

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.

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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.

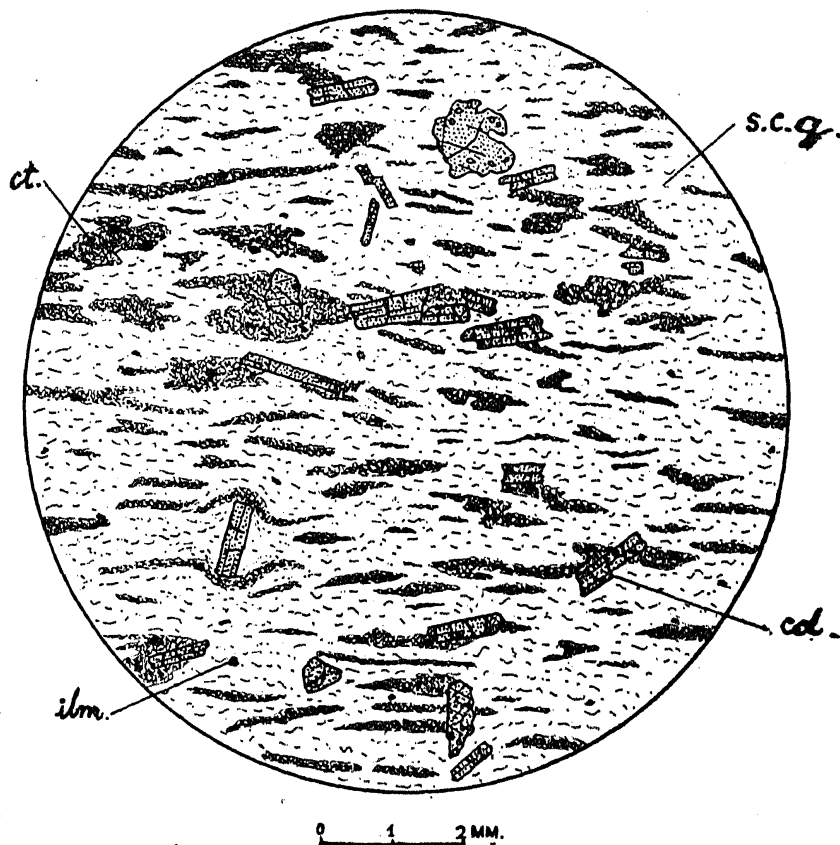


FIG. 1.—Chloritoid Schist, Lakkasandra, Tumkur Dist.
Cl.—chloritoid. *Cl.*—chlorite. *s.c.g.*—sericite,
chlorite, quartz. *ilm.*—ilmenite..

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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1. Jayaram, B., "Progress Report on Work done during the Field Season of 1920-21", *Recs. Mys. Geol. Dept.*, 1923, 21, 62, 63.