

The Archaeans, in general, have a foliation trending E-W to ESE-WNW with a northerly dip commonly known as the Mahanadi trend. In the Banpur and Gania areas, however, Eastern Ghat trend (NE-SW) and the Mahanadi trend are both seen. Many synformal and antiformal local folds with various plunge directions have been observed in the rocks, which are also affected by some small and minor faults. A mylonite zone of about 22 km. long and 3 km. wide occurs south of the Mahanadi river in sheet 73 H/3. The rocks here are highly crushed and pulverised, which is probably a zone of shear and movement.

#### Khondalites

**Khondalites**, probably the oldest rock formations, are a series of para-gneisses and schists, greyish to purple or reddish brown in colour. The constituent minerals are quartz, feldspar, garnet, sillimanite, and occasionally graphite; Ilmenite, magnetite, zircon and apatite occur as accessories. They show a prophyroblastic texture and intense granulation, crushing and other cataclastic effects.

Calc granulites and garnetiferous quartzites occur in a few places intimately associated with the khondalites. They represent the calcareous and arenaceous members respectively of the khondalite suite. That all these types belong to one and the same group of khondalites, is clearly evident as they gradually merge into one another.

#### Charnockites

Hypersthene granulites, which are quite similar to the typical basic charnockites in general appearance and mineral composition, are found at several places in the district. Such rocks are generally found as fragmented inclusions of various dimensions. They are generally disposed along the foliation planes of the granite gneisses and in the acid types of charnockites. They are seldom seen cutting across the foliation planes of the rocks.

The hypersthene granulites are dark-grey in colour and granulitic in texture. They are composed essentially of feldspar, hypersthene, diopside and greenish brown hornblende.

Hypersthene bearing granulites and gneisses of intermediate and acid composition are widespread among the charnockitic rocks. They are mostly gneissose and coarse grained, and consist essentially of quartz, feldspar, hypersthene and minor garnet and biotite.

The khondalite and charnockite rocks of the Eastern Ghats group have the mineral assemblages suggesting the impress of high grade "granulite facies" metamorphism with subsequent retrogression.