of this opinion; and the point has been most ably and clearly set before the public by the last mentioned of these geologists,* who, being himself an accomplished chemist, has given us some good illustrations of the probable *modus operandi* in the bringing about of these changes.

"The importance of the inquiries to be made by chemical geologists into this branch of our science was not lost upon the earlier members of the British Association. Even in the year 1833 a committee was appointed to endeavour to illustrate the phenomena of the metamorphism of rocks by experiments carried on in iron furnaces. After a series of trials on various mineral substances, the Rev. W. Vernon Harcourt, to whom we owed so much at our foundation, has as the reporter of that committee, been enabled to present to the Association that lucid report on the actual effect of long-continued heat which is published in our last volume. In referring you to that document, I must, as an old practical field-geologist, express the gratification I feel in seeing that my eminent friend has, in the spirit of true inductive philosophy, arrived, after much experiment and thought, at the same conclusion at which, in common with Sedgwick, Buckland, De la Beche, Phillips, and others in my own country, and with L. Von Buch, Elie de Beaumont, and a host of geologists abroad, I had long ago arrived in the field. I, therefore, re-echo their voices in repeating the words of Mr. W. Harcourt, 'that we are not entitled to presume that the forces which have operated on the earth's crust have always been the same.' Looking to the only rational theory which has ever been propounded to account for the great changes in the crust which have taken place in former periods, the existence of an intense central heat which has been secularly more and more repressed by the accumulation of sediment, until the surface of the planet was brought into its present comparatively quiescent condition, our first General Secretary has indicated the train of causes, chymical and physical, which resolve some of the difficulties of the problem. He has brought before us, in a compendious digest, the history of the progress which has been made in this branch of our science, by the writings of La Place, Fourier, Von Buch, Fournet, and others, as well as by the experimental researches of Mitscherlich, Berthier, Senarmont, Daubrée, Deville, De-

* This Journal for April, and American Journal of Science, May, 1861.