

distances of the plates, and also the distance of the gold leaves from one another, new conditions are supplied for the more exact determination of the relative inductive powers of dielectrics of every description; and by sufficiently reducing the dimensions of the instrument, it may be rendered applicable to comparatively small masses of dielectrics, such as crystals, and even diamonds. An instrument capable of such universal application the author proposes to designate by the name of *Differential Inductometer*.

Also read, a Letter addressed to P. M. Roget, M.D., Secretary to the Royal Society, by James Ivory, Esq., F.R.S., accompanying a paper on Astronomical Refractions. Communicated by Dr. Roget.

The author adverts in this letter to the attempts made by Newton to solve the problem of atmospherical refractions, which were baffled by the experience that the observed quantities fall far short of the theoretical deductions; whence he justly inferred that some new cause must be sought for capable of effecting that change in the density of the lower part of the atmosphere which is required for reconciling theory with observation. It becomes necessary, in particular, to investigate the law according to which the temperature diminishes as the height increases. The initial value of the rate of diminution has to be determined by experiment; and the introduction of this new element into the equation of an atmosphere in equilibrium must be an approach to the true solution of the problem of the refractions, and is indispensable if arbitrary assumptions are to be avoided. The author proceeds to notice Laplace's solution, which, though highly ingenious, is nevertheless hypothetical; and he adverts to the want of precision exhibited in Biot's dissertation on the influence which the presence of aqueous vapour in the air has on the refractions: but refers to the paper which accompanies his letter for the further explanation of his views on this subject.

A paper was also in part read, entitled, "On the Theory of the Astronomical Refractions," by James Ivory, Esq., K.H., M.A., F.R.S., &c.

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May 10, 1838.

FRANCIS BAILY, Esq., V.P. and Treas., in the Chair.

The reading of Mr. Ivory's paper "On the Theory of Astronomical Refractions," was resumed.

The Society then adjourned, in consequence of the 17th having been fixed for celebrating Her Majesty's Birth-day, to meet again on the 24th instant.

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