

26.
Thomson
and Tait;
Maxwell.

ployed in scientific inquiry. A great revolution in scientific thought followed the publication of Thomson and Tait's 'Natural Philosophy' and of Clerk Maxwell's writings. We know that with these names is mainly connected the introduction of the conception of energy into all the better text-books of physical science. To Thomson (Lord Kelvin) we owe two important steps in the philosophy of nature as distinguished from natural philosophy: first, the early recognition (1852) of that universal property in natural phenomena in consequence of which they exhibit, not only the conservation, but also the dissipation or degradation¹ of energy, a

which roughly covers the third quarter of the century, Lotze was the only thinker who in a consistent and complete manner dealt with the principles and conceptions which underlie the natural sciences, examining also critically to what extent they could be utilised in the formation of a comprehensive creed. He did not, however, publish any concise exposition of his views; they are scattered about his systematic as well as his polemical and more popular writings. At regular intervals he delivered courses of lectures on the subject, beginning with the year 1846, and ending in the year 1877; the dictated lecture syllabus of the last course was published in 1882. The following extract shows how Lotze, long before this view was generally entertained, had a perfectly up-to-date conception of the task of natural science and of the purposes for which scientific principles are defined and employed by scientific thinkers: "The natural sciences are, indeed, not exclusively led by the demands of practical life: thus they do not aim wholly at the practical com-

mand of the external world. They are, indeed, contented with a certain theoretical command over the same—*i.e.*, they strive to determine from present facts their necessary antecedents and to foretell the necessarily following ones, also to determine those to us unobservable circumstances which coexist with these which are accessible to our observation. They have gained this object by analysing experience and extracting general rules regarding the connection of phenomena; further, by framing hypotheses regarding the actual facts which underlie the changing phenomena, and which make it possible through the application of those general laws to calculate from the given parts of the course of things the continuation of the same in conformity with actual existence." Introduction to Syllabus on 'Naturphilosophie,' sect. 2.

¹ The term degradation imports an attribute which is not purely mechanical: it suggests that natural processes may belong to a higher or lower grade. But for the purely mechanical view the difference is only that of more or