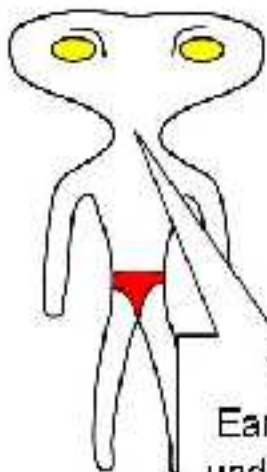


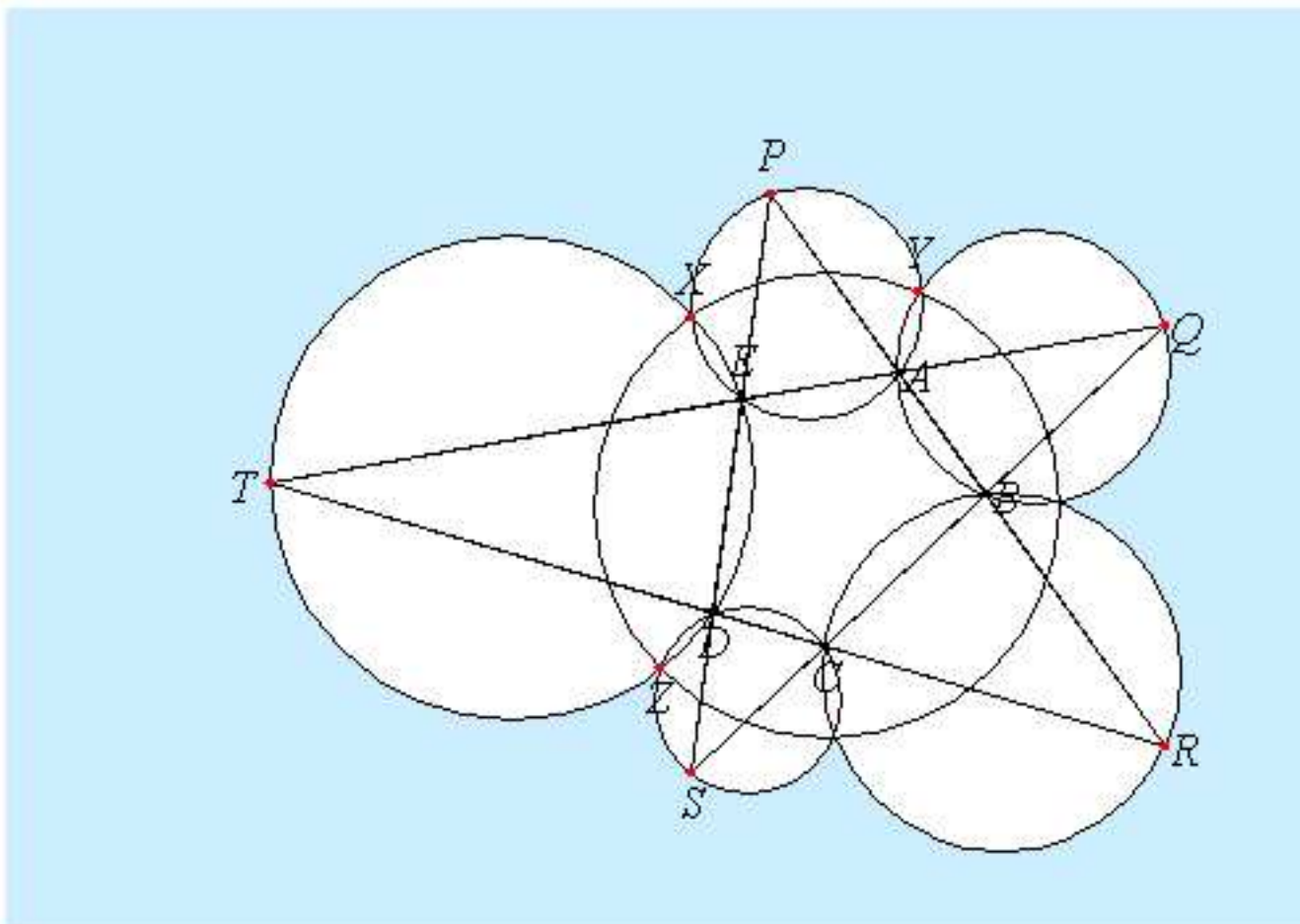


# THEOREM OF THE DAY

**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.



The Earthlings understand the power of the mystical number five!



We must flee their planet!

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:** [royalsocietypublishing.org/toc/rspa/465/2104](http://royalsocietypublishing.org/toc/rspa/465/2104): the article by Schief and Konopelchenko

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

