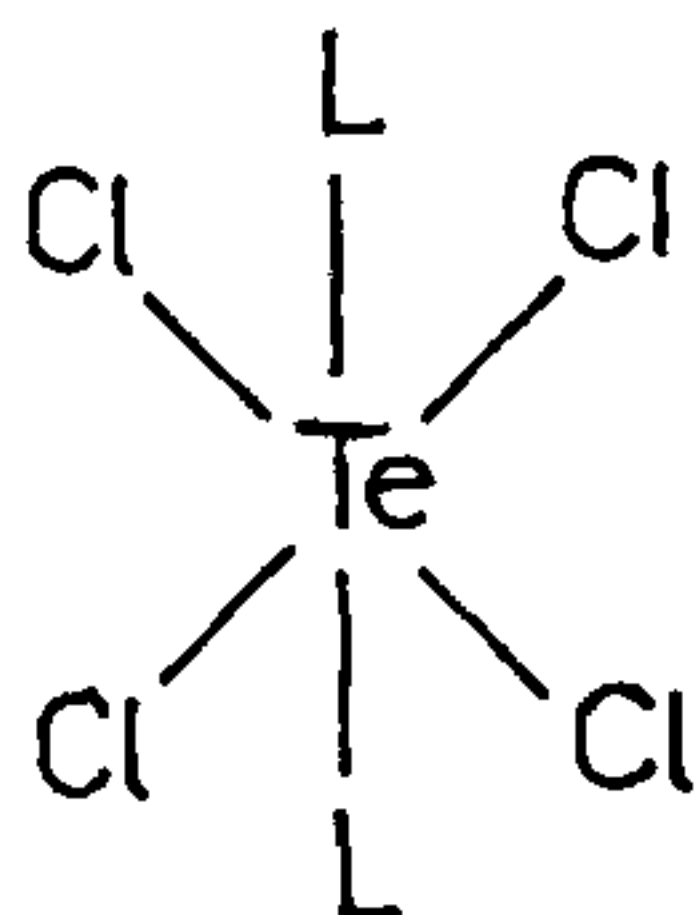


tive shift with the decrease in intensity suffered by ν_{CS} band ($600-700\text{ cm}^{-1}$) in the complexes. It shows a slight red shift with reduction in intensity in the complex spectrum. From the far IR spectra the bands at ~ 280 and $\sim 310\text{ cm}^{-1}$ are tentatively assigned to Te-Cl and Te-S absorptions⁹. The NMR spectra of $\text{TeCl}_4 \cdot 2(\text{bzetu})_2$, $\text{TeCl}_4 \cdot 2(\text{bz}-\beta\text{-OHetu})$ and $\text{TeCl}_4 \cdot 2(\text{MTBzA})$ overrules the possibility of N coordination as there is no lowering in the chemical shifts of amido protons ($\sim 8.5\delta$) in the complexes. The TG curves of $\text{TeCl}_4 \cdot 2\text{bzetu}$, $\text{TeCl}_4 \cdot 2\text{bzmetu}$ and $\text{TeCl}_4 \cdot 2\text{bz-m-ClPtu}$ reveal a single-step oxidative decomposition to the dioxide, TeO_2 around 450°C and the percentage loss in weight supports the formation of 1:2 adducts. From the above discussion it is evident that octahedral coordination is the best fit for these complexes as indicated below.



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INITIATION FACTOR IF3 PARTIALLY DISSOCIATES 16S.23S RNA COMPLEX

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IT has been demonstrated earlier that naked 16S and 23S ribosomal RNAs form a binary complex under two well-defined conditions¹⁻⁴. The first one is the reconstitution condition necessary for the assembly of 30S subunit from 16S RNA and 21 different proteins⁵. This condition is also similar to that used for the reconstitution of 50S ribosome by the two-step procedure^{6,7}. The second one (1 M alcohol and some specific ionic condition) is what makes naked 16S and 23S RNAs assume shapes having structural features of 30S and 50S ribosomes respectively^{8,9}. Naturally the question arises whether such RNA-RNA interaction plays a role in the association of the two ribosomal subunits under physiological condition. To answer this, several approaches are being made in this laboratory. On the one hand, it has been shown that 5S RNA is incorporated into the complex only in association with those ribosomal proteins which are responsible for the incorporation into 50S ribosome¹⁰. On the other hand, studies with kethoxal have shown that the sites of rRNAs implied in the association of 30S and 50S subunits¹¹⁻¹⁴ are also involved in the association of naked 16S and 23S RNAs (manuscript under preparation). The preliminary experiments presented here will show that the initiation factor IF3 which dissociates 70S ribosome to its subunits under physiological condition¹⁵⁻¹⁷ also induces the dissociation of 16S.23S complex, although partially, to its constituents.

Figure 1 shows the dissociation activity of IF3 (partially purified from the 1M NH_4Cl wash of *E. coli* 70S ribosome upto DEAE cellulose step according to the method of Schiff *et al*¹⁸) on ribosome as well as 16S.23S RNA complex, as measured by light scattering method described earlier². The dissociation of 70S ribosome is about 70% in the presence of 6mM magnesium acetate whereas that of 16S.23S RNA complex is 50% in the presence of 15 mM magnesium acetate. Different Mg^{2+} concentrations had to be used as the associations of rRNAs and ribosomal subunits require different conditions².

The effect of IF3 on the 16S.23S RNA complex was studied by sucrose density gradient centrifugation as well. As shown already by light scattering method, the association is about 50% at 10 mM Mg^{2+} concentration and practically complete at 20 mM concentra-

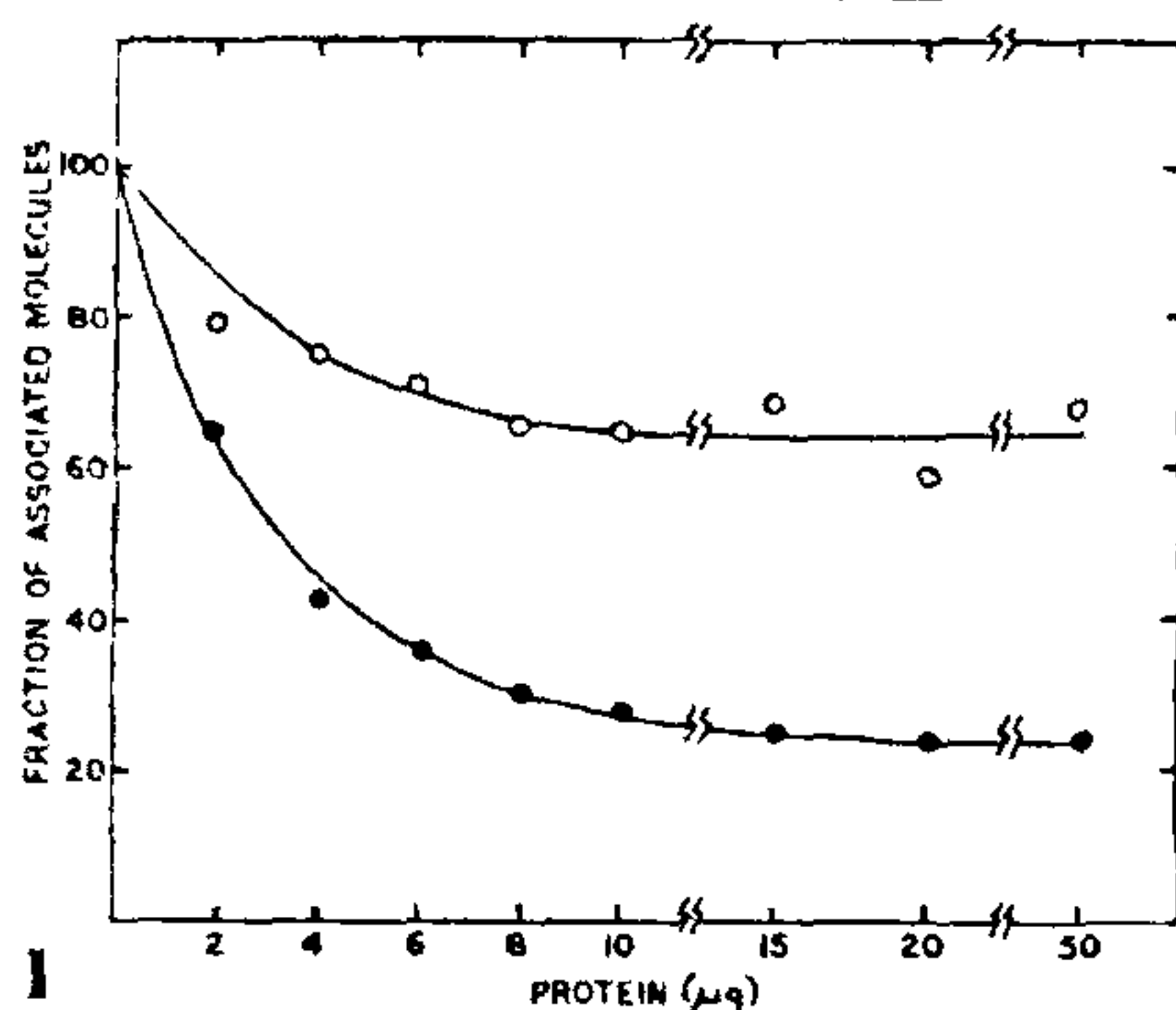


Figure 1 IF3 induced dissociation of 16S.23S RNA complex as measured by light scattering: 1 A_{260} unit of 16S RNA was incubated for 6 hr with varying amounts (indicated in the figure) of IF3 preparation under reconstitution condition containing 20 mM Tris-HCl pH 7.5, 400 mM KCl and 15 mM magnesium acetate and then overnight with 1.9 A_{260} units of 23S RNA at 0°C. Light scattering was measured at 400 nm as described earlier². In case of ribosomal subunits similar amounts were incubated in TMA (20 mM Tris-HCl, pH 7.5, 30 mM ammonium chloride and 6 mM magnesium chloride) and light scattering was measured in the same way. Fractions of associated molecules were calculated as discussed before². (open circle-16S.23S RNA complex, closed circle-70S ribosome).

tion² Similar observations were made by density gradient centrifugation as well (figure 2). Four different Mg^{2+} concentrations, 10, 12.5, 15 and 20 mM were chosen for this study. In each case the addition of IF3 results in partial dissociation (approximately 30%) of the complex as observed by the light scattering method.

It is not known whether the lower dissociation observed in the case of 16S.23S RNA complex is due to the absence of proteins or some other reason. IF3 is known to reside in the vicinity of the 3'-end of 16S RNA of 30S ribosome but its mechanism of action is still controversial^{20,21}. Several ribosomal proteins in the vicinity of IF3 bound to ribosome have also been identified²¹⁻²³, but their role in the IF3 activity is not known. Investigations are in progress in this laboratory to understand the mechanism of action of IF3 on the RNA-RNA complex. However, it is evident from the present results that 16S.23S complex formation under reconstitution condition like the subunit association under physiological condition, is affected by IF3. Thus it provides an opportunity for understanding the physiological function of IF3.

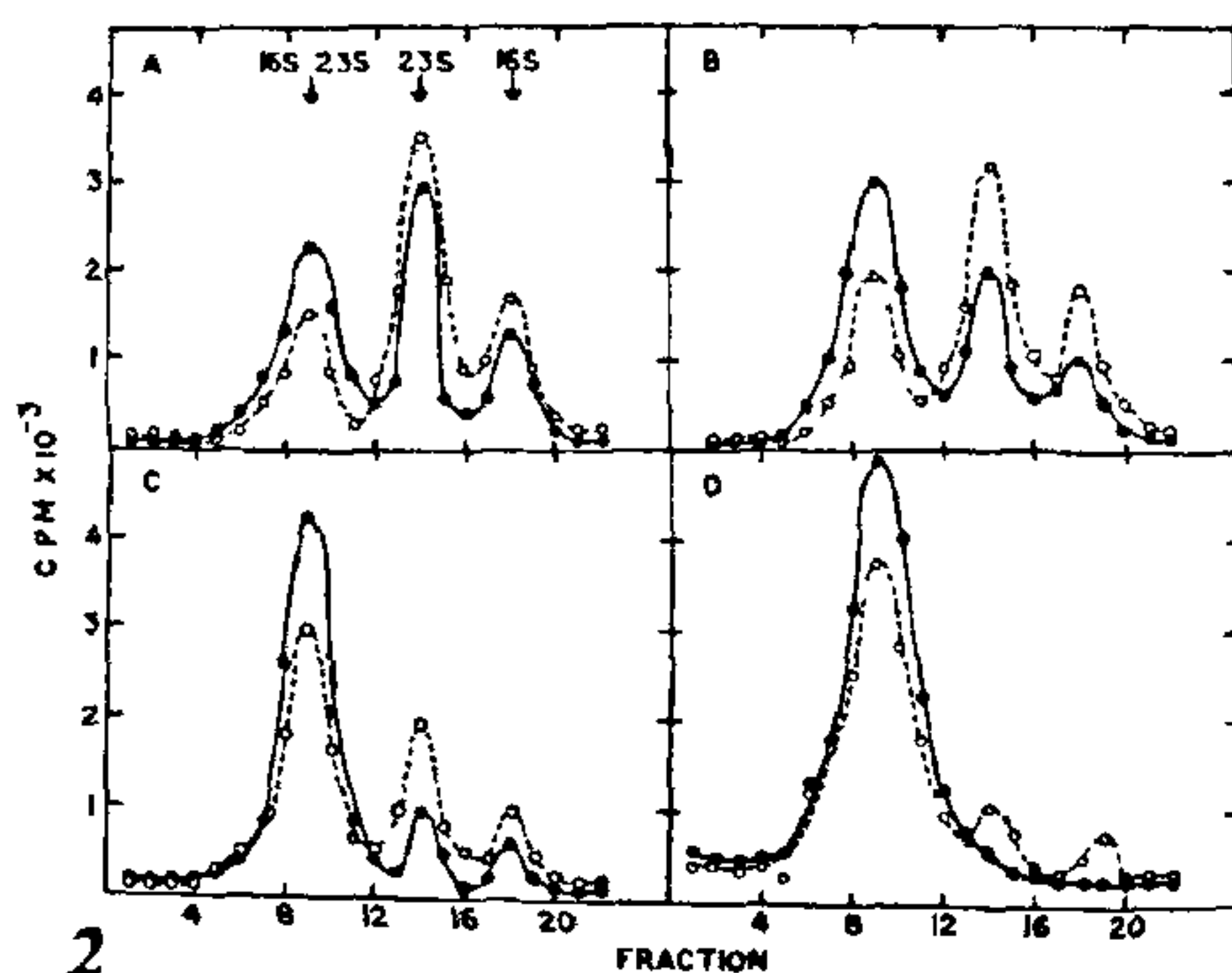


Figure 2. IF3 induced dissociation of 16S.23S RNA complex as measured by density gradient centrifugation: 0.43 A_{270} unit of ^{32}P -16S RNA ($18.7 \mu g$; 7×10^3 cpm) was first incubated with $5 \mu g$ of partially purified IF3 and then 0.82 A_{260} unit of ^{32}P -23S RNA ($35.5 \mu g$; 1.35×10^4 cpm) in 0.5 ml of reconstitution buffer as described in the legend to figure 1, except that Mg^{2+} concentration was varied (indicated below). The mixture was loaded on 5-20% sucrose gradient containing the reconstitution buffer. The centrifugation was done at $96,000 \times g$ for 6 hr in Janetzki VAC 60Z ultracentrifuge. Fractions were collected in 10% trichloroacetic acid. The radioactivity in the precipitate was determined in Rack Beta liquid scintillation counter of 1 KB after filtration through GF/A filters. Mg^{2+} concentrations, mM (A) 10 (B) 12.5 (C) 15 (D) 20

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OCCURRENCE OF CANCRINITE TINGUAITE AND K-RICH TRACHYTE FROM NONGCHARAM—DARUGIRI AREA OF EAST GARO HILLS DISTRICT, MEGHALAYA, INDIA

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RARE rocks of alkaline affinity, namely cancrinite-
tinguaite and K-rich trachyte have recently been

recorded for the first time in the Nongcharam (25° 35' N. Lat.: 90° 49' E. Long) and Darugiri (25° 37' N. Lat.: 90° 46' E. Long.) area of the East Garo Hills district, Meghalaya. This preliminary communication deals with some aspects of their geological setting and petrological characteristics.

Geological Setting: Precambrian gneisses and migmatites constitute the country rocks in which tinguaite occurs as a dike—like body over an area of approximately 250 m × 75 m with N-S trend at Nongcharam and as blocks (without clearcut field relations due to thick soil cover) at Ailawe (25° 38' N. Lat.: 90° 46' E. Long.), whereas trachyte occurs as smaller bodies (40 × 0.75 m) with an ESE-WNW trend near Darugiri. **Petrology:** Cancrinite-tinguaite is dark green and holocrystalline-porphyrific, defined by phenocrysts of turbid sanidine and anorthoclase, cancrinite, nepheline, aegirine augite, diopside, biotite and occasional barkevikite set in a groundmass comprising needles of aegirine and aegirine augite, orthoclase, albite, nepheline, cancrinite and sodalite. Chemically, it is more silica undersaturated (SiO₂: 48.3%) and alkali-enriched (Na₂O: 11.5%, K₂O: 4.1%) finding expression in high normative nepheline (37) and acmite (11), as compared to the average tinguaite (SiO₂: 54.1%; Na₂O: 8.1%; K₂O: 5.5%; ne: 21.2 and ac: 2.9) of Le Maitre¹.

K-rich trachyte is pink coloured, and consists of phenocrysts of dominant K-feldspar (1–2 mm long) and a little quartz set in a groundmass of K-feldspar; K-feldspar is both orthoclase and microcline, with the former being minor and transforming to the latter. Chemically, it is characterised by relatively higher contents of SiO₂ (62.7%) and K₂O (13.3%) and lower Na₂O (0.45%) compared to the rare similar one (SiO₂: 60.1%; K₂O: 12.6% and Na₂O: 1.2%) from the Keiserstuhl carbonatite complex of West Germany².

The occurrence of these alkaline rocks along with the reported occurrences of the alkali-carbonatite complex from the near by Wah Sung Valley of Jaintia Hills³ and alkali basalt from the Sylhet trap of Khasi Hills⁴ points to a distinct alkaline phase(s) of igneous activity in this part of India.

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