



Mineral Resources Tasmania

REPORT 1993/23

General features and chemical analyses of mafic and other rocks, Corinna geological map quadrangle

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INTRODUCTION

This report tabulates chemical analyses of rocks occurring in the western part of the Corinna Quadrangle (Turner *et al.*, 1991). Most analyses are of basaltic rocks, and the implications of the results of these analyses are discussed in summary by Crawford (1992) and will be discussed more fully in Turner and Crawford (in prep.).

Major and trace element chemistry supports correlation of the various units of tholeiitic basaltic volcanics in the Ahrberg Group, the amphibolites in the Timbs Group and the dolerite intrusions in the northwest part of the Corinna Quadrangle. There is also support for regional correlations of the Corinna mafic rocks with the Smithton Volcanics and volcanics at Double Cove, and with the Crimson Creek Formation. Local and regional correlations suggested by similarities of major and trace chemistry are substantiated by matching similarities in rare earth element chemistry (Crawford, 1992).

AHRBERG GROUP

Bernafai Volcanics (Table 1)

This formation (fig. 1) extends from around CP406928 to around CP343800, and consists of mafic volcanic rocks and sedimentary rocks that have experienced very low grade regional metamorphism. Only metabasalts were analysed. These have mineral assemblages comprising mainly fine-grained albite, epidote and actinolite. Their chemistry is tholeiitic.

Tunnelrace Volcanics (Table 2)

This unit is a fault-bounded 'slice' of tholeiitic volcanics and sedimentary rocks which extends from CQ480040 west of Savage River town, to CP340770 near the southwest corner of the Corinna Quadrangle. The unit has a much more pronounced aeromagnetic signature than the Bernafai Volcanics; this probably relates to the more common occurrence of disseminated magnetite in the Tunnelrace Volcanics. It seems likely that the more abundant magnetite reflects higher metamorphic grade, as rock compositions (e.g. fig. 1) are alike in the two formations. However, silicate mineralogy in the Tunnelrace Volcanics offers little indication of increased grade, although hornblende might be locally present at CP412854. The presence of hornblende at this locality is inferred from the better K-Ar geochronology result obtained in sample NC384 (Turner, 1993).

TIMBS GROUP OF THE ARTHUR METAMORPHIC COMPLEX

Bowry Formation mafic amphibolite (Table 3)

The Bowry Formation is the amphibolite-bearing unit which contains the pyrite-magnetite lenses that are mined at the Savage River mine. The formation extends from the Savage River mine southwards into the Corinna Quadrangle and follows close to the eastern boundary of the Timbs Group into the southwest corner of the quadrangle near CP360763.

Many amphibolites in the Bowry Formation are characterised by actinolitic amphibole but this mineral appears to be due to retrograde metamorphism (Turner and

Bottrill, 1993). Remnant cores of higher grade blue amphibole occur in actinolitic grains in some rocks and comprise virtually all the amphibole in a few, rare amphibolite bodies. The blue amphibole grains range in composition from crossite to glaucophane (Bottrill, 1992). There are other rare amphibolites in which hornblende is the predominant amphibole. Thus, it appears that the Bowry Formation experienced early, high-pressure prograde metamorphism which reached amphibolite facies before widespread retrogression to greenschist facies took place. The dominant schistosity (S₂) in the formation is related to the retrogressive phase and is clearly mylonitic in places.

Bowry Formation mafic and ultramafic rocks at Savage River Mine (Table 4)

Materials in the Bowry Formation in the mine include interbanded mafic and minor ultramafic meta-igneous rocks, massive pyrite-magnetite ore, disseminated ore, carbonates and other metasedimentary rocks. Analyses of two metasedimentary rocks are given in Table 8A. Analyses in Table 4 are of the following mafic and ultramafic rocks:

- NC65: Late-stage (Coleman, 1975), cross-cutting, fine-grained tholeiitic dyke from the mid part of the east wall, Level 18 of the Central Deposit open pit.
- NC179: A relatively massive 'pillow' (Spiller, 1974) at the south end of the east wall on Level 17 of the Central Deposit open pit. About 11 m east of massive ore.
- NC69: Schistose material which wraps around the ellipsoidal 'pillows' and forms their matrix.
- NC71: Relatively massive band near NC179 which thickens and thins. About 10 m east of massive ore.
- NC72: Like NC71 and same area, one metre east of massive ore.
- NC68: Same area, relatively massive boudin within the massive ore zone.
- NC74: Coarser grained amphibolite just west of the massive ore zone, same area.

The problem to be resolved in respect of the mine rocks is to establish to what extent the mafic/ultramafic and other compositional variations reflect primary compositions and to what extent they reflect hydrothermal alteration. In relation to this, Figure 2 shows the Ti-Zr-Y trend displayed by Bowry Formation amphibolites from the mine and from elsewhere in the formation. The trend appears to be related to distance from ore, with amphibolite bodies that are distant from ore having compositions similar to the Bernafai Volcanics but becoming relatively depleted in Ti and Zr and relatively enriched in Y in the ore zone. This apparent spacial relationship between rock composition and ore is suggestive of a hydrothermal alteration pattern.

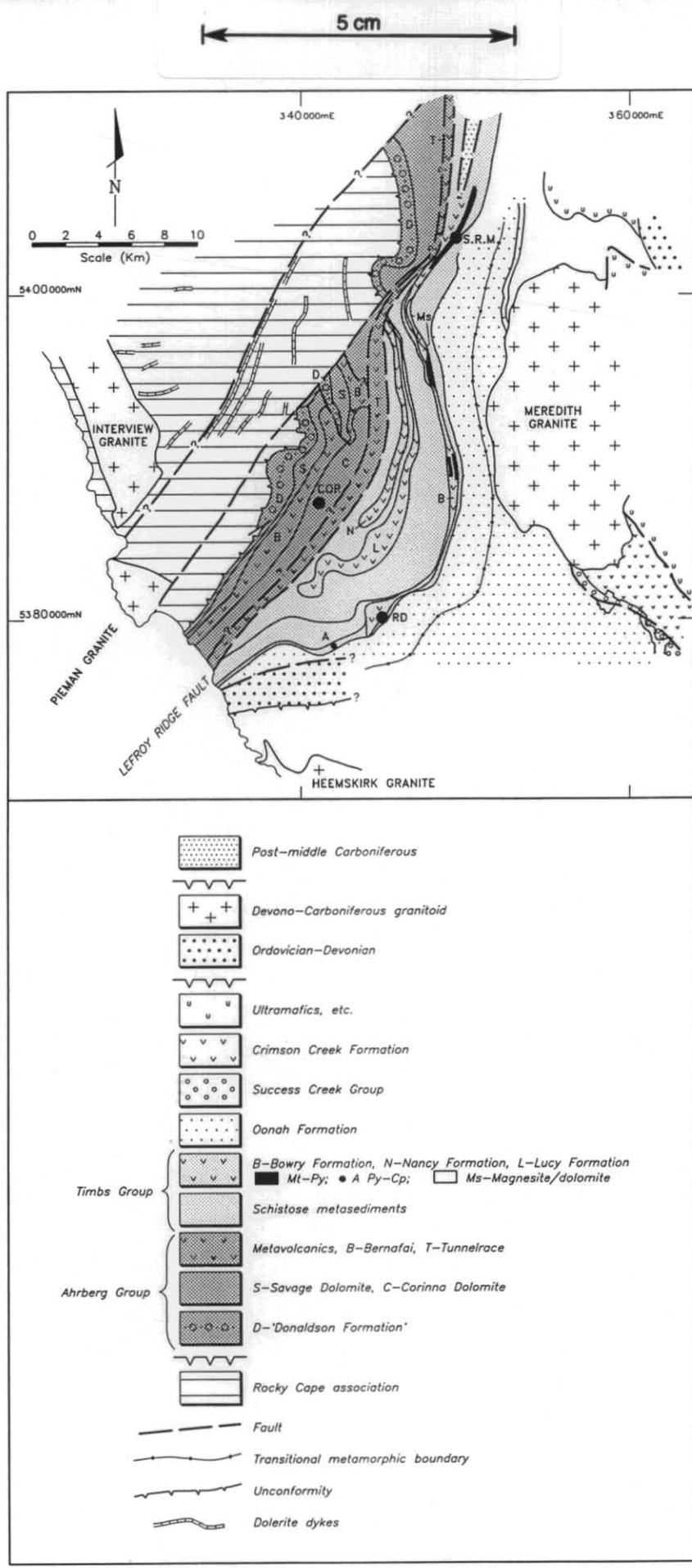


Figure 1.

Geology of the Corinna district. COR = Corinna; SRM = Savage River mine; A = Alpine locality; RD = Reece Dam. The Arthur Metamorphic Complex extends eastwards from the Lefroy Ridge fault to the transitional metamorphic boundary in the Oonah Formation.

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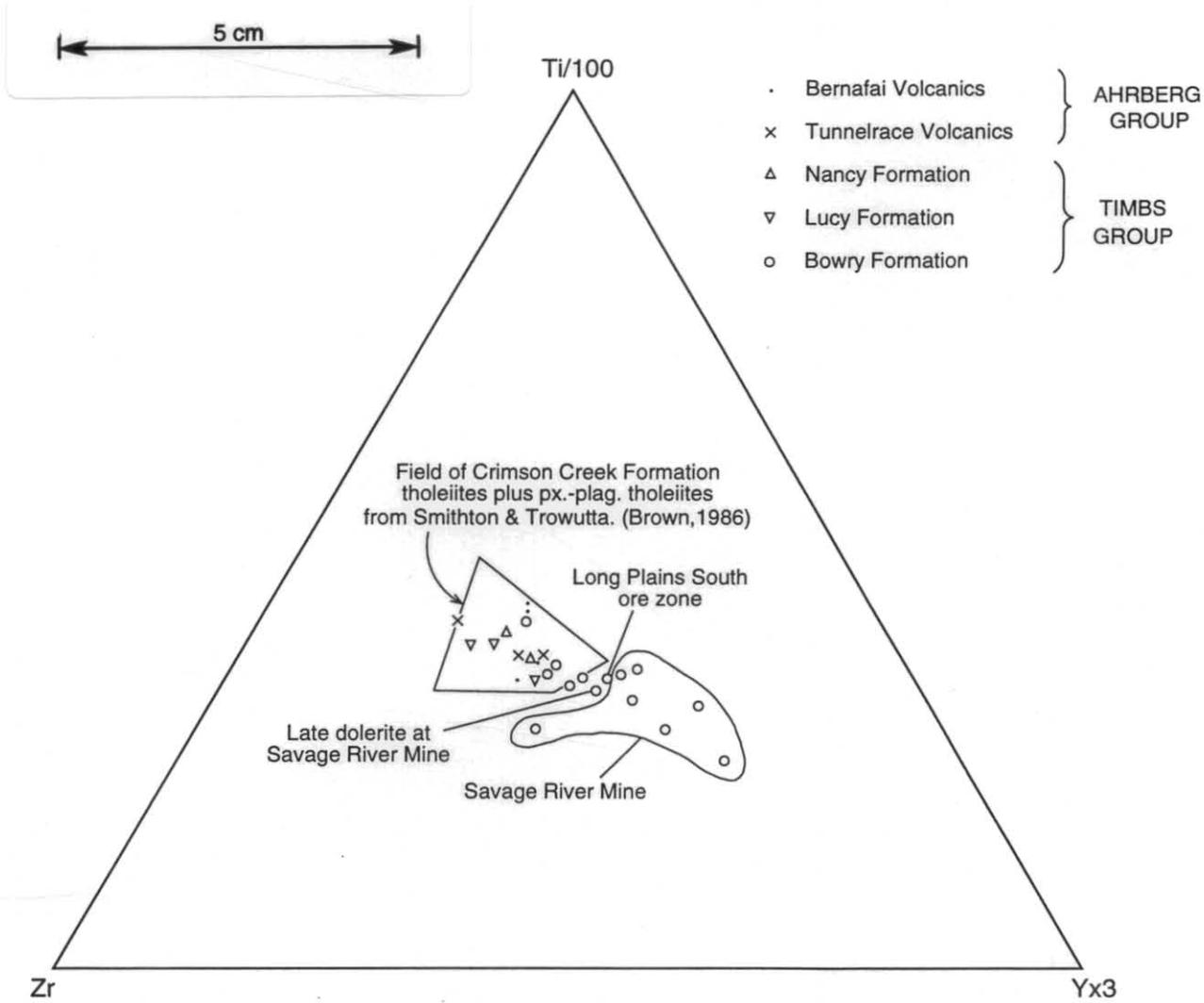


Figure 2.

Ti-Zr-Y plot for mainly mafic meta-igneous rocks in the Corinna district. Generally the plots for the Corinna rocks are very similar to basalts at Smithton and Trowutta. However, rocks in close proximity to iron ore (e.g. Table 4) differ markedly, possibly as a result of hydrothermal alteration.

The late-stage, cross-cutting, tholeiitic dykes apparently post-date alteration but they were affected by both metamorphism and deformation. They display a foliation defined by penetrative mineral grain alignment and they consist of mainly albite, epidote, chlorite and actinolitic amphibole.

Bowry Formation felsic and mafelsic rocks at Rocky River (Table 5)

Schistose to relatively massive, felsic and mafelsic, meta-igneous rocks occur in the Bowry Formation at Rocky River, Doctors Creek and elsewhere. In thin section the rocks comprise medium-sized grains of mainly feldspar with subordinate quartz, chlorite, actinolite and epidote in a fine-grained matrix of predominantly feldspar and quartz. The feldspar commonly displays albite twinning and appears to be of relatively sodic composition. Some feldspar grains display cross-hatched twinning.

In outcrop the felsic to mafelsic rocks usually display a well-developed planar/linear fabric although the intensity of the fabric varies considerably from very strongly schistose to fairly massive. Rocks against a cross-cutting

(EW), apparently intrusive contact with green schist on the north bank of the Rocky River near CP492894 are fairly massive. However, the general development of planar/linear fabric combined with the distinctive microtexture shows that the felsic to mafelsic rocks are mostly mylonitic.

Felsic to mafelsic rocks from the Rocky River are enriched in sodium and the more felsic types are notably enriched in zirconium. Silica values range from gabbroic/dioritic through granodioritic to granitic, and this variation suggests that magmatic differentiation may have been involved in the genesis of the rocks. However the samples display a Ti against Zr trend (fig. 3) which is quite unlike the trend displayed by the basaltic rocks in the Bowry Formation. The trend seems independent of the general trend of basaltic rocks in the Corinna Quadrangle.

Nancy Formation and Lucy Formation (Table 6A, B)

In addition to the Bowry Formation there are two other formations in the Timbs Group which are characterised by amphibolite, namely the Nancy Formation and the more

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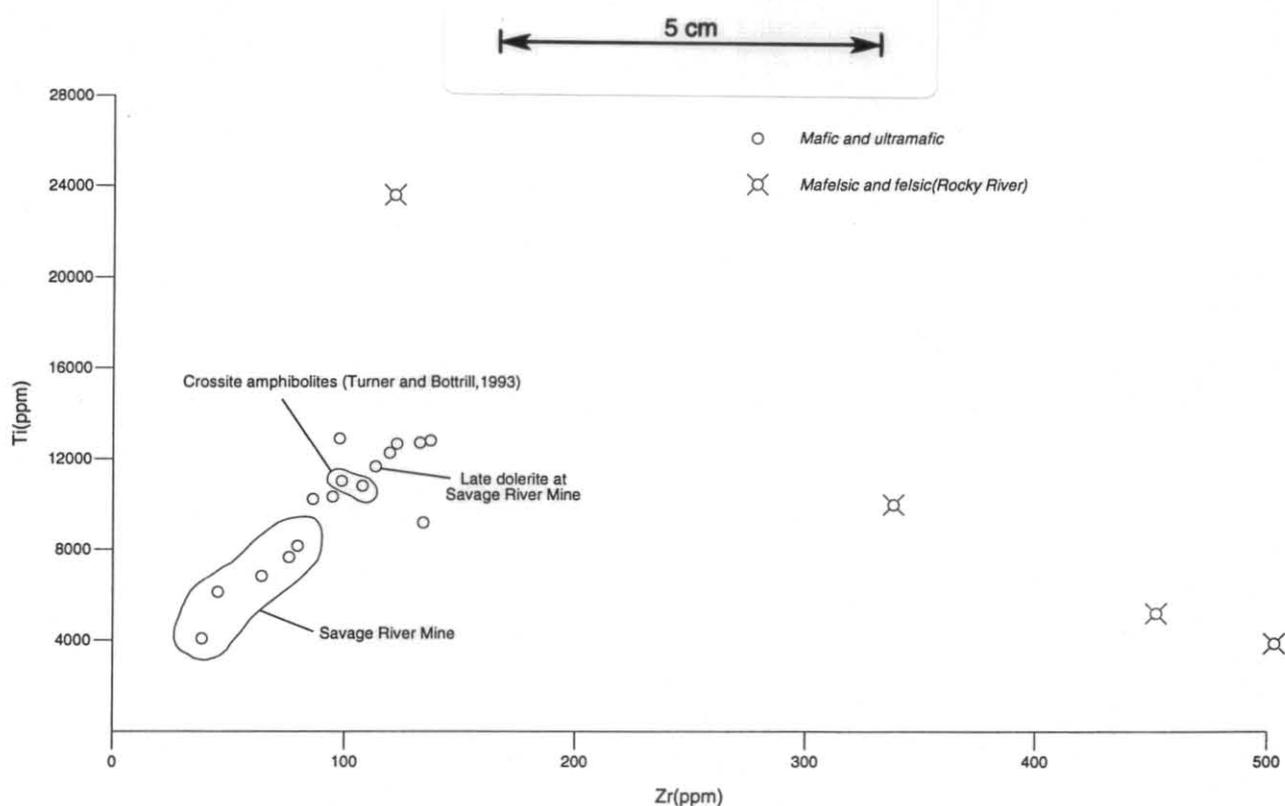


Figure 3.

Ti-Zr plot for mainly mafic meta-igneous rocks in the Corinna district, generally compared with felsic and metafelsic rocks from Rocky River. The two groups have markedly different, apparently unrelated trends.

easterly Lucy Formation. Interbanded metasedimentary rocks comprise much more than half of the Lucy Formation in Lucy Creek and the Pieman River, although meta-igneous rocks appear to be more abundant north of the Whyte River. The Nancy Formation appears to contain a higher proportion of meta-igneous material than the Lucy Formation.

The Lucy Formation has a distinct aeromagnetic signature, although the signature is of much lower amplitude than anomalies associated with the Bowry Formation and the Tunnelrace Volcanics. In contrast the Nancy Formation does not have a distinct aeromagnetic signature despite containing a higher igneous component. The presence of disseminated magnetite in the Lucy Formation and not in the Nancy Formation appears to explain the different aeromagnetic characteristics.

Silicate mineral assemblages in amphibolite in each formation comprise mainly albite, epidote and actinolite. Although these predominant minerals are the same as the predominant minerals in the Bernafai Volcanics and Tunnelrace Volcanics, their grain size is greater. Similarly the associated metasedimentary rocks are coarser grained, being schist rather than phyllite or slate as in the Bernafai Volcanics and Tunnelrace Volcanics.

One metabasalt (NC347A) and one tuff (NC149) from the Nancy Formation are included in Table 6A, whereas three metabasalts from the Lucy Formation are included in Table 6B. All the samples have Ti-Zr-Y plots (fig. 2) which match closely with the Bernafai Volcanics and with plots for other Late Proterozoic basalts in west and northwest Tasmania. REE plots are also very similar (Crawford, 1992).

REECE DAM GABBRO (Table 6C)

Gabbro which intrudes the metamorphosed Oonah Formation under the eastern spillway abutment at Reece Dam is regarded as a different basaltic phase to the bulk of the Bernafai Volcanics and Tunnelrace Volcanics, primarily on the basis that it is depleted in light rare earth elements rather than enriched (Crawford, 1992). In this respect it is similar to some Bowry Formation amphibolites.

The gabbro is isoclinally folded and has a strong cataclastic foliation. The foliation is equivalent to the dominant foliation that is developed in the surrounding metamorphosed Oonah Formation and in the adjacent Bowry Formation. However, there is very little metamorphism in the gabbro, with metamorphic minerals being limited to actinolitic amphibole in fractures in clinopyroxene grains. Clinopyroxene and the turbid plagioclase in the gabbro retain their primary igneous grain shape, apart from the effects of fracturing. The very low metamorphic grade contrasts with the grade of mafic rocks in the nearby Bowry Formation, which are totally recrystallised to amphibolite with some containing relict blue amphibole. A major fault between the gabbro and the Bowry Formation seems likely.

DOLERITE INTRUSIONS (Table 7)

Dolerite intrusions in the northwest part of the Corinna Quadrangle are part of the Rocky Cape 'dyke' swarm which extends from near Pieman Heads to Rocky Cape. Although some of the intrusive bodies in the Corinna Quadrangle are dykes (e.g. CP350960), others appear to be sills (e.g. CP387970). The intrusions are mostly less than

50 m wide but their extent along strike can be considerable. For example, the dyke that passes through CP350960 probably has an extent of much more than 13 kilometres. It intrudes along a fault. Sedimentary rocks in contact with the various dolerite bodies have been metamorphosed to fine-grained, low-grade hornfels.

Dolerite in the long dyke that passes through CP350960 varies in grain size and texture along strike. Grain size ranges from 1 mm to about 3 mm, whilst texture varies from typically doleritic with no clear, preferred orientation of mineral grains, to rocks in which there is distinct mineral grain alignment. Primary clinopyroxene grains in the dolerite have been replaced, apparently without much grain shape modification, by green amphibole which can be overgrown by fine-grained actinolite or replaced by chlorite. Free quartz is present in the dolerite, commonly in graphic intergrowths with feldspar. Samples NC439, NC446 and NC447 in Table 7 are from the long dyke.

Free quartz also occurs in a 5 m wide, probable sill of dolerite at CP370496. Dolerite in the central part (NC459) of the sill has a grain size of 3 mm which decreases to fine grained in the chilled margins (NC458). Ferromagnesian grains throughout are chlorite and chloritised green amphibole. There are marked differences between the central part of the sill and the chilled margins in terms of some chemical parameters (Table 7), notably CaO + MgO and Cr.

Dolerite in the Donaldson River near CP388973 appears to form a sill and has hornfelsed contacts. In places it displays a distinct planar/linear fabric, whilst elsewhere the fabric may be indistinct. Ferromagnesian minerals in the dolerite comprise chloritised green amphibole and there is no free quartz. Similar mineralogical characteristics are displayed by medium-grained dolerite with hornfelsed contacts near CP430990. This dolerite, and the one near CP388973, are represented respectively by samples NC312B and NC455 (Table 7). They have lower SiO₂, lower CaO + MgO, and lower Cr than the quartz-bearing dolerite intrusions.

An unusual, green, very finely schistose rock occurs near CP359858 on the Tikkawoppa Plateau. The rock's field relationships are obscured and its compositional relationships with the dolerite intrusions are equivocal. Unlike the dolerite, the schist comprises mainly talc and chlorite with large skeletal 'grains' of opaque mineral. However, its chemical composition (Table 7, NC418) is similar to the dolerite bodies in which there is no free quartz.

Overall, the dolerite bodies in the Corinna Quadrangle have chemical compositions which overlap with the basaltic rocks in the Ahrberg Group and Arthur Metamorphic Complex. However some dolerite bodies display rare earth element and trace element characteristics which suggest that the dolerite bodies may represent an earlier episode in the period of basaltic magmatism (Crawford, 1992).

SCHISTS (Tables 8A, B)

Analyses of mafic chloritic schists from the Lucy Formation (NC498B) and the Bowry Formation (NC353) are given in Table 8B. Analyses of two quartz-actinolite

schists from the ore zone in the Bowry Formation at the Savage River mine are given in Table 8A.

AHRBERG GROUP DOLOMITE (Table 9)

Dolomite cropping out along the Savage River north of the Corinna silica mine is lower in Fe₂O₃, FeO and MnO (Table 9) than dolomite elsewhere in Tasmania (Hughes, 1957). It is from rocks in this formation that the silica deposits appear to have been ultimately derived through silicification followed by disaggregation of the initially-coherent, fine-grained, secondary silica (Khin Zaw *et al.*, 1992).

In view of the presence of residual primary gold in regolith at the nearby old Brookside mine (Khin Zaw *et al.*, 1992), it may be significant that there is detectable gold in one of the dolomite samples (NC320) from the locality beside the Savage River.

MISCELLANEOUS SAMPLES (Table 10)

The following samples were analysed for trace metals:

- NC19: Massive pyrite from the Alpine prospect (Caithness, 1985).
- NC21: Gossanous material from a stratigraphic position similar to the Alpine prospect but 3 km ENE.
- NC428: Gossanous material.
- NC434: Altered chloritic, siliceous rock within a large quartz vein.
- NC445: Dark grey, tough mudstone with pyrite cubes up to 4 mm across.
- NC472: Pyrite-rich quartz vein.
- NC474: Pyrite-rich quartz vein.

REFERENCES

- BOTTRILL, R. S. 1992. Sodic and sodic-calcic amphiboles from Corinna, in: TURNER, N. J. (ed). Corinna 1:50 000 Geological Map. Field guide to selected rock exposures. *Report Department of Mines Tasmania*. 1992/06.
- BROWN, A. V. 1986. Geology of the Dundas-Mt Lindsay-Mt Youngbuck area. *Bulletin Geological Survey Tasmania*. 62.
- CAITHNESS, S. J. 1985. *Rocky Cape EL 1/77. Report on drilling for the period 1 February 1985-30 November 1985*. CRA Exploration Pty Ltd [TCR 86-2538].
- COLEMAN, R. J. 1975. Savage River magnetite deposits, in: KNIGHT, C. L. (ed.). *Economic Geology of Australia and Papua New Guinea*. I. Metals. *Monograph Serial Australasian Institute of Mining and Metallurgy*. 5:598-604.
- CRAWFORD, A. J. 1992. Geochemistry and implications of mafic metavolcanics in the Corinna-Savage River area, in: TURNER, N. J. (ed.). Corinna 1:50 000 Geological Map. Field guide to selected rock exposures. *Report Department of Mines Tasmania*. 1992/06.
- HUGHES, T. D. 1957. Limestones in Tasmania. *Mineral Resources Geological Survey Tasmania*. 10.

KHIN ZAW; TURNER, N. J.; LARGE, R. R.; NOLAN, H.; MERNAGH, T. 1992. Geology and genesis of silica flour and gold in the Corinna district, Tasmania. *Bulletin Geological Survey Tasmania*. 70:96.

SPILLER, A. R. 1974. *The petrology of the Savage River iron ore deposit, Tasmania*. B.A. (Hons) thesis, Macquarie University (unpublished).

TURNER, N. J. 1993. K-Ar geochronology in the Arthur Metamorphic Complex, Ahrberg Group and Oonah Formation, Corinna district. *Report Mineral Resources Tasmania*. 1993/27.

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TURNER, N. J.; BOTTRILL, R. S. 1993. Blue amphibole in the Proterozoic to Cambrian Arthur Metamorphic Complex, northwest Tasmania. *Report Mineral Resources Tasmania*. 1993/26.

TURNER, N. J.; BROWN, A. V.; MCCLENAGHAN, M. P.; SOETRISNO, Ir. 1991. Geological Atlas 1:50 000 Series. Sheet 43 (7914N). Corinna. *Department of Resources and Energy, Tasmania*.

[9 September 1993]

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TABLE 1
Analyses of Bernafai Volcanics samples

| Sample No. | NC14 | NC15 | NC22 | NC29 | NC30 | NC35 | NC174 | 2207 | 2225 | |
|--------------------------------|----------|----------|----------|----------|----------|----------|----------|------------|------------|------|
| Field Stn. | 60 | 60 | 76 | 142 | 142 | 177 | 340 | Uni | Uni | |
| AMG | CP316773 | CP316773 | CP346800 | CP403889 | CP403889 | CP411905 | CP414906 | Collection | Collection | |
| Tas. Uni | 69089 | 69102 | 69091 | 69090 | 69087 | 69088 | 69108 | | | |
| DOM | | | | | | | 840725 | | | |
| SiO ₂ | 47.6 | 49.3 | 40.4 | 49.3 | 49 | 46.7 | 49.7 | 48.31 | 50.01 | 51.5 |
| TiO ₂ | 1.97 | 1.69 | 3.09 | 1.81 | 0.27 | 1.32 | 1.59 | 1.47 | 2.66 | 2.49 |
| Al ₂ O ₃ | 16.9 | 15.1 | 18.7 | 15.9 | 15.9 | 17.1 | 14.2 | 13.46 | 15.5 | 14.7 |
| Fe ₂ O ₃ | 15.7 | 13.8 | 19.4 | 14.2 | 11 | 12.8 | 14.1 | 7.57 | 16.4 | 12.8 |
| FeO | | | | | | | | 5.48 | | |
| MnO | 0.14 | 0.21 | 0.32 | 0.23 | 0.16 | 0.25 | 0.2 | 0.2 | 0.2 | 0.09 |
| MgO | 7.79 | 6.89 | 7.92 | 6.64 | 13.2 | 12.6 | 6.84 | 6.8 | 6.39 | 7.35 |
| CaO | 4.11 | 11.1 | 7.89 | 9.91 | 8.39 | 5.17 | 10.9 | 10.78 | 4.68 | 5.25 |
| Na ₂ O | 5.28 | 1.54 | 1.87 | 1.66 | 1.3 | 3.7 | 2.15 | 1.91 | 3.81 | 5.37 |
| K ₂ O | 0.3 | 0.16 | 0.01 | 0.22 | 0.73 | 0.09 | 0.14 | 0.14 | 0.03 | 0.22 |
| P ₂ O ₅ | 0.19 | 0.18 | 0.32 | 0.15 | 0.01 | 0.17 | 0.15 | 0.16 | 0.25 | 0.24 |
| S | | | | | | | | 0.04 | | |
| SO ₃ | | | | | | | | | | |
| CO ₂ | | | | | | | | 0.18 | | |
| H ₂ O ⁻ | | | | | | | | 0.03 | | |
| H ₂ O ⁺ | | | | | | | | 3.10 | | |
| LOI | 3.78 | 2.55 | 5.6 | 3.9 | 5.82 | 5.21 | 2.69 | | 3.95 | 2.75 |
| Ba | 35 | 37 | 13 | 55 | 589 | 12 | 63 | 72 | 25 | 27 |
| Co | | | | | | | | 43 | | |
| Cr | 274 | 103 | 156 | | 2025 | 281 | 112 | 85 | 112 | 114 |
| Cu | 260 | 75 | 103 | 41 | 69 | 107 | 30 | 26 | 115 | 49 |
| Nb | 7 | 7 | 20 | 6 | 2.1 | 5 | 6 | <3 | 18 | 17 |
| Ni | 112 | 6 | 109 | | 489 | 126 | 85 | 70 | 94 | 87 |
| Pb | 1 | 1 | 4 | 2 | 4 | 1 | 2 | <4 | 150 | 1 |
| Rb | 6 | 3 | 2 | 3 | 22 | 1 | 2 | 12 | 1 | 8 |
| Sc | 37 | 46 | 38 | 44 | 49 | 35 | 46 | 37 | 37 | 44 |
| Sr | 46 | 227 | 363 | 215 | 32 | 22 | 213 | 220 | 121 | 56 |
| V | 527 | 397 | 554 | | 195 | 241 | 380 | | 439 | 434 |
| Y | 25 | 26 | 35 | 22 | 16 | 23 | 27 | 25 | 34 | 28 |
| Zn | 132 | 113 | 172 | | 70 | 194 | 119 | 98 | 142 | 42 |
| Zr | 98 | 99 | 232 | 88 | 34 | 72 | 96 | 91 | 180 | 165 |
| As | | | | | | | | <10 | | |

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TABLE 2
Analyses of Tunnelrace Volcanics samples

| Sample No. | NC162 | NC165 | NC331 | NC470 | NC475 | NC489 | NC500 | NC501 |
|--------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Field Stn. | 329 | 330 | 583 | 962 | 964 | 984 | 1026 | 1030 |
| AMG | CP445922 | CP443924 | CP497933 | CP447963 | CP442962 | CQ478035 | CP348776 | CP349771 |
| Tas. Uni | 69098 | 69099 | | | | | | |
| DOM | | | 894846 | 894847 | 894848 | 894849 | 894850 | 894851 |
| SiO ₂ | 48.4 | 48.4 | 47.70 | 49.10 | 45.39 | 49.27 | 47.50 | 47.06 |
| TiO ₂ | 2.06 | 1.7 | 1.18 | 1.52 | 4.35 | 1.61 | 2.32 | 2.32 |
| Al ₂ O ₃ | 14.5 | 15.2 | 14.37 | 12.86 | 15.53 | 13.41 | 15.38 | 13.56 |
| Fe ₂ O ₃ | 16.01 | 15.1 | 3.22 | 4.51 | 17.98 | 2.14 | 11.56 | 8.73 |
| FeO | | | 7.23 | 8.16 | 1.81 | 10.08 | 2.33 | 5.24 |
| MnO | 0.2 | 0.12 | 0.19 | 0.17 | 0.03 | 0.21 | 0.09 | 0.15 |
| MgO | 4.85 | 7.73 | 7.84 | 7.67 | 2.58 | 6.63 | 4.61 | 5.99 |
| CaO | 9.7 | 6.83 | 10.18 | 7.10 | 0.49 | 8.13 | 3.25 | 7.72 |
| Na ₂ O | 3.44 | 4.29 | 3.02 | 1.73 | 5.85 | 3.81 | 4.41 | 4.02 |
| K ₂ O | 0.64 | 0.51 | 0.15 | 0.20 | 1.86 | 0.17 | 0.45 | 0.88 |
| P ₂ O ₅ | 0.22 | 0.17 | 0.39 | 0.42 | 0.45 | 0.39 | 0.40 | 0.41 |
| S | | | | | | | | |
| SO ₃ | | | 0.41 | 0.05 | 0.03 | 0.03 | 0.03 | 0.03 |
| CO ₂ | | | 0.10 | 0.06 | 0.08 | 0.05 | 0.50 | 0.06 |
| H ₂ O ⁻ | | | | | | | | |
| H ₂ O ⁺ | | | 3.08 | 4.75 | 2.05 | 3.25 | 4.98 | 3.04 |
| LOI | 2.88 | 2.8 | 2.54 | 3.92 | 1.94 | 2.19 | 5.23 | 2.53 |
| Ba | 193 | 45 | 49 | 38 | 105 | 61 | 27 | 59 |
| Co | | | 61 | 54 | 39 | 52 | 63 | 50 |
| Cr | 88 | 116 | 270 | 135 | 47 | 98 | 93 | 120 |
| Cu | 39 | 4 | 67 | 125 | <5 | 125 | 360 | 38 |
| Nb | 9 | 6 | <5 | 6 | 30 | 8 | 10 | 13 |
| Ni | 76 | 91 | 120 | 72 | 50 | 73 | 85 | 74 |
| Pb | 2 | 3 | 39 | <11 | <11 | <11 | <11 | <11 |
| Rb | 10 | 14 | 10 | 6 | 38 | 7 | 12 | 20 |
| Sc | 42 | 50 | 35 | 41 | 47 | 41 | 54 | 44 |
| Sr | 118 | 109 | 135 | 140 | 20 | 130 | 73 | 185 |
| V | 464 | 407 | 280 | 360 | 410 | 390 | 470 | 470 |
| Y | 32 | 28 | 22 | 21 | 47 | 22 | 15 | 24 |
| Zn | 141 | 48 | 145 | 93 | 17 | 82 | 76 | 45 |
| Zr | 129 | 101 | 69 | 89 | 440 | 105 | 150 | 150 |
| As | | | | | | | | |

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TABLE 3
Analyses of Bowry Formation mafic amphibolite

| Sample No. | NC84 | NC130A | NC81 | NC83 | NC129A | NC85 | NC358 | NC478 | NC481 | NC482 | NC493 | NC494 |
|--------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Field Stn | 246 | 295 | 246 | 246 | 295 | 246 | 663 | 973 | 976 | 976 | 1007 | 1015 |
| AMG | CP480955 | CQ368001 | CP480955 | CP480955 | CQ366000 | CP480955 | CP448795 | CP484890 | CP490898 | CP490898 | CP436795 | CP373771 |
| Tas. Uni | 69085 | 69095 | 69104 | 69093 | 69094 | 69106 | | | | | | |
| DOM | | | | | | | 894853 | 894854 | 894855 | 894856 | 894857 | 894858 |
| SiO ₂ | 45.6 | 49.1 | 48.8 | 47.1 | 50.7 | 49.4 | 48.33 | 50.94 | 48.57 | 50.91 | 49.49 | 49.85 |
| TiO ₂ | 1.88 | 2.14 | 2.1 | 2.16 | 1.71 | 1.69 | 1.30 | 1.74 | 1.98 | 0.20 | 1.83 | 2.16 |
| Al ₂ O ₃ | 12.3 | 13.7 | 13.6 | 13.4 | 13.2 | 13.3 | 13.03 | 12.89 | 12.29 | 4.07 | 14.55 | 14.09 |
| Fe ₂ O ₃ | 16.5 | 16.7 | 16.1 | 15.5 | 15.5 | 15.7 | 3.85 | 1.93 | 7.19 | 3.34 | 7.32 | 6.88 |
| FeO | | | | | | | 8.80 | 10.43 | 7.81 | 6.64 | 4.55 | 7.81 |
| MnO | 0.23 | 0.33 | 0.2 | 0.17 | 0.21 | 0.17 | 0.17 | 0.21 | 0.19 | 0.17 | 0.15 | 0.22 |
| MgO | 11.2 | 6.54 | 7.27 | 6.57 | 6.5 | 6.35 | 7.87 | 6.57 | 5.92 | 13.33 | 6.56 | 5.53 |
| CaO | 11.8 | 7.13 | 6.65 | 10.8 | 10.5 | 6.91 | 8.11 | 5.42 | 6.84 | 12.41 | 7.61 | 0.90 |
| Na ₂ O | 1.23 | 4.02 | 4.73 | 4.01 | 1.36 | 5.15 | 2.30 | 4.09 | 4.30 | 1.67 | 1.57 | 3.07 |
| K ₂ O | 0.28 | 0.13 | 0.28 | 0.15 | 0.12 | 1.16 | 1.03 | 0.37 | 0.84 | 0.53 | 0.24 | 0.59 |
| P ₂ O ₅ | 0.17 | 0.18 | 0.18 | 0.18 | 0.15 | 0.15 | 0.30 | 0.38 | 0.42 | 0.37 | 0.39 | 0.43 |
| S | | | | | | | | | | | | |
| SO ₃ | | | | | | | 0.17 | 0.05 | 0.81 | 3.25 | 0.22 | 0.08 |
| CO ₂ | | | | | | | | 0.09 | 0.14 | 2.02 | 0.13 | 0.25 |
| H ₂ O ⁻ | | | | | | | | | | | | |
| H ₂ O ⁺ | | | | | | | 3.45 | 3.15 | 1.92 | 1.52 | 4.61 | 5.13 |
| LOI | 3.54 | 2.12 | 2.55 | 1.57 | 2.45 | 2.53 | 2.54 | 2.10 | 1.52 | 4.10 | 4.32 | 4.55 |
| Ba | 47 | 40 | 54 | 22 | 16 | 221 | 67 | 310 | 70 | 84 | 52 | 380 |
| Co | | | | | | | 55 | 55 | 55 | 240 | 39 | 26 |
| Cr | 65 | 78 | 101 | 70 | 70 | 45 | 185 | 130 | 55 | 37 | 93 | 76 |
| Cu | 41 | 208 | 57 | 2 | 81 | 23 | 39 | 8 | 24 | 47 | 18 | 5 |
| Nb | 7 | 9 | 4 | 7 | 4 | 5 | <5 | 6 | 5 | <5 | 8 | 11 |
| Ni | 54 | 74 | 64 | 52 | 48 | 66 | 100 | 77 | 37 | 180 | 74 | 42 |
| Pb | 4 | 4 | 1 | 2 | 4 | 3 | <11 | <11 | <11 | <11 | <11 | <11 |
| Rb | 7 | 3 | 5 | 2 | 3 | 31 | 47 | 13 | 27 | 10 | 11 | 19 |
| Sc | 54 | 51 | 57 | 61 | 53 | 56 | 43 | 44 | 52 | 24 | 46 | 42 |
| Sr | 261 | 49 | 66 | 217 | 194 | 137 | 65 | 44 | 49 | 28 | 300 | 27 |
| V | 432 | 521 | 498 | 538 | 447 | 444 | 380 | 410 | 490 | 270 | 370 | 380 |
| Y | 41 | 45 | 44 | 50 | 38 | 38 | 20 | 24 | 36 | 49 | 25 | 14 |
| Zn | 153 | 302 | 104 | 53 | 111 | 61 | 47 | 115 | 150 | 110 | 64 | 320 |
| Zr | 93 | 134 | 122 | 99 | 95 | 86 | 58 | 94 | 120 | 260 | 115 | 180 |

Note: Two more analyses are included in Turner and Bottrill (1993). They are of crossite amphibolites that have undergone relatively little retrograde metamorphism.

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TABLE 4
Analyses of Bowry Formation mafic and ultramafic rocks at Savage River mine

| Sample No. | NC65 | NC179 | NC69 | NC71 | NC72 | NC68 | NC74 | | | | | |
|--------------------------------|----------------------------|--------|--------|-------|-------|--------|-------|-------|--------|--------|-------|--|
| Field Stn | 242 | 242 | 242 | 242 | 242 | 242 | 242 | | | | | |
| AMG | All approximately CQ494048 | | | | | | | | | | | |
| Tas. Uni | 69086 | | | | 69092 | | | 69107 | | | 69105 | |
| DOM | 840717 | 840726 | 840719 | | | 840720 | | | 840721 | 840718 | | |
| SiO ₂ | 48.7 | 48.50 | 43.86 | 37.68 | 51.9 | 51.59 | 49.2 | 48.30 | 41.64 | 48.3 | 47.63 | |
| TiO ₂ | 1.94 | 1.79 | 1.27 | 0.66 | 1.55 | 1.40 | 1.15 | 1.09 | 1.32 | 1.01 | 0.95 | |
| Al ₂ O ₃ | 13.2 | 12.67 | 11.23 | 5.60 | 14 | 13.21 | 13.8 | 13.23 | 11.83 | 15.2 | 14.47 | |
| Fe ₂ O ₃ | 16.2 | 4.24 | 6.24 | 12.13 | 12.6 | 5.04 | 12.8 | 4.77 | 6.61 | 12.7 | 5.73 | |
| FeO | | 10.35 | 3.52 | 6.95 | | 6.39 | | 6.92 | 4.70 | | 5.86 | |
| MnO | 0.24 | 0.25 | 0.22 | 0.17 | 0.16 | 0.15 | 0.18 | 0.20 | 0.22 | 0.14 | 0.14 | |
| MgO | 6.57 | 6.66 | 10.56 | 25.76 | 6.68 | 6.71 | 8.37 | 8.53 | 13.32 | 9.03 | 9.24 | |
| CaO | 8.93 | 8.78 | 20.84 | 3.33 | 7.64 | 7.33 | 11.02 | 10.9 | 16.43 | 9.65 | 9.45 | |
| Na ₂ O | 3.03 | 2.40 | 0.29 | 0.10 | 4.66 | 4.02 | 2.93 | 2.72 | 0.50 | 3.46 | 2.75 | |
| K ₂ O | 1.04 | 1.05 | <0.01 | <0.01 | 0.64 | 0.64 | 0.42 | 0.39 | 0.04 | 0.49 | 0.47 | |
| P ₂ O ₅ | 0.16 | 0.18 | 0.22 | 0.50 | 0.14 | 0.12 | 0.17 | 0.17 | 0.22 | 0.03 | 0.09 | |
| S | | 0.35 | 0.33 | 1.95 | | 0.28 | | 0.45 | 0.84 | | 0.52 | |
| SO ₃ | | | | | | | | | | | | |
| CO ₂ | | 0.08 | 0.30 | 0.32 | | 0.19 | | 0.23 | 0.24 | | 0.07 | |
| H ₂ O ⁻ | | 0.02 | 0.10 | 0.02 | | 0.03 | | 0.03 | 0.10 | | 0.03 | |
| H ₂ O ⁺ | | 2.76 | 1.96 | 5.00 | | 2.04 | | 2.67 | 2.93 | | 3.04 | |
| LOI | 1.82 | | | | 1.64 | | 2.08 | | | 2.7 | | |
| Ba | 76 | 95 | 16 | <10 | 101 | 100 | 66 | 71 | 18 | 64 | 70 | |
| Co | | 45 | 15 | 66 | | 27 | | 36 | 28 | | 22 | |
| Cr | 151 | 115 | 120 | 47 | 83 | 70 | 110 | 83 | 115 | 94 | 67 | |
| Cu | 78 | 74 | 115 | 83 | 31 | 28 | 42 | 42 | 21 | 16 | 17 | |
| Nb | 6 | <3 | <3 | <3 | 17 | 6 | 5 | <3 | 8 | 6 | 4 | |
| Ni | 62 | 55 | 33 | 135 | 61 | 52 | 69 | 60 | 77 | 66 | 53 | |
| Pb | 3 | <4 | 6 | <4 | 3 | 4 | 2 | <4 | <4 | 1 | 4 | |
| Rb | 25 | 33 | 13 | 12 | 17 | 25 | 11 | 20 | 12 | 12 | 20 | |
| Sc | 52 | 39 | 39 | 22 | 51 | 43 | 51 | 45 | 36 | 44 | 34 | |
| Sr | 80 | 81 | 480 | 6 | 125 | 120 | 194 | 190 | 380 | 227 | 220 | |
| V | 439 | | | | 380 | | 330 | | | 412 | | |
| Y | 44 | 43 | 43 | 18 | 37 | 35 | 30 | 29 | 62 | 32 | 31 | |
| Zn | 195 | 105 | 48 | 69 | 87 | 72 | 69 | 61 | 66 | 67 | 78 | |
| Zr | 114 | 110 | 76 | 38 | 133 | 125 | 64 | 60 | 80 | 46 | 45 | |
| As | | <10 | <10 | <10 | | 10 | | 12 | <10 | | <10 | |

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TABLE 5

Analyses of Bowry Formation mafelsic and felsic rocks at Rocky River

| Sample No. | NC483 | NC484 | NC486 | NC487 |
|--------------------------------|----------|----------|----------|----------|
| Field Stn. | 976 | 977 | 978 | 978 |
| AMG | CP492894 | CP492894 | CP494893 | CP494893 |
| DOM | 894869 | 894870 | 894871 | 894872 |
| SiO ₂ | 74.26 | 52.58 | 70.92 | 64.94 |
| TiO ₂ | 0.63 | 3.79 | 0.85 | 1.66 |
| Al ₂ O ₃ | 11.97 | 11.36 | 12.49 | 13.18 |
| Fe ₂ O ₃ | 1.37 | 5.24 | 2.43 | 6.45 |
| FeO | 0.87 | 5.48 | 1.52 | 1.34 |
| MnO | 0.01 | 0.14 | 0.03 | 0.02 |
| MgO | 0.90 | 6.01 | 2.43 | 1.69 |
| CaO | 0.19 | 5.55 | 0.12 | 0.58 |
| Na ₂ O | 7.93 | 4.13 | 6.79 | 8.79 |
| K ₂ O | 0.25 | 1.82 | 0.27 | 0.16 |
| P ₂ O ₅ | 0.17 | 0.21 | 0.19 | 0.44 |
| S | | | | |
| SO ₃ | 0.04 | 0.08 | 0.04 | 0.51 |
| CO ₂ | 0.11 | 0.19 | 0.09 | 0.30 |
| H ₂ O ⁻ | | | | |
| H ₂ O ⁺ | 0.70 | 2.26 | 1.84 | 0.60 |
| LOI | 0.73 | 1.87 | 1.78 | 0.96 |
| Ag | <12 | <12 | <12 | <12 |
| As | <20 | <20 | <20 | <20 |
| Ba | 25 | 230 | <23 | |
| Bi | <5 | <5 | <5 | <5 |
| Ce | 90 | 61 | 72 | 130 |
| Co | <8 | 34 | <8 | 17 |
| Cr | 67 | 44 | 44 | 80 |
| Cu | 6 | <5 | 16 | 71 |
| Ga | 17 | 15 | 19 | 20 |
| Hg | <10 | <10 | <10 | <10 |
| La | <26 | <26 | <26 | 40 |
| Mo | <5 | <5 | <5 | <5 |
| Nb | 29 | 14 | 23 | 24 |
| Nd | 34 | 29 | 24 | 63 |
| Ni | 14 | 14 | 15 | 13 |
| Pb | <11 | <11 | <11 | <11 |
| Rb | 6 | 35 | 8 | 9 |
| Sb | <10 | <10 | <10 | <10 |
| Sc | <9 | 69 | 18 | 20 |
| Sn | <9 | <9 | <9 | <9 |
| Sr | 13 | 54 | 6 | 12 |
| Th | 21 | <10 | <10 | <10 |
| U | <12 | <12 | <12 | <12 |
| V | 41 | 260 | 78 | 195 |
| W | 23 | <10 | <10 | 40 |
| Y | 52 | 28 | 56 | 66 |
| Zn | 19 | 63 | 19 | 14 |
| Zr | 500 | 120 | 450 | 340 |

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TABLE 6

| | (a) Nancy Formation amphibolite | | (b) Lucy Formation amphibolite | | | (c) Reece Dam gabbro | | (d) Tertiary basalt |
|--------------------------------|------------------------------------|----------|-----------------------------------|----------|----------|-------------------------|----------|------------------------|
| | Sample No. | NC149 | NC347A | NC155 | NC360 | NC504 | NC7 | NC520 |
| Field Stn | 319 | 645 | 323 | 666 | 1042 | 12 | 1062 | 534 |
| AMG | CP462922 | CP478822 | CP468926 | CP442837 | CP422804 | CP446783 | CP450787 | CP475013 |
| Tas. Uni. | 69096 | | 69097 | | | 69101 | | |
| DOM | | 894852 | | 894874 | 894860 | | 910532 | 894845 |
| SiO ₂ | 55.4 | 48.58 | 50.2 | 47.59 | 48.42 | 47.6 | 46.23 | 45.90 |
| TiO ₂ | 1.47 | 1.75 | 2.04 | 2.62 | 2.06 | 0.91 | 0.84 | 1.78 |
| Al ₂ O ₃ | 12.4 | 13.24 | 13.5 | 12.07 | 12.76 | 17.0 | 15.48 | 13.47 |
| Fe ₂ O ₃ | 12.9 | 10.10 | 15.9 | 7.30 | 7.49 | 10.4 | 1.71 | 2.94 |
| FeO | | 2.86 | | 9.38 | 7.75 | | 7.97 | 8.86 |
| MnO | 0.14 | 0.20 | 0.26 | 0.30 | 0.29 | 0.17 | 0.17 | 0.17 |
| MgO | 5.51 | 6.15 | 6.19 | 4.89 | 5.19 | 9.98 | 9.09 | 8.79 |
| CaO | 8.84 | 10.12 | 10.02 | 7.31 | 7.27 | 11.6 | 12.47 | 8.26 |
| Na ₂ O | 3.09 | 2.69 | 1.35 | 4.07 | 4.09 | 2.01 | 2.24 | 3.92 |
| K ₂ O | 0.2 | 0.27 | 0.34 | 0.41 | 0.28 | 0.18 | 0.10 | 0.97 |
| P ₂ O ₅ | 0.09 | 0.36 | 0.18 | 0.46 | 0.42 | 0.05 | 0.09 | 0.65 |
| S | | | | | | | | |
| SO ₃ | | 0.03 | | 0.08 | 0.09 | | 0.62 | 0.21 |
| CO ₂ | | | | 0.06 | 0.22 | | 0.12 | 0.11 |
| H ₂ O ⁻ | | | | | | | | |
| H ₂ O ⁺ | | 2.38 | | 2.97 | 2.69 | | 3.05 | 1.82 |
| LOI | 1.77 | 2.07 | 2.59 | 2.02 | 2.09 | 3.79 | 2.51 | 0.92 |
| Ba | 21 | 44 | 85 | | 94 | 43 | <23 | 130 |
| Co | | 37 | | | 50 | | 48 | 58 |
| Cr | 176 | 150 | 121 | | 37 | 326 | 330 | 310 |
| Cu | 43 | 36 | 107 | | 56 | 111 | 100 | 50 |
| Nb | 5.3 | 7 | 10 | | 7 | 2 | <3 | 19 |
| Ni | 83 | 71 | 76 | | 37 | 158 | 160 | 180 |
| Pb | 1 | <11 | 9 | | 26 | 2 | <10 | 11 |
| Rb | 5 | 12 | 8 | | 10 | 6 | <5 | 22 |
| Sc | 39 | 47 | 48 | | 45 | 53 | 48 | 20 |
| Sr | 78 | 165 | 154 | | 200 | 151 | 150 | 460 |
| V | 326 | 410 | 443 | | 420 | 270 | 290 | 175 |
| Y | 24 | 23 | 37 | | 28 | 20 | 20 | 16 |
| Zn | 56 | 94 | 153 | | 270 | 73 | 55 | 100 |
| Zr | 90 | 105 | 137 | | 135 | 44 | 44 | 140 |

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TABLE 7

Analyses of dolerite intrusions in the northwest part of the Corinna Quadrangle

| Sample No. | NC439 | NC446 | NC447 | NC459 | N458 | NC455 | NC312B | NC418 |
|--------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Field Stn | 848 | 891 | 897 | 918 | 918 | 902 | 555 | 778 |
| AMG | CQ378020 | CP344936 | CP346948 | CP370946 | CP370946 | CP388973 | CP430990 | CP359858 |
| DOM | 894863 | 894864 | 894865 | 894868 | 894867 | 894866 | 894861 | 894862 |
| SiO ₂ | 50.18 | 53.16 | 51.80 | 50.77 | 52.13 | 46.09 | 47.98 | 48.25 |
| TiO ₂ | 1.06 | 0.85 | 0.89 | 0.91 | 1.12 | 1.78 | 2.27 | 2.98 |
| Al ₂ O ₃ | 12.12 | 13.88 | 12.01 | 13.29 | 14.32 | 15.27 | 14.04 | 17.11 |
| Fe ₂ O ₃ | 1.49 | 2.53 | 1.89 | 2.98 | 2.24 | 2.69 | 2.69 | 3.56 |
| FeO | 8.33 | 5.94 | 7.05 | 6.76 | 10.14 | 8.57 | 11.19 | 10.02 |
| MnO | 0.17 | 0.14 | 0.15 | 0.16 | 0.36 | 0.19 | 0.22 | 0.18 |
| MgO | 9.42 | 5.81 | 8.31 | 9.07 | 6.42 | 7.70 | 5.52 | 5.44 |
| CaO | 5.68 | 8.87 | 8.77 | 9.08 | 1.78 | 3.42 | 4.86 | 0.21 |
| Na ₂ O | 2.02 | 1.92 | 1.45 | 2.44 | 3.12 | 3.59 | 2.02 | 0.35 |
| K ₂ O | 1.43 | 1.80 | 0.99 | 0.73 | 0.23 | 0.13 | 3.13 | 4.25 |
| P ₂ O ₅ | 0.31 | 0.33 | 0.33 | 0.27 | 0.26 | 0.43 | 0.42 | 0.39 |
| S | | | | | | | | |
| SO ₃ | 0.13 | 0.20 | 0.36 | 0.10 | 0.10 | 0.12 | 0.82 | 0.07 |
| CO ₂ | 0.04 | 0.04 | 0.07 | 0.12 | 1.14 | 0.03 | 0.15 | 0.34 |
| H ₂ O ⁻ | | | | | | | | |
| H ₂ O ⁺ | 4.32 | 2.58 | 3.17 | 3.57 | 5.21 | 5.29 | 0.76 | 5.84 |
| LOI | 3.49 | 2.04 | 2.60 | 2.98 | 5.26 | 4.42 | 2.67 | 5.10 |
| Ba | 300 | 370 | 260 | 210 | 26 | 36 | 560 | 700 |
| Co | 51 | 39 | 42 | 41 | 50 | 48 | 52 | 49 |
| Cr | 880 | 280 | 810 | 570 | 150 | 115 | 80 | 84 |
| Cu | 60 | 6 | 28 | 87 | 130 | <5 | 190 | 100 |
| Nb | 6 | 7 | 5 | 7 | 8 | 14 | 12 | 15 |
| Ni | 240 | 29 | 99 | 180 | 115 | 125 | 62 | 73 |
| Pb | <11 | <11 | <11 | <11 | <11 | <11 | <11 | <11 |
| Rb | 59 | 76 | 53 | 29 | 18 | 11 | 140 | 165 |
| Sc | 32 | 32 | 33 | 29 | 28 | 28 | 37 | 46 |
| Sr | 63 | 100 | 105 | 140 | 86 | 105 | 270 | 16 |
| V | 270 | 240 | 230 | 250 | 280 | 270 | 450 | 590 |
| Y | 17 | 22 | 20 | 18 | 22 | 18 | 26 | 21 |
| Zn | 93 | 73 | 62 | 76 | 125 | 87 | 130 | 175 |
| Zr | 115 | 130 | 100 | 110 | 120 | 115 | 180 | 240 |

TABLE 8
Analyses of Bowry Formation schists

| Sample No. | Quartz-actinolite schist | | Chlorite schist | |
|--------------------------------|--|--------|-----------------|----------|
| | NC73 | NC75 | NC353 | NC498B |
| Field Stn. | 242 | 242 | 655 | 1022 |
| AMG | Level 17, S end of Central Deposit pit | | CP442839 | CP396768 |
| DOM | 840722 | 840724 | 894873 | 894859 |
| SiO ₂ | 56.41 | 76.72 | 57.04 | 56.93 |
| TiO ₂ | 0.69 | 0.44 | 1.16 | 1.81 |
| Al ₂ O ₃ | 11.14 | 5.55 | 13.71 | 11.92 |
| Fe ₂ O ₃ | 2.59 | 3.11 | 5.70 | 1.63 |
| FeO | 5.17 | 3.24 | 4.25 | 12.29 |
| MnO | 0.10 | 0.05 | 0.09 | 0.08 |
| MgO | 8.40 | 3.63 | 7.72 | 6.06 |
| CaO | 6.63 | 2.69 | 0.51 | 0.20 |
| Na ₂ O | 4.10 | 3.37 | 3.39 | 0.41 |
| K ₂ O | 0.54 | 0.12 | 1.15 | 0.85 |
| P ₂ O ₅ | 0.14 | 0.04 | 0.27 | 0.31 |
| S | 0.11 | 0.52 | | |
| SO ₃ | | | 0.06 | 0.17 |
| CO ₂ | 2.11 | 0.11 | 0.02 | 0.12 |
| H ₂ O ⁻ | 0.03 | 0.02 | | |
| H ₂ O ⁺ | 1.89 | 0.64 | 4.64 | 5.95 |
| LOI | | | 4.21 | 4.77 |
| Ba | 80 | 19 | | 260 |
| Co | 11 | 21 | | 34 |
| Cr | 43 | 95 | | 53 |
| Cu | 38 | 15 | | 125 |
| Nb | 8 | 5 | | 8 |
| Ni | 24 | 28 | | 36 |
| Pb | <4 | 5 | | <11 |
| Rb | 20 | 11 | | 25 |
| Sc | 33 | 9 | | 37 |
| Sr | 34 | 16 | | 14 |
| V | | | | 340 |
| Y | 57 | 41 | | 25 |
| Zn | 28 | 20 | | 120 |
| Zr | 300 | 370 | | 180 |
| As | <10 | <10 | | |

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TABLE 9
Analyses of Ahrberg Group dolomite

| Sample No. | NC320 | NC323 |
|--------------------------------|----------|----------|
| Field Stn. | 569 | 575 |
| AMG | CP424936 | CP431933 |
| DOM | 894875 | 894876 |
| SiO ₂ | 3.40 | 0.33 |
| TiO ₂ | NA | NA |
| Al ₂ O ₃ | 0.05 | 0.01 |
| Fe ₂ O ₃ | NA | 0.03 |
| FeO | 0.12 | 0.12 |
| MnO | NA | 0.04 |
| MgO | 18.10 | 20.46 |
| CaO | 30.09 | 29.71 |
| Na ₂ O | 0.26 | 0.24 |
| K ₂ O | 0.17 | 0.02 |
| P ₂ O ₅ | 0.44 | 0.44 |
| S | | |
| SO ₃ | 0.06 | 0.06 |
| CO ₂ | 40.32 | 42.13 |
| H ₂ O ⁻ | | |
| H ₂ O ⁺ | 4.37 | 4.05 |
| LOI | 44.47 | 46.19 |
| Ag | <12 | <12 |
| As | <20 | <20 |
| Au | <1 | <1 |
| Ba | <23 | <23 |
| Cu | <5 | 31 |
| Hg | <10 | <10 |
| Pb | <11 | <11 |
| Sb | <10 | <10 |
| Zn | 6 | <5 |
| Au (g/t) | 0.04 | <0.02 |

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TABLE 10
Miscellaneous samples

| Sample No. | NC19 | NC21 | NC428 | N434 | NC445 | NC472 | NC474 |
|------------|----------|----------|----------|----------|----------|----------|----------|
| Field Stn. | 73 | 63 | 799 | 820 | 885 | 964 | 964 |
| AMG | CP408765 | CP436778 | CP349992 | CQ334004 | CP396007 | CP448962 | CP444958 |
| DOM | W. Baker | W. Baker | 894877 | 894878 | 894879 | 894880 | 894881 |
| Ag | | | <12 | <12 | <12 | <12 | <12 |
| As | | | 220 | <20 | 130 | <20 | <20 |
| Ba | | | 50 | 500 | 880 | 30 | <23 |
| Cu | 1500 | 70 | 430 | 8 | 22 | 10 | 19 |
| Hg | | | <10 | <10 | <10 | <10 | <10 |
| Pb | 11 | <1 | 11 | <11 | 38 | <11 | <11 |
| Sb | | | <10 | <10 | <10 | <10 | <10 |
| Zn | 17 | 265 | <5 | 5 | 17 | 22 | 7 |
| Fe (%) | 24.7 | 28.8 | | | | | |
| Au (g/t) | | | 0.05 | <0.02 | <0.02 | <0.02 | <0.02 |