

that involved in Van Slyke analysis is about 4 per cent.

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The Ground Terms and Ionisation Potential of Br II.

IN the course of investigation of the spark spectra of Bromine,* a careful examination of the plates taken with an amount of inductance just sufficient to elicit the lines of Br II and Br III strongly (while there is considerable suppression of the lines due to higher stages) revealed the following combinations between the deepest $4p^3P$ and $5p^3S$, $5p^3S$ of Br II.

	6908	
	$5p^3S_2$	$5p^3S_1$
$4p^3P_2$ 3058	101529 (20)	108436 (10)
3P_1 1251	98470 (15)	105378 (10)
3P_0		104127 (10)

Besides the identical behaviour of the five lines under different experimental conditions, the following progression of the interval of the ground term convinces one of the correctness of the identification.

$$mp(^3P_2 - ^3P_1)$$

O I 158 F II 344 F II/O I = 2.18
S I 398 Cl II 696 Cl II/S I = 1.75
S₂ I 1988 Br II 3058 Br II/Se I = 1.54

The value of 3058 cm^{-1} obtained for the interval $4p(^3P_2 - ^3P_1)$ of Br II is thus quite satisfactory. An interesting feature to be noticed is that the intercombination lines $4p^3P-5s^3S$ are much stronger than the triplet-triplet combinations. This feature might be expected as these intercombination lines essentially form what are usually called the resonance lines. It is significant to observe here that the corresponding intercombination lines in

* *Nature*, 131, 170, 1933.

the arc spectrum of selenium of the same row of the periodic table have been found in absorption by a column of the non-luminous vapour.†

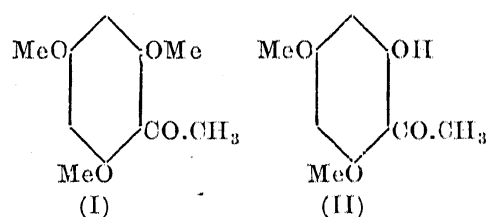
From the quintet system $5p^3P-ms^3S$, identified by Bloch, Bloch and Lacroute,‡ it has now been possible to obtain the deepest term $4p^3P_2=183280 \text{ cm}^{-1}$, yielding a value of 22.6ν for the second ionisation potential of Bromine. The triplets identified by the above authors seem to be rather uncertain, due to the comparatively low intensity of the combination $5s^3S_1-5p^3P_1$. The author is indebted to Dr. K. R. Rao for placing the plates in the Schuman region, taken with the Siegbahn Vacuum Spectrograph at his disposal.

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The Action of Aluminium Chloride on Polymethoxyflavones.

A HYDROXYL group in the 5-position in a flavone resembles the *ortho*-hydroxyl in a phenolic ketone in its resistance to methylation under ordinary conditions. It appeared probable that, conversely, a 5-methoxyl of a flavone may be as easy to demethylate as an *ortho*-methoxyl of a ketone. Phloracetophenone trimethyl ether (I) is converted into the dimethyl ether (II)



by heating with aluminium chloride at 110° .§ We have now found that, when a polymethoxyflavone is submitted to the action of aluminium chloride under specified conditions, demethylation takes place only in the 5-position and we are utilizing this observation for the synthesis of naturally occurring, partially methylated polyhydroxyflavones, such as wogonin, rhamnetin and rhamnazin.

† Kimura, *Jap. J. Phy.*, p. 81, 1926-27.

‡ *Compt. Rend.*, 193, 232, 1931.

§ Kostanecki and Tambor, *Ber.*, 32, 2260, 1899.