

water passes; and one particular average temperature belongs to each, generally identical with that of the ground through which it passes.

This temperature seldom differs much from the mean annual heat of the locality, and, unless the stream be subject to variation of quantity, hardly varies with seasons or years.

It has, however, been found that the small differences which appear between the mean temperature of the air and of springs at particular localities, are of a somewhat regular character, and bear a general if not a precise relation to latitude. It was found, for instance, by Dalton (1793), that the springs at Kendal gave a somewhat higher range of temperature than the air: the same observation has been made at Berlin, Paris, and other places in the North Temperate Zone; but in the equatorial region the contrary appears to be the fact. The tables of Kupffer (which may be consulted in De la Beche's Manual of Geology), constructed from observations of Humboldt, Von Buch, Cordier, Wahlenberg, Kupffer, &c., appear to give as much as from 1° to 5° superiority of air temperature above that of the ground; while in latitude 54° to 60° , in Russia, the springs were warmer than the air by 5° or 6° .—This fact appears to show clearly that the temperature of the earth and of springs is influenced by *some general cause* independent of solar heat.

Besides the class of ordinary springs, which may thus differ by small amounts from the temperature of the air, there are "thermal springs" which often deserve the name commonly assigned to them of "hot springs," and sometimes approach even the boiling point. These are usually found to be almost, or even absolutely, constant in their discharge, uniform in their temperature, and unvarying in their chemical composition. Some of the sources frequented by the luxurious nations of antiquity still retain their efficacy,—in Greece, in Belgium, and at Bath; and the inquiry into the cause of this continued heat becomes the more important