

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.

		$5p^3S_2$	$5p^3S_1$
		6908	
$4p^3P_2$	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  
S<sub>2</sub> I 1988 Br II 3058 Br II/Se I = 1.54

The value of  $3058 \text{ cm}^{-1}$  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.†

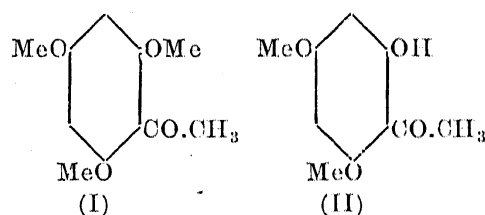
From the quintet system  $5p^3P-ms^3S$ , identified by Bloch, Bloch and Lacroute,‡ it has now been possible to obtain the deepest term  $4p^3P_2=183280 \text{ cm}^{-1}$ , yielding a value of  $22.6\nu$  for the second ionisation potential of Bromine. The triplets identified by the above authors seem 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)



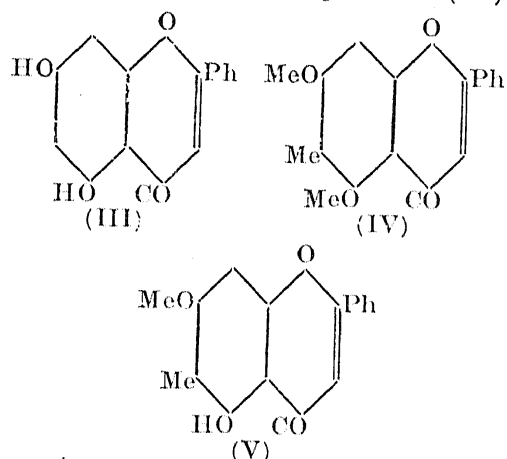
by heating with aluminium chloride at  $110^\circ$ .§ We have now found that, when a polymethoxyflavone is submitted to the action of aluminium chloride under specified conditions, demethylation takes place only in the 5-position and we are utilizing this observation for the synthesis of naturally occurring, 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.

The methylation of chrysin (III) in acetone solution with methyl sulphate and alkali yielded a substance whose melting point was different from that of the known dimethyl ether.\* The analysis indicated a C-methyl chrysin dimethyl ether (IV) and



treatment with aluminium chloride led to a monomethyl ether (V), closely resembling tecto-chrysin in its colour reactions.

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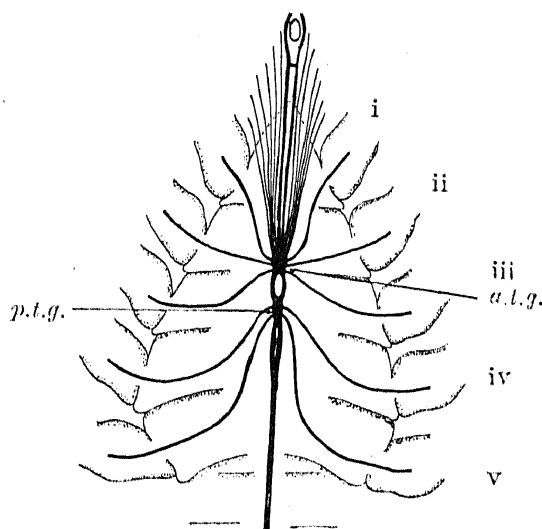
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### The Nervous System of *Panulirus*.

THE thoracic part of the nervous system in the Bombay lobster *Panulirus* has been described in the text books as a single large ganglion formed by the fusion of eleven pairs of ganglia with an opening in the centre for the sternal artery to pass through. It is thus figured as a ganglionic ring sending out eleven pairs of nerves all round.

In April last Dr. C. J. George wrote to me from Poona and asked me to see if the ganglionic mass in the thorax was not really two distinct masses. From some dissections which he had occasion to see at Poona he suspected that the description in the text books was not correct. I dissected six specimens collected from Bombay and found that there were two distinct masses of fused ganglia connected together by the double nerve cord, one situated anterior and the other posterior to the descending sternal artery. The

anterior thoracic mass gives rise to nine pairs of nerves and is therefore formed of nine pairs of united ganglia, three of the



*Panulirus*.—Nervous System.  
a.t.g. Anterior thoracic ganglion.  
p.t.g. Posterior thoracic ganglion.  
i-v. Walking legs.

head and six of the thorax, while the posterior thoracic ganglionic mass gives rise to two pairs of nerves and is therefore made up of two pairs of thoracic ganglia. While the individual ganglia could be distinguished in the posterior mass such a clear demarcation is not seen in the anterior mass. A sketch of the system appended illustrates the structure.

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### References :

- Powell and Kohiyar, "Lessons in Practical Biology for Indian Students," pp. 129-131 (1926).  
Yeolekar and Samarth, "Panulirus or the Spiny Lobster of Bombay," p. 30 (1926).  
Mullan, "Animal Types," p. 112 (1929).  
Gideon, "An Introduction to Zoology," p. 43 (1930).

### Notes on *Ficus indica* Linn., and Closely allied American Species—*Ficus laurifolia* Hort. et. Lam., and *Ficus anthelmintica* Martius.

*Ficus glabrata* HB & K., as noted in *Nov. Gen. et Sp.* II. 47, is a synonym of *Ficus anthelmintica* Martius. Miquel in Hooker's *Lon. Jour. of Botany* (1, 66, 1848) described

\*Tasaki, *Acta Phytochim.*, 2, 119, 1925.