

go than imagination can venture to follow. Sir James Hall afterwards, by a series of characteristically ingenious experiments, showed how the rocks of that coast-line may have been contorted by movements in the crust of the earth under great superincumbent pressure.

Hutton contended for the former molten condition of granite and of many other crystalline masses. He maintained that the combined influence of subterranean heat and pressure upon sedimentary rocks could consolidate and mineralise them, and even convert them into crystalline masses. He may thus be regarded as the founder of the modern doctrine of metamorphism, or the gradual transformation of marine sediments into the gnarled and rugged gneiss and schist of which mountains are built up. Let me quote the eulogium passed upon this part of his work in an essay by M. Daubrée, which eleven years ago was crowned with a prize by the Academy of Sciences at Paris:—"By an idea entirely new, the illustrious Scottish philosopher showed the successive co-operation of water and the internal heat of the globe in the formation of the same rocks. It is the mark of genius to unite in one common origin phenomena very different in their nature." "Hutton explains the history of the globe with as much simplicity as grandeur. Like most men of genius, indeed, who have opened up new paths, he exaggerated the extent to which his conceptions could be applied. But it is impossible not to view with admiration the profound penetration and the strictness of induction of so clear-sighted a man at a time when exact observations had been so few, he being the first to recognise the simultaneous effect of water and heat in the formation of rocks, in imagining a system which embraces the whole physical system of the globe. He established principles