

truism for a great dynamical fact"; an admission which would mean that it brings common-sense and precise mathematical expression into close proximity and harmony, or describes a very general phenomenon completely and in the simplest way.

In order to become generally recognised as the simple alphabet of scientific language, the new ideas had to be made the foundation of the whole structure of physical and chemical knowledge, theoretical as well as experimental; the elements and axioms had to be restated so as at once to express the new view and to open out the enlarged aspect which had been prepared. The different departments of mechanics, physics, and chemistry had to be elaborated and co-ordinated according to a uniform design. Helmholtz had indeed, as early as 1847, roughly sketched the plan of the work, but occupied as he was during the twenty following years mainly with another much-neglected field, the analysis of the phenomena of sensation, he did not return to his original thesis till many years later, when he made an application of fundamental importance.

Meanwhile the important task of rebuilding the edifice of the physical sciences, and establishing on a large scale that which I term the physical view of nature, fell almost exclusively into the hands of what we may call the Scotch school of natural philosophy—James and William Thomson, Macquorn Rankine, James Clerk Maxwell, P. G. Tait, and Balfour Stewart, in this country; whilst Clausius abroad worked almost alone. Rankine and James Thomson very early (1855) conceived the idea of a general science called "Energetics" or "the