# Points relating to the locus theorem (see p 29 & Fig 3)

The extent of the locus of I depends on the position of the line AB in relation to the circle C1. There are three case to consider.
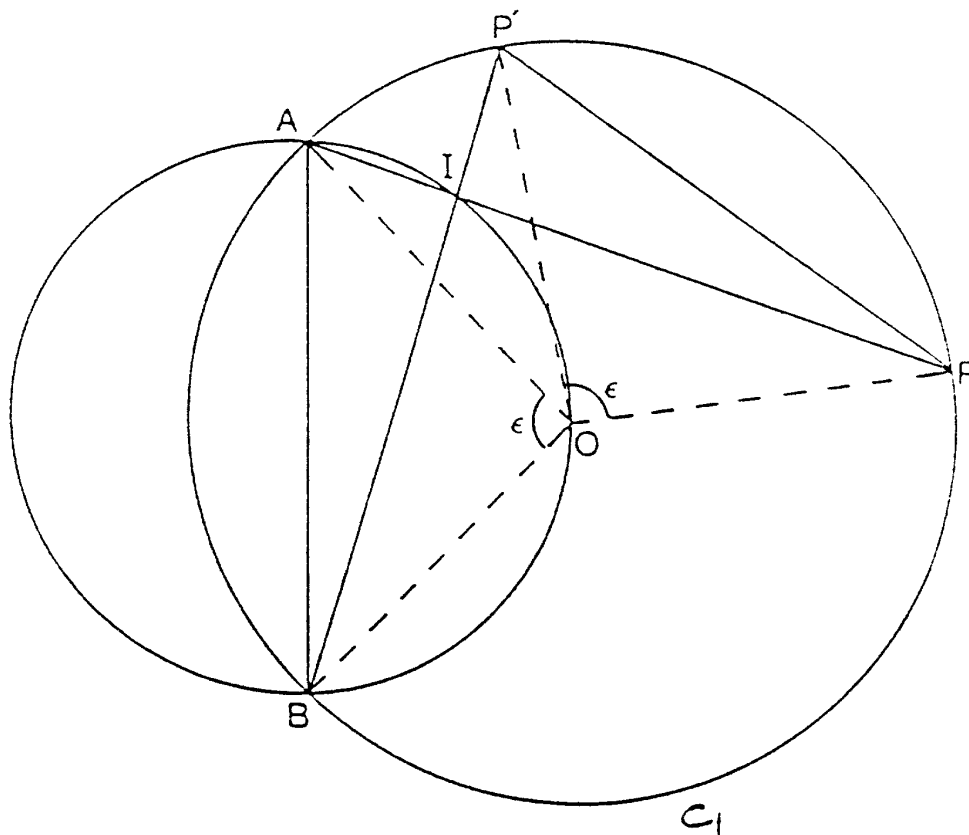
(a) AB outside/on the circle.

If the line AB is *outside* the circle, the locus I is the arc $I_1 O I_2$, as discussed in the Maths Gaz article. If the line AB *touches* the circle C1 (at M), then the locus I is the arc AOB.
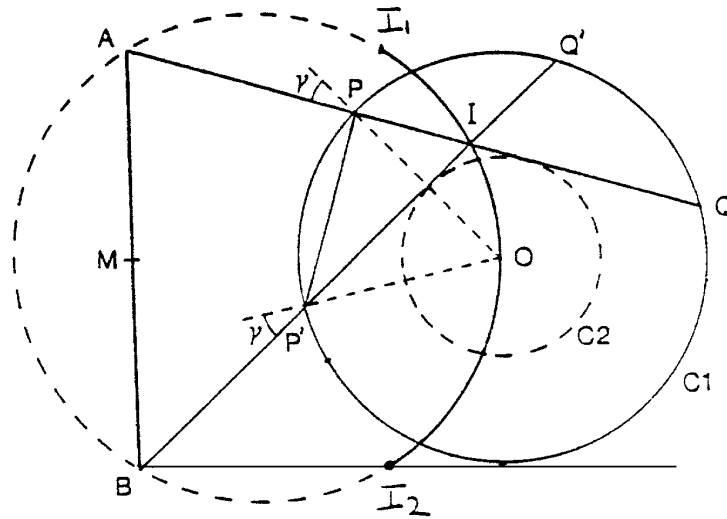
(b) AB is a chord of the circle C1 (see figure below).

In this case one revolution of the chord PP' results in the intersection I making one complete revolution of the circle ABO.

(c) AB is inside the circle C1 (see figure below).

In this case, one revolution of the chord PP' results in the intersection I making *two* complete revolutions of the circle ABO.