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(*b*. Le Bourget, France, 12 April 1794; *d*. Brussels, Belgium, 15 February 1847)

mathematics, military engineering.

Dandelin's father was French; his mother, Anne–Françoise Botteman, was from Hainaut (now part of Belgium). The father, after the transfer of Belgium to France, occupied administrative functions in that country. Dandelin studied at Ghent, volunteered in 1813 for the defense of Walcheren against the British, and in the same year entered the École Polytechnique in Paris. He was wounded in action at Vincennes on 30 March 1814 and in 1815, during the Hundred Days, was attached to the Ministry of Interior under Carnot. After Waterloo, Dandelin returned to Belgium, where in 1817 he became a citizen of the Netherlands and *sous–lieutenant* in the corps of military engineers. In 1825 he was elected to the Royal Academy of Sciences in Brussels, and from 1825 to 1830 he was professor of mining engineering in Liège. He then served until 1835 as an officer in the Belgian army, taking part in the Revolution of 1830. He afterward held educational and engineering posts (building fortifications) in Namur, Liège, and (from 1843) Brussels. At the time of his death he was *colonel de génie* in the Belgian army.

Dandelin's early work was in geometry, in which he worked in the same spirit as his Belgian colleague Adolphe Quetelet. The theorem named for him, of great use in descriptive geometry, states that when a cone of revolution is interesected by a plane in a conic, its foci (or focus, in the case of a parabola) are (is) the points (point) where this plane is touched by the spheres that are inscribed in the cone. It is published in "Mémoire sur quelques propriétés remarquables de la focale parabolique" (1822). In "Sur l'hyperboloide de révolution et sur les hexagones de Pascal et de Brianchon" (1826) he proved that the theorem also holds for a hyperboloid of revolution and showed the relationship between the Pascal and Brianchon hexgons and the skew hexagon formed by generators of the hyperboloid.

These investigations were closely related to Dandelin's theory of stereographic projection of a sphere on a plane, presented in "Mémoire sur l'emploi des projections stéréographiques en géométrie" (1827). This led him to inversions, by which points *p* on a line *OP* connecting them with a fixed pole *O* are transformed into points *P′* on *OP′* such that the product of *OP* and *OP′* is constant. He thus found a rational circular cubic curve as the inverse of a conic with the pole on the conic.

Dandelin also wrote on static, algebra, astronomy, and probability. In his "Recherches sur la résolution des équations numériques" (1823) he outlined in the second supplement a method (already suggested by Edward Waring in 1762) of approximation of the roots of an algebraic equation with roots α_i by determining the coefficients of equations with roots α_i^2, α_i^4 α_i^8… This method, named for Dandelin and C. H. Gräffe, was also proposed by Lobachevski in 1834.

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II. Secondary Literature. A biography is A. Quetelet, "C. P. Dandelin," in *Biographie nationale*, IV (Brussels, 1873), 663–668. On Dandelin's theorem and its generalizations, see M. Chasles, *Aperçu historique sur l'origine et le développement des méthods en géométrie* (Paris, 1837; 3rd ed., 1889); and E. Kötter, "Entwicklung der synthetischen Geometrie von Monge bis auf von Staudt," in *Jahresbericht der Deutschen Mathematikervereinigung*, **5** , pt. 2 (1901), 60–64. On the Dandelin–Gräffe method, see F. Cajori, *A History of Mathematics* (New York, 1938), p.364; and C. Runge, *praxis der Gleichungen* (Berlin–Leipzig, 1921), pp.136–158.

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