

ties for heat and by their conducting powers. The hottest of all permanent springs (between 203° and 209°) are likewise, in a most remarkable degree, the purest, and such as hold in solution the smallest quantity of mineral substances. Their temperature appears, on the whole, to be less constant than that of springs between 122° and 165° , which in Europe, at least, have maintained, in a most remarkable manner, their *invariability of heat and mineral contents* during the last fifty or sixty years, a period in which thermometrical measurements and chemical analyses have been applied with increased exactness. Boussingault found in 1823 that the thermal springs of Las Trincheras had risen 12° during the twenty-three years that had intervened since my travels in 1800.* This calmly-flowing spring is therefore now nearly 12° hotter than the intermittent fountains of the Geyser and the Strokr, whose temperature has recently been most carefully determined by Krug of Nidda. A very striking proof of the origin of hot springs by the sinking of cold meteoric water into the earth, and by its contact with a volcanic focus, is afforded by the volcano of Jorulla in Mexico, which was unknown before my American journey. When, in September, 1759, Jorullo was suddenly elevated into a mountain 1183 feet above the level of the surrounding plain, two small rivers, the *Rio de Cuitimba* and *Rio de San Pedro*, disappeared, and some time afterward burst forth again, during violent shocks of an earthquake, as hot springs, whose temperature I found in 1803 to be $186^{\circ}\cdot4$.

The springs in Greece still evidently flow at the same places as in the times of Hellenic antiquity. The spring of Erasinus, two hours' journey to the south of Argos, on the declivity of Chaon, is mentioned by Herodotus. At Delphi we still see Cassotis (now the springs of St. Nicholas) rising south of the Lesche, and flowing beneath the Temple of Apollo; Castalia, at the foot of Phædriadæ; Pirene, near Acro-Corinth; and the hot baths of Ædipsus, in Eubœa, in which Sulla bathed during the Mithridatic war.† I advert with pleasure to these

* Boussingault, in the *Annales de Chimie*, t. lii., p. 181. The spring of Chaudes Aigues, in Auvergne, is only 176° . It is also to be observed, that while the Aguas Calientes de las Trincheras, south of Porto Cabello (Venezuela), springing from granite cleft in regular beds, and far from all volcanoes, have a temperature of fully $206^{\circ}\cdot6$, all the springs which rise in the vicinity of still active volcanoes (Pasto, Cotopaxi, and Tunguragua) have a temperature of only 97° – 130° .

† Cassotis (the spring of St. Nicholas) and Castalia, at the Phædriadæ, mentioned in Pausanias, x., 24, 25, and x., 8, 9; Pirene (Acro-Corinth),