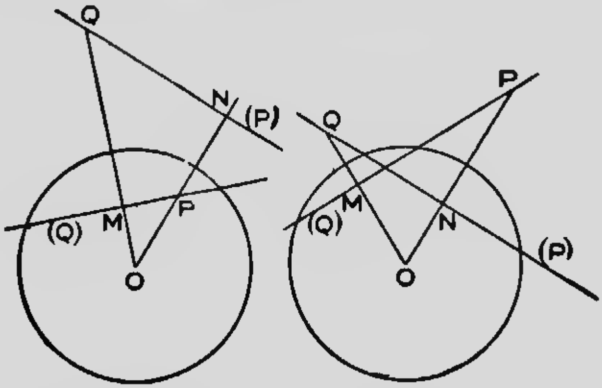
tended at the centre by any two points P and Q is equal to one of the angles which the polars of P and Q make with one another.

PROP. 29. **If Q lie on the polar of P, then P must lie on the polar of Q.**



Let (P) be polar of P, and let Q be any point on (P).

Then the polar of Q *passes through* P.

Join OQ, and draw PM perpendicular to OQ. Then the angles at M and N being right angles, a circle may be described to pass through the points P, M, Q, N.

Therefore $OQ \cdot OM = OP \cdot ON = (\text{radius})^2$.

Hence PM is the polar of Q, and P lies on the polar of Q.

PROP. 30. **A chord of a circle is divided harmonically by any point on it and the polar of that point.**

Let AB be any chord of the circle through P; and let (P) be the polar of P, cutting AB in Q.

Then AB *is divided harmonically in* P *and* Q.