## Contents

**Introduction** ix

**General Topics and Reviews**

TAYLOR, S. R. Geochemical and petrological significance of the Archaean–Proterozoic boundary 3


RICKARD, D. Proterozoic volcanogenic mineralization styles 23

**Early Proterozoic Volcanic Suites of the Baltic Shield**

PHARAOH, T. C., WARREN, A. & WALSH, N. J. Early Proterozoic metavolcanic suites of the northernmost part of the Baltic Shield 41

HONKAMO, M. Geochemistry and tectonic setting of early Proterozoic volcanic rocks in northern Ostrobothnia, Finland 59

VIVALLO, W. & CLAESON, L.-Å. Intra-arc rifting and massive sulphide mineralization in an early Proterozoic volcanic arc, Skellefte district, northern Sweden 69

PARR, J. & RICKARD, D. Early Proterozoic subaerial volcanism and its relationship to Broken Hill-type mineralization in central Sweden 81

COLLEY, H. & WESTRA, L. The volcano-tectonic setting and mineralization of the early Proterozoic Kemiö-Orijärvi-Lohja Belt, SW Finland 95

**Early and Middle Proterozoic Volcanic Suites of the Laurentian and North Atlantic Shields**

BARAGAR, W. R. A. & SCOATES, R. F. J. Volcanic geochemistry of the northern segments of the Circum-Superior Belt of the Canadian Shield 113

ARNDT, N. T., BRÜGMANN, G. E., LEHNERT, K., CHAUVEL, C. & CHAPPELL, B. W. Geochemistry, petrogenesis and tectonic environment of Circum-Superior Belt basalts, Canada 133

LEWRY, J. F., MACDONALD, R., LIVSEY, C., MEYER, M., VAN SCHMUS, R. & BICKFORD, M. E. U-Pb geochronology of accreted terranes in the Trans-Hudson Orogen, Northern Saskatchewan, Canada 147

WATTERS, B. R. & PEARCE, J. A. Metavolcanic rocks of the La Ronge Domain in the Churchill Province, Saskatchewan: geochemical evidence for a volcanic arc origin 167

GASKARTH, J. W. & PARSLOW, G. R. Proterozoic volcanism in the Flin Flon greenstone belt, east-central Saskatchewan, Canada 183

GOWER, C. F. & RYAN, B. Two stage felsic volcanism in the Lower Proterozoic upper Aillik Group, Labrador, Canada: its relationship to syn- and postkinematic plutonism 201

CONDIE, K. C. Early Proterozoic volcanic regimes in southwestern North America 211

LECHEMINANT, A. N., MILLER, A. R. & LECHEMINANT, G. M. Early Proterozoic alkaline igneous rocks, District of Keewatin, Canada: petrogenesis and mineralization 219
Contents

RYAN, A. B., BARAGAR, W. R. A. & KONTAK, D. J. Geochemistry, tectonic setting, and mineralization of high-potassium middle Proterozoic rocks in central Labrador, Canada 241

JOHNSON, Y. A., PARK, R. G. & WINCHESTER, J. A. Geochemistry, petrogenesis and tectonic significance of the early Proterozoic Loch Maree Group amphibolites of the Lewisian Complex, NW Scotland 255

Proterozoic Volcanic Suites of the Guiana Shield

GIBBS, A. K. Proterozoic volcanic rocks of the northern Guiana Shield, South America 275

RENNER, R. & GIBBS, A. K. Geochemistry and petrology of metavolcanic rocks of the early Proterozoic Mazaruni greenstone belt, northern Guyana 289

Proterozoic Volcanic Suites of Africa

MYERS, R. E., CAWTHORN, R. G., McCARTHY, T. S. & ANHAEUSER, C. R. Fundamental uniformity in the trace element patterns of the volcanics of the Kaapvaal Craton from 3000 to 2100 Ma: evidence for the lithospheric origin of these continental tholeiites 315


BORG, G. & MAIDEN, K. J. Alteration of late Middle Proterozoic volcanics and its relation to stratabound copper-silver-gold mineralization along the margin of the Kalahari Craton in SWA/Namibia and Botswana 347

BREITKOPF, J. H. & MAIDEN, K. J. Geochemical patterns of metabasites in the southern part of the Damara Orogen, SWA/Namibia: applicability to the recognition of tectonic environment 355

KLEMENIC, P. M. The geochemistry of Upper Proterozoic lavas from the Red Sea Hills, NE Sudan 363

Proterozoic Volcanic Suites of Australia

WYBORN, L. A. I., PAGE, R. W. & PARKER, A. J. Geochemical and geochronological signatures in Australian Proterozoic igneous rocks 377

JAMES, S. D., PEARCE, J. A. & OLIVER, R. A. The geochemistry of the Lower Proterozoic Willyama Complex volcanics, Broken Hill Block, New South Wales 395

WILSON, I. H. Geochemistry of Proterozoic volcanics, Mount Isa Inlier, Australia 409

WYBORN, L. A. I. The petrology and geochemistry of alteration assemblages in the Eastern Creek volcanics, as a guide to copper and uranium mobility associated with regional metamorphism and deformation, Mount Isa, Queensland 425

Proterozoic Volcanic Suites of Asia

JIA CHENGZAO. Geochemistry and tectonics of the Xionger Group in the eastern Qinling Mountains of China—a mid Proterozoic volcanic arc related to plate subduction 437

Middle to Late Proterozoic Volcanic Suites of the North Atlantic Borderlands

SMITH, T. E. & HOLM, P. E. The trace element geochemistry of metavolcanic and dykes from the Central Metasedimentary Belt of the Grenville Province, southeastern Ontario, Canada 453
Contents

BREWER, T. S. & ATKIN, B. P. Geochemical and tectonic evolution of the Proterozoic Telemark supracrustals, southern Norway 471

WINCHESTER, J. A., MAX, M. D. & LONG, C. B. Trace element geochemical correlation in the reworked Proterozoic Dalradian metavolcanic suites of the western Ox Mountains and NW Mayo Inliers, Ireland 489


CABANIS, B., CHANTRAINE, J. & RABU, D. Geochemical study of the Brioverian (late Proterozoic) volcanic rocks in the northern Armorican Massif, France. Implications for geodynamic evolution during the Cadomian 525

PHARAOH, T. C., WEBB, P. C., THORPE, R. S. & BECKINSALE, R. D. Geochemical evidence for the tectonic setting of late Proterozoic volcanic suites in central England 541

Index 553