chemistry was not indebted to illustrious foreigners [1] for some of its most important discoveries, as because the modern scientific spirit of accurate measurement first took hold of chemical phenomena on a large scale in the many important investigations which bear the name of Lavoisier and his followers, through whom the great reform of modern chemical knowledge and research was permanently established. It has been significantly pointed out [2] that it was the union of mathematical with empirical knowledge which, through men like Laplace, Meusnier, Monge, first

in which alone it ought to be understood, &c. . . . Until Lavoisier entered the field there were no generalisations wide enough to entitle chemistry to be called a science." The correctness of this view is fully and impartially examined by Hermann Kopp ('Die Entwickelung der Chemie in der neueren Zeit,' München, 1873, p. 89, &c.) He fully upholds the claims of Lavoisier to be called the father of modern chemistry (p. 145). See also what Liebig says.

[1] These were mainly, Black (discovered carbonic acid, called fixed air, in 1754), Cavendish (discovered hydrogen or inflammable air in 1767), and Priestley, who between 1771 and 1774 discovered oxygen (dephlogisticated air), nitrogen (phlogisticated air), and several of its compounds, among them ammonia (alkaline air). Of Priestley it is said by Cuvier that he may well be considered as one of the fathers of modern chemistry, "mais c'est un père qui ne voulut jamais reconnaître sa fille" ('Éloges,' vol. i. p. 208). Elsewhere ('Rapport historique sur les Progrès des Sciences naturelles,' Paris, 1810, p. 90) Cuvier dates the revolution in chemistry from the introduction of the mathematical spirit: "Il en est une cause encore plus essentielle à laquelle même on doit à proprement parler, et cette théorie nouvelle, et les découvertes qui l'ont fait naître. . . . C'est l'esprit mathématique qui s'est introduit dans la science et la rigoureuse précision qu'on a portée dans l'examen de toutes ses opérations. . . . C'est dans le Traité élémentaire de Lavoisier que l'Europe vit pour la première fois avec étonnement le système entier de la nouvelle chimie," &c.

[2] Kopp, *loc. cit.*, p. 202: "Indeed, if we look at those who first worked together with Lavoisier or in his spirit, we shall find such as had devoted themselves principally to mathematics or mathematical physics, men like Laplace, Meusnier, Monge. Among chemists Lavoisier stood for a long time almost alone in his opinions." This view is also taken by Cuvier ('Rapport,' p. 91): "Les nouveaux chimistes français . . . ont eu à se louer du concours de quelques-uns de nos géomètres les plus distingués," &c.; and he attributes the next great step in chemical science to a similar introduction of a "rigueur toute mathématique" ('Rapport sur la Chimie lu à la Séance des 4 Acad.,' 23rd April 1826).