Sporus of Nicaea | Encyclopedia.com

(*fl*. second half of third century)

mathematics.

Little is known of Sporus. The juxtaposition of available historical data makes it likely that he came from Nicaea, was a pupil of Philo of Gadara, and was either the teacher or a slightly older fellow student of Pappus of Alexandria. Our knowledge of Sporus' activities stems only from such secondary sources as the works of Pappus and the writings of various commentators, among them Eutocius and Leontius, a seventh-century engineer.[1] Most historians, with the notable exception of J. L. Heiberg, agree that Sporus was the author of a work entitled Κηρία noted by Eutocius.[2] They interpret a second reference by Eutocius to an anonymous Κηρία Ἀριστοτελικά[3] as a subsection of Sporus' work, but Heiberg believes this to be a reference to Aristotle's *De sophisticis elenchis*.

From the above sources it appears that Sporus concerned himself intensively with two mathematical problems; that of squaring the circle and that of doubling the cube.[4] Like many Greek mathematicans who attempted to solve them, he was aware that neither has a solution by means of ruler and compass alone. The close relationship of both problems to limiting processes[5] suggests that Sporus was also interested in questions dealing with approximation, since he reportedly criticized Archimedes for having failed to approximate the value of π more accurately.[6]

The value of the ancient Greeks' preoccupation with special mathematical problems of this type clearly lies in the by-products that this study produced. The squaring problem led to the development of special curves, the quadratrix of Hippias, for example: and the doubling-of-the-cube problem resulted in Menaechmus' discovery of the theory of conic sections and produced a refinement of the theory of proportions. Sporus seems to have contributed to the study of these problems chiefly through his constructive criticism of existing solutions. Indeed, his own solution of the doubling-of-the-cube problem essentially coincides with that of Pappus.

Sporus' writings seem to have been a fruitful source of information for Pappus and later scholars. Pappus, in particular, appears to have valued Sporus' reputation and judgment, since he quoted Sporus in support of his own criticism of the use of the quadratrix in the solution of the squaring problem.

Sporus' nonmathematical writings are known essentially only by topics, through references to them in Maass's *Analecta Eratosthenica* and *Commentariorum in Aratum reliquiae*. They consist of scientific essays on subjects such as the polar circle, the size of the sun, and comets. His literary achievements are reported to include a critical edition of the Φαινομενά of Aratus of Soli.

NOTES

1. E. Maass, *Analecta Eratosthenica*, pp. 45, 47–49, 1939, and *Commentariorum in Aratum reliquiae*, p. lxxi.

2. J. L. Heiberg, *Archimedis opera omnia*, 2nd ed.. III, p. 258.

3. *ibid*., p. 228.

4. T. L. Heath, *A History of Greek Mathematics*. I, pp. 226, 229–230, 234. 266–268.

5. *ibid*., pp. 230, 269.

6. J. L. Heiberg, *Archimedis opera omnia*. 2nd ed., III. p. 258.

BIBLIOGRAPHY

See T. L. Heath, *A History of Greek Mathematics*, I (Oxford, 1921), 226, 229–230, 234, 266–268: J. L. Heiberg, ed., *Archimedis opera omnia*, 2nd ed., III (Leipzig, 1915), 228, 258: F. Hultsch, ed., *Pappus, Collectionis quae supersunt*, I (Berlin, 1878), 252: *Lexikon der alten Welt* (Zurich, 1965), 2863: E. Maass, *Analecta Eratosthenica* (Berlin, 1883), 45–49,

139: and *Commentariorum in Aratum reliquiae* (Berlin, 1898), lxxi: Pauly-Wissowa, *Real-Encyclopädie der classischen Altertumswissenschaft*, 2nd ser., III, 1879–1883; G. Sarton, *Introduction to the History of Science*, I (Baltimore, 1927), 331, 338; P. Tannery, "Sur Sporos de Nicée," in *Annales de la Faculté des lettres de Bordeaux*, **4** (1882), 257–261.

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