4. On a New Form of Mariner's Compass.
By Sir William Thomson.

Monday, 6th April 1874.

SIR WILLIAM THOMSON, President, in the Chair.

The following Communications were read :—

1. Further Note on Spectra under exceedingly Small Pressures. By Professor Tait and James Dewar, Esq.

2. On the After-glow of Cooling Iron at a Dull-Red Heat. By George Forbes, Esq.

The facts to be explained were observed by Messrs Gore and Barrett, and were described by the latter gentleman in the "Philosophical Magazine" for 1873.

The experiments are performed on an iron or steel wire of no great thickness. When this is heated to an intense white heat and allowed to cool, the following facts appear at the instant it has cooled down to a dull-red heat :—

1. The wire expands for an instant, and then continues its normal contraction.

2. The glow from the wire is at the same instant seen to increase.

3. The temperature of the air round the wire is at the same instant increased.

4. The same facts are seen when the wire is in an atmosphere of hydrogen.

5. If the wire be very thin the cooling is so rapid that the effects are not observed.

6. If the iron be massive the effects are not observed.

7. If the wire be not originally heated up to an intense white heat the effects are not observed.

That iron should increase its temperature at a dull-red heat