

can only be secured by an academic organisation and by endowment of research was wanting. No one since the time of Bacon had been more impressed with this necessary condition of modern progress than Newton's great rival, Leibniz,<sup>1</sup> much of whose time was spent in promoting academies all over Europe—in Berlin, St Petersburg, Dresden, and Vienna—and who had himself been early attracted to Paris and London by the scientific fame of their learned societies, though he significantly pointed out the want of activity and efficiency in the early history of the Royal Society.

11.  
Continental  
methods in  
mathe-  
matics.

There was, moreover, another and independent line of scientific thought which had centred in France, the development of which came greatly to the aid of the students of Newton's work. This was the purely mathematical elaboration of the various infinitesimal methods of the French and English mathematicians, by which they were all brought together, simplified, and united into a calculus with strict rules, a practical notation, and an easy algorithm. Newton himself had for the purposes of his great work invented a new and powerful

<sup>1</sup> A collection of Leibniz's writings on this subject will be found in the 7th volume of M. Foucher de Careil's edition of Leibniz's Works, Paris, 1875. Of the projects of Leibniz, only the Academy of Berlin came into existence during his lifetime (1700 and 1701); the others were discussed at great length with the Elector of Saxony, with the Emperor, and with Peter the Great. The Academy of St Petersburg was founded in 1724, eight years after the death of Leibniz. The Academy of Vienna did not come into life till

1846, and in the same year that of Saxony was founded, which has its seat at Leipsic. Leibniz had the largest views on academic life and work: they were to embrace the historical and philosophical studies as well as the purely scientific, and were to stand in relation with the higher and lower educational institutions. His ideas are best realised at Berlin. See Jacob Grimm's interesting discourse, entitled 'Ueber Schule Universität Akademie' (Kleine Schriften, vol. i. p. 211, &c.)