

Korteweg, Diederik Johannes | Encyclopedia.com

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(b. 's Hertogenbosch, Netherlands, 31 March 1848 ; d. Amsterdam, Netherlands, 10 May 1941)

mathematics.

Korteweg studied at the Polytechnical School of Delft, but before graduation as an engineer he turned to mathematics . After teaching in secondary schools at Tilburg and Breda, he entered the University of Amsterdam, where he received his doctorate in 1878 .From 1881 until his retirement in 1918 he was professor of mathematics at the same university, where, with P . H. Schoute at Groningen and J . C. Kluyver at Leiden, he did much to raise mathematics in the Netherlands to the modern level .

The subject of Korteweg's dissertation was the velocity of wave propagation in elastic tubes . His sponsor was the physicist J . D. van der Waals, with whom Korteweg subsequently worked on several papers dealing with electricity, [statistical mechanics](#), and thermodynamics . His main scientific work was thus in applied mathematics, including rational mechanics and hydrodynamics ; but through his work on Huygens he also contributed greatly to the history of seventeenth-century mathematics . Korteweg established a criterion for stability of orbits of particles moving under a central force (1886), investigated so-called folding points on van der Waals's thermodynamic \square -surface (1889), and discovered a type of stationary wave advancing in a rectangular canal given by $y = h \text{cn}^2(ax)$, the "cnodoil wave" (1895) .

From 1911 to 1927 Korteweg edited the Oeuvres of [Christiaan Huygens](#), especially volumes XI-XV . He was an editor of the *Revue semestrielle des publications mathématiques* (1892-1938) and of the *Nieuw at-chief voor wiskunde* (1897-1941).

BIBLIOGRAPHY

I. Original Works. Most of Korteweg's papers appeared in *Verhandelingen* and *Mededelingen der K. nederlandse akademie van wetenschappen* (Amsterdam) and in *Archives néerlandaises des sciences exactes et naturelles* between 1876 and 1907, the latter often publishing French translations of the Dutch papers appearing in the former .Other papers include "Über Stabilität periodischer ebener Bahnen," in *Sitzungsberichte der K. Akademie der Wissenschaften in Wien, Math.-naturwiss. Kl. I.*, 93, sec. 2 (1886),995-1040; "Ueber Faltenpunkte," *ibid.*, 98 (1889), 1154-1191 ; *Het bloeitydperk der wiskundige wetenschappen in Nederland* (Amsterdam, 1894) ; and "On the Change of Form of Long Waves Advancing in a Rectangular Canal, and on a New Type of Stationary Waves," in *Philosophical Magazine*, 5th ser., 39 (1895), 422-443, written with G. de Vries .

II. Secondary Literature. For biographies see H . J . E .Beth and W . van der Woude, "Levensbericht van D . J . Korteweg," in *Jaarboek der koninklyke nederlandse akademie van wetenschappen* 1945-1946 (Amsterdam, 1946), pp. 194-208 ; and L . E . J . Brouwer in *Euclides* (Groningen),17 (1941), 266-267 . Appreciations of his work are by H. A. Lorentz in *Algemeen Handelsblad* (Amsterdam),*Avondblad* (12 July 1918) ; and an unsigned article, *ibid.*(30 March 1928), p . 13, on the occasion of Korteweg's eightieth birthday .

D. J . Struik