because of the extreme feebleness with which heat passes through its interior parts. What is the difficulty of applying this reasoning to the stony crust of the earth ?

Fourier has done this in a manner which mathematicians deem admirable and satisfactory, in his masterly '*Treatise on Heat*,' now become the standard book of reference in the highest department of this subject. We shall use the words of one who has examined the arguments of Fourier.* "Some of the results of this theory are fitted to make less formidable the idea of having a vast abyss of incandescent matter within the comparatively thin crust of earth on which man and his works are supported. It results from Fourier's analysis, that at 20,000, or 30,000 metres deep (12 to 18 miles) the earth may be actually incandescent, and yet that the effect of this fervid mass upon the temperature at the surface may be a scarcely perceptible fraction of a degree. The slowness with which any heating or cooling effect would take place through a solid crust is much greater than might be supposed. If the earth below 12 leagues depth were replaced by a globe of a temperature 500 times greater than that of boiling water, 200,000 years would be required to increase the temperature of the surface 1°. A much smaller depth would make the effect on the superficial temperature insensible for 2000 years. It is calculated, moreover, that from the rate of increase of temperature in descending, the quantity of central heat which escapes in a century through a square metre of the earth's surface would melt a column of ice having this metre for a base and 3 metres for its height."

Now it follows as a necessary consequence of the progressive refrigeration of the globe, that whatever be at this time the influence of interior heat upon the temperature of the surface, it was in early geological periods far greater than at present, and has been slowly diminishing, till, in Leibnitz's words, a consistent state

* Whewel's Report to British Association, 1835.