Note on the preceding Locus.

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The perpendicular from A on BC $= AB \cdot AC/2R$, which is constant.

Describe a circle with centre A and radius $m^2/2R$. This, which may be called the perpendicular circle, will touch each position of the base, and therefore will touch FG.

Now AD is the axis of the inscribed and the perpendicular circles, and BDC is a common tangent.

Therefore D is their external centre of similitude.

But FG touches the perpendicular circle.

Therefore it touches the inscribed circle.

We have now to find the locus of a point whose distance from a fixed line $= r$ and from a fixed point (the circumcentre) $= \sqrt{R^2 - 2Rr}$, which can easily be proved to be a circle.

The triangle and its escribed parabolas.

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In what follows, a triangle ABC is taken, from it another triangle A′B′C′ is formed so that

A is the mid point of B′C′,
B is the mid point of C′A′,
and C is the mid point of A′B′.

From A′B′C′ another triangle A″B″C″ is similarly derived.

If a parabola escribed to ABC touch BC at P, CA at Q, and AB at R, we have shown that AP, BQ and CR intersect in a point O, the locus of which is the minimum ellipse circumscribing ABC.

The equation of PQ is

$$n(x-a) = l(y-b)$$

whence PQ passes through C′.
Similarly QR passes through A′,
and RP passes through B′.