by which the position of the needle with respect to the magnetic meridian, when at rest, is determined. In the case of the astatic needle the preceding equation becomes

$$\tan u_0 = \frac{-M'}{M-M'} \cdot \delta \sin 1'. \qquad (6)$$

From this we learn,

1. That the tangent of the angle of deviation of the astatic needle from the magnetic meridian varies, *cæteris paribus*, as the angle, δ, contained by the magnetic axes of the two component needles.

2. That however small that angle be, provided it be of finite magnitude, the tangent of the deviation may be rendered as great as we please, and therefore the deviation be made to approach to 90° as nearly as we please, by diminishing the difference of the moments of the two needles.

Sir W. R. Hamilton communicated the following double mode of generation of an ellipsoid, which had been suggested to him by his quaternion formulæ.

Conceive two equal spheres to *slide* within two cylinders, in such a manner that the right line joining their centres may remain parallel to a fixed line; then the locus of the varying circle in which the two spheres intersect each other will be an *ellipsoid*, inscribed at once in both the cylinders, so as to touch one cylinder along one ellipse of contact, and the other cylinder of revolution along another such ellipse.

And the *same* ellipsoid may also be generated as the locus of *another* varying circle, which shall be the intersection *of another pair of equal spheres*, sliding within the same pair of cylinders, but having their line of centres constantly parallel to another fixed line. Every ellipsoid can be generated by the above double mode of generation.

Professor Graves read the first part of a paper on the Ogham Character.