Braikenridge (Brakenridge), William | Encyclopedia.com

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(*b. ca*. 1700; *d*. 30 July 1762)

mathematics.

The precise date and the place of Braikenridge's birth are not known. He lived in a period of intense mathematical activity, one that abounded in illustrious mathematicians: the Bernoullis, Maclaurin, and Brook Taylor, to name but a few. Newton was still in his prime, but his interest in mathematics had begun to wane (no doubt as a result of his important duties as master of the Mint).

The main lines of development in mathematics at this time were the extension and systematization of the calculus, the further study of the ory of equations, and a revival of interest in geometry. It was in the last of these that Braikenridge excelled, and it is upon his *Exercitatio geometrica de descriptione linearum curvarum* (1733) that his reputation mainly rests.

This work is divided into three parts, and its scope is indicated by their titles: "De descriptione curvarum primi generis seu linearum ordinis secundi," "De descriptione linearum cujuscunque ordinis ope linearum ordinis inferioris," and "Ubi describuntur sectiones conicae ope plurium rectarum circa polos moventium."

The study of the properties of curves has always been an inexhaustible subject of speculation and research among geometers. Colin Maclaurin had already published his *Geometria Organica* (1720), which contained an elegant investigation of curves of the second order by regarding them as generated by the intersection of lines and angles turning about fixed points, or poles. Many of Maclaurin's theorems were discovered independently by Braikenridge, notably the Braikenridge–Maclaurin theorem: If the sides of a polygon are restricted so that they pass through fixed points while all the vertices except one lie on fixed straight lines, the free vertex will describe a conic or a straight line. A general statement of this appeared in 1735 in the *Philosophical Transactions* (no. 436), and a dispute at once arose regarding priority. Braikenridge, in the Preface to the *Exercitatio*, maintained that as early as 1726, when he was living in Edinburgh, he had discovered many of the propositions contained in that work and had actually discussed some of them with his contemporaries, including Maclaurin. There followed a lively correspondence between the two men which, however, it would be profitless to discuss here.

About the middle of the century, interest in the geometry of curves began to languish. It was revived, however, when a group of French mathematicians— Monge, Carnot, Poncelet—by employing projective methods, gave the study a fresh impetus.

Braikenridge was a noted theologian, and for many years he was rector of St. Michael's, Bassishaw, London. On 6 February 1752 he was elected fellow of the Royal Society of Antiquaries, and on 9 November of the same year he became a fellow of the Royal Society.

Braikenridge contributed a number of papers to the *Philosophical Transactions*. Their titles reflect the wide range of his interests: "A General Method of Describing Curves, by the Intersection of Right Lines, Moving About Points in a Given Plane"; "A Letter… Concerning the Number of Inhabitants Within the London Bills of Mortality"; "A Letter… Concerning the Method of Constructing a Table for the Probabilities of Life in London"; "A Letter… Concerning the Number of People in England"; "A Letter… Concerning the Present Increase of the People in Britain and Ireland"; "A Letter… Containing an Answer to the Account of the Numbers and Increase of the People of England by the Rev. Mr. Forster"; "A Letter Containing the Sections of a Solid, Hitherto not Considered by Geometers."

BIBLIOGRAPHY

Works concerning Braikenridge are Moritz Cantor, *Vorlesungen über Geschichte der Mathematik*, III (Leipzig, 1894–1898), 761–766, 773; and J. F. Montucla, *Histoire des mathématiques*, III (Paris, 1799–1802), 87.

J. F. Scott