

at Berlin, then at Königsberg; these two universities having become through him and Bessel the German teaching centres of the higher mathematics, both pure and applied. They have up to the present day fully maintained this pre-eminent position. They were teaching centres in the sense defined above—not only as regards mathematical knowledge and method, but likewise as regards mathematical research. For this purpose—as in the philological sciences—the lecture-room was not sufficient; there was also wanted a repository for the independent and original contributions of the school. Like the *École polytechnique* thirty years before in Paris, the Berlin school of mathematicians started with an important periodical. This was known as *Crelle's Journal*. Together with the *Memoirs of the Paris Academy* and the *Journal de l'École polytechnique*, it forms the principal repository for the higher mathematical work of the first half of the century.¹ It was also through

mathematical teacher of Germany. Of him Lejeune Dirichlet says: "It was not his business to communicate what was finished and what had been communicated before; his lectures all treated of subjects which lay outside of the field of the text-books, and covered only those parts of science in which he had himself been creative. With him this meant that they exhibited the greatest variety. His lectures were not remarkable for that kind of clearness which is characteristic of intellectual poverty, but for a clearness of a higher kind. He tried primarily to show the leading ideas which underlay any theory, and whilst he removed everything that had an artificial appearance, the solution of problems presented itself so easily to his hearers that

they could hope to do something similar. . . . The success of this unusual method was truly remarkable. If in Germany the knowledge of the methods of analysis is now spread to a degree unknown to former times, if numerous mathematicians extend the science in every direction, this gratifying result is principally owing to Jacobi. Nearly all have been his pupils," &c. (Dirichlet's Discourse in the Academy of Berlin, 1852, Jacobi's Werke, vol. i. p. 21.)

¹ The two mathematicians on whom A. L. Crelle (1780-1855) relied mainly for contributions when he started the '*Journal für die reine und angewandte Mathematik*' in 1826 were Abel and Steiner. For originality of thought they stand quite alone. Both extended