

duce earthquakes and eruptions of lava. We shall begin with the most eastern extremity, the island of Trinidad; which seems rather to belong to the shore of the continent than to the system of the mountains of the West India Islands.

I. The pit which throws up asphaltum in the bay of Mayaro, on the eastern coast of the island of Trinidad, southward of Point Guataro. This is the mine of chapapote or mineral tar of the country. I was assured that in the months of March and June the eruptions are often attended with violent explosions, smoke, and flames. Almost on the same parallel, and also in the sea, but westward of the island (near Punta de la Brea, and to the south of the port of Naparaimo), we find a similar vent. On the neighbouring coast, in a clayey ground, appears the celebrated lake of asphaltum (Laguna de la Brea), a marsh, the waters of which have the same temperature as the atmosphere. The small cones situated at the south-western extremity of the island, between Point Icacos and the Rio Erin, appear to have some analogy with the volcanos of air and mud which I met with at Turbaco in the kingdom of New Grenada. I mention these situations of asphaltum on account of the remarkable circumstances peculiar to them in these regions; for I am not unaware that naphtha, petroleum, and asphaltum are found equally in volcanic and secondary regions,* and even more frequently in the latter. Petroleum is found floating on the sea thirty leagues north of Trinidad, around the island of Grenada, which contains an extinguished crater and basalts.

II. Hot Springs of Irapa, at the north-eastern extremity of New Andalusia, between Rio Caribe, Soro, and Yaguarapayo.

III. Air-volcano, or *Salce*, of Cumacatar, to the south of San Jose and Carupano, near the northern coast of the continent, between La Montaña de Paria and the town of Cariaco. Almost constant explosions are felt in a clayey

* The inflammable emanations of Pietra Mala, (consisting of hydrogen gas containing naphtha in a state of suspension) issue from the Alpine limestone, which may be traced from Covigliano to Raticofa, and which lies on ancient sandstone near Scarica l'Asino. Under this sandstone (old red sandstone) we find black transition limestone and the grauwacke (quartzose psammite) of Florence.