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(*fl*. sixth century a.d., in the time of Justinian)

architecture, mathematics.

The son of Stephanus, a physician, Anthemius came from a learned family of Tralles in western Asia Minor. One of his brothers, Metrodorus, was a man of letters; another, Olympius, was a lawyer; and tow others, Discorus and Alexander, were physicians. Together with Isidorus of Miletus and under the partronage of Justinian, Anthemius undertook in a.d. 532 the replacing of the old church of Hagia Sophia in Constantinople. Anthemius and Isidorus are said also to have been employed by Justinian in the repair of the flood defenses at Daras. An anecdote relates that Anthemius persecuted a neighbor and rival, Zenon, by reflecting sunlight into his house. He also produced the impression of an earthquake in Zenon's house by the use of steam led under pressure through pipes connected to a boiler.

Anthemius' interest in conic sections as well as in reflectors is shown by the work *On Remarkable Mechanical Devices* (first edited in modern times by L. Dupuy in 1777, although it was known to Ibn al-Haytham [Alhazen] and Vitello). A mathematical fragment from Bobbio concerned with parabolic burning mirrors is sometimes attributed to Anthemius but may well be of early Hellenistic origin. Eutocius dedicated his *Commentaries* on Books I to IV of the *Conics* of Apollonius to Anthemius. The problem of how to contrive that at any hour and season a ray of the sun, passing through a small aperture, shall fall in a given spot without moving away was solved by Anthemius. He describes the construction of an elliptical reflector with one focus at the aperture and the other at the point to which the ray is to be reflected. Both winter and equinoctial rays are considered. In his treatment, Anthemius incidentally mentions the construction of an ellipse by means of a loop of string drawn closely around the foci. He also uses a proposition not made explicit in the *Conics*: that the straight line joining the focus to the intersection of two tangents bisects the angle between the two straight lines joining the focus to the two points of contact. Another construction shows how parallel rays may be reflected to one point at the focus of a parabolic reflector.

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