Young, and figured in his *Lectures on Natural Philosophy*. The original conception, however, seems to be due to Newton, who gives the complete theory, with an indication of a construction in his *Optics*.

The success of this method depends entirely on the truth of the supposition that there are three elements of colour as seen by the eye, every ray of the spectrum being capable of exciting all three sensations, though in different proportions. It is at present impossible to define the colours appropriate to these sensations, as they cannot be excited separately. But it appears probable that the phenomena of colour-blindness are due to the absence of one of these elementary sensations, and, if so, a comparison of colour-blind with ordinary vision will show the relation of the absent sensation to those with which we are familiar.

A method was then described, by which one observation by a colour-blind eye was made to determine a certain point representing the absent sensation, which thus appears to be a red approaching to crimson. The results of this hypothesis were calculated in the form of "equations of colour-blindness" between colours which seem to defective eyes identical. These equations were compared with those previously determined from the testimony of two colour-blind but accurate observers, and found to agree with remarkable precision, rarely differing by more than 0·02 in any colour. The effect of red and green glasses on the colour-blind was then described, and a pair of spectacles having one eye red and the other green was proposed as an assistance to them in detecting doubtful colours.

2. Notice of the Occurrence of British newer Pliocene Shells in the Arctic Seas, and of Tertiary Plants in Greenland. In a letter from Dr Scoular of Dublin. Communicated by James Smith, Esq., of Jordanhill.

Dr Scoular writes :—

"I have lately had the opportunity of examining a series of fossils from high arctic latitudes, brought home by Captain M'Lintock, R.N. The series in one sense is extensive, as there are Silurian and oolitic shells, and also other fossils of the tertiary times. Among these last there are some things which, I am sure, will be of interest to you. Among the specimens are some recent and living shells

from Baring's Island, of which I will send you a list when I determine the species. In the meantime, I may state with full confidence that the variety called Mya udevallensis, so common a fossil with us and in Sweden, is still a living species at Baring's Island. The truncated form of the shell, and the palliar impressions, are those of the M. udevallensis, and not those of the modern M. truncata. On the truth of this you may fully rely, and also that the shells were taken with the animal in them.

"In the collection there are also some fossil plants from Greenland. They are not, however, carboniferous; but to my surprise tertiary, and of the same character as those of the Mull formation. I could not find any difference between them and the fossil leaves from Mull, but I cannot at present command the paper by the Duke of Argyll; however, I have not the smallest doubt of the identity of the formation and species."

The following Gentleman was elected an Ordinary Fellow :—

Dr Wyville Thomson, Professor of Geology, Belfast.

Monday, 2*d April* 1855.

Dr CHRISTISON, Vice-President, in the Chair.

The following Communications were read :—

1.—Account of Experiments to ascertain the amount of Prof. Wm. Thomson's "Solar Refraction." By Prof. C. Piazzi Smyth.

After alluding to the excessive difficulty of ascertaining the presence and nature of a resisting medium in space, by planetary or cometary perturbations, the author reminded the meeting of the statements made in those rooms last year, that one of the consequences to which the dynamical theory of heat had led him, was the necessity of the existence of a medium filling space; that such medium was but an extension of our own atmosphere, and must experience a condensation in the neighbourhood of the sun; and that there must consequently arise a certain refraction of any heavenly body seen through such medium.

Impressed, therefore, with the importance of endeavouring to get by these means some further light in regard to the long vexed ques-