

cause explosion. The bursting of furnace boilers is often attributable to this cause. Now, the water at the bottom of the well of the Great Geyser is found to be of constantly increasing temperature up to the moment of an eruption, when on one occasion it was as high as 261°. Professor Bunsen's idea is, that on reaching some unknown point above that temperature, ebullition takes place, vapour is suddenly generated in enormous quantity, and an eruption of the superior column of water is the consequence.*]

Another, and still more important geological phenomenon, proves, beyond the possibility of confutation, the existence, in the globe's interior, of a temperature which cannot be less than 2732° F. Numerous observations, made during the eruptions of Vesuvius, have proved that the lavas ejected from its mighty crater, and distributed over its declivities, possess an almost incredible amount of heat. Cast into the lava, as it flows, some pieces of glass, or of still harder substances, such as basalt or granite, and you will find that they fuse immediately on coming into contact with it. Frequently, in the interesting excavations which have been carried on at Pompeii, bars and fragments of iron, curtain-rings, and the like, as well as gold and silver coins, have been found half melted, having been liquefied by the mere action of the volcanic ashes. The fusing-point of iron being about 2032° F., this fact demonstrates that the temperature of the interior of our earth is certainly not *less*. We repeat these latter details in reply to an objection sometimes offered, that direct experiments made in the terrestrial depths have never shown a higher temperature than 86° to 104° F.

We have proved, then, that the temperature of the interior of our globe increases in proportion to the depth; and that the result of numerous careful observations fixes that increase at the rate of 1° to every 110 feet.

Admitting that this progression continues regularly to the centre of the earth, an hypothesis equally difficult to reject or defend, it would result that the temperature of the terrestrial nucleus must be estimated at 383,000° F.; that at a depth of one-fiftieth of the terrestrial nucleus, the heat would be 14,254° F. (or 100° by Wedge-

* [Lord Dufferin, "Letters from High Latitudes," p. 92.]