THE UNIVERSITY   **OF HONG KONG**

Department of Mathematics

COLLOQUIUM

Archimedes' Stomachion: The World's Oldest Puzzle

Professor D.G. Rogers
Institute of Informatics, University of Bergen, Norway

Abstract

Archimedes' Stomachion, a game based on a geometrical dissection, has been called *"the World's Oldest Puzzle"*. It has been in the news again, with progress in reading the Archimedes Codex eliciting a novel combinatorial interpretation. No examples are known to have survived, making both moves and board something of a puzzle in themselves. The presumption that the board is a square is open to challenge: such a board is difficult to fabricate and awkward to use, on account of the sharp angles required; and most likely the Arabic text has been mistranslated. But, in reappraising the subject afresh, what tells most against the square board, and in favour of a double square board, is the geometry that, strangely enough, seems to be have been overlooked. Our review also returns to focus figures from the previous century, notably Richard Oldham, FRS (1858--1936), better known for identifying the Earth's core, who proposed a double square board in a letter to Nature in 1926.

The Stomachion board also has suggestive Archimedean echoes. Whether square or double square, the board features several centroids of triangles that help determine the proportional areas of the pieces of the dissection. The principal lines of the dissection give a geometrical approach to recurrence relations and rational approximations, to the square root of 2 in the case of the double square board and to the Golden Ratio in the case of the square board.

Date:	November 20, 2009 (Friday)
Time:	4:00 – 5:00pm
Place:	Room 210, Run Run Shaw Bldg., HKU

All are welcome