Unusual zircons from the Leinster Pluton

ZIRCONS having elongation ratios greater than 69 have been found in muscovite flakes collected from the Leinster Granite. The greatest recorded elongation ratio known to the author is 32 for a zircon from the Pend Oreille tonalite (Poldervaart, 1956, p. 535).

Six samples of 50 to 80 gms of muscovite were collected, three from the muscovite-rich Type III granite (Brindley, 1954, p. 161) and three from different pegmatites. The zircons were separated by dissolving the muscovite flakes in a mixture of HF and H₂SO₄ (see Larsen and Poldervaart, 1957). The pegmatite muscovites were found to contain no zircon. In contrast the granite muscovites contained numerous extraordinarily elongate zircons. A fundamental environmental difference is indicated (Brindley and Gupta, 1973, p. 426).
The recovered zircons are singly and doubly terminated and show pleochroism from neutral to yellowish green. They are generally simple unimodal prismatic crystals; zoning is common; some of the zircons show a superimposed thin film of one crystal over another. Some have possibly grown from two nuclei and subsequently joined to make a single optically continuous crystal (fig. 1A). Occasional zircons show corrosion and clouding (fig. 1B), which appear to be due to acid attack during their extraction. The zircon lengths vary from 480 to 1501 μm, breadths from 12 to 50 μm. The maximum
The elongation ratio is 69.41 (fig. 1C), the next greatest is 69.20 (fig. 1D). Elongation ratios of 25–50 are common. Transverse cracks are often seen (fig. 1, D and E).

These zircons, extracted by dissolving demonstrably late muscovites have exceptional dimensions. They contrast strongly with early zircons separated from crushed samples of the same granite (Gupta, 1972), which show normal magmatic elongation ratios of approximately 2. Breakage during whole rock crushing may be the reason why extremely elongate zircons were not recovered in the latter instance and, possibly, why they are only recorded very rarely in the literature.

Acknowledgements. Thanks are due to Professor James C. Brindley, to Mr. P. S. Kennan and to Mr. P. O. Donogue of the University College, Dublin for their help. This study has been financed by the Irish Department of Education.

Department of Geology, University College, Dublin-4

L. N. GUPTA

REFERENCES

LARSEN (L. H.) and POLDERVAART (A.), 1957. Min. Mag. 31, 544–64.

[Manuscript received 27 July 1972.]

© Copyright the Mineralogical Society.