

John Napier, Laird of Merchiston

Born 1550, Merchiston Castle, Edinburgh, Scotland; died April 3, 1617, Edinburgh, Scotland; developer of logarithms, the “bones “ which bear his name, a (binary) chessboard computer, and the promptuary.



Little is known of Napier's younger years, although the Bishop of Orkney encouraged his parents to “send your son Jhone to the schuyllis; over to France or Flanderis; for he can leyr na guid at hame, nor get na proffteitt in this maidst perullous worlde.” By 1563 (at 8 years of age) he matriculated at St. Salvatore's College, St. Andrews, although there is no evidence of his having graduated afterwards. Perhaps Napier studied on the continent, as was the tradition among the gentry, but he returned to Scotland in 1571, when plans were commenced for him to marry Elizabeth Stirling and to construct a castle at Gartness, where he and his wife took up residence in 1574. Apparently this was a period when Napier was most involved in religious matters and after some involvement with the Protestant movement, he published his first book, *A Plaine Discovery of the Whole Revelation of Saint John*, in 1593. In true Protestant tradition,

the treatise interpreted St. John's writings to show that the Pope was also the anti-Christ. During these years Napier had also been working on his other avocation mathematics-and had commenced writing a book on the art of reckoning, but had abandoned it in favor of his discovery of logarithms, although the latter did not appear in print until 1614. His work on logarithms is all the more astounding when one realizes the restrictions under which he worked-the lack of a notation for a power series, the absence of the decimal point notation, and the only recent introduction of the concept of decimal fractions. The impact of logarithms on the scientific world was immense, and led to the invention of the slide rule, a device which was predominant in calculations for three and a half centuries.

Napier was not satisfied with his invention of logarithms but needed to produce tables of logarithmic values, a task which was not substantially assisted by the existence of logarithms themselves. Napier needed assistance in the computation of logarithmic values, especially in the process of multiplication. He developed the *Rabdologia*, otherwise known as “Napier's bones,” to solve this problem. His book on this subject contained the first printed reference to the decimal point and descriptions of two other devices which have not been the subject of extensive review-the “promptuary,” an extension of the bones which permitted the multiplication of two multidigit numbers, and the “chess-board computer” for location (positional) arithmetic. The latter is unique in its use of binary notation, although it is not clear that Napier based the design on that notation. With respect to each of these devices, Napier extended their potential to provide the capability of performing a number of additional arithmetic operations including root taking, and finding the diameters and side lengths of polygons.

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UPDATES

Portrait added (MRW, 2013)