

*February 27, 1902.*

Sir WILLIAM HUGGINS, K.C.B., D.C.L., President, in the Chair.

A List of the Presents received was laid on the table, and thanks ordered for them.

The Bakerian Lecture, "The Law of the Pressure of Gases," was delivered by Lord Rayleigh, F.R.S.

The following Paper was read:—

"Note on the Discovery of a New Trypanosoma." By Lieut.-Colonel  
DAVID BRUCE, R.A.M.C., F.R.S.

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BAKERIAN LECTURE.—"On the Law of the Pressure of Gases between 75 and 150 Millimetres of Mercury." By LORD RAYLEIGH, F.R.S. Received January 15,—Read February 27, 1902.

(Abstract.)

The observations here recorded were intended to bridge over in some degree the gap between the very low pressures (below 1·5 mm.) dealt with in a recent paper and pressures approaching the atmospheric for which the usual mercury column and cathetometer method is adequate. The principal novelty consists in the use of two similar manometric gauges. Pressures in the ratio of 1:2 are obtained by the use first of a single gauge and secondly of the two gauges connected in series. The equality of the gauges is tested by observations upon them when combined in parallel. The use of these gauges allows abundant accuracy in the measurement of the pressures, and the difficulties relate rather to the adequate determination of volumes and temperatures.

The results show that, to an accuracy of  $\frac{1}{3000}$ , air, hydrogen, oxygen, and argon obey Boyle's law. In the case of nitrous oxide a deviation was observed in the direction that might be expected.

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