



Mathematics Colloquium

Euclid Mathematically and Historically

BY

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Abstract: The Mathematics can save the world, not through a theorem or application, but as an example of an endeavor where

(1) differences can and must be resolved peacefully;

(2) dissent is encouraged; and

(3) wealth has to be shared to be recognized, and then only gains in value. Nonetheless, in trying to share in the wealth of mathematical knowledge, we have to think historically as well as mathematically, particularly when the wealth comes down to us from Ancients such as Euclid.

The thirteen books of Euclid's Elements have given us a paradigm of mathematical exposition, with axioms and postulates at the beginning, definitions as needed, and propositions stated and proved.

We may have improved on the model; but sometimes we misunderstand it. In Greek, the root meaning of γεωμετρία, *_geometria_*, is surveying. Herodotus of Halicarnassus (today's Bodrum) said the Greeks had learned *_geometria_* from the Egyptians. However, the mathematics that Euclid went on to work out, presumably in Alexandria, did not follow naturally from a need to measure land lost to the annual flooding of the Nile. Neither does Euclid's meaning follow naturally from a superficial reading of his words today. Anistoresy, a-historicity, as for example concerning equality and proportion, can lead to misunderstanding and even misdiagnosis of logical error in Euclid. In some ways Euclid's mathematics is more rigorous than ours.

Date: 7 March 2018, Wednesday

Time: 15:40 – 16:30

Place: Mathematics Seminar Room, Bilkent.

Tea and cookies will be served after the seminar.