

to penetrate one foot into the ground. By digging downwards in summer we soon reach, therefore, the impressions of the preceding spring and winter; but the same progress into the ground brings us back to the temperatures of the autumn and of the summer. Still lower, all the various fluctuations of heat become intermingled and confounded in one common mean.

CHAP. I.
Former im-
pressions.

Such observations are more easily and correctly made, by having thermometers, with long stems, sunk to different depths in the ground; and, from an extensive register, we may conclude that the temperature of the ground is always the mean result of the impressions made at the surface during a series of years. The successive strata, therefore, at great depths, may be regarded as permanent records of the average state of the weather in distant ages. Perhaps the superficial influence will scarcely descend fifty feet in the lapse of a century. Copious springs, which percolate the bowels of the earth and rapidly convey the impressions of subterranean heat to the surface, will consequently furnish the most accurate reports of the natural register of climate. These, if rightly chosen, differ not sensibly in their temperature at all seasons; and, whether they have their seat at a depth of one hundred or of five hundred feet, they affect the thermometer alike.* We are hence entitled to conclude, that however the weather may have varied from year to year, or changed its character at intervals of short

Mode of ob-
servation.

Descent or
superficial
influence.

* The celebrated fountain of Vancluse, situated in the latitude of $43^{\circ} 55'$, and 360 feet above the level of the Mediterranean Sea, has been observed to acquire its highest temperature about the first day of September, and to reach the lowest at the beginning of April; the former being $56^{\circ}.3$, and the latter $54^{\circ}.1$, by Fahrenheit's scale; which gives $55^{\circ}.2$ for its mean heat. The waters are collected from the fissures of an extensive limestone rock, and seem to receive the superficial impressions in the space of three months. They burst forth with such a volume as to form, only a few yards below their source, the translucent Sorgue, a river scarcely inferior, in the quantity of its discharge, to the Tay above the town of Perth.