is mostly deposited in the northern part of the area resulting in the increase of Mn content. The southern part is practically devoid of river contribution of sediments from the land area. Thus the high manganese content of the northern part sediments may be ascribed to the significant contribution from the source material through rivers compared to the southern part.

Conclusions

From the above results, it is concluded that the northern part of the area under investigation has different type of sediments from that of the southern part. As far as manganese content in the sediments of the eastern part of Bay of Bengal is concerned, it is inferred, that the source of the sediments and the amount of discharge of rivers played rather important role than the prevailing environmental influence.

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HIGH TEMPERATURE K-FELSPAR IN A BASIC CHARNOCKITE OF KONDAVIDU, GUNTUR DISTRICT, ANDHRA PRADESH

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TWO hundred metres south-east of the village Kondavidu (Lat. N. 16° 15′ 40″ ; Long. E. 80° 15′ 50″) occurs coarse-grained basic charnockite forming hill-like mass. It shows dominantly granulitic and occasionally subophitic textures. In thin section it is composed of labradorite felspar, hypersthene, augite, K-felspar, quartz and biotite together with accessory apatite, magnetite and pyrite. The labradorite felspar ($An_{55-58\ \%}$) is seen mostly as twinned prisms and laths. The hypersthene occurs as anhedral plates with $2V_\alpha = 56°$ to 57°, $(\gamma-\alpha) = 0{\cdot}017$, $\beta = 1{\cdot}702$ and pleochroic with α = salmon pink, β = pale yellowish-pink, and γ = pale green. Pale green augite having $2V_\gamma = 51°$, $\gamma : [001] = 40°$, $(\gamma-\alpha) = 0{\cdot}024$ and $\beta = 1{\cdot}680$ exhibits similar shape and size as that of hypersthene.

Microperthitic K-felspar belonging to the sanidine-anorthoclase group of the High albite series (Deer *et al.*, 1962) occurs as discrete crystals or patches within the labradorite felspar. The K-felspar has $\beta = 1{\cdot}522$ to $1{\cdot}523$ and variable optic axial angle ($2V_\alpha$) from 24° to 44° (determined on the universal stage). The optical characters have shown that the K-felspar grains having $2V_\alpha$ ranging from 24° to 34° are more abundant than the grains giving optic axial angles between 34° and 44°. The K-felspar is often found replaced by labradorite, and in such instances it occurs as patches within the latter. It constitutes 4·16% of the mode and it is found difficult to separate from the host rock for further investigation. However, the K-felspar takes the characteristic stain when the thin section of the basic charnockite is treated with sodium cobaltinitrite. The felspars show effects of strain. Anhedral quartz exhibits deformation lamellæ and strain shadows. Strongly pleochroic brick-red biotite is secondary after pyroxenes. Apatite occurs as prisms here and there. Magnetite and pyrite are seen as discrete grains and as granular inclusions in pyroxenes.

The basic charnockite of Kondavidu contains thin and elongated xenoliths of possibly semipelitic composition measuring about $0{\cdot}3 \times 6$ metres tapering at both ends, and these xenoliths are composed of the mineral assemblage almost similar to the host rock; hence

the xenoliths are charnockitic in character. The xenoliths which are charnockitic in character show some amount of variation in colour, texture and mineral assemblage. The greyish type is fine grained and foliated while the dark grey type is coarse grained and granulitic.

Fresh specimens of the basic charnockite and the ash-grey-coloured xenolith of charnockitic affinity of Kondavidu have been chemically analysed and the chemical analyses together with the calculated C.I.P.W. norm are given in Table I. The petrochemistry reveals that the basic charnockite is rich in iron, magnesia and lime, deficient in alumina, poor in silica, and impoverished in alkalies when compared with the analysed xenolith. These characters are also reflected in the calculated norm.

TABLE I
Chemical analyses

Specimen No.	K14	K332
SiO_2	48·60	62·35
TiO_2	0·70	0·65
Al_2O_3	14·69	16·36
Fe_2O_3	4·96	1·20
FeO	11·78	5·98
MnO	0·17	0·08
MgO	5·50	1·66
CaO	10·78	3·64
Na_2O	1·57	4·90
K_2O	0·77	2·95
H_2O	0·52	0·30
Total	100·04	100·07
	C.I.P.W. norm	
Q	2·46	8·94
or	5·00	17·79
ab	13·10	41·39
an	30·58	13·90
di	19·21	3·32
hy	20·68	11·49
mt	7·19	1·86
il	1·37	1·37

K 14. Basic charnockite, Kondavidu, Anal.: G. V. Subbarayudu.

K 332. Fine grained xenolith from the basic charnockite (K 14), Kondavidu, Anal. : G. V. Subbarayudu.

Though it is difficult to surmise, precisely, the composition of the parent material of the xenolith, it is possibly a semipelitic sediment rich in silica, alumina and alkalies and has derived its present texture and mineral assemblage due to metamorphism caused by the magma which has given rise to the basic charnockite of the area. It is evident that the basic charnockite, though metamorphic in character in the present state, its parentage is undoubtedly igneous.

The occurrence of the high temperature K-felspar of the sanidine-anorthoclase isomorphous series (High albite series) in the basic charnockite is of great importance in view of the fact that the sanidine-bearing rocks belonging to the sanidinite facies are restricted to xenoliths in lavas, thermally metamorphosed contact rocks, dykes, volcanic breccias and in the vicinity of near surface intrusions (Turner and Verhoogen, 1962). So far there is no recorded instance of the occurrence of high temperature K-felspar belonging to the sanidine-anorthoclase isomorphous series in charnockites. High temperature K-felspar in the basic charnockite of Kondavidu has probably originated due to the assimilation of the semipelitic sediment by the parent magma of the basic charnockite when the potash constituent of the sediment while getting incorporated has crystallized to give rise to the high temperature form of the K-felspar belonging to the sanidine-anorthoclase isomorphous series under the physico-chemical conditions similar to the sanidinite facies.

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