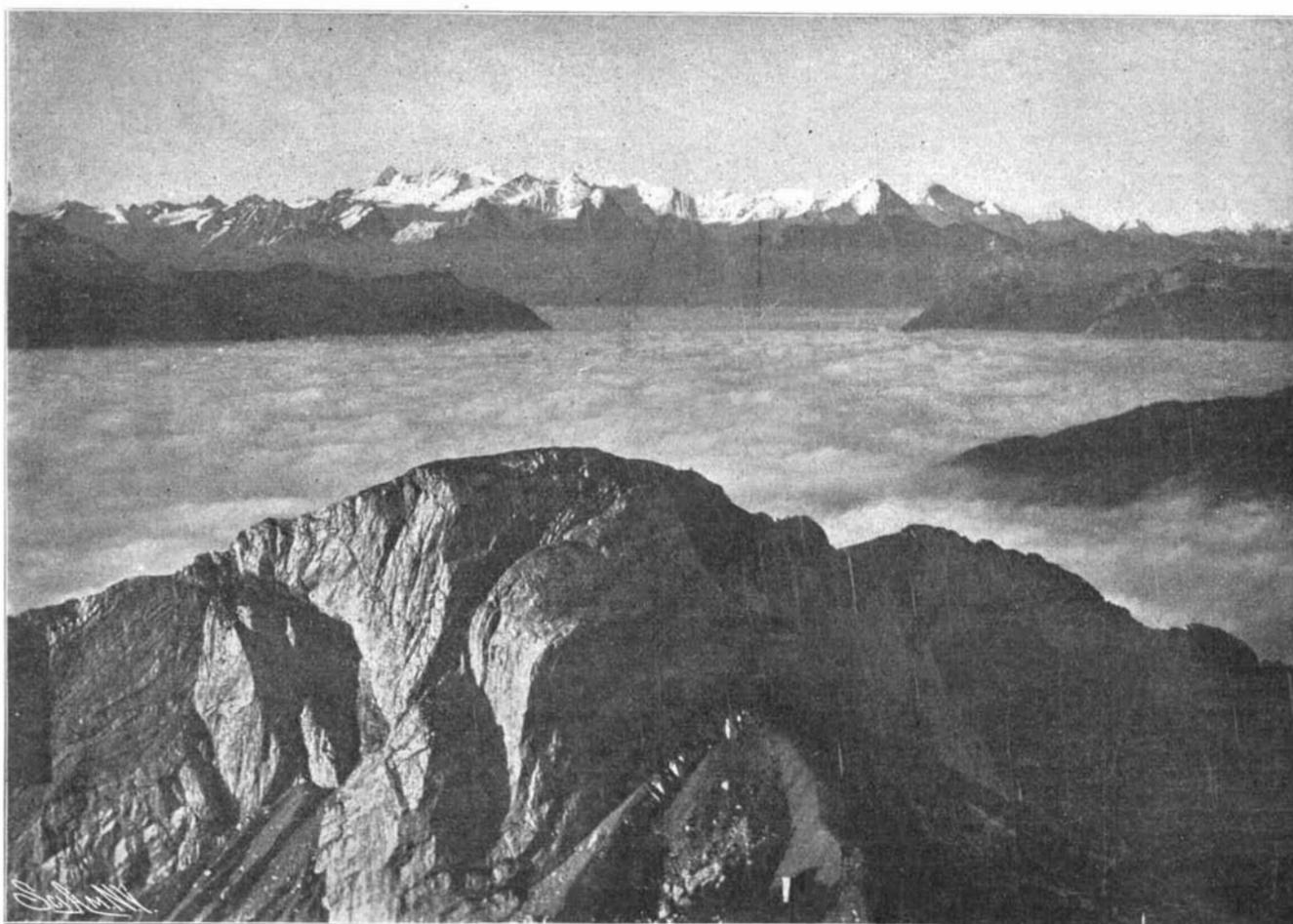
thus shown to be due to physical causes which control the supply of water and plant food which it contains, as the soil moisture in all cases appears to be about the same in composition and concentration. The fertility is therefore controlled by a physical cause, and a chemical examination of a soil can not be expected to indicate the yield of a crop. It is believed that a simple physical method will be devised for determining the relative fertility of soils.

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The electric working of the railway line between Gallarate and Milan has been so successful that the system is to be extended to other branches. The length at

present worked electrically is 48½ miles. There are from 70 to 80 trains per day, 12 of which make the run from end to end in 77 minutes, inclusive of stops. The continuous-current system is used, and the motor cars run daily between 250 and 280 miles each. The express trains on the 25-mile section between Milan and Gallarate take only 30 minutes for the run. Power is obtained from a central station at Tornavento, and distributed on the three-phase system to a number of sub-stations suitably distributed over the whole length of the railway.



A SEA OF CLOUDS.



ABOVE THE CLOUDS.

**Foreign Engines at St. Louis Fair.**

The Pennsylvania Railroad announces that it has ordered locomotives from France, Germany, Russia, and England for exhibition purposes at the St. Louis Fair next year, and it may include engines from Japan and Italy. It is the idea of the railroad company that in making this exhibit they will show the superiority of their own engines, and incidentally pick up any of the good points which they may possess. After the Fair, the engines will go into regular service on various divisions of the road.