Juel, Sophus Christian | Encyclopedia.com

(*b*. Randers, Denmark, 25 January 1855; *d*. Copenhagen, Denmark, 24 January 1935)

mathematics.

Juel's father, a judge, died the year after his son was born. The boy spent his youth in the country and attended the Realschule in Svendborg. At the age of fifteen he went to Copenhagen, where in 1871 he entered the Technical University. In January 1876, being more interested in pure science, he took the examinations for admission to the University of Copenhagen. Completing his university studies in 1879 with the state examination, he received his doctor's degree in 1885. From 1894 he was lecturer at the Polytechnic Institute, where in 1907 he became full professor. He occasionally lectured at the University of Copenhagen.

From 1889 to 1915 he was editor of the *Matematisk Tidsskrift*. In 1925 he became an honorary member of the Mathematical Association and in 1929 received an honorary doctorate from the University of Oslo. He married a daughter of T. N. Thiele, professor of mathematics and astronomy. Failing eyesight plagued him in later years.

Juel's writings include schoolbooks, textbooks, and essays. He made substantial contributions to projective geometry for the cases of one and two complex dimensions, and to the theory of curves and surfaces. His book on projective geometry is very similar in approach to that of Staudt but is easier to understand; his treatment of autocollincations goes beyond Staud's. Segré arrived at similar results independently.

In 1914 Juel devised the concept of an elementary curve, which is in the projective plane without straight-line segments and has the topological image of a circle and a tangent at every point. Outside these points a convex are can be described on each side. Thus an elementary curve consists of an infinite number of convex arcs passing smoothly one into another.

Juel, whose treatment of his subject was loose and incomplete, dealt mainly with fourth-order curves, developing the concept of the order of an elementary curve and setting up a correspondence principle and theory of inflection points. His third-order elementary curve is very close to a thrid-order algebraic curve but no longer has three points of inflection on one straight line.

Juel worked also on the theory of finite equal polyhedra, on cyclic curves, and on oval surfaces.

BIBLIOGRAPHY

I. Original Works. Juel's textbooks include *Vorlesungen über Mathematik für Chemiker* (Copenhagen, 1890); Elementar stereometri (Copenhagen, 1896); *Analytisk stereometri* (Copenhagen, 1897); *Ren og anvendt aritmetik* (Copenhagen, 1902); *Forlaesinger over rational mekanik* (Copenhagen, 1913; enl. ed., 1920); *and Vorlesungen über projektive Geometrie mit besonderer berücksichtigung der von staudtschen Imaginärtheorie* (Berlin, 1934).

His articles and essays *include Inledning i de imaginaer linies og den imaginaer plans geometrie* (Copenhagen, 1885), his dissertation; "Grundgebilde der projektiven geometrie" in *Acta mathematica*, **14** (1891);and "Parameterbestimmung von Punkten auf Kurven 2.und3.Ordnung", in Mathematische Annalen, **47** (1896), written with R. Clebsch; and three that appeared in *Kongelige Danske Videnskabernes Selskabs Skrifter*: "Inledning i laeren om de grafiske kurver" (1899); "Caustiques planes" (1902); "Égalité par addition de quelques polyèdres" (1902.)

The following articles appeared in Matematisk Tidsskrift: "Kegelsnitskorder des fra et fast punkt ses under ret vinkel" (1886); "Korder i en kugel, der fra et fast punkt ses under ret vinkel" (1887); "Vivianis theorem" (1891); "Transformationer af Laguerre" (1892); "Polyeder, der ere kongruente med deres speilbilleder af dobbelpunktstangenteren ved en rumkurve af **4** . order" (1897); and "Arealer ot voluminere" (1897).

II. Secondary Literature. Details concerning Juel's work can be found in David Fog, "The Mathematician C. Juel—Commemorative Address Delivered Before the Mathematical Association on March 18, 1935", in *Matematisk Tidsskrift*, **B** (1935), 3-15.

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