

1077-01-2662 **Henry T. Zepeda*** (henry.t.zepeda@hotmail.com), 601 Elm, Phys. Sci. Center, Room 625,
Norman, OK 73019. *Proportion Theory in Medieval Astronomical Works*.

In Book 1 of his *Almagest*, Ptolemy proves several trigonometric theorems that are necessary for his astronomy. Among these is the Menelaus theorem which deals with the relationships of arcs on the surface of a sphere. Because this proposition involved the use of compound ratios, ratios made out of other ratios, proportion theory was necessary for its understanding. Because this proof was difficult and so fundamental to astronomy and astrology, medieval scholars wrote several treatises to explain it, and many commentaries and glosses on the *Almagest* treated this theorem at length. In these explanations of the theorem, the nature of compound ratios and how to deal with them became a popular topic. Two different understandings of what it meant for a ratio to be made from other ratios were used. These two different conceptions of ratio found in these works influenced the proportion theory of the later Middle Ages and were used extensively in all branches of mathematics as well as in natural philosophy. (Received September 22, 2011)