

the blackening-intensity curves drawn for these wavelengths.

The microphotometric records of the vertical and horizontal components of the 3060 Raman line of benzene excited by 4358 Å and 3125-32 Å are shown in Fig. 1,

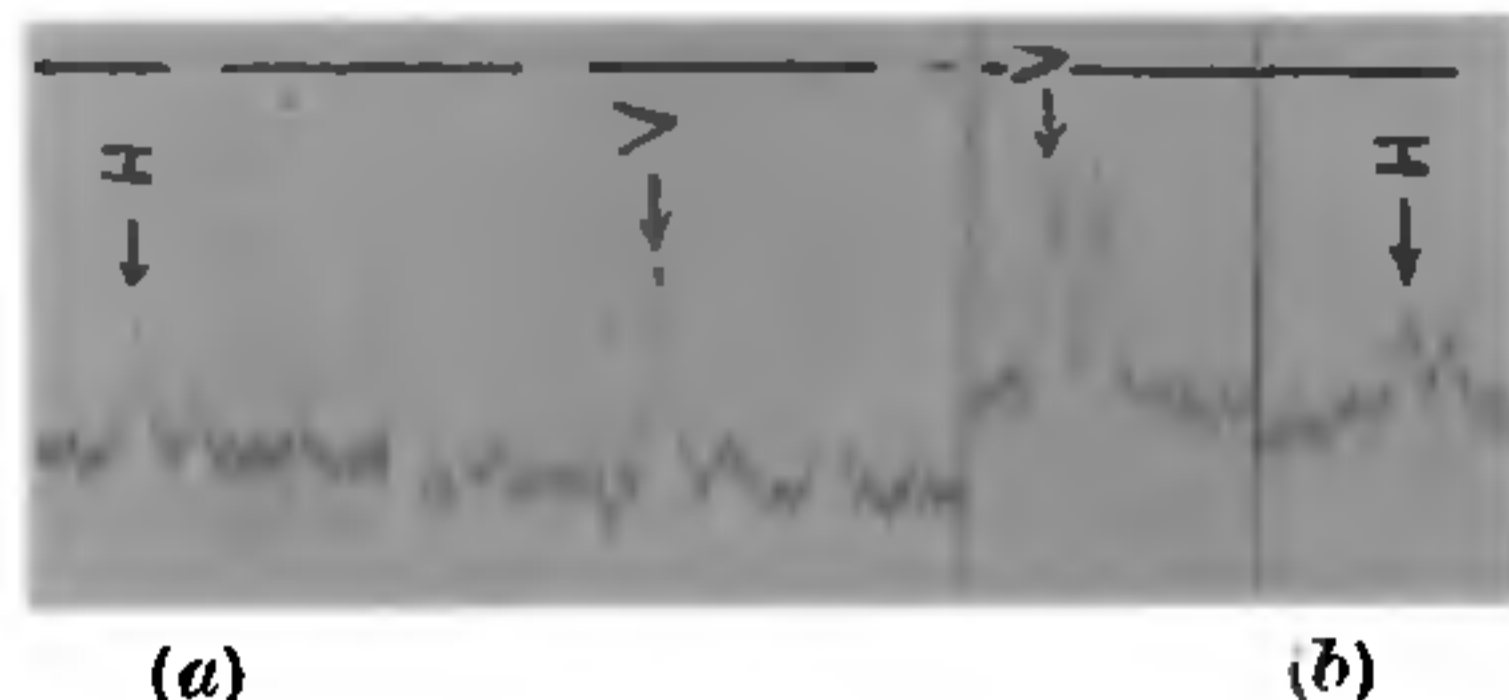


Fig. 1.

(a) and (b). The line of infinite density is at a distance of 4.7 cms. from the black line. The correction factor for multiplying the observed value of ρ , due to the polarisation introduced by the quartz spectrograph is 1.0 and 0.70 for the 3060 Raman line excited by 4358 Å and by 3132 Å respectively. The vertical and horizontal components of the Raman spectrum and also of the continuous spectrum used for determining the polarisation introduced by the spectrograph for different wavelengths, are reproduced in Fig. 2.

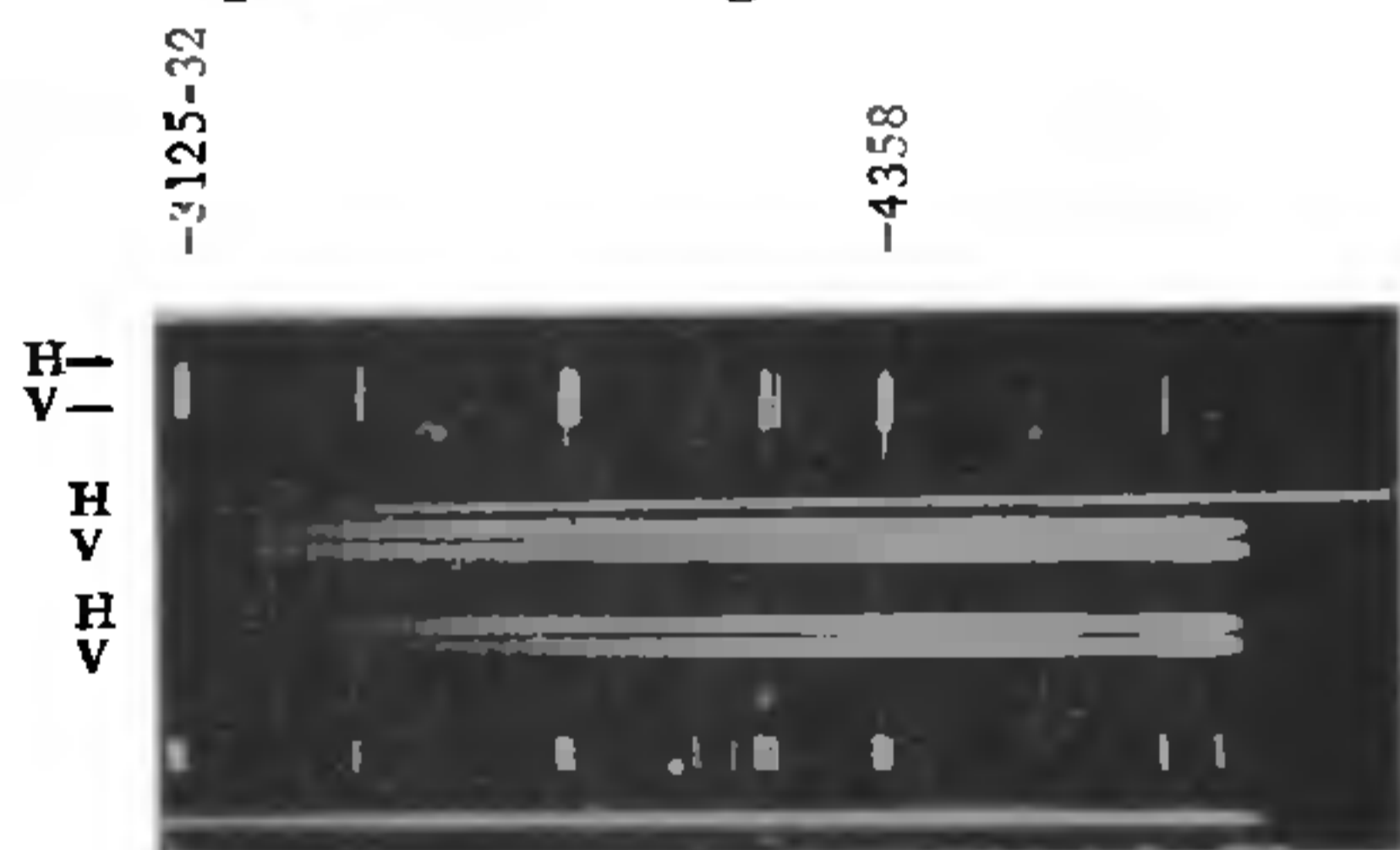


Fig. 2.

The corrected values of ρ for the 3060 Raman line excited by the lines 4358 Å and 3132 Å thus obtained are 0.61 and 0.35 respectively, the former value being almost double the latter. It may be mentioned here that these values of ρ refer in fact to two close Raman lines 3060 and 3046 which are not resolved by the spectrograph used even in the ultra-violet region investigated. (The 990 Raman line excited by the mercury line 3431 Å happens to fall exactly on the 3060 Raman line excited by 3125 Å and therefore does not affect at all the depolarisation of 3060 line excited

by 3132 Å.) Details will be published elsewhere.

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The Budde Effect in Iodine.

A PHENOMENON similar to the Budde Effect¹ has been observed when iodine vapour is exposed to light from a tungsten filament lamp.

The apparatus was enclosed in a furnace and pressure changes were observed by means of a glass spring manometer sensitive to 0.1 mm. The photo-expansion was proportional to the light intensity and to the pressure of iodine vapour. By means of filters it was found that at a pressure of 70 mm. the effect was most marked in the violet and orange regions of the spectrum; light of wavelength $500\mu\mu$ having very little action.

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A Direct Method of Feeding Plants and its Possible Applications in Agriculture and Horticulture.

IN the course of an investigation on the mechanism of synthesis of proteins in *Helianthus annuus*, Linn., it was observed that the plants fed with potassium nitrate by an injection method not only tolerated high concentrations of that salt (upto 3.0 per cent.) but also showed considerable gain in dry weight (in some cases as much as 86 per cent.) over the untreated controls in the course of about three weeks. These observations being rather striking, the experiments were repeated in three successive seasons (1930-1932) with similar results.

Although injection methods have been adopted by several previous workers² to determine the physiological effects of various chemicals, chiefly those of poisonous nature, and to treat certain deficiency diseases like chlorosis, yet no attempt has so far been

¹ Budde, *Phil. Mag.*, 4, 42, 290, 1871; also *Pogg. Ann.*, 6, 477, 1873.

² Vide Rumbold, C., *Amer. J. Bot.*, 7, 1, 1920.

made to utilize them to feed plants with various essential nutrients. The technique, as adopted in the past, has also been faulty chiefly owing to the fact that the quantities passing into the plant could not be regulated as in the case of animals. Further researches have therefore been undertaken with a view to developing simpler and, at the same time, more efficient ways of feeding plants directly with different nutrients and to study the application of such methods in (a) hastening plant growth and increasing crop yields, (b) supplying such plant nutrients and

accessories to growth as the root system is unable to collect owing to adverse soil conditions, or otherwise, and (c) treating plant diseases, particularly those in which the root-system is already affected or the movement of nutrients therefrom to other parts of the plant is seriously impeded.

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Preliminary Observations on Myxosporidia from India.

It is a well-known fact that a large number of species of Myxosporidia infect fish amongst which they sometimes give rise to severe and fatal epidemics. So, with a view to make a systematic survey of this group which unfortunately is lacking from this part of the world, I examined several fish, amphibia and reptiles brought alive to this laboratory. The only previous observations on Myxosporidia from India are by

Southwell¹ in 1915, on a species of Myxobolus from *Rasbora daniconius*; Southwell and Prasad² in 1918, on three species of Myxobolus from *Labeo rohita*, *Rasbora daniconius* and an undetermined species Sphaerospora from *Barilus barna*, and Bosanquet³ in 1910, on a species of Myxidium from *Trionyx gangeticus*. In this preliminary communication I wish to place on record several genera with hosts (not noted before from this country) of Myxosporidia from fish, amphibia and reptiles and new hosts for the genera Myxobolus and Myxidium.

Genus.	Host.	Seat of Infection.	Locality.
Ceratomyxa	<i>Fish—</i>		
	<i>Gobioides rubicundus</i>	Liver, kidney, ovary, gall bladder, etc.	Calcutta
	<i>Trichogaster fasciatus</i>	Gall bladder	"
	<i>Macrones gulio</i>	"	"
Chloromyxum	<i>Amphipnous kuchia</i>	"	"
Cystodiscus (=Zschokkella)	<i>Amphibia—</i>		
	<i>Bufo melanostictus</i>	"	"
	<i>Rana tigrina</i>	"	"
	<i>Reptile—</i>		
	<i>Emyda granosa</i>	"	Allahabad
Myxidium	<i>Fish—</i>		
	<i>Clarias batrachus</i>	"	Calcutta
	<i>Saccobranchus fossilis</i>	"	"
	<i>Ophiocephalus punctatus</i>	"	"
	<i>Reptile—</i>		
	<i>Kachuga smithi</i>	"	Allahabad
	<i>Emyda granosa</i>	"	"
	<i>Nicoria trijuga</i>	"	Madras
Myxobolus	<i>Fish—</i>		
	<i>Clarias batrachus</i>	Ovary, liver	Calcutta
	<i>Katla katla</i>	Gills	"
	<i>Cirrhina mrigala</i> (Myxobolus with unequal polar capsules)	Liver	"
Henneguya	<i>Fish—</i>		
	<i>Ophiocephalus punctatus</i>	Gills and muscles	"

¹ Southwell, T., 1915. *Rec. Ind. Mus.*, Vol. 11.

² Southwell, T., and Prasad, B., 1915. *Ibid.*, Vol. 15.

³ Bosanquet, W. C., 1910. *Zool. Anz.*, Bd. 35.