

The influence of Euclid's Elements on a Norwegian textbook in geometry from early 19th century

Bernt Michael Holmboe (1795–1850) was teacher at Christiania Kathedralskole in Norway from 1818 until 1826, and after that he was professor at the University in Christiania until his untimely death in 1850. Holmboe wrote several textbooks in mathematics, and he was one of the most influential persons in the development of school mathematics in the first half of the 19th century in Norway. He wrote textbooks in arithmetic, geometry, stereometry, trigonometry, and higher mathematics. These were the textbooks in mathematics that were predominantly used in the learned schools in Norway between 1825 and 1860. Holmboe's textbook in geometry came in four editions, 1827, 1833, 1851 and 1857, and they were, with one exception, used in all the learned schools in Norway in this period. Holmboe's presentation of the subject matter was in many ways "known to be" traditional and "Euclidean".

I will in my presentation analyse Holmboe's presentation of the subject matter in his textbook and compare that with the presentation of the subject matter in *The Elements* by Euclid. The textbook by Holmboe is an introduction to geometry so my emphasis will be on how basic concepts like straight lines and circles are presented compared to how these basic concepts are presented in Books I, II and III of *The Elements*.

The topic of this presentation will be a comparison of presenting subject matter in the Antiquities and early 19th century and will be a contribution to enrich the history of education with a comparative approach to the mathematical contents taught.

Only the two first editions of Holmboe's textbook in geometry were published in Holmboe's lifetime, and only these two will be part of this analysis.

The problematic topic of parallel lines is analysed and presented in a separate article under preparation and will only be briefly referred to here. Other topics of Holmboe's various textbooks are presented earlier in other published papers.

References

- Euclid (1956). *The Thirteen Books of the Elements*, volume I-III. Dover Publications, Inc., New York, Second Unabridged edition. Translated with Introduction and Commentary by Sir Thomas L. Heath.
- Euclid (2003). *Elements*. Green Lion Press. Translated from Greek by T.L. Heath (1861–1940).
- Holmboe, B.M. (1827). *Lærebog i Matematiken. Anden Deel, Inneholdende Begyndelsesgrundene til Geometrien*. Jacob Lehman, Christiania, First edition.
- Holmboe, B. M. (1833). *Lærebog i Matematiken. Anden Deel, Inneholdende Begyndelsesgrundene til Geometrien*. Jacob Lehman, Christiania, Second edition.

Andreas Christiansen
Associate Professor em.

Western Norway University of Applied Sciences,
Faculty of Education, Arts and Sports