

## CONTENTS OF No. 369, MARCH 1989

	<i>page</i>
<i>Editorial</i>	1
<i>Review Papers</i>	
S. J. B. REED: Ion microprobe analysis—a review of geological applications	3
W. L. BROWN and I. PARSONS: Alkali feldspars: ordering rates, phase transformations and behaviour diagrams for igneous rocks	25
<i>Petrology and Geochemistry</i>	
H. DOWNES: Magma mixing in undersaturated alkaline volcanics, Cantal, Massif Central, France	43
B. A. PATERSON, W. E. STEPHENS and D. A. HERD: Zoning in granitoid accessory minerals as revealed by backscattered electron imagery	55
J. M. MOORE and A. M. REID: A Pan-African zincian staurolite imprint on Namaqua quartz-gahnite-sillimanite assemblages	63
<i>Mineralogy</i>	
A. PECKETT: Quantitative colours of opaque minerals	71
D. C. HARRIS, A. C. ROBERTS and A. J. CRIDDLE: Vaughanite, $\text{TiHgSb}_4\text{S}_7$ , a new mineral from Hemlo, Ontario, Canada	79
S. MATSUBARA and A. KATO: A barian bannisterite from Japan	85
J. R. ASHWORTH: Transmission electron microscopy of coexisting low-tridymite polymorphs	89
T. SAWAKI: Sadanagaite and subsilicic ferroan pargasite from thermally metamorphosed rocks in the Nōgō-Hakusan area, central Japan	99
N. J. G. PEARCE: Zirconium-bearing amphiboles from the Igaliko Dyke Swarm, South Greenland	107
J. PARNELL and P. EAKIN: Thorium-bitumen mineralization in Silurian sandstones, Welsh Borderland	111
<i>Short Communications</i>	
C. M. B. HENDERSON and D. TAYLOR: Structural behaviour of chkalovite, $\text{Na}_2\text{BeSi}_2\text{O}_6$ : a member of the cristobalite family	117
J. M. MONTEL, F. LHOÏE and J. M. CLAUDE: Monazite end members and solid solutions: synthesis, unit-cell characteristics, and utilization as microprobe standards	120
K. A. RODGERS: Dahllite and whitlockite from Amatuku islet, Tuvalu	123
A. LIVINGSTONE: Low-temperature, hydrothermal garnet associated with zeolites, from basalt lavas near Beith, Ayrshire	125
<i>Mineralogical Notes</i>	
P. J. DUNN: Protocols for scientists on the deposition of investigated mineral specimens	131
F. SAUPÉ and G. VEGAS: Chemical and mineralogical compositions of black shales (Middle Palaeozoic of the Central Pyrenees, Haute-Garonne, France)—erratum	131

---

UNIVERSITY PRINTING HOUSE, OXFORD, ENGLAND