Fluorite occurs only in pockets in the dolomite. There are no regular veins or zones which can be traced for some distance. Galena, chalcopyrites, malachite, barytes and calcite are associated. Quartz veins are found quite close to most of the fluorite-bearing pockets. The fluorite of this area is usually pink, but colourless and blue varieties are also present. This colour disappears on heating the mineral. These different varieties of fluorite were tested for fluorescence under ultra-violet light from a mercury vapour lamp. Except one blue variety which showed slight blue fluorescence, the others were non-fluorescent. It was observed, however, that pink fluorite after being decolourized on heating, gives a fairly strong fluorescence when placed in ultra-violet light.

The country close to the lode and the vein materials do not apparently show any sign of shearing in the field but a definite indication of shearing of the minerals has been detected under the microscope. The country rock has been successively replaced by barytes, mica, metalliferous ore-minerals, fluorite and quartz. It is probable that shearing action took place when the ore-minerals were being deposited or before their deposition was complete, that is to say, before the beginning of the fluorite deposition. This is very easily noticed under the microscope, as there is no trace of any shearing phenomena in the fluorite mineral, of the region. The sulphide minerals usually occur as irregular masses scattered at random from the walls to the centre of the pockets. Barytes is a common gangue mineral present in almost all the veins. In some of the fluorite bearing pockets baryte and fluorite form alternating bands and some of the barytes lumps show a coating of fluorite on the surface. Argentiferous galena occurring along the fluorite-bearing pockets is considered as indication of the magmatic origin of the mineralizing materials in this region. Crystallisation of fluorspar is undoubtedly the pneumatolitic phase of the mineralizing magma.

Four prospecting trenches (30′ × 12′ × 10′) have been dug in this area. Out of these four, two are producing galena, and fluorite and one of them contains copper-ore also. The third one produces argentiferous galena and copper ores (melachite and traces of primary sulphide). The fourth one yields melachite incrustations along with the other gangue minerals. In all the trenches the trend of deposits are found to run N.N.W.-S.S.E. In the first trench the galena and fluorite-producing zone is about 3′, out of which the western portion produces fluorspar only. Fluorite produced from this pit is generally medium-grained and pink in colour. The yield of fluorite is 20 to 25 per cent. of the rock-body that has been excavated. The second trench produces also fluorite, the pit has been dug about 10′ away from the first one along the line of the strike of the lode. The quality produced is good and comparatively bigger crystals are found. The fluorite-producing zone is about 1½ to 2′ wide. The percentage of fluorite in the rock-body is about 25 to 30 per cent. of the rock excavated. Hand-picking by breaking the lump rock raised the percentage to nearly 50 per cent. and it is expected that crushing and washing would increase the concentration of fluorite upto a minimum commercial specification. A more elaborate milling with figs. and tables followed by a suitable flotation-concentration operation, might further increase the percentage of fluorite to a very high degree. As regards the quantity of material available in this area, it is difficult to say anything definitely at this stage, a further detail prospecting work would prove ore reserve.

Geological Laboratory,
Post-Graduate Science Dept.,
Calcutta University,
January 10, 1945.

S. Deb.
S. K. Roy.

OCCURRENCE OF GARNETIFEROUS LEPTYNITE AT MEENAKSHNIPURAM, COCHIN STATE

Late Mr. K. K. Sen Gupta, in his 1911 report on the Geology of Cochin State, described two garnet-bearing rocks, one along the tramway line between Mudavarichal and Oorukumbankutty and the other at Pothupara. "The rocks of South Travancore are conspicuous by the abundance of garnets present in them, those of North Travancore and Cochin hardly growing any. Sir Thomas Holland discusses the origin and growth of garnets from pyroxenes and their micropegmatite intergrowths in pyroxenic rocks of South India. The total absence of garnetiferous rocks in the State except two exposures, makes it extremely difficult to verify his conclusion."

We have recently found a big quarry of garnetiferous leptynite on the northern side of the road at the western extremity of Meenakshipuram village in Chittur Taluk. This rock exactly resembles the garnetiferous leptynite of South Travancore. It is leucocratic and consists of quartz, felspar and garnet with biotite and magnetite as accessory minerals. The garnet occurs as reddish-brown grains and patches and belongs to the variety, grossularite.

This discovery proves that this rock is not confined to South Travancore. The relations of this rock with the other rocks of the area are being studied.

Ernakulam,
February 7, 1945.

T. Sudhakara Menon.

ASSAY OF THE GROWTH-PROMOTING ACTIVITY OF THE "FATS" ASSOCIATED WITH SOME CEREALS

It has been shown[1,2,3] that the larvæ of the rice moth (*Corcyra cephalonica* Staint) can be employed as a test animal for the biological assay of fat-soluble factors. It was of interest to make a comparative study of the growth-promoting potency of "Fats" from cereals obtained by solvent extraction. Chloroform-extracted jowar constituted the basal diet from which the "whole" diets were reconstituted by enriching the flour with the fat from each of the cereals to the extent of 4·28 per cent.,—this being the percentage of "fat" in jowar.

A further comparison of the fats of the cereals was made with a sample of shark liver oil.

Results are tabulated below:—

TABLE I

Diet	Average weight of 10 larvæ in mgm. after					Survivals
	0 days	8 days	14 days	21 days	Pupation at 21 days	
I	9·08	141·90	352·58	All pupated	All pupated	12 out of 12
II	9·28	16·38	16·82	13·04	No pupæ	4 ,, 12

Diet I—Whole jowar. Diet II—Chloroform extracted jowar.

TABLE II

Diet	Average weight of 10 larvæ in mgm. after					Survivals
	0 days	8 days	14 days	21 days	Pupation at 21 days	
I	4·82	63·76	173·60	290·72	2 larvæ, 10 pupæ	12 out of 14
II	4·84	46·30	151·44	226·46	2 pupæ, 12 larvæ	14 ,, 14
III	4·50	46·86	116·86	181·26	No pupæ	14 ,, 14
IV	4·64	25·88	68·26	122·98	,,	12 ,, 16

Diet I—Chloroform extracted jowar + Wheat fat (4·28%). Diet II—Chloroform extracted jowar + Ragi fat (4·28%). Diet III—Chloroform extracted jowar + Jowar fat (4·28%). Diet IV—Chloroform extracted jowar + Fish oil (4·28%).

TABLE III

Diet	Average weight of 10 larvæ in mgm. after					Survivals
	0 days	13 days	19 days	26 days	Pupation at 26 days	
I (*a*)	3·54	62·92	..	All pupated	All pupated	16 out of 16
(*b*)	5·82	165·92	386·46	,,	,,	16 ,, 16
II (*a*)	3·88	64·60	146·08	241·02	2 pupæ, 14 larvæ	16 ,, 16
(*b*)	5·90	91·34	175·02	270·62	8 larvæ, 6 pupæ	14 ,, 16
III (*a*)	3·98	53·68	121·46	..	2 pupæ, 12 larvæ	14 ,, 16
(*b*)	7·16	91·52	156·88	..	..	..
IV (*a*)	4·14	47·52	114·56	233·82	2 pupæ, 10 larvæ	12 ,, 16
(*b*)	6·02	91·74	150·12	156·50	8 pupæ, 4 larvæ	12 ,, 16
V (*a*)	4·24	35·12	56·58	100·02	No pupæ	14 ,, 16
(*b*)	6·06	46·32	78·72	134·66	,,	16 ,, 16

Diet I—Whole jowar. Diet II—Chloroform extracted jowar + Wheat fat (4·28%). Diet III—Chloroform extracted jowar + Ragi fat (4·28%). Diet IV—Chloroform extracted jowar + Jowar fat (4·28%). Diet V—Chloroform extracted jowar + Fish oil (4·28%).

TABLE IV

Diet	Average weight of 10 larvæ in mgm. after			Survivals
	0 days	7 days	14 days	
I	6·48	44·66	196·90	16 out of 16
II (*a*)	7·04	45·12	164·52	16 ,, 16
(*b*)	8·37	60·42	192·98	11 ,, 12
III (*a*)	6·84	41·76	156·16	14 ,, 16
(*b*)	8·25	58·69	179·46	11 ,, 12

Diet I—Whole jowar. Diet II—Chloroform extracted jowar + Ragi fat (4·28%). Diet III—Chloroform extracted jowar + Jowar fat (4·28%).

Results given in Table I show that the chloroform-extracted jowar, constituted a reasonably good basal diet for the studies in question; extraction with the chloroform deprives the cereal practically completely of its fat-soluble growth-promoting factors. It will be observed (see Table I) that the reconstituted diet (chloroform-extracted jowar with an equivalent quantity of the chloroform extract) does not restore completely the full potency inherent to the whole jowar. This is possibly due to the fact that during the process of solvent etraction, the essential factors are partially destroyed or inactivated by heat or oxidation.

A study of results given in Tables II, III and IV reveals:—(1) Of the "Fats" investigated, the one from wheat exhibits the highest potency, not only from the point of view of the rapidity of growth but also from the standpoint of the percentages of the survivals and the pupations. (2) Ragi "fat" shows a slightly higher potency than jowar "fat". (3) Ramaswamy *et al.*[4] observed that ragi does not support the growth of the larvæ as well as jowar; they attribute this fact to the lower "fat" content of ragi. But our experiments show that the "quality" of the "ragi fat" is slightly higher than that from jowar. (4) The fish oil exhibits the lowest potency.

The experiments show that the larvæ can be conveniently employed for the assay of the potency of "fats"; it is proposed to extend this method for the biological assay of the growth-promoting potency of the "fat" from several strains of yeasts.

(MISS) VIOLET DE SOUZA.
M. SREENIVASAYA.

Section of Fermentation Technology,
Indian Institute of Science,
Bangalore,
February 14, 1945.

1. Sarma, P. S., and Sreenivasaya, M., *Curr. Sci.*, 1939, **8**, 551. 2. —, —, *Ibid.*, 1941, **10**, 525. 3. De Souza, V., and Sreenivasaya, M., *Ibid.*, 1944, **13**, 250. 4. Ramaswamy, S., *et al.*, *Ibid.*, 1942, **11**, 53.

A SIMPLE MICRO-MACERATOR FOR PLANT ANALYSIS

SPECIAL importance is attached by the plant analyst to the primary operation of grinning the experimental material and bring ing it into a condition which facilitates the quantitative extraction of the constituent to be estimated. The available methods of treatment[4,3,1] are unsuitable either because the technique is tedious or because it involves the use of expensive or fragile equipment. An inexpensive, efficient and elegant micro-macerator has been developed, and comparison with the earlier methods and repeated tests with different types of plant tissues have established its suitability and efficiency.

The essential features of the apparatus are illustrated in Fig. 1. The lower portion is made from a thick-walled pyrex tube. The upper end of the tube is blown out in the shape of a thistle funnel with a spout. The lower end of the stopper is ground into the slightly tapered (shaded) portion of the tube by using emery powder and water.

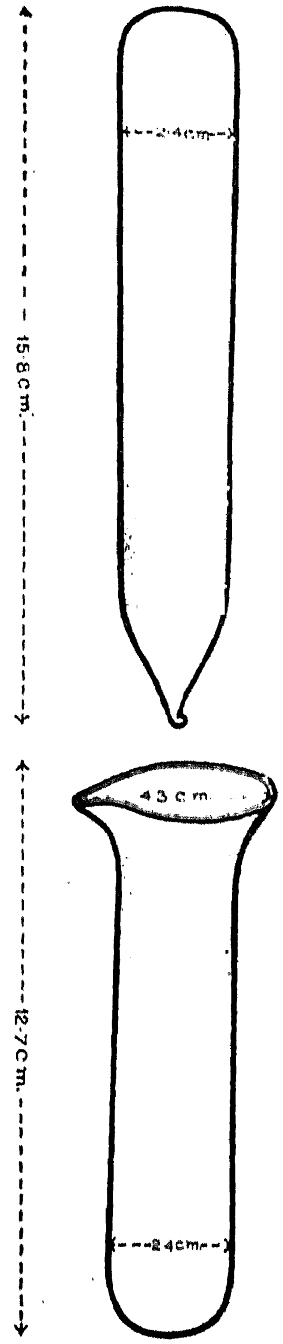

FIG. 1

Procedure.—0·1-0·2 gm. of plant material is weighed out accurately into a tube, moistened with 2-3 ml. of the extractant poured in driblets into the cup of the macerator formed by fixing the stopper to the tube, and ground down to a paste which will gradually creep down the joint into the tube. The pasty mass is transferred to the flask of a micro-extraction apparatus and the tube, the cup and the stopper of the macerator are rinsed 3 or 4 times with fresh quantities of the extractant to facilitate the transfer of all the material to the extraction apparatus. Often it is necessary to rub the last traces of the material with the