Thiele,Thorvald Nicolai | Encyclopedia.com

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(*b*. Copenhagen, Denmark, 24 December 1838; *d*. Copenhagen, 26 September 1910)

astronomy, mathematics, actuarial mathematics.

Thiele was the son of Just Mathias Thiele, a well-known Danish folklorist and art historian. While studying at the University of Copenhagen, young Thiele was awarded a gold medal for a paper on the geometry of the apparent course of a solar eclipse. In 1866 he took his doctorate, and from 1875 to 1906 he was professor of astronomy at the university and director of the university observatory.

Thiele's scientific work has been characterized by C. Burrau as "a treatment of numerical values derived from observations." If the word "observation" is taken in its widest sense, and if the word "treatment" is taken to mean a penetrating and original mathematical analysis, then this description must be regarded as apt. The topic of Thiele's dissertation was the determination of the orbit of the visual double star γ Virginis. He developed a new method of orbit determination, now known as the Thiele-Lnnes method (with some of the formulas later arranged for mechanical computation by Robert Innes). Thiele discussed the systematic errors in the observational material for this star and later for other double stars, using in particular the series of observations published in 1878–1879 by Otto W. Struve.

For many years Thiele continued and intensified his studies of the systematic and accidental errors of observation, thus approaching the field of actuarial mathematics. Indeed, for nearly forty years he was the manager of a life insurance company; in this work he satisfied his interest in the practical use of mathematics and numerical computations. In his scientific work, Thiele tried to discover, by means of numerical calculations, the laws for the distribution of the spectral lines of certain elements; and he was an early pioneer in the numerical search for solutions to the three-body problem, developing the Thiele (or Thiele-Burrau) transformation for this purpose.

The mathematical background of his work is given in his books *Theory of Observations* (1903) and *Interpolationsrechnung* (1909). Because of an eye disease, Thiele was unable to do any practical astronomical observation during much of his career, but he took an early part in the development of photography for astronomical purposes.

BIBLIOGRAPHY

I. Original Works. Thiele's books include *Undersøgelse af Omløbsbevaegelsen i Dobbeltstjernesystemet Gamma Virginis* (Copenhagen, 1866); *Almindelig lagttagelselaere: Sandsynlighedsregning og mindste Kvadraters Methode* (Copenhagen, 1889); *Elementaer lagttagelseslaere* (Copenhagen, 1897); *Theory of Observations* (London, 1903); and *Interpolationsrechnung* (Leipzig, 1909).

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II. Secondary Literature. Articles on Thiele are in *Dansk Biografisk Leksikon*,**XXIII** (1942), 503–506; and C. Burrau, in *Vierteljahrsschrift der Astronomischen Gesellschaft*,**46** (1911), 208–210; J. P. Gram, in *Nyt Tidsskrift for Mathematik*,**21B** (1910), 73–78; N. E. Nørlund, in *Fysisk Tidsskrift*,**9** (1910), 1–7; J. P. Gram, "Professor Thiele som Aktuar," in *Dansk Forsikringsaarbog*,**7** (1910), 26–37.

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