

More striking instances of the immediate connection between thermal waters and disturbed strata, than the Pyrenees afford, cannot be desired. The same thing, however, is very generally true; even in England, under the Bath springs, at the Buxton spring, at the Bristol spring, the dislocations of the strata are very remarkable. In connection with professor Forbes's result, Mr. Henwood's curious observation, already stated, that the temperature of the waters issuing from the granite of Cornwall is always *lower* than that of such as flow from slate rocks at the same depth, deserves to be remembered. This is found to be the case at the surface, and to the depth of more than 200 fathoms.

Thermal springs are thus found to have, as their most general characteristic of origin, a peculiar geological position; — they burst forth (more remarkably than other springs) at points of extreme displacement of the strata, anticlinal elevations, &c., or, in general terms, at points where it is conceivable that a communication exists downward to the regions of interior heat. For this important generalisation we are indebted to Dr. Daubeny.

Further, it appears that these springs are scarcely less abundant or less heated in countries far removed from the regions of powerful volcanic excitement, than amidst active or extinct volcanos. Dr. Daubeny supplies an excellent catalogue of European springs, in his Report to the British Association, 1836; and Mr. De la Beche has collected examples of hot springs in all quarters of the globe.\* The following brief summary will suffice for the purposes of reasoning on their geographical relations to existing volcanos.

In the British Islands, the average of 7 springs connected with carboniferous limestone gives an excess of temperature above that of the atmosphere of 28°.†

\* Geological Manual, p. 17.

† St. Amand, near Valenciennes, in the same strata, has the same excess of temperature.