7. Gauss.

It is right to place the name of Gauss at the head, for his investigations regarding several fundamental and critical questions in arithmetic and geometry date from the last years of the eighteenth century, long before Cauchy's influence made itself felt. This is now abundantly clear through the publication of Gauss's works, and from much of his correspondence with personal friends, notably with the astronomer Bessel. We can now understand how those who knew him regarded him as a kind of mathematical oracle to whom "nothing in theory existed that he had not looked at from all sides,"[1] and who anticipated in his own mind the development which mathematical thought was to take for a long time after him. And yet it was not to him primarily that the great change was due which came over mathematical reasoning during the first half of the century. Gauss was not a great teacher. In fact, there existed in the first quarter of the period only one great training school in advanced mathematics, and that was Paris.

8. Cauchy.

There it was that Augustin Cauchy—first as lecturer,

tion of modern mathematics and the refinement of the modern theories have brought about the desire "to create an abridged system of mathematics adapted to the needs of the applied sciences, without passing through the whole realm of abstract mathematics" (Klein, *loc. cit.*, p. 48). In this country Prof. Perry has made a beginning by publishing his well-known work, 'Calculus for Engineers,' which has been welcomed by Prof. Klein in Germany, and which has led to an extensive correspondence in the pages of 'Nature'; it being recognised by many that a quicker road must be made from the elements to the higher applications of mathematics in the natural sciences than the present school system, beginning with Euclid, admits of. The separation of the logical and practical treatment of any science, as likewise the independent development in Germany of the polytechnic school alongside of the university, has, however, its dangers, as is recognised by Prof. Klein ('Chicago Mathematical Papers,' p. 136).

[1] See Bessel's letter to Gauss, 27th December 1810, in 'Briefwechsel zwischen G. and B., Leipzig, 1880, p. 132.