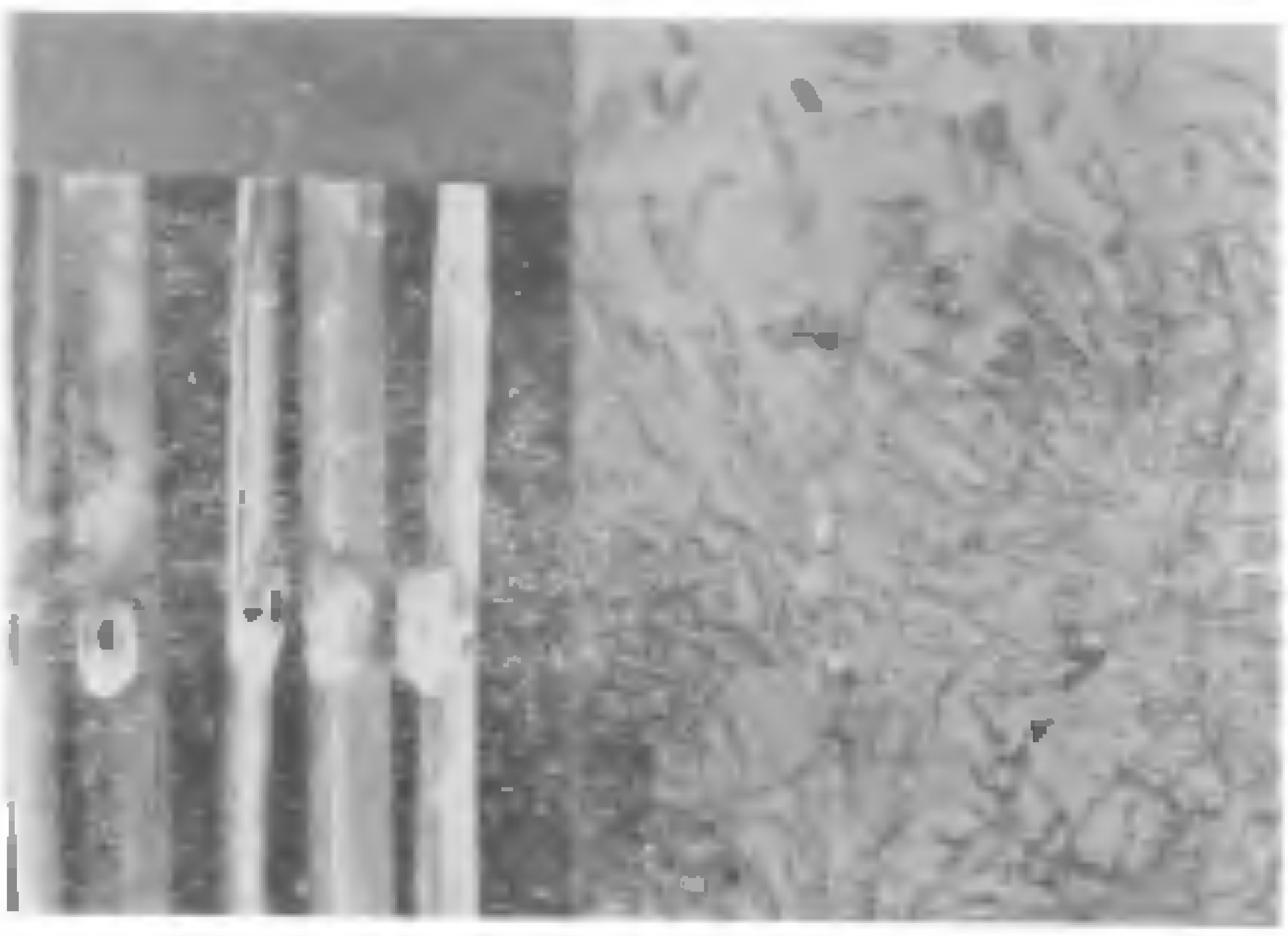
bodies, the fungus was identified to be nearer to *Entomophthora fumosa* Speare. This fungus has been reported on the citrus mealy bug (*Pseudococcus citri* Risso) and was responsible to check the population in Florida (Speare[4]). The slides of the fungus have been deposited at Commonwealth Mycological Institute, Kew, England (IMI No. 21296). This constitutes the first record of the fungus on rice brown plant hoppers.



1 2

FIGS. 1–2. Fig. 1. Brown plant hoppers affected by *Entomoprthora fumosa.* Fig. 2. Conidia and conidiophore (× 200).

The authors are thankful to the Head, Division of Entomology, Central Rice Research Institute, Cuttack, for providing facilities and to Dr. B. L. Brady of Commonwealth Mycological Institute, Kew, England, for identifying the fungus.

Central Rice Research Institute, Cuttack 753 006, (Orissa), India, *December* 9, 1977.

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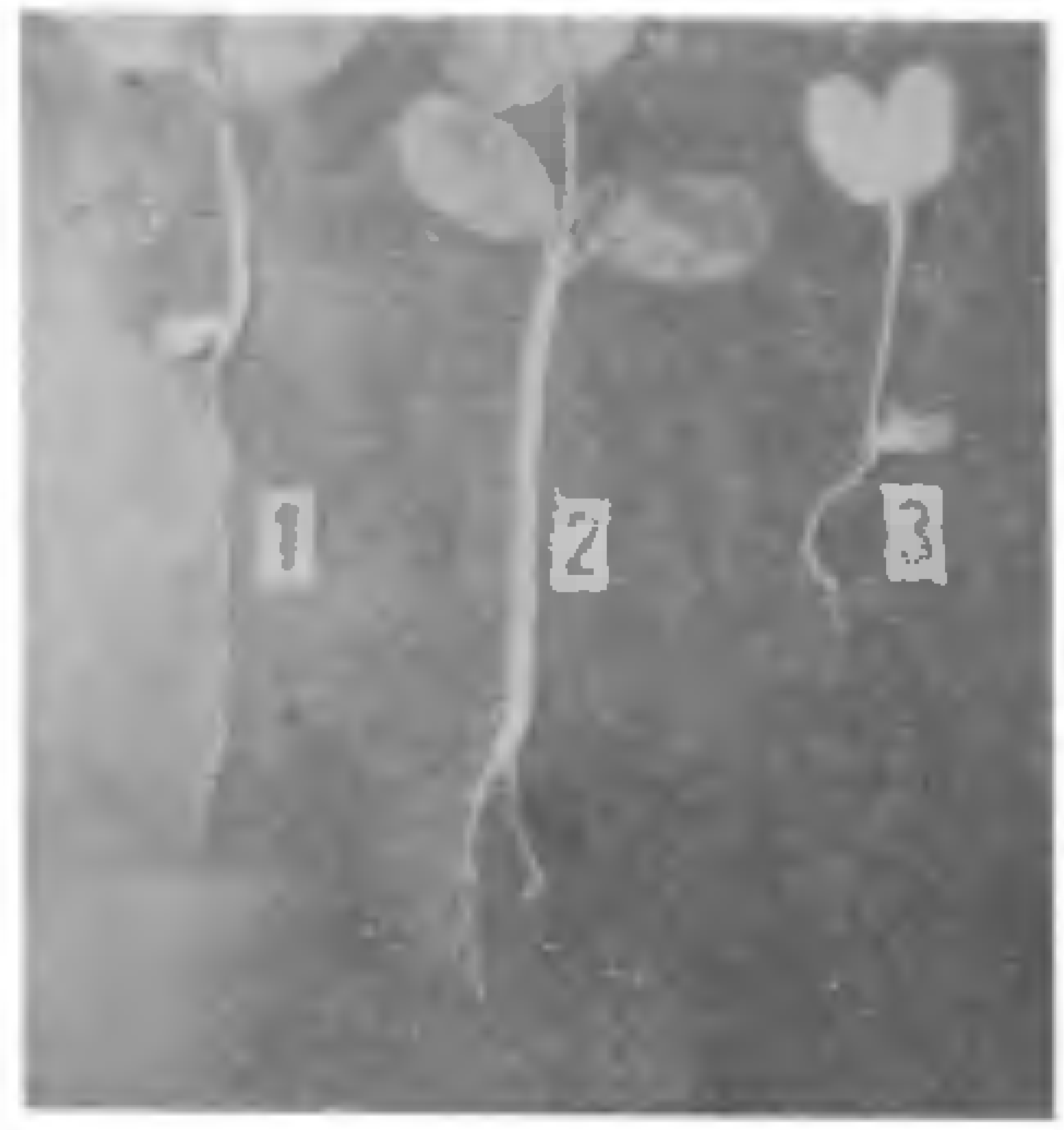
A NOTE ON PSEUDO-MONOCOTYLEDONY IN *COCCINIA INDICA* W. & A.

SEEDS of *Coccinia indica* show epigeal germination. The radicle comes out first and thus fixes the germinating seed to the soil. Later, 2 to 5 secondary roots also develop from and below the tigellum. The hypocotyl grows very fast, and carries the two cotyledons up, out of the soil. Usually the seedcoat remains adhered to the tigellum (Fig. 1) but occasionally it also comes out of the soil. The two opposite cotyledons then open out, become photosynthetic in function and grow in size. The first plumular leaf appears next followed by a further growth of the shoot (Fig. 2).



FIGS. 1–3. Fig. 1. Seedling with two separate cotyledonary leaves and the seedcoat adhered to the tigellum Fig. 2. Further growth of the seedling. Fig. 3. Seedling showing pseudo-monocotyledony.

This is the normal morphology of the seedling. Rarely, the seedling exhibits pseudo-monocotyledony, where the two cotyledons fuse laterally to their three-fourth length but maintain their individuality at the distal ends (Fig. 3). In such pseudo-monocotyledonous seedings the plumule is situated at one side and opposite to the "combined cotyledons". The plumule seems to be rudimentary since it never produces a short and the seedling dies within a month.

The authors are grateful to Dr. Ramji Sharma for encouragement.

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A NOTE ON THE PHYTAL FAUNA IN AND AROUND BALUGAON IN CHILKA LAKE

THE hydrobiological works with special reference to fisheries of the CHILKA LAKE (Fig. 1), the largest brackish-water lake of India located in Orissa State, have been well documented[1–3]. Surprisingly enough the extensive phytal fauna association of the lake have remained unexplored. The phytal serve both as feeding and breeding grounds for invertebrates and fishes. As such the importance of phytal in the littoral production of animal communities need not be over-emphasised as it is useful for a variety of ecological purposes[4–13]. Five dominant algae (*viz., Cladophora glomerata.*

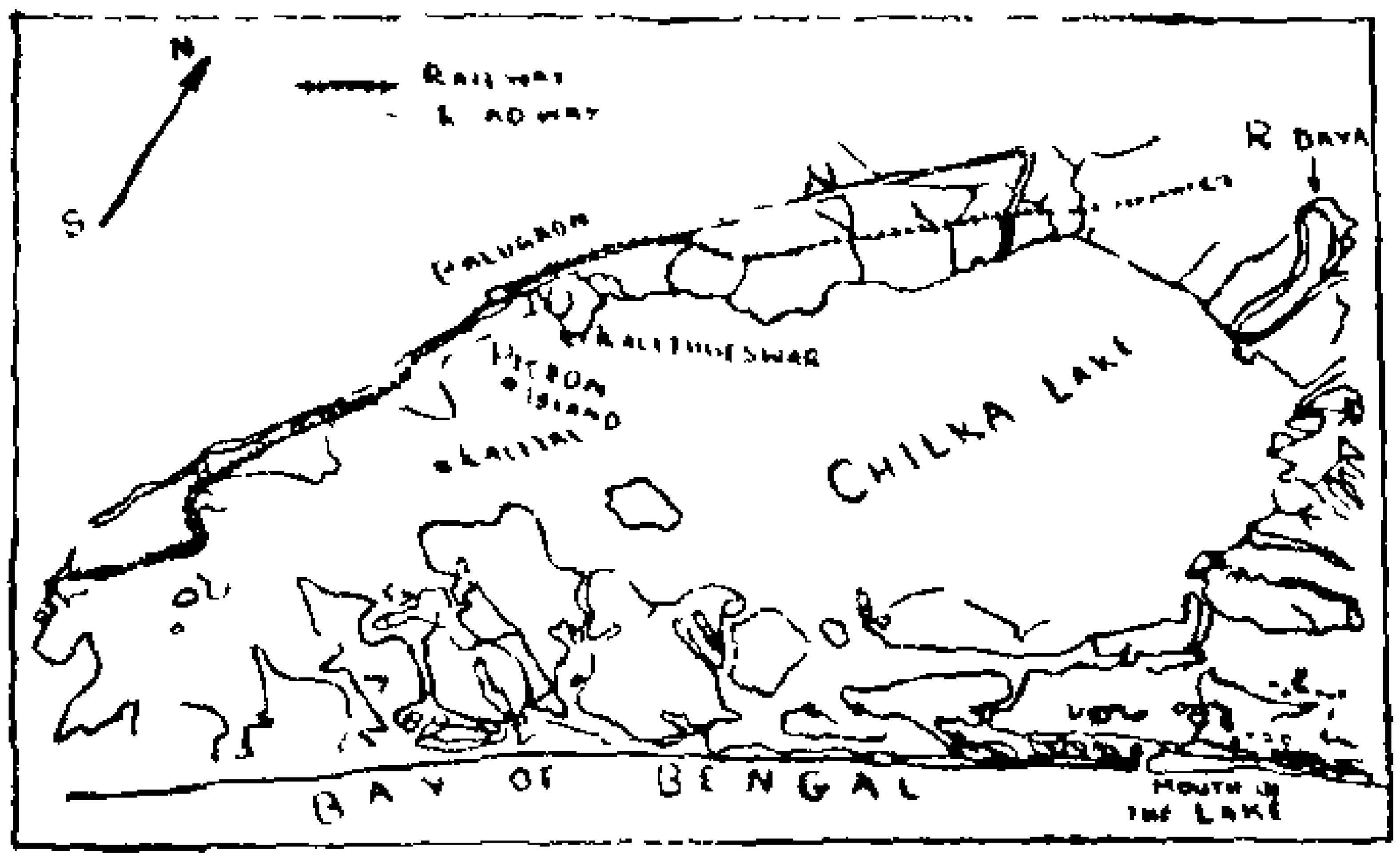

FIG. 1. Map of Chilka Lake showing the sampling sites.

Enteromorpha compresta, Chaetomorpha linum, Polysiphonia sertularioides and *Potamogeton pectinatus*) were selected for the phytal faunal studies carried out from four stations, *viz.*, Balugoan shore (B. S.), Kalijugeswar (K. J.), Chadheihaga (= Pigeon's island = C. H.) and Kalijai island (K. I.). The results of preliminary studies are presented now (Table I). B. S. and K. J. are subjected to eutrophication, resulting from over production of the macrophytes. C. H. and K. I. are located away from B. S. and are exposed to constant wave action being relatively free from eutrophication.

TABLE I

Density distribution pattern of the phythal fauna/100 g and 100 cc of weed and faunal percentage composition o different weeds, at different stations

Weeds	Stations	Nematodes		Polychaetes		Oligochaetes	
		a	*b*	*a*	*b*	*a*	*b*
1. *Cladophora*	1. Balugaon shore	..	..	71 (1·4)	15	..	..
2. *Cladophora*	2. Chadheihaga island	..	..	56 (0·26)	20	..	..
3. *Chaetomorpha*	3. Kalijugeswar	..	..	118 (1·7)	37	262 (3·85)	79
4. *Chaetomorpha*	4. Chadheihaga island	..	..	..	..	..	..
5. *Enteromorpha*	5. Balugaon shore	..	..	197 (2·3)	108	..	..
6. *Enteromorpha*	6. Chadheihaga	79 (1·3)	43	20 (0·5)	11	31 (0·7)	17
7. *Potmogeton*	7. Balugaon shore	..	..	..	..	..	..
8. *Polysiphonia*	8. Kalijai island	..	..	5 (0·7)	2	..	..

Weeds	Stations	Gastropods		Bivalves		Ostracods	
		a	*b*	*a*	*b*	*a*	*b*
1. *Cladophora*	1. Balugaon shore	1451 (28·4)	695	128 (2·5)	63	..	..
2. *Cladophora*	2. Chadheihaga island	56 (0·26)	20	560 (2·6)	200	..	..
3. *Chaetomorpha*	3. Kalijugeswar	2439 (54·25)	390	74 (1·67)	51	239 (7·25)	45
4. *Chaetomorpha*	4. Chadheihaga island	..	..	..	..	..	..
5. *Enteromorpha*	5. Balugaon shore	261 (3·04)	140	5925 (69·3)	3088	1146 (13·4)	620
6. *Enteromorpha*	6. Chadheihaga	117 (3·0)	63	455 (9·4)	269	200 (5·0)	107
7. *Potamogeton*	7. Balugaon shore	..	..	..	..	..	..
8. *Polysiphonia*	8. Kalijai island	28 (4·2)	15	381 (56·4)	202	201 (29·7)	104

TABLE 1—*Contd.*

Weeds	Stations	Amphipods		Isopods		Copepods	
		a	*b*	*a*	*b*	*a*	*b*
1. *Cladophora*	1. Balugaon shore	3010 (58·9)	1441	25	12	399 (7·8)	191
2. *Cladophora*	2. Chadheihaga island	18509 (85·9)	6460	2004 (9·3)	700	288 (1·06)	80
3. *Chaetomorpha*	3. Kalijugeswar	307 (3·59)	51	18 (0·2)	3	316 (4·25)	83
4. *Chaetomorpha*	4. Chadheihaga island	190 (78·5)	102	47 (19·3)	26	1 (1·09)	1
5. *Enteromorpha*	5. Balugaon shore	355 (4·16)	192	470 (5·5)	256	177 (2·08)	96
6. *Enteromorpha*	6. Chadheihaga	1366 (31·9)	761	1517 (54·08)	815	261 (6·6)	139
7. *Potamogeton*	7. Balugaon shore	47424 (68·1)	36280	..	..	19524 (27·9)	14889
8. *Polysiphonia*	8. Kalijai island	21 (3·07)	11	23 (3·4)	12	5 (0·7)	2
Weeds	**Stations**	**Tanaidaceans**		**Decapods**		**Cumaceans**	
		a	*b*	*a*	*b*	*a*	*b*
1. *Cladophora*	1. Balugaon shore	..	..	39 (0·77)	20	20 (0·4)	10
2. *Cladophora*	2. Chadheihaga island	56 (0·26)	20	56 (0·26)	20	..	..
3. *Chaetomorpha*	3. Kalijugeswar	26 (0·5)	4		..	..	..
4. *Chaetomorpha*	4. Chadheihaga island	1	1	..	..	..	...
5. *Enteromorpha*	5. Balugaon shore	..	..	..	..	..	..
6. *Enteromorpha*	6. Chadheihaga	131 (3·3)	107	..	..	..	..
7. *Potamogeton*	7. Balugaon shore	..	..	..	..	..	..
8. *Polysiphonia*	8. Kalijai island	..	..	..	..	..	..
Weeds	**Stations**	**Insect larvae**		**Adult insects**		**Total number of animals**	
		a	*b*	*a*	*b*	*a*	*b*
1. *Cladophora*	1. Balugaon shore	5 (0·09)	2	..	..	5111	450
2. *Cladophora*	2. Chadheihaga island	..	..	..	..	21525	7520
3. *Chaetomorpha*	3. Kalijugeswar	1564 (26·1)	282	23 (0·7)	17	6086	1038
4. *Chaetomorpha*	4. Chadheihaga island	1 (1·09)	1	..	..	240	130
5. *Enteromorpha*	5. Balugaon shore	..	..	..	..	8131	4500
6. *Enteromorpha*	6. Chadheihaga	3 (0·07)	2	..	..	4180	2029
7. *Potamogeton*	7. Balugaon shore	2088 (3·0)	1600	697 (1·0)	489	69741	53258
8. *Polysiphonia*	8. Kalijai island	5 (0·7)	2	..	..	676	351

a—average number of animals/100 g of weed. *b*—average number of animals/100 cc of weed.
Figures in parentheses indicate the percentage composition of the group in the sample.

A total of forty samples were collected during June–September 1977 and analysed as outlined by Sarma & Ganapati[4].

Potamogeton pectinatus formed dense thickets and supported 69,741 animals/100 g of weed at B. S. belonging to amphipoda, copepoda, insect larvae and adult insects (arranged hereinafter in the order of their abundance).

Cladophora glomerata supported a mean faunal density of 5,111 and 21,525 animals/100 g of weed at B. S. and C. H. stations respectively. In both the stations the crustaceans and molluscs were dominant. *Enteromorpha compressa* collected from B. S. and C. H. had mean faunal densities of 8,131 and 4,180 animals/100 g of weed respectively. The animals belonged to nematoda, oligochaeta, polychaeta, gastropoda, bivalvia, amphipoda, isopoda, copepoda, ostracoda, tanaidacea and also insect larvae.

Chaetomorpha linum from K. J. and C. H. contained 5,780 and 240 animals/100 g of weed respectively. Gastropoda, insect larvae, copepoda, amphipoda, ostracoda, polychaeta, bivalvia, tanaidacea, adult insects and isopoda comprised the fauna associated with *Chaetomorpha* at K. J. while at C. H. amphipoda and isopoda were the principal faunal elements interspersed with sporadic occurrences of copepoda, tanaidacea and insect larvae. *Polysiphonia sertularoides* of K. J. supported of mean faunal density of 676 animals/100 g of weed belonging to eight taxonomic groups. Polychaeta and copepoda were poorly represented.

The morphology of the alage and the sediment accumulated on the thalli and of the environment affected the qualitative and quantitative association and distribution of the phytal fauna. *Potamogeton* followed by *Cladophora, Enteromorpha, chaetomorpha, Polysiphonia* supported in that order of animal populations. The nature of the shore and its influence on the faunal densities of the algae were as follows : *Enteromorpha, Chaetomorpha* and *Polysiphonia* may be cited as examples. *Enteromorpha* at B. S. harboured more animals than that of C. H. which is away from the shore being subjected more to the wave action. Likewise, *Chaetomorpha* at K. J., than that of C. H., harboured more animals. The observed phytal faunal densities compared favourably with those reported from other localities[4-13].

Further investigations on the ecobiology of the phytal fauna in relation to the physico-chemical parameters of the lake through seasons are in progress.

We thank the authorities of the Regional College of Education, Bhubaneswar. for all the facilities accorded to carry out the present work and one of us (S. S.) acknowledges his gratitude to the authorities of the Nayagarh College, Nayagarh, for their kind help while working as a lecturer in the College.

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November 2, 1977.

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PRELIMINARY REPORT ON THE ENGULFMENT AND RETENTION OF MYCOBACTERIA BY TROPHOZOITES OF AXENICALLY GROWN *ACANTHAMOEBA CASTELLANII* DOUGLAS, 1930

Trophozoites of *Acanthamoeba castellanii* did not grow in culture when certain strains of mycobacteria were provided as the only source of food for the amoebae[1]. The effect of these inedible mycobacteria on axenic cultures of *A. castellanii* have been investigated and is presented in this communication.

Axenic cultures of *Acanthamoeba castellanii* Douglas, 1930 and mycobacterial strains comprising *M. avium* Kirshberg TMC 801, *M. marinum* ATCC 927, *M. smegmatis* TMC 1546, *M. phlei* TMC 1523, *M. fortuitum* TMC 1529, *M. ulcerans* Tub/71, *M. simiae* TMC 5131 and *M. habana* TMC 5135 have been used in this study. Cultures of amoebae and