

It is to be regretted that the information concerning the temperature of hot springs is, in general, insufficient to determine whether they suffer periodical variations with seasons or cycles of years. Until lately, the means of instrumental research were inadequate for delicate experiments such as those required in this branch of study, nor has much been done to furnish future observers with the power of settling these questions. It appears probable that thermal springs may vary their temperatures, because it is an established fact, that a part of the contents of some of them is withdrawn, by cutting off their connection with subterranean springs of cold water.\* Variation of temperature is asserted as a fact, in respect of the spring of Gargitello in Ischia, Pfeffers Baths, a spring at Cannea in Ceylon, and Bagnères de Luchon in the Pyrenees. During earthquakes and volcanic violence, thermal springs have been affected, both in their quantity and in their temperature: in 1755, the year of the Lisbon earthquake, the temperature of the Source de la Reine at Bagnères de Luchon was raised  $75^{\circ}$ . In 1660, a great earthquake desolated the country from Bordeaux to Narbonne, displacing large masses of ground, and caused *one of the hottest of the Pyrenean springs* to become so cool as to be no longer of any value. (Kircher, *Mundus Subterraneus*.) On the contrary, two springs in South America, far from any native volcano, have increased in temperature by  $4^{\circ}$  centigrade, in the interval between an observation by Humboldt and its repetition by Boussingault. (Forbes, *On Pyrenean Springs*, *Phil. Trans.* 1836.)

The general conclusions fairly derivable from a study of thermal springs are few, but important. Their heat

\* This appears to be ascertained in the case of the hot spring of Aix, in Provence; and though, in the late diminution of the Bath waters by sinking a well in Bath (1836), the new well was filled by warm water, it was believed, that during the sinking of the Batheaston Trial coal pit, the Bath waters were reduced. The water was slightly warm in the Batheaston pit, if we correctly remember the statement of Dr. Smith, who was employed on the occasion.