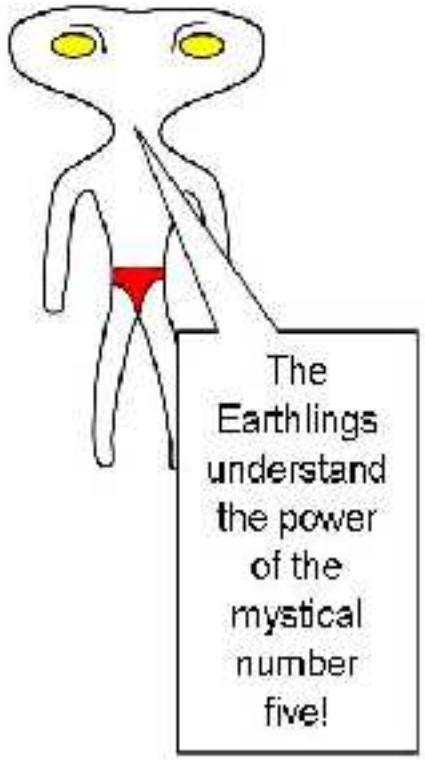
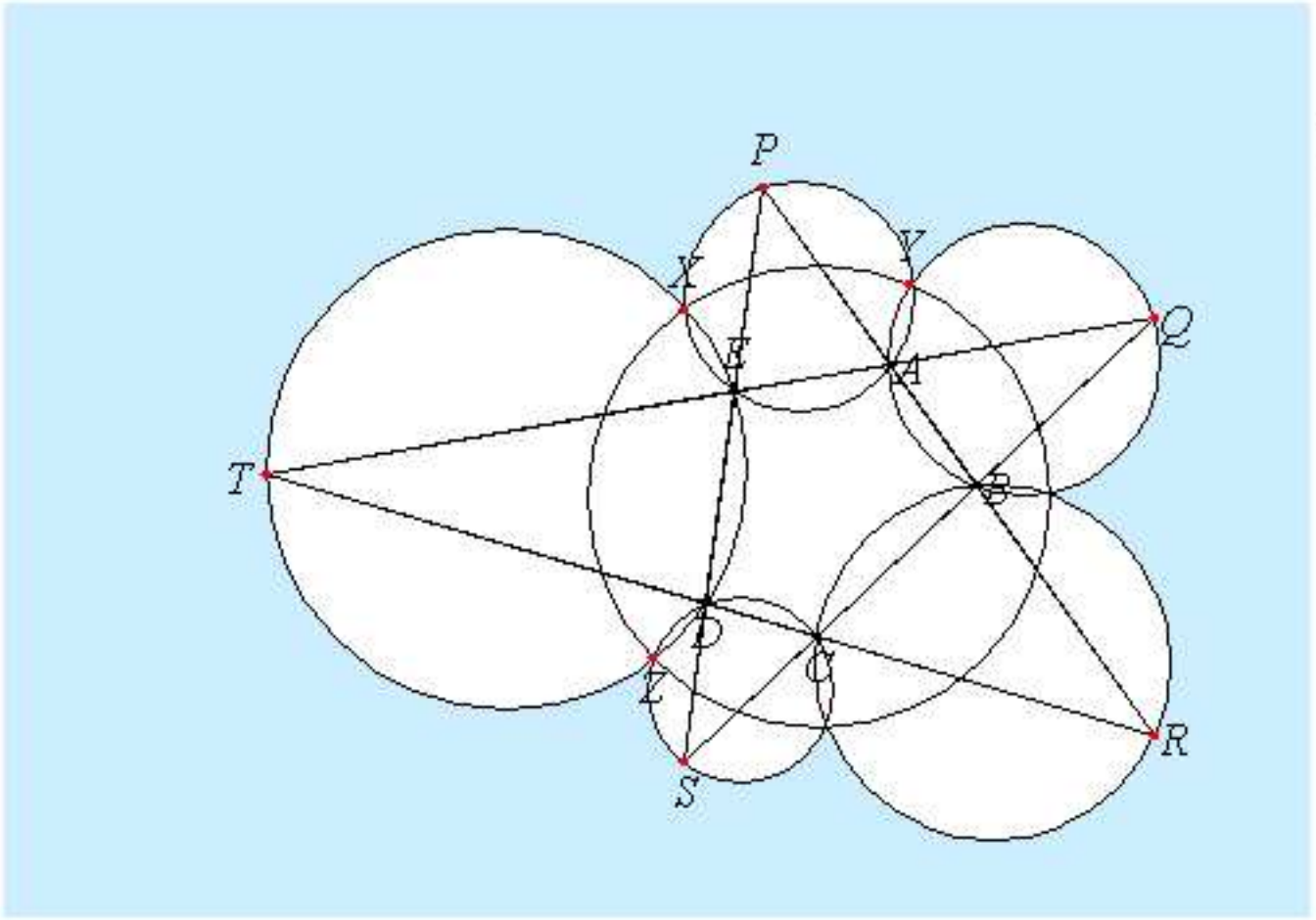
THEOREM OF THE DAY

The Five Circle Theorem *Let the five sides of a pentagon ABCDE be extended until they intersect in five points P, Q, R, S and T, say. Then the five circumcircles of triangles BQA, APE, ETD, DSC and CRB intersect with each other in five distinct points, not lying on the pentagon and lying on a common circle.*





Here the points *X*, *Y* and *Z* having been made to coincide with three intersection points, their circumcircle is seen automatically to coincide with a further two points of intersection.

Auguste Miquel taught mathematics in Nantua in the French Alps, and in Castres, where Fermat died nearly two hundred years earlier. He published this, and a number of other theorems relating to the geometry of circles, between 1838 and 1846.

Web link: agutie.homestead.com/Files/miquel_pentagram1.htm

Further reading: *Episodes in Nineteenth and Twentieth Century Euclidean Geometry,* by Ross Honsberger, The MAA, 1996.