TABLE II

Relative intensities obtained for 30 seconds exposure from a graphite sample with Scribner Mullin's electrodes of different shapes

Element	SMSC	SMSC UC at 8 mm	SMSC UC at 4 mm
Ca	5·7	6·8	6·9
Cu	2·8	2·8	5·4
Al	10·2	13·8	15·0
Fe	6·3	7·8	8·0
Mg	1·5	1·9	1·9
Mn	3·6	4·1	4·9
Si	2·9	3·3	3·4

UC = Undercut.

same or better with the modified electrode. For Al, Ca, Co, Fe and Mg, the original electrode gave better precision. The chief advantage of the modified electrode is that the complete burn is obtained in a short time of 30 seconds for all the elements, while it retains the advantage of original electrode, *viz.*, easy loading and unloading on the electrode stand since SMSC sits on a pedestal electrode.

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FISSION TRACK DATING OF MUSCOVITES FROM PEGMATITES OF THE SHILLONG PLATEAU

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THE geochronological data of the crystalline rocks of the Shillong plateau are very scarce. So far, dating of the three samples of the region by Sarkar[1] and Crawford[2] was done by radiometric (K–Ar; Sr–Rb) method. The present work is an attempt to date some minerals of important litho-units of this region by applying fission track technique[3–5]. This study deals with the measurement of fission track ages and uranium concentration of some muscovites from two pegmatites of the Shillong plateau.

Collection of Samples

Coarse books of muscovites were collected from two pegmatites the one of which outcrops near Nengkhra in the Garo Hills district and the other near Nongkhlow in the Khasi Hills district of Meghalaya. Both the pegmatites are within a Precmabrian complex.

Experimental Procedure

Compact and neat muscovite specimens are selected from the coarse books for the study. Each sample is cut into a number of small pieces ($\geqslant 1$ cm^2) which are then cleaved along the basal plane into three slices. The outer slices are etched in 48% HF acid for 2·5 hr at 26° C and then are scanned for the fossil tracks by a polarising microscope under a moderately higher magnification. The inner pieces are irradiated with a known dose ($\sim 10^{16}$ *nvt*) of thermal neutrons in the CIRUS Reactor at Trombay. The neutron dose (ϕ) is accurately determined by measuring the track density on a standard glass of known U-concentration irradiated simultaneously along with the muscovite samples. The irradiated samples are then etched by the similar process as done above and scanned for the induced tracks.

The fission track ages and the uranium concentration of the mineral are determined by using the following equation (Price *et al.*[6]).

$$T = \frac{1}{\lambda_D} \cdot \ln\left[1 + \frac{\rho_s \sigma \phi \lambda I_D}{\rho_i \lambda_f}\right] \qquad (1)$$

where λ_D, λ_f, σ, ϕ and I are constants,

and U-concentration $C = K \frac{\rho_i}{\phi}$ (2)

ρ_s, ρ_i and ϕ are fossil track density, induced track density and neutron dose respectively.

The fission track data and the inferred ages of the muscovites from the two pegmatites are given in Table I [the estimated neutron dose $(3{\cdot}6 \pm 0{\cdot}5) \times 10^{16}$ nvt (4851)].

Conclusion

It is seen from the present fission track study that the mean ages obtained for the MPG and MPK (Table I) are 531 ± 15 m.y. and 501 ± 25 m.y. respectively. The observed data for the muscovites of the two pegmatites of separate occurrences show very close ages and suggest that both the pegmatites of the Shillong plateau may belong to a common geological event which corresponds to the period of Indian Ocean cycle (Sarkar[1]).

TABLE I

Sample No.	Fossil track Density ρ_s (track/cm²)	Induced track Density ρ_i (track/cm²)	Age m.y. (million years)	Average age m.y.	U-Con. 10^{-6} gm/gm
1	2	3	4	5	6
MPG–1	1639 (245)	6287 (943)	547±41		5·4
–2	1648 (247)	6333 (950)	546±41		5·4
–3	1498 (225)	5893 (884)	534±41		5·1
–4	1209 (181)	4941 (742)	515±44		4·3
–5	1395 (209)	5360 (804)	546±44		4·6
–6	1502 (225)	6173 (925)	512±39	531±15	5·3
–7	1346 (202)	6173 (926)	460±37		5·3
–8	1406 (211)	4990 (748)	589±48		4·3
–9	1456 (218)	5740 (861)	533±41		4·9
–10	1432 (214)	5673 (851)	528±41		4·9
MPK–1	456 (68)	2024 (303)	475±65		1·7
–2	424 (65)	1958 (292)	466±66		1·7
–3	404 (60)	1636 (245)	519±77	501±25	1·4
–4	629 (94)	2151 (326)	605±73		1·8
–5	421 (63)	2085 (311)	428±61		1·8
–6	553 (82)	1960 (293)	582±77		1·7
–7	427 (64)	2093 (313)	432±61		1·8

MPG—Muscovites from the pegmatite near Nengkhra, Garo Hills Dist., Meghalaya
MPK—Muscovites from the pegmatite near Nongkhlow, Khasi Hills Dist., Meghalaya
Number of tracks counted is shown parenthetically.
Only the statistical errors of counting have been shown in column 4, whereas in column 5 mean values are given with the standard error.

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EFFECT OF ORTHENE ON TISSUE LEVEL OF RIBOFLAVIN AND SUCCINIC DEHYDROGENASE ACTIVITY

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RIBOFLAVIN is essential in the diets, the deficiency of which leads to glossitis, cheilosis, seborrheic dermatitis and reduction in activity of various riboflavin enzymes. The conversion of succinic acid into fumaric acid is catalysed by the enzyme, succinic dehydrogenase (SDH) which contains flavin adenine-dinucleotide (FAD) and nonheme iron. Vitamin content is found to decrease after poisoning with some organophosphorous and chlorophos insecticides[1,2]. Decreased activity of some liver flavoproteins and

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