Some New Properties of the Triangle.

By J. S. MACKAY, M.A., LL.D.

[The substance of this communication will be included in Dr Mackay's paper on *The Triangle* in the first volume of the *Proceedings*, which is about to be printed.]

Proofs of some optical theorems.

By WILLIAM PEDDIE, D.Sc.

[The results of this paper will be contained in Dr Peddie's book on Physics, which will appear in a short time.]

Second Meeting, December 12th, 1890.

R. E. ALLARDICE, Esq., President, in the Chair.

On the condition that the straight line $lx + my + nz = 0$ should be a normal to the conic $(a, b, c, f, g, h)(x, y, z)^2 = 0$ the co-ordinates being trilinear.

By R. H. PINKERTON, M.A.

1. The condition in question may be found by using the following theorem :—

If the equation in trilinear co-ordinates

$$F(x, y, z) \equiv (u, v, w, u', v', w')(x, y, z)^2 = 0 \quad .. \quad (A)$$

represents a pair of straight lines, then the line whose equation is

$$lx + my + nz = 0 \quad \dots \quad \dots \quad \dots \quad (B)$$

will be perpendicular to one of those lines if

$$F(l - m\cos C - n\cos B,\ m - n\cos A - l\cos C,\ n - l\cos B - m\cos C) = 0 \quad (C)$$

where A, B, C are the angles of the fundamental triangle.

https://doi.org/10.1017/S0013091500030686 Published online by Cambridge University Press