The decisive step was taken in 1887 by Arrhenius,[1] who has the merit of having brought together the two independent courses of research and reasoning, and made them fruitful for each other. He shows[2] "that the difference between active and inert molecules consists in this, that the former are split into their ions, the latter not. Only the free ions take part in the conduction of electricity and in chemical reactions: this is the reason for the proportionality of the two (Faraday's law). The ions behave in solution like independent molecules: this is the reason of the deviation which electrolytic solutions show from the extended gaseous laws (Van't Hoff's discovery)." "What a change has come over our conceptions," exclaims Victor Meyer,[3] "if we have to accustom ourselves to see in a dilute solution of common salt, no longer the undecomposed molecules of a salt, but separate atoms of chlorine and sodium. For these revolutionary innovations we are indebted to the labours of Van't Hoff, Arrhenius, Ostwald, Planck, Pfeffer, de Vries, but, so far as experiments go, notably to the splendid researches of Raoult, which for years have been preparing the way for this mighty theoretical advance."

42. Victor Meyer on change of chemical views.

The year 1887, which brought together these two fruitful lines of reasoning and research, can also be considered as the epoch when the new science of physical chemistry was fairly launched into existence. The year

[1] In a communication to the Academy of Stockholm of 8th June and 9th November 1887.

[2] Quoted from Ostwald's 'Allgemeine Chemie,' 2nd ed., vol. ii. part 1, p. 656.

[3] See the highly interesting Address by Victor Meyer before the German "Naturforscherversammlung" at Heidelberg in 1889, entitled "Chemische Probleme der Gegenwart" (Heidelberg, 1890), p. 32.