

Can these flames be attributed to the decomposition of water, entering into contact with the pyrites dispersed through the schistose marl? or is it inflamed hydrogen that issues from the cavern of Cuchivano? The marls, as the smell indicates, are pyritous and bituminous at the same time; and the petroleum springs at the Buen Pastor, and in the island of Trinidad, proceed probably from these same beds of alpine limestone. It would be easy to suppose some connexion between the waters filtering through this calcareous stone, and decomposed by pyrites and the earthquakes of Cumana, the springs of sulphuretted hydrogen in New Barcelona, the beds of native sulphur at Carupano, and the emanations of sulphurous acid which are perceived at times in the savannahs. It cannot be doubted also, that the decomposition of water by the pyrites at an elevated temperature, favoured by the affinity of oxidated iron for earthy substances, may have caused that disengagement of hydrogen gas, to the action of which several modern geologists have attributed so much importance. But in general, sulphurous acid is perceived more commonly than hydrogen in the eruption of volcanoes, and the odour of that acid principally prevails while the earth is agitated by violent shocks. When we take a general view of the phenomena of volcanoes and earthquakes, when we recollect the enormous distance at which the commotion is propagated below the basin of the sea, we readily discard explanations founded on small strata of pyrites and bituminous marls. I am of opinion that the shocks so frequently felt in the province of Cumana are as little to be attributed to the rocks above the surface of the earth, as those which agitate the Apennines are assignable to asphaltic veins or springs of burning petroleum. The whole of these phenomena depend on more general, I would almost say on deeper, causes; and it is not in the secondary strata which form the exterior crust of our globe, but in the primitive rocks, at an enormous distance from the soil, that we should seek the focus of volcanic action. The greater progress we make in geology, the more we feel the insufficiency of theories founded on observations merely local.

On the 12th of September we continued our journey to the convent of Caripe, the principal settlement of the