CLIMATE.

CHAP. I.

Mode of exfacts.

In pits.

Source of permanent ĥeat.

Effect of winds.

periods of years, it has yet undergone no material alteration during the lapse of many ages.

Some philosophers attempt to explain such facts as are plaining the now stated, from the supposed internal heat of the globe, caused by the action of central fires; and pretend, in support of their favourite hypothesis, that the temperature always increases near the bottom of very deep mines. But this observation holds only in particular situations, where the warm exhalations from the burning of lamps and the breathing of the workmen are collected and confined under the roofs of the galleries. In the case of an open pit the effect is quite reversed, the bottom being always colder than the mean temperature. This is owing to the tendency of the chill air to descend by its superior density. The superficial impressions of heat and cold are thus not sent equally downwards; so that the warmth of summer is dissipated at the mouth of the pit, while the rigours of winter are collected below. A similar modification of temperature occurs in deep lakes, in consequence of the disposition of the colder and denser portions of the water always to sink down.

> The permanent heat of the ground is, therefore, produced by the mere accumulation of external impressions received, either directly from the sun's rays, or circuitously through the medium of atmospheric influence. But air is better fitted for diffusing than for storing up heat. The whole mass of the atmosphere, it may be easily shown, does not contain more heat than a stratum of water only ten feet thick, or one of earth measuring fifteen feet. According to their relative temperature, the winds, in sweeping along the ground, either abstract or communicate warmth. But the sun is the great and original fountain of heat, which the internal motion excited in the atmosphere only serves to distribute more equally over the earth's surface. The heat imparted to the air, or to the ground, is always proportional to the absorption of the solar beams; and hence the results are still the same, whether we embrace the simple theory,