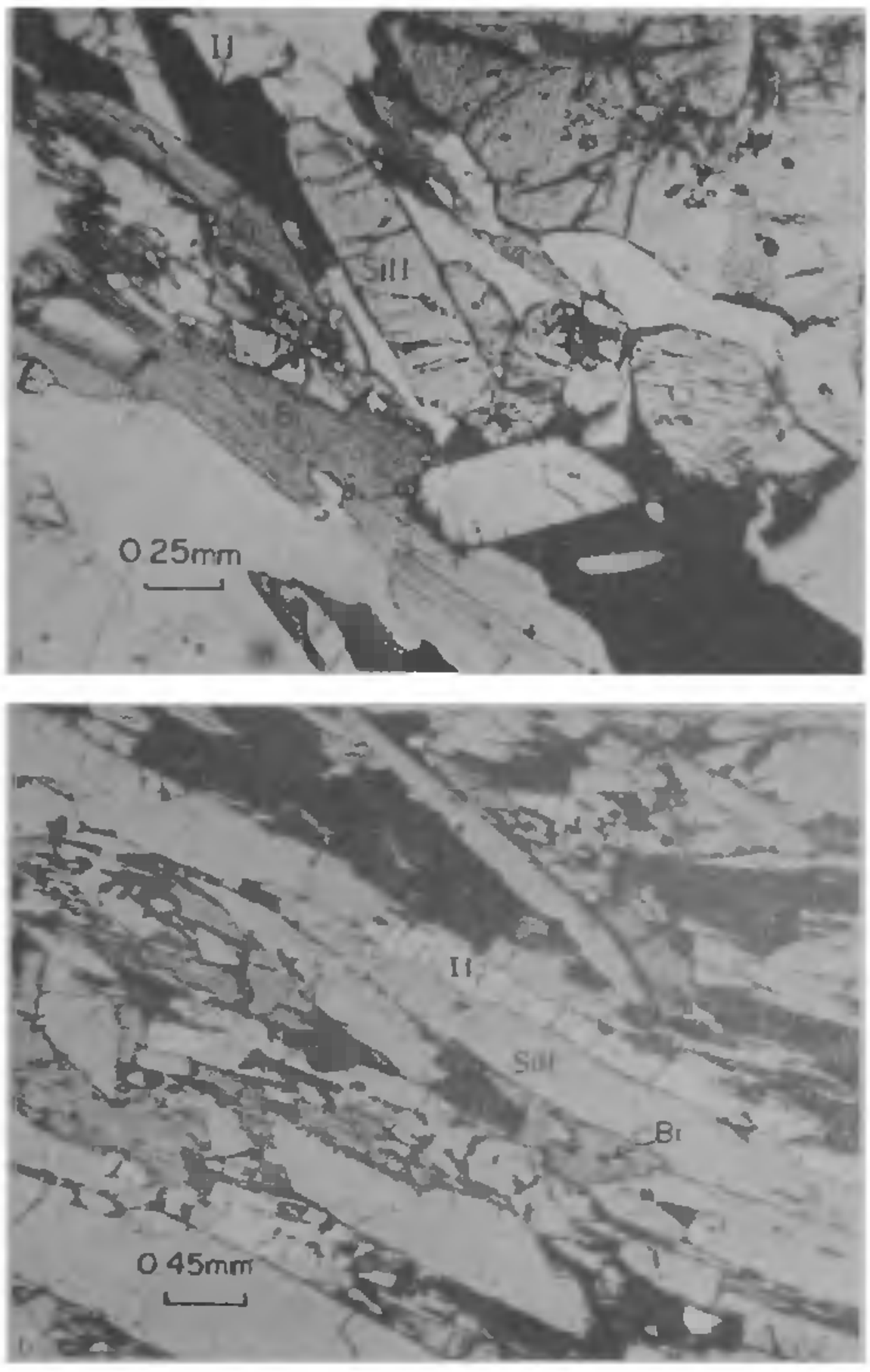


**Figures 2a, b.** Photomicrographs. Formation of sillimanite and ilmenite from biotite. Sill – Sillimanite Il – Ilmenite, Bi – Biotite, **(a)** Plane – Polarized light, **(b)** Reflected light. Scales shown on the photographs.

manite) of the Chavara deposit originated from the khondalite-migmatite complex of southern Kerala.

The available age data on monazite and zircon from Chavara deposit, ranging from 600 to 775 m.y.[9–11] would, therefore, signify the interval of migmatization and associated prograde (granulite-facies) metamorphism of the sediments of the south Kerala aulacogen. The exclusive localization of similar placer deposits in comparable geological environments, as in Manavalakurichi and in Orissa, would also testify to the origin of these minerals from khondalite-migmatite complexes of late-Precambrian age.

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## A NEW FIND OF CARBONATITE FROM MEGHALAYA

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THIS note records a new find of carbonatite from West Khasi Hills district, Meghalaya. The carbonatite occurs in the form of small dykes (figure 1) with lengths upto 50 m and widths of 20 cm or more, traversing the gneisses and granites in Riangdo river bed, near Swangkre (25°30′45″:90° 48′00″) village, in toposheet no. 78K/14. The country rock gneisses have foliation striking WNW-ESE. The dykes trend in general N-S and are either vertical or have steep dips towards west. They are irregular in form and show branching at places. Because of their high susceptibility to erosion, they have a low relief compared to the host gneisses and granites. Platy calcite occurs as thin veins in the carbonate rock and possibly represents a pegmatitic phase.


**Figure 1.** Carbonatite dyke (Cb) traversing biotite gneiss exposed in Riangdo river, near Swangkre village West Khasi Hill district.

The carbonatite is medium to coarse grained with hypidiomorphic granular texture. At places, particularly along the margins of the dykes, the slender calcite grains are linearly aligned. The rock consists predominantly of calcite which makes up over 95% of the constituent minerals. Accessory amounts of alkali felspar, plagioclase, opaques and apatite are present. Calcite is clear in some patches, but generally clouded with dusty opaque matter along cleavages, twin planes and interstices between the anhedral grains.

Spectroscopic analysis of four samples shows the following range in some trace elements : Ba = 200–300, La = 100–150, Y = 30–35, Zr = 30, Nb = 30–40 and V = 80–130 (all in ppm). Although these carbonate rocks have lower concentrations in respect of some trace elements, as compared to average values for carbonatites[1], they are distinctly richer, when compared to average for sedimentary carbonate rocks[2]. This also strongly indicates that the carbonate rocks of the present area are carbonatites.

The samples are devoid of any typical carbonatite rare earth minerals, but show relatively higher concentrations of trace elements, especially La, Y and Nb. However, these concentrations are lower than the threshold values required for the appearance of rare earth minerals. Hence, these elements are presumably accommodated in the lattice of calcite as impurities. So, these carbonatitic rocks are possibly early carbonatites[3].

The carbonatites of the present area are located along a major zone of dislocation ("Nongchram Fault"). Lamprophyre-ijolite association of rocks[4] and cancrinite-tinguaite and K-rich trachyte[5] have also been reported from the area. These alkaline magmatic rocks are more profusely developed along the Nongchram fault zone and have generally N-S trend coinciding with the strike of the fault. The present find of carbonatite in association with ijolites, lamprophyres and other alkaline rocks in East Garo and West Khasi Hills districts, suggests that these may be genetically related to the alkaline carbonatite complex of Sung Valley[6] in East Khasi and Jaintia Hills districts. These scattered occurrences may be part of an ill defined alkaline province coincident with the northern part of the Sylhet Trap volcanics.

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