interest) this new calculus, which in the course of the eighteenth century had in the hands of Lagrange been adapted to all the purposes and problems contained or suggested in Newton's 'Principia.'

12. Modern analytical methods.

This leads me to a third and yet more important element of scientific thought, which was peculiar to the Continental, and especially to the French mathematicians, counting among them Leibniz, who, though a German, was wholly trained in the French school. This factor is the establishment of pure mathematics on an independent foundation, and the cultivation of research into the abstract relations of quantity, without reference either to geometrical or mechanical problems and applications. It is the modern analytical spirit introduced by the great French algebraists of the seventeenth century, which looks upon geometry, mechanics, and astronomy merely as "questions d'analyse," and makes their solutions depend upon the perfecting of an abstract calculus rather than on the study of these individual problems themselves. Opposed to this spirit of analysis, which in general seeks the solution of any given question by looking upon it as a special case of a wider and more abstract problem, is the method known to the ancients, which never loses sight of the actual application, be it a figure in geometry or a special arrangement of physical forces, and is more interested in the peculiarities of the individual case than in the abstract formula of which it may be considered an application. This opposite view regards the calculus and mathematics in general merely as an instrument, the value of which lies solely in its application to real physical problems. It is usually