

7. Preliminary Note on a New Method of Investigating the Properties of Knots. By Professor Tait.

As we cannot have knots in two dimensions, and as Prof. Klein has proved that they cannot exist in space of four dimensions, it would appear that the investigation of their properties belongs to that class of problems for which the methods of quaternions were specially devised. The equation

$$\rho = \phi(s),$$

where ϕ is a periodic function, of course represents any endless curve whatever. Now the only condition to which variations of this function (looked on as corresponding to *deformations* of the knot) is subject, is that *no two values of ρ shall ever be equal* even at a *stage* of the deformation. Subject to this proviso, ϕ may suffer any changes whatever—retaining of course its periodicity. Some of the simpler results of a study of this novel problem in the theory of equations were given,—among others the complete representation of any knot whatever by three closed plane curves, non-autotomic and (if required) non-intersecting.

The following Gentlemen were elected Ordinary Fellows of the Society:—

ROBERT A. MACFIE, Dreghorn, Colinton.
WILLIAM STIRLING, Sc.D., M.D.

Monday, 21st May 1877.

PROFESSOR KELLAND, Vice-President, in the Chair.

The following Communications were read:—

1. On the Cranial Osteology of Rhizodopsis, and on some points in the Structure of Rhizodus. By Dr R. H. Traquair.

2. Notice of Recent Earthquake Shocks in Argyleshire in 1877. By David Stevenson, Civil Engineer.

Two earthquake shocks have lately occurred in Argyleshire of so decided a character that a description of their effects, as observed