

should be possible to secure a large-scale production of ergot.

Department of Botany,
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November 25, 1943.

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OBSERVATIONS ON TWO MAMMALIAN COCCIDIA

In June 1943, I found some fresh oocysts from the rectal contents of the rabbit *Lepus* sp. and the common Indian goat *Caprahircus* Linn.; both the hosts were collected from the suburbs of Calcutta. The oocysts of the rabbit when fully matured were found to be identical with *Eimeria stiedæ* (Lindemann, 1865), while those of the goat were found to be synonymous with *Eimeria faurei* (Moussu and Marotel, 1901).

E. stiedæ is being reported for the first time from India. *E. faurei*, though reported before from Indian sheep by Baldrey¹ (1906), the Indian goat *C. hircus* is added as a new host of this parasite.

The oocysts of *E. stiedæ*, measuring 30.2—37.4 μ by 22—26.4 μ , are ovoid in shape, light-brown in colour and flattened at one pole, as stated by previous workers. A micropyle is present at the flattened end of the oocysts. There is a well-defined spherical oocystic residual body about 1 μ in diameter. The sporocysts and the sporozoites have the same form and measurements as given by the previous authors. A residual body is also present in the sporocysts.

The oocysts of *E. faurei*, measuring 26.4—30.8 μ by 22—24.2 μ , are ovoid in shape and brownish in colour. There is a micropyle closed by a cap at one end of the oocyst. Wenyon² (1926) states that the oocystic residuum may or may not be present, but I could not find any oocystic residuum at any stage of development of the oocyst though a sporocystic residual body is present, as stated by him. A micropyle is present at the pointed end of each of the sporocysts and sporozoites have the same features as stated by previous observers.

I am indebted to Mr. M. Chakraverty for his guidance and valuable suggestions and also to Prof. H. K. Mookerjee for kindly allowing me to work in this Laboratory.

Zoological Laboratory,
University of Calcutta,
July 24, 1943.

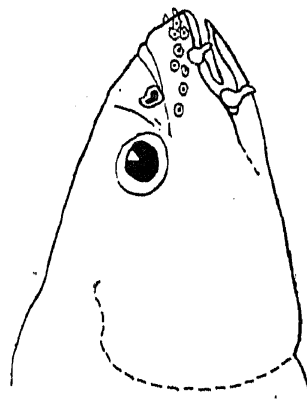
AMIYA BHUSAN KAR.

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SEXUAL DIMORPHISM IN *SCHIZOTHORAX LONGIPINNIS* HECKEL

In a collection of fishes made from the Dal Lake, Kashmir, in August 1938, there are numerous immature specimens of *S. longipinnis*

Heckel, besides four full-grown specimens of the same species. Two of the four specimens possess smooth-skinned heads while the other two could be marked out by the presence of tubercles on the snouts and comparatively lean bodies. The tubercles are arranged in two groups, one on either side of the mid-dorsal line. On dissection it was found that both the smooth-skinned specimens are females possessing well-developed ova, while the tuberculated ones are males. The bigger male has 29 such tubercles while the smaller one possesses only 14. From the above observation it can be concluded that at the time of maturity the males of *S. longipinnis* develop "nuptial organs" which become more pronounced as the breeding season approaches.



Head of a male specimen of *Schizothorax longipinnis* Heckel, showing tubercles on the snout. ca. Nat. size.

There does not seem to be any appreciable difference in the length of the fins in the two sexes. Since the specimens have been preserved in formalin, the exact coloration could not be noted.

The largest specimen in the collection is a male measuring 322.0 mm., while in female measuring only 249.1 mm. in length.

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October 26, 1943.

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A PROBABLE INSTANCE OF RECAPITULATION IN DECAPOD LARVÆ

In a paper published in 1937 on decapod larvæ from the Madras plankton¹ I had stated that the last two larval stages of *Albunea* possessed 12 and 13 gills respectively. Since the number in the adults is 10, I had ventured to state that this may be an instance of recapitulation of an ancestral character. Only two specimens belonging to the last stage were available at that time, so that the observation could not be confirmed then.

Recently I have been able to obtain several specimens belonging to both stages and on examination my previous observation has been found to be correct. It can, therefore, be definitely stated that the presence of a larger number of gills in these larvæ is a normal character and not an occasional abnormality.

In the corresponding stages of a closely related form, viz., *Emerita*, the number of gills

is 8, one less than the adult number.² In other respects these larvæ resemble one another closely. The difference in regard to number of gills in *Albunea* larvæ may not, therefore, be correlated with any peculiarity in their habits. When it is remembered that the ancestors of both the Anomura and Brachyura are believed to have been forms with numerous gills there is very strong reason to assume that the larger number of gills of these larvæ is a clear case of recapitulation by the free-swimming larvæ of an ancestral character. It should therefore, be of considerable interest in view of the fact that recapitulation has generally been denied to occur among these larvæ.

Maharaja's College,
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November 9, 1943.

M. KRISHNA MENON.

1. *Bulletin of the Madras Government Museum*, New Series—Natural History Section, 3, No. 5. 2. *Ibid.*, 3, Nos. 3 & 4.

A NOTE ON THE OCCURRENCE OF CHLORITOID IN TUMKUR DISTRICT, MYSORE STATE

IN the course of a visit to parts of the Chitaldrug Dharwar Schist Belt in the Tumkur District, the writer came across a band of schist which contains the mineral chloritoid. As far as the writer is aware, there is only one reference to this mineral in the *Records of the Mysore Geological Department*. This is by the late Mr. B. Jayaram¹ who mentions the occurrence in the Hassan District, of "chloritoids" in the ultrabasic rocks north of Raipur, and of "a chloritoid mineral" in the hornblende dykes north-west of Raipur. By the courtesy of Mr. B. Rama Rao, the Director of Geology in Mysore, the writer had an opportunity of examining microsections of these rocks referred to by Mr. Jayaram, but did not find any occurrence of chloritoid in them.

The exact locality where the chloritoid bearing schists are found is about two miles east-north-east of Banasandra railway station (on the Bangalore-Harihar Section), and about a furlong north-east of Lakkasandra village (1" topographical sheet No. 57 C/11).

The schist is greyish-green in colour, and when weathered has a dirty green colour which becomes brown in highly weathered specimens. Chloritoid occurs abundantly scattered in this rock, in disc-like, lenticular, or irregular shapes. The mineral is black in colour, and glistens brightly. The discs vary in diameter from 0.5 mm. to 2 mm.

The mineral has an almost perfect basal cleavage. Imperfect prismatic cleavages intersect at angles of 120°, and there is a parting parallel to 010.

Under the microscope, the schist is mainly composed of chlorite, sericite, and quartz. Grains of ilmenite altering into leucoxene are common. Crystalloblasts of chloritoid occur anyhow in the rock without any relation to the directions of schistosity. Crystals athwart the lines of schistosity are often seen to have pushed apart the flakes of chlorite and made room for themselves; this is because of the high force

of crystallisation of chloritoid. The schistosity planes (represented by specks of ilmenite) are sometimes seen to pass right through the porphyroblasts of chloritoid. The mineral is poeciloblastic and contains abundant inclusions of quartz and ilmenite.

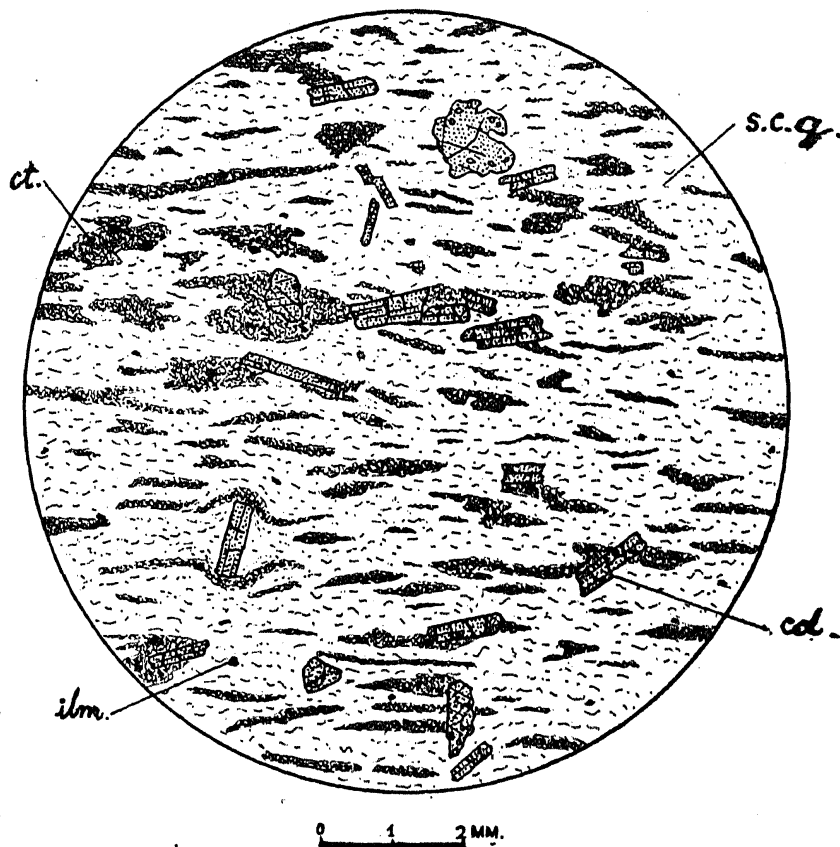


FIG. 1.—Chloritoid Schist, Lakkasandra, Tumkur Dist.
cd.—chloritoid. *ct.*—chlorite. *s.c.g.*—sericite,
chlorite, quartz. *ilm.*—ilmenite..

The mineral is strongly pleochroic. The following is the pleochroic scheme: X = green, Y = indigo blue and Z = pale greenish yellow. The mineral has a high relief, but very low birefringence. The birefringence was measured by means of a Berek's compensator and the value obtained was $\gamma - \alpha = .009$ to $.01$. The direction Z makes an angle of 9° with the normal to 001. The optic sign of the mineral is positive.

Twinned crystals are common, the composition plane being parallel to 001. The composition plane is sometimes irregular.

Chloritoid is a typical stress mineral which is produced in a very low grade of regional metamorphism (epizone), though it is known sometimes to occur in the almandine zone.

The mineral is characteristic of sedimentary rocks which contain alumina in abundance and iron in sufficient quantities, and which are relatively poor in magnesia, lime, and potash. Its discovery, therefore, in the Dharwar schists of Mysore is interesting.

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December 8, 1943.

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1. Jayaram, B., "Progress Report on Work done during the Field Season of 1920-21", *Recs. Mys. Geol. Dept.*, 1923, 21, 62, 68.