serves, that there are trachytes, clinkstones, and basalts, of different ages; but in proportion as we advance towards the more recent volcanic formations, they appear isolated, superadded, and strangers to the soil in which they are found. The lavas from existing volcanoes vary at different periods of their eruptions; we may, therefore, well conceive, that the volcanic masses which, during thousands of years have been progressively raised to the surface under very different circumstances of pressure and refrigeration, should present striking contrasts and analogies of structure and composition.

OBSERVATIONS.

From the various phenomena which volcanoes present, we may with probability infer, that the internal part of our planet is either wholly or partially in an igneous state, however difficult it may be to explain in what manner this heat is generated and confined. In every department of nature, our enquiries are terminated by ultimate facts, beyond which further research becomes vain. The constant generation and emission of light from the surface of the sun is more inexplicable and surprising, than the constant generation of heat in the centre of our planet; but we cannot refuse our assent to the fact, though it is far beyond the power of the human mind to conceive, by what means the particles of light are propelled through space with such astonishing velocity. We are too apt to measure natural operations by their coincidence with the received systems of philosophy, and to make our own ignorance the standard of truth. Had all the volcanoes in the world been dormant for the last two thousand years, and were we acquainted with their existence only by the writings of ancient historians, we should discredit the fact, and prove its impossibility by an appeal to establish chemical principles; we should further accompany the proof with a pathetic lamentation over the credulity of former times. The descent of stones from the atmosphere was denied during a longer period, though the fact is now established beyond all doubt.

Admitting the existence of central fire in the earth, it is not difficult to conceive that there may be determinate causes, by which at certain periods its intensity is increased or diminished. We know little respecting the operation of electric or voltaic energy in the laboratory of nature, but, from the existence of electric light at the poles, we may infer that electric currents are passing through the earth, and are important agents in many subterranean phenomena. Perhaps the different beds of rock which environ the globe may act like a series of plates in the voltaic pile, and produce effects commensurate with their vast magnitude. Voltaic energy is capable of supporting the most intense degree of heat without access to atmospheric air, or even in vacuo; and this for an indefinite time.

Whatever origin we ascribe to subterranean fire, it must be recollected, that its action, when confined beneath the earth, is altogether different from that of fire on the surface, which changes and decomposes almost all substances exposed to its action. It is well known that