notably astronomy—not infrequently also as objects of mere curiosity without any practical purpose whatever. In the latter part of the eighteenth century the need was felt of putting the new science into a comprehensive system. The attempts to do this—notably the great text-books of Leonhard Euler in Germany and of Lacroix in France—revealed how uncertain were the foundations and how paradoxical some of the apparent conclusions of the reasoning which, in the hands of the great inventors and masters, had led to such remarkable results.

As in other cases which we dealt with in former chapters of this work, so also in the present instance we may find a guide through the labyrinth of modern mathematical thought in the terms of language around which cluster the more recent doctrines. Two terms present themselves which were rare or altogether absent in older treatises: these terms are the "complex quantity" and the "continuous." To these we can add a third term which we meet with on every page of the writings of mathematicians since Newton and Leibniz, but which has only very recently been subjected to careful analysis and rigorous definition,—the term "infinite." Accordingly we may say that the range of mathematical thought during

11. Modern terms indicative of modern thought.

their labours are almost forgotten, although in their elaborate treatises there are to be found many formulæ which had to be rediscovered when, fifty years later, the general theory of forms and substitutions began to be systematically developed, and proved to be an indispensable instrument in dealing with many advanced mathematical problems. See on the latter subject an article by Major MacMahon on "Combinational Analysis" ('Proc., London Math. Soc.,' vol. xxviii. p. 5, &c.), as also the chapters on this subject and on "Determinants" in the first vol. of the 'Encyclopädie der Mathematischen Wissenschaften' (Leipzig, 1898). Also, *inter alia*, a note by J. Muir in 'Nature,' vol. lxvii., 1903, p. 512.