



**ECONOMIC GEOLOGY  
RESEARCH UNIT**

University of the Witwatersrand  
Johannesburg

---

**A BIBLIOGRAPHY OF THE GEOLOGY  
RELATING TO THE BARBERTON MOUNTAIN LAND  
AND SURROUNDING GRANITIC TERRANE 1992-1996**

**C.R. ANHAEUSSER**

---

**• INFORMATION CIRCULAR No. 306**

UNIVERSITY OF THE WITWATERSRAND  
JOHANNESBURG

**A BIBLIOGRAPHY OF THE GEOLOGY  
RELATING TO THE BARBERTON MOUNTAIN LAND  
AND SURROUNDING GRANITIC TERRANE 1992-1996**

compiled by

**C.R. ANHAEUSSER**  
*(Economic Geology Research Unit, Department of Geology,  
University of the Witwatersrand,  
P/Bag 3, WITS 2050,  
Johannesburg, South Africa)*

**ECONOMIC GEOLOGY RESEARCH UNIT  
INFORMATION CIRCULAR No. 306**

December, 1996

# **A BIBLIOGRAPHY OF THE GEOLOGY RELATING TO THE BARBERTON MOUNTAIN LAND AND SURROUNDING GRANITIC TERRANE 1992-1996**

This compilation represents the fourth of a series of bibliographies dealing with aspects of the geology relating to the Barberton greenstone belt and surrounding areas of eastern Mpumalanga Province (formerly the Eastern Transvaal Lowveld) and Swaziland. The first bibliography, compiled by the author in 1976, appeared as Information Circular No. 102 of the Economic Geology Research Unit, University of the Witwatersrand, and contains a comprehensive list of references pertaining to the geology, mineral deposits and mining in the Barberton region covering the period 1875 to June, 1976.

The second bibliography, compiled by the author in 1986, appeared as Information Circular No. 184 and covers the period 1976 to August, 1986. The third compilation, compiled in 1992, appeared as Information Circular No. 252 and covers the period September, 1986 to June, 1992. This, the fourth compilation, covers the period July, 1992 to December, 1996 and again demonstrates the ongoing scientific interest the Barberton Mountain Land still holds for many researchers with divergent interests in the Archaean geology of the region.

The diverse nature of the earth science endeavours continually being implemented in the Barberton-Swaziland region makes it extremely difficult to keep abreast of all the findings reported at international and local conferences and workshops. It is also no easy task monitoring all the material being published in a wide spectrum of books, journals, conference proceedings, abstract volumes and field guides. For this reason the bibliography cannot be regarded as fully comprehensive. References to some works appearing prior to 1992, and previously overlooked, have been included in the present compilation. A few articles, where it is known they will appear in books and journals to be published in 1997, are also listed. While every effort has been made to ensure the accuracy of the entries appearing herein, errors and omissions are inevitable and advice of such would be welcomed by the compiler.

Finally, the author thanks Janet Long for her help in typing draft and final copies of the bibliography.

\_\_\_\_\_oOo\_\_\_\_\_

Published by the Economic Geology Research Unit  
Department of Geology  
University of the Witwatersrand  
1 Jan Smuts Avenue  
Johannesburg 2001.

ISBN 1 86838 248 6

**LIST OF PUBLICATIONS ARRANGED ALPHABETICALLY ACCORDING TO  
AUTHOR**

**A**

- (1996). South Africa's Barberton gold belt draws attention from juniors. *African Mining*, 1 (2), p.17.
- ANHAEUSSER, C.R.** (1992). Archaean granite-greenstone relationships on the farm Zandspruit 191-IQ, North Riding area, Johannesburg Dome. *S. Afr. J. Geol.*, **95** (3/4), 94-101.
- ANHAEUSSER, C.R.** (1992). The history and geology of the Barberton Goldfield, eastern Transvaal. Abstr. First S.A. Mineral Collectors Symposium, Rand Afrikaans University, Johannesburg, 1-3pp.
- ANHAEUSSER, C.R.** (1996). Nature and evolution of the South African early Archaean terranes. Ext. Abstr. Sociedade Brasileira de Geologia Symposium on Archaean Terranes of the South American Platform, Brasilia, p.3.
- ARNDT, N.T.** (1994). Archaean komatiites. In: K.C. Condie (Ed.), *Archaean Crustal Evolution, Developments in Precambrian Geology* 11, Elsevier, Amsterdam, 11-44.
- ARNDT, N.T.** (1995). Mafic magmatism through time. Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. 1, p. 488-491.
- ARNDT, N.T. and LESHER, C.M.** (1992). Fractionation of REE's by olivine and the origin of Kambalda komatiites, Western Australia. *Geochim. Cosmochim. Acta*, **56**, 4191-4204.
- ARNDT, N.T., ALBARÉDE, F. and NISBET, E.G.** (1997). Mafic and ultramafic magmatism. In: De Wit, M.J. and Ashwal, L.D. (Eds.), *Greenstone Belts. Oxford Monographs on Geology and Geophysics*, No. 35. Oxford University Press, Oxford, 233-254.
- ASHWAL, L.D.** (1993). Anorthosites. *Minerals and Rocks* 21, Springer-Verlag, London, 422pp.
- ASHWAL, L.D. and CAIRNCROSS, B.** (1997). Mineralogy and origin of stichtite in chromite-bearing serpentinites. *Contrib. Mineral. Petrol.*, (in press).

**B**

- BAILIE, R.H.** (1995). Variations in chemistry and petrology of the Swartrant Dyke, Barberton Mountain Land. Hons. Diss, (unpubl.), Dept. Geology, Univ. Witwatersrand, Johannesburg, 98pp.
- BALKWILL, K. and BALKWILL, M.J.** (1988). Studies on serpentine flora: a new species of *Brachystelma* (Asclepiadaceae). *S. Afr. J. Bot.*, **54** (1), 60-62.

- BARBERTON GOLD** (1992). Ann. Rep. Southern Witwatersrand Exploration Company Limited, Roodepoort, p.5.
- BARBROOK MINES LIMITED** (1996). General information on the Barbrook Mine area and regional and mine geology. Brochure prepared for visitors to the Barbrook Mine - Caledonian Mining Corporation, 18 Pilgrim Street, Barberton.
- BENNETT, V.C., NUTMAN, A.P. and McCULLOCH, M.T.** (1993). Nd isotopic evidence for transient, highly depleted mantle reservoirs in the early history of the earth. *Earth Planet. Sci. Lett.*, **119**, 299-317.
- BERTRAND, J., CLOETE, M. and MARTINI, J.E.J.** (1993). Comparison between Archaean komatiitic to tholeiitic lava flows and Mesozoic ophiolitic volcanics: example of the Barberton greenstone belt and the Western Alps. Abstr. Int. Assoc. Volcano. Chem. Earth's Interior (IAVCEI) (Ancient Volcanism and Modern Analogues), Canberra, Australia, Sept. 1993, p.9. (also including a poster).
- BICKLE, M.J.** (1984). Variation in tectonic style with time: Alpine and Archaean systems, 357-370. *In*: Holland, H.D. and Trendall, A.F. (Eds.), *Patterns of Change in Earth Evolution*. Dahlem Konferenzen 1984, Springer-Verlag, New York, 431pp.
- BLAMART, D., TRUMBULL, R.B. and CHAUSSIDON, M.** (1993). Oxygen and boron isotopic composition of the Archaean Sinceni pluton: implications for the occurrence of S-type granites in Swaziland. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol, 1, 29-31.
- BRANDL, G. and DE WIT, M.J.** (1997). The Kaapvaal Craton, South Africa. *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), *Greenstone Belts*. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 581-607.
- BRANDL, G., JAECKEL, P. and KRÖNER, A.** (1996). Single zircon age for the felsic Rubbervale Formation, Murchison greenstone belt, South Africa. *S. Afr. J. Geol.*, **99** (3), 229-234.
- BYERLY, G.R.** (1989). Mendon Formation komatiites: extreme  $\text{Al}_2\text{O}_3/\text{TiO}_2$  variation in the uppermost Onverwacht Group of the Barberton greenstone belt. Tech. Rep. Lunar Planet. Inst. Houston, **89-5**, 33-35.
- BYERLY, G.R. and LOWE, D.R.** (1992). Exotic nickel-chromites in impact spherules from the Archaean Barberton greenstone belt. XXIII Lunar Planet. Sci. Conf., 193-194.
- BYERLY, G.R. and LOWE, D.R.** (1994). Spinel from Archean impact spherules. *Geochim. Cosmochim. Acta*, **58** (16), 3469-3486.

**BYERLY, G.R., KRÖNER, A., LOWE, D.R., and WALSH, M.M.** (1993). Sequential magmatic evolution of the early Archean Onverwacht Group: geochronology of the upper formations. *EOS, Trans. Amer. Geophys. Union*, **74**: p. 660.

**BYERLY, G.R., KRÖNER, A., LOWE, D.R., TODT, W. and WALSH, M.M.** (1996). Prolonged magmatism and time constraints for sediment deposition in the early Archean Barberton greenstone belt: evidence from the Upper Onverwacht and Fig Tree groups. *Precambrian Res.*, **78**, 125-138.

### C

**CAIRNCROSS, B. and DIXON, R.** (1995). Minerals of South Africa. Geological Society of South Africa, Johannesburg, 290pp.

**CARLSON, R.W., GROVE, T.L., DE WIT, M.J. and GURNEY, J.J.** (1996). Program to study crust and mantle of the Archean Craton in southern Africa. *EOS, Trans. Amer. Geophys. Union*, **77** (29), p.273; p.277.

**CATTELL, A.C. and TAYLOR, R.N.** (1990). Archean basic magmas, 11-39. *In*: Hall, R.P. and Hughes, D.J. (Eds.), Early Precambrian Basic Magmatism. Blackie, Glasgow, 486pp.

**CHESHIRE, P.A.** (1997). Geology and geomorphology of the Sabie River Basin and implications for the fluvial morphology of the Sabie River in the Kruger National Park. M.Sc thesis, Univ. Witwatersrand, Johannesburg, (in preparation).

**CLAASSEN, R.** (1991). Microbiological oxidation of sulphide minerals from Agnes, New Consort and Sheba gold mines. M.Sc thesis (unpubl.), Univ. Pretoria.

**CLOETE, D.** (1993). Processing remotely sensed data for geological content over a part of the Barberton greenstone belt, Republic of South Africa. M.Sc thesis (unpubl.), Univ. Witwatersrand, Johannesburg.

**CLOETE, D.** (1993). Processing of remotely sensed data for geological content over the Barberton Mountain Land utilizing software defoliation techniques. Ext. Abstr. (Poster), 16th Colloquium of African Geology, Mbabane, Swaziland, Vol. 1, 91-93.

**CLOETE, M.** (1993). Burial metamorphism in the 3.47 Ga Barberton greenstone belt, South Africa. *In*: Vergara, M. and Klem, U. (Eds.), Low Temperature Metamorphism: Processes, Products and Economic Significance. Abstracts. Dept. Geol. Univ. Chile, Santiago. IGCP Project **294**, 1-7.

**CLOETE, M.** (1994). Aspects of volcanism and metamorphism of the Onverwacht Group lavas in the south-western portion of the Barberton greenstone belt. Ph.D thesis (unpubl.), Univ. Witwatersrand, Johannesburg, 419pp.

- CLOETE, M.** (1995). Fluids in low-grade metavolcanic rock: a fluid inclusion case-study from the Barberton greenstone belt (BGB). Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. 11, p. 701-704.
- CONDIE, K.C.** (1990). Geochemical characteristics of Precambrian basaltic greenstones, 40-55. *In*: Hall, R.P. and Hughes, D.J. (Eds.), Early Precambrian Basic Magmatism. Blackie, Glasgow, 486pp.
- CONDIE, K.C.** (1994). Greenstones through time. *In*: K.C. Condie (Ed.), Archean Crustal Evolution, Developments in Precambrian Geology 11. Elsevier, Amsterdam, 85-120.
- CONDIE, K.C.** (1994). Introduction. *In*: K.C. Condie (Ed.), Archean Crustal Evolution, Developments in Precambrian Geology 11. Elsevier, Amsterdam, 1-9.
- CONWAY, G.P.** (1997). The geology and geochemistry of the Sterkspruit Intrusion, Barberton Mountain Land, Mpumalanga Province. M.Sc thesis, Univ. Witwatersrand, Johannesburg, (in preparation).
- COWARD, D.A.** (1992). An analysis of the granite-greenstone terrane between the Sutherland and Murchison Ranges, using SPOT data. B.Sc (Hons) Project (unpubl.), Univ. Witwatersrand, Johannesburg, 88pp.

## D

- DANN, J.** (1995). New field observations from the 3.5Ga Komati Formation, Barberton greenstone belt. Ext. Abstr. Centennial Geocongress '95. Geol. Soc. S. Afr., Johannesburg, Vol. 11, p. 1102-1105.
- DAVIES, T.M. and DE WIT, M.J.** (1995). Fuchsitic ribbon tectonite: evidence for early (low angle) extensional and (steep) transpressional faulting, southern Barberton greenstone belt. Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. 11, p. 705-708.
- DAVIES, T.M., DANN, J. and DE WIT, M.J.** (1996). Evidence for circa 3.5Ga shear zones in South Africa. *In*: Pera, E., Burlini, L., Rutter, E.H. and James, T. (Eds.), Structure and Properties of High Strain Zones in Rocks. Abstract Volume, Conference held in Verbania, Italy, 3-7 September, 1996. Ricerca scientifica ed educazione permanente. Supplemento n.107, p.64.
- DE BEER, J.H. and STETTLER, E.H.** (1988). Geophysical characteristics of the southern African continental crust. Spec. Lithosphere Issue, J. Petrol., 163-184.
- DE RONDE, C.E.J. and DE WIT, M.J.** (1994). Tectonic history of the Barberton greenstone belt, South Africa - ~ 490 million years of Archean crustal evolution. Tectonics, 13(4), 983-1005.

- DE RONDE, C.E.J., DE WIT, M.J. and SPOONER, E.T.C.** (1994). Early Archean (> 3.2 Ga) Fe-oxide-rich, hydrothermal discharge vents in the Barberton greenstone belt, South Africa. *Bull. geol. Soc. Amer.*, **106**, 86-104.
- DE RONDE, C.E.J., CHANNER, D.M. De R. and SPOONER, E.T.C.** (1997). Fluids of Archean greenstone belts. *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35.* Oxford University Press, Oxford, 309-335.
- DE WIT, M.J.** (1995). Hydration of early Archean oceanic crust: implications for the Hadean-Archean transition, the genesis of komatiites and the thermal state of the Archean upper mantle. Ext. Abstr. Centennial Geocongress '95, *Geol. Soc. S. Afr.*, Johannesburg, Vol. 11, p.1113-1116.
- DE WIT, M.J. and HART, R.A.** (1993). Earth's earliest continental lithosphere, hydrothermal flux and crustal recycling. *Lithos*, **30**, 309-335.
- DE WIT, M.J. and ASHWAL, L.D.** (1995). Greenstone belts: what are they? *S. Afr. J. Geol.*, **98**(4), 505-520.
- DE WIT, M.J. and ASHWAL, L.D.** Editors (1997). *Greenstone Belts - Oxford Monographs on Geology and Geophysics, No. 35.* Oxford University Press, Oxford, 803pp.
- DE WIT, M.J. and ASHWAL, L.D.** (1997). Preface. Convergence towards divergent models of greenstone belts. *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monograph on Geology and Geophysics, No. 35.* Oxford University Press, Oxford, p.ix-xvii.
- DE WIT, M.J., ARMSTRONG, R.A., KAMO, S.L. and ERLANK, A.J.** (1993). Gold-bearing sediments in the Pietersburg greenstone belt: age equivalents of the Witwatersrand Supergroup sediments, South Africa. *Econ. Geol.* **88** (5), 1242-1252.
- DE WIT, M.J., ROERING, C., HART, R.J., ARMSTRONG, R.A., DE RONDE, C.E.J., GREEN, R.W.E., TREDoux, M., PEBERDY, E. and HART, R.A.** (1992). Formation of an Archean continent. *Nature*, **357**, 553-562.
- DUNCAN, A.R.** (1995). A review of South African research on volcanic rocks, related intrusive rocks, and mantle derived materials: 1991-1995. *S. Afr. J. Sci.*, **91**(5), 255-264.
- DU PLESSIS, S.J.** (1992). Sheba prospect area: Tecklenberg Section - ground radiometric survey. ETC/AVE/93/130, Anglovaal Exploration, Barberton.



E

**ERIKSSON, K.A., KRAPEZ, B. and FRALICK, P.W.** (1994). Sedimentology of Archean greenstone belts: signatures of tectonic evolution. *Earth-Science Reviews*, **37**, 1-88.

**ERIKSSON, K.A., KRAPEZ, B. and FRALICK, P.W.** (1997). Sedimentological aspects (of greenstone belts). *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monograph on Geology and Geophysics, No. 35. Oxford University Press, Oxford*, 33-54.

**EUGSTER, O., NIEDERMANN, S., THALMANN, C., FREI, R., KRAMERS, J., KRÄHENBÜHL, U., LIU, Y.Z., HOFMANN, B., BOER, R.H., REIMOLD, W.U. and BRUNO, L.** (1995). Noble gases, K, U, Th, and Pb in native gold. *J. Geophys. Res.*, **100** (B12), 24677-24689.

F

**FLETCHER, J.A.** (1997). A geological, geochemical and fluid inclusion study of the Wyldsdales gold-bearing pluton, Swaziland. Ph.D thesis, Univ. Witwatersrand, Johannesburg, (in preparation).

**FOSTER, R.P. and PIPER, D.P.** (1993). Archaean lode gold deposits in Africa: crustal setting, metallogenesis and cratonization. *Ore Geol. Rev.*, **8**, 303-347.

**FRIPP, R.E.P. and JONES, M.G.** (1997). Sheeted intrusions and peridotite - gabbro assemblages in the Yilgarn Craton, Western Australia: elements of Archaean ophiolites. *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford*, 422-437.

G

**GLIKSON, A.Y.** (1984). Significance of early Archaean mafic-ultramafic xenolith pattern, 262-282. *In: Kröner, A., Hanson, G.N. and Goodwin, A.M. (Eds.), Archaean Geochemistry. Springer-Verlag, New York*, 286pp.

**GLIKSON, A.Y.** (1993). Asteroids and early Precambrian crustal evolution. *Earth-Science Reviews*, **35**, 285-319.

**GROVES, D.I. and BARLEY, M.E.** (1994). Archaean mineralization. *In: Condie, K.C. (Ed.), Archaean Crustal Evolution, Developments in Precambrian Geology II. Elsevier, Amsterdam*, 461-503.

- GROVES, D.I. and BATT, W.D.** (1984). Spatial and temporal variations of Archaean metallogenic associations in terms of evolution of granitoid-greenstone terrains with particular emphasis on the Western Australian Shield, 73-98. *In*: Kröner, A., Hanson, G.N. and Goodwin, A.M. (Eds.), *Archaean Geochemistry*. Springer-Verlag, Berlin, 286pp.
- GROVE, T.L., DE WIT, M.J. and DANN, J.C.** (1997). Komatiites from the Komati type section, South Africa. *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), *Greenstone Belts*. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 438-453.
- GROVE, T.L., GAETANI, G.A. and DE WIT, M.J.** (1994). Spinifex textures in 3.49 Ga Barberton mountain belt komatiites: evidence for crystallization of water-bearing cool magmas in the Archaean. *EOS, Trans. Amer. Geophys. Union*, **75**, p.354.
- GRUAU, G., CHAUVEL, C., ARNDT, N.T. and CORNICHE, J.** (1990). Aluminium depletion in komatiites and garnet fractionation in the early Archean mantle. *Geochim. Cosmochim. Acta*, **54**, 3095-3101.

## **H**

- HALL, R.P. and HUGHES, D.J.** (1990). Introduction: basic magmatism and crustal evolution, 1-7. *In*: Hall, R.P. and Hughes, D.J. (Eds.), *Early Precambrian Basic Magmatism*. Blackie, Glasgow, 486pp.
- HALL, R.P. and HUGHES, D.J.** (1990). Noritic magmatism, 83-110. *In*: Hall, R.P. and Hughes, D.J. (Eds.), *Early Precambrian Basic Magmatism*. Blackie, Glasgow, 486pp.
- HANEKOM, H.J.** (1965). Die voorkoms van kaolin op die plaas Heerenveen 27 IT, distrik Carolina, Transvaal. *Geol. Surv. S. Afr., Rep. No.* 1965-0010.
- HANSKI, E.J.** (1993). Globular ferropicritic rocks at Pechenga, Kola Peninsula (Russia): Liquid immiscibility versus alteration. *Lithos*, **29**, 197-216.
- HARRIS, P.D.** (1992). The evolution and structural setting of pegmatites at the New Consort Gold Mines, Barberton greenstone belt. M.Sc thesis (unpubl.), Univ. Witwatersrand, Johannesburg, 114pp.
- HARRIS, P.D., ROBB, L.J. and TOMKINSON, M.J.** (1993). The nature and structural setting of rare-element pegmatites along the northern flank of the Barberton greenstone belt, South Africa. *Inform. Circ. Econ. Geol. Res. Unit, Univ. Witwatersrand*, **261**, 27pp.
- HARRIS, P.D., ROBB, L.J. and TOMKINSON, M.J.** (1995). The nature and structural setting of rare-element pegmatites along the northern flank of the Barberton greenstone belt, South Africa. *S. Afr. J. Geol.*, **98**(1), 82-94.

- HARTNADY, C.J.H. and STOWE, C.W.** (1991). The Archaean-Proterozoic transition: a review of the Randian Erathem in southern Africa with reference to the accretionary tectonic evolution of the Kaapvaal and Zimbabwe provinces. *Inform. Circ. Precambrian Res. Unit, Univ. Cape Town*, **2**, 18pp.
- HATTON, C.J. and VON GRUENEWALDT, G.** (1990). Early Precambrian layered intrusions, 56-82. *In: Hall, R.P and Hughes, D.J. (Eds.), Early Precambrian Basic Magmatism. Blackie, Glasgow*, 486pp.
- HAVENGA, A.T.** (1995). Precambrian mafic dyke swarm on the eastern border of the Kaapvaal Craton, South Africa. *Program & Abstracts, Third International Dyke Conference, Jerusalem, Israel*, p.34.
- HEGNER, E., KRÖNER, A. and HOFMANN, A.W.** (1993). Trace element and isotopic constraints on the origin of the Archaean Pongola and Usushwana Igneous Suites in Swaziland. *Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol. 1*, p. 147-149.
- HERRINGTON, R.J., EVANS, D.M. and BUCHANAN, D.L.** (1997). Metallogenic aspects (of greenstone belts). *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford*, 176-220.
- HEUBECK, C. and LOWE, D.R.** (1993). Syndeformational deposition, northern provenance, and foreland basin setting of the Moodies Group in the central Barberton greenstone belt, South Africa. *Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol., 1*, 153-154.
- HEUBECK, C. and LOWE, D.R.** (1994). Late syndepositional deformation and detachment tectonics in the Barberton greenstone belt, South Africa. *Tectonics*, **13** (6), 1514-1536.
- HEUBECK, C., WENDT, J.I., TOULKERIDIS, T., KRÖNER, A. and LOWE, D.R.** (1993). Timing of deformation of the Archaean Barberton greenstone belt, South Africa: constraints from zircon dating of the Salisbury Kop pluton. *S. Afr. J. Geol.*, **96** (1/2), 1-8.
- HORGAN, J.** (1991). Trends in evolution: in the beginning. *Scientific American*, **264** (2), 100-109.
- HORN, G.F.J. and STRYDOM, J.H.** (1997). Clay in South Africa. *In: Mineral Resources of the Republic of South Africa, Council for Geoscience, Pretoria* (in press).
- HUDLESTON, P.J. and SCHWERDTNER, W.M.** (1997). Strain (in greenstone belts). *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford*, 296-308.

- HUNTER, D.R.** (1990). Archaean crustal evolution in Swaziland and Natal, Southern Africa. Publ. occas. - CIFEG No. 20, p.25.
- HUNTER, D.R.** and **HALLS, H.C.** (1992). A geochemical study of a Precambrian mafic dyke swarm, eastern Transvaal, South Africa. J. Afr. Earth Sci., 15(2), 153-168.
- HUNTER, D.R.** and **GOLD, D.J.C.** (1993). A re-examination of the stratigraphy of the Pongola Sequence in Swaziland and northern Natal. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol, 1, 159-160.
- HUNTER, D.R.** and **STOWE, C.W.** (1997). A historical review of the origin, composition, and setting of Archaean greenstone belts (pre-1980). In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geochemistry, No. 35, Oxford University Press, Oxford, 3-30.
- HUNTER, D.R., SMITH, R.G.** and **SLEIGH, D.W.W.** (1992). Geochemical studies of Archaean granitoid rocks in the southeastern Kaapvaal Province: implications for crustal development. J. African Earth Sciences, 15(1), 127-151.

## **J**

- JANSE VAN VUREN, C.F.** and **CLOETE, M.** (1995). A preliminary PTt-path for the emplacement of the Theespruit pluton, Barberton greenstone belt. Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. 1, p. 315-318.
- JONES, I.P.C.** (1982). Follow-up investigation of the Tecklenberg fracture - eastern extension of the Zwartkoppe anticline. ETC/AVE/82/87. Anglovaal Exploration, Barberton.
- JONES, I.M.** and **ANHAEUSSER, C.R.** (1993). Accretionary lapilli associated with Archaean banded iron formations of the Kraaipan Group, Amalia greenstone belt, South Africa. Precambrian Res., 61 (1/2), 117-136.
- JONES, M.Q.W.** (1992). Heat flow in South Africa. Handbk. Geol. Surv. S. Afr., 14, 174pp.

## **K**

- KAKEGAWA, T., OHMOTO, H** and **LOWE, D.R.** (1992). Archean surface environments. V: Activity of sulfate-reducing bacteria in oceans as indicated by the delta <sup>34</sup>S values of individual pyrite crystals in sedimentary rocks from the Barberton Mountain district, South Africa. Abstr. Int. geol. Congr., Kyoto, Japan, p.173.
- KAMO, S.L.** and **DAVIS, D.W.** (1994). Reassessment of Archean crustal development in the Barberton Mountain Land, South Africa based on U-Pb dating. Tectonics, 13(1), 167-192.

- KANYA, L.L.** (1993). Geology of Nhlangano-Mahamba area, Shiselweni region, southwest Swaziland. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol.1., 173-174.
- KEAYS, R.R.** (1995). The role of komatiitic and picritic magmatism and S-saturation in the formation of ore deposits. *Lithos*, **34**, 1-18.
- KEY, R.M.** (1991). Strike-slip shear zones and greenstone belts in southern Africa. UNESCO, Geol. Econ. Dev., Newsletter **8**, 57-59.
- KISTERS, A.F.M. and ANHAEUSSER, C.R.** (1994). Fabric development and deformation of greenstone xenoliths in Archaean TTG plutons and regional implications for the tectonic evolution of the Barberton greenstone belt, South Africa. Inform. Circ. Econ. Geol. Res. Unit, Univ. Witwatersrand, Johannesburg, **273**, 28pp.
- KISTERS, A.F.M. and ANHAEUSSER, C.R.** (1994). The structural significance of the Steynsdorp pluton and anticline within the tectono-magmatic framework of the Barberton Mountain Land, South Africa. Inform. Circ. Econ. Geol. Res. Unit, Univ. Witwatersrand, Johannesburg, **279**, 17pp.
- KISTERS, A.F.M. and ANHAEUSSER, C.R.** (1995). The structural significance of the Steynsdorp pluton and anticline within the tectono-magmatic framework of the Barberton Mountain Land, South Africa. *S. Afr. J. Geol.*, **98**(1), 43-51.
- KISTERS, A.F.M. and ANHAEUSSER, C.R.** (1995). Emplacement features of Archaean TTG plutons along the southern margin of the Barberton greenstone belt, South Africa. *Precambrian Res.*, **75**, 1-15.
- KISTERS, A.F.M., CHARLESWORTH, E.G., ANHAEUSSER, C.R. and GIBSON, R.L.** (1995). Contact relationships of early-Archaean TTG's, southern Barberton Mountain Land, South Africa. *Terra Abstracts*, EUG8, Strasbourg, p.101.
- KNOLL, A.H.** (1984). The Archean/Proterozoic transition: a sedimentary and paleobiological perspective, 221-242. *In*: Holland, H.D. and Trendall, A.F. (Eds.), *Patterns of Change in Earth Evolution*. Dahlem Konferenzen 1984, Springer-Verlag, New York, 431pp.
- KOEBERL, C. and REIMOLD, W.U.** (1994). Archaean spherule beds: impact or terrestrial origin? Reply to comment by A. Glikson. *Earth Planet. Sci. Lett.*, **126**, 497-499.
- KOEBERL, C. and REIMOLD, W.U.** (1995). Early Archaean spherule beds in the Barberton Mountain Land, South Africa: no evidence for impact origin. *Precambrian Res.*, **74**, 1-33.
- KOEBERL, C., REIMOLD, W.U. and BOER, R.H.** (1992). Early Archaean spherule beds of possible impact origin from Barberton, South Africa: a detailed mineralogical

and geochemical study. Contr. to Sudbury '92, LPI Contr. No. 790, p.44.

- KOEBERL, C., REIMOLD, W.U. and BOER, R.H.** (1993). Geochemistry and mineralogy of Early Archaean spherule beds, Barberton Mountain Land, South Africa: evidence for origin by impact doubtful. *Earth Planet. Sci. Lett.*, **119**, 441-452.
- KOEBERL, C., REIMOLD, W.U. and BOER, R.H.** (1993). Spherule beds within the Archaean Barberton greenstone belt: mineralogy, geochemistry, and implications for their origin. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol, 1, 183-185.
- KOHLER, E.A., ANHAEUSSER, C.R. and ISACHSEN, C.** (1993). The Bien Venue Formation: a proposed new unit in the northeastern sector of the Barberton greenstone belt. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, Vol, 1, 186-188.
- KRÖNER, A.** (1993). Contemporaneous evolution of an early Archaean gneiss-granitoid-greenstone terrain as exemplified by the Ancient Gneiss Complex and the Barberton greenstone belt, Swaziland and South Africa. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 195-197.
- KRÖNER, A. and LAYER, P.W.** (1992). Crust formation and plate motion in the early Archaean. *Science*, **256**, 1405-1411.
- KRÖNER, A. and TEGTMEYER, A.** (1994). Gneiss-greenstone relationships in the Ancient Gneiss Complex of southwestern Swaziland, southern Africa, and implications for early crustal evolution. *Precambrian Res.*, **67**, 109-139.
- KRÖNER, A., HEGNER, E., BYERLY, G.R., and LOWE, D.R.** (1992). Possible terrane identification in the early Archaean Barberton greenstone belt, South Africa, using single zircon geochronology. EOS, Trans. Amer. Geophys. Union, **73**, 616 (Abstract).
- KRÖNER, A., HEGNER, E., JAECKEL, P. and TODT, W.** (1995). Crustal evolution and terranes in the early Archaean Barberton greenstone belt, South Africa. *Terra Abstracts*, EUG8, Strasbourg, p.105.
- KRÖNER, A., HEGNER, E.M., WENDT, J.I. and BYERLY, G.R.** (1996). The oldest part of the Barberton granitoid-greenstone terrain, South Africa: evidence for crust formation between 3.5 and 3.7 Ga. *Precambrian Res.*, **78**, 105-124.
- KRÖNER, A., COMPSTON, W., TEGTMEYER, A., MILISENDA, C. and LIEW, T.C.** (1987). Growth of early Archaean crust in the Ancient Gneiss Complex of Swaziland and adjacent Barberton greenstone belt, southern Africa. Abstr. NASA Workshop on the Growth of Continental Crust, pp. 49-51, Oxford.

- KUSKY, T.M. and VEARNCOMBE, J.** (1997). Structural aspects (of greenstone belts). *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 91-124.*
- KYTE, F.T., ZHOU, L. and LOWE, D.R.** (1992). Noble metal abundances in an Early Archaean impact deposit. *Geochim. Cosmochim. Acta*, **56**, 1365-1372.

## L

- LAGEAT, Y.** (1989). Le relief du Bushveld - une geomorphologie des roches basiques et ultrabasiques. D.Sc thesis (unpubl.). Publ. No. 30 of Faculté des Lettres et Sciences humaines de l'Université Blaise-Pascal (Clermont II), 591pp.
- LAYER, P.W., KRÖNER, A. and YORK, D.** (1992). Pre-3000 Ma thermal history of the Archaean Kaap valley pluton, South Africa. *Geology*, **20**, 717-720.
- LÉCUYER, C., GRUAU, G., ANHAEUSSER, C.R., and FOURCADE, S.** (1994). The origin of fluids and the effects of metamorphism on the primary chemical compositions of Barberton komatiites: new evidence from geochemical (REE) and isotopic (Nd, O, H,  $^{39}\text{Ar}/^{40}\text{Ar}$ ) data. *Geochim. Cosmochim. Acta*, **58**(2), 969-984.
- LEINSTER, R.C.** (1990/91). Shear zones and tectonics of the Barberton Mountain Land, South Africa. Ann. Rep. Dept. Geology, Imperial College of Science, Technology and Medicine, London, p.15.
- LEVIN, H.L.** (1983). *The Earth Through Time*. Saunders College Publishing, Philadelphia, 513pp.
- LOWE, D.R.** (1994). Abiological origin of described stromatolites older than 3.2 Ga. *Geology*, **22**, 387-390.
- LOWE, D.R.** (1994). Accretionary history of the Archean Barberton greenstone belt (3.53 - 3.22 Ga), southern Africa. *Geology*, **22**(12), 1099-1102.
- LOWE, D.R.** (1994). Archean greenstone-related sedimentary rocks. *In: Condie, K.C. (Ed.), Archean Crustal Evolution, Developments in Precambrian Geology 11. Elsevier, Amsterdam, 121-169.*
- LOWE, D.R. and BYERLY, G.R.** (1990). Tectonic and sedimentological effects of large, 3,250 million-year-old meteorite impacts, Barberton greenstone belt. Abstr. Ann. Meet., Geol. Soc. Amer.
- LOWE, D.R. and BYERLY, G.R.** (1992). Depositional mechanics of impact-produced debris in the Archean Barberton greenstone belt, South Africa. XXIII Lunar Planet. Sci. Conf., 811-812.

M

- MAPHALALA, R.M.** (1990). The geology, geochemistry and geochronology of tin-bearing pegmatites and associated granitoids in northwestern Swaziland. Ph.D thesis (unpubl.), Technical University of Munich, 159pp.
- MAPHALALA, R.M.** and **KRÖNER, A.** (1993). Pb-Pb single zircon ages for the younger Archaean granitoids of Swaziland, southern Africa. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 201-206.
- MAPHALALA, R.M., KRÖNER, A.** and **KRAMERS, J.D.** (1989). Rb-Sr ages for Archaean granitoids and tin-bearing pegmatites in Swaziland, southern Africa. *J. African Earth Sci.*, **9**, 749-757.
- MARTINI, J.E.J.** (1994). A Late Archaean-Palaeoproterozoic (2.6Ga) palaeosol on ultramafics in the Eastern Transvaal, South Africa. *Precambrian Res.*, **67**, 159-180.
- McLENNAN, S.M.** and **TAYLOR, S.R.** (1984). Archaean sedimentary rocks and their relation to the composition of the Archaean continental crust, 47-72. *In*: Kröner, A., Hanson, G.N. and Goodwin, A.M. (Eds.), *Archaean Geochemistry*. Springer-Verlag, New York, 286pp.
- MEYER, F.M., REIMOLD, W.U.** and **WALRAVEN, F.** (1993). The evolution of the Archaean granitic crust in the southeastern Kaapvaal Craton, South Africa. Abstr. European Union of Geosciences VII, Strasbourg.
- MEYER, F.M., ROBB, L.J., REIMOLD, W.U.** and **DE BRUIYN, H.D.** (1992). S- and I-type granites during late-stage magmatism in the Barberton Mountain Land, southern Africa. *Inform. Circ. Econ. Geol. Res. Unit, Univ. Witwatersrand, Johannesburg*, **259**, 21pp.
- MEYER, F.M., ROBB, L.J., REIMOLD, W.U.** and **DE BRUIYN, H.** (1994). Contrasting low-and high-Ca granites in the Archaean Barberton Mountain Land, southern Africa. *Lithos*, **32**, 63-76.
- MICHELL, J.** (1992). Komati River Camp, Eastern Transvaal. *Signature*, **25**, 7, p.68.
- MILISENDA, C.C., WENDT, J.I., KRÖNER, A.** and **LIEW, T.C.** (1993). A Nd isotope study of TTG rocks from the Ancient Gneiss Complex of Swaziland. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 214-215.
- MINNITT, R.C.A.** and **ANHAEUSSER, C.R.** (1992). Gravitational and diapiric structural history of the eastern portion of the Archaean Murchison greenstone belt, South Africa. *J. African Earth Sci.*, **15**(3/4), 429-440.



- MINNITT, R.C.A., REIMOLD, W.U. and COLLISTON, W.P.** (1994). The geology of the Greenlands Greenstone Complex and selected granitoid terranes in the southeastern quadrant of the Vredefort Dome. Inform. Circ. Econ. Geol. Res. Unit, Dept. Geology, Univ. Witwatersrand, Johannesburg, **281**, 46pp.
- MORREY, D.R., BALKWILL, K. and BALKWILL M-J.** (1989). Studies on serpentine flora: preliminary analyses of soils and vegetation associated with serpentinite rock formations in the southeastern Transvaal. *S. Afr. J. Bot.*, **55**(2), 171-177.
- MORREY, D.R., BALKWILL, K., BALKWILL, M-J. and WILLIAMSON, S.** (1992). A review of some studies of the serpentine flora of southern Africa. *In*: A.J.M. Baker, J. Proctor and R.D. Reeves (Eds.), *The Vegetation of Ultramafic (Serpentine) Soils. Proc. First Int. Conf. on Serpentine Ecology*, Hampshire, Intercept Ltd., Ch.12, 147-157.
- MURPHY, P.W.** (1990). The petrology, geochemistry and classification of the Bien Venue massive sulphide deposit, Barberton Mountain Land. M.Sc thesis (unpubl.), Univ. Natal, Durban, 111pp.

## N

- NELSON, E.P. and FORSYTHE, R.D.** (1989). Ridge collision at convergent margins: implications for Archean and post-Archean crustal growth. *Tectonophysics*, **161**, 307-315.
- NELSON, J.P., BEUKES, N.J. and CAIRNCROSS, B.** (1993). The ~ 2.9 Ga Mozaan Group of the Pongola Sequence in Swaziland: a genetic and sequence stratigraphic interpretation and correlation with the Witwatersrand Supergroup. *Ext. Abstr. 16th Colloquium of African Geology*, Mbabane, Swaziland, 239-241.
- NIEDERMANN, S., EUGSTER, O., HOFMANN, B., THALMANN, Ch. and REIMOLD, W.U.** (1993). Dating native gold by noble gas analyses. *Abstr. Lunar and Planetary Science*, XXIV, 1073-1074.
- NISBET, E.G.** (1991). *Living Earth - A Short History of Life and its Home*. Harper Collins Academic, London.
- NISBET, E.G.** (1993). Ancient bacteria and the breath of life - Book Review. *New Scientist*, **137**, (1864), p.45.
- NISBET, E.G., CHEADLE, M.J., ARNDT, N.T. and BICKLE, M.J.** (1993). Constraining the potential temperature of the Archaean mantle: a review of the evidence from komatiites. *Lithos*, **30**, 291-307.

O

**O'HANLEY, D.S.** (1997). Serpentinites and rodingites as records of metasomatism and fluid history. *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts (section on metamorphic aspects). Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 164-175.

**OHMOTO, H., KAKEGAWA, T. and LOWE, D.R.** (1993). 3.4-billion-year-old biogenic pyrites from Barberton, South Africa; sulfur isotope evidence. *Science*, **262** (5133), 555-557.

**O'NIONS, R.K.** (1984). Isotopic evolution of the crust and mantle, 291-302. *In*: Holland, H.D. and Trendall, A.F. (Eds.), Patterns of Change in Earth Evolution. Springer-Verlag, New York, (Dahlem Konferenzen, 1984), 431pp.

**OWENS, A.C.** (1992). Soil geochemistry results of the Tecklenberg grid, Barberton. ETC/ACO/1. ETC (Pty) Limited, Barberton.

P

**PERCIVAL, J., ROERING, C., VAN REENEN, D.D. and SMIT, C.A.** (1997). Tectonic evolution of associated greenstone belts and high-grade terrains. *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 398-420.

**PINTO, C.P. and DA SILVA, L.C.** (1996). Contrasting tectono-stratigraphic domains in the Rio das Velhas greenstone belt (RUGB), MG, Brazil. Ext. Abstr. Sociedade Brasileira de Geologia Symposium on Archaean Terranes of the South American Platform, Brasilia, p.23-25.

**PIRAJNO, F.** (1992). Hydrothermal Mineral Deposits. Springer-Verlag, London, 709pp.

**POUJOL, M., RESPAUT J-P, ROBB, L.J., ANHAEUSSER, C.R. and LANCELOT, J.R.** (1995). The Archaean Murchison schist belt and surrounding granitoids, South Africa, in the light of new U-Pb isotopic data. Abstract Supplement No. 1 to Terra Nova, **7**, 353-356.

**POUJOL, M., RESPAUT, J-P, ROBB, L.J., ANHAEUSSER, C.R., and LANCELOT, J.R.** (1995). The Archaean Murchison schist belt and surrounding granitoids, South Africa, in the light of new U-Pb isotopic data. Abstr. EUG Conference, Strasbourg, April, 1995.

**R**

- RAPP, R.P.** (1997). Heterogeneous source regions for Archaean granitoids: experimental and geochemical evidence. *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 267-279.
- REIMOLD, W.U., MEYER, F.M., WALRAVEN, F. and MATTHEWS, P.E.** (1993). Geochemistry and chronology of pre- and post-Pongola granitoids from northeastern Natal. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 294-296.
- RIDLEY, J.R., VEARNCOMBE, J.R. and JELSMA, H.A.** (1997). Relations between greenstone belts and associated granitoids. *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 376-377.
- RIGANTI, A. and WILSON, A.J.** (1995). Early Archaean fumaroles - evidence in the Nondweni greenstone belt, South Africa. Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. II, p.1177-1180.
- RIGANTI, A. and WILSON, A.H.** (1995). Geochemistry of the mafic/ultramafic volcanic associations of the Nondweni greenstone belt, South Africa, and constraints on their petrogenesis. *Lithos*, **34**, 235-252.
- ROBB, L.J.** (1994). Cuning Moor tonalite. *In*: Johnson, M.R. (Ed.), Catalogue of South African Lithostratigraphic Units. S. Afr. Committee for Stratigraphy, Council for Geoscience/Geol. Surv. S. Afr., **5**, 11-12.
- ROBB, L.J.** (1994). Doornhoek trondhjemite. *In*: Johnson, M.R. (Ed.), Catalogue of South African Lithostratigraphic Units. S. Afr. Committee for Stratigraphy, Council for Geoscience/Geol. Surv. S. Afr., **5**, 13-14.
- ROBB, L.J.** (1994). Kaap Valley tonalite. *In*: Johnson, M.R. (Ed.), Catalogue of South African Lithostratigraphic Units. S. Afr. Committee for Stratigraphy, Council for Geoscience/Geol. Surv. S. Afr., **5**, 29-30.
- ROBB, L.J.** (1994). Nelspruit Suite. *In*: Johnson, M.R. (Ed.), Catalogue of South African Lithostratigraphic Units. S. Afr. Committee for Stratigraphy, Council for Geoscience/Geol. Surv. S. Afr., **5**, 39-41.
- ROBB, L.J. and MEYER, F.M.** (1994). Geological environment and mineralization processes during the formation of the Witwatersrand Au-U deposits. XVth CMMI Congress, SAIMM, **3**, 3-18.

- ROBB, L.J., HARRIS, P.D. and KEDDA, S.W.** (1993). The relationship between granitoid plutonism and lode-gold formation in Archaean greenstone belts of southern Africa. Abstr. Mineral Exploration '93, CSM Associates Ltd, UK, and Dept. Geological Sciences, Univ. Cape Town, 2pp.
- ROBB, L.J., MEYER, F.M., KRÖNER, A., TRUMBULL, R.B., REIMOLD, W.U., DE BRUIYN, H., WALRAVEN, F. and TOULKERIDIS, T.** (1993). Late-stage granite plutons in the Barberton region and Swaziland: an update. Ext. Abstr. 16th Colloquium of African Geology. Mbabane, Swaziland, 299-301.
- ROBERTS, S., FOSTER, R.P. and NESBITT, R.W.** (1990). Mineralization associated with early Precambrian basic magmatism, 157-188. *In*: Hall, R.P. and Hughes, D.J. (Eds.), Early Precambrian Basic Magmatism. Blackie, Glasgow, 486pp.
- ROBERTSON, M.K., CHARLESWORTH, E.G. and PHILLIPS, G.N.** (1994). Gold mineralization during progressive deformation at the Main Reef Complex, Sheba Gold Mine, Barberton greenstone belt, South Africa. *Explor. Mining Geol.*, 3(3), 181-194.
- RODEL, J.E.** (1993). The petrography and geochemistry of the Stolzberg and Rozentuin layered ultramafic complexes, Barberton Mountain Land, Eastern Transvaal. M.Sc thesis (unpubl.), Univ. Witwatersrand, Johannesburg, 232pp.
- ROLLINSON, H.,R.** (1995). The relationship between chromite chemistry and the tectonic setting of Archaean ultramafic rocks, 7-23. *In*: Blenkinsop, T.G. and Tromp, P.L. (Eds.), Sub-Saharan Economic Geology. A.A. Balkema, Rotterdam, 301pp.

## **S**

- SADOWSKI, G.R.** (1996). Archean structural geology and its expressions in South America. Ext. Abstr. Sociedade Brasileira de Geologia Symposium on Archaean Terranes of the South American Platform, Brasilia, p.64-66.
- SAGGERSON, E.P. and TURNER, L.M.** (1993). The metamorphic map of the Republics of South Africa, Transkei, Bophuthatswana, Venda, Ciskei and the Kingdoms of Lesotho and Swaziland. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 309-310.
- SCHIDLOWSKI, M.** (1995). Vestiges of a beginning: the record of early terrestrial life. Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. II, p. 1185-1188.
- SCHOUWSTRA,, R.P. and MARKGRAFF, J.** (1991). Wall-rock alteration in the Zwartkoppie shoot, Sheba Gold Mine, South Africa. Symposium Brazil Gold '91, Belo Horizonte, Brazil. A.A. Balkema, Rotterdam, p.375-381.

- SCHOUWSTRA, R.P.** (1995). Wall-rock alteration as a guide to gold-bearing fracture zones in the Zwartkoppie Section, Sheba Gold Mine, South Africa. *S. Afr. J. Geol.*, **98**(4), 399-414.
- SCHÜRMANN, L.W., WARD, J.H.W. and HORSTMANN, U.E.** (1996). Golden carbonatites? *Geobulletin, Geol. Soc. S. Afr.*, **39** (4), 9-10.
- SMITH, H.S.** (1990). Early Precambrian basic rocks of Africa, 352-378. *In*: Hall, R.P. and Hughes, D.J. (Eds.), *Early Precambrian Basic Magmatism*. Blackie, Glasgow, 486pp.
- SMITH, H.S., O'NEIL, J.R. and ERLANK, A.J.** (1984). Oxygen isotope compositions of minerals and rocks and chemical alteration patterns in pillow lavas from the Barberton greenstone belt, South Africa, 115-137. *In*: Kröner, A., Hanson, G.N. and Goodwin, A.M. (Eds.), *Archaean Geochemistry*. Springer-Verlag, New York, 286pp.
- SNOW, G.B.** (1991). Shear-zone hosted gold mineralization in the Moodies Group at Sheba Gold Mine, Barberton greenstone belt. M.Sc. thesis (unpubl.), Univ. Pretoria, 134pp.
- SRIKANTAPPA, C., HÖRMANN, P.K. and RAITH, M.** (1990). Petrology and geochemistry of layered ultramafic to mafic complexes from the Archaean craton of Karnataka, southern India, 138-160. *In*: Kröner, A., Hanson, G.N. and Goodwin, A.M. (Eds.), *Archaean Geochemistry*. Springer-Verlag, New York, 286pp.
- STEPHAN, S.** (1980). Technical and economic evaluation of the tin project in Sinceni, Swaziland and a preliminary assessment of the technical and economic exploitation of the alluvial deposits in the Ezulwini Valley in Swaziland. Federal Institute for Geosciences and Natural Resources, Hannover, F.R.G. Internal Report, Tech. Co-op. Project No. 75.2179.2, Archive No. 87111 (unpubl.), 35pp.
- STETTLER, E.H., DE BEER, J.H., EBERLE, D., LUDDEN, J. and MARESCHAL, M.** (1997). Geophysics and deep structures (in greenstone belts). *In*: De Wit, M.J. and Ashwal, L.D. (Eds.), *Greenstone Belts*. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 339-375.
- SUN, S.-S.** (1994). Geochemical characteristics of Archaean ultramafic and mafic volcanic rocks: implications for mantle composition and evolution, 25-46. *In*: Kröner, A., Hanson, G.N. and Goodwin, A.M. (Eds.), *Archaean Geochemistry*. Springer-Verlag, New York, 286pp.
- SYLVESTER, P.J.** (1994). Archean granite plutons. *In*: K.C. Condie (Ed.), *Archean Crustal Evolution, Developments in Precambrian Geology* 11. Elsevier, Amsterdam, 261-314.

- SYLVESTER, P.J., HARPER, G.D., BYERLY, G.R. and THURSTON, P.C. (1997).** Volcanic aspects (of greenstone belts). *In: De Wit, M.J. and Ashwal, L.D. (Eds.), Greenstone Belts. Oxford Monographs on Geology and Geophysics, No. 35. Oxford University Press, Oxford, 55-90.*

## **T**

- TALBOT, C.J., HUNTER, D.R. and ALLEN, A.R. (1987).** Deformation of the Assegaai supracrustals and adjoining granitoids, Transvaal, South Africa. *J. Struct. Geol.*, **9** (1), 1-12.
- THURSTON, P.C. (1994).** Archean volcanic patterns. *In: Condie, K.C. (Ed.), Archean Crustal Evolution, Developments in Precambrian Geology 11. Elsevier, Amsterdam, 45-84.*
- THURSTON, P.C. and CHIVERS, K.M. (1990).** Secular variation in greenstone sequence development emphasizing Superior Province, Canada. *Precambrian Res.*, **46**, 21-58.
- TOULKERIDIS, T. (1992).** Stratigraphische, geochemische, isotopische und geochronologische Untersuchungen an Karbonatgesteinen aus dem Barberton Grünsteingürtel, östliches Transvaal, Südafrika. Diplomarbeit, Johannes Gutenberg-Universität Mainz, 162pp.
- TOULKERIDIS, T., CLAUER, N. and KRÖNER, A. (1996).** Chemical variations in clay minerals of the Archaean Barberton greenstone belt (South Africa). *Precambrian Res.*, **79**, 195-207.
- TOULKERIDIS, T., PEUCKER-EHRENBRINK, G., KRÖNER, A. and SCHIDLOWSKI, M. (1993).** Geochemistry and timing of magnesite formation in the Barberton greenstone belt. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 345-347.
- TOULKERIDIS, T., TODT, W., KRÖNER, A. and LOWE, D.R. (1990).** Pb-Pb dating of a carbonate rock from the Onverwacht Group, Barberton greenstone belt, South Africa. Publ. occas. - C.I.F.E.G. No. 20, p.48.
- TOULKERIDIS, T., GOLDSTEIN, S.L., KRÖNER, A., LOWE, D.R. and SCHIDLOWSKI, M. (1990).** Late Archean Rb-Sr, Pb-Pb and Sm-Nd resetting of early Archean Barberton greenstone belt carbonates. *In: Glover, J.E. and Ho, S.E. (Eds.), 3rd Int. Archean Symp., Extended Abstracts, Geoconferences (W.A.) Inc., Perth, pp. 309-310.*
- TOULKERIDIS, T., GOLDSTEIN, S.L., CLAUER, N., KRÖNER, A. and LOWE, D.R. (1993).** Oldest dated clays, Fig Tree Group, Barberton greenstone belt, South Africa. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 348-349.

- TOULKERIDIS, T., GOLDSTEIN, S.L., CLAUER, N., KRÖNER, A. and LOWE, D.R.** (1994). Sm-Nd dating of Fig Tree clays: implications for the thermal history of the Barberton greenstone belt, South Africa. *Geology*, **22**, 199-202.
- TOULKERIDIS, T., CLAUER, N., TODT, W., STILLE, P., GOLDSTEIN, S.L. and KRÖNER, A.** (1995/6). A mineralogic, geochemical and isotopic provenance study of Fig Tree and Moodies shales, Barberton greenstone belt, South Africa. (in prep.).
- TREDOUX, M.** (1995). Platinum resources in Africa: the reason for looking carefully at the Archean cratons. Ext. Abstr. Centennial Geocongress '95, Geol. Soc. S. Afr., Johannesburg, Vol. 1, p.118-121.
- TREDOUX, M., LINDSAY, N.M., DAVIES, G. and McDONALD, I.** (1995). The fractionation of platinum-group elements in magmatic systems, with the suggestion of a novel causal mechanism. *S. Afr. J. Geol.*, **98**(2), 157-167.
- TRUMBULL, R.B.** (1991). Modelling the geochemical evolution of an Archean fertile granite-pegmatite system. *In*: Pagel, M. and Leroy, J.L. (Eds.), *Source, Transport and Deposition of Metals*. A.A. Balkema, Rotterdam, pp. 829-832.
- TRUMBULL, R.B.** (1993). A petrological and Rb-Sr isotopic study of an early Archean fertile granite-pegmatite system: the Sinceni Pluton in Swaziland. *Precambrian Res.*, **61**, 89-126.
- TRUMBULL, R.B.** (1995). Tin mineralization in the Archean Sinceni rare element pegmatite field, Kaapvaal Craton, Swaziland, *Econ. Geol.* **90**, 648-657.
- TRUMBULL, R.B. and MAPHALALA, R.M.** (1993). Archean tin-bearing pegmatites and the "Tin-Belt" of Swaziland. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 350-352.
- TRUMBULL, R.B. and MAPHALALA, R.M.** (1997). Geochemical and Rb-Sr age study of Archean pegmatites in the "Tin Belt" of Swaziland (submitted to *S. Afr. J. Geol.*).
- TRUMBULL, R.B. and MORTEANI, G.** (1987). Tin mineralization in Archean pegmatites in Swaziland and a potential exploration method based on trace elements in pegmatitic feldspar. *In*: Matheis, G. and Schandelmeier, H. (Eds.), *Current Research in African Earth Sciences*. A.A. Balkema, Rotterdam, pp. 405-408.
- TRUMBULL, R.B. and ROBB, L.J.** (1995). Granite distribution in the eastern Kaapvaal Craton: clues to crustal evolution. *Terra Abstracts*, EUG8, Strasbourg, p.100.

U

- URIE, J.D.** (1959). The beryl-cassiterite-bearing pegmatites of the Sinceni area, Hlatikulu District, Swaziland. Part II, Swaziland Geol. Surv. Mines Dept. Ann. Rep. 1959, 59pp.

V

- VAN DEN BERG, M.A. and EATON, B.G.** (1984). Sheba Mine tour guide. *In*: Pearton, T.N. (Ed.), *Archaean Gold, Barberton Centenary Symposium, Abstracts and Guidebook*. Geol. Soc. S. Afr., 93pp.
- VAN SCHALKWYK, J.F., DE WIT, M.J., ROERING, C. and VAN REENEN, D.D.** (1993). Tectono-metamorphic evolution of the simatic basement of the Pietersburg greenstone belt relative to the Limpopo Orogeny: evidence from serpentinite. *Precambrian Res.*, **61**, 67-88.
- VAN ZWIETEN, A.J.M.** (1992). Some aspects of the geology of the Intombi grid, Sheba Prospect Area, Sheba Hills, Barberton Mountain Land. B.Sc. (Hons.) Project (unpubl.), Univ. Witwatersrand, Johannesburg, 55pp.
- VEARNCOMBE, J.R., BARTON, J.M., CHESHIRE, P.E., DE BEER, J.H., STETTLER, E.H. and BRANDL, G.** (1992). Geology, geophysics and mineralization of the Murchison schist belt, Rooiwater Complex and surrounding granitoids. *Mem. geol. Surv. S. Afr.*, **81**, 139pp.
- VEIZER, J., HOEFS, J., LOWE, D.R. and THURSTON, P.C.** (1989). Geochemistry of Precambrian carbonates II. Archean greenstone belts and Archean sea water. *Geochim. Cosmochim. Acta*, **53**, 859-871.
- VEIZER, J., HOEFS, J., RIDLER, R.H., JENSEN, L.S. and LOWE, D.R.** (1989). Geochemistry of Precambrian carbonates: I. Archean hydrothermal systems. *Geochim. Cosmochim. Acta*, **53**, 845-857.
- VERBEEK, J.A.** (1993). Geochemistry of meta-volcanic rocks in the Archaean Assegaai Formation, southeastern Transvaal. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 366-367.
- VILJOEN, M.J., COWARD, D. and WEDEPOHL, C.** (1993). Geological mapping of the granite-greenstone terrane between the Murchison and Sutherland ranges, Transvaal, using SPOT data. *S. Afr. J. Sci.*, **89**, 436-441.
- VOORTMAN, L.** (1992). Panning for gold in Barberton. *Geobulletin*, **35**(4), p.11.



W

- WALSH, M.M. and LOWE, D.R. (1985).** Filamentous microfossils from the early Archean Onverwacht Group, Barberton Mountain Land, South Africa. *Nature*, **314**, 530-532.
- WARD, J.H.W. (1993).** The Barberton metallogenic map programme. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 376-377.
- WARD, J.H.W. (1995).** Geology and metallogeny of the Barberton greenstone belt: a survey. *J. Afr. Earth Sci.*, **21**(2), 213-240.
- WEDEPOHL, C. (1992).** An analysis of the granite-greenstone terrane between the Murchison and Sutherland Ranges using SPOT satellite data. B.Sc. (Hons.) Project (unpubl.), Univ. Witwatersrand, Johannesburg, 66pp.
- WENDT, J.I. (1993).** Early Archean crustal evolution in Swaziland, southern Africa as revealed by combined use of zircon geochronology, Pb-Pb and Sm-Nd systematics. Doct. Diss. (unpubl.), Univ. Mainz, 123pp.
- WENDT, J.J., KRÖNER, A. and TODT, W. (1995).** Are Pb-Pb whole rock systematics reliable age indicators for Archaean metamorphic rocks? *Terra Abstracts*, EUG 8, Strasbourg, p.348.
- WENDT, J.I., MILISENDA, C.C. and KRÖNER, A. (1993).** Multiple recycling of TTG rocks from the Ancient Gneiss Complex of Swaziland: a compilation of U-Pb zircon data and Sm-Nd systematics. *Terra Abstracts*, Abstr. suppl. No. 1 to *Terra Nova*, **5**, 41-42.
- WENDT, J.I., TOULKERIDIS, T., KRÖNER, A. and HEUBECK, C. (1992).** Comparative zircon geochronology for dating of Archean plutonic rocks of southern Africa. *Bh. Eur. J. Miner.*, **4**(1), p.291.
- WENDT, J.I., TOULKERIDIS, T., KRÖNER, A. and HEUBECK, C. (1993).** Single zircon geochronology of Archaean granitoids in South Africa and Swaziland. Ext. Abstr. 16th Colloquium of African Geology, Mbabane, Swaziland, 378-379.
- WILLIAMS, P.J. (1995).** The Lily Mine, Barberton, South Africa: a metamorphosed strata-bound-epigenetic Archean gold deposit. Submitted to *Econ. Geol.*