

"It is thus evident that the combustion of an amount of gas which would give a light equal to 100 candles when the barometer stands at 31 inches, would give a light equal to only 84·4 candles if the barometer fell to 28 inches.

"An inspection of all the above results shows that the rarefaction of air, from atmospheric pressure downwards, produces a uniformly diminishing illuminating power until the pressure is reduced to about 14 inches of mercury, below which the diminution of light proceeds at a less rapid rate. The above determinations give approximately 5·1 per cent. as the mean reduction of light for each diminution of 1 inch of mercurial pressure down to 14 inches. I am now extending this inquiry to pressures exceeding that of the atmosphere, and hope soon to lay before the Society the detailed results of the whole series, together with some observations on the causes of this variation of luminosity."

ON THE CALORIFIC RELATIONS OF HYDROGEN AND OTHER GASES.

ABSTRACT OF A PAPER BY PROFESSOR MAGNUS.

(Translated from *Poggendorff's Annalen*. No. 2, 1861.)

"Professor Magnus communicated to the Academy of Sciences of Berlin, on the 30th of July, 1860, a series of investigations respecting the conductivity, &c., of heat in various gases; and on the 7th of February, of this year, he laid before the Academy a second series of these investigations,* the principal results of which are given below:

"1. The final temperature indicated by a thermometer placed in a vessel warmed from above, varies according to the nature of the gas with which the vessel is filled.

"2. In hydrogen this temperature becomes higher than in any other gas.

* *Ueber die Verbreitung der Wärme in den Gasen*. *Pogg, Ann.*, Februar, 1861. An abstract by the Editor of the *Annalen*, of an article published by Professor Magnus (in continuation of some previous investigations on this subject) in the *Monatsberichte der Akademie der Wissenschaften zu Berlin*. An abstract of this memoir, with some additional observations by M. Verdet, is also given in the *Annales de Chimie et de Physique* for March, 1861; but in this, many of the conclusions, as given by Prof. Magnus, are omitted.—E. J. C.