

publication of the second volume of his 'Lehrbuch der allgemeinen Chemie' a great impetus was given to physical chemistry. The large addition to our knowledge in this branch, and the consolidation and criticism of research which it brought about, and to which the second edition, now appearing, gives ample testimony, mark this publication as an epoch in modern scientific thought. To this development is attached the growth of the special view of natural phenomena which Ostwald and some other Continental thinkers embrace, and which they are inclined to place in opposition to the older views as a more comprehensive one. The older views they somewhat contemptuously term the materialistic views of nature — the views, in fact, which I have presented under the headings astronomical, atomic, and mechanical. As this most recent outcome of what I termed the physical view of nature refers to fundamental conceptions and has furnished much matter for discussion

the field of contest, either by falling down as insoluble or escaping as gas, can that complete decomposition take place which Bergmann held to be the normal result" ('Die Energie und ihre Wandlungen,' Leipzig, 1888, p. 20). That complete reactions were for a long time studied with predilection was most natural, especially as they are the most useful for practical purposes; but the study of moving chemical equilibrium, depending on what is now termed mass action and involving the question of the velocity of reactions, has in recent times again asserted itself. Ostwald dates the revival of this long-neglected branch of research from the year 1867, when "two Norwegian chemists, Guldberg and

Waage, put the ideas of Berthollet into precise mathematical form and subjected the resulting equations to the test of observation and verification" (ibid., p. 21). Ostwald then shows further how Bergmann's theory was simultaneously revived in M. Berthelot's famous third law derived from thermo-chemistry. This in turn had to yield to the correcter views which date from Gibbs's studies "on the equilibria of heterogeneous substances" (see 'Thermodynamische Studien,' p. 66, 1875; also Ostwald, 'Allg. Chemie,' vol. ii. part 2, p. 163, on the reconciliation of Bergmann's and Berthollet's views; and further, Berthelot in 'Comptes Rendus,' 1894, 118).