

which these discharges are the closing phenomenon. This is seen in a most remarkable manner in Auvergne, where there are a multitude of acidulated springs, that is to say, springs charged with carbonic acid. During the time when he was opening the mines of Pontgibaud, M. Fournet had to contend with emanations which sometimes exhibited themselves with explosive power. Jets of water were thrown to great heights in the galleries, roaring with the noise of steam when escaping from the boiler of a locomotive engine. The water which filled an abandoned mine-shaft was, on two separate occasions, upheaved with great violence—half emptying the pit—while vast volumes of the gas overspread the whole valley, suffocating a horse and a flock of geese. The miners were compelled to fly in all haste at the moment when the gas burst forth, holding themselves as upright as possible, to avoid plunging their heads into the carbonic acid gas, which, from its low specific gravity, was now filling the lower parts of the galleries. It represented on a small scale the effect of the *Grotto del Cane*, which excites such surprise among the ignorant near Naples ; passing, also, for one of the marvels of Nature all over the world. M. Fournet states that all the minute fissures of the metalliferous gneiss near Clermont are quite saturated with free carbonic acid gas, which rises plentifully from the soil there, as well as in many parts of the surrounding country. The components of the gneiss, with the exception of the quartz, are softened by it ; and fresh combinations of the acid with lime, iron, and manganese are continually taking place. In short, long after volcanoes have become extinct, hot springs, charged with mineral ingredients, continue to flow in the same area.

The same facts as those of the *Grotto del Cane* manifest themselves with even greater intensity in Java, in the so-called Valley of Poison, which is an object of terror to the natives. In this celebrated valley the ground is said to be covered with skeletons and carcasses of tigers, goats, stags, birds, and even of human beings ; for asphyxia or suffocation, it seems, strikes all living things which venture into this desolate place. In the same island a stream of sulphurous water, as white as milk, issues from the crater of Mount Idienne, on the east coast ; and on one occasion, as cited by Nozet in the *Journal de Géologie*, a great body of hot water, charged with sulphuric acid, was discharged from the same volcano, inundating and destroying all the vegetation of a large tract of country by its noxious fumes and poisonous properties.

It is known that the alkaline waters of Plombières, in the Vosges, have a temperature of 160° Fahr. For 2,000 years, according