III. "On the Tides of the Arctic Seas.—Part II. The Semidiurnal Tides of Port Leopold, North Somerset." By the Rev. Samuel Haughton, M.A., F.R.S., Fellow of Trinity College, Dublin. Received October 8, 1862.

(Abstract.)

The first part of the author's researches on the Tides of the Arctic Seas was forwarded to the Royal Society in November 1861, and contained the discussion of the Diurnal Tides of Port Leopold. In the present communication the Semidiurnal Tides of the same port are discussed, and the following results obtained. The eccentricity of the moon's orbit is calculated from the parallactic inequality, and found to be 0·5303.

The solitidal interval is 56^m.

The lunitidal interval $4^h\ 54^m$.

The ratio of the solar to the lunar coefficient is found to be 0·3956.

The mass of the moon $\frac{1}{71\cdot11}$th.

And the depth of the Atlantic is calculated from received tidal theories. The most probable results are found to be,—

From semidiurnal tidal intervals . . 3·529 miles.

From diurnal coefficients . . . . . 3·690 „

There are other values of the depth of the sea, much greater than these, which follow from other considerations of the tidal theory; and the author is unable to explain why theory should give results so different. The preceding, however, he believes to be most in accordance with facts.

IV. "On the Action of Chloride of Iodine on Iodide of Ethylene and Propylene Gas."—Second Notice. By Maxwell Simpson, M.B., F.R.S. Received October 23, 1862.

In my last communication to the Society* I announced that a body having the composition expressed by the formula $C_4 H_4 I Cl$ was formed when iodide of ethylene was subjected to the action of chloride of iodine. I have since ascertained that the same body may be obtained by the direct action of ethylene gas on the latter reagent. By this process it can be prepared in large quantity with great facility.

* Proceedings, vol. xi. p. 590.