Jacobi, and still more through his contemporary Lejeune Dirichlet (born 1804 at Düren, of French extraction, and trained in Paris under Laplace, Legendre, Fourier,

the field of research which they cultivated by fundamentally new ideas of such breadth that fully half a century was required before they were thoroughly appreciated by mathematicians. Abel (a Norwegian by birth) died in 1829 when only twenty-seven years old, having during the four years which embrace his published memoirs extended the limits of algebra and laid the foundations for a more comprehensive treatment of the higher or transcendent functions, or forms of mathematical dependence. Mathematicians before him had tried to solve algebraically equations beyond the fourth degree, but had failed. Abel proved that the problem as then conceived could not be generally solved. Legendre had through his unaided labours, extending over thirty years, established the theory of elliptic integrals as far as was possible on the lines then adopted. Abel—and simultaneously Jacobi—treated the subject from an entirely novel point of view, and by doing so opened out quite a new field of research, the extent and importance of which Abel fully recognised when he presented to the French Academy his memoir of 1826, in which he dealt with functions of which those studied by Legendre and Jacobi were only special cases. This memoir, containing Abel's celebrated theorem, which he had already discovered in 1825, and which was published in a brief article in Crelle's Journal in 1829, remained unnoticed, being, as Legendre explained to Jacobi, almost unreadable. See Enneper, 'Elliptische Functionen,' 2nd ed., p. 192; Jacobi's Werke, vol. i. p. 439, &c. Abel has been called the greatest mathematical genius that has yet existed (Oltramare in 'La grande Encyclopédie,' art. "Abel"); his fellow-worker, Jacob Steiner (1796-1863, a Swiss by birth), has been termed the greatest geometrician of modern times. The progress of analysis had thrown into the background purely geometrical researches, although a revival of these had commenced in France with Monge and his followers, and had been further promoted by Poncelet, as well as simultaneously by Möbius and Plücker in Germany. The labours of the two latter remained for a long time unknown and unrecognised. Steiner, who was self-taught, who disliked the calculus, and considered it a disgrace that geometry could not solve her problems by purely geometrical methods, undertook to find the common root and leading principle which connected all the theorems and porisms bequeathed to us by ancient and modern geometry; he brings order into the chaos, and shows how nature with a few elements and the greatest economy succeeds in giving to figures in space their numberless properties. He not only completed that part of geometry which had been treated by the ancients—the geometry of the line, the conic sections or curves of the second order, and the surfaces in space corresponding to them—but he also attacked problems which before him had been solved only by the calculus, and even succeeded in carrying his methods beyond the reach of the calculus of variations, specially invented to deal with geometrical questions. Like Fermat in the theory of numbers,