

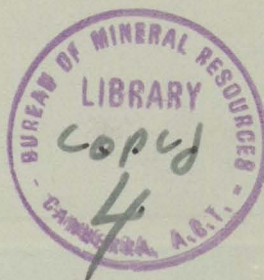
BMR.
Compactus



Bulletin 146

**Chemical Analyses of
Australian Rocks. Part III:
Igneous and Metamorphic,
Supplement 1961-1969**

G. A. JOPLIN



BMR
555(94)
BUL. 45

Copy 4

DEPARTMENT OF MINERALS AND ENERGY
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

BULLETIN 146

**Chemical Analyses of
Australian Rocks. Part III:
Igneous and Metamorphic,
Supplement 1961-1969**

COMPILED BY
GERMAINE A. JOPLIN



AUSTRALIAN GOVERNMENT PUBLISHING SERVICE
CANBERRA, 1975

DEPARTMENT OF MINERALS AND ENERGY

MINISTER: THE HON. R. F. X. CONNOR, M.P.

SECRETARY: SIR LENOX HEWITT, O.B.E.

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

ACTING DIRECTOR: L. C. NOAKES

*Published for the Bureau of Mineral Resources, Geology and Geophysics
by The Australian Government Publishing Service*

ISBN: 0 642 00834 5

MANUSCRIPT RECEIVED: JULY 1971

ISSUED: JULY 1975

PRINTED BY MERCURY-WALCH PTY LTD, 5-7 BOWEN ROAD, MOONAH, TASMANIA

CONTENTS

(Number of analyses in brackets)

	Page
INTRODUCTION	7
GRANITIC ROCKS	9
Table A: Granitic Rocks ($\text{SiO}_2 > 70\%$)	9
a. $\text{CaO} < 1\%$ (113)	9
b. CaO 1-2% (82)	21
c. CaO 2-3% (37)	31
d. $\text{CaO} > 3\%$ (6)	35
Table B: Granitic Rocks ($\text{SiO}_2 < 70\%$)	36
a. $\text{CaO} < 1\%$ (6)	36
b. CaO 1-2% (14)	36
c. CaO 2-3% (37)	38
d. CaO 3-4% (40)	42
e. CaO 4-5% (16)	47
f. $\text{CaO} > 5\%$ (2)	49
Table AB ¹ : Metamorphosed Granitic Rocks (3)	50
Table AB ² : Metasomatized and Deuterically Altered Granitic Rocks (5)	51
Table AB ⁴ : Partial Analyses of Granitic Rocks (39)	52
DIORITIC ROCKS	57
Table D: Dioritic Rocks	57
a. $\text{CaO} < 3\%$ (7)	57
b. CaO 3-4% (15)	58
c. CaO 4-5% (22)	59
d. CaO 5-6% (26)	62
e. CaO 6-7% (19)	65
f. CaO 7-8% (12)	67
g. $\text{CaO} > 8\%$ (10)	69
Table D ² : Metasomatized and Deuterically Altered Diorites (6)	71
Table D ⁴ : Incomplete Analyses of Diorites (2)	72
NORITES, GABBROS, AND ASSOCIATED ULTRAMAFIC ROCKS	73
Table E:	
a. $\text{CaO} < 10\%$ (23)	73
b. $\text{CaO} > 10\%$ (43)	75
Table E ² : Metasomatized and Deuterically Altered Gabbros (10)	81
Table E ³ : Weathered Gabbros (1)	83
XENOLITHS AND INCLUSIONS IN GRANITIC ROCKS	84
Table F: (12)	84
HYBRID AND CONTAMINATED ROCKS	86
Table G:	
b. Contaminated: One parent sedimentary (6)	86

	Page
RHYOLITIC ROCKS	87
Table H:	
a. CaO < 1% (87)	87
b. CaO 1-2% (38)	96
c. CaO 2-3% (9)	101
d. CaO 3-4% (13)	102
e. CaO 4-5% (8)	103
Table H ¹ : Metamorphosed Rhyolites and Porphyries (16)	105
Table H ² : Metasomatized and Deuterically Altered Rhyolites and Porphyries (25)	107
Table H ³ : Old Analyses of Rhyolitic Rocks (4)	110
ANDESITIC ROCKS	111
Table I: Andesitic Rocks (SiO ₂ < 65%)	111
a. CaO < 3% (7)	111
b. CaO 3-4% (10)	111
c. CaO 4-5% (20)	113
d. CaO 5-6% (18)	115
e. CaO 6-7% (9)	117
f. CaO 7-8% (12)	118
g. CaO > 8% (20)	120
Table I ¹ : Metamorphosed Andesitic Rocks (8)	123
Table I ² : Metasomatized and Deuterically Altered Andesitic Rocks (9)	124
Table I ³ : Old Analyses of Andesitic Rocks (1)	125
Table I ⁴ : Andesitic Rocks Altered by Burial Metamorphism or Diagenesis	126
a. CaO: Alkalis < 1 (17)	126
b. CaO: Alkalis 1-2 (23)	128
c. CaO: Alkalis 2-10 (9)	130
d. CaO: Alkalis 10-100(6)	131
e. CaO: Alkalis > 100 (4)	132
TRACHYTIC ROCKS	133
Table J:	
a. CaO < 1% (12)	133
b. CaO 1-2% (10)	134
c. CaO 2-3% (6)	135
d. CaO 3-4% (6)	136
e. CaO 4-5% (1)	137
f. CaO > 5% (2)	137
Table J ² Metasomatized and Deuterically Altered Trachytic Rocks (1)	138
Table J ¹ : Incomplete Analyses of Trachytic Rocks (1)	139
Table J ³ : Old Analyses of Trachytic Rocks (1)	140
Table K: Nepheline- and Analcime-Bearing Trachytic Rocks	141
a. CaO < 1% (2)	141
b. CaO 1-2% (4)	141
c. CaO 2-3% (4)	142
d. CaO 3-4% (2)	142
f. CaO > 5% (3)	143

	Page
BASALTIC ROCKS	144
Table L: Basaltic Rocks ($\text{SiO}_2 > 54\%$)	144
a. CaO: Alkalis < 1 (2)	144
b. CaO: Alkalis 1-2 (12)	144
c. CaO: Alkalis 2-3 (10)	145
d. CaO: Alkalis > 3 (1)	147
Table M: Basaltic Rocks (SiO_2 54-50%)	149
a. CaO: Alkalis < 1 (14)	149
b. CaO: Alkalis 1-2 (44)	150
c. CaO: Alkalis 2-3 (15)	156
d. CaO: Alkalis > 3 (43)	157
Table N: Basaltic Rocks (SiO_2 50-46%)	163
a. CaO: Alkalis < 1 (11)	163
b. CaO: Alkalis 1-2 (68)	164
c. CaO: Alkalis 2-3 (34)	172
d. CaO: Alkalis > 3 (17)	176
Table O: Basaltic Rocks ($\text{SiO}_2 < 46\%$)	178
a. CaO: Alkalis < 1 (2)	178
b. CaO: Alkalis 1-2 (25)	178
c. CaO: Alkalis 2-3 (19)	181
d. CaO: Alkalis > 3 (14)	183
Table LM ¹ : Metamorphosed Mafic Rocks ($\text{SiO}_2 > 50\%$)	185
a. CaO: Alkalis < 1 (1)	185
b. CaO: Alkalis 1-2 (3)	185
c. CaO: Alkalis 2-3 (5)	185
d. CaO: Alkalis > 3 (13)	186
Table N ¹ : Metamorphosed Mafic Rocks (SiO_2 50%-46%)	188
b. CaO: Alkalis 1-2 (2)	188
c. CaO: Alkalis 2-3 (9)	188
d. CaO: Alkalis > 3 (25)	189
Table O ¹ : Metamorphosed Mafic Rocks ($\text{SiO}_2 < 46\%$)	193
a. CaO: Alkalis < 1 (2)	193
c. CaO: Alkalis 2-3 (2)	193
d. CaO: Alkalis > 3 (13)	193
Table L ² -O ² : Metasomatized and Deuterically Altered Mafic Rocks (52)	196
Table L ⁴ -O ⁴ : Partial Analyses of Mafic Rocks (6)	202
Table L ⁵ -O ⁵ : Old and Unreliable Analyses of Mafic Rocks (2)	203
Table L ⁸ -O ⁶ : Analyses of Mafic Rocks Altered by Diagenesis (8)	204
Table P: Leucite-Bearing Basaltic Rocks	205
a. CaO: Alkalis < 1 (17)	205
XENOLITHS IN VOLCANIC ROCKS	207
Table Q:	
a. Igneous (15)	207
SERPENTINITES AND ASSOCIATED ULTRAMAFIC ROCKS	209
Table R:	
a. CaO $< 1\%$ (6)	209
b. CaO 1-5% (8)	209
c. CaO $> 5\%$ (4)	210

	Page
METAMORPHIC ROCKS	212
Table S: Metamorphic Rocks of Granitic Composition ($\text{SiO}_2 > 70\%$)	212
a. $\text{CaO} < 1\%$ (12)	212
b. CaO 1-2% (27)	213
c. CaO 2-3% (6)	216
Table T: Metamorphic Rocks of Granitic Composition $< 70\%$	218
a. $\text{CaO} < 1\%$ (1)	218
b. CaO 1-2% (5)	218
c. CaO 2-3% (9)	219
d. CaO 3-4% (2)	220
e. CaO 4-5% (1)	220
Table U: Metamorphosed Rocks of Dioritic Composition	221
a. $\text{CaO} < 3\%$ (2)	221
b. CaO 3-4% (3)	221
c. CaO 4-5% (4)	221
d. CaO 5-6% (1)	222
e. CaO 6-7% (1)	222
f. CaO 7-8% (2)	222
g. CaO 8-9% (1)	223
Table V: Metamorphosed Pelitic Rocks (non-calcareous)	224
a. $\text{SiO}_2: \text{Al}_2\text{O}_3 > 5$ (20)	224
b. $\text{SiO}_2: \text{Al}_2\text{O}_3$ 5-4 (13)	226
c. $\text{SiO}_2: \text{Al}_2\text{O}_3$ 4-3 (9)	227
d. $\text{SiO}_2: \text{Al}_2\text{O}_3 < 3$ (24)	232
Table W: Metamorphosed Psammitic Rocks (excluding calcareous types)	235
a. $\text{SiO}_2: \text{Al}_2\text{O}_3 > 5$ (16)	235
b. $\text{SiO}_2: \text{Al}_2\text{O}_3 < 5$ (3)	237
Table X: Metamorphosed Calcareous Rocks	238
a. Calcareous Psammities (1)	238
b. Calcareous Pelites and Siliceous Limestone (4)	238
Table Y: Metamorphosed and Metasomatized Miscellaneous Sedimentary Rocks	239
a. Cherts and Jaspers (4)	239
b. Arkosic Rocks etc. (22)	239
c. Tuffs with Lithic Fragments (3)	242
NATURAL SLAGS, SINTERS, AND CLINKERS	243
Table Z: Natural Slags, Sinters, and Clinkers (12)	243
Table Z': Partial Analyses of Natural Slags etc. (3)	245

INTRODUCTION

This Bulletin contains chemical analyses of igneous and metamorphic rocks from Australia and its Territories, and complements BMR Bulletin 65.

Bulletin 65 included analyses made and published before 1961, as well as a few published later because the analyses were made available before publication. Some papers containing these analyses were published before the final proofs of Bulletin 65 and were included in the list of references. Others were listed as unpublished analyses under the name of the author; where this has happened the appropriate letter and number from Bulletin 65 have been cross-referenced. A few analyses have been re-compiled because the new reference gives more details of the analysed rock. The present compilation contains analyses made since 1960, and earlier analyses found since Bulletin 65 was published.

The collection of analyses for this Bulletin was begun by a Standing Committee of the Geological Society of Australia with two members from each State or Territory, but this arrangement proved unsatisfactory. Difficulty also arose when some, but not all, analyses from a particular paper were copied. In the circumstances, the present compilation may not contain all analyses published between 1961 and 1969.

When Bulletin 65 was published in 1963, relatively few igneous rock units had formal names, and though these names were given with the name of the rock they were not indexed. The present Bulletin contains a separate index of formal names, and named rocks included in Bulletin 65 also appear in the index in italic type.

PRESENTATION

To avoid confusion the method of presenting analyses in Bulletin 65 is used in this Bulletin. Tables E (gabbros, norites, and associated ultramafic rocks) and R (serpentinites and associated ultramafic rocks) seemed to be adequate for analyses published before 1961. Now, however, there are many analyses of gabbroic, ultramafic, and serpentine rocks from the layered intrusions and Tables E and R separate consanguineous types from the same rock body. Nevertheless, this arrangement has been followed because it is thought that both Bulletins will be used together.

ACKNOWLEDGEMENTS

I am especially grateful to Mr D. Palfreyman of the Bureau of Mineral Resources for copying about 700 analyses made by, or for, the Bureau and I should also like to mention the splendid help I received from Messrs Hodge and Davies of the Western Australian committee and from Drs Binns and Kish of the New South Wales committee. Dr K. R. Walker of the Bureau of Mineral Resources has also given much help.

Page 8 is blank.

TABLE A — GRANITIC ROCKS — SiO₂ > 70%

a. CaO < 1%

K₂O/Na₂O > 1.25

	1	2	3	4	5	6	7	8	9
Rock Name	Greisen <i>Elizabeth Creek Granite</i>	Aplite	Acid granite <i>Mole Granite</i>	Leucocratic granite <i>Elizabeth Ck Granite</i>	Grano- phyre	Granite	Adamellite <i>Herbert River Granite</i>	Adamellite <i>Elizabeth Creek Granite</i>	Adamellite
Locality	Einasleigh Area, Qld	Kingsgate, N.S.W.	Kingsgate, N.S.W.	Georgetown Area, Qld	Somerset Dam, Qld	112 km NNE of Adavale, Qld 25°9'42"S, 144° 59'44"E	Herbert R. Falls, Einasleigh Area, Qld 18°14'S, 145°22'E	129 km WSW of Ravenshoe, Qld 17°55'S, 144°25'E	9 km NE of Khancoban, N.S.W. G.R. 2835- 15215 (S.M.A. Grid)
Reference	28	71, 69	71, 69	19, 121	81, 82, 77	28	19, 125; 66, 81	66, 83	51; 53, 154
Analyst	C. R. Edmond A.M.D.L.	G.S. See	G.S. See	H. W. Sears A.M.D.L.	Avery & Anderson	C. R. Edmond A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	B. B. Guy
Remarks									
SiO ₂	83.70	78.06	77.60	77.50	77.45	77.40	77.40	77.40	77.02
Al ₂ O ₃	9.65	12.49	12.32	11.90	12.66	11.20	11.50	11.60	12.02
Fe ₂ O ₃	0.87	0.02	0.04	0.95	0.62	0.15	0.46	0.23	0.61
FeO	0.54	0.20	0.88	0.48	0.22	0.97	1.21	1.18	0.61
MgO	0.24	0.03	0.08	0.02	0.18	0.18	0.25	0.10	0.23
CaO	0.19	0.21	0.32	0.40	0.46	0.42	0.98	0.84	0.65
Na ₂ O	0.22	3.70	2.75	3.50	3.35	2.30	3.25	3.20	3.63
K ₂ O	3.00	4.77	4.79	4.65	4.48	6.25	4.10	4.65	4.79
H ₂ O+	0.19	0.61	0.67	0.35	0.17	0.50	0.49	0.33	0.41
H ₂ O—	0.06	0.10	0.06	0.13	0.48	0.05	0.08	0.10	0.09
CO ₂	0.15	—	—	0.04	—	0.15	0.03	0.09	—
TiO ₂	0.07	tr	0.01	0.04	0.13	0.18	0.14	0.12	0.10
P ₂ O ₅	0.05	0.06	0.12	0.03	0.08	0.04	0.05	0.03	0.01
MnO	0.02	tr.	0.02	0.01	nd	0.04	0.04	0.01	0.06
Other Constituents									
	99.95	100.25	99.87	100.00	100.28	99.83	99.98	99.88	100.23
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	10	11	12	13	14	15	16	17	18
Rock Name	Adamellite <i>Mareeba Granite</i>	Granite	Tourmaline-bearing adamellite	Granite	Granite	White granite	Red granite	Granite	Granite <i>Round Mountain Adamellite</i>
Locality	Mossman Area, Qld 16°02'S, 145°15'E	Bungendore-Tarago Rd, N.S.W.	1.6 km S, of Half Moon Bay, Tas.	Heemskirk, Tas.	12 km SE of Tooma, N.S.W. G.R. 1800-1589 (S.M.A. Grid)	Heemskirk, Tas.	Heemskirk, Tas.	Heemskirk, Tas.	Cathedral Rocks, nr Wollomombi, N.S.W.
Reference	19, 125; 66, 84	28	28	23, 6254	51; 53, 154	23, 6254 54, 639	23, 6254 54, 639	23, 6254	27
Analyst		K. J. Heinrich A.M.D.L.	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	B. B. Guy	D. K. Rowley A.M.D.L.	D. K. Rowley A.M.D.L.	D. K. Rowley A.M.D.L.	K. D. Collerson
Remarks									
SiO_2	77.00	76.90	76.90	76.80	76.74	76.60	76.50	76.50	76.47
Al_2O_3	11.80	11.60	11.80	12.80	12.53	12.60	12.40	12.60	12.70
Fe_2O_3	0.30	0.50	0.24	0.16	0.33	0.17	0.96	0.92	0.68
FeO	1.41	1.41	1.30	0.71	0.92	1.35	0.54	0.36	0.32
MgO	0.30	0.33	0.14	0.12	0.18	0.16	0.15	0.09	0.07
CaO	0.73	0.72	0.50	0.18	0.65	0.47	0.53	0.19	0.58
Na_2O	2.90	3.10	2.75	2.40	3.35	2.85	3.00	3.65	3.48
K_2O	4.55	4.10	4.90	5.80	4.79	4.85	5.30	5.05	4.60
$\text{H}_2\text{O} +$	0.34	0.65	0.57	0.58	0.48	0.66	0.50	0.54	0.21
$\text{H}_2\text{O} -$	0.07	0.07	0.11	0.32	0.10	0.05	0.19	0.30	0.11
CO_2	0.07	0.13	0.04	0.06	—	0.05	0.04	0.30	—
TiO_2	0.20	0.18	0.26	0.12	0.01	0.10	0.09	0.08	0.18
P_2O_5	0.15	0.02	0.19	0.04	0.03	0.07	0.01	0.01	0.02
MnO	0.02	0.01	0.01	0.03	0.07	0.04	0.03	0.02	0.01
Other Constituents									
Age	99.84	99.72	99.71	100.12	100.18	100.02	100.24	100.4	99.43

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	19	20	21	22	23	24	25	26	27
Rock Name	Muscovite-biotite adamellite <i>Elizabeth Ck Granite</i>	Aplite	Muscovite-biotite granite <i>Upper Deep Ck Granite</i>	Adamellite <i>Ruby Creek Adamellite</i>	Muscovite-biotite granite	Granite porphyry	Biotite leucogranite <i>Ruby Creek Granite</i>	Leucogranite <i>Eucumbene Granite</i>	Leucocratic biotite granite
Locality	Almaden-Tate R. Rd, Old 17°25'S, 144°25'E	Mt Herbert, nr Big Hill, Bendigo, Vic.	Deep Cr dam site, Kiandra, N.S.W.	Ruby Cr Area, 1.8 km NE of Stanthorpe Gate, N.S.W.	4 km from Kamarah, nr Narrandera, N.S.W. 84°22'S, 146°48'E	Koolanooka Hills, W.A.	Nr Ruby Cr, 7 km WNW of Liston, N.S.W.	Eucumbene-I. Bend tunnel Snowy Mts, N.S.W.	Bairnsdale Area, Vic.
Reference	109; 66, 83	6, 92	28	106	28	3	100, 198	67, 11	28
Analyst	C. R. Edmond A.M.D.L.	V. Biskupsky	H.W. Sears A.M.D.L.	J. H. Rattigan	D. K. Rowley A.M.D.L.	P. A. Arriens	Avery & Anderson	P. Kolbe	D. K. Rowley A.M.D.L.
Remarks								2010' (612 m) from Eucumbene flood-gates	
SiO_2	76.40	76.22	76.20	76.14	76.10	76.07	76.07	76.03	76.00
Al_2O_3	12.50	11.66	13.30	12.98	12.60	12.64	13.11	12.87	12.10
Fe_2O_3	0.53	0.99	0.23	0.24	0.55	0.49	0.18	} 1.27	0.12
FeO	0.63	0.11	1.02	0.78	1.00	0.67	0.87		1.32
MgO	0.06	0.34	0.11	0.06	0.18	0.09	0.12	0.32	0.17
CaO	0.65	0.59	0.53	0.68	0.57	0.45	0.66	0.71	0.70
Na_2O	3.60	2.72	3.45	3.44	2.95	3.56	3.49	3.30	3.20
K_2O	4.70	5.22	4.50	4.62	4.95	5.34	4.58	4.87	5.50
$\text{H}_2\text{O}+$	0.64	1.34	0.48	0.21	0.65	0.55	0.43	—	0.48
$\text{H}_2\text{O}-$	0.15	—	0.04	0.34	0.01	0.06	0.20	—	0.23
CO_2	0.10	—	0.13	nd	0.03	—	nd	—	0.09
TiO_2	0.05	0.24	0.05	0.12	0.11	0.13	0.10	0.06	0.17
P_2O_5	0.02	—	0.02	0.12	0.22	0.03	0.10	—	0.03
MnO	0.01	—	0.05	0.02	0.02	0.01	0.04	—	0.03
Other Constituents									
	100.04	99.43	100.11	99.75	99.94	100.09	99.95	99.43	100.14
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	28	29	30	31	32	33	34	35	36
Rock Name	Leuco-granite <i>Pine Mountain Granite</i>	White granite	Adamellite <i>Clive Adamellite</i>	Leuco-granite <i>Eucumbene Granite</i>	Biotite granite <i>Sapling Flat Granite</i>	Leuco-granite <i>Bogong Granite</i>	Leuco-granite <i>Yaouk Porphyritic Leuco-granite</i>	Leuco-adamellite <i>Mackenzie Leuco-adamellite</i>	Granite <i>Palmer Granite</i>
Locality	Rd to Walwa, 11 km from Tintaladra, Vic.	Heemskirk, Tas.	Clive to Bruxner Hwy, N.S.W. Clive 1-mile Sheet 888848	Eucumbene-I. Bend tunnel, Snowy Mts, N.S.W.	4 km N. of Jerangle P.O., N.S.W.	0.8 km N. of Talbingo, N.S.W.	12 km W. of Back Cr on Adaminaby-Shannons Flat Rd, Snowy Mts, N.S.W.	11 km SW of Tenterfield, N.S.W. Clive 1-mile Sheet 995943	Palmer Area, S.A.
Reference	67, 11	54, 639	115	67, 11	28	67, 11	67, 11	115; 116, 287	139, 181; 140, 41
Analyst	P. Kolbe	D.K.Rowley A.M.D.L.	S. E. Shaw	P. Kolbe	H. W. Sears A.M.D.L.	P. Kolbe	P. Kolbe	S. E. Shaw, H. Asari	A. J. R. White
Remarks				4080' from Eucumbene flood-gates					
SiO_2	75.97	75.90	75.88	75.76	75.60	75.57	75.56	75.56	75.46
Al_2O_3	12.80	13.30	12.46	12.65	12.60	12.30	13.81	12.88	13.12
Fe_2O_3	0.94	0.43	0.28	1.26	0.25	1.38	0.96	0.62	0.86
FeO		0.98	0.91		1.52			0.54	0.44
MgO	0.05	0.13	0.25	0.35	0.14	0.24	0.20	0.36	0.21
CaO	0.63	0.47	0.76	0.63	0.97	0.60	0.78	0.81	0.94
Na_2O	3.88	2.95	3.48	3.22	3.20	3.77	3.07	3.77	3.55
K_2O	4.63	4.65	4.86	4.82	4.95	5.02	4.87	4.91	4.50
$\text{H}_2\text{O} +$	—	0.56	0.39	—	0.35	—	—	0.26	0.22
$\text{H}_2\text{O} -$	—	0.19	0.10	—	0.03	—	—	0.08	0.04
CO_2	—	0.03	—	—	0.03	—	—	—	0.06
TiO_2	0.03	0.07	0.14	0.05	0.03	0.16	0.08	0.21	0.19
P_2O_5	—	0.11	0.04	—	0.06	—	—	0.14	0.06
MnO	—	0.05	0.03	—	0.03	—	—	0.04	0.01
Other Constituents									
	98.93	99.82	99.58	98.74	99.73	99.04	99.33	100.18	99.74
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	37	38	39	40	41	42	43	44	45
Rock Name	Biotite granite	Leuco-granite <i>Welumba Granite</i>	Granite <i>Palmer Granite</i>	Adamellite <i>Heemskirk Granite</i>	Biotite granite	Biotite granite <i>Rum Jungle Complex</i>	Biotite granite <i>Rum Jungle Complex</i>	Biotite adamellite <i>Finlayson Granite</i>	Porphyritic microgranite <i>Heemskirk Granite</i>
Locality	14 km from Gulgong, N.S.W. 32°18'S, 149°38½'E	0.8 km W of Yellow Bog Cr on Tooma-Khancoban Rd, N.S.W.	Flanking Mt Lofty Ras, S.A.	Granville Har. Zeehan, Tas.	Beechworth, Vic. 36°18'S, 146°39'E	Rum Jungle Area, N.T. 13°0'S, 131°0'E	Rum Jungle Area, N.T. 12°58'S, 130°59'E	Nr Ross-ville, Cook-town Area, Qld 15°44'N, 145°13'E	Heemskirk, Tas.
Reference	28	67, 11	139, 181; 140	16	28	137, 294	137, 293	91; 66, 85	54, 639
Analyst	D.K.Rowley H. W. Sears A.M.D.L.	P. Kolbe	A. J. R. White	Dep. of Mines, Launceston	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks									
SiO_2	75.40	75.37	75.29	75.20	75.20	75.20	75.20	75.10	75.00
Al_2O_3	12.60	13.8	13.24	13.32	12.90	12.40	12.00	12.70	12.90
Fe_2O_3	0.41	0.87	1.03	0.42	0.25	0.51	0.80	0.36	0.27
FeO	0.86		0.48	0.83	1.38	0.86	1.08	1.45	1.77
MgO	0.21	0.086	0.32	0.32	0.23	0.44	0.47	0.29	0.36
CaO	0.90	0.50	0.87	0.60	0.90	0.44	0.88	0.91	0.69
Na_2O	3.70	3.65	3.60	2.19	3.50	1.89	2.80	3.20	2.85
K_2O	5.05	4.71	4.62	6.04	4.90	6.80	5.05	4.95	5.20
$\text{H}_2\text{O} +$	0.32	—	0.32	0.50	0.52	0.85	0.74	0.64	0.63
$\text{H}_2\text{O} -$	0.07	—	0.08	0.30	0.04	0.09	0.12	0.05	0.20
CO_2	0.39	—	0.09	—	0.03	0.19	0.18	0.03	0.03
TiO_2	0.16	0.06	0.21	0.13	0.13	0.16	0.27	0.24	0.22
P_2O_5	0.04	—	0.10	0.04	0.06	0.05	0.10	0.10	0.06
MnO	0.10	—	0.01	tr.	0.04	0.02	0.02	0.05	0.04
Other Constituents			$\text{Rb}_2\text{O} = 0.02$ $\text{SrO} = 0.01$ $\text{BaO} = 0.04$ $\text{ZrO} = 0.02$						
	100.21	99.05	100.35	99.89	100.08	99.90	99.71	100.07	100.22
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

a. $\text{CaO} < 1\%$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$$

	46	47	48	49	50	51	52	53	54
Rock Name	Leucocratic microad- amellite <i>Rum Jungle Complex</i>	Leucocratic granite <i>Sybella Granite</i>	Granite	Muscovite adamellite <i>Nicholson Granite</i>	Biotite granite <i>Rum Jungle Complex</i>	Leucocratic granite <i>Rum Jungle Complex</i>	Red granite <i>Heemskirk Granite</i>	Adamellite <i>Burnside Granite</i>	Adamellite <i>Rum Jungle Complex</i>
Locality	N. end Rum Jungle Complex, N.T. 12°53'S, 131°5'E	Mt Isa Area, Qld	Croydon Area, Qld	W. of Fish R., Calvert Hills Area, N.T./Qld	Rum Jungle Area, N.T. 13°02'S, 131°01'E	14 km NNE. of Batchelor, N.T. 12°55'S, 131°04'E	Heemskirk, Tas.	3 km NNW of Rising Tide Prospect, N. of Brocks Cr, N.T. 13°26'S, 131°21'E	Rum Jungle Area, N.T. 12°59'S, 130°59'E
Reference	137, 295	28	28	28	137, 293	137, 295	54, 639	137; 109; 565, 55	137, 293
Analyst	C. R. Edmond A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	R. L. Bruce A.M.D.L.	C. R. Edmond A.M.D.L.
Remarks									
SiO ₂	75.00	74.90	74.90	74.80	74.80	74.60	74.50	74.50	74.50
Al ₂ O ₃	13.00	12.40	12.50	12.70	12.30	12.80	12.90	13.20	12.40
Fe ₂ O ₃	0.37	0.78	0.24	0.65	0.55	0.64	0.42	0.18	0.40
FeO	0.78	0.50	1.91	0.74	0.97	0.86	1.50	1.41	1.22
MgO	0.30	0.19	0.12	0.14	0.79	0.35	0.31	0.25	0.69
CaO	0.57	0.97	0.81	0.23	0.44	0.91	0.99	0.80	0.81
Na ₂ O	3.20	3.20	2.50	0.35	0.92	3.55	2.80	3.35	2.85
K ₂ O	5.90	6.25	5.65	8.85	7.50	5.00	5.10	5.05	5.40
H ₂ O +	0.31	0.25	0.80	0.96	0.87	0.49	0.52	0.58	0.73
H ₂ O -	0.08	0.10	0.04	0.12	0.09	0.09	0.24	0.04	0.12
CO ₂	0.26	0.08	0.18	0.02	0.31	0.15	0.03	0.14	0.38
TiO ₂	0.09	0.30	0.18	0.1	0.15	0.50	0.27	0.16	0.25
P ₂ O ₅	0.02	0.02	0.14	0.06	0.10	0.06	0.06	0.03	0.09
MnO	0.03	0.01	0.03	0.04	0.02	0.04	0.05	0.03	0.02
Other Constituents									
Age	99.91	99.95	100.00	99.76	99.81	100.04	99.69	99.70	99.86

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	55	56	57	58	59	60	61	62	63
Rock Name	Adamellite <i>Norris Granite</i>	Adamellite <i>Rum Jungle Complex</i>	Red granite <i>Heemskirk Granite</i>	Microcline granite <i>Rum Jungle Complex</i>	Adamellite <i>Caledon Granite</i>	Adamellite <i>Giddy Granite</i>	Adamellite <i>Burnside Granite</i>	Granite vein	Granite vein
Locality	Fish R., Calvert Hills Area, N.T./Qld	Rum Jungle Area, N.T. 13°00'S, 131°01'E	Heemskirk, Tas.	Rum Jungle Area, N.T. 12°59'S, 136°59'E	Arnhem Bay, N.T. 12°53'S, 136°32'E	Arnhem Bay, N.T. 12°17'S, 136°34'E	N. of Brock's Cr Siding 24 km NW. of Rising Tide, N.T. 13°27'S, 131°28'E	Palmer Area, S.A.	Palmer Area, S.A.
Reference	28	137, 295	54, 639	137, 295	28; 109	28; 109	109; 137, 298; 55, 565	139, 180	139, 180
Analyst	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	C. R. Edmond A.M.D.L.	R. L. Bruce A.M.D.L.	R. L. Bruce A.M.D.L.	R. L. Bruce A.M.D.L.	A. J. R. White	A. J. R. White
Remarks								(Vein)	(Vein)
SiO_2	74.40	74.00	73.80	73.60	73.60	73.50	73.40	73.36	73.24
Al_2O_3	12.60	12.90	12.80	13.20	12.70	11.80	13.30	14.26	14.96
Fe_2O_3	0.28	0.77	0.92	0.68	0.13	0.27	0.57	0.72	0.23
FeO	1.87	1.31	1.92	1.01	1.95	2.30	1.51	0.53	0.46
MgO	0.40	0.41	0.46	0.38	0.29	0.38	0.32	0.06	0.18
CaO	0.99	0.63	0.99	0.61	0.51	0.96	0.92	0.36	0.76
Na_2O	2.90	3.30	2.90	3.25	2.30	1.88	3.50	2.48	2.69
K_2O	5.30	5.30	4.95	5.75	6.40	6.25	5.05	7.57	7.54
$\text{H}_2\text{O}+$	0.71	0.86	0.47	0.76	0.99	1.29	0.58	0.17	0.18
$\text{H}_2\text{O}-$	0.09	0.10	0.25	0.11	0.15	0.19	0.04	0.04	0.01
CO_2	0.05	0.16	0.06	0.21	0.16	0.62	0.10	0.07	0.07
TiO_2	0.20	0.21	0.34	0.13	0.24	0.24	0.19	0.11	0.10
P_2O_5	0.08	0.08	0.07	0.05	0.13	0.03	0.03	0.06	0.04
MnO	0.03	0.03	0.05	0.02	0.02	0.03	0.05	0.01	0.01
Other Constituents								Rb ₂ O = 0.02 SrO = 0.03 BaO = 0.31 ZrO ₂ = 0.01	
	99.90	100.06	99.98	99.76	99.57	99.74	99.56	100.17	100.85
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

a. $\text{CaO} < 1\%$									
$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$									
	64	65	66	67	68	69	70	71	72
Rock Name	Adamellite <i>Stanthorpe Granite</i>	Leucocratic granite <i>Rum Jungle Complex</i>	Granulated granite <i>Rum Jungle Complex</i>	Granite vein	Foliated adamellite <i>Rum Jungle Complex</i>	Leucocratic adamellite <i>Shoebridge Granite</i>	Granite	Porphyritic microgranite <i>Packsaddle Microgranite</i>	Leucocratic microgranite <i>Einasleigh Metamorphics</i>
Locality	0.4 km N. of Boonoo Boonoo, N.S.W. Drake 1-mile Sheet 202178	Mt Fitch Area, Rum Jungle, N.T. 12°58'S, 130°57'E	Rum Jungle Area, N.T. 13°01'S, 131°03'E	Palmer Area, S.A.	ESE. Dyson's Prospect, Rum Jungle N.T.	160 km S. of Darwin, N.T.	Palmer Area, S.A.	Calvert Hills Area, N.T. 17°5'S, 137°57'E	64 km SW. of Gilberton Qld 19°43'S, 143°13'E Gilberton 4-mile Sheet
Reference	115	137, 295	137, 295	139, 180	137, 295	110, 230	139, 180	28	28
Analyst	S. E. Shaw	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	A. J. R. White	C. R. Edmond A.M.D.L.	J. M. Rhodes	A. J. R. White	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.
Remarks				(Vein)			Granitic portion of migmatite		
SiO_2	73.24	73.20	73.10	73.02	73.00	72.98	72.89	72.60	72.50
Al_2O_3	13.60	13.20	13.50	14.54	13.60	14.07	14.97	12.10	14.90
Fe_2O_3	0.27	0.33	0.35	0.28	0.63	0.64	0.27	3.83	0.06
FeO	1.30	1.47	1.61	0.49	1.65		0.67	0.22	0.40
MgO	0.43	0.60	0.62	0.07	0.55	0.17	0.15	0.12	0.12
CaO	0.91	0.71	0.54	0.62	0.89	0.70	0.71	0.23	0.67
Na_2O	3.88	3.20	2.55	2.83	2.80	3.66	3.40	0.23	3.25
K_2O	5.14	5.60	5.95	7.45	5.55	5.16	6.43	9.40	7.00
$\text{H}_2\text{O} +$	0.30	0.87	0.79	0.15	0.71	0.63	0.17	0.70	0.38
$\text{H}_2\text{O} -$	0.06	0.07	0.08	0.06	0.08	0.08	0.05	0.18	0.06
CO_2	—	0.23	0.37	0.10	0.13	0.91	0.09	0.02	0.16
TiO_2	0.23	0.35	0.18	0.09	0.31	0.08	0.10	0.30	0.02
P_2O_5	0.06	0.10	0.05	0.05	0.10	—	0.05	0.03	0.23
MnO	0.08	0.02	0.02	0.01	0.03	0.01	0.01	—	0.01
Other Constituents				Rb ₂ O = 0.01 BaO = 0.30 SrO = 0.03 ZrO ₂ = 0.01			Rb ₂ O = 0.01 SrO = 0.03 BaO = 0.30 ZrO ₂ = 0.01		
Age	99.50	99.95	99.71	100.10	100.03	99.12	100.30	99.96	99.76

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$				$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$					
	73	74	75	76	77	78	79	80	81
Rock Name	Biotite-cordierite granodiorite <i>Bradshaw Granite</i>	Micro-adamellite <i>Bagstowe Ring Dyke Complex</i>	Feldspathic granite <i>Rum Jungle Complex</i>	Adamellite <i>Elizabeth Ck Granite</i>	Leucocratic adamellite <i>Bagstowe Ring Dyke Complex</i>	Granite <i>Kanangra Granite</i>	Adamellite	Adamellite <i>Elizabeth Ck Granite</i>	Leucocratic adamellite <i>Rum Jungle Complex</i>
Locality	7.2 km W. of Holly Inlet, N.T. 12°33'S, 136°41'E	Clarke R. Area, Qld	Rum Jungle Area, N.T. 13°01'S, 131°03'E	Stannary Hills Area, Qld	About 105 km S. of Eina-sleigh, Qld	Mt Werong, N.S.W.	Scottsdale-Derby Rd, Tas.	About 72 km WSW. of Ravenshoe, Qld 17°55'S, 144°50'E	Rum Jungle Area, N.T. 13°01'S, 131°01'E
Reference	28	19, 119	137, 295	66, 83	28	103, 5; 130	28	66, 82	137, 295
Analyst	L. Castanelli A.M.D.L.	A. McClure	C. R. Edmond A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	J. H. Pyle	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.
Remarks									
SiO_2	72.00	71.68	71.20	77.60	77.50	77.01	77.00	77.00	76.90
Al_2O_3	14.00	14.72	13.90	11.80	12.20	12.29	12.20	12.20	12.80
Fe_2O_3	0.22	1.01	0.47	0.39	0.70	0.75	0.20	0.82	0.26
FeO	2.95	1.39	1.79	0.58	0.25	0.44	0.91	0.54	0.46
MgO	1.14	0.54	1.25	0.11	0.05	0.14	0.11	0.07	0.11
CaO	0.98	0.16	0.71	0.82	0.46	0.58	0.55	0.67	0.54
Na_2O	2.15	3.62	2.55	3.60	3.7	3.56	3.90	4.30	4.00
K_2O	4.10	4.76	5.80	4.10	4.45	4.76	4.20	3.80	4.10
$\text{H}_2\text{O} +$	1.51	0.58	0.92	0.73	0.37	0.53	0.26	0.28	0.37
$\text{H}_2\text{O} -$	0.17	0.24	0.06	0.17	0.14	—	0.12	0.14	0.07
CO_2	0.43	nd	0.35	0.04	0.08	0.08	0.07	0.07	0.16
TiO_2	0.15	0.28	0.47	0.08	0.07	0.02	0.21	0.07	0.04
P_2O_5	0.04	0.08	0.18	0.02	0.02	tr	0.01	0.01	0.02
MnO	—	0.06	0.03	0.01	0.03	0.04	0.07	0.02	0.01
Other Constituents									
	99.84	(99.12)	99.70	100.05	100.02	100.20	99.81	99.99	99.84
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

a. $\text{CaO} < 1\%$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$$
[illegible]

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ a. $\text{CaO} < 1\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$

	91	92	93	94	95	96	97	98	99
Rock Name	Biotite granite	Adamellite	Leucocratic adamellite <i>Elizabeth Ck. Granite</i>	Leuco-granite <i>Scammels Granite</i>	Granite <i>Kanangra Granite</i>	Granite	Granite	Granite	Biotite-muscovite adamellite <i>Allia Creek Granite</i>
Locality	7/0998600/656800 Narromine 4-mile Sheet N.S.W. I55/3/2	Dubbo 4-mile Sheet, N.S.W.	40 km NE. of George-town Old 18°05'S, 143°45'E	Geehi-Murray-1 Pressure tunnel, Snowy Mts, N.S.W.	Mt Werong, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Allia Cr, Pine Cr Area, N.T.
Reference	28	28	28; 109	67, 11	103, 5; 130	49	49	49	137, 300
Analyst	C. R. Edmond A.M.D.L.	D. K. Rowley H. W. Sears A.M.D.L.	R. L. Bruce A.M.D.L.	P. Kolbe	J. H. Pyle	B. L. Gulson	B. L. Gulson	B. L. Gulson	C. R. Edmond A.M.D.L.
Remarks						Grano-phyric	Two feldspars	Two feldspars	
SiO_2	75.40	75.20	75.20	75.10	75.01	74.87	74.85	74.61	74.50
Al_2O_3	12.80	12.70	12.70	13.85	13.31	13.08	13.03	13.38	13.50
Fe_2O_3	0.48	0.54	0.78	} 1.29	1.20	} 1.60	0.33	} 3.29	0.31
FeO	0.94	0.98	1.05		0.34		0.74		1.04
MgO	0.17	0.22	0.13	0.16	0.34	0.29	0.48	0.50	0.24
CaO	0.96	0.85	0.77	0.78	0.92	0.11	0.50	0.95	0.91
Na_2O	3.80	3.95	3.90	3.72	3.39	4.69	4.10	4.05	3.15
K_2O	4.65	4.80	4.15	4.46	4.79	3.82	4.56	3.65	4.80
$\text{H}_2\text{O} +$	0.28	0.33	0.70	—	0.52	0.52	0.20	0.32	0.79
$\text{H}_2\text{O} -$	0.17	0.11	0.14	—	—	0.04	0.04	0.04	0.08
CO_2	0.20	0.24	0.07	—	0.18	0.05	0.09	0.05	0.26
TiO_2	0.19	0.20	0.11	0.10	0.09	0.18	0.35	0.22	0.12
P_2O_5	0.03	0.03	0.03	—	0.08	0.02	0.03	0.02	0.11
MnO	0.03	0.04	0.06	—	0.05	0.06	0.07	0.10	0.02
Other Constituents									
Age	100.01	100.02	99.79	99.46	100.22	99.33	99.37	101.18	99.83

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

a. $\text{CaO} < 1\%$

K ₂ O/Na ₂ O = 1.25 - 0.75							K ₂ O/Na ₂ O < 0.75		
	100	101	102	103	104	105	106	107	108
Rock Name	Granite	Granite	Micro-adamellite <i>Mareeba Granite</i>	Adamellite <i>Heemskirk Granite</i>	Granite	Hornblende-biotite granite	Quartz albite granophyre	Granite-porphyr	Granite-porphyr
Locality	Yeoval, N.S.W.	Murgan, nr Kalgoorlie, W.A. 188 200 N, (425900 E.)	Mossman Area, Qld 16°24'S, 144°43'E	Tasman R., Tas. Z7/569/13	Yeoval, N.S.W.	Kingsgate, N.S.W.	Nr Norseman, W.A. 1023.570N 475 030E	Ringneck, near Kambalda W.A. 1147390N 467240E	Ringneck, nr Kambalda, W.A. 145680N, 466840E
Reference	49	98	19, 125; 66, 84	16	49	71, 69	98	98	98
Analyst	B. L. Gulson	W. R. O'Beirne	C. R. Edmond H. W. Sears A.M.D.L.	Dep. Mines Launceston	B. L. Gulson	G. T. See	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	One feldspar				Grano-phyr				
SiO ₂	74.48	74.36	73.90	73.70	73.62	72.74	79.97	74.19	73.18
Al ₂ O ₃	13.08	14.39	15.10	14.31	13.59	14.40	12.15	16.84	15.57
Fe ₂ O ₃	} 2.28	0.04	0.19	0.78	} 2.93	0.06	0.03	0.22	0.63
FeO		0.90	0.82	1.40		2.30	0.24	0.72	0.57
MgO	0.29	0.08	0.08	0.46	0.29	0.43	0.24	0.10	0.43
CaO	0.51	0.56	0.65	0.96	0.22	0.71	0.27	0.29	0.44
Na ₂ O	4.44	4.05	4.15	3.18	4.46	3.73	5.73	6.30	5.61
K ₂ O	4.12	4.93	4.25	3.69	4.00	4.31	0.05	0.57	3.10
H ₂ O +	0.35	0.15	0.55	0.98	0.80	0.33	0.29	0.20	0.05
H ₂ O -	0.05	0.08	0.05	0.17	0.10	0.37	0.30	0.11	0.11
CO ₂	0.10	na	0.04	—	0.43	—	nd	0.17	ND
TiO ₂	0.14	0.13	0.03	0.17	0.12	0.04	0.07	0.35	0.26
P ₂ O ₅	0.02	nd	0.13	0.10	0.01	0.40	nd	ND	ND
MnO	0.10	0.02	0.04	tr	0.06	0.04	0.01	abs	abs
Other Constituents									
Age	99.96	99.69	99.98	99.90	100.63	99.87	99.34	100.06	99.95

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

a. CaO < 1%						b. CaO = 1% – 2%			
K ₂ O/Na ₂ O < 0.75						K ₂ O/Na ₂ O > 1.25			
	109	110	111	112	113		1	2	3
Rock Name	Aplite <i>Dove Granite</i>	Sodic granite	Granite porphyry	Sodic granite	Sodic granite		Biotite Adamellite <i>Urannah Complex</i>	Micro- adamellite <i>Herbert River Granite</i>	Adamellite <i>Ewen Granite</i>
Locality	Mersey Valley, Tas.	Kambalda, W.A. 138540N 470160E	Ringneck, nr Kam- balda, W.A. 144490N, 466070E	Smithfield, nr Kalgoor- lie, W.A. 1223700N, 443300E	Ringneck, nr Kam- balda, W.A. 147150N, 465510E		32 km ESE. of Collins- ville, Qld	Dimbulah Area, Qld 17°8'S, 145°00'E	Dobbyn, Qld
Reference	61, 79	98	98	98	98		28	19, 125; 66, 81	28
Analyst	Not stated	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne		C. R. Edmond A.M.D.L.	C. R. Edmond H. W. Sears A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.
Remarks		Zoned plagioclase							
SiO ₂	73.16	72.53	71.77	71.62	71.47		77.20	76.70	76.00
Al ₂ O ₃	14.18	15.70	16.99	15.61	15.69		12.70	12.00	12.30
Fe ₂ O ₃	0.57	0.26	0.07	1.07	0.02		0.21	0.23	0.39
FeO	0.45	1.04	1.01	1.35	1.04		0.86	1.27	1.16
MgO	0.25	1.54	0.71	1.11	0.54		0.24	0.19	0.14
CaO	0.84	0.48	0.36	0.49	0.84		1.27	1.15	1.11
Na ₂ O	6.59	5.43	5.24	5.20	5.47		2.60	3.10	3.05
K ₂ O	2.74	2.19	2.62	2.53	2.43		3.70	4.75	4.95
H ₂ O +	1.23	0.44	0.51	0.37	0.63		0.62	0.28	0.39
H ₂ O –	abs	0.14	0.10	0.10	0.07		0.07	0.11	0.10
CO ₂	—	nd	nd	nd	nd		0.06	0.05	0.10
TiO ₂	0.14	0.27	0.27	0.39	0.22		0.13	0.11	0.12
P ₂ O ₅	0.13	nd	nd	nd	nd		0.03	0.04	0.03
MnO	abs	abs	abs	0.01	abs		0.02	0.02	0.04
Other Constituents	FeS ₂ = tr								
Age	100.28	100.02	99.65	99.85	98.42		99.71	100.00	99.98

$$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$$

	4	5	6	7	8	9	10	11	12
Rock Name	Adamellite	Biotite granite	Biotite-muscovite adamellite <i>Mareeba Granite</i>	Granite <i>Trevethan Granite</i>	Leuco-adamellite <i>Bendemeer Adamellite</i>	Granite	Adamellite <i>Mt Cameron Granite</i>	Adamellite <i>Sandy Flat Adamellite</i>	Biotite granite
Locality	K55/6/6 Tas.	Goulburn Area, N.S.W.	Mossman Area, Qld 7/308200/ 2878300 16°50'S, 145°10'E	Grassy Hill, Cooktown Area, Qld 07/305900/ 304400 15°29'S, 145°14'E	Oxley Hwy, E. of Bendemeer, N.S.W. G.R. Bendemeer 232783	39 km S. of Cowra, N.S.W. 34°07'S, 148°45½'E	6 km S. of Gladstone, Tas.	0·8 km N. Sandy Flat, N.S.W. 076797, Tenterfield 1-mile Sheet	Roma area, Qld 26°04'S 148°41' 50"E
Reference	28	28	19, 125; 66, 84	91; 66, 85	26, 280	28	28	115	28
Analyst	C. R. Edmond A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	W. H. Sears A.M.D.L.	B. W. Chappell	D. K. Rowley H. W. Sears A.M.D.L.		S. E. Shaw	C. R. Edmond A.M.D.L.
Remarks									
SiO ₂	75·90	75·60	75·40	75·4	75·34	75·30	75·20	75·18	74·90
Al ₂ O ₃	12·10	12·70	13·50	12·8	13·02	13·00	12·60	13·16	12·20
Fe ₂ O ₃	0·34	0·48	0·23	0·18	0·26	0·54	0·18	0·79	0·06
FeO	1·31	1·04	1·01	1·56	1·06	0·82	1·80	1·00	1·94
MgO	0·30	0·25	0·12	0·40	0·43	0·24	0·22	0·45	0·34
CaO	1·21	1·51	1·09	1·11	1·09	1·27	1·07	1·44	1·09
Na ₂ O	2·90	3·35	3·35	2·90	3·43	3·70	3·20	3·37	2·50
K ₂ O	4·90	4·40	4·20	4·70	4·80	4·65	4·70	4·67	4·55
H ₂ O +	0·26	0·42	0·60	0·59	0·26	0·30	0·48	0·30	1·17
H ₂ O -	0·17	0·07	0·16	0·08	0·12	0·06	0·12	0·10	0·35
CO ₂	0·04	0·04	0·03	0·01	0·04	0·06	0·04	—	0·62
TiO ₂	0·18	0·11	0·10	0·24	0·14	0·13	0·17	0·15	0·27
P ₂ O ₅	0·04	0·03	0·20	0·17	0·03	0·04	0·07	0·06	0·07
MnO	0·01	0·04	0·05	0·13	0·05	0·06	0·04	0·02	0·03
Other Constituents									
Age	99·66	100·04	100·08	100·27	100·15	100·17	99·89	100·69	100·09

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	13	14	15	16	17	18	19	20	21
Rock Name	Leucocratic granite <i>Bradshaw Granite</i>	Biotite-muscovite adamellite <i>Mareeba Granite</i>	Aplite	Granite <i>Sybella Granite</i>	Granite <i>Elizabeth Ck Granite</i>	Granite <i>Bombala Granite</i>	Adamellite <i>Elizabeth Ck Granite</i>	Aplite <i>Dove Granite</i>	Granite <i>Palmer Granite</i>
Locality	Arnhem Land, N.T. 12°11'S, 136°42'E	Lighthouse Mt, Mossman Area, Qld 7/309400/ 28991 16°41'S, 145°12'E	Yeoval, N.S.W.	Mt Isa Area, Qld	Einasleigh Area, Qld 18°00'S, 144°32'E	Bukalong Rd 7 km N. of rail crossing, Bombala, N.S.W. 36°49½'S 149°12½'E	26 km SW. of Mt Garnet, Qld 17°48'S 144°56'E	Mersey Valley, Tas.	Flanking Mt Lofty Ras, Palmer Area, S.A.
Reference	28; 109	19, 125; 66, 84	49	28	66, 83	28	19, 121; 66, 82	61, 79	139, 181; 140
Analyst	C. R. Edmond A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.	B. L. Gulson	C. R. Edmond, H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	Not Stated	A. J. R. White
Remarks			(In diorite)	Alleged to contain Riebeckite				Related to granodiorite	
SiO_2	74.80	74.80	74.74	74.70	74.70	74.60	74.50	74.48	73.98
Al_2O_3	13.90	13.80	13.13	11.80	13.50	13.00	13.10	13.26	13.42
Fe_2O_3	0.13	0.34	1.59	0.72	0.17	0.53	0.36	0.68	1.10
FeO	0.89	0.97		2.05	1.31	1.20	1.33	0.67	1.02
MgO	0.15	0.33	0.56	0.03	0.23	0.40	0.23	0.64	0.56
CaO	1.01	1.05	1.32	1.32	1.00	1.04	1.59	1.12	1.22
Na_2O	2.95	3.50	2.56	2.80	3.40	3.45	3.40	2.31	3.62
K_2O	5.10	4.55	5.50	5.70	4.95	5.00	4.80	6.13	4.58
$\text{H}_2\text{O} +$	0.61	0.35	0.55	0.45	0.35	0.48	0.29	1.08	0.25
$\text{H}_2\text{O} -$	0.07	0.08	0.11	0.08	0.11	0.10	0.14	0.05	0.10
CO_2	0.25	0.03	0.05	0.08	0.09	0.03	0.12	—	0.16
TiO_2	0.05	0.12	0.14	0.25	0.11	0.16	0.19	0.11	0.33
P_2O_5	0.15	0.11	0.01	0.03	0.09	0.06	0.05	0.07	0.13
MnO	0.02	0.03	0.09	0.06	0.04	0.03	0.02	tr	0.02
Other Constituents								$\text{FeS}_2 = \text{tr}$	
Age	100.08	100.06	100.35	100.07	100.05	100.08	100.22	100.60	100.59

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	22	23	24	25	26	27	28	29	30
Rock Name	Adamellite	Biotite granite <i>Rum Jungle Complex</i>	Adamellite	Leuco-adamellite <i>Stanthorpe Adamellite</i>	White granite <i>Heemskirk Granite</i>	Adamellite <i>Heemskirk Granite</i>	Granite	Adamellite <i>Mt Bunday Granite</i>	White granite <i>Heemskirk Granite</i>
Locality	21 km NW. of St Helens Tas.	6.4 km NW. of Batchelor, Rum Jungle N.T. 13°01'S, 131°01'E	19 km S. of Dalgety, N.S.W. 36°40'S, 148°49'E.	4 km S. of Bakers Hill, N.S.W.	Heemskirk, Tas.	NE. Trial Har., Tas. 24/619/3	Byrock Waterhole, 0.8 km S. of Byrock, N.S.W. 30°39½'S, 146°23½'E	Mt Bunday, Darwin Area, N.T.	Heemskirk, Tas.
Reference	28	137, 294	28	100, 198	54, 639	16, 67	28	137, 299	54, 639
Analyst	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	Avery & Anderson	D. K. Rowley A.M.D.L.	Dep. Mines Launceston	D. K. Rowley A.M.D.L.	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks									
SiO_2	73.80	73.80	73.80	73.60	73.60	73.58	73.50	73.40	73.20
Al_2O_3	13.70	12.80	13.30	13.66	13.60	12.39	13.30	13.00	13.60
Fe_2O_3	0.07	0.66	0.16	1.51	0.01	0.72	0.40	0.94	0.37
FeO	1.34	1.08	1.84	1.07	1.95	2.12	1.54	1.29	2.00
MgO	0.30	0.47	0.70	0.25	0.46	0.65	0.20	0.47	0.47
CaO	1.48	1.06	1.69	1.14	1.13	1.64	1.36	1.66	1.02
Na_2O	3.10	3.20	2.90	3.72	2.60	2.80	3.60	3.50	2.60
K_2O	4.90	5.40	4.65	4.82	5.25	5.04	5.15	4.65	5.35
$\text{H}_2\text{O} +$	0.46	0.66	0.68	0.14	0.52	0.66	0.47	0.51	0.66
$\text{H}_2\text{O} -$	0.07	0.06	0.12	0.16	0.18	—	0.01	0.06	0.18
CO_2	0.12	0.42	0.04	nd	0.03	—	0.19	0.10	0.03
TiO_2	0.20	0.27	0.20	0.19	0.30	0.30	0.23	0.26	0.28
P_2O_5	0.12	0.09	0.07	0.17	0.11	0.06	0.06	0.14	0.11
MnO	0.03	0.02	0.04	0.06	0.05	0.04	0.04	0.03	0.06
Other Constituents									
Age	99.69	100.00	100.19	100.49	99.79	100.00	100.05	100.01	99.93

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	31	32	33	34	35	36	37	38	39
Rock Name	Biotite-muscovite granite <i>Forsayth Granite</i>	White granite <i>Heemskirk Granite</i>	Adamellite <i>Kiara Adamellite</i>	Granite	Adamellite <i>Mareeba Granite</i>	Biotite-muscovite granite <i>Forsayth Granite</i>	Adamellite <i>Ewen Granite</i>	Biotite-muscovite granite <i>Waterhouse Granite</i>	Biotite-muscovite granite
Locality	16 km N. of George-town, Qld	Heemskirk, Tas.	N. of Bendemeer, N.S.W. G.R. Bendemeer 235854	16 km from Wee Jasper, nr Yass-Tumut Rd, N.S.W.	Mt Lewis Forest Rd, Mossman Area, Qld 7/318800/2908200 16°36'S, 145°16'E	16 km N. of George-town, Qld	Dobbyn Area, Qld	Rum Jungle Area, N.T. 13°12'S, 130°09'E	Westernmost of the Aviation I., Oates Land, Ant. 69°08'S, 158°45'E
Reference	28	54, 639	26, 280	28	89; 66, 84	28	28	137, 300	79, 49
Analyst	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	B. W. Chappell	J. C. Watts A.M.D.L.	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond H.W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.
Remarks									
SiO_2	73.20	72.90	72.83	72.80	72.70	72.60	72.60	72.61	72.50
Al_2O_3	13.80	14.10	14.31	13.90	14.00	14.10	13.80	13.40	13.70
Fe_2O_3	0.28	0.01	0.31	1.05	0.21	0.46	0.50	0.87	0.43
FeO	1.61	2.00	1.60	1.05	1.81	1.70	1.83	1.32	1.62
MgO	0.39	0.58	0.54	0.52	0.57	0.50	0.55	0.82	0.52
CaO	1.34	1.07	1.56	1.86	1.74	1.32	1.72	1.04	1.25
Na_2O	3.00	2.85	3.08	3.35	3.35	2.95	2.75	3.15	2.20
K_2O	5.15	4.90	4.74	4.55	4.30	5.15	4.85	5.10	6.25
$\text{H}_2\text{O} +$	0.53	0.88	0.48	0.47	0.68	0.50	0.69	0.74	0.65
$\text{H}_2\text{O} -$	0.03	0.08	0.10	0.08	0.16	0.02	0.06	0.06	0.04
CO_2	0.12	0.06	0.10	—	0.05	0.25	0.28	0.32	0.03
TiO_2	0.20	0.30	0.26	0.31	0.25	0.24	0.06	0.22	0.35
P_2O_5	0.10	0.13	0.15	0.06	0.13	0.10	0.06	0.13	0.20
MnO	0.03	0.07	0.04	0.04	0.05	0.03	0.04	0.03	0.02
Other Constituents									
	99.78	99.93	100.02	100.04	100.00	99.92	99.79	99.81	99.76
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	40	41	42	43	44	45	46	47	48
Rock Name	Biotite-muscovite granite	Adamellite <i>Rum Jungle Complex</i>	Adamellite <i>Prices Springs Granite</i>	Granite porphyry	Adamellite <i>Giddy Granite</i>	Porphyritic granite <i>Bow River Granite</i>	Adamellite <i>Giddy Granite</i>	Adamellite <i>Strathbogrie Granite</i>	Leucocratic adamellite <i>Shoebridge Granite</i>
Locality	West Wyalong-Lake Cargelligo Area, N.S.W.	NNW. of Whites Prospect, Rum Jungle N.T. 12°58'S, 131°60'E	Burrundi-Grove Hill track, N.T. 13°30'S, 131°38'E	Koolanooka Hills, W.A. 4890N 2083E	19 km SW. of Drimmie Hd, Melville Bay, N.T. 12°23'S, 136°37'E	14 km SE. of Mt Remarkable Dixon Ra, W.A. 17°16'30"S, 127°44'5"E	43 km SW. of Yirrkala Mission, Arnhem Land, N.T. 12°23'S, 136°32'E	20 km ENE. of Avenel, Vic.	160 km S. of Darwin, N.T.
Reference	28	137, 294	109; 55; 137; 297	3	28	42; 43, 61	109	28; 109	110, 230
Analyst	D. K. Rowley A.M.D.L.	C. R. Edmond A.M.D.L.	R. L. Bruce A.M.D.L.	P. A. Arriens	C. R. Edmond A.M.D.L.	M. R. Hanckel A.M.D.L.	R. L. Bruce A.M.D.L.	M. R. Hanckel A.M.D.L.	J. M. Rhodes
Remarks									
SiO_2	72.40	72.40	72.10	72.08	71.90	71.90	71.90	71.80	71.57
Al_2O_3	14.40	13.20	14.00	13.12	12.70	13.40	12.70	13.80	14.57
Fe_2O_3	0.32	1.23	0.20	2.16	0.57	0.74	0.57	0.14	} 1.91
FeO	1.56	1.14	1.89	1.75	2.85	2.29	2.85	2.90	
MgO	0.67	0.75	0.53	0.12	0.18	0.50	0.18	0.91	0.54
CaO	1.36	1.33	1.60	1.61	1.36	1.82	1.36	1.74	1.61
Na_2O	3.00	3.05	3.15	3.28	2.35	2.02	2.35	2.51	3.63
K_2O	4.75	5.20	4.90	4.32	6.10	5.18	6.10	4.19	4.59
$\text{H}_2\text{O}+$	0.87	0.57	0.69	0.92	0.87	1.17	0.87	1.18	0.74
$\text{H}_2\text{O}-$	0.01	0.09	0.06	0.07	0.05	0.04	0.05	0.01	0.07
CO_2	0.04	0.24	0.11	—	0.18	0.11	0.18	0.12	0.23
TiO_2	0.29	0.33	0.29	0.50	0.43	0.40	0.43	0.47	0.23
P_2O_5	0.20	0.11	0.08	0.14	0.10	0.13	0.10	0.21	0.08
MnO	0.03	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.02
Other Constituents									
Age	99.90	99.69	99.65	100.11	99.68	99.74	99.68	100.02	99.79

TABLE A — GRANITIC ROCKS — SiO₂ > 70%

b. CaO = 1% —2%

K₂O/Na₂O > 1.25

	49	50	51	52	53	54	55	56
Rock Name	Micro-granite <i>Meredith Granite</i>	Cordierite-mica-sillimanite granite	Leucocratic adamellite <i>Shoebridge Granite</i>	Biotite-muscovite Cordierite adamellite	Granite <i>Dumbano Granite</i>	Adamellite	Adamellite <i>Corryong Granite</i>	Adamellite <i>Rum Jungle Complex</i>
Locality	8 km SW. of Waratah, Tas.	27 km WSW. of Temora, N.S.W.	160 km S. of Darwin, N.T.	Condobolin, N.S.W.	29 km SW. of Kidston, Qld Gilberton 4-mile Sheet	Nr Mt Mulligan, Mossman Area, Qld	Tumbar-umba-Geehi District, N.S.W. G.R. 267·0-160·2 (S.M.A. Grid)	Rum Jungle N.T. 12°59'S, 131°02'E
Reference	28	28	110, 230	28	28	28	51; 52, 12	137, 294
Analyst	C. R. Edmond, H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.	J. M. Rhodes	D. K. Rowley A.M.D.L.	S. Baker	H. W. Sears D. K. Rowley A.M.D.L.	B. B. Guy	C. R. Edmond A.M.D.L.
Remarks								
SiO ₂	71·40	71·40	71·31	70·60	70·58	70·40	70·25	70·10
Al ₂ O ₃	13·60	14·20	14·64	14·20	13·80	12·70	13·78	13·40
Fe ₂ O ₃	0·28	0·27	1·84	0·45	1·00	0·25	0·41	1·28
FeO	2·35	3·16		2·72	1·00	4·01	3·04	1·75
MgO	0·72	1·50	0·52	1·93	0·53	0·46	1·49	1·04
CaO	1·96	1·53	1·21	1·80	1·30	1·51	1·80	1·69
Na ₂ O	3·10	2·05	3·59	2·40	4·21	3·00	2·41	2·95
K ₂ O	4·50	3·95	4·93	4·00	7·37	4·85	4·86	5·50
H ₂ O +	1·06	1·15	0·92	1·33	0·40	1·47	0·13	0·67
H ₂ O —	0·07	0·09	0·06	0·01	—	0·03	0·07	0·08
CO ₂	0·12	0·10	0·34	0·03	—	0·46	—	0·50
TiO ₂	0·51	0·46	0·24	0·44	0·07	0·48	0·41	0·49
P ₂ O ₅	0·17	0·13	0·08	0·17	0·05	0·13	0·16	0·21
MnO	0·04	0·03	0·02	0·03	0·06	0·04	0·07	0·04
Other Constituents								
Age	99·98	100·02	99·70	100·11	100·37	99·79	99·88	99·70

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

b. CaO = 1% —2%

$$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$$
[illegible]

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$

	66	67	68	69	70	71	72	73	74
Rock Name	Muscovite-biotite adamellite <i>Mareeba Granite</i>	Granite	Fine grey granite <i>Palmer Granite</i>	Coarse pink granite <i>Palmer Granite</i>	Coarse pink granite <i>Palmer Granite</i>	Leuco-adamellite <i>Billyrimba Leuco-adamellite</i>	Adamellite <i>Bogandjera Granite</i>	Biotite granite <i>Wimberu Granite</i>	Granophyre
Locality	Gillies Hwy, 11 km W. of Little Mulgrave R., Qld 17°13.5'S, 145°00'E	Yeoval, N.S.W.	Flanking Mt Lofty Ras., S.A.	Flanking Mt Lofty Ra., S.A.	Flanking Mt Lofty Ra., S.A.	19 km SE of Tenterfield, N.S.W. Tenterfield 1-mile Sheet 161841	10 km NW. of Tooma, N.S.W. G.R. 2711-1674	21 km from Malbon, Qld	Mt Warning, N.S.W. Murwillumbah 1-mile Sheet 435765
Reference	19, 125; 109, 66, 83	49	139, 181; 140, 41	139, 181; 140, 41	139, 181; 140, 41	115; 116, 287	51; 53, 152	28	46
Analyst	H. W. Sears A.M.D.L.	B. L. Gulson	A. J. R. White	A. J. R. White	A. J. R. White	S. E. Shaw	B. B. Guy	A. McClure	D. C. Green
Remarks		Two feldspars							
SiO_2	74.40	74.23	73.44	73.10	73.07	73.07	71.68	71.10	71.1
Al_2O_3	13.60	13.71	13.76	13.53	13.84	13.88	13.06	13.63	14.57
Fe_2O_3	0.22	0.67	1.12	1.50	1.31	0.43	0.70	2.02	0.44
FeO	1.28	1.14	1.13	1.05	1.04	1.17	2.51	1.47	1.20
MgO	0.23	0.45	0.46	0.58	0.58	0.48	0.85	0.75	1.23
CaO	1.46	1.28	1.79	1.78	1.60	1.01	1.99	1.84	1.45
Na_2O	3.65	3.91	4.00	3.87	4.31	4.09	3.92	3.81	3.40
K_2O	4.10	3.63	3.61	3.87	3.46	4.51	4.59	4.51	4.04
H_2O^+	0.70	0.40	0.18	0.14	0.22	0.55	0.39	0.48	0.66
H_2O^-	0.15	0.07	0.02	0.07	0.04	0.13	0.05	0.07	0.85
CO_2	0.10	0.03	0.06	0.06	0.07	—	—	—	—
TiO_2	0.10	0.28	0.34	0.41	0.37	0.23	0.47	0.30	0.45
P_2O_5	0.05	0.06	0.27	0.12	0.15	0.07	0.09	0.10	0.02
MnO	0.04	0.05	0.02	0.02	0.02	0.03	0.10	0.05	tr
Other Constituents			$\text{Rb}_2\text{O} = 0.02$ $\text{SrO} = 0.01$ $\text{BaO} = 0.04$ $\text{ZrO}_2 = 0.02$	$\text{Rb}_2\text{O} = 0.02$ $\text{SrO} = 0.01$ $\text{BaO} = 0.04$ $\text{ZrO}_2 = 0.03$	$\text{Rb}_2\text{O} = 0.02$ $\text{SrO} = 0.01$ $\text{BaO} = 0.04$ $\text{ZrO}_2 = 0.03$				
	100.08	99.91	100.30	100.20	100.18	99.65	100.40	100.13	99.41
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

b. $\text{CaO} = 1\% - 2\%$								
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$				$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$				
	75	76	77	78	79	80	81	82
Rock Name	Adamellite <i>MacKenzie Adamellite</i>	Leucocratic adamellite <i>Shoebridge Granite</i>	Granodiorite <i>Island Bend Granite</i>	Granodiorite <i>Esmeralda Granite</i>	Adamellite <i>Banshee Adamellite</i>	Sodic granite	Muscovite-biotite adamellite <i>Mareeba Granite</i>	Granite
Locality	3 km SW. of Tenterfield, N.S.W. Clive 1-mile Sheet 029967	Stuart Hwy, about 64 km S. of Darwin, N.T. 13°31'S 131°16'E	Spoil heap, I. Bend dam site, Snowy Mts, N.S.W.	Georgetown Area, Qld 18°26'S, 143°02'E.	Mt Werong, N.S.W.	Ringneck, nr Kam-balda, W.A. 146530N, 464250E	Mossman Area, Qld 7/276100/2921400 16°29'S, 144°52'E	Ringneck, nr Kam-balda, W.A. 1-47280N, 467270E
Reference	115; 116, 287	137, 298; 109; 55	67, 11	28	103, 5, 130	98	66, 85	98
Analyst	S. E. Shaw	C. R. Edmond A.M.D.L.	P. Kolbe	H. W. Sears A.M.D.L.	J. H. Pyle	W. R. O'Beirne	C. R. Edmond A.M.D.L.	W. R. O'Beirne
Remarks								
SiO_2	70.95	70.70	70.24	73.00	72.78	72.65	72.30	70.67
Al_2O_3	13.98	14.60	14.99	15.10	13.89	15.65	14.20	17.32
Fe_2O_3	1.02	0.49	3.27	0.10	0.73	0.08	0.20	0.19
FeO	1.68	1.75		1.27	1.99	1.02	2.20	1.00
MgO	0.71	0.85	1.58	0.35	1.25	0.38	0.66	0.77
CaO	1.65	1.71	1.86	1.40	1.13	1.75	1.86	1.31
Na_2O	3.92	3.80	3.38	5.75	4.32	5.32	4.20	4.92
K_2O	4.60	4.50	2.89	2.25	1.33	2.39	2.80	3.15
$\text{H}_2\text{O} +$	0.37	0.97	—	0.19	1.68	0.30	0.61	0.30
$\text{H}_2\text{O} -$	0.09	0.06	—	0.04	—	0.04	0.07	0.07
CO_2	—	0.28	—	0.02	0.84	0.39	0.04	nd
TiO_2	0.44	0.25	0.17	0.15	0.04	0.29	0.33	0.32
P_2O_5	0.12	0.10	—	0.06	0.06	nd	0.18	nd
MnO	0.06	0.02	—	0.01	0.08	0.02	0.04	0.01
Other Constituents								
	99.59	100.08	98.38	99.69	100.12	100.28	99.69	100.03
Age								

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ c. $\text{CaO} = 2\% - 3\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	1	2	3	4	5	6	7	8	9
Rock Name	Adamellite	Adamellite	Adamellite	Porphyritic micro-adamellite <i>Mareeba Granite</i>	Adamellite <i>Kosciusko Granite</i>	Adamellite <i>Norris Granite</i>	Hornblende-biotite adamellite <i>Norris Granite</i>	Adamellite	Gneissic granodiorite <i>Kosciusko Granite</i>
Locality	0.8 km E. of George R. Bridge, St Helens, Tas.	16 km S. of St Marys Tas.	Thala I., Ant. 70°33'S, 165°55'E	McLeod R., 13 km WNW. of Mt Carbine, Qld 16°30'S, 145°02'E	Berridale-Jindabyne Rd, Snowy Mts, N.S.W.	Calvert Hills Area, N.T. 17°45'S, 137°55'E	16 km ESE. of Pandanus Cr Mine, Calvert Hills area, N.T. 17°43'S, 137°57'E	Dalgety-Delegate Rd, N.S.W. 36°25'S, 148°52'E	Dead Horse Gap, Snowy Mts, N.S.W.
Reference	28	28	79, 49	66, 84	67, 11	28	28; 109	28	28
Analyst	C. R. Edmond A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	P. Kolbe	H. W. Sears A.M.D.L.	C. R. Edmond H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks									
SiO_2	74.20	73.00	72.30	71.90	71.02	71.00	70.60	70.50	70.40
Al_2O_3	13.10	13.40	14.20	13.90	13.87	13.70	14.20	13.60	13.90
Fe_2O_3	0.24	0.20	0.41	0.20	4.47	0.48	0.75	0.48	0.44
FeO	1.94	2.15	3.20	2.45		3.00	2.10	3.07	3.55
MgO	0.39	0.81	1.09	0.54	1.86	0.64	0.59	1.50	1.68
CaO	2.05	2.60	2.40	2.65	2.01	2.15	2.40	2.69	2.25
Na_2O	2.95	2.90	1.37	2.85	2.61	2.80	2.90	2.40	2.15
K_2O	4.10	3.95	3.25	3.95	4.19	4.50	5.20	3.95	3.40
H_2O^+	0.43	0.54	0.49	0.49	—	1.01	0.68	0.96	1.18
H_2O^-	0.07	0.07	0.09	0.10	—	0.11	0.08	0.17	0.03
CO_2	0.02	0.05	0.02	0.18	—	0.10	0.04	0.04	—
TiO_2	0.26	0.30	0.55	0.33	0.32	0.36	0.33	0.42	0.58
P_2O_5	0.08	0.09	0.11	0.10	—	0.10	0.09	0.13	0.14
MnO	0.03	0.04	0.21	0.04	—	0.04	0.03	0.06	0.04
Other Constituents									
	99.86	100.10	99.69	99.68	100.29	99.99	100.09	99.97	99.74
Age									

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

c. $\text{CaO} = 2\% - 3\%$

K ₂ O/Na ₂ O > 1.25		K ₂ O/Na ₂ O = 1.25 - 0.75							
Rock Name	10	11	12	13	14	15	16	17	18
	Granite <i>Forsayth Granite</i>	Granodiorite	Adamellite <i>Puckleigh Granite</i>	Granodiorite <i>Khancoban Granite</i>	Adamellite <i>Dumbano Granite</i>	Adamellite <i>Dumbano Granite</i>	Biotite granite <i>Khancoban Granite</i>	Adamellite <i>Khancoban Granite</i>	Adamellite <i>Banshee Adamellite</i>
Locality	8 km E. of Forsayth, Georgetown area, Qld	Nr Goulburn, N.S.W.	2 km SE. of Battle Camp Siding, Qld 07/261800/2054000 15°23'S, 144°49'E	Khancoban, N.S.W.	Gilberton Area, Qld	Gilberton Area, Qld	Murray - 1. power Station, Snowy Mts, N.S.W.	Khancoban Area, N.S.W. 7/605900/0530300 36°16'30"S, 148°07'E	Mt Werong, N.S.W.
Reference	28	28	28; 91	51; 53, 150	28	28	28	28	103, 51, 130
Analyst	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	B. B. Guy	H. W. Sears A.M.D.L.	C. R. Edmond H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	J. H. Pyle
Remarks									
SiO ₂	70.20	74.50	73.50	73.26	73.00	72.90	72.80	72.30	72.24
Al ₂ O ₃	14.20	12.80	13.90	12.79	14.60	14.70	13.90	14.40	14.22
Fe ₂ O ₃	0.13	0.37	0.21	0.47	0.55	0.54	0.53	0.40	2.02
FeO	3.35	2.36	1.89	1.90	1.05	0.97	2.07	2.00	0.41
MgO	1.03	0.43	0.41	0.62	0.46	0.50	0.51	0.50	0.63
CaO	2.20	2.55	2.46	2.28	2.05	2.05	2.40	3.00	2.85
Na ₂ O	2.75	3.15	3.90	3.77	4.10	4.05	3.20	3.10	3.10
K ₂ O	4.45	2.85	2.95	4.23	3.50	3.55	3.65	2.90	3.49
H ₂ O +	0.37	0.24	0.31	0.46	0.44	0.35	0.49	0.60	0.83
H ₂ O -	0.04	0.08	0.12	0.06	0.02	0.06	0.03	0.10	—
CO ₂	0.24	0.06	0.05	—	0.08	0.07	0.06	0.04	0.25
TiO ₂	0.48	0.45	0.23	0.24	0.15	0.14	0.24	0.21	0.08
P ₂ O ₅	0.22	0.08	0.08	0.03	0.03	0.04	0.05	0.09	0.07
MnO	0.04	0.03	0.03	0.08	0.04	0.04	0.06	0.04	0.04
Other Constituents									
Age	99.70	99.95	100.04	100.19	100.07	100.08	99.99	99.68	100.23

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

c. CaO = 2% - 3%

 $\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$

	19	20	21	22	23	24	25	26	27
Rock Name	'Quartz diorite'	Biotite granite <i>Forsayth Granite</i>	Hornblende biotite granite	Adamellite <i>Mareeba Granite</i>	Biotite granodiorite	Hornblende-biotite adamellite <i>Herbert River Granite</i>	Leucocratic hypersthene adamellite	Granophyre <i>Hart Dolerite</i>	Grano-diorite
Locality	Mt Morgan Mine, Qld	8 km E. of Georgetown Qld	E. side of Oldfield R., Ravens-thorpe Area, W.A.	Track to Mt Spurgeon, 26 km from Mulligan Hwy, Mossman Area, Qld 7/299800/2926100 16°27'S, 145°05'E	Rugby, nr Goulburn, N.S.W. 34°24'S, 149°02'E	16 km SW. of Chillagoe Qld 7/2102/08262	N. end of Ford I., Windmill Is., Ant. 66°24'S, 110°32'E	5 km E. of Mt Herbert, Lennard R. Area, W.A. 17°15'S, 125°16'E	Big Hill, Bendigo, Vic.
Reference	106	28	28	66, 84; 89	28	19, 125; 66, 81	79, 49	28	6, 92
Analyst	J. H. Rattigan	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	H. W. Sears A.M.D.L.	D. K. Rowley H. W. Sears A.M.D.L.	C. R. Edmond H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	A. Jorgensen A.M.D.L.	V. Biskupsky
Remarks									
SiO ₂	71.89	71.60	71.60	71.40	71.20	71.20	70.90	70.80	70.65
Al ₂ O ₃	13.21	15.90	13.90	13.90	13.50	14.10	14.10	12.20	12.54
Fe ₂ O ₃	2.32	0.20	1.31	0.32	0.27	0.86	1.00	4.00	0.52
FeO	1.69	1.12	1.47	2.70	3.11	1.76	1.44	0.90	3.59
MgO	0.71	0.45	0.01	0.65	1.51	0.73	0.72	0.19	0.85
CaO	2.28	2.85	2.70	2.50	2.56	2.25	2.70	2.20	2.11
Na ₂ O	3.41	3.55	3.65	3.00	2.35	3.35	3.70	3.00	3.01
K ₂ O	2.98	3.50	3.25	3.85	3.80	4.05	4.05	4.45	4.15
H ₂ O+	0.24	0.30	0.35	0.85	0.75	0.56	0.63	1.03	0.76
H ₂ O-	0.36	0.02	0.06	0.17	0.06	0.24	0.15	0.19	—
CO ₂	nd	0.11	0.08	0.08	0.06	0.16	0.17	0.10	—
TiO ₂	0.24	0.24	0.25	0.37	0.45	0.29	0.36	0.64	0.46
P ₂ O ₅	0.12	0.07	0.16	0.12	0.14	0.07	0.11	0.07	—
MnO	0.04	0.01	0.04	0.05	0.06	0.06	0.05	0.06	—
Other Constituents									
Age	99.49	99.92	99.83	99.96	99.82	99.70	100.08	99.83	98.64

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$ c. $\text{CaO} = 2\% - 3\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$

	28	29	30	31	32	33	34	35
Rock Name	Granite	Grano- diorite <i>Munderoo</i> Grano- diorite	Hornblende- biotite adamellite <i>Thunderbolt</i> Granite	Adamellite <i>Attunga Ck</i> Adamellite	Adamellite <i>Khancoban</i> Granite	Grano- diorite	Adamellite <i>Cobaw</i> Granite	Granite <i>Bega</i> Granite
Locality	Nelligen, near Batemans Bay, N.S.W.	1 km E. of Mannus, N.S.W. G.R. 2690- 175-8 (S.M.A. Grid)	8 km E. of Briaba, Qld 07/620700/ 2447700 20°24'S, 147°50'E	14 km N. of Attunga Cr, Bendemeer, N.S.W. G.R. Bendemeer 007740	Murray - 2 power station, Snowy Mts, N.S.W.	Goulburn Area, N.S.W. 34°47'S, 149°58½'E	26 km from Lancefield, on Tooborac Rd, Vic. 37°03'E	Frog Hollow, nr Bega, N.S.W.
Reference	28	51; 53, 152	28	26, 280	67, 11	28	28; 109	28
Analyst	H. W. Sears A.M.D.L.	B. B. Guy	H. W. Sears A.M.D.L.	B. W. Chappell	P. Kolbe	D. K. Rowley, H. W. Sears A.M.D.L.	M. R. Hanckel A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks					Core 2660 (262'80m)			
SiO_2	70.60	70.60	70.30	70.29	70.20	70.20	70.20	70.10
Al_2O_3	14.30	14.75	14.10	15.02	15.83	14.70	14.00	14.40
Fe_2O_3	0.78	0.59	1.03	0.52	3.04	1.29	0.47	0.91
FeO	2.43	2.13	1.92	1.97		1.27	3.56	2.55
MgO	0.93	0.82	1.03	0.63	0.75	0.93	0.76	1.17
CaO	2.32	2.95	2.60	2.03	2.87	2.34	2.47	2.85
Na_2O	3.90	3.21	3.55	3.83	2.97	3.80	3.34	3.35
K_2O	3.50	3.28	4.05	4.77	3.57	4.30	3.71	2.80
$\text{H}_2\text{O} +$	0.59	0.73	0.62	0.35	—	0.47	0.65	0.92
$\text{H}_2\text{O} -$	0.04	0.07	0.14	0.08	—	0.13	0.03	0.04
CO_2	0.10	—	0.08	0.04	—	0.04	0.04	—
TiO_2	0.08	0.30	0.49	0.24	0.26	0.41	0.52	0.58
P_2O_5	0.13	0.10	0.14	0.07	—	0.17	0.15	0.17
MnO	0.07	0.12	0.05	0.09	—	0.05	0.05	0.11
Other Constituents								
	99.77	99.65	100.10	100.13	99.49	100.01	99.95	99.95
Age								

TABLE A — GRANITIC ROCKS — $\text{SiO}_2 > 70\%$

c. CaO = 2% — 3%			d. CaO > 3%						
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$			$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$			$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$			
	36	37		1	2	3	4	5	6
Rock Name	Grano-diorite <i>Bodalla Granite</i>	Grano-diorite		Hornblende-biotite granite <i>Jerangle Granite</i>	Adamellite <i>Banshee Adamellite</i>	Grano-diorite <i>Bemboka Granite</i>	Grano-diorite <i>Kosciusko Granite</i>	Biotite tonalite	Porphyritic tonalite
Locality	Bodalla, N.S.W. 36°08'S, 150°4'E	Gazelle Pen., PNG 4°15'S, 154°13'E		4 km NE. of Jerangle Captains Flat Area, N.S.W. 35°52'S, 149°23'E	Mt Werong, N.S.W.	N. side of Bemboka Bridge, N.S.W.	Jindabyne-Thredbo Rd 2 km E. of Little Thredbo R., N.S.W.	21 km NW. of Urannah, Qld 20°51'S, 148°17'E	Gazelle Pen., PNG 4°14'S, 151°38'E
Reference	28	28		28	103, 5; 130	28	67, 11	28	28
Analyst	D. K. Rowley A.M.D.L.	A. Jorgensen A.M.D.L.		H. W. Sears A.M.D.L.	J. H. Pyle	D. K. Rowley A.M.D.L.	P. Kolbe	H. W. Sears A.M.D.L.	A. Jorgenson A.M.D.L.
Remarks									
SiO_2	71.80	70.80		71.10	70.80	70.60	71.08	70.60	70.00
Al_2O_3	14.40	14.00		13.80	14.68	13.70	14.73	14.40	14.70
Fe_2O_3	0.37	1.00		0.86	1.88	0.75	3.22	1.06	1.43
FeO	2.45	2.20		2.63	0.92	2.79		2.65	1.83
MgO	0.72	0.84		0.97	0.87	1.11	1.43	1.06	1.26
CaO	2.28	2.55		3.30	3.51	3.40	3.92	4.70	3.35
Na_2O	4.4	4.30		2.90	3.11	2.85	3.03	3.55	3.80
K_2O	2.35	2.30		3.30	3.14	3.00	2.05	0.77	2.25
$\text{H}_2\text{O} +$	0.68	0.68		0.69	0.91	1.08	—	0.52	0.43
$\text{H}_2\text{O} -$	0.1	0.32		0.09	—	0.11	—	0.09	0.13
CO_2	0.04	0.23		0.04	0.16	0.13	—	0.04	0.05
TiO_2	0.3	0.36		0.07	0.11	0.46	0.31	0.43	0.32
P_2O_5	0.1	0.06		0.08	0.07	0.10	—	0.11	0.08
MnO	0.07	0.05		0.05	0.06	0.07	—	0.05	0.05
Other Constituents									
	100.06	99.69		99.88	100.22	100.15	99.77	100.03	99.68
Age									

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$

a. $\text{CaO} < 1\%$							b. $\text{CaO} = 1\% - 2\%$	
$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$							$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$	
Rock Name	1	2	3	4	5	6	1	2
	Gneissic granite <i>Cooma Granite Gneiss</i>	Biotite adamellite <i>Geehi Granite</i>	Gneissic granite <i>Boomerang Ck Gneissic Granite</i>	Gneissic granite <i>Boomerang Ck Gneissic Granite</i>	Biotite granodiorite <i>Kalkadoon Granite</i>	Granite <i>Esméralda Granite</i>	Biotite adamellite <i>Corryong Granite</i>	Biotite granite <i>Rum Jungle Complex</i>
Locality	3 km SW. of Cooma, N.S.W.	Tumbar-umba-Geehi District, N.S.W. 2846-1396 (S.M.A. Grid)	Tumut - 1 power station, N.S.W.	Tumut - 1 power station, N.S.W.	Glenroy homestead, Cloncurry, Qld	Croydon Area, Qld	Tumbar-umba-Geehi District, N.S.W. 276.8-165.9 (S.M.A. Grid)	NW. of Whites Prospect, Rum Jungle N.T. 12°58'S, 130°59'E
Reference	67, 11	51; 52, 12	67, 11	67, 11	28	28	52, 12	137, 294
Analyst	P. Kolbe	B. B. Guy	P. Kolbe	P. Kolbe	H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.	B. B. Guy	C. R. Edmond A.M.D.L.
Remarks								
SiO_2	69.83	69.40	68.76	68.57	67.60	65.70	69.70	69.60
Al_2O_3	14.77	13.58	14.55	14.48	15.50	12.10	13.30	13.80
Fe_2O_3	3.99	0.75	5.92	6.15	1.10	7.89	0.27	1.89
FeO		3.87			2.40	0.50	3.60	1.57
MgO	1.87	2.04	2.35	2.82	2.45	0.32	1.66	1.13
CaO	0.74	0.92	0.91	0.87	0.33	0.22	1.92	1.73
Na_2O	1.34	2.01	1.51	1.52	2.35	0.20	2.51	3.35
K_2O	4.01	5.14	4.45	4.23	5.70	5.35	4.25	4.90
$\text{H}_2\text{O} +$	—	1.64	—	—	1.60	2.48	0.94	0.63
$\text{H}_2\text{O} -$	—	0.04	—	—	0.04	0.38	0.09	0.13
CO_2	—	—	—	—	0.19	0.04	—	0.20
TiO_2	0.50	0.49	0.48	0.48	0.48	0.48	1.15	0.50
P_2O_5	—	0.04	—	—	0.01	0.19	0.15	0.24
MnO	—	0.11	—	—	0.02	0.01	0.05	0.04
Other Constituents						Etc. = 4.31		
	97.14	100.03	98.94	99.12	99.80	100.20	99.59	99.71
Age								

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	3	4	5	6	7	8	9	10	11
Rock Name	Muscovite biotite granite	Hypers- thene-biotite cordierite adamellite <i>Bradshaw Granite</i>	Hornblende- biotite adamellite <i>Prices Springs Granite</i>	Cordierite- garnet adamellite <i>Bradshaw Granite</i>	Biotite granite <i>Rum Jungle Complex</i>	Gneissic granite <i>Boomerang Cr Gneissic Granite</i>	Muscovite- biotite granodiorite	Biotite adamellite <i>Rum Jungle Complex</i>	Granodiorite <i>Kosciusko Granite</i>
Locality	Coota- mundra, N.S.W. 34°51'S, 147°27'E,	18 km NW. of Mt Alexander, N.T. 12°42'S, 136°31'E	Burrundie- Grove Hill track, N.T. 13°30'S, 131°37'E	Drimmie Hd., Melville Bay, N.T. 12°15'S, 136°42'E	Rum Jungle Area, N.T. 13°00'S, 131°01'E	Tumut - 2 power station, access tunnel, N.S.W.	Nr Buchan on Delegate R., Vic. 630424	N. end of Complex, Rum Jungle N.T. 12°54'S, 131°06'E	Pipers Cr, on I. Bend Guthega Rd N.S.W.
Reference	28	28	137, 298; 109	28	137, 294	67, 13	28	137, 294	67, 11
Analyst	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	A.M.D.L.	L. Castanelli A.M.D.L.	C. R. Edmond A.M.D.L.	P. Kolbe	D. K. Rowley A.M.D.L.	C. R. Edmond A.M.D.L.	P. Kolbe
Remarks									
SiO_2	69.40	69.30	69.30	69.00	69.00	68.81	68.70	68.50	68.48
Al_2O_3	14.90	14.30	14.30	14.10	13.90	14.34	14.20	14.50	14.26
Fe_2O_3	0.61	0.23	0.55	1.35	0.74	} 4.99	0.37	1.22	} 5.42
FeO	2.95	3.80	2.65	3.30	2.35		4.18	2.10	
MgO	1.72	1.35	0.80	1.43	1.48	2.44	2.19	0.92	2.32
CaO	1.80	1.37	1.95	1.15	1.30	1.30	1.56	1.78	1.99
Na_2O	2.20	2.25	2.95	2.15	2.95	1.78	1.95	3.75	2.16
K_2O	4.20	4.70	5.45	5.20	5.85	4.07	3.80	5.05	3.53
$\text{H}_2\text{O} +$	0.92	1.47	0.81	0.89	1.12	—	1.84	0.72	—
$\text{H}_2\text{O} -$	0.04	0.02	0.08	0.18	0.11	—	0.17	0.06	—
CO_2	0.09	0.22	0.05	1.00	0.31	—	0.17	0.25	—
TiO_2	0.49	0.55	0.41	0.23	0.43	0.44	0.60	0.62	0.47
P_2O_5	0.29	0.11	0.14	0.23	0.24	—	0.16	0.20	—
MnO	0.05	0.03	0.06	0.08	0.05	—	0.08	0.06	—
Other Constituents									
	99.66	99.70	99.50	100.29	99.83	98.17	99.97	99.73	98.63
Age									

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$

[illegible]

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ c. $\text{CaO} = 2\% - 3\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	5	6	7	8	9	10	11	12	13
Rock Name	Granite <i>Kosciusko Granite</i>	Granodiorite <i>Kosciusko Granite</i>	Granodiorite <i>Happy Valley Granite</i>	Biotite adamellite	Biotite- muscovite- cordierite adamellite	Adamellite <i>Bendemeer Adamellite</i>	Biotite adamellite	Granodiorite <i>Happy Valley Granite</i>	Granodiorite <i>Happy Valley Granite</i>
Locality	Perisher Quarry, Snowy Mts, N.S.W.	Eucumbene- I. Bend tunnel, Snowy Mts, N.S.W.	Tumut - 1 power station, Snowy Mts, N.S.W.	Nella I., Ant.	6 km S. of Girral, Forbes District, N.S.W.	New England Hwy, S. of Bendemeer, N.S.W. Bendemeer 152750	Hudson I, Davis I., Vincennes Bay, Ant.	Tumut - 2 power station access tunnel, Snowy Mts, N.S.W.	Tumut - 1 power station, Snowy Mts, N.S.W.
Reference	28	67, 11	67, 11	79, 49	28	26, 280	79, 49	67, 11	67, 11
Analyst	D.K.Rowley H. W. Sears A.M.D.L.	P. Kolbe	P. Kolbe	H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.	B. W. Chappell	C. R. Edmond A.M.D.L.	P. Kolbe	P. Kolbe
Remarks		21 km from Eucumbene end							DHH 5385 at 91' - 94' (28 - 29 m)
SiO_2	69.00	68.94	68.94	68.90	68.90	68.84	68.80	68.74	68.68
Al_2O_3	14.30	13.89	14.16	14.20	14.60	14.41	13.50	14.28	14.10
Fe_2O_3	0.53	4.59	4.72	0.50	0.23	0.84	1.01	4.44	4.73
FeO	3.58			3.00	3.72	1.87	3.65		
MgO	1.88	2.35	1.86	1.26	2.19	1.71	0.82	2.27	2.24
CaO	2.61	2.22	2.52	2.45	2.58	2.92	2.90	2.17	2.32
Na_2O	2.21	2.26	2.56	3.15	2.25	3.14	2.55	2.52	2.41
K_2O	3.48	3.59	3.37	4.35	3.55	4.76	4.70	3.85	3.04
$\text{H}_2\text{O} +$	1.23	—	—	0.95	0.95	0.74	0.63	—	—
$\text{H}_2\text{O} -$	0.10	—	—	0.09	0.03	0.18	0.02	—	—
CO_2	0.11	—	—	0.12	0.05	0.04	0.04	—	—
TiO_2	0.58	0.49	0.47	0.53	0.58	0.42	0.76	0.48	0.60
P_2O_5	0.14	—	—	0.17	0.16	0.19	0.21	—	—
MnO	0.07	—	—	0.05	0.05	0.07	0.08	—	—
Other Constituents									
Age	98.82	98.33	99.60	99.72	99.84	100.29	99.67	98.75	98.12

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ c. $\text{CaO} = 2\% - 3\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	14	15	16	17	18	19	20	21	22
Rock Name	Adamellite <i>Gingera Granite</i>	Granite <i>Gingera Granite</i>	Fayalite adamellite <i>Caledon Granite</i>	Porphyritic granodiorite <i>Mt Dis- appointment Granodiorite</i>	Biotite adamellite	Granodiorite <i>Kosciusko Granite</i>	Muscovite- biotite granodiorite <i>Mt Stewart Granite</i>	Granodiorite <i>Berridale Granite</i>	Micro- granodiorite
Locality	Kiandra Rd, 3 km NW. of Adamin- aby, N.S.W.	Adaminaby- Yaouk Rd, Snowy Mts, N.S.W.	Caledon Bay area, N.T.	Mt Dis- appointment Kinglake District, Vic.	Island, 2 km E. of Thompson I., Balaena Is., Ant. 66°00'S., 111°13'E.	Eucumbene- I. Bend tunnel, Snowy Mts, N.S.W.	Bairnsdale Area, Vic.	Middling- bank Church, nr Berridale, N.S.W.	2 km NW. of Tent Hill, N.S.W.
Reference	67, 11	28	28	150, 318	79, 49	67, 11	28	67, 11	70
Analyst	P. Kolbe	H. W. Sears A.M.D.L.	L. Castanelli A.M.D.L.	V. Biskupsky	C. R. Edmond A.M.D.L.	P. Kolbe	D. K. Rowley A.M.D.L.	P. Kolbe	V. G. Anderson
Remarks				Inner Phase		21 km from Eucumbene end			
SiO_2	68.57	68.30	67.90	67.80	67.70	67.18	67.10	66.70	65.96
Al_2O_3	14.35	14.70	14.60	15.63	13.70	14.20	14.50	14.75	15.32
Fe_2O_3	5.62	0.68	1.88	0.48	2.50	5.67	0.44	6.43	0.24
FeO		4.15	3.75	3.56	2.80		4.88		3.35
MgO	2.80	2.15	1.82	0.23	0.83	2.50	2.49	3.40	1.28
CaO	2.81	2.65	2.40	2.14	2.55	2.27	2.48	2.99	2.54
Na_2O	2.32	2.12	0.68	3.80	2.55	2.25	1.95	2.21	2.52
K_2O	3.19	3.20	4.15	5.18	5.15	3.41	3.45	3.64	4.48
$\text{H}_2\text{O} +$	—	1.04	1.14	0.54	0.38	—	1.34	—	3.38
$\text{H}_2\text{O} -$	—	0.06	0.43	0.09	0.08	—	0.10	—	0.40
CO_2	—	0.10	abs	—	0.05	—	0.04	—	—
TiO_2	0.51	0.65	0.80	0.53	0.90	0.52	0.67	0.48	0.58
P_2O_5	—	0.02	0.04	—	0.46	—	0.16	—	—
MnO	—	0.07	0.07	—	0.15	—	0.08	—	0.30
Other Constituents									
Age	100.17	99.89	99.66	99.98	99.80	98.00	99.68	100.60	100.35

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ c. $\text{CaO} = 2\% - 3\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$			$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$						
	23	24	25	26	27	28	29	30	31
Rock Name	Porphyritic granodiorite <i>Shoebridge Granite</i>	Monzonite	Granite	Adamellite porphyrite	Granite	Biotite granodiorite <i>Mareeba Granite</i>	Adamellite <i>Stanthorpe Adamellite</i>	Adamellite <i>Attunga Ck Adamellite</i>	Quartz monzonite porphyry
Locality	160 km S. of Darwin, N.T.	Gazelle Pen., PNG	Armidale Area, N.S.W.	19 km NW. of Uralla, N.S.W.	Armidale Area, Uralla- Yarrowyck Rd, N.S.W.	14 km WSW. of Curragh- more Home- stead, Mossman Area, Qld 16°34'S., 144°50'E.	Wilsons Downfall, N.S.W.	Summit Mt Blanche Trig., N.S.W. Attunga 993726	Koolanooka Hills, W.A. 4854N., 2067E.
Reference	110, 231	28	28	11; 105	28	19; 125; 66, 85	101, 164; 100	26, 280	3
Analyst	J. M. Rhodes	A. Jorgensen A.M.D.L.	S. Baker	J. E. Ransley	D. K. Rowley A.M.D.L.	H. W. Sears A.M.D.L.	Avery & Anderson	B. W. Chappell	P. A. Arriens
Remarks									
SiO_2	65.21	65.00	69.74	69.71	69.40	69.20	68.98	68.77	68.57
Al_2O_3	15.01	15.50	14.39	14.62	14.90	14.80	15.36	15.42	14.19
Fe_2O_3	4.03	2.10	1.00	0.68	0.48	0.44	0.36	0.50	0.53
FeO		2.10	2.70	2.30	2.55	2.85	2.60	2.40	4.17
MgO	2.16	1.18	1.82	1.37	1.22	1.69	1.00	0.84	0.99
CaO	2.08	2.80	2.12	2.47	2.95	2.95	2.68	2.49	2.67
Na_2O	3.45	3.85	3.30	3.70	3.50	2.90	3.74	3.86	3.39
K_2O	4.99	5.10	3.41	4.10	3.55	3.40	3.76	4.31	3.71
$\text{H}_2\text{O} +$	1.31	1.08	0.43	0.10	0.65	0.87	0.31	0.45	0.67
$\text{H}_2\text{O} -$	0.09	0.44	0.04	0.20	0.04	0.19	0.10	0.17	0.02
CO_2	0.36	< 0.05	—	nd	—	0.08	—	0.16	0.34
TiO_2	0.46	0.55	0.30	0.22	0.52	0.46	0.60	0.33	0.71
P_2O_5	0.22	0.33	0.10	0.07	0.12	0.17	0.25	0.12	0.15
MnO	0.06	0.11	0.10	0.06	0.06	0.06	0.06	0.09	0.06
Other Constituents								BaO + SrO = 0.19	
	99.43	100.19	99.50	99.60	99.94	100.10	99.80	100.10	100.11
Age									

TABLE B — GRANITIC ROCKS — SiO₂ < 70%

c. CaO = 2% - 3%							d. CaO = 3% - 4%	
K ₂ O/Na ₂ O = 1.25 - 0.75						K ₂ O/Na ₂ O < 0.75	K ₂ O/Na ₂ O > 1.25	
Rock Name	32	33	34	35	36	37	1	2
Quartz monzonite porphyry		Porphyritic adamellite Undercliff Falls Porphyritic Adamellite	Granodiorite <i>Happy Valley Granite</i>	'Granite'	Granodiorite	Hornblende-biotite granite <i>Wonga Granite</i>	Granodiorite <i>Happy Jacks Granite</i>	Granite <i>Berridale Granite</i>
Locality	Koolanooka Hills, W.A. 4854N., 2067E.	Maryland R., 8 km NW. of Liston, N.S.W.	Tumut - 1 power station, Snowy Mts, N.S.W.	Wilkatanna, N. of Port Augusta, S.A. 32°14'S., 137°56½'E.	Tunnel No. 3, Kiewa, Bogong, Vic.	16 km from Duchess, Qld	3 km E of Stoney Plain Cr, Snowy Mts, N.S.W.	16 km E. of Cooma, N.S.W.
Reference	3	100, 198	67, 11	28	5, 61; 7, 369	28	67, 11	28
Analyst	P. A. Arriens	Avery & Anderson	P. Kolbe	A. McClure	V. Biskupsky	S. Baker	P. Kolbe	D.K.Rowley H. W. Sears A.M.D.L.
Remarks		Marginal type	DHH 5385 177' - 180' (54 - 55 m)			*Loss on Ignition		
SiO ₂	68.35	67.83	67.35	65.59	65.50	69.68	69.21	68.80
Al ₂ O ₃	13.64	16.81	14.77	16.14	14.75	15.40	13.69	13.40
Fe ₂ O ₃	0.59	0.67	} 5.04	2.08	3.13	0.71	} 4.63	0.49
FeO	4.48	1.54		1.45	2.20	1.37		3.70
MgO	0.91	0.68	2.17	0.97	1.06	0.83	2.65	3.13
CaO	2.95	2.24	2.83	2.06	2.28	2.38	3.08	3.20
Na ₂ O	3.24	4.19	2.80	5.06	3.80	5.09	2.99	1.95
K ₂ O	3.44	5.04	2.92	5.06	3.12	2.40	4.14	3.20
H ₂ O +	0.72	0.18	—	0.74	0.83	1.10*	—	1.13
H ₂ O -	0.01	0.24	—	0.20	0.12	0.08	—	0.11
CO ₂	0.37	nd	—	—	—	—	—	0.13
TiO ₂	0.79	0.45	0.58	0.21	0.34	0.12	0.36	0.46
P ₂ O ₅	0.20	0.23	—	0.28	0.13	0.10	—	0.11
MnO	0.06	0.14	—	0.10	0.07	0.15	—	0.07
Other Constituents		BaO = 0.15						
Age	99.75	100.39	98.46	99.90	99.33	99.41	100.75	99.88

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ d. $\text{CaO} = 3\% - 4\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$							$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$		
Rock Name	3	4	5	6	7	8	9	10	11
	Adamellite <i>Moonbi Adamellite</i>	Adamellite <i>Moonbi Adamellite</i>	Hypers- thene gran- odiorite <i>Mabel Downs Granodiorite</i>	Biotite adamellite	Adamellite <i>Cullen Granite</i>	Granodiorite	Granodiorite <i>Island Bend Granite</i>	Granodiorite <i>Berridale Granite</i>	Biotite- hornblende granodiorite
Locality	New England Hwy on Second Moonbi Ra., N.S.W. Bendemeer 115704	Moonbi Lookout, New England, N.S.W. Bendemeer 104664	8 km SW. of Lissadell Hill, W.A. $16^\circ 48' 30''$, $128^\circ 23' 45''$	Thompson I., Balaena Is, Ant. $66^\circ 00' \text{S}$, $110^\circ 07' \text{E}$.	Edith R. Rum Jungle Area, N.T.	McKay Cr, Kiewa Area, Vic.	8 km S. of I. Bend township, N.S.W.	11 km N. of Berridale on Adaminaby Rd, N.S.W.	Upper Esk-Upper Blessington Rd, Tas.
Reference	26, 280	26, 280	42; 43, 55	79, 49	137, 297	7, 369	67, 11	67, 11	28
Analyst	B. W. Chappell	B. W. Chappell	L. W. Castanelli A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	V. Biskupsky	P. Kolbe	P. Kolbe	C. R. Edmond H. W. Sears A.M.D.L.
Remarks									
SiO_2	68.62	66.64	66.60	65.10	65.00	65.00	69.54	68.85	68.80
Al_2O_3	14.45	14.71	15.20	13.40	14.70	19.33	14.94	14.55	14.70
Fe_2O_3	0.73	1.01	1.29	3.05	0.96	1.83	3.15	5.27	0.46
FeO	2.12	2.51	3.80	3.05	4.15	3.08			3.25
MgO	1.74	1.83	1.96	1.26	1.25	1.60	1.66	2.32	1.44
CaO	3.02	3.60	3.80	3.45	3.00	3.28	3.05	3.19	3.15
Na_2O	3.00	3.08	2.43	2.70	3.00	1.35	3.29	2.37	3.75
K_2O	4.81	4.58	3.18	4.50	4.95	2.45	3.04	3.70	3.00
$\text{H}_2\text{O} +$	0.53	0.60	0.64	0.86	1.25	0.90	—	—	0.62
$\text{H}_2\text{O} -$	0.08	0.14	0.20	0.14	0.16	0.12	—	—	0.06
CO_2	0.06	0.14	0.05	0.19	0.22	—	—	—	0.08
TiO_2	0.44	0.54	0.58	1.08	0.77	0.04	0.21	0.38	0.56
P_2O_5	0.18	0.25	0.13	0.65	0.28	0.04	—	—	0.17
MnO	0.08	0.09	0.06	0.13	0.06	0.08	—	—	0.06
Other Constituents	$\text{BaO} + \text{SrO} = 0.18$	$\text{BaO} + \text{SO} = 0.18$							
	100.04	99.90	99.92	99.56	99.80	100.16	98.88	100.63	100.10
Age									

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ d. $\text{CaO} = 3\% - 4\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$									
	12	13	14	15	16	17	18	19	20
Rock Name	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Porphyritic adamellite <i>Undercliff Falls Porphyritic Adamellite</i>	Adamellite <i>Cobaw Granite</i>	Porphyritic adamellite <i>Undercliff Falls Porphyritic Adamellite</i>	Granite porphyry	Granodiorite
Locality	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Maryland R., 8 km NW. of Liston, N.S.W.	Tooborac Rd, 8 km from Lancefield, Vic.	Undercliff Falls, N.S.W.	Koolanooka Hills, W.A.	Hartley, N.S.W.
Reference	110, 233	110, 233	110, 233	110, 233	100, 198	28; 109	100, 198	3	110, 233
Analyst	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	Avery & Anderson	M. R. Hanckel A.M.D.L.	Avery & Anderson	P. A. Arriens	J. M. Rhodes
Remarks					Marginal Type				
SiO_2	68.33	68.27	68.19	68.13	68.00	67.80	67.78	67.75	67.48
Al_2O_3	14.55	14.55	14.40	14.52	14.28	14.80	15.00	13.36	14.79
Fe_2O_3	3.51	3.35	3.54	3.61	1.21	0.30	1.45	1.66	4.10
FeO	—	—	—	—	2.30	3.42	2.44	4.32	—
MgO	1.34	1.24	1.33	1.41	1.85	1.49	1.87	1.15	1.54
CaO	3.08	3.16	3.03	3.16	3.07	3.34	3.15	3.37	3.69
Na_2O	3.43	3.39	3.21	3.35	3.86	3.45	3.64	2.77	3.35
K_2O	3.60	3.91	3.87	3.59	3.58	3.66	3.12	3.03	3.52
$\text{H}_2\text{O} +$	0.63	0.54	0.73	0.72	0.34	0.96	0.33	0.84	0.65
$\text{H}_2\text{O} -$	0.08	0.08	0.09	0.09	ab	0.05	0.12	0.03	0.10
CO_2	0.08	0.11	0.25	0.11	nd	0.12	nd	0.29	0.13
TiO_2	0.55	0.55	0.57	0.57	0.53	0.61	0.62	1.03	0.63
P_2O_5	0.17	0.16	0.17	0.16	0.62	0.18	0.36	0.31	0.17
MnO	0.06	0.05	0.06	0.08	0.09	0.05	0.08	0.13	0.07
Other Constituents									
Age	99.41	99.36	99.44	99.50	99.73	100.20	99.96	100.04	100.22

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$ d. $\text{CaO} = 3\% - 4\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$

	21	22	23	24	25	26	27	28	29
Rock Name	Quartz monzonite porphyry	Granodiorite <i>Happy Valley Granodiorite</i>	Granite	Granodiorite	Granodiorite	Granodiorite	Granodiorite <i>Mt Disappointment Granodiorite</i>	Granodiorite	Micro-graphic granodiorite
Locality	Koolanooka Hills, W.A.	Tumut - 1 power station, Snowy Mts, N.S.W.	Tumut - 2 tunnel, Snowy Mts, N.S.W.	3 km E. of Bombala, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Mt Disappointment, Kinglake District, Vic.	Hartley, N.S.W.	Tent Hill, N.S.W.
Reference	3	28	28	28	110, 233	110, 233	150, 318	110, 233	70
Analyst	P. A. Arriens	Not stated	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	J. M. Rhodes	J. M. Rhodes	V. Biskupsky	J. M. Rhodes	V. G. Anderson
Remarks							Outer Phase		
SiO_2	67.39	67.11	67.10	67.10	67.03	66.96	66.90	66.87	66.85
Al_2O_3	13.37	15.04	14.90	15.40	14.77	14.88	15.75	14.85	15.73
Fe_2O_3	1.85	0.12	0.64	1.20	4.15	4.12	0.75	4.21	0.47
FeO	4.12	4.46	4.39	2.79	—	—	3.95	nd	3.16
MgO	1.03	1.82	2.21	1.68	1.65	1.48	0.38	1.69	1.38
CaO	3.59	3.20	3.35	3.80	3.37	3.61	3.30	3.65	3.70
Na_2O	3.10	2.94	2.50	3.30	3.22	3.46	3.88	3.49	3.44
K_2O	3.50	3.04	2.60	2.80	3.68	3.51	3.80	3.16	3.92
$\text{H}_2\text{O} +$	0.91	—	1.00	0.91	0.71	0.56	0.43	0.69	0.37
$\text{H}_2\text{O} -$	abs	1.45	0.07	0.12	0.11	0.08	0.06	0.08	0.33
CO_2	—	0.16	0.07	0.05	0.18	0.16	—	0.23	—
TiO_2	0.98	0.57	0.70	0.41	0.65	0.66	0.66	0.67	0.46
P_2O_5	0.24	0.21	0.13	0.13	0.20	0.19	—	0.20	—
MnO	0.07	0.03	0.07	0.06	0.07	0.07	—	0.08	0.35
Other Constituents		$\text{Cr}_2\text{O}_3 = 0.02$							
	100.15	100.20	99.73	99.75	99.79	99.74	99.86	99.87	100.58
Age									

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$

d. $\text{CaO} = 3\% - 4\%$

K ₂ O/Na ₂ O = 1.25 - 0.75							K ₂ O/Na ₂ O < 0.75		
	30	31	32	33	34	35	36	37	38
Rock Name	Granodiorite	Granodiorite <i>Happy Valley Granite</i>	Granodiorite <i>Yarrowyck Granodiorite</i>	Porphyritic adamellite <i>Undercliff Falls</i> Porphyritic Adamellite	Adamellite porphyrite <i>Dundee Adamellite Porphyrite</i>	Porphyritic adamellite <i>Bungulla Adamellite</i>	Granodiorite	Micro-tonalite	Micro-granite <i>Prestwood Micro-granite</i>
Locality	Hartley, N.S.W.	Tumut - 1 power station Snowy Mts, N.S.W.	20 km NW. of Uralla, N.S.W.	Liston - Rivertree Rd, W of Undercliff Falls, N.S.W.	Emmaville, N.S.W.	23 km. E. of Tenterfield, N.S.W. 271102 Drake 1-mile Sheet	Gazelle Pen., PNG. 4°19'S., 151°48'E.	Paiawa R., Bowutu Mts, PNG 70°33'5"S, 147°11'E.	31 km. W. of Georgetown, Qld 18°17'S, 163°15'E.
Reference	110, 233	67, 11	105, 11	100, 198; 101, 164	70	115	28	28	19, 121
Analyst	J. M. Rhodes	P. Kolbe	J. E. Ransley	Y. Watanabe	V. G. Anderson	S. E. Shaw	A. Jorgensen A.M.D.L.	A. Jorgensen, L. Castanelli A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks		101 m from entrance of low access tunnel							
SiO ₂	66.84	66.58	66.09	65.86	65.80	65.18	69.50	69.30	68.70
Al ₂ O ₃	14.83	15.00	16.70	15.54	15.07	16.30	14.10	15.00	15.50
Fe ₂ O ₃	4.13	} 5.66	0.31	1.95	2.07	0.43	1.68	0.05	0.54
FeO	nd		3.10	2.22	3.98	3.35	2.20	1.90	1.64
MgO	1.61	2.64	1.34	1.98	1.89	1.68	0.96	2.65	1.12
CaO	3.33	3.16	3.46	3.69	3.45	3.74	3.25	3.60	3.15
Na ₂ O	3.23	2.76	3.75	3.42	2.84	3.89	4.25	5.65	4.90
K ₂ O	3.78	2.89	3.70	4.14	3.90	3.51	2.25	0.16	2.90
H ₂ O +	0.54	—	0.59	0.28	0.06	0.68	0.85	0.97	0.89
H ₂ O -	0.13	—	0.11	0.11	0.10	0.05	0.18	0.43	0.07
CO ₂	0.29	—	nd	—	—	—	< 0.05	0.04	0.24
TiO ₂	0.65	0.56	0.30	0.65	0.56	0.20	0.48	0.13	0.34
P ₂ O ₅	0.19	—	0.02	0.27	0.26	0.07	0.09	0.07	0.09
MnO	0.07	—	0.06	0.09	0.10	—	0.10	0.04	0.02
Other Constituents				BaO = 0.04					
Age	99.62	99.25	99.53	100.24	100.06	99.73	99.94	99.99	99.90

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$

d. CaO = 3% - 4%			e. CaO = 4% - 5%						
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$			$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$						
	39	40		1	2	3	4	5	6
Rock Name	Tonalite	Granodiorite <i>Grey Mare Gneissic Granite</i>		Granodiorite <i>Almaden Granite</i>	Tonalite <i>Trevethan Granite</i>	Quartz monzonite	Adamellite	Granodiorite <i>Trevethan Granite</i>	Quartz diorite <i>Retreat Granite</i>
Locality	Gazelle Pen., PNG.	Geehi-Murray-1 pressure tunnel, Snowy Mts, N.S.W.		Mossman Area, Qld 16°50'S., 144°10'E.	Cooktown Area, Qld 15°37'S., 145°11'E.	Dalgety Rd, 9 km from Bombala, N.S.W. 36°55'S., 149°09'E.	42 km. SW. of Bowen Township, Qld Bowen 4-mile Sheet 07/628400/2455900 20°20'S., 148°00'E.	Cooktown Area, Qld 15°41'N., 145°11'E.	27 km N. of Rubyvale, Qld 23°18'S., 147°40'E.
Reference	28	67, 11		155; 19, 125; 66, 85	91; 66, 85	28	28	91; 66, 85	28
Analyst	A. Jorgensen A.M.D.L.	P. Kolbe		H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.	C. R. Edmond, H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.
Remarks									
SiO_2	68.10	66.61		67.50	66.60	66.40	66.00	65.90	65.50
Al_2O_3	14.90	15.84		15.30	14.90	14.50	15.60	14.60	15.50
Fe_2O_3	1.68	4.00		1.50	0.35	1.64	1.70	0.50	1.54
FeO	2.10			2.40	3.75	3.25	2.65	3.95	2.91
MgO	1.34	1.86		1.75	2.45	2.30	1.58	2.95	1.83
CaO	3.75	3.47		4.05	4.65	4.80	4.00	4.60	4.58
Na_2O	3.95	2.59		3.10	3.10	2.60	3.75	3.00	3.15
K_2O	2.10	1.93		3.20	2.70	2.55	3.10	2.70	3.50
$\text{H}_2\text{O} +$	0.89	—		0.14	0.59	0.84	0.35	0.65	0.36
$\text{H}_2\text{O} -$	0.30	—		0.87	0.08	0.10	0.09	0.09	0.07
CO_2	< 0.05	—		0.03	0.08	0.05	0.07	0.04	0.06
TiO_2	0.41	0.60		0.05	0.59	0.49	0.72	0.63	0.50
P_2O_5	0.08	—		0.09	0.18	0.12	0.26	0.18	0.15
MnO	0.08	—		0.04	0.07	0.07	0.04	0.05	0.08
Other Constituents									
Age	99.73	96.90		100.02	100.09	99.71	99.91	99.84	99.73

TABLE B — GRANITIC ROCKS — $\text{SiO}_2 < 70\%$

e. $\text{CaO} = 4\% - 5\%$

K ₂ O/Na ₂ O = 1.25 - 0.75				K ₂ O/Na ₂ O < 0.75					
	7	8	9	10	11	12	13	14	15
Rock Name	Granodiorite <i>Prison Farm Granodiorite</i>	Granodiorite <i>Almaden Granite</i>	Adamellite <i>Retreat Granite</i>	Granodiorite <i>Urannah Complex</i>	Granodiorite <i>Herbert River Granite</i>	Granodiorite	Granodiorite <i>Moruya Granite</i>	Tonalite <i>Mt Barker Granodiorite</i>	Granodiorite <i>Berridale Granite</i>
Locality	Mannus 13 km SW. of Tumburumba, N.S.W. 2713-1731	14 km NNW. of Rookwood Homestead, Mossman Area, Qld 16°56'S., 144°19'E.	18 km N. of Rubyvale, Qld	Mt Coolon Area, Qld 21°7'S., 148°30½'E.	Track to Ord Siding, Qld 17°37'S., 144°57'E.	Tamworth District, N.S.W. H56/14/1	Moruya Quarry, N.S.W.	Mt Coolon Area, Qld 21°9'45"S., 148°22'30"E.	Adaminaby Berridale Rd, N.S.W.
Reference	51; 53, 152	66, 81	28	28	19, 125; 66, 81	28	28	28	67, 11
Analyst	B. B. Guy	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	C. R. Edmond A.M.D.L.	H. W. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	C. R. Edmond A.M.D.L.	P. Kolbe
Remarks									
SiO ₂	65.49	65.30	65.20	68.70	68.30	67.80	67.70	67.60	67.10
Al ₂ O ₃	14.69	15.40	15.60	15.30	15.20	15.70	15.50	15.80	15.36
Fe ₂ O ₃	1.37	0.57	1.57	1.36	1.07	1.26	0.77	1.55	} 5.25
FeO	4.13	3.65	2.95	1.68	2.30	2.18	2.70	1.75	
MgO	1.92	2.07	2.00	1.42	1.43	1.65	1.61	1.59	
CaO	4.79	4.75	4.32	4.15	4.00	4.20	4.05	4.10	4.10
Na ₂ O	3.07	2.80	3.25	3.85	3.85	4.15	3.70	3.90	3.44
K ₂ O	2.79	3.15	3.15	2.20	2.20	1.98	2.10	2.15	2.24
H ₂ O +	0.87	1.20	0.88	0.65	1.00	0.32	0.88	0.81	—
H ₂ O -	0.04	0.19	0.09	0.13	0.26	0.05	0.04	0.14	—
CO ₂	—	0.04	0.10	0.11	0.04	0.02	—	0.10	—
TiO ₂	0.59	0.50	0.40	0.31	0.38	0.48	0.51	0.37	0.40
P ₂ O ₅	0.10	0.08	0.16	0.15	0.11	0.14	0.15	0.18	—
MnO	0.13	0.02	0.08	0.05	0.03	0.06	0.05	0.06	—
Other Constituents									
Age	99.98	99.72	99.75	100.06	100.17	99.99	99.76	100.10	100.03

TABLE B — GRANITIC ROCKS — SiO₂ < 70%

e. CaO = 4% — 5%		f. CaO > 5%	
K ₂ O/Na ₂ O < 0.75		K ₂ O/Na ₂ O < 0.75	
	16		
	1		2
Rock Name	Granodiorite <i>Mt Barker</i> <i>Granodiorite</i>	Granodiorite <i>Dido</i> <i>Granodiorite</i>	Tonalite
Locality	Mt Coolon Area, Qld 21°5'30"S., 148°27'E.	Clarke R. Area, Qld	Nr Jema village, PNG 8°3'S., 147°27'E.
Reference	28	28	28
Analyst	C. R. Edmond A.M.D.L.	D. K. Rowley A.M.D.L.	A. Jorgensen A.M.D.L.
Remarks			
SiO ₂	66.60	66.40	65.20
Al ₂ O ₃	16.30	17.00	14.50
Fe ₂ O ₃	1.49	1.44	2.35
FeO	1.79	2.03	2.40
MgO	1.68	1.38	3.00
CaO	4.75	5.30	5.10
Na ₂ O	4.30	4.05	4.20
K ₂ O	1.59	1.25	1.11
H ₂ O +	0.67	0.67	1.25
H ₂ O —	0.10	0.05	0.13
CO ₂	0.09	0.06	0.01
TiO ₂	0.35	0.38	0.39
P ₂ O ₅	0.18	0.13	0.11
MnO	0.06	0.07	0.06
Other Constituents			
	99.95	100.21	99.81
Age			

TABLE AB¹ —
METAMORPHOSED GRANITIC ROCKS

	1	2	3
Rock Name	Granodiorite mylonite	Gneiss mylonite	Gneiss mylonite
Locality	Bogong, Upper Kiewa Valley, Vic.	Dibbin's Lookout, Upper Kiewa Valley, Vic.	Diamantina R., Upper Kiewa Valley, Vic.
Reference	5, 61	5, 61	5, 61
Analyst	V. Biskupsky	V. Biskupsky	V. Biskupsky
Remarks			
SiO ₂	67.81	58.35	56.15
Al ₂ O ₃	14.96	21.45	21.55
Fe ₂ O ₃	0.76	0.79	0.55
FeO	0.60	4.51	5.55
MgO	1.70	2.15	3.10
CaO	2.95	0.78	0.93
Na ₂ O	3.44	0.90	0.98
K ₂ O	0.59	5.30	6.15
H ₂ O +	0.41	3.55	3.35
H ₂ O —	0.35	0.86	0.41
CO ₂	5.19	—	—
TiO ₂	0.45	0.80	0.85
P ₂ O ₅	0.10	0.15	0.14
MnO	0.02	0.06	0.20
Other Constituents			
	99.33	99.66	99.91
Age			

TABLE AB² — METASOMATIZED AND DEUTERICALLY ALTERED
GRANITIC ROCKS

	1	2	3	4	5
Rock Name	Altered muscovite biotite granite <i>Erimeran Granite</i>	Felds- pathized granite <i>Waterhouse Granite</i>	Carbonated sodic granite	Carbonated sodic granite	Metaso- matized granodiorite mylonite
Locality	Nymagee Area, N.S.W.	Rum Jungle Area, N.T.	Kambalda, W.A. 1143220N. 470410E.	Red Hill, Kanowna, nr Kalgoorlie, W.A. 1213100N. 463450E.	Bogong, Upper Kiewa Valley, Vic.
Reference	28	137, 82	98	98	5, 61
Analyst	H. S. Sears A.M.D.L.	C. R. Edmond A.M.D.L.	W. R. O'Beirne	W. R. O'Beirne	V. Biskupsky
Remarks					
SiO ₂	73.20	73.00	68.29	65.94	25.75
Al ₂ O ₃	13.60	13.50	14.82	15.65	4.10
Fe ₂ O ₃	0.37	0.45	1.85	0.35	0.16
FeO	1.39	1.29	0.89	2.41	5.60
MgO	0.44	0.51	1.12	2.35	5.01
CaO	0.93	0.96	2.74	2.64	21.36
Na ₂ O	3.10	3.10	5.65	5.49	0.75
K ₂ O	5.20	5.75	1.89	1.45	0.64
H ₂ O +	0.98	0.66	0.08	0.40	0.80
H ₂ O -	0.04	0.09	0.09	0.04	0.10
CO ₂	0.44	0.32	1.76	2.38	30.12
TiO ₂	0.19	0.10	0.45	0.50	0.05
P ₂ O ₅	0.20	0.08	nd	nd	0.05
MnO	0.03	0.03	0.03	0.03	0.25
Other Constituents					S = 5.01
	100.11	99.80	99.66	99.63	99.75
Age					

TABLE AB⁴ — PARTIAL ANALYSIS OF GRANITIC ROCKS

[illegible]

TABLE AB⁴ — PARTIAL ANALYSIS OF GRANITIC ROCKS

	10	11	12	13	14	15	16	17	18
Rock Name	Aplitic granite	Aplitic granite	Granite <i>Stanthorpe Granite</i>	Granite <i>Stanthorpe Granite</i>	Aplitic granite	Aplitic granite	Granite <i>Stanthorpe Granite</i>	Granodiorite	Granodiorite
Locality	8 km W. of Ballandean, Qld 799-319 Wallangarra 1-mile Sheet	8 km W. of Ballandean, Qld 799-331 Wallangarra 1-mile Sheet	8 km W. of Ballandean, Qld 803-333 Wallangarra 1-mile Sheet	8 km W. of Ballandean, Qld 807-326 Wallangarra 1-mile Sheet	8 km W. of Ballandean, Qld 798-332 Wallangarra 1-mile Sheet	8 km W. of Ballandean, Qld 804-334 Wallangarra 1-mile Sheet	8 km W. of Ballandean, Qld 804-334 Wallangarra 1-mile Sheet	Hartley, N.S.W.	Hartley, N.S.W.
Reference	111	111	111	111	111	111	111	110, 234	110, 235
Analyst	A. D. Robertson	A. D. Robertson	A. D. Robertson	A. D. Robertson	A. D. Robertson	A. D. Robertson	A. D. Robertson	J. M. Rhodes	J. M. Rhodes
Remarks									
SiO ₂	—	—	—	—	—	—	—	69.76	69.55
Al ₂ O ₃	—	—	—	—	—	—	—	14.16	14.14
Fe ₂ O ₃	} 0.81	} 1.01	} 0.44	} 0.80	} 1.27	} 1.28	} 3.40	3.33	3.22
FeO								—	—
MgO	—	—	—	—	—	—	—	1.35	1.27
CaO	0.53	0.41	1.60	0.75	0.54	0.58	0.77	2.99	3.13
Na ₂ O	—	—	—	—	—	—	—	—	—
K ₂ O	4.49	4.45	4.30	4.10	3.99	3.97	3.32	3.81	3.71
H ₂ O +	—	—	—	—	—	—	—	—	—
H ₂ O —	—	—	—	—	—	—	—	—	—
CO ₂	—	—	—	—	—	—	—	—	—
TiO ₂	0.09	0.13	0.10	0.10	0.12	0.13	0.50	0.48	0.51
P ₂ O ₅	—	—	—	—	—	—	—	0.15	0.15
MnO	tr	tr	tr	tr	tr	tr	0.07	0.06	0.06
Other Constituents									
Age									

TABLE AB⁴ — PARTIAL ANALYSIS OF GRANITIC ROCKS

	19	20	21	22	23	24	25	26	27
Rock Name	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite
Locality	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.
Reference	110, 234	110, 234	110, 235	110, 235	110, 234	110, 234	110, 235	110, 234	110, 235
Analyst	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes
Remarks									
SiO ₂	69·37	69·04	68·73	68·72	68·47	68·44	68·36	68·30	67·99
Al ₂ O ₃	14·39	14·35	14·66	14·49	14·40	14·54	14·68	14·32	14·50
Fe ₂ O ₃	3·49	3·68	3·49	3·53	3·58	3·52	3·55	3·90	4·10
FeO	—	—	—	—	—	—	—	—	—
MgO	1·30	1·43	1·43	1·28	1·36	1·35	1·44	1·38	1·63
CaO	3·01	3·11	3·08	3·25	3·11	3·11	3·35	3·25	3·41
Na ₂ O	—	—	—	—	—	—	—	—	—
K ₂ O	3·78	3·64	3·65	3·61	3·75	3·65	3·48	3·85	3·38
H ₂ O +	—	—	—	—	—	—	—	—	—
H ₂ O —	—	—	—	—	—	—	—	—	—
CO ₂	—	—	—	—	—	—	—	—	—
TiO ₂	0·52	0·58	0·53	0·57	0·55	0·57	0·55	0·60	0·65
P ₂ O ₅	0·16	0·17	0·17	0·16	0·17	0·16	0·17	0·18	0·19
MnO	0·06	0·07	0·07	0·06	0·07	0·07	0·07	0·08	0·08
Other Constituents									
Age									

TABLE AB⁴ — PARTIAL ANALYSIS OF GRANITIC ROCKS

	28	29	30	31	32	33	34	35	36
Rock Name	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite	Granodiorite
Locality	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.
Reference	110, 235	110, 235	110, 234	110, 235	110, 234	110, 235	110, 235	110, 234	110, 234
Analyst	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes
Remarks									
SiO ₂	67.85	67.63	67.56	67.54	67.54	67.53	67.51	67.00	66.83
Al ₂ O ₃	14.50	14.94	14.37	14.90	14.90	14.63	14.48	14.82	15.15
Fe ₂ O ₃	3.81	3.91	4.04	3.89	3.79	4.18	4.25	4.26	4.16
FeO	—	—	—	—	—	—	—	—	—
MgO	1.65	1.45	1.76	1.53	1.62	1.74	1.62	1.66	1.53
CaO	3.28	3.43	—	—	—	3.33	3.47	3.62	3.63
Na ₂ O	—	—	—	—	—	—	—	—	—
K ₂ O	3.52	3.67	3.74	3.48	3.53	3.83	3.49	3.57	3.56
H ₂ O +	—	—	—	—	—	—	—	—	—
H ₂ O —	—	—	—	—	—	—	—	—	—
CO ₂	—	—	—	—	—	—	—	—	—
TiO ₂	0.63	0.63	0.63	0.65	0.60	0.69	0.64	0.67	0.61
P ₂ O ₅	0.19	0.20	0.19	0.19	0.18	0.21	0.19	0.21	0.19
MnO	0.08	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Other Constituents									
Age									

TABLE AB⁴ —
PARTIAL ANALYSIS OF GRANITIC ROCKS

	37	38	39
Rock Name	Granodiorite	Granodiorite	Granodiorite
Locality	Hartley, N.S.W.	Hartley, N.S.W.	Hartley, N.S.W.
Reference	110 , 234	110 , 234	110 , 235
Analyst	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes
Remarks			
SiO ₂	66.73	66.64	66.24
Al ₂ O ₃	14.69	14.74	14.93
Fe ₂ O ₃	4.34	4.28	4.36
FeO	—	—	—
MgO	1.69	1.64	1.82
CaO	3.83	3.57	3.52
Na ₂ O	—	—	—
K ₂ O	3.36	3.60	3.41
H ₂ O +	—	—	—
H ₂ O —	—	—	—
CO ₂	—	—	—
TiO ₂	0.65	0.65	0.70
P ₂ O ₅	0.21	0.19	0.21
MnO	0.08	0.09	0.08
Other Constituents			
Age			

TABLE D — DIORITIC ROCKS

a. CaO < 3%							
K ₂ O/Na ₂ O > 1.25					K ₂ O/Na ₂ O = 1.25 – 0.75		K ₂ O/Na ₂ O < 0.75
Rock Name	1	2	3	4	5	6	7
	Porphyritic granodiorite <i>Shoebridge Granite</i>	Adamellite <i>Shoebridge Granite</i>	Adamellite	Porphyritic granodiorite <i>Shoebridge Granite</i>	Adamellite	Porphyritic granodiorite <i>Shoebridge Granite</i>	Quartz diorite <i>Reedy Ck Quartz Diorite</i>
Locality	160 km S. of Darwin, N.T.	166 km S. of Darwin, N.T. 13°31'S, 131°16'E.	Bore 8, Mornington Is., Gulf of Carpentaria, Qld 16°45'S, 139°20'E.	160 km S. of Darwin, N.T.	Gazelle Pen., PNG 4°54'S, 152°23'E.	160 km S. of Darwin, N.T.	Reedy Cr., Kinglake Area, Vic.
Reference	110, 231	55; 109; 137	28	110, 231	28	110, 231	150, 314
Analyst	J. M. Rhodes	C. R. Edmond A.M.D.L.	H. W. Sears A.M.D.L.	J. M. Rhodes	A. Jorgensen A.M.D.L.	J. M. Rhodes	V. Biskupsky
Remarks							(Dyke)
SiO ₂	64.55	64.50	64.10	63.62	64.10	63.89	54.66
Al ₂ O ₃	15.79	15.20	17.20	15.52	15.50	15.35	18.05
Fe ₂ O ₃	} 4.70	1.01	1.78	} 4.64	2.85	} 4.55	1.06
FeO		3.30	1.88		1.96		7.04
MgO	2.45	2.25	0.99	2.43	1.22	2.14	6.21
CaO	2.48	2.40	2.60	2.20	2.00	2.52	1.20
Na ₂ O	3.19	3.25	3.95	3.15	4.05	3.10	4.77
K ₂ O	5.36	5.40	6.10	5.18	5.30	3.35	2.64
H ₂ O +	0.57	1.41	0.33	0.93	0.90	0.88	3.48
H ₂ O –	0.09	0.07	0.07	0.07	0.96	0.09	0.26
CO ₂	0.16	0.33	0.15	0.27	0.14	0.31	—
TiO ₂	0.54	0.49	0.46	0.52	0.65	0.52	1.15
P ₂ O ₅	0.30	0.29	0.02	0.29	0.42	0.28	—
MnO	0.08	0.07	0.06	0.07	0.22	0.07	—
Other Constituents							
	100.26	99.97	99.69	98.89	100.67	99.05	100.52
Age							

TABLE D — DIORITIC ROCKS

b. $\text{CaO} = 3\% - 4\%$

	$K_2O/Na_2O > 1.25$							$K_2O/Na_2O = 1.25 - 0.75$	
	1	2	3	4	5	6	7	8	9
Rock Name	Adamellite <i>Lysterfield Granodiorite</i>	Adamellite	Granodiorite <i>Forsayth Granite</i>	Porphyritic granodiorite <i>Shoebridge Granite</i>	Porphyritic granodiorite <i>Shoebridge Granite</i>	Porphyritic granodiorite <i>Shoebridge Granite</i>	Marginal granodiorite <i>Shoebridge Granite</i>	Adamellite porphyrite	Orthoclase diorite
Locality	0·4 km W. of Lysterfield rd junction, Vic.	Gazelle Pen., PNG 4°54'S, 151°58'E	Georgetown Area, Qld 18°33'S, 143°34'E.	160 km S. of Darwin, N.T.	160 km S. of Darwin, N.T.	160 km S. of Darwin, N.T.	160 km S. of Darwin, N.T.	18 km WNW of Uralla, N.S.W. Balala 'B' provisional 9136-1-N	Yeoval, N.S.W.
Reference Analyst	28; 109 M. R. Hanckel A.M.D.L.	28 A. Jorgensen A.M.D.L.	28 S. Baker	110, 231 J. M. Rhodes	110, 231 J. M. Rhodes	110, 231 J. M. Rhodes	110, 231 J. M. Rhodes	105; 11 J. E. Ransley	49 B. L. Gulson
Remarks									
SiO ₂	64·80	64·40	63·56	60·37	60·12	59·61	57·48	64·86	64·23
Al ₂ O ₃	15·10	16·00	16·10	15·90	15·80	16·65	15·85	16·26	15·79
Fe ₂ O ₃	0·84	2·00	0·90	} 5·68	} 6·11	} 5·98	} 7·10	0·81	} 4·96
FeO	4·20	2·25	3·60					3·32	
MgO	2·37	1·36	3·00	2·78	3·52	2·73	3·94	1·55	1·46
CaO	3·79	3·05	3·00	3·54	3·54	3·92	3·99	3·89	3·57
Na ₂ O	2·97	3·70	4·21	3·24	3·06	2·92	1·95	3·90	3·98
K ₂ O	3·90	4·70	5·32	5·66	5·20	5·17	5·99	3·43	3·83
H ₂ O +	0·90	0·87	0·41	1·14	1·09	1·10	1·55	0·68	0·81
H ₂ O —	0·04	0·69	0·05	0·08	0·07	0·09	0·08	0·10	0·14
CO ₂	0·05	0·12	—	0·54	0·22	0·61	0·24	nd	0·09
TiO ₂	0·84	0·55	0·10	0·66	0·65	0·68	0·63	0·60	0·50
P ₂ O ₅	0·25	0·32	0·10	0·38	0·38	0·37	0·38	0·20	0·04
MnO	0·06	0·12	0·05	0·09	0·09	0·08	0·11	0·08	0·16
Other Constituents									
Age	100·11	100·13	100·40	100·06	99·85	99·91	99·29	99·69	99·56

TABLE D — DIORITIC ROCKS

b. CaO = 3% - 4%							c. CaO = 4% - 5%		
K ₂ O/Na ₂ O = 1.25 - 0.75							K ₂ O/Na ₂ O > 1.25		
	10	11	12	13	14	15		1	2
Rock Name	Granophyric dolerite <i>Hart Dolerite</i>	Adamellite	Orthoclase diorite	Orthoclase diorite	Biotite- muscovite pegmatite <i>Einasleigh Metamor- phics</i>	Quartz-mica diorite		Gneissic granite	Monzonite <i>Inlet Monzonite</i>
Locality	5 km E. of Mt Herbert, Lennard R. Area, W.A. 17°15'S, 125°16'E.	Gazelle Pen., PNG. 4°37'S, 152°9'E.	Yeoval, N.S.W.	Yeoval, N.S.W.	13 km WSW. of Einasleigh, Qld	Yeoval, N.S.W.		Pretty Valley dam site, Kiewa, Vic.	S. of Horse Arm Cr, Attunga, N.S.W.
Reference	28	28	49	49	28	49		7, 368	26, 280
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	B. L. Gulson	B. L. Gulson	C. R. Edmonds, H. W. Sears A.M.D.L.	B. L. Gulson		V. Biskupsky	B. W. Chappell
Remarks						Fine-grained			
SiO ₂	64.10	64.00	63.91	63.52	61.50	62.62		64.36	64.18
Al ₂ O ₃	12.50	15.60	15.78	15.37	20.90	16.15		20.41	14.92
Fe ₂ O ₃	3.95	2.35	} 4.61	} 4.77	0.53	} 6.42		1.65	1.40
FeO	4.90	2.25			2.00		2.96	2.69	
MgO	0.28	1.48	1.30	1.63	0.91	1.53		1.48	3.03
CaO	3.90	3.40	3.37	3.88	3.25	3.57		4.63	4.56
Na ₂ O	3.60	4.75	4.10	3.79	5.10	5.65		1.55	3.09
K ₂ O	3.80	4.10	4.19	4.10	4.05	2.05		2.11	4.13
H ₂ O +	1.37	0.58	0.82	1.03	0.89	0.56		0.70	0.71
H ₂ O -	0.03	0.40	0.17	0.16	0.08	0.15		0.23	0.19
CO ₂	0.12	0.05	0.06	0.07	0.07	0.18		—	0.21
TiO ₂	1.00	0.71	0.49	0.52	0.40	0.86		0.41	0.58
P ₂ O ₅	0.15	0.43	0.17	0.19	0.17	0.15		0.03	0.29
MnO	0.14	0.13	0.13	0.11	0.02	0.19		0.03	0.10
Other Constituents									
	99.82	100.23	99.10	99.14	99.87	100.08		100.55	100.41
Age									

TABLE D — DIORITIC ROCKS

c. CaO = 4% — 5%

K ₂ O/Na ₂ O > 1.25					K ₂ O/Na ₂ O = 1.25 — 0.75				
Rock Name	3	4	5	6	7	8	9	10	11
	Marginal granodiorite <i>Shoebridge Granite</i>	Marginal granodiorite <i>Shoebridge Granite</i>	Marginal granodiorite <i>Shoebridge Granite</i>	Marginal granodiorite <i>Shoebridge Granite</i>	'Granite'	Granodiorite	Monzonite <i>Inlet Monzonite</i>	Xenolithic quartz monzonite	Granodiorite
Locality	160 km S. of Darwin, N.T.	160 km S. of Darwin, N.T.	160 km S. of Darwin, N.T.	160 km S. of Darwin, N.T.	Koolanooka Hills, W.A.	E. side of Mt Barrow, Tas.	Near Horse Arm Cr, Attunga, N.S.W.	Koolanooka Hills, W.A. 5164N, 1868E	Koolanooka Hills, W.A. 4798N, 1890E.
Reference	110, 231	110, 231	110, 231	110, 231	3	28	26, 280	3	3
Analyst	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	J. M. Rhodes	P. A. Arriens	C. R. Edmonds A.M.D.L.	B. W. Chappell	P. A. Arriens	P. A. Arriens
Remarks									
SiO ₂	57.38	56.77	56.56	55.43	64.94	64.60	64.08	63.61	62.80
Al ₂ O ₃	15.73	16.05	16.35	15.82	13.00	14.90	15.18	11.90	13.99
Fe ₂ O ₃	7.31	7.53	7.48	7.67	2.90	1.00	1.57	2.31	1.73
FeO					5.01	4.05	2.60	6.35	6.20
MgO	4.48	4.07	4.62	4.17	1.72	2.85	2.91	1.51	1.57
CaO	4.87	4.55	4.33	4.75	4.63	4.75	4.54	4.66	4.57
Na ₂ O	2.06	2.36	1.98	2.17	2.96	3.05	3.17	2.94	2.94
K ₂ O	4.69	5.26	5.59	5.85	2.20	2.75	3.95	3.40	2.77
H ₂ O +	1.48	1.76	1.76	2.06	0.84	0.55	0.62	1.14	1.18
H ₂ O —	0.08	0.07	0.08	0.06	0.01	0.07	0.12	0.04	0.07
CO ₂	0.29	0.25	0.23	0.24	—	0.03	0.08	—	—
TiO ₂	0.67	0.67	0.68	0.68	1.16	0.79	0.57	1.55	1.39
P ₂ O ₅	0.39	0.35	0.39	0.37	0.37	0.19	0.31	0.41	0.46
MnO	0.12	0.13	0.12	0.14	0.34	0.09	0.10	0.12	0.10
Other Constituents							SrO } + BaO } 0.30		
Age	99.55	99.82	100.17	99.41	100.08	99.67	100.10	99.94	99.77

TABLE D — DIORITIC ROCKS

c. CaO = 4% - 5%

K ₂ O/Na ₂ O = 1.25 - 0.75						K ₂ O/Na ₂ O < 0.75			
	12	13	14	15	16	17	18	19	20
Rock Name	Quartz micro-monzonite <i>Butlers Volcanics</i>	Quartz diorite	Monzonite	Granodiorite <i>Undercliff Falls Porphyritic Adamellite</i>	Spessartite	Quartz-mica diorite	Diorite	Tonalite	Quartz-mica diorite
Locality	Einaleigh Area, Qld 18°59'S, 144°02'E.	Saddle between Big Hill and Bald Hill, Kiewa Area, Vic.	Gazelle Pen., PNG. 4°37'S, 152°9'E.	Bookookoorara Cr. 5 km ESE. of Liston, N.S.W.	Clover Dam, Kiewa Area, Vic.	Yeoval, N.S.W.	Yeoval, N.S.W.	Gazelle Pen., PNG.	Yeoval, N.S.W.
Reference	19, 113	7, 370	28	100, 198	7, 372	49	49	28	49
Analyst	A. McClure	V. Biskupsky	A. Jorgensen A.M.D.L.	Avery & Anderson	V. Biskupsky	B. L. Gulson	B. L. Gulson	A. Jorgensen A.M.D.L.	B. L. Gulson
Remarks						Fine-grained	Host to xenolith		
SiO ₂	62.75	62.54	62.40	61.80	53.46	67.79	64.40	64.20	63.06
Al ₂ O ₃	16.21	18.65	16.10	16.65	18.40	15.87	16.10	15.20	17.10
Fe ₂ O ₃	2.28	2.06	2.70	0.31	2.76	4.43	4.51	2.70	4.59
FeO	3.82	3.32	2.25	4.44	5.52			2.80	
MgO	2.19	2.29	1.70	2.40	6.05	1.97	1.99	2.10	2.26
CaO	4.54	4.80	4.10	4.88	4.06	4.16	4.83	4.95	4.47
Na ₂ O	3.00	2.50	4.10	3.82	1.95	3.91	3.50	3.65	3.10
K ₂ O	2.90	2.22	4.60	3.50	1.68	1.66	1.99	1.88	2.20
H ₂ O+	0.93	0.47	0.58	0.83	3.36	0.34	0.79	1.01	1.40
H ₂ O-	0.13	0.14	0.32	0.11	0.56	0.16	0.12	0.26	0.18
CO ₂	nd	—	0.05	nd	—	0.21	0.31	0.05	0.15
TiO ₂	1.18	0.47	0.61	1.08	1.19	0.55	0.39	0.67	0.38
P ₂ O ₅	0.05	0.02	0.34	0.46	0.04	0.01	0.08	0.12	0.15
MnO	0.21	0.05	0.08	0.11	0.08	0.25	0.17	0.07	0.15
Other Constituents									
	100.19	99.53	100.23	100.39	99.11	101.31	99.18	99.66	99.19
Age									

TABLE D — DIORITIC ROCKS

c. CaO = 4% - 5%			d. CaO = 5% - 6%						
K ₂ O/Na ₂ O < 0.75			K ₂ O/Na ₂ O > 1.25			K ₂ O/Na ₂ O = 1.25 - 0.75			
	21	22		1	2	3	4	5	6
Rock Name	Micro-diorite porphyrite	Diorite <i>Rum Jungle Complex</i>		Margerite	Granodiorite <i>Shoebridge Granite</i>	Marginal granodiorite <i>Shoebridge Granite</i>	Granodiorite <i>Jindabyne Granite</i>	Quartz-mica diorite	Diorite
Locality	Bonua R., Papua, PNG.	Rum Jungle Area, N.T. 12°58'S, 131°03'E.		W. of Oakey Cr, Attunga Area, N.S.W.	E. margin of granite, S of Darwin, N.T. 13°31'S, 131°16'E.	160 km S. of Darwin, N.T.	Quarry 1.6 km. E. of Jindabyne, Snowy Mts, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.
Reference	28	137, 293		26, 280	137, 298; 109; 55, 565	110, 231	67, 11	49	49
Analyst	A. Jorgensen A.M.D.L.	C. R. Edmond A.M.D.L.		B. W. Chappell	C. R. Edmond A.M.D.L.	J. M. Rhodes	P. Kolbe	B. L. Gulson	B. L. Gulson
Remarks					Marginal				Host to xenolith
SiO ₂	57.30	56.60		60.35	57.00	54.45	63.17	62.70	61.23
Al ₂ O ₃	16.80	18.40		15.66	16.00	15.59	16.32	16.42	16.30
Fe ₂ O ₃	2.45	2.00		1.87	0.98	} 8.05	} 7.08	} 5.77	} 6.25
FeO	3.05	5.40		3.28	5.85				
MgO	4.05	2.40		3.44	4.05	5.37	3.73	2.51	2.30
CaO	4.95	4.90		5.56	5.20	5.37	5.04	5.26	5.79
Na ₂ O	5.80	4.40		3.03	2.80	2.14	2.74	2.82	2.93
K ₂ O	1.78	2.50		4.03	4.50	4.88	2.13	3.02	2.16
H ₂ O +	1.29	1.42		0.80	1.70	1.58	—	1.34	1.45
H ₂ O -	0.33	0.08		0.09	0.10	0.07	—	0.17	0.21
CO ₂	0.88	0.30		0.08	0.30	0.62	—	0.13	abs
TiO ₂	0.62	1.08		0.71	0.70	0.72	0.41	0.50	0.67
P ₂ O ₅	0.22	0.33		0.40	0.40	0.45	—	0.15	0.14
MnO	0.10	0.11		0.10	0.12	0.13	—	0.19	0.28
Other Constituents				BaO + SrO = 0.35					
	99.62	99.92		99.75	99.70	99.42	100.62	100.98	99.71
Age									

TABLE D — DIORITIC ROCKS

d. CaO = 5% - 6%

K ₂ O/Na ₂ O = 1.25 - 0.75								K ₂ O/Na ₂ O < 0.75	
	7	8	9	10	11	12	13	14	15
Rock Name	Fayalite granophyre	Granodiorite	Quartz-mica diorite	Quartz-mica diorite	Pyroxene granodiorite	Monzonite	Diorite	Tonalite	Quartz-mica diorite <i>Ensay Granite</i>
Locality	DDH. 5123 (50') Great Lake, Tas.	Nr Brid- port, Tas.	Yeoval, N.S.W.	Yeoval, N.S.W.	Koolanooka Hills, W.A. 4987N, 2070E.	Gazelle Pen., PNG. 4°54'S, 151°58'E.	Gazelle Pen., PNG. 4°54'S, 151°58'E.	Gazelle Pen., PNG. 4°19'S, 151°52'E.	0.8 km. S. of Ensay, Vic.
Reference	75, 304	28	49; 50	49	3	28	28	28	28
Analyst	Avery & Anderson	C. R. Edmond A.M.D.L.		B. L. Gulson	P. A. Arriens	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks			High K diorite						
SiO ₂	60.39	60.20	59.71	59.51	58.93	58.90	56.70	64.30	64.10
Al ₂ O ₃	11.42	14.60	16.37	16.32	13.29	15.50	16.30	15.30	16.80
Fe ₂ O ₃	3.03	1.63	5.89	2.65	3.37	5.30	4.55	2.05	1.46
FeO	9.13	5.30	0.87	4.12	7.58	3.50	3.30	3.15	3.22
MgO	1.14	4.10	2.55	3.04	2.40	1.62	3.30	2.00	2.47
CaO	5.26	5.60	5.37	5.70	5.86	5.05	5.60	5.00	5.32
Na ₂ O	2.36	2.86	3.24	3.00	2.95	3.40	3.35	3.75	2.80
K ₂ O	2.36	2.75	3.15	2.82	2.30	3.75	2.90	1.55	1.80
H ₂ O+	1.50	1.35	1.36	1.26	0.81	1.02	1.44	1.17	0.97
H ₂ O-	2.08	0.15	0.13	0.14	0.01	0.42	0.56	0.35	0.16
CO ₂	nd	0.04	0.26	0.03	—	< 0.05	0.07	0.18	0.10
TiO ₂	1.20	0.90	0.62	0.56	1.94	0.86	0.90	0.58	0.45
P ₂ O ₅	0.34	0.19	0.14	0.21	0.53	0.69	0.57	0.11	0.12
MnO	0.17	0.12	0.19	0.20	0.07	0.14	0.12	0.13	0.08
Other Constituents									
	100.38	99.79	99.85	99.56	100.04	100.20	99.66	99.62	99.85
Age									

TABLE D — DIORITIC ROCKS

d. $\text{CaO} = 5\% - 6\%$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$$
[illegible]

TABLE D — DIORITIC ROCKS

d. CaO = 5% - 6%			e. CaO = 6% - 7%						
K ₂ O/Na ₂ O < 0.75			K ₂ O/Na ₂ O = 1.25 - 0.75						
	25	26		1	2	3	4	5	6
Rock Name	Diorite <i>Rum Jungle Complex</i>	Diorite		Granodiorite <i>Dove Granite</i>	Quartz-mica diorite	Granodiorite <i>Micalong Granodiorite</i>	Quartz-mica diorite	Quartz-mica diorite	Quartz-mica diorite <i>Retreat Granite</i>
Locality	Rum Jungle Area, N.T. 12°59'S, 131°03'E.	Gazelle Pen., PNG. 4°14'S, 151°38'E.		4 km N. of Fisher R. Bridge, Mersey, Tas.	Yeoval, N.S.W.	Micalong Cr, Wee Jasper Area, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Emerald Area, Qld
Reference	137, 293	28		28	49	28	49	49	28
Analyst	H. W. Sears A.M.D.L.	A. Jorgensen A.M.D.L.		C. R. Edmond A.M.D.L.	B. L. Gulson	J. C. Watts A.M.D.L.	B. L. Gulson	B. L. Gulson	C. R. Edmond A.M.D.L.
Remarks									Contains pyroxene
SiO ₂	57.30	57.20		60.30	59.51	59.20	58.72	58.61	58.40
Al ₂ O ₃	17.40	17.60		14.70	16.67	16.10	16.88	16.28	18.20
Fe ₂ O ₃	2.70	4.20		2.20	2.12	3.20	3.04	1.74	1.93
FeO	4.50	4.15		4.95	4.55	4.40	4.19	4.73	3.75
MgO	2.50	2.95		3.70	2.86	2.30	3.27	3.38	2.03
CaO	5.05	5.95		6.90	6.73	6.20	6.69	6.22	6.39
Na ₂ O	4.00	3.90		2.25	2.91	2.95	2.93	2.75	3.90
K ₂ O	2.75	1.10		2.35	2.26	2.40	2.47	2.62	3.40
H ₂ O +	1.53	1.23		1.48	1.04	1.20	1.27	1.03	0.55
H ₂ O -	0.10	0.12		0.06	0.13	0.07	0.19	0.18	0.07
CO ₂	0.48	0.09		0.08	0.25	—	0.26	abs	0.04
TiO ₂	0.88	1.08		0.75	0.49	1.27	0.54	0.73	0.70
P ₂ O ₅	0.41	0.26		0.19	0.10	0.48	0.11	0.04	0.30
MnO	0.10	0.13		0.08	0.22	0.14	0.20	0.18	0.11
Other Constituents									
	99.70	99.96		99.99	99.84	99.91	100.76	99.49	99.77
Age									

TABLE D. — DIORITIC ROCKS

e. CaO = 6% - 7%

K ₂ O/Na ₂ O = 1.25 - 0.75						K ₂ O/Na ₂ O < 0.75			
	7	8	9	10	11	12	13	14	15
Rock Name	Granophyre	Quartz-mica diorite	Granodiorite	Quartz-mica diorite	Granodiorite	Quartz-mica diorite	Diorite	Diorite	Hornblende-biotite tonalite
Locality	DDH. 5131 (50½'), Great Lake, Tas.	Yeoval, N.S.W.	Gazelle Pen., PNG.	Yeoval, N.S.W.	Gazelle Pen., PNG.	Compton Downs Siding, Bourke Area, N.S.W. 30°25½'S, 146°34½'E.	Gazelle Pen., PNG.	Gazelle Pen., PNG.	Gazelle Pen., PNG. 4°15'S, 151°41'E.
Reference	76, 120	49	28	49	28	28	28	28	28
Analyst	Avery & Anderson	B. L. Gulson	A. Jorgensen A.M.D.L.	B. L. Gulson	A. Jorgensen A.M.D.L.	D. K. Rowley A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.
Remarks									
SiO ₂	58.00	57.70	57.20	56.40	55.50	60.90	59.90	59.80	59.10
Al ₂ O ₃	11.40	16.27	16.50	16.72	16.80	16.40	15.80	15.80	16.00
Fe ₂ O ₃	2.88	8.20	2.85	3.94	3.25	1.36	3.70	3.35	2.55
FeO	10.98		4.85	4.18	4.65	4.58	4.15	4.20	5.25
MgO	1.68	3.20	3.25	3.20	3.65	3.53	2.65	2.85	2.95
CaO	6.07	6.52	6.55	6.77	6.05	6.11	6.30	6.45	6.60
Na ₂ O	2.17	2.90	3.15	3.01	3.45	3.05	3.85	3.30	3.70
K ₂ O	2.13	2.48	2.60	2.40	2.65	1.75	0.75	1.45	0.95
H ₂ O +	1.22	1.76	1.15	1.51	1.76	0.85	0.90	1.15	0.78
H ₂ O -	1.52	0.19	0.31	0.16	0.44	0.01	0.11	0.24	0.18
CO ₂	—	0.29	0.06	0.12	0.24	0.05	0.21	0.12	0.28
TiO ₂	1.82	0.47	0.82	0.68	0.85	0.82	1.08	0.77	0.93
P ₂ O ₅	0.23	0.13	0.46	0.24	0.46	0.16	0.20	0.16	0.20
MnO	0.19	0.20	0.16	0.18	0.19	0.09	0.18	0.17	0.16
Other Constituents									
Age	100.29	100.31	99.91	99.51	99.94	99.66	99.78	99.81	99.63

TABLE D — DIORITIC ROCKS

e. CaO = 6% -7%					f. CaO = 7% -8%			
K ₂ O/Na ₂ O < 0.75					K ₂ O/Na ₂ O = 1.25 -0.75			
	16	17	18	19		1	2	3
Rock Name	Diorite	Sodic tonalite	Diorite	Granodiorite		Quartz-mica diorite	Diorite	Micro-diorite
Locality	Gazelle Pen., PNG. 4°15'S, 151°41'SE.	Eia R., New Guinea, PNG. 8°07'S, 147°35'E.	Monsildale, Qld 512856 Nanango 1-mile Sheet	Mt Suckling PNG. 9°45'S, 149°03'E.		Yeoval, N.S.W.	Gazelle Pen., PNG. 4°54'S, 151°58'E.	Beckraith Cr, Kiewa Area, Vic.
Reference	28	28	95	28		49	28	7, 372
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	C. G. Murray	A. Jorgensen A.M.D.L.		B. L. Gulson	A. Jorgensen A.M.D.L.	V. Biskupsky
Remarks								
SiO ₂	59.00	58.90	56.71	52.20		57.50	54.50	51.45
Al ₂ O ₃	16.20	15.00	16.23	18.50		16.95	16.40	19.75
Fe ₂ O ₃	2.20	3.80	2.92	2.55		0.02	4.25	0.72
FeO	4.90	5.10	5.96	4.95		7.12	4.70	5.80
MgO	3.10	3.25	4.61	4.30		3.20	3.70	7.32
CaO	6.25	6.90	6.59	6.10		7.06	7.35	7.84
Na ₂ O	3.65	4.05	3.67	4.60		2.82	3.05	2.00
K ₂ O	1.55	0.32	2.46	2.60		2.28	2.75	1.71
H ₂ O +	1.14	1.22	nd	1.62		1.65	1.22	1.45
H ₂ O -	0.36	0.38	nd	0.14		0.11	0.30	0.07
CO ₂	0.23	0.01	—	0.07		0.18	0.12	—
TiO ₂	0.82	0.55	0.51	1.29		0.59	0.95	0.95
P ₂ O ₅	0.10	0.20	—	0.79		0.11	0.59	0.04
MnO	0.15	0.14	0.10	0.10		0.22	0.18	0.08
Other Constituents								
	99.65	99.82	99.76	99.81		99.81	100.06	99.18
Age								

TABLE D — DIORITIC ROCKS

f. CaO = 7% - 8%

 $K_2O/Na_2O < 0.75$

	4	5	6	7	8	9	10	11	12
Rock Name	Diorite	Quartz-pyroxene-mica diorite <i>Retreat Granite</i>	Diorite	Pyroxene-mica diorite	Pyroxene-mica diorite	Diorite	Diorite	Quartz diorite <i>Mt Robertson Quartz-hypersthene Diorite</i>	Quartz diorite <i>St Andrew Quartz Diorite</i>
Locality	Kai, New Guinea, PNG. 7°30'S, 147°13'E.	5 km W. of Anakie, Emerald Area, Qld 23°33'S, 147°43'E	Gazelle Pen., PNG.	Yeoval, N.S.W.	Yeoval, N.S.W.	Gazelle Pen., PNG. 4°37'S, 152°9'E.	Gazelle Pen., PNG. 4°37'S, 152°9'E.	Mt Robertson, 8 km N.E. of Kinglake, Vic.	Kinglake Area, Vic.
Reference	35; 36	28	28	49	49	28	28	150, 314	150, 314
Analyst	A. Jorgensen, L. Castanelli A.M.D.L.	C. R. Edmond A.M.D.L.	A. Jorgensen A.M.D.L.	B. L. Gulson	B. L. Gulson	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	V. Biskupsky	N. R. Junner
Remarks									Bull. 65, Df11
SiO ₂	60.80	58.60	56.90	55.23	54.82	54.70	54.10	53.60	52.53
Al ₂ O ₃	16.20	17.00	16.50	17.18	17.20	16.30	16.80	16.28	18.78
Fe ₂ O ₃	1.50	2.14	3.65	8.03	8.49	3.65	3.40	0.44	1.52
FeO	5.40	5.55	4.65			5.25	5.30	10.34	6.60
MgO	3.35	3.50	3.30	4.66	4.51	3.60	3.80	6.80	3.02
CaO	7.65	7.37	7.00	7.17	7.50	7.40	7.95	7.10	7.21
Na ₂ O	2.90	2.70	3.30	2.87	3.08	3.75	3.45	2.80	2.54
K ₂ O	0.34	1.20	1.32	1.60	1.40	1.95	1.89	1.70	1.73
H ₂ O +	0.82	0.75	1.62	1.74	0.81	1.27	1.24	0.44	2.24
H ₂ O -	0.27	0.03	0.21	0.12	0.05	0.16	0.26	0.15	0.53
CO ₂	0.12	0.05	0.05	0.18	0.02	0.12	0.07	—	0.39
TiO ₂	0.41	0.55	0.90	0.63	0.71	1.01	0.94	1.14	2.16
P ₂ O ₅	0.07	0.10	0.18	0.14	0.04	0.26	0.60	—	0.32
MnO	0.14	0.15	0.19	0.23	0.22	0.21	0.17	—	0.14
Other Constituents									
Age	99.97	99.69	99.77	99.78	98.85	99.63	99.97	100.79	99.71

TABLE D — DIORITIC ROCKS

g. CaO > 8%

K ₂ O/Na ₂ O = 1.25 - 0.75			K ₂ O/Na ₂ O < 0.75						
	1	2	3	4	5	6	7	8	9
Rock Name	Quartz-mica diorite	Spessartite	Sodic tonalite	Pyroxene granodiorite	Diorite	Pyroxene-mica diorite	Diorite	Mafic diorite	'Dolerite'
Locality	Yeoval, N.S.W.	Spring Flat Cr, Tumbarumba-Geehi Area, N.S.W.	Uriwa Cr, nr Morobe, PNG. 7°38'S, 147°23'E.	32 km NE. of Duaringa, Qld Duaringa 4-mile Sheet 23°27½'S, 149°49'E.	Oroa Cr, New Guinea, PNG. 7°43'S, 147°27'E.	Yeoval, N.S.W.	Monsildale, Qld 519822 Nanango 1-mile Sheet	Yeoval, N.S.W.	Gazelle Pen., PNG. 4°58'S, 152°12'E.
Reference	49	51	28	28	28	49; 50	95	49	28
Analyst	B. L. Gulson	Avery & Anderson	A. Jorgensen A.M.D.L.	C. R. Edmond A.M.D.L.	A. Jorgensen A.M.D.L.	B. L. Gulson	C. G. Murray	B. L. Gulson	A. Jorgensen A.M.D.L.
Remarks						Low Si diorite		(Marginal)	
SiO ₂	54.32	47.60	56.70	54.40	54.30	53.68	53.02	52.86	52.80
Al ₂ O ₃	15.52	10.68	17.70	17.20	14.20	17.03	17.17	17.03	18.80
Fe ₂ O ₃	8.86	3.85	1.45	3.05	3.00	9.39	5.04	9.84	2.95
FeO		7.27	5.75	4.85	7.25		5.89		5.15
MgO	5.25	11.68	3.60	3.70	6.05	4.55	6.43	4.15	2.90
CaO	8.24	11.37	8.60	9.20	8.80	8.84	8.33	8.28	8.25
Na ₂ O	2.77	1.84	2.60	3.35	3.15	2.76	3.22	3.03	3.25
K ₂ O	2.27	1.32	0.42	1.88	0.08	1.08	0.87	1.74	1.66
CO ₂	1.73	2.00	2.25	1.03	2.10	1.10	nd	1.51	2.10
TiO ₂	0.23	0.32	0.20	0.05	0.27	0.09	nd	0.20	0.43
H ₂ O +	0.21	0.14	0.04	0.12	0.01	0.10	—	0.23	0.16
H ₂ O -	0.67	1.92	0.25	0.71	0.55	0.66	0.51	0.74	0.93
P ₂ O ₅	0.04	0.46	0.03	0.34	0.05	0.38	—	0.50	0.43
MnO	0.21	0.17	0.10	0.17	0.17	0.23	0.08	0.27	0.15
Other Constituents									
	100.32	100.63	99.78	100.05	99.98	99.98	100.56	100.38	99.96
Age									

TABLE D — DIORITIC ROCKS	
g. CaO > 8%	
K ₂ O/Na ₂ O < 0.75	
10	
Rock Name	Diorite
Locality	Monsildale, Qld 518825 Nanango 1-mile Sheet
Reference	95
Analyst	C. G. Murray
Remarks	
SiO ₂	52.12
Al ₂ O ₃	16.72
Fe ₂ O ₃	5.10
FeO	5.96
MgO	6.87
CaO	9.27
Na ₂ O	3.20
K ₂ O	0.48
CO ₂	nd
TiO ₂	nd
H ₂ O +	—
H ₂ O —	0.57
P ₂ O ₅	—
MnO	0.11
Other Constituents	
	100.40
Age	

TABLE D² — METASOMATIZED AND DEUTERICALLY ALTERED DIORITES

	1	2	3	4	5	6
Rock Name	Altered quartz-mica diorite	Altered quartz-mica diorite	Altered quartz-mica diorite	Altered quartz-mica diorite	Altered quartz-mica diorite	Altered quartz-mica diorite
Locality	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.
Reference	49	49	49	49	49	49
Analyst	B. L. Gulson	B. L. Gulson	B. L. Gulson	B. L. Gulson	B. L. Gulson	B. L. Gulson
Remarks						
SiO ₂	64.40	63.04	62.09	61.23	59.80	58.40
Al ₂ O ₃	16.10	17.10	16.23	16.30	16.34	17.32
Fe ₂ O ₃	} 4.55	} 5.15	} 5.95	} 6.30	} 6.08	} 7.59
FeO						
MgO	1.99	2.07	2.50	2.30	2.55	2.78
CaO	4.83	5.25	5.30	5.79	5.95	6.58
Na ₂ O	3.50	3.30	3.11	2.93	3.17	3.28
K ₂ O	1.99	2.28	2.18	2.16	2.11	2.14
H ₂ O +	0.79	1.15	1.36	1.45	1.61	1.41
H ₂ O -	0.12	0.07	0.26	0.21	0.22	0.18
CO ₂	0.31	0.17	0.09	abs	0.05	0.17
TiO ₂	0.39	0.40	0.51	0.67	0.52	0.56
P ₂ O ₅	0.08	0.03	0.01	0.14	0.15	0.09
MnO	0.17	0.16	0.28	0.28	0.18	0.21
Other Constituents						
	99.22	100.17	99.87	99.76	98.73	100.71
Age						

TABLE D* — INCOMPLETE
ANALYSES OF DIORITES

	1	2
Rock Name	Diorite	Diorite
Locality	Yeoval, N.S.W.	Yeoval, N.S.W.
Reference	49	49
Analyst	B. L. Gulson	B. L. Gulson
Remarks		
SiO ₂	54.11	50.74
Al ₂ O ₃	17.45	17.79
Fe ₂ O ₃	} 9.14	} 9.85
FeO		
MgO	5.21	6.71
CaO	9.56	10.12
Na ₂ O	nd	nd
K ₂ O	0.81	0.78
H ₂ O +	—	—
H ₂ O —	—	—
CO ₂	—	—
TiO ₂	0.61	0.62
P ₂ O ₅	—	—
MnO	0.19	—
Other Constituents		
	—	—
Age		

a. CaO < 10%

K ₂ O/Na ₂ O = 1.25 - 0.75		K ₂ O/Na ₂ O < 0.75							
Rock Name	1	2	3	4	5	6	7	8	9
	Quartz norite <i>Wombarella</i> Quartz Gabbro	Quartz gabbro <i>Wombarella</i> Quartz Gabbro	Gabbro <i>McIntosh</i> Gabbro	Norite gabbro	Norite gabbro	Norite	Gabbro	Quartz norite <i>Wombarella</i> Quartz Gabbro	Quartz gabbro
Locality	5 km W. of Stumpys Jump Up, Lennard R. Area, W.A. 271200, 2832800	3 km SW. of Stumpys Jump Up, Lennard R. Area, W.A. 271400, 2834000	11 km SW. of Turkey Hill, Dixon Ra., W.A. 17°04'00", 128°09'55"	Mt Norcott nr Norse- man, W.A. 1027120N, 504710E.	Jimberlana, nr Norse- man, W.A. 1024259N, 487350E.	Saia R., Bowutu Mts, PNG. 7°23½'S, 147°06'E.	Gazelle Pen., PNG. 4°58'S, 152°12'E.	4 km SW. of Stumpys Jump Up, Lennard R. Area, W.A. 270800, 2833400	Gazelle Pen., PNG. 4°37'S, 152°9'E.
Reference	28	28	42; 43, 60	25	25	28	28	28	28
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	M. R. Hankel A.M.D.L.	W. R. O'Beirne	W. R. O'Beirne	A. Jorgensen, L. Castanelli A.M.D.L.	Not stated	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.
Remarks									
SiO ₂	56.80	55.60	53.90	53.00	52.70	52.50	51.90	51.60	51.60
Al ₂ O ₃	15.70	16.00	13.80	19.12	17.65	9.70	16.90	16.50	17.80
Fe ₂ O ₃	1.28	1.28	1.48	1.05	1.65	3.60	2.05	1.17	4.95
FeO	8.30	6.75	13.00	6.03	6.73	3.90	6.20	7.60	4.40
MgO	2.70	5.90	6.15	5.79	6.34	19.50	5.00	8.90	4.05
CaO	5.55	8.10	8.95	9.21	9.01	8.95	9.35	8.70	8.70
Na ₂ O	3.30	2.55	0.38	2.95	2.76	0.55	2.45	1.92	3.30
K ₂ O	2.65	2.10	0.07	0.76	1.12	0.02	0.98	0.87	1.69
H ₂ O+	0.57	0.31	0.49	0.94	0.98	0.29	2.70	0.70	1.33
H ₂ O-	0.18	0.20	0.09	0.20	0.22	0.22	0.55	0.15	0.37
CO ₂	0.07	0.04	0.06	nd	nd	0.08	0.13	0.12	0.18
TiO ₂	2.15	1.03	1.29	0.66	0.62	0.11	0.93	0.94	1.08
P ₂ O ₅	0.42	0.17	0.14	nd	nd	0.01	0.38	0.17	0.37
MnO	0.14	0.13	0.18	0.13	0.15	0.17	0.18	0.15	0.17
Other Constituents	F = 0.10 S = 0.09	F = 0.05 S = 0.025						F = 0.05 S = 0.14	
Less O = Cl, F, S	0.06	0.01						0.07	
	99.94	100.39	99.98	99.84	99.93	99.60	99.70	99.61	99.99
Age									

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

a. CaO < 10%

 $K_2O/Na_2O < 0.75$

	10	11	12	13	14	15	16	17	18
Rock Name	Quartz gabbro <i>Wombarella</i> Quartz Gabbro	Quartz norite <i>Wombarella</i> Quartz Gabbro	Feldspathic bronzitite	Noritic dolerite	Hypersthene troctolite <i>Giles</i> Complex	Hypersthene troctolite	Gabbro	Feldspathic pyroxenite	Basaltic dolerite
Locality	Stumpys Jump Up, Lennard R. Area, W.A. 2691, 28347	Stumpys Jump Up, Lennard R. Area, W.A. 2629, 28356	Nr Norse- man, W.A. 1024090N, 476900E.	Jimberlana, nr Norse- man, W.A. 1025400N, 488180E.	Jameson Ra., W.A.	Jameson Ra., W.A.	Gazelle Pen., PNG. 4°37'S, 152°9'E.	Jimberlana, nr Norse- man, W.A. 1025400N, 488177E.	Jimberlana, nr Norse- man, W.A. 1026230N, 487290E.
Reference	28	28	25	25	33	33	28	25	25
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	W. R. O'Beirne	W. R. O'Beirne	J. R. Gamble	J. R. Gamble	A. Jorgensen A.M.D.L.	W. R. O'Beirne	W. R. O'Beirne
Remarks									
SiO ₂	49.90	49.50	49.29	49.03	48.91	48.84	48.70	47.39	46.81
Al ₂ O ₃	15.80	17.80	10.17	17.16	21.28	20.77	20.30	13.15	16.46
Fe ₂ O ₃	1.63	1.80	0.64	1.09	0.71	0.73	5.15	1.35	6.06
FeO	8.60	6.40	7.88	6.78	8.26	9.02	4.20	9.83	9.06
MgO	7.45	9.75	25.58	14.11	6.61	6.62	3.70	20.14	6.14
CaO	8.85	9.95	3.37	9.75	9.72	9.52	8.90	6.14	8.19
Na ₂ O	2.90	1.79	0.50	1.67	2.84	2.87	3.15	0.98	2.76
K ₂ O	1.55	0.67	0.06	0.24	0.46	0.47	1.35	0.18	0.70
H ₂ O+	0.73	0.61	0.52	0.37	0.28	0.30	2.20	0.38	1.54
H ₂ O-	0.17	0.12	0.43	0.11	0.13	0.13	0.39	0.12	0.40
CO ₂	0.09	0.19	nd	nd	0.04	0.01	0.13	nd	nd
TiO ₂	1.44	0.72	0.20	0.17	0.89	0.73	0.93	0.19	1.86
P ₂ O ₅	0.30	0.22	nd	nd	0.01	0.07	0.60	nd	nd
MnO	0.15	0.11	0.23	0.16	0.12	0.11	0.18	0.21	0.22
Other Constituents	F = 0.10 S = 0.12	F = 0.05 S = 0.09							
Less 0 = Cl, F, S	0.07	0.05							
	99.93	99.95	98.87	100.64	100.32	100.24	99.88	100.06	100.20
Age									

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

a. CaO < 10%						b. CaO > 10%	
K ₂ O/Na ₂ O < 0.75						K ₂ O/Na ₂ O > 1.25	K ₂ O/Na ₂ O = 1.25 – 0.75
	19	20	21	22	23	1	2
Rock Name	Troctolite <i>Giles Complex</i>	Troctolite <i>Giles Complex</i>	Olivine gabbro <i>McIntosh Gabbro</i>	Peridotite <i>Woodward Dolerite</i>	Gabbro	Hornblende- bearing gabbro	Pyroxenite
Locality	Blackstone Ra. Area, W.A.	Blackstone Ra. Area, W.A.	Dixon Ra. area, W.A. 17°44'10", 127°52'50"	Eastmans Bore, Mt Ramsay Area, W.A. 4704, 26532	Coates Siding, 72 km. ENE. of Perth, W.A.	Ino R., Pongani Area, Papua, PNG 9°17½'S, 148°24'E	Yeoval, N.S.W.
Reference	33	33	42; 43, 60	28	59, 63	28	49
Analyst	R. W. Lindsey	J. R. Gamble	P. Hewson, W.A. Govt Chem Lab	A. Jorgensen A.M.D.L.	D. R. Hudson	A. Jorgensen A.M.D.L.	B. L. Gulson
Remarks							
SiO ₂	46.61	45.79	44.16	37.80	30.07	48.60	47.91
Al ₂ O ₃	20.72	18.80	12.43	5.20	14.87	17.20	9.36
Fe ₂ O ₃	1.72	0.92	1.50	9.60	19.08	4.10	} 10.17
FeO	8.35	10.47	12.58	5.00	17.31	0.80	
MgO	8.83	13.03	17.55	28.30	2.95	10.00	13.91
CaO	9.75	8.41	9.18	2.45	5.32	15.40	14.83
Na ₂ O	2.28	2.06	1.20	0.16	1.58	0.01	0.57
K ₂ O	0.28	0.22	0.08	0.07	0.31	0.08	0.48
H ₂ O +	0.36	0.16	0.63	6.90	1.61	2.80	2.16
H ₂ O –	0.09	0.18	0.02	0.43	0.08	0.23	0.18
CO ₂	0.18	0.05	—	0.04	—	0.57	0.08
TiO ₂	0.40	0.08	0.38	0.49	5.55	0.11	0.42
P ₂ O ₅	0.03	0.03	0.03	0.06	0.34	0.01	0.05
MnO	0.12	0.13	0.18	0.13	0.16	0.09	0.23
Other Constituents			FeS ₂ = 0.09	F = 0.10 S = 0.06	S = 0.61		
Less O = Cl, F, S				0.04	0.26		
	100.03	100.43	100.01	95.75	100.21	100.0	100.35
Age							

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

b. CaO > 10%

$$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$$
[illegible]

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

b. CaO > 10%

 $K_2O/Na_2O < 0.75$

	12	13	14	15	16	17	18	19	20
Rock Name	Norite	Gabbro	Norite	Hypersthene gabbro <i>Giles Complex</i>	Hypersthene gabbro <i>Giles Complex</i>	Norite gabbro	Pyroxenite	Gabbro <i>Giles Complex</i>	Olivine gabbro
Locality	Imo R., Sibium Ra., Papua, PNG. 9°17'S, 148°24'E	Opi R., Ajura Kujara Ra., Papua, PNG. 8°43'S, 147°50'E	Sou R., Bowutu Mts, PNG. 7°35'S, 147°13'E	Michael Hills, W.A.	Michael Hills, W.A.	Nr Norse- man, W.A. 1023750N, 476920E.	Yeoval, N.S.W.	Mt Davies Area, S.A.	Blakes Station 2, Macquarie I. Ant.
Reference	28	28	28	33	33	25	49	96, 276	83, 108
Analyst	A. Jorgensen A.M.D.L.	H. Kresse A.M.D.L.	H. Kresse, A.Jorgensen A.M.D.L.	P. Hewson	J. R. Gamble	W. R. O'Beirne	B. L. Gulson	Not stated	A. R. Alderman
Remarks								Chilled phase	
SiO ₂	50.50	50.50	50.30	50.24	50.19	50.18	50.17	50.00	49.82
Al ₂ O ₃	18.30	15.50	15.00	13.65	13.42	19.46	13.43	15.95	17.61
Fe ₂ O ₃	0.94	0.54	1.95	2.90	2.57	0.90	} 10.51	2.70	0.96
FeO	5.55	3.80	4.85	8.13	8.83	4.80		8.10	4.66
MgO	9.05	11.50	12.40	8.72	11.00	10.26	7.92	8.90	9.78
CaO	12.80	16.60	13.70	12.42	10.50	12.04	11.22	10.95	14.67
Na ₂ O	1.49	0.76	0.75	1.93	1.55	1.90	2.08	2.28	1.23
K ₂ O	0.03	0.03	0.02	0.23	0.31	0.18	0.60	0.54	0.10
H ₂ O+	0.70	0.15	0.49	0.45	0.45	0.36	1.88	—	0.56
H ₂ O—	0.08	0.19	—	tr	0.11	0.23	0.14	—	0.19
CO ₂	0.04	0.02	0.07	0.26	0.01	nd	0.04	—	0.04
TiO ₂	0.13	0.14	0.11	0.63	0.84	0.16	0.55	0.54	0.25
P ₂ O ₅	0.01	0.01	0.01	0.02	0.12	nd	0.09	—	0.03
MnO	0.13	0.11	0.13	0.19	0.18	0.14	0.26	0.02	0.15
Other Constituents									
	99.75	99.85	99.78	100.10	100.30	100.61	98.89	99.98	100.15
Age									

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

b. CaO > 10%									
$K_2O/Na_2O < 0.75$									
	21	22	23	24	25	26	27	28	29
Rock Name	Norite pegmatite	Gabbro	Gabbro	Norite	Gabbro	Micro-gabbro	Leuconorite	Olivine norite <i>Giles Complex</i>	Norite
Locality	Daiuwa R., Musa Area, PNG. 9°19'S, 148°17'E.	Southern-most Balaena I., Ant. 66°02'S, 111°13'E.	Bonua-Abu Watershed, PNG. 9°52'S, 148°59'E	Opi R., Ajura Kujara Ra., PNG.	Bungendore- Tarago Area, N.S.W.	Somerset Dam, Old 664.326 Caboolture 1-mile Sheet	Buiasin R. Bowutu Mts, PNG. 7°10'S, 147°02'E	8 km W. of Mt Davies, S.A. zone 4, map 560 Davies 1-mile Sheet	Bolu Cr, Bowutu Mts, PNG. 7°29'S, 147°10'E
Reference	28	79, 49	28	28	28	81	28	97, 5	35; 36
Analyst	A. Jorgensen, R. Wilson- Smith A.M.D.L.	H. W. Sears A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	K. J. Heinrich A.M.D.L.	Avery & Anderson	A. Jorgensen, L. Castanelli A.M.D.L.		H. Kresse, A. Jorgensen A.M.D.L.
Remarks									
SiO ₂	49.80	49.80	49.50	49.30	49.30	48.86	48.70	48.50	48.30
Al ₂ O ₃	14.40	13.90	19.80	17.00	15.20	18.46	19.40	18.40	16.70
Fe ₂ O ₃	0.55	2.00	1.50	0.76	1.50	3.68	1.32	1.16	1.45
FeO	4.75	10.50	3.50	3.15	6.35	5.80	3.70	6.30	3.25
MgO	14.70	5.75	8.70	12.70	10.20	6.39	9.75	11.50	11.10
CaO	13.90	10.40	14.20	14.60	13.50	10.91	14.10	11.41	17.60
Na ₂ O	0.50	2.50	1.26	0.38	0.85	3.00	0.81	1.86	0.66
K ₂ O	0.09	0.78	0.01	0.01	0.11	0.42	0.02	0.12	0.02
H ₂ O +	1.26	0.86	0.86	1.36	2.35	0.35	0.96	0.02	0.45
H ₂ O -	0.20	0.13	0.14	0.16	0.04	0.07	0.33	0.44	—
CO ₂	—	0.48	0.08	0.13	0.12	—	0.11	0.11	0.03
TiO ₂	0.09	2.15	0.13	0.06	0.46	1.85	0.07	0.18	0.13
P ₂ O ₅	0.01	0.25	0.01	0.01	0.03	0.28	0.01	0.01	0.01
MnO	0.13	0.18	0.10	0.11	0.06	0.19	0.10	0.12	0.09
Other Constituents							BaO = 0.01 SrO = 0.01 Cr ₂ O ₃ = 0.08		
Age	100.38	99.70	99.79	99.73	100.07	100.26	99.48	100.13	99.79

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

b. CaO > 10%

 $K_2O/Na_2O < 0.75$

	30	31	32	33	34	35	36	37	38
Rock Name	Olivine gabbro	Gabbro	Olivine norite <i>Giles Complex</i>	Pyroxenite	Troctolite <i>McIntosh Gabbro</i>	Gabbro	Eucrite	Micro-gabbro	Gabbroid diorite
Locality	Opi R., Ajura Kujara Ra., PNG.	Gazelle Pen., PNG. 4°58'S, 152°12'E	Blackstone Ra., W.A.	Yeoval, N.S.W.	Dixon Ra., Area, W.A. 17°45'20", 127°53'40"	Yeoval, N.S.W.	Handspike Pt, Macquarie I., Ant.	Somerset Dam, Qld	Yeoval, N.S.W.
Reference	28	28	33	49	42; 43, 60	49	83, 108	81	49
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	R. W. Lindsey	B. L. Gulson	J. Gamble W.A. Govt Chem Lab	B. L. Gulson	E. R. Segnit	Avery & Anderson	B. L. Gulson
Remarks									Fine grained
SiO ₂	48.10	48.10	47.72	47.68	47.42	47.09	46.84	46.64	46.55
Al ₂ O ₃	16.50	20.20	17.35	8.54	19.22	17.40	22.17	17.29	13.60
Fe ₂ O ₃	0.69	2.30	2.22	2.32	0.99	1.83	0.69	4.27	17.55
FeO	3.35	6.70	9.46	8.42	4.07	7.25	3.23	6.82	
MgO	11.90	4.35	7.05	14.27	10.92	7.90	9.09	9.17	5.54
CaO	16.90	10.20	10.87	14.23	15.10	13.10	15.14	10.65	10.29
Na ₂ O	0.55	3.20	2.24	0.68	1.11	1.30	1.61	2.58	3.33
K ₂ O	0.06	0.36	0.25	0.46	0.05	0.16	0.10	0.34	0.50
H ₂ O +	1.25	2.90	0.41	1.75	0.95	0.95	1.21	0.33	0.77
H ₂ O -	0.07	0.45	0.10	0.15	0.17	0.11	0.14	0.13	0.13
CO ₂	0.11	0.06	0.07	0.11	—	0.04	tr	—	0.37
TiO ₂	0.10	0.99	2.02	0.31	0.18	0.45	0.12	1.20	3.36
P ₂ O ₅	0.02	0.22	0.03	0.01	0.01	0.003	0.05	0.04	0.08
MnO	0.08	0.14	0.15	0.30	0.07	0.24	tr	0.14	0.29
Other Constituents					FeS ₂ = 0.05				
	99.68	100.17	100.26	99.23	100.31	97.82	100.39	100.20	100.62
Age									

TABLE E — NORITES, GABBROS AND ASSOCIATED ULTRAMAFIC ROCKS

b. CaO > 10%					
K ₂ O/Na ₂ O < 0.75					
	39	40	41	42	43
Rock Name	Gabbro	Olivine gabbro	Gabbro	Allivalite	Gabbro
Locality	Gazelle Pen., PNG.	Monsildale, Qld 509857 Nanango 1-mile Sheet	Yeoval, N.S.W.	Half Moon Bay, Macquarie I., Ant.	Yeoval, N.S.W.
Reference	28	95	49	83, 108	49
Analyst	A. Jorgensen A.M.D.L.	C. G. Murray	B. L. Gulson	E. R. Segnit	B. L. Gulson
Remarks					
SiO ₂	46.40	46.01	45.83	44.92	43.66
Al ₂ O ₃	16.20	17.19	17.62	25.16	17.18
Fe ₂ O ₃	5.20	5.93	9.11	2.03	4.16
FeO	7.70	6.94		2.42	6.63
MgO	7.20	7.72	10.86	7.68	8.75
CaO	10.10	12.04	15.36	13.41	16.06
Na ₂ O	2.05	1.90	0.76	1.76	0.82
K ₂ O	0.51	0.68	0.06	0.10	0.07
H ₂ O +	3.05	nd	0.91	2.24	0.70
H ₂ O -	0.21	nd	0.09	0.16	0.12
CO ₂	0.17	—	abs	—	0.09
TiO ₂	1.14	0.76	0.22	tr	0.54
P ₂ O ₅	< 0.05	—	0.007	0.32	0.002
MnO	0.25	0.10	0.14	—	0.22
Other Constituents					
	100.23	99.47	100.96	99.88	99.00
Age					

TABLE E² - METASOMATIZED AND DEUTERIALLY ALTERED GABBROS ETC.

Serpentinized			Uralitized			Amphibolized	
	1	2	3	4	5	6	7
Rock Name	Serpen- tinized picrite	Serpen- tinized picrite	Uralitized gabbro <i>McIntosh Gabbro</i>	Uralitized gabbro	Uralitized gabbro <i>McIntosh Gabbro</i>	Amphi- bolized gabbro <i>Woodward Dolerite</i>	Amphi- bolized anorthosite <i>Woodward Dolerite</i>
Locality	Jimberlana, nr Norse- man, W.A. 1025720N, 484970E	Mt North, nr Norse- man, W.A. 1025850N, 503080E.	10 km S. of Alice Hill, Dixon Ra., W.A. 17°59'45", 127°48'30"	N. Heemskirk, Tas.	14 km NE. of Springvale Hill, Dixon Ra., W.A. 17°37'15", 127°42'00"	Eastmans Bore, Mt Ramsay Area, W.A. 4706, 26527	Eastmans Bore, Mt Ramsay Area, W.A. 4734, 26538
Reference	25	25	42; 43, 60	16, 46	42; 43, 60	28	28
Analyst	W. R. O'Beirne	W. R. O'Beirne	R. S. Pepper W.A. Govt Chem Lab	Dep. Mines Launceston	A. J. Simms W.A. Govt Chem Lab	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.
Remarks							
SiO ₂	44.24	40.21	48.38	46.60	45.44	51.60	46.40
Al ₂ O ₃	11.17	10.38	18.47	14.30	21.03	14.50	28.00
Fe ₂ O ₃	2.55	4.17	1.18	3.04	1.22	1.76	0.72
FeO	8.13	8.70	6.00	12.87	6.55	7.95	3.45
MgO	26.71	28.86	7.97	5.73	8.87	8.90	2.85
CaO	4.19	3.29	13.14	7.64	12.56	8.35	10.40
Na ₂ O	0.81	0.68	1.81	3.42	1.64	1.57	2.50
K ₂ O	0.31	0.15	0.28	0.36	0.24	1.75	1.57
H ₂ O+	2.74	3.76	2.26	3.20	1.56	2.25	3.05
H ₂ O-	0.36	0.37	0.09	0.40	0.17	0.22	0.32
CO ₂	nd	nd	—	—	—	0.04	0.26
TiO ₂	0.36	0.16	0.45	2.69	0.44	0.71	0.40
P ₂ O ₅	nd	nd	0.08	0.04	0.05	0.08	0.03
MnO	0.18	0.21	0.12	0.08	0.13	0.16	0.06
Other Constituents			FeS ₂ = tr		FeS ₂ = 0.09	F=0.05 S=0.04 BaO=0.05 Cr ₂ O ₃ =0.07	F=0.05 S=0.04 BaO=0.03
Less O = Cl, F, S						0.03	0.03
	101.75	100.94	100.23	100.37	99.99	100.02	100.14
Age							

TABLE E² — METASOMATIZED AND DEUTERICALLY ALTERED GABBROS ETC.

Silicified			Other Alteration
	8	9	10
Rock Name	Metasoma- ized gabbro <i>McIntosh Gabbro</i>	Metasoma- ized gabbro <i>McIntosh Gabbro</i>	Altered peridotite <i>Woodward Dolerite</i>
Locality	16 km SW of Alice Hill, Dixon Ra. Area, W.A. 17°56'40", 127°39'25"	10 km NW of Dave Hill, Dixon Ra. Area, W.A. 17°20'55", 127°56'55"	Eastmans Bore, Mt Ramsay Area, W.A.
Reference	42; 43, 60	42; 43, 60	28
Analyst	L. W. Castanelli, M. R. Hanckel, A.M.D.L.	R. S. Pepper W.A. Govt Chem Lab	A. Jorgensen A.M.D.L.
Remarks			
SiO ₂	67.60	56.94	40.00
Al ₂ O ₃	13.90	15.31	8.00
Fe ₂ O ₃	1.19	1.27	6.55
FeO	4.20	7.29	5.55
MgO	1.61	5.28	25.30
CaO	3.26	7.86	4.75
Na ₂ O	2.16	2.09	0.38
K ₂ O	3.76	1.82	0.17
H ₂ O +	0.81	0.78	6.50
H ₂ O -	0.12	0.14	0.34
CO ₂	0.03	—	0.03
TiO ₂	0.67	0.86	0.53
P ₂ O ₅	0.17	0.14	0.04
MnO	0.06	0.12	0.12
Other Constituents		FeS ₂ =0.02	BaO=0.01 F=0.05 S=0.05 Cr ₂ O ₃ =0.75
Less O = Cl, F, S			0.03
	99.54	99.92	99.49
Age			

TABLE E³ —
WEATHERED
GABBROS

	1
Rock Name	Kaolinized gabbro
Locality	Coates Siding 72 km ENE. of Perth, W.A.
Reference	59, 63
Analyst	D. R. Hudson
Remarks	
SiO ₂	23.05
Al ₂ O ₃	18.74
Fe ₂ O ₃	27.67
FeO	13.09
MgO	0.48
CaO	tr.
Na ₂ O	0.18
K ₂ O	0.17
H ₂ O +	7.32
H ₂ O -	1.77
CO ₂	—
TiO ₂	6.64
P ₂ O ₅	—
MnO	0.12
Other Constituents	
	99.23
Age	

TABLE F — XENOLITHS AND INCLUSIONS IN GRANITIC ROCKS

	1	2	3	4	5	6	7	8	9
Rock Name	Psammo- pelitic xenolith	Biotite- quartz- plagioclase rock	Granitized quartzite xenolith	Quartz- monzonite- porphyry xenolith	Biotite-rich psammo- pelite inclusion	Xenolith	Xenolith	Diorite xenolith	Pyroxene- plagioclase rock (centre of xenolith)
Locality	Khancoban, N.S.W. GR 2742- 1398 SMA Grid	Tumbar- umba-Geehi Area, N.S.W. G.R. 2785- 1754 S.M.A. Grid	3 km E. of Braidwood, N.S.W.	W. of Kool- anooka Hills, W.A. 4854N, 2067E	Tumbar- umba- Geehi Area, N.S.W. G.R. 2741- 1558 S.M.A. Grid	Yeoval, N.S.W.	Yeoval, N.S.W.	23 km E. of Tenterfield, N.S.W.	Koolanooka Hills, W.A.
Reference	51; 53, 150	51; 52, 14	28	3	51; 52, 14	49	49	115	3
Analyst	B. B. Guy	B. B. Guy	D. K. Rowley A.M.D.L.	P. A. Arriens	B. B. Guy	B. L. Gulson	B. L. Gulson	S. E. Shaw	P. A. Arriens
Remarks	(in granite)	(in granite)	(in granite)	(in porphyry)	(in granite)		(in diorite)	(in adamellite)	(in granite)
SiO ₂	69.82	66.27	63.40	61.74	57.70	54.62	53.00	52.84	52.57
Al ₂ O ₃	13.13	13.85	14.90	13.25	14.17	17.25	17.11	18.30	14.16
Fe ₂ O ₃	0.71	0.27	1.86	2.96	0.28	8.88	8.52	1.52	2.32
FeO	3.59	3.55	3.77	6.28	7.36			6.08	10.08
MgO	1.49	5.50	2.67	1.68	7.23	3.58	4.82	5.43	5.29
CaO	3.84	2.54	5.21	5.18	3.35	7.42	8.08	7.18	8.21
Na ₂ O	3.31	2.57	2.45	2.64	0.73	3.48	4.16	4.32	3.42
K ₂ O	1.88	3.01	3.21	2.76	4.51	1.64	1.51	1.96	1.26
H ₂ O +	0.81	0.90	1.13	1.06	1.90	1.79	1.14	1.03	1.26
H ₂ O -	0.13	0.18	0.14	abs	0.23	0.18	0.20	0.05	0.01
CO ₂	—	—	—	0.53	—	abs	0.07	—	—
TiO ₂	0.90	0.88	0.70	1.55	1.80	0.70	0.44	1.19	1.02
P ₂ O ₅	0.07	0.01	0.18	0.36	0.12	0.118	0.072	0.29	0.18
MnO	0.08	0.06	0.08	0.15	0.13	0.25	0.34	0.19	0.36
Other Constituents								F = 0.07 0.03	
Age	99.76	99.68	99.70	100.14	99.68	99.03	98.62	100.42	100.14

TABLE F — XENOLITHS AND INCLUSIONS
IN GRANITIC ROCKS

	10	11	12
Rock Name	Pyroxene-plagioclase rock (margin of xenolith)	Xenolith	Cordierite-biotite-sillimanite inclusion
Locality	Koolanooka Hills, W.A.	Koolanooka Hills, W.A.	Tumbar-umba-Geehi Area, N.S.W. G.R. 2772-1652 S.M.A. Grid
Reference	3	3; 4, 49, 82	51; 52, 14
Analyst	P. A. Arriens	P. A. Arriens	B. B. Guy
Remarks	(in granite)	(in porphyry)	(in granite)
SiO ₂	51·87	51·15	44·87
Al ₂ O ₃	13·60	15·15	28·42
Fe ₂ O ₃	2·46	1·24	0·26
FeO	10·23	9·18	7·97
MgO	5·38	7·69	4·45
CaO	8·34	3·08	1·49
Na ₂ O	3·36	2·69	2·02
K ₂ O	1·18	5·63	3·71
H ₂ O +	1·28	2·09	3·40
H ₂ O —	0·01	0·03	0·23
CO ₂	0·02	—	—
TiO ₂	1·75	0·65	2·50
P ₂ O ₅	0·20	0·05	0·12
MnO	0·16	0·30	0·26
Other Constituents		F = 2·11 0·89	
Age	99·85	100·15	99·70

TABLE G — HYBRID AND CONTAMINATED ROCKS

b. CONTAMINATED. One parent Sedimentary						
	1	2	3	4	5	6
Rock Name	Contact rock	Contact rock	Contact rock	Contact rock	Contact rock	Contact rock
Locality	DDH. Avon R., S. of Wongawilla Colliery, N.S.W.	DDH. Avon R., S. of Wongawilla Colliery, N.S.W.	DDH. Avon R., S. of Wongawilla Colliery, N.S.W.	DDH. Avon R., S. of Wongawilla Colliery, N.S.W.	DDH. Avon R., S. of Wongawilla Colliery, N.S.W.	DDH. Avon R., S. of Wongawilla Colliery, N.S.W.
Reference	22	22	22	22	22	22
Analyst	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab
Remarks	Mafic Rock-L ² -O ² 19-43/coal seam	Mafic Rock-L ² -O ² 19-43/coal seam	Mafic Rock-L ² -O ² 19-43/coal seam	Mafic Rock-L ² -O ² 19-43/coal seam	Mafic Rock-L ² -O ² 19-43/coal seam	Mafic Rock-L ² -O ² 19-43/coal seam
SiO ₂	32.60	32.40	32.40	32.20	30.20	30.10
Al ₂ O ₃	12.00	13.00	10.00	11.70	10.90	10.80
Fe ₂ O ₃	6.84	3.72	0.19	0.66	3.30	abs
FeO	11.10	9.79	11.55	11.53	14.09	14.00
MgO	5.53	5.00	7.92	6.70	6.34	5.10
CaO	4.74	9.90	13.60	11.89	4.76	11.50
Na ₂ O	2.02	2.72	1.18	0.74	1.98	0.22
K ₂ O	2.13	1.34	2.06	2.92	2.14	2.85
H ₂ O +	4.06	4.52	3.82	4.21	4.28	4.06
H ₂ O -	4.39	2.50	3.60	4.13	2.86	3.54
CO ₂	8.98	10.36	8.42	8.48	12.82	11.40
TiO ₂	3.64	3.38	2.68	3.38	3.24	3.56
P ₂ O ₅	1.21	1.12	0.88	1.24	1.08	1.27
MnO	0.31	0.28	0.34	0.29	0.19	0.34
Other Constituents						
	99.79	100.35	99.05	100.42	99.48	99.10
Age						

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

K₂O/Na₂O > 1.25

	1	2	3	4	5	6	7	8	9
Rock Name	Rhyolitic agglomerate	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Rhyolitic agglomerate	Quartz porphyry	Porphyritic rhyolite	Quartz porphyry
Locality	Kanowna, nr Kalgoorlie, W.A. 1208010N, 467470E.	Kanowna, nr Kalgoorlie, W.A. 1207230N, 408330E.	Lake Gidgi, nr Kalgoorlie, W.A. 1206900N, 445500E.	Kanowna, nr Kalgoorlie, W.A. 1208000N, 468630E.	Kanowna, nr Kalgoorlie, W.A. 1207660N, 468270E.	Kanowna, nr Kalgoorlie, W.A. 1206950N, 468290E.	Koolanooka Hills, W.A. 4924N, 2146E.	N. of Glennies Pt, Mt Alford Area, Qld	Koolanooka Hills, W.A. 5056N, 2060E
Reference	98	98	98	98	98	98	3	122, 509	3
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	P. A. Arriens	Avery & Anderson	P. A. Arriens
Remarks									
SiO ₂	83.98	83.54	83.05	80.54	78.97	78.03	77.44	77.30	77.18
Al ₂ O ₃	8.27	9.16	8.68	9.82	11.36	10.93	11.42	13.34	11.97
Fe ₂ O ₃	0.20	0.09	abs	abs	0.16	0.05	0.48	0.15	0.66
FeO	0.71	0.22	0.92	0.30	0.27	0.47	0.88	0.14	0.83
MgO	0.02	0.04	0.20	0.08	0.02	0.16	0.17	0.66	0.06
CaO	0.18	0.01	0.08	0.09	0.23	0.03	0.70	0.45	0.83
Na ₂ O	0.82	0.01	0.39	0.84	2.03	0.92	3.61	2.41	3.11
K ₂ O	5.19	6.67	6.36	7.09	6.35	8.31	4.71	4.30	4.60
H ₂ O+	0.31	0.04	0.18	0.07	0.07	0.08	0.40	0.64	0.27
H ₂ O-	abs	0.01	abs	0.08	abs	0.03	0.02	0.68	0.02
CO ₂	nd	nd	nd	0.07	0.04	nd	—	nd	—
TiO ₂	0.05	0.01	abs	0.18	0.02	0.03	0.08	0.11	0.15
P ₂ O ₅	nd	nd	nd	nd	nd	nd	0.06	0.04	0.01
MnO	abs	abs	abs	abs	abs	abs	0.02	tr	0.02
Other Constituents							F = p.n.d.		F = p.n.d.
	99.73	99.79	99.86	99.16	99.52	99.04	99.99	100.22	99.71
Age									

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

K ₂ O/Na ₂ O > 1.25									
Rock Name	10	11	12	13	14	15	16	17	18
	Rhyolitic agglomerate	Spherulitic rhyolite	Quartz porphyry	Welded lapilli tuff <i>Guanaba Volcanics</i>	<i>Brisbane tuff</i>	Porphyritic pitchstone <i>Peak Range Volcanics</i>	Rhyodacite <i>Bagstowe Ring Dyke Complex</i>	Rhyodacite welded tuff <i>Croydon Volcanics</i>	Welded vitric tuff <i>Guanaba Volcanics</i>
Locality	Kanowna, nr Kalgoorlie, W.A. 1207830N, 468010E.	Mt Castor, Peak Ra Area, Qld 61101963	Koolanooka Hills, W.A. 4946N, 2200E.	Mt Tam- borine, Qld Tamborine 1-mile Sheet 379255	Windsor, Brisbane, Qld	Mt Pollux, Peak Ra., Qld 6105-1950	About 100 km S. of Einasleigh, Qld	13 km NW. of Snake Cr Mine, Georgetown Area, Qld	Mt Tam- borine, Qld Tamborine 1-mile Sheet 374327
Reference	98	85	3	46	21, 156	85	19, 119	19, 113	46
Analyst	W. R. O'Beirne	K. J. Heinrich, H. W. Sears A.M.D.L.	P. A. Arriens	D. C. Green	G. R. Patten	K. J. Heinrich, H. W. Sears A.M.D.L.	A. McClure	H. W. Sears A.M.D.L.	D. C. Green
Remarks							(Castle Hill Dyke)		
SiO ₂	77.13	77.00	76.73	75.6	75.52	75.50	75.44	75.40	75.00
Al ₂ O ₃	12.96	12.30	12.51	12.53	12.73	12.30	12.79	11.90	13.91
Fe ₂ O ₃	0.16	0.79	0.73	0.12	2.18	0.48	0.77	0.36	0.14
FeO	1.03	0.61	0.30	0.73	1.43	0.55	0.49	2.78	0.21
MgO	0.26	0.07	0.12	0.49	0.27	0.09	0.24	0.24	0.09
CaO	0.06	0.45	0.96	0.15	0.28	0.58	0.72	0.23	0.15
Na ₂ O	2.91	3.45	2.88	2.22	2.30	2.30	3.60	1.72	1.32
K ₂ O	5.88	4.45	4.66	5.10	3.47	5.50	5.55	5.60	6.04
H ₂ O +	0.06	0.47	0.82	1.19	1.20	3.10	0.61	0.89	1.61
H ₂ O -	0.04	0.16	0.06	1.68	0.48	0.12	0.24	0.09	1.61
CO ₂	nd	0.02	—	—	—	—	nd	0.35	—
TiO ₂	0.06	0.03	0.40	0.14	0.30	0.07	0.07	0.21	—
P ₂ O ₅	nd	0.02	0.06	0.03	0.16	0.04	0.11	0.14	0.07
MnO	0.03	0.01	tr	0.03	0.01	0.02	0.04	0.18	abs
Other Constituents			F = p.n.d.						
Age	100.58	99.8	100.26	100.01	100.57	99.7	[100.67]	100.09	100.30

a. CaO < 1%

K₂O/Na₂O > 1.25

	19	20	21	22	23	24	25	26	27
Rock Name	Rhyolite <i>Tollu Volcanics</i>	Perlite glass	Welded tuff <i>Newcastle Range Volcanics</i>	Quartz porphyry	Rhyolite	Rhyolite	Rhyodacite welded tuff <i>Featherbed Volcanics</i>	Porphyritic rhyolite	Porphyritic rhyolite
Locality	Tollu min- ing camp, S. Black- stone Ra., W.A. 26°10'S, 128°25'W.	Numinbah Valley, Qld Springbrook 1-mile Sheet 343009	11 km N. of Einas- leigh, Qld 18°26'S, 144°04'E.	White Face Dyke, Mt Bischoff, Tas.	Finneys Hill Indooroo- pilly, Qld	Kyogle, N.S.W.	5 km NNE. of Cappa Junction, Qld 17°19'S, 144°53'E.	Wongi Dam nr Kam- balda, W.A. 1165430N, 445510E	Koolatong R, N. end Parsons Ra. Bay, N.T.
Reference	96, 276	46	28	47	62, 106	102, 8	28	98	28
Analyst	Not stated	D. C. Green	C. R. Edmond A.M.D.L.	Tas. Dep Mines	L. Sutherland	J. H. Pyle	H. W. Sears A.M.D.L.	W. R. O'Beirne	L. Castanelli A.M.D.L.
Remarks					140' level drill-test chamber				
SiO ₂	74.60	74.5	74.40	73.78	72.40	72.10	72.10	71.55	68.90
Al ₂ O ₃	11.40	12.13	12.70	14.35	16.17	14.26	13.90	15.19	12.40
Fe ₂ O ₃	0.16	0.08	1.04	0.61	0.32	0.21	0.67	0.46	6.50
FeO	4.00	0.51	0.92	1.57	1.16	2.38	1.76	0.50	0.44
MgO	0.13	0.07	0.19	0.62	0.31	0.39	2.85	0.11	0.19
CaO	0.90	0.42	0.71	0.44	0.45	0.64	0.76	0.11	0.22
Na ₂ O	1.80	3.40	3.40	0.40	2.86	1.05	2.80	3.65	0.44
K ₂ O	5.90	4.32	4.80	6.01	4.30	4.91	3.75	7.59	9.35
H ₂ O+	—	2.89	0.86	2.15	1.35	2.64	0.88	0.17	0.34
H ₂ O—	—	1.27	0.16	0.12	0.10	0.55	0.13	0.07	0.40
CO ₂	—	—	0.22	nd	—	0.82	0.11	nd	0.02
TiO ₂	0.43	0.13	0.19	0.06	0.17	0.21	0.25	0.05	0.47
P ₂ O ₅	—	0.03	0.05	tr	0.06	0.04	0.05	nd	0.15
MnO	0.10	0.07	0.03	0.09	0.18	0.02	0.03	0.06	0.01
Other Constituents				FeS ₂ = tr					
Age	99.42	99.82	99.67	100.20	99.83	100.22	100.04	99.51	99.83

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

 $K_2O/Na_2O = 1.25 - 0.75$

	28	29	30	31	32	33	34	35	36
Rock Name	Rhyolitic agglomerate	Porphyritic rhyolite	Comendite	Comendite	Obsidian	Pantellerite <i>Peak Range Volcanics</i>	Alkali rhyolite	Alkali rhyolite	Porphyritic rhyolite
Locality	Kanowna, nr Kalgoorlie, W.A. 1207220N, 468110E.	Mt Pleasant, nr Kalgoorlie, W.A. 1221500N, 426400E.	Minto Craggs Mt Alford Area, Qld	Mt Oliver, Upper Lansdown District nr Taree, N.S.W. Comboyne 1"-1 mile Sheet 537784	SW. Fergusson I., PNG. 9°39'S, 150°32'E.	Mt MacArthur Peak Ra. area, Qld	Killarney Gap, Nandewar Mts, N.S.W.	Mt Lawler, Nandewar Mts, N.S.W.	Wongi Dam, nr Kambalda, W.A. 1165650N, 445480E.
Reference	98	98	122, 509	77, 230	37	85	2, 126	2, 126	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	Avery & Anderson	G.I.Z. Kalo sai	A. Jorgensen A.M.D.L.	K. J. Heinrich, H. W. Sears A.M.D.L.	M. J. Abbott	M. J. Abbott	W. R. O'Beirne
Remarks		Intrusive					(Dyke)	(Dome)	
SiO ₂	75.02	74.98	74.68	74.33	74.30	74.00	73.82	73.46	73.41
Al ₂ O ₃	14.47	13.46	11.55	12.74	13.50	11.50	14.31	13.91	15.67
Fe ₂ O ₃	0.01	0.10	3.42	1.84	0.40	1.98	0.60	0.96	0.14
FeO	0.44	0.97	0.43	1.19	0.87	2.11	0.07	0.09	0.83
MgO	0.20	0.34	0.05	0.07	0.18	0.08	0.45	0.13	0.14
CaO	0.06	0.44	0.43	0.15	0.72	0.16	0.11	0.04	0.58
Na ₂ O	4.12	4.55	4.28	4.75	4.35	5.20	4.73	5.33	4.95
K ₂ O	4.76	3.81	4.62	4.10	4.70	4.05	5.35	5.27	4.28
H ₂ O+	0.13	0.12	0.50	0.43	0.42	0.33	0.10	0.12	0.07
H ₂ O—	0.05	0.08	0.23	0.45	—	0.28	—	—	0.04
CO ₂	nd	nd	nd	—	—	0.05	0.12	0.18	0.44
TiO ₂	0.07	0.09	0.24	0.10	0.20	0.02	0.26	0.25	0.03
P ₂ O ₅	nd	nd	0.05	abs	0.02	0.01	0.11	0.08	nd
MnO	abs	0.02	0.03	0.01	0.03	0.03	tr	tr	0.01
Other Constituents							BaO=tr SrO=tr RbO=0.02 ZrO ₂ =0.03	BaO=tr SrO=tr RbO=0.02 ZrO ₂ =0.04	
Age	99.33	98.96	100.51	100.16	99.69	99.80	100.08	99.88	100.59

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

K ₂ O/Na ₂ O = 1.25 - 0.75								K ₂ O/Na ₂ O < 0.75	
	37	38	39	40	41	42	43	44	45
Rock Name	Comendite	Rhyolite	Peralkaline rhyolite	Porphyritic rhyolite	Peralkaline rhyolite	Rhyolite	Alkali rhyolite	Porphyritic rhyolite	Porphyritic rhyolite
Locality	Mt Waa, North Nandewars, N.S.W.	SW. Fergusson I., PNG. 9°39'S, 150°32'E.	Lamonai Crater, Fergusson I., PNG.	Wongi Dam, nr Kambalda, W.A. 1164810N, 452000E.	Dobu I., PNG.	Oian Crater, Fergusson I., PNG.	1.5 km NW. of Nobbys, Nandewar Mts, N.S.W.	Wongi Dam, nr Kambalda, W.A. 1165940N, 445580E.	Kanowna, nr Kalgoorlie, W.A. 1208100N, 467860E.
Reference	2, 126	37	90; 92, 589	98	90; 92, 589	28	2, 126	98	98
Analyst	M. J. Abbott	A. Jorgensen A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	W. R. O'Beirne	L. Castanelli, R. L. Bruce A.M.D.L.	S. Baker	M. J. Abbott	W. R. O'Beirne	W. R. O'Beirne
Remarks	(Dome)	Flow banding	Floor of Crater		Crater	*Loss on Ignition	Dyke		
SiO ₂	72.99	72.90	70.90	70.69	70.10	68.96	66.53	76.21	75.99
Al ₂ O ₃	13.44	14.50	14.50	15.31	14.80	14.53	18.76	13.14	14.05
Fe ₂ O ₃	1.51	0.92	1.39	0.85	2.15	1.93	0.41	0.11	0.13
FeO	0.28	0.23	1.57	0.70	1.10	1.58	0.11	0.53	0.57
MgO	0.06	0.19	0.18	0.13	0.22	0.16	0.11	0.09	0.13
CaO	0.17	0.58	0.46	0.33	0.55	0.38	0.61	abs	0.11
Na ₂ O	5.46	5.05	5.75	5.16	6.00	6.50	6.78	5.41	4.78
K ₂ O	5.33	4.45	4.60	6.33	4.60	4.89	6.11	3.55	3.01
H ₂ O +	0.11	0.38	0.10	0.23	0.18	0.83*	0.11	0.02	0.20
H ₂ O -	—	—	0.13	0.04	0.09	nd	—	0.02	0.08
CO ₂	0.32	—	0.03	0.23	0.03	—	0.12	nd	nd
TiO ₂	0.26	0.27	0.27	0.07	0.29	0.26	0.29	0.06	0.10
P ₂ O ₅	0.07	0.02	0.03	nd	0.04	0.08	0.11	nd	nd
MnO	0.03	0.02	0.07	abs	0.09	0.11	tr	abs	abs
Other Constituents	BaO=tr SrO=tr RbO=0.03 ZrO ₂ =tr						BaO=0.03 SrO=tr RbO=0.02 ZrO ₂ =0.06		
	100.06	99.51	99.98	100.07	100.24	100.21	100.16	99.14	99.15
Age									

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

 $K_2O/Na_2O < 0.75$

	46	47	48	49	50	51	52	53	54
Rock Name	Brecciated porphyritic soda rhyolite	Porphyritic soda rhyolite	Amphibole-bearing porphyritic soda rhyolite	Porphyritic sodic rhyolite	Vitric tuff	Comendite <i>Peak Range Volcanics</i>	Porphyritic sodic rhyolite	Rhyodacite <i>Scardans Volcanics</i>	Porphyritic sodic rhyolite
Locality	Mt Hunt, nr Kalgoorlie, W.A. 1182660N, 453120E.	Binduli, nr Kalgoorlie, W.A. 1190050N, 441350E.	Hampton Boulder Mine, nr Kalgoorlie, W.A. 1159890N, 463180E.	Mt Pleasant nr Kalgoorlie, W.A. 1221300N, 426000E.	N.S.W.	Ropers Peak, Peak Ra, Area, Qld 65001475	White Hope, nr Kalgoorlie, W.A. 1153100N, 466700E.	5 km W. of True Blue Fluorite mines, (about 96 km N. of Einasleigh). Atherton Area, Qld 17°36'S, 144°14'E.	Mt Shea, nr Kalgoorlie, W.A. 1174060N, 459600E.
Reference	98	98	98	98	73	85	98	19, 113; 66, 73	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne		K.J.Heinrich, H. W. Sears A.M.D.L.	W. R. O'Beirne	H. W. Sears A.M.D.L.	W. R. O'Beirne
Remarks	Intrusive	Intrusive	Intrusive	Intrusive			Intrusive	Incipient welded tuff	Intrusive
SiO ₂	74.79	74.69	74.52	74.42	74.1	73.40	73.34	73.30	72.97
Al ₂ O ₃	15.55	15.69	15.60	14.63	14.2	12.80	15.17	13.30	15.67
Fe ₂ O ₃	0.03	0.53	0.07	0.88	1.85	1.44	0.02	0.81	0.99
FeO	0.86	0.24	0.87	1.10	—	1.88	0.87	1.55	0.87
MgO	0.04	0.11	0.99	0.29	0.25	0.01	0.47	0.19	0.57
CaO	0.13	0.16	0.81	0.74	0.50	0.22	0.96	0.98	0.32
Na ₂ O	7.03	6.80	6.59	5.98	4.84	5.65	5.64	4.55	5.97
K ₂ O	0.25	1.07	0.14	0.46	0.74	3.90	2.06	3.40	1.36
H ₂ O+	0.34	0.14	0.07	0.53	3.62	0.22	0.72	0.91	0.58
H ₂ O—	0.18	0.14	0.02	0.21	—	0.08	0.08	0.15	0.38
CO ₂	nd	nd	0.08	0.10	—	0.04	nd	0.37	nd
TiO ₂	0.52	0.33	0.24	0.23	0.18	0.08	0.22	0.23	0.46
P ₂ O ₅	nd	nd	nd	nd	—	0.01	nd	0.07	nd
MnO	abs	abs	abs	0.01	—	0.06	abs	0.06	abs
Other Constituents									
Age	99.72	99.90	100.00	99.58	100.3	99.8	99.55	100.90	100.14

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

K₂O/Na₂O < 0.75

	55	56	57	58	59	60	61	62	63
Rock Name	Comendite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Amphibole-bearing porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite
Locality	Pound Mt, Nandewar Mts, N.S.W.	Kalgoorlie, W.A. 1185700N, 450100E.	Mt Shea, nr Kalgoorlie, W.A. 1173410N, 458010E.	Red Lake, nr Kalgoorlie, W.A. 1174900N, 434700E.	Wongi dam, nr Kambalda, W.A. 1165650N, 445670E.	Ringneck, nr Kambalda, W.A. 1145620N, 466870E.	Kambalda, W.A. 1139610N, 469470E.	Kambalda, W.A. 1137330N, 470920E.	Black Flag, nr Kalgoorlie, W.A. 1219800N, 430900E.
Reference	2, 126	98	98	98	98	98	98	98	98
Analyst	M. J. Abbott	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks		Intrusive	Intrusive				Intrusive	Intrusive	Intrusive
SiO ₂	72.70	72.70	75.59	72.58	72.52	72.47	72.19	72.00	71.97
Al ₂ O ₃	13.20	16.18	15.47	15.30	16.88	15.80	16.26	15.45	16.43
Fe ₂ O ₃	2.60	0.11	0.32	0.70	0.14	0.02	0.06	0.81	0.96
FeO	0.54	0.92	1.73	1.37	0.72	1.00	0.79	0.90	0.54
MgO	0.08	0.87	2.43	2.41	abs	0.33	0.73	0.85	0.92
CaO	0.09	0.50	0.18	0.70	0.26	0.60	0.54	0.99	0.55
Na ₂ O	6.01	6.59	5.99	6.61	5.50	5.31	5.45	5.56	5.00
K ₂ O	4.50	1.48	0.20	0.04	3.45	2.86	2.83	2.13	2.87
H ₂ O +	0.19	0.14	0.79	0.11	abs	0.59	0.55	0.30	0.18
H ₂ O -	—	0.13	0.16	0.68	0.05	0.44	0.05	0.03	0.09
CO ₂	0.31	nd	nd	nd	nd	nd	nd	0.23	nd
TiO ₂	0.13	0.29	0.42	0.29	0.33	0.27	0.30	0.33	0.37
P ₂ O ₅	0.04	nd	nd	nd	nd	nd	nd	nd	nd
MnO	0.05	0.01	0.01	0.01	abs	abs	0.01	0.01	abs
Other Constituents	BaO=tr SrO=tr RbO=0.03 ZrO ₂ =0.01								
Age	100.48	99.92	100.29	100.20	99.85	99.69	99.76	99.59	99.88

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%									
K ₂ O/Na ₂ O < 0.75									
	64	65	66	67	68	69	70	71	72
Rock Name	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite
Locality	Kambalda, W.A. 1137800N, 470580E.	Bulong, W.A. 1192700N, 487000E.	Kambalda, W.A. 1139330N, 470230E.	Black Flag, nr Kalgoorlie, W.A. 1220900N, 431000E.	Ringneck nr Kambalda, W.A. 1147370N, 465510E.	Black Flag, nr Kalgoorlie, W.A. 1213700N, 430700E.	Binduli, W.A. 1190290N, 442150E.	Black Flag, nr Kalgoorlie, W.A. 1213800N, 430600E.	Black Flag, 8 km NNW. of Kalgoorlie, W.A. 1204000N, 446000E.
Reference	98	98	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	Intrusive	Intrusive	Intrusive	Intrusive	Texturally near granitic	Intrusive	Intrusive	Intrusive	Intrusive
SiO ₂	71.96	71.76	71.56	71.54	71.50	71.39	71.26	70.81	70.68
Al ₂ O ₃	16.92	15.28	16.38	16.63	16.33	16.85	15.82	17.50	17.24
Fe ₂ O ₃	0.21	1.14	0.16	1.26	0.01	1.58	1.50	0.76	0.70
FeO	0.58	0.99	1.41	0.18	1.28	abs	0.72	0.81	0.48
MgO	0.63	0.93	0.94	0.76	1.11	0.57	1.31	0.65	0.40
CaO	0.25	0.81	0.37	0.46	0.92	0.29	0.85	0.39	0.46
Na ₂ O	5.02	6.51	5.55	5.30	4.86	5.42	5.73	5.05	5.45
K ₂ O	1.31	1.78	2.45	3.13	3.27	2.99	2.45	3.09	2.79
H ₂ O +	2.36	0.21	0.06	0.29	0.16	0.40	0.22	0.44	0.69
H ₂ O -	0.28	0.14	0.22	0.15	0.07	0.20	0.17	0.23	0.21
CO ₂	nd	nd	nd	nd	nd	nd	nd	nd	0.20
TiO ₂	0.33	0.29	0.29	0.38	0.31	0.35	0.34	0.37	0.32
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	nd
MnO	abs	0.01	abs	abs	0.01	abs	0.04	abs	abs
Other Constituents									
Age	99.85	99.85	99.39	100.08	99.83	100.04	100.41	100.10	99.65

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%

K₂O/Na₂O < 0.75

	73	74	75	76	77	78	79	80	81
Rock Name	Amphibole-bearing porphyritic sodic rhyolite	Porphyritic dacite	Sodic rhyolite	Porphyritic sodic rhyolite	Alkali rhyolite	Porphyritic rhyolite	Aegirine obsidian	Porphyritic rhyolite	Pumiceous aegirine obsidian
Locality	Mt Shea, nr Kalgoorlie, W.A. 1175610N, 456520E.	Mt Shea, nr Kalgoorlie, W.A. 1170380N, 462840E.	Smithfield, nr Kalgoorlie, W.A. 1221940N 441110E.	Binduli, nr Kalgoorlie, W.A. 1191380N, 441660E.	2.5 km from Nobbys, Nandewar Mts, N.S.W.	Binduli, nr Kalgoorlie, W.A. 1182760N, 444460E.	Lamonai Crater, Fergusson I., PNG.	Binduli, nr Kalgoorlie, W.A. 1185250N, 441480E.	Oian Cone, Fergusson Is., PNG.
Reference	98	98	98	98	2, 126	98	90; 92, 589	98	90; 92, 589
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	M. J. Abbott	W. R. O'Beirne	L.Castanelli, R. L. Bruce A.M.D.L.	W. R. O'Beirne	L.Castanelli, R. L. Bruce A.M.D.L.
Remarks	Intrusive			Intrusive	Dome				
SiO ₂	70.62	70.59	70.56	70.48	70.21	70.12	69.80	69.65	69.60
Al ₂ O ₃	15.40	15.21	15.84	16.60	16.46	17.58	14.90	15.29	14.60
Fe ₂ O ₃	0.53	1.13	0.81	1.05	0.78	1.32	1.17	2.07	0.84
FeO	1.47	1.39	2.24	1.37	0.09	0.61	1.98	0.56	2.10
MgO	1.93	1.78	1.06	0.07	0.36	0.70	0.20	2.09	0.20
CaO	0.73	0.65	0.64	0.09	0.08	0.02	0.59	0.11	0.48
Na ₂ O	5.87	5.33	6.12	6.14	6.84	6.66	6.15	5.65	6.25
K ₂ O	2.34	1.94	0.96	2.65	5.00	2.68	4.50	3.64	4.50
H ₂ O+	0.49	0.58	0.72	0.29	0.08	0.27	0.26	0.28	0.52
H ₂ O—	0.18	0.22	0.04	0.21	—	0.11	0.08	0.18	0.11
CO ₂	nd	nd	0.06	nd	0.47	nd	0.06	nd	0.07
TiO ₂	0.43	0.86	0.54	0.41	0.05	0.41	0.30	0.36	0.29
P ₂ O ₅	nd	nd	nd	nd	abs	nd	0.03	nd	0.04
MnO	0.02	0.01	0.02	abs	abs	abs	0.10	abs	0.10
Other Constituents									
	100.01	99.69	99.61	99.36	100.50	100.48	100.12	99.88	99.70
Age									

TABLE H — RHYOLITIC ROCKS

a. CaO < 1%							b. CaO = 1% – 2%	
K ₂ O/Na ₂ O < 0.75							K ₂ O/Na ₂ O > 1.25	
	82	83	84	85	86	87	1	2
Rock Name	Porphyritic sodic rhyolite	Rhyolite	Rhyolite	Rhyolite	Porphyritic sodic rhyolite	Ferruginous rhyolite <i>Guanaba Volcanics</i>	Quartz porphyry	Quartz porphyry
Locality	Mt Shea, nr Kalgoorlie, W.A. 1174110N, 459540E.	Large crater, Dobu Is., PNG.	Oian Crater, Fergusson I., PNG.	Small crater, Dobu I., PNG.	Mt Shea, nr Kalgoorlie, W.A. 1175000N, 460000E.	Mt Tamborine, Qld	Koolanooka Hills, W.A. 5062N, 2136E.	Koolanooka Hills, W.A.
Reference	98	28	28	28	98	46	3	3
Analyst	W. R. O'Beirne	S. Baker	S. Baker	S. Baker	W. R. O'Beirne	D. C. Green	P. A. Arriens	P. A. Arriens
Remarks	Intrusive	*Loss on Ignition	*Loss on Ignition	*Loss on Ignition	Tecturally close to granite			
SiO ₂	69.41	69.10	68.72	68.68	68.62	66.0	77.54	76.46
Al ₂ O ₃	15.83	14.63	13.95	14.21	15.02	13.93	11.76	12.55
Fe ₂ O ₃	3.90	2.25	2.35	2.82	1.46	6.72	0.53	0.57
FeO	1.09	1.29	1.78	1.21	1.40	0.53	0.98	0.89
MgO	1.31	0.21	0.19	0.25	2.91	0.11	0.02	0.34
CaO	0.11	0.16	0.38	0.33	0.75	0.28	1.06	1.07
Na ₂ O	5.08	7.02	6.75	6.37	4.94	5.12	3.12	3.35
K ₂ O	2.26	5.21	4.92	5.05	3.04	3.02	4.56	4.37
H ₂ O +	0.48	0.41 *	1.00*	0.55	0.49	2.45	0.33	0.24
H ₂ O –	0.04	nd	nd	nd	0.40	0.90	0.01	abs
CO ₂	nd	—	—	—	nd	—	—	—
TiO ₂	0.60	0.24	0.23	0.30	0.37	0.63	0.20	0.08
P ₂ O ₅	nd	0.05	0.08	0.08	abs	0.04	0.04	0.01
MnO	0.09	0.11	0.11	0.11	0.01	tr	0.03	0.02
Other Constituents							F = p.n.d.	F = 0.11 0.05
Age	100.20	100.68	100.46	99.96	99.41	99.73	100.17	100.01

b. CaO = 1% - 2%

K ₂ O/Na ₂ O > 1.25								K ₂ O/Na ₂ O = 1.25 - 0.75	
	3	4	5	6	7	8	9	10	11
Rock Name	Porphyritic rhyolite <i>Tollu Volcanics</i>	Rhyolite <i>Tollu Volcanics</i>	Rhyolitic tuff <i>Brisbane Tuff</i>	Dacite welded tuff <i>Nanyeta Volcanics</i>	Biotite rhyodacite	Tuff	Flow-banded obsidian	Rhyolite (dellenite)	Rhyodacite welded tuff <i>Nychum Volcanics</i>
Locality	Tollu mining camp, S. of Blackstone Ra., W.A. 26°10'S, 128°25'E.	Tollu Mining camp, S. of Blackstone Ra., W.A.	Bore NS 15, Brisbane, Qld	5 km. NNE. of Nymbool Qld 17°26'S, 145°04'E.	84 km WSW. of Raven-shoe, Qld 17°43'S, 144°42'E.	Yeoval, N.S.W.	Quarry, Talasea, PNG	1.3 km SE. of Bakers Hill, N.S.W.	109 km WNW. of Mareeba, Qld 16°51'S, 144°24'E.
Reference	96, 276	96, 276	58, 12	19, 112, 66, 73	19, 121	49	28	100, 197	89; 19, 112
Analyst	Not stated	Not stated	C.H. Couper Qld Govt Chem Lab	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.	B. L. Gulson	A. Jorgensen A.M.D.L.	Avery & Anderson	C. R. Edmond, H. W. Sears A.M.D.L.
Remarks	(Flow banding) *Loss at 1000°C.	*Loss at 1000°C	?Ignimbrite			Garnetiferous *Total iron as FeO			
SiO ₂	73.00	72.80	72.00	71.30	70.20	66.32	75.20	72.52	70.10
Al ₂ O ₃	12.60	12.80	10.00	14.60	13.90	15.25	13.90	14.27	12.30
Fe ₂ O ₃	2.39	0.67	4.30	1.13	1.26	} 4.42*	0.43	0.94	0.70
FeO	1.75	2.46	tr	1.34	1.82		0.82	1.58	1.82
MgO	0.15	0.07	0.60	0.34	0.46	2.24	0.25	0.17	0.26
CaO	1.38	1.03	1.30	1.61	1.07	1.76	1.07	0.18	1.44
Na ₂ O	2.60	2.40	2.56	3.25	3.90	2.09	3.75	4.60	3.80
K ₂ O	5.80	6.32	3.60	4.15	5.00	4.38	3.70	4.08	3.30
H ₂ O +	} 0.03*	} 0.46*	1.55	1.30	1.10	0.56	0.41	0.25	1.17
H ₂ O -			0.45	0.07	0.28	0.28	< 0.01	abs	4.75
CO ₂	—	—	2.70	0.49	0.43	0.19	0.02	nd	0.04
TiO ₂	0.44	0.35	1.30	0.27	0.34	0.66	0.24	0.37	0.26
P ₂ O ₅	—	—	0.08	0.05	0.10	0.148	0.02	0.19	0.05
MnO	0.09	0.06	0.05	0.04	0.07	0.12	0.06	0.07	0.03
Other Constituents									
	(100.50)	99.42	100.49	99.94	99.90	99.42	99.87	100.22	100.00
Age									

TABLE H — RHYOLITIC ROCKS

b. $\text{CaO} = 1\% - 2\%$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$$

	12	13	14	15	16	17	18	19	20
Rock Name	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Rhyodacite ash
Locality	Kambalda, W.A. 1144380N, 469990E.	Kambalda, W.A. 1138220N, 470910E.	Red Lake, nr Kalgoorlie, W.A. 1177200N, 427200E.	Black Flag, nr Kalgoorlie, W.A. 1220000N, 430000E.	Nr Kambalda, W.A. 1151030N, 470750E.	Kambalda, W.A. 1138820N, 470810E.	Black Flag, nr Kalgoorlie, W.A. 1212100N, 431500E.	Kambalda, W.A. 1140560N, 468200E.	Rabaul Crater, PNG
Reference	98	98	98	98	98	98	98	98	28
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	A. Jorgensen A.M.D.L.
Remarks	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	
SiO ₂	73.04	72.87	72.79	72.27	72.18	72.08	71.96	71.96	71.80
Al ₂ O ₃	15.77	15.09	14.54	15.54	14.41	15.70	15.64	15.76	12.80
Fe ₂ O ₃	0.34	0.49	2.14	0.13	0.39	0.42	0.39	1.25	0.58
FeO	1.11	0.76	0.32	1.19	1.13	1.15	0.87	0.48	1.30
MgO	0.14	0.61	1.02	0.05	0.71	0.45	0.74	1.04	0.36
CaO	1.69	1.19	1.15	1.64	1.77	1.10	1.72	1.72	1.40
Na ₂ O	5.90	5.39	5.62	5.09	5.04	5.58	5.63	4.94	3.90
K ₂ O	1.00	2.56	0.89	2.19	2.21	2.45	1.90	2.28	1.79
H ₂ O +	0.30	0.17	0.55	0.68	0.37	0.23	0.51	0.11	5.05
H ₂ O -	0.02	0.08	0.23	0.39	0.08	0.09	0.03	0.02	0.42
CO ₂	nd	0.07	nd	0.27	0.76	nd	0.56	nd	0.05
TiO ₂	0.33	0.23	0.43	0.33	0.35	0.29	0.36	0.23	0.28
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	0.02
MnO	abs	0.01	0.01	abs	abs	abs	abs	abs	0.07
Other Constituents									
Age	99.62	99.52	99.69	99.77	99.41	99.54	100.31	99.79	99.82

TABLE H — RHYOLITIC ROCKS

b. Ca O = 1% - 2%

 $K_2O/Na_2O < 0.75$

	21	22	23	24	25	26	27	28	29
Rock Name	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Rhyolitic ignimbrite <i>Agnes Water Volcanics</i>	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite
Locality	White Hope, nr Kambalda, W.A. 153200N, 466700E.	Kambalda, W.A. 1138990N, 470770E.	Ringneck, nr Kambalda, W.A. 1146120N, 466240E.	Hampton Boulder Mine, nr Kalgoorlie, W.A. 1160480N, 462510E.	Kambalda, W.A. 1141090N, 471570E.	Agnes Water, Qld Bustard Head 1-mile Sheet 014864	Kambalda, W.A. 1139800N, 471700E.	Kambalda, W.A. 1140930N, 471290E.	Black Flag, nr Kalgoorlie, W.A. 1211800N, 437100E.
Reference	98	98	98	98	98	124, 152	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	L. J. Sutherland	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive		Texturally approaching granite	Intrusive	Intrusive
SiO ₂	71.78	71.73	71.62	71.59	71.56	71.47	71.32	71.27	71.03
Al ₂ O ₃	15.90	15.66	15.68	15.84	16.01	14.73	16.37	16.13	16.73
Fe ₂ O ₃	0.20	1.65	0.03	0.02	0.03	1.57	1.25	0.46	0.06
FeO	1.15	0.06	0.98	1.05	1.07	0.78	0.62	0.95	1.25
MgO	1.25	0.50	0.64	0.78	0.87	0.85	0.68	0.97	0.57
CaO	1.57	1.08	1.81	1.49	1.74	1.15	1.26	1.78	1.88
Na ₂ O	5.16	5.55	5.27	5.54	5.65	5.55	6.33	4.84	5.34
K ₂ O	2.27	2.75	2.67	2.77	2.18	2.10	1.48	2.24	3.06
H ₂ O +	0.21	0.36	0.43	0.28	0.13	0.64	0.13	0.43	0.14
H ₂ O -	0.01	0.13	0.04	0.13	0.06	0.12	0.15	0.20	0.07
CO ₂	0.19	nd	0.97	nd	0.08	nd	nd	nd	0.11
TiO ₂	0.24	0.35	0.29	0.24	0.26	0.47	0.26	0.29	0.40
P ₂ O ₅	nd	nd	nd	nd	nd	0.11	nd	nd	nd
MnO	0.04	abs	0.01	abs	0.01	0.13	0.01	0.01	0.01
Other Constituents									
Age	99.97	99.82	100.54	99.73	99.65	99.67	99.86	99.57	100.65

TABLE H — RHYOLITIC ROCKS

b. Ca O = 1% - 2%									
$K_2O/Na_2O < 0.75$									
	30	31	32	33	34	35	36	37	38
Rock Name	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite
Locality	Kambalda, W.A. 1139650N, 469570E.	Kambalda, W.A. 1140290N, 470820E.	Black Flag, nr Kalgoorlie, W.A. 1211600N, 437200E.	Kambalda, W.A. 1138830N, 470750E.	Binduli, nr Kalgoorlie, W.A. 1189630N, 443780E.	Binduli, nr Kalgoorlie, W.A. 1182000N, 444880E.	Binduli, nr Kalgoorlie, W.A. 1182910N, 444420E.	N. of Kalgoorlie, W.A. 1200000N, 445000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.
Reference	98	98	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive			Intrusive	(Drill Hole) Intrusive
SiO ₂	70.98	70.77	70.46	70.32	69.64	69.49	67.71	66.74	66.07
Al ₂ O ₃	16.54	16.39	16.24	16.04	15.80	17.27	15.71	16.03	15.81
Fe ₂ O ₃	1.07	0.34	0.23	0.70	1.24	0.55	0.76	4.75	2.07
FeO	0.62	1.18	1.06	1.25	0.94	0.03	2.11	0.42	1.46
MgO	0.82	0.84	0.81	1.05	0.66	0.43	0.81	0.43	3.03
CaO	1.80	1.91	1.70	1.31	1.67	1.36	1.26	1.53	1.38
Na ₂ O	5.31	5.17	5.58	5.53	5.93	6.37	5.88	4.91	6.42
K ₂ O	2.46	2.45	2.97	2.25	2.42	3.70	3.87	2.21	1.17
H ₂ O+	0.08	0.29	0.23	0.71	0.25	0.10	0.11	1.61	0.70
H ₂ O-	0.01	0.03	0.23	0.22	0.11	0.03	0.05	0.38	0.03
CO ₂	nd	nd	nd	nd	0.30	0.80	0.47	0.07	0.86
TiO ₂	0.30	0.30	0.32	0.33	0.41	0.33	0.37	0.74	0.55
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	nd
MnO	0.02	0.02	0.01	abs	0.06	0.03	0.05	0.03	0.06
Other Constituents									
	100.01	99.67	99.84	99.71	99.43	100.49	99.16	99.85	99.61
Age									

TABLE H — RHYOLITIC ROCKS

c. CaO = 2% - 3%

K ₂ O/Na ₂ O = 1.25 - 0.75				K ₂ O/Na ₂ O < 0.75					
	1	2	3	4	5	6	7	8	9
Rock Name	Augite dacite welded tuff <i>Newcastle Range Volcanics</i>	Quartz latite <i>Manna Volcanics</i>	Rhyodacite <i>Manna Volcanics</i>	Porphyritic sodic rhyolite	Dacitic glass	Porphyritic dacite	Porphyritic rhyolite	Amphibole- breccia porphyritic sodic rhyolite	Keratophyre
Locality	19 km NNW. of Einaleigh, Qld 18°11'S, 143°47'E.	Manna Volcano, NE. Papua, PNG	Manna Volcano NE. Papua, PNG.	Lake Gidgi, nr Kalgoorlie, W.A. 1209990N, 443310E.	Tavi Cr, S. of L. Waria, PNG 8°08'S, 147°41'E.	Mt. Shea, nr Kalgoorlie, W.A. 1170270N, 463040E.	Binduli, nr Kalgoorlie, W.A. 1183300N, 443260E.	Hampton Boulder mine, nr Kalgoorlie, W.A. 1159920N, 462830E.	Yeoval, N.S.W.
Reference	19, 113	113, 358	113, 358	98	28	98	98	98	49
Analyst	H. W. Sears A.M.D.L.	A.M.D.L.	A.M.D.L.	W. R. O'Beirne	A.Jorgensen A.M.D.L.	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	B. L. Gulson
Remarks		(Ash flow)	(Ash flow)	Intrusive			Intrusive	Intrusive	*Total Iron as FeO
SiO ₂	70.10	68.90	67.70	73.32	70.40	69.40	68.99	66.07	65.36
Al ₂ O ₃	13.90	15.60	15.80	12.89	9.90	15.26	15.53	17.38	14.72
Fe ₂ O ₃	1.54	1.20	2.40	1.92	0.78	0.02	1.44	1.93	} 3.60*
FeO	2.30	0.90	1.15	1.06	0.65	2.25	0.37	1.61	
MgO	0.72	0.82	1.10	0.84	0.91	2.69	1.14	3.51	1.22
CaO	2.15	2.25	2.60	2.04	2.65	2.72	2.01	2.24	2.97
Na ₂ O	3.60	4.40	4.20	6.26	1.78	4.38	5.75	6.89	4.58
K ₂ O	3.90	3.75	3.15	0.07	1.08	2.73	3.05	0.11	3.10
H ₂ O +	0.89	1.63	0.88	0.62	7.45	0.14	0.47	0.34	1.60
H ₂ O -	0.21	0.30	0.51	abs	3.85	0.09	0.13	0.13	0.29
CO ₂	0.04	0.09	0.02	0.23	0.07	nd	0.35	0.06	2.08
TiO ₂	0.48	0.29	0.36	0.40	0.23	0.32	0.28	0.60	0.60
P ₂ O ₅	0.15	0.08	0.15	nd	0.04	nd	nd	nd	0.155
MnO	0.05	0.05	0.05	0.02	0.02	0.05	0.06	0.04	0.16
Other Constituents									
	100.03	100.26	100.07	99.67		100.05	99.57	100.91	100.44
Age									

TABLE H — RHYOLITIC ROCKS

d. CaO = 3% - 4%

	K ₂ O/Na ₂ O > 1.25			K ₂ O/Na ₂ O = 1.25 - 0.75			K ₂ O/Na ₂ O < 0.75		
Rock Name	1	2	3	4	5	6	7	8	9
	Tuff	'Porphyry'	Leuco-andesite <i>Moonabie Porphyry</i>	Porphyry 'Older Porphyries'	Quartz latite <i>Manna Volcanics</i>	Dacite <i>Arunta Complex</i>	Dacite	Rhyolite <i>Wooltana Volcanics</i>	Porphyritic dacite
Locality	Yeoval, N.S.W.	Mt Mugga Mugga, A.C.T.	56 km S. of Whyalla, S.A.	New England, N.S.W. Clive 1-mile Sheet 887060	Manna Volcano, NE. Papua, PNG	S. of rd from Mt Liebig to Mt Leister, Mt Rennie Area, N.T. 23°17'S, 130°18'E.	Lower Waria R., New Guinea, PNG	NE. Flinders Ras, W. of L. Frome, S.A. 30°26'S, 139°24'E.	Mt Shea, nr Kalgoorlie, W.A. 1171350N, 462770E.
Reference	49	102, 8	28	115	113	28	28	29	98
Analyst	B. L. Gulson	J. H. Pyle	A. McClure	S. E. Shaw	A.M.D.L.	C. R. Edmond A.M.D.L.	A. Jorgensen A.M.D.L.	S. Baker	W. R. O'Beirne
Remarks	Garnetiferous *Total Iron as FeO		*Loss on Ignition		(Tholoid)				
SiO ₂	67.60	67.22	65.86	67.83	67.50	67.20	72.10	71.52	67.67
Al ₂ O ₃	14.74	12.42	14.31	15.46	15.20	13.70	12.50	16.06	15.14
Fe ₂ O ₃	3.84*	3.48	3.26	2.00	1.50	1.59	2.35	1.58	0.56
FeO		0.88	2.43	1.19	1.20	4.45	1.64	0.28	1.93
MgO	1.77	0.90	1.38	0.65	1.20	1.31	2.20	0.28	3.02
CaO	3.12	3.24	3.31	3.66	3.05	3.50	3.10	3.07	3.10
Na ₂ O	2.06	1.18	3.18	4.10	4.20	3.70	3.30	4.98	4.85
K ₂ O	3.82	4.98	4.02	4.44	3.40	2.80	0.25	1.26	3.14
H ₂ O +	1.40	2.01	1.01*	0.25	1.54	0.29	1.47	0.55	0.10
H ₂ O -	0.22	0.66	0.08	0.08	0.11	0.09	0.25	0.06	0.08
CO ₂	0.11	2.44	—	—	0.02	0.02	0.01	—	nd
TiO ₂	0.64	0.44	0.48	0.37	0.56	0.86	0.37	0.14	0.42
P ₂ O ₅	0.157	0.24	0.32	0.11	0.16	0.20	0.09	0.10	nd
MnO	0.11	0.07	0.13	0.07	0.05	0.09	0.06	0.05	0.05
Other Constituents									
Age	99.59	100.16	99.77	100.21	99.69	99.80	99.69	99.93	100.06

TABLE H — RHYOLITIC ROCKS

d. CaO = 3% —4%					e. CaO = 4% —5%				
K ₂ O/Na ₂ O < 0.75					K ₂ O/Na ₂ O < 0.75				
	10	11	12	13		1	2	3	4
Rock Name	Tuff	Amphibole-bearing porphyritic sodic rhyolite	Porphyritic dacite	Porphyritic sodic rhyolite		Dacite	Porphyritic dacite	Porphyritic dacite	Porphyritic rhyodacite
Locality	Yeoval, N.S.W.	Red Lake, nr Kalgoorlie, W.A. 1168400N, 426300E.	Mt Shea, nr Kalgoorlie, W.A. 1171250N, 463490E.	Binduli, nr Kalgoorlie, W.A. 1190000N, 441000E.		Nr Morobe Patrol Post, New Guinea PNG	Mt Shea, nr Kalgoorlie, W.A. 1171110N, 462840E.	Binduli, nr Kalgoorlie, W.A. 1191280N, 441890E.	Bulong, nr Kalgoorlie, W.A. 1194050N, 486680E.
Reference	49	98	98	98		28	98	98	98
Analyst	B. L. Gulson	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne		A.Jorgensen A.M.D.L.	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	Garnetiferous *Total Iron as FeO	(Intrusive)		Intrusive					Hybrid
SiO ₂	67.32	67.01	65.78	65.20		68.90	65.54	65.51	65.31
Al ₂ O ₃	14.72	15.46	17.08	14.84		14.80	15.23	16.47	16.53
Fe ₂ O ₃	4.92*	2.11	0.44	0.36		2.85	1.74	2.33	1.06
FeO		0.32	2.94	2.02		0.94	1.86	0.87	1.82
MgO	2.92	4.79	1.61	1.59		0.93	3.19	2.28	2.63
CaO	3.10	3.33	3.29	3.15		4.65	4.38	4.26	4.84
Na ₂ O	1.99	6.44	6.63	5.55		4.00	5.32	5.29	5.57
K ₂ O	0.82	0.10	0.73	2.28		0.86	0.77	1.61	0.62
H ₂ O +	2.44	0.08	0.30	0.11		0.62	0.40	0.43	0.47
H ₂ O —	0.20	0.16	0.20	0.50		0.58	0.24	0.32	0.16
CO ₂	0.18	nd	nd	3.91		0.01	nd	nd	nd
TiO ₂	0.55	0.35	0.81	0.32		0.48	0.46	0.44	0.93
P ₂ O ₅	0.071	nd	nd	nd		0.11	nd	nd	nd
MnO	0.18	0.06	0.06	0.04		0.03	0.05	0.06	0.04
Other Constituents									
	99.41	100.21	99.87	99.42		99.76	99.18	99.87	99.98
Age									

TABLE H — RHYOLITIC ROCKS

e. CaO = 4% - 5%

 $K_2O/Na_2O < 0.75$

	5	6	7	8
Rock Name	Hornblende dacite	Keratophyre <i>Beecraft</i> <i>Mega-</i> <i>breccia</i>	Keratophyre <i>Beecraft</i> <i>Mega-</i> <i>breccia</i>	Keratophyre <i>Motton</i> <i>Spilite</i>
Locality	Luluai R, 23 km ESE. of Mt Takuan, Bougain- ville I.	Penguin, Tas. 40775E, 9361N.	E. of Penguin, Tas. 40795E, 93605N.	Penguin, Tas. 4084E, 9359N.
Reference	14; 15, 42; 131, 18	24, 59	24, 59	24, 59
Analyst	A. Jorgensen A.M.D.L.	C. J. Penman Tas. Dep. Mines	C. J. Penman Tas. Dep. Mines	C. J. Penman Tas. Dep. Mines
Remarks	(Dome)			(Dyke)
SiO ₂	65.1	63.30	61.68	59.32
Al ₂ O ₃	16.5	15.25	14.19	15.06
Fe ₂ O ₃	3.20	0.86	0.29	2.74
FeO	0.98	2.28	1.38	4.46
MgO	1.48	5.00	1.70	3.53
CaO	4.75	4.04	7.68	4.04
Na ₂ O	4.60	4.19	3.79	3.51
K ₂ O	2.05	1.13	1.35	2.26
H ₂ O +	0.40	2.32	2.02	2.93
H ₂ O -	—	0.13	0.15	0.16
CO ₂	0.05	0.44	4.57	0.95
TiO ₂	0.51	0.51	0.47	0.59
P ₂ O ₅	0.20	0.08	0.03	0.10
MnO	0.07	0.12	0.03	0.11
Other Constituents		FeS ₂ = 0.58		FeS ₂ = tr.
Age	99.89	100.23	99.70	100.36

TABLE H¹ — METAMORPHOSED RHYOLITES AND PORPHYRIES

	1	2	3	4	5	6	7	8	9
Rock Name	Sheared and crushed porphyritic sodic rhyolite	Sheared and crushed porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Metamorphosed rhyolite <i>Eastern Ck Volcanics</i>	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite
Locality	Binduli, nr Kalgoorlie, W.A. 1191130N, 441210E.	Binduli, nr Kalgoorlie, W.A. 1191380N, 441050E.	Wongi dam, nr Kambalda, W.A. 1161370N, 450260E.	Nr Mt Isa, Qld	Wongi dam, nr Kambalda, W.A. 1160480N, 450660E.	Wongi dam, nr Kambalda, W.A. 1161640N, 449900E.	Wongi dam, nr Kambalda, W.A. 1162510N, 450000E.	Wongi dam, nr Kambalda, W.A. 1162020N, 449690E.	Wongi dam, nr Kambalda, W.A. 1163590N, 447320E.
Reference	98	98	98	28	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	S. Baker	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks			Phenocrysts broken & recrystallized	*Loss on Ignition	Phenocrysts broken & recrystallized	Phenocrysts broken & recrystallized	Phenocrysts broken & recrystallized	Phenocrysts broken & recrystallized	
SiO ₂	76.06	74.18	73.85	72.90	72.47	71.72	71.72	70.97	70.77
Al ₂ O ₃	14.60	13.99	14.94	10.57	16.79	16.30	16.18	15.44	16.36
Fe ₂ O ₃	1.25	1.21	0.51	3.65	1.17	0.02	0.05	0.12	0.18
FeO	0.54	0.12	0.42	1.52	0.03	0.55	0.43	0.48	0.63
MgO	0.13	0.23	0.08	3.92	0.47	0.42	0.18	0.70	0.28
CaO	0.04	0.01	1.39	0.10	0.65	1.98	1.78	2.04	2.10
Na ₂ O	6.31	5.29	5.49	4.67	5.30	5.20	5.34	5.58	5.81
K ₂ O	0.13	3.93	1.49	1.26	1.83	3.07	3.10	2.08	3.11
H ₂ O+	0.13	0.12	0.21	0.98*	0.39	abs	0.27	0.10	0.11
H ₂ O—	0.28	0.16	0.02	0.10	0.33	0.09	0.07	0.04	0.05
CO ₂	0.14	nd	nd	nd	nd	0.91	nd	1.28	0.41
TiO ₂	0.09	0.07	0.38	0.25	0.40	0.36	0.40	0.39	0.22
P ₂ O ₅	nd	nd	nd	0.07	nd	nd	nd	nd	nd
MnO	abs	abs	0.01	0.06	abs	abs	0.02	0.02	0.04
Other Constituents									
	99.70	99.31	98.79	100.05	99.83	100.62	99.52	99.24	100.07
Age									

TABLE H¹ — METAMORPHOSED RHYOLITES AND PORPHYRIES

	10	11	12	13	14	15	16
Rock Name	Porphyritic sodic rhyolite	Crushed and brecciated porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Crushed and brecciated porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Altered dacite
Locality	Wongi dam, nr Kambalda, W.A. 1161330N, 449480E.	Smithfield, nr Kalgoorlie, W.A. 1221800N, 441600E.	Wongi dam, nr Kambalda, W.A. 1160380N, 448790E.	Wongi dam, nr Kambalda, W.A. 1163760N, 448530E.	Smithfield, nr Kalgoorlie, W.A. 1221900N, 441400E.	Wongi dam, nr Kambalda, W.A. 1163090N, 449420E.	Kanowna, W.A. 1216120N, 470900E.
Reference	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	Phenocrysts broken & recrystallized		Phenocrysts broken & recrystallized	Phenocrysts broken & recrystallized		Phenocrysts broken & recrystallized	
SiO ₂	70.41	69.95	69.76	69.61	68.61	68.54	65.30
Al ₂ O ₃	15.37	16.27	16.08	15.12	17.50	15.95	15.20
Fe ₂ O ₃	0.16	0.21	0.02	0.03	0.63	0.35	0.36
FeO	1.36	2.41	1.63	3.45	2.06	1.04	3.99
MgO	0.99	1.14	0.62	0.88	2.48	0.83	2.49
CaO	3.36	1.48	1.48	1.42	0.30	2.27	5.75
Na ₂ O	5.67	6.78	5.27	5.19	6.76	6.13	4.80
K ₂ O	1.65	0.42	3.17	2.60	0.11	3.23	0.43
H ₂ O +	0.24	0.22	0.34	0.34	1.08	0.22	0.31
H ₂ O -	0.04	0.16	0.09	0.12	0.07	0.03	0.07
CO ₂	1.03	nd	0.93	0.30	nd	0.87	nd
TiO ₂	0.31	0.49	0.34	0.38	0.58	0.42	0.85
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd
MnO	0.06	0.02	0.02	0.05	abs	0.04	0.10
Other Constituents							
Age	100.65	99.55	99.75	99.49	100.27	99.92	99.65

TABLE H² — METASOMATIZED AND DEUTERICALLY ALTERED RHYOLITES AND PORPHYRIES

CARBONATED									
	1	2	3	4	5	6	7	8	9
Rock Name	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite
Locality	Perseverance Mine, Kalgoorlie, W.A. 1191000N, 452000E.	L. Gidgi, nr Kalgoorlie, W.A. 1210130N, 443300E.	Binduli, nr Kalgoorlie, W.A. 1184340N, 442500E.	Kalgoorlie, W.A. 1182580N, 453180E.	Mt Shea, nr Kalgoorlie, W.A. 1175000N, 460000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.
Reference	98	98	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks	Intrusive		Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive
SiO ₂	70.28	69.79	68.88	68.31	64.92	64.68	64.69	63.89	63.17
Al ₂ O ₃	13.68	12.88	15.87	15.91	14.86	13.68	15.26	14.26	14.94
Fe ₂ O ₃	3.70	0.39	1.92	0.50	1.06	0.90	0.10	1.49	1.31
FeO	0.05	0.72	0.22	0.69	6.12	2.07	3.37	1.73	1.98
MgO	1.94	1.89	1.19	2.13	1.04	2.44	2.02	3.21	2.83
CaO	1.77	1.51	1.20	2.14	1.39	3.84	2.43	2.76	4.88
Na ₂ O	4.24	0.98	5.91	6.13	1.93	2.95	4.69	5.18	1.63
K ₂ O	1.63	8.71	2.24	0.11	3.43	2.73	1.98	1.77	3.00
H ₂ O +	0.42	0.24	0.39	1.15	1.73	0.84	0.92	1.17	0.47
H ₂ O -	0.05	abs	0.07	0.25	0.18	0.05	0.04	0.08	0.09
CO ₂	1.92	2.54	1.44	1.96	2.15	4.98	3.50	3.67	4.37
TiO ₂	0.51	0.18	0.34	1.15	0.31	0.46	0.47	0.36	0.46
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	nd
MnO	0.05	0.02	0.02	0.06	0.08	0.06	0.04	0.07	0.06
Other Constituents									
	100.24	99.85	99.69	100.49	99.20	99.63	99.42	99.64	99.19
Age									

TABLE H² — METASOMATIZED AND DEUTERICALLY ALTERED RHYOLITES AND PORPHYRIES

	CARBONATED	SILICIFIED			TOPAZISED				
	10	11	12	13	14	15	16	17	18
Rock Name	Porphyritic rhyolite	Silicified porphyritic sodic rhyolite	Silicified porphyritic sodic rhyolite	Silicified porphyritic sodic rhyolite	Quartz-topaz porphyry	Quartz-topaz porphyry	Quartz-topaz porphyry	Quartz-topaz porphyry	Quartz-topaz porphyry
Locality	Perseverance mine, Kalgoorlie, W.A. 1191000N, 4452000E.	Wongi dam, nr Kambalda, W.A. 1167750N, 445150E.	Wongi dam, nr Kambalda, W.A. 1169180N, 445200E.	Wongi dam, nr Kambalda, W.A. 1168630N, 445220E.	Mt Bischoff, Tas.	Mt Bischoff, Tas.	Mt Bischoff, Tas.	Mt Bischoff, Tas.	Mt Bischoff, Tas.
Reference	98	98	98	98	47, 13	47, 13	47, 13	47, 13	47, 13
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	Tas. Dep. Mines	Tas. Dep. Mines	Tas. Dep. Mines	Tas. Dep. Mines	Tas. Dep. Mines
Remarks	Intrusive	Intrusive	Intrusive	Intrusive					
SiO ₂	62.18	77.62	76.90	76.50	72.30	70.16	68.98	68.64	66.92
Al ₂ O ₃	13.65	12.33	13.67	13.96	17.17	21.69	19.96	19.38	19.88
Fe ₂ O ₃	4.01	0.09	0.07	0.09	tr	0.14	1.05	0.21	tr
FeO	0.22	2.09	1.09	0.49	0.58	0.35	0.19	0.29	0.64
MgO	2.57	0.26	0.26	0.11	0.29	0.22	0.28	0.31	0.24
CaO	4.41	0.67	0.54	0.64	0.28	0.20	0.20	0.68	0.36
Na ₂ O	3.76	5.73	6.17	5.74	tr	tr	tr	tr	0.05
K ₂ O	2.20	0.55	0.58	0.85	0.37	0.07	tr	tr	0.07
H ₂ O +	0.42	0.29	0.30	0.15	1.04	0.77	0.69	0.96	0.98
H ₂ O -	0.03	0.13	0.13	0.07	0.19	tr	0.05	0.24	0.11
CO ₂	5.48	nd	nd	nd	nd	nd	nd	nd	nd
TiO ₂	0.54	0.32	0.34	0.30	tr	0.09	0.05	—	0.06
P ₂ O ₅	nd	nd	nd	nd	tr	tr	tr	tr	tr
MnO	0.06	0.08	0.03	abs	tr	tr	tr	tr	tr
Other Constituents					Cl = nd S = 6.15 F = 6.15 FeS ₂ = 3.91 SnO ₂ = 0.16	Cl = nd F = 6.63 S = nd FeS ₂ = 2.19 SnO ₂ = 0.13	Cl = nd F = 6.86 S = nd FeS ₂ = 4.86 SnO ₂ = 0.16	Cl = nd F = 6.46 S = nd FeS ₂ = 5.85 SnO ₂ = 0.08	Cl = nd F = 6.48 S = nd FeS ₂ = 6.62 SnO ₂ = 0.07
Less 0 = Cl, F, S					6.72	2.74	2.95	2.71	2.73
	99.53	100.16	100.08	98.90	[102.87]	[99.90]	100.38	[100.39]	99.75
Age									

TABLE H² — METASOMATIZED AND DEUTERICALLY ALTERED RHYOLITES
AND PORPHYRIES

Too altered for calculation of norm.							HYDRATED
	19	20	21	22	23	24	25
Rock Name	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Porphyritic sodic rhyolite	Altered obsidian
Locality	Mt Shea, nr Kalgoorlie, W.A. 1173720N, 457830E.	Kalgoorlie, W.A. 1190000N, 452000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454000E.	Kalgoorlie, W.A. 1191000N, 452000E.	Kalgoorlie, W.A. 1191000N, 452000E.	Headland, Talasea, New Britain PNG
Reference	98	98	98	98	98	98	28
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	A. Jorgensen A.M.D.L.
Remarks	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	Intrusive	
SiO ₂	72.53	68.99	66.83	64.37	62.61	61.91	74.50
Al ₂ O ₃	15.68	16.67	16.20	14.46	14.93	14.45	14.80
Fe ₂ O ₃	0.93	0.21	0.94	1.58	1.69	1.23	0.18
FeO	1.30	1.90	2.47	1.31	2.18	2.24	0.07
MgO	1.37	1.38	3.01	3.36	3.67	2.36	0.07
CaO	0.37	2.07	1.67	2.03	3.12	3.48	0.12
Na ₂ O	6.49	2.92	4.31	5.27	5.17	3.51	0.34
K ₂ O	0.19	3.16	2.13	1.92	2.13	2.63	1.11
H ₂ O +	0.38	0.65	0.41	0.24	0.11	0.69	7.15
H ₂ O -	0.13	0.01	abs	0.03	0.04	0.04	1.41
CO ₂	0.61	2.42	2.05	4.37	3.60	6.82	0.01
TiO ₂	0.44	0.45	0.50	0.45	0.62	0.60	0.24
P ₂ O ₅	nd	nd	nd	nd	nd	nd	0.01
MnO	0.04	0.02	0.03	0.05	0.05	0.06	< 0.01
Other Constituents							
Age	100.46	100.25	100.55	99.44	99.92	100.02	100.01

TABLE H⁵ — OLD ANALYSES OF RHYOLITIC ROCKS

	1	2	3	4
Rock Name	Pitchstone	'Andesite'	Pumice	Quartz porphyry
Locality	Port Stephens, N.S.W.	Fergusson I., PNG	Dobu I., PNG	Marulan, N.S.W.
Reference	72	156, 24	156, 24	133, 64
Analyst	N.S.W. Dep. Mines	Not Stated	Not Stated	Not Stated
Remarks	*Loss on Ignition	*Loss on Ignition	*Loss on Ignition	*Loss on Ignition
SiO ₂	73.45	71.27	69.62	66.50
Al ₂ O ₃	13.25	9.10	15.26	15.58
Fe ₂ O ₃	—	—	—	5.13
FeO	0.95	10.13	3.05	—
MgO	0.52	—	—	2.14
CaO	2.85	0.89	0.94	5.29
Na ₂ O	—	5.18	2.36	2.64
K ₂ O	0.80	3.14	5.20	2.46
H ₂ O+	8.18*	0.25*	3.69*	1.31*
H ₂ O—	—	—	—	—
CO ₂	—	—	—	—
TiO ₂	—	—	—	—
P ₂ O ₅	—	—	—	—
MnO	—	tr	tr	—
Other Constituents				
Age	100.00	99.97	100.12	101.05

a. $\text{CaO} < 3\%$ b. $\text{CaO} = 3\% - 4\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$						$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$		$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$	
	1	2	3	4	5	6	7		1
Rock Name	Porphyritic rhyodacite <i>Nychum Volcanics</i>	Porphyritic dacite tuff <i>Fagan Volcanics</i>	Hornblende-biotite andesite	Andesite	Dacite	Lava <i>Kerrison Volcanics</i>	Volcanic agglomerate		Volcanic ash
Locality	About 116 km WNW. of Mareeba, Qld	Sheridan Cr, N. end Parsons Ra., N.T.	Small volcano SE. of Mt Victory PNG	Dobu I., PNG	Woiba I., SE. of Kui, PNG 7°33'S, 147°24'E.	Hardstaff Cr, Leven R., Tas. 4049E/9255N	Hannans Lake, nr Kalgoorlie, W.A. 1186000N, 454000E.		Rabaul Caldera, PNG
Reference	89; 19, 112	28	60, 263	28	28	24	98		28
Analyst	H. W. Sears A.M.D.L.	L. Castanelli A.M.D.L.	P. Jakes	S. Baker	A. Jorgensen A.M.D.L.	C.J. Penman Tas. Dep. Mines	W. R. O'Beirne		A. Jorgensen A.M.D.L.
Remarks	(welded tuff)	(ash flow)		*Loss on Ignition					
SiO_2	64.40	63.80	62.98	62.14	64.30	62.40	60.03		61.00
Al_2O_3	15.10	14.00	16.26	12.95	14.70	15.22	14.71		16.50
Fe_2O_3	2.63	6.40	3.13	2.06	2.40	2.42	0.01		2.10
FeO	2.59	2.65	1.02	1.61	1.98	2.76	5.67		2.95
MgO	1.41	0.63	1.98	2.16	3.70	1.78	4.59		1.39
CaO	2.75	2.95	2.59	2.82	1.87	2.86	2.11		3.10
Na_2O	3.85	3.35	4.45	4.93	5.25	4.85	5.23		3.45
K_2O	3.20	3.55	3.80	4.11	1.12	1.95	1.83		2.60
$\text{H}_2\text{O} +$	1.83	1.09	—	5.16*	2.95	1.64	0.66		4.85
$\text{H}_2\text{O} -$	0.45	0.28	—	nd	1.18	0.06	0.06		1.27
CO_2	0.12	1.09	—	1.68	0.20	3.76	4.52		0.05
TiO_2	1.05	0.27	0.64	0.35	0.30	0.54	0.64		0.70
P_2O_5	0.22	0.21	0.35	0.10	0.06	0.19	nd		0.14
MnO	0.06	0.03	0.03	0.09	0.07	0.07	0.07		0.13
Other Constituents									
Age	99.66	100.30	99.99	100.16	100.08	100.50	100.13		100.23

TABLE I — ANDESITIC ROCKS — $\text{SiO}_2 < 65\%$

b. $\text{CaO} = 3\% - 4\%$									
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$									
	2	3	4	5	6	7	8	9	10
Rock Name	Andesite	Andesite	Lava or crystal tuff <i>Kerrison Volcanics</i>	Volcanic ash	Hornblende- biotite andesite	Andesitic ignimbrite <i>Gilmore Volcanics</i>	Augite andesite	Lava or lithic tuff <i>Kerrison Volcanics</i>	Keratophyre
Locality	Rabaul Volcano, PNG	Rabaul Volcano, PNG	Kerrison Siding, Nietta Rail- way, Tas.	Rabaul Caldera, PNG	Flank cone, SW. slope of Mt Victory, PNG	Williams R., nr Mt Gilmore. N.S.W. Paterson 1:63360 Sheet 812698	NW. margin of central boss, NE. of Mt Alford, Qld	Gawler, Tas.	Kyogle, N.S.W.
Reference	28	28	24, 38	28	60, 263	106	122, 509	24, 38	102, 8
Analyst	R. J. Buckley A.M.D.L.	R. J. Buckley A.M.D.L.	C. J. Penman Tas. Dep. Mines	A. Jorgensen A.M.D.L.	P. Jakes	J. H. Rattigan	W. H. Herdsman	C. J. Penman Tas. Dep. Mines	J. H. Pyle
Remarks					Minor clinopyroxene *Loss on ignition				
SiO_2	64.60	64.20	63.22	62.80	62.08	62.00	61.05	56.88	56.22
Al_2O_3	15.70	16.10	15.01	15.20	17.00	16.77	14.18	16.26	18.22
Fe_2O_3	3.45	3.80	1.85	3.00	1.65	3.83	2.81	2.76	2.23
FeO	1.65	1.25	3.69	2.25	3.80	3.46	7.22	4.88	4.39
MgO	1.33	1.15	2.47	1.55	4.97	2.12	0.49	3.96	1.94
CaO	3.25	3.15	3.74	3.40	3.28	3.78	3.89	3.36	3.18
Na_2O	4.85	4.95	4.66	4.55	3.98	3.40	4.37	5.35	6.25
K_2O	3.40	3.45	2.23	2.80	1.64	2.30	2.91	2.01	0.66
$\text{H}_2\text{O} +$	0.02	0.43	1.86	2.95	0.32*	0.96	0.77	2.60	3.28
$\text{H}_2\text{O} -$	0.42	0.67	0.16	0.35	—	0.25	0.59	0.12	0.53
CO_2	0.15	0.05	0.12	0.06	—	nd	0.63	0.44	1.49
TiO_2	0.83	0.83	0.58	0.74	0.26	0.30	0.74	0.93	1.18
P_2O_5	0.28	0.25	0.12	0.28	0.03	0.17	0.24	0.22	0.25
MnO	0.16	0.09	0.11	0.14	0.05	—	0.14	0.10	0.11
Other Constituents			$\text{FeS}_2 = 0.07$						Ni = tr C = 0.19
Age	100.09	100.37	99.89	100.07	99.06	99.34	100.03	100.11	100.12

TABLE 1 — ANDESITIC ROCKS — $\text{SiO}_2 < 65\%$

c. CaO = 4% — 5%

$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$				$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$					
	1	2	3	4	5	6	7	8	9
Rock Name	Biotite dacite	Diopside- hornblende trachy- andesite	Plagioclase- hornblende- biotite andesite	Biotite dacite	Hypersthene andesite <i>Nychum</i> <i>Volcanics</i>	Labradorite- andesine tuff	Hypersthene augite andesite <i>Nychum</i> <i>Volcanics</i>	Andesite	Hornblende- biotite andesite
Locality	Lower NE. slope of Mt Trafalgar, PNG	2 km N. of Petcher Bay, Port Cynet, Area, Tas.	Float, lower SW. slope of Mt Trafalgar, PNG	Float, lower SW. slope of Mt Trafalgar, PNG	126 km W. of Mareeba, Qld 16°55'S, 144°12'E.	S. side of Keravia Bay, Rabaul Area, PNG	119 km WSW. of Mareeba, Qld 16°54'S, 144°18'E.	Rabalan- akaia, Rabaul, PNG	Upper SW. slope of Mt Victory, PNG
Reference	60, 263	28	60, 283	60, 283	89; 19, 112; 66, 73	28	89; 19, 112; 66, 73	28	60, 283
Analyst	P. Jakes	C.R. Edmond, H. W. Sears A.M.D.L.	P. Jakes	P. Jakes	H. W. Sears A.M.D.L.	R.J. Buckley A.M.D.L.	H. W. Sears A.M.D.L.		P. Jakes
Remarks	(Minor hornblende) *Loss on Ignition		*Loss on Ignition	Rich in opaques *Loss on Ignition					*Loss on Ignition
SiO_2	63.04	62.80	62.14	64.12	63.90	63.60	62.10	62.00	61.80
Al_2O_3	16.48	17.70	16.72	16.80	15.10	16.00	15.30	16.00	16.40
Fe_2O_3	2.74	2.10	1.83	1.61	1.66	2.50	1.39	1.80	2.70
FeO	1.22	1.40	2.76	2.18	3.55	2.70	4.80	4.35	1.90
MgO	2.79	0.64	2.36	2.96	0.99	1.81	1.38	2.20	3.20
CaO	4.21	4.20	4.48	4.44	4.40	4.15	4.70	4.60	4.95
Na_2O	4.36	4.95	4.27	4.38	4.10	5.15	3.80	4.65	4.25
K_2O	3.35	4.30	3.51	2.41	2.10	3.00	2.10	2.65	2.60
$\text{H}_2\text{O} +$	1.41*	0.55	0.32*	0.32*	0.73	0.06	0.43	0.15	0.96*
$\text{H}_2\text{O} -$	—	0.25	—	—	1.91	0.21	2.20	0.03	—
CO_2	—	0.27	—	—	0.06	0.05	0.07	0.15	—
TiO_2	0.71	0.39	0.93	0.61	0.80	0.80	1.18	0.85	0.70
P_2O_5	0.25	0.13	0.34	0.41	0.29	0.21	0.25	0.31	0.27
MnO	0.46	0.15	0.06	0.07	0.08	0.12	0.10	0.20	0.09
Other Constituents									
Age	101.02	99.83	99.72	100.14	99.7	100.36	99.80	99.94	99.82

TABLE I — ANDESITIC ROCKS — $\text{SiO}_2 < 65\%$

c. CaO = 4% — 5%									
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$									
Rock Name	10	11	12	13	14	15	16	17	18
	Porphyritic amphibole-oligoclase andesite	Porphyritic amphibole-oligoclase andesite	Volcanic ash	Andesite	Porphyritic amphibole-oligoclase andesite	Andesite	'Doreite' Rhyodacite Uoivi Volcanics	Benmoreite pyroxene 'trachy-andesite' Main Range Volcanics	Hornblende clinopyroxene andesite
Locality	Kalgoorlie, W.A. 1186200N, 449900E.	Mt Shea, nr Kalgoorlie, W.A. 1174600N, 460950E.	Rabaul Caldera, PNG	Rabalan-akaia, Rabaul area, PNG	Mt Shea, nr Kalgoorlie, W.A. 1171170N, 463810E.	Rabaul area, PNG	Uoivi Volcano, NE. Papua, PNG	Between Mt Neilson & Lizard Lookout, Main Ra, Qld 593047 Warwick 1-mile Sheet	Lower N. slope Mt Trafalgar, Papua, PNG
Reference	98	98	28	28	98	28	113, 358	123, 46	60, 23
Analyst	W. R. O'Beirne	W. R. O'Beirne	A.Jorgensen A.M.D.L.	R.J.Buckley A.M.D.L.	W. R. O'Beirne	R.J.Buckley A.M.D.L.	A.M.D.L.	Avery & Anderson	P. Jakes
Remarks							corrected for xenolithic quartz		*Loss on Ignition
SiO_2	61.79	61.74	61.30	61.20	61.14	61.10	60.79	59.50	59.03
Al_2O_3	17.07	16.64	15.50	16.10	16.46	16.00	15.76	14.43	17.43
Fe_2O_3	2.60	0.82	2.45	2.05	1.47	4.20	2.39	4.56	2.77
FeO	2.29	4.11	3.95	4.25	3.58	2.50	2.49	5.59	2.92
MgO	4.42	4.04	1.95	2.20	4.41	2.00	4.51	0.80	3.69
CaO	4.03	4.39	4.15	4.60	4.28	4.40	4.98	4.10	4.84
Na_2O	6.49	4.17	4.00	4.65	5.66	4.25	4.36	4.50	4.11
K_2O	1.50	2.64	2.85	2.50	2.47	2.85	2.75	3.03	2.37
$\text{H}_2\text{O} +$	0.16	0.48	2.05	0.05	0.38	0.41	0.28	1.11	1.51*
$\text{H}_2\text{O} -$	0.16	0.31	0.25	0.20	0.14	0.97	0.61	1.22	—
CO_2	nd	nd	0.07	0.10	nd	0.15	0.09	—	—
TiO_2	0.64	0.83	0.91	0.90	0.75	0.82	0.61	1.03	0.99
P_2O_5	nd	nd	0.31	0.31	nd	0.27	0.28	0.35	0.34
MnO	0.09	0.06	0.18	0.16	0.08	0.15	0.08	0.27	0.08
Other Constituents									
Age	101.24	100.23	99.92	99.72	100.82	100.07	99.98	100.49	100.08

c. CaO = 4% - 5%			d. CaO = 5% - 6%						
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$			$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$						
	19	20		1	2	3	4	5	6
Rock Name	Benmoreite 'trachy- andesite' <i>Main Range Volcanics</i>	Andesite		Biotite- hypersthene- augite andesite	Porphyritic amphibole- oligoclase dacite	Dacite	Hornblende andesite	Hornblende biotite andesite	Hornblende andesite
Locality	Main Ra., 1 km N. of Mt Alphen, Spicers Peak Area, Qld 542184 Warwick 1-mile Sheet	East Maitland, N.S.W.		Bougain- ville I.	Mt Shea, nr Kalgoorlie, W.A.	Summit of Mt Victory, PNG	Float, upper slope Mt Victory, PNG	N. crater wall Mt Victory, PNG	E. flank of Billy Mitchell Volcano, Bougainville I., PNG 6°06'S., 155°13'E.
Reference	112	102, 8		14, 137; 131, 18; 15, 42	98	113, 358; 88, 92; 588	60, 263	60, 263	14, 137; 131, 18
Analyst	Avery & Anderson	J. H. Pyle		A. Jorgensen A.M.D.L.	W. R. O'Beirne	C. R. Edmond A.M.D.L.	P. Jakes	P. Jakes	A. Jorgensen A.M.D.L.
Remarks				(High-K andesite)			(Minor biotite) *Loss on Ignition	*Loss on Ignition	
SiO_2	57.12	51.96		60.80	64.70	62.70	62.64	62.50	62.20
Al_2O_3	15.58	17.49		16.80	15.31	16.10	16.48	16.21	16.40
Fe_2O_3	4.18	1.82		2.20	1.43	2.25	1.68	3.11	5.20
FeO	5.19	5.36		3.15	1.83	2.20	2.64	0.73	0.53
MgO	1.21	6.60		2.15	3.41	3.15	3.91	4.56	2.35
CaO	4.02	4.54		5.60	5.48	5.05	5.10	5.55	5.90
Na_2O	4.98	6.10		4.10	5.65	4.25	4.25	4.25	4.10
K_2O	3.20	0.30		3.90	0.72	2.50	1.06	2.27	1.92
$\text{H}_2\text{O} +$	1.07	2.70		0.31	0.12	0.54	1.05*	0.28*	0.31
$\text{H}_2\text{O} -$	1.66	1.04		—	0.05	0.07	—	—	—
CO_2	—	0.95		0.10	0.36	0.18	—	—	0.10
TiO_2	1.04	0.98		0.77	0.73	0.67	0.67	0.70	0.54
P_2O_5	0.36	0.24		0.22	nd	0.31	0.26	0.28	0.23
MnO	0.14	0.12		0.12	0.06	0.08	0.08	0.08	0.13
Other Constituents									
	99.75	100.20		100.22	99.85	100.05	99.82	100.68	99.96
Age									

TABLE I — ANDESITIC ROCKS — $\text{SiO}_2 < 65\%$

d. $\text{CaO} = 5\% - 6\%$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$$
[illegible]

d. CaO = 5% — 6%				e. CaO = 6% — 7%					
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$				$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$		$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$			
	16	17	18		1	2	3	4	5
Rock Name	Andesite	Porphyritic ortho-pyroxene-clinopyroxene andesite	Porphyritic clinopyroxene andesite		Hypers-thene-augite andesite <i>Kieta Volcanics</i>	Porphyritic amphibole-oligoclase dacite	Augite-hornblende andesite <i>Taroka Volcanics</i>	Hypers-thene augite hyalo-andesite	'Dacitic doreite' Rhyodacite <i>Uoivi Volcanics</i>
Locality	Lower SW. slope Mt Trafalgar, PNG	Lower NW. slope Mt Trafalgar, PNG	Upper SE. slope Mt Victory, PNG		Malabita Hill, nr Buin, Bougainville I., PNG	Mt Shea, nr Kalgoorlie, W.A. 1170150N, 463100E.	Nr Konga, Bougainville I., P.N.G.	Southwest Valley, Manam I., PNG	Uoivi Volcano, NE. Papua, PNG
Reference	60, 282	60, 262	60, 262		15, 42; 131, 18	98	15, 42; 14, 137; 131, 18	90; 92, 588	113, 358
Analyst	P. Jakes	P. Jakes	P. Jakes		A. Jorgensen A.M.D.L.	W. R. O'Beirne	A. Jorgensen A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	A.M.D.L.
Remarks	*Loss on Ignition	(From agglomerate) *Loss on Ignition	(Minor hornblende) *Loss on Ignition		High-K andesite		High-K andesite		
SiO_2	58.99	58.52	56.43		58.8	64.54	62.70	62.00	59.30
Al_2O_3	18.20	16.20	16.00		16.6	15.43	16.60	16.10	15.80
Fe_2O_3	3.04	2.93	2.14		3.95	0.35	3.95	3.35	2.40
FeO	2.48	3.28	3.99		2.95	0.78	0.64	3.25	2.95
MgO	2.89	4.14	6.04		3.25	5.08	2.20	2.80	4.30
CaO	5.62	5.59	5.84		6.35	6.25	6.30	6.85	6.50
Na_2O	4.25	3.64	4.05		3.60	4.08	4.10	3.05	3.75
K_2O	2.16	2.67	1.92		2.75	1.62	1.95	1.61	2.40
$\text{H}_2\text{O} +$	0.85*	1.47*	0.99*		0.42	0.36	0.41	0.07	0.83
$\text{H}_2\text{O} -$	—	—	—		—	0.22	—	0.13	0.14
CO_2	—	—	—		0.05	nd	0.20	0.01	0.02
TiO_2	1.01	0.76	0.93		0.81	0.54	0.63	0.44	0.91
P_2O_5	0.36	0.25	0.31		0.32	nd	0.24	0.23	0.35
MnO	0.07	0.09	0.09		0.13	abs	0.12	0.14	0.08
Other Constituents									
	99.92	99.54	98.73		99.98	99.25	100.04	100.03	99.73
Age									

TABLE I — ANDESITIC ROCKS — SiO₂ < 65%

e. CaO = 6% - 7%					f. CaO = 7% - 8%				
K ₂ O/Na ₂ O < 0.75					K ₂ O/Na ₂ O < 0.75				
Rock Name	6	7	8	9		1	2	3	4
	'Dacitic doreite' dacite <i>Hydrographers Volcanics</i>	'Dacitic doreite' rhyodacite	Porphyritic olivine clinopyroxene andesite	Andesite		Lapilli	Olivine-augite andesite	Olivine-hypersthene augite andesite	Clino-pyroxene-hornblende andesite
Locality	Hydrographers Ra., PNG	Upper Musa Valley, PNG	Lower N. slope Mt Trafalgar, PNG	E. Maitland, N.S.W.		Mt Baluan, New Britain I., PNG	Bagiari Cone, Karkar I., PNG	Village nr S. anchorage of Blup Blup I., PNG	Agglomerate, lower NW. slope Mt Trafalgar, PNG
Reference	113, 358	113, 358	60, 262	102, 8		84, 362	90; 92, 589	90; 92, 588	60, 282
Analyst	A.M.D.L.	A.M.D.L.	P. Jakes	J. H. Pyle		Y. Miyake and Y. Sugiura	L. Castanelli, R. L. Bruce A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	P. Jakes
Remarks			Low Si andesite *Loss on Ignition				(Block lava)		Low Si andesite *Loss on Ignition
SiO ₂	58.40	57.10	55.97	44.47		61.75	60.10	58.50	56.76
Al ₂ O ₃	16.60	16.20	16.20	19.16		14.44	16.40	15.20	16.50
Fe ₂ O ₃	3.20	3.95	4.37	2.01		3.05	4.25	3.40	2.43
FeO	3.10	3.10	2.21	7.97		3.67	5.30	4.30	3.68
MgO	4.55	5.10	4.62	8.90		1.52	3.10	4.60	6.17
CaO	6.20	6.90	6.50	6.53		7.53	7.30	7.70	7.06
Na ₂ O	4.20	3.60	3.70	3.50		3.55	1.75	2.40	3.78
K ₂ O	1.95	1.89	2.15	0.12		1.88	0.84	1.69	1.87
H ₂ O +	0.42	0.35	2.52*	4.30		0.05	0.11	1.48	1.11*
H ₂ O -	0.84	0.96	—	1.09		0.08	0.16	0.38	—
CO ₂	0.03	0.02	—	0.07		—	0.06	0.01	—
TiO ₂	0.83	0.85	0.93	1.54		1.08	0.56	0.32	0.88
P ₂ O ₅	0.01	0.17	0.28	0.26		0.73	0.15	0.23	0.29
MnO	0.09	0.11	0.12	0.20		0.12	0.12	0.15	0.10
Other Constituents									
Age	100.42	100.30	99.57	100.12		99.45	100.20	100.36	100.63

f. CaO = 7% - 8%

K₂O/Na₂O < 0.75

	5	6	7	8	9	10	11	12
Rock Name	Augite andesite <i>Bagana Volcanics</i>	Hypersthene augite andesite	Augite andesite	Porphyritic olivine-clino-pyroxene andesite	Augite andesite <i>Bagana Volcanics</i>	Augite andesite <i>Agate Ck Volcanics</i>	Porphyritic olivine-clino-pyroxene-andesite	Clino-pyroxene-olivine andesite
Locality	SE. flank Bagana Volcano, Bougainville I. 6°09'S, 155°11'E.	S. wall of crater Karkar I., PNG	E. caldera wall, Long I., PNG	Float lower S. slope Mt Trafalgar, PNG	SW. side Bagana volcano, Bougainville I., PNG 6°09'S, 155°11'E.	76 km SW. of Einasleigh, Qld 19°00'S, 143°34'E.	Float, lower S. slopes Mt Trafalgar, PNG	Upper NE. slope Mt Victory, PNG
Reference	15, 42; 14, 137; 131, 18	90; 92, 589	90; 92, 589	60, 262	14, 137; 15, 42, 131, 18	19, 112	60, 282	60, 282
Analyst	A. Jorgensen A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	P. Jakes	A. Jorgensen A.M.D.L.	H. W. Sears A.M.D.L.	P. Jakes	P. Jakes
Remarks	Low Si andesite			Low Si andesite *Loss on Ignition	Low Si andesite		Low Si andesite *Loss on Ignition	Low Si andesite *Loss on Ignition
SiO ₂	56.5	56.30	55.60	55.33	55.2	55.10	54.54	53.85
Al ₂ O ₃	17.7	15.60	16.50	14.69	17.4	15.90	16.26	15.60
Fe ₂ O ₃	2.95	2.75	2.90	2.32	4.55	2.75	2.31	4.02
FeO	4.60	8.55	8.20	5.21	3.85	5.65	5.40	3.66
MgO	3.30	3.30	3.10	6.90	3.80	3.50	6.97	6.80
CaO	7.85	7.70	7.30	7.83	7.70	7.40	7.50	7.17
Na ₂ O	4.10	2.85	3.13	3.17	4.30	3.75	3.64	3.64
K ₂ O	1.67	1.15	1.93	1.53	1.63	1.78	1.49	1.56
H ₂ O +	0.15	0.59	0.13	1.10*	—	0.74	1.31*	1.66*
H ₂ O -	—	0.20	0.23	—	—	0.32	—	—
CO ₂	0.10	0.01	0.02	—	0.10	1.08	—	—
TiO ₂	0.40	0.69	0.81	0.97	0.90	1.59	1.13	1.51
P ₂ O ₅	0.37	0.23	0.36	0.26	0.34	0.40	0.23	0.45
MnO	0.17	0.18	0.21	0.13	0.18	0.14	0.12	0.12
Other Constituents								
	99.86	100.10	100.42	99.42	99.95	100.10	100.90	100.04
Age								

TABLE I — ANDESITIC ROCKS — $\text{SiO}_2 < 65\%$

g. $\text{CaO} > 8\%$									
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$ $\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$									
	1	2	3	4	5	6		8	9
Rock Name	Clino- pyroxene- olivine andesite	Lava sand	Lapilli	Lava	Volcanic breccia	Hypersthene augite hyalo- andesite	Hornblende- augite andesite <i>Reini Volcanics</i>	Augite andesite <i>Bagana Volcanics</i>	Olivine- augite andesite
Locality	Upper SE. slope Mt Victory, PNG	Mt Kombiu, Rabalana- kaia, New Britain, PNG	Mt Kombiu, Rabalana- kaia, New Britain, PNG	Mt Kombiu, (Palagiagia) New Britain, PNG	Drill hole, Hannans Lake, nr Kalgoorlie, W.A. 1186000N, 454000E.	Summit of Kadovar I., PNG	Reini volcano, Bougainville I. 6°09'S, 155°13'E.	Bagana volcano, Bougainville I. 6°09'S, 155°11'E.	Crater floor, Karkar I., PNG
Reference	60, 282	84, 362	84, 362	84, 362	98	90; 92, 588	14, 137; 131, 18; 15, 42	14, 137; 15, 42; 131, 18	90; 92, 589
Analyst	P. Jakes	Y. Miyake and Y. Sugiura	Y. Miyake and Y. Sugiura	Y. Miyake and Y. Sugiura	W. R. O'Beirne	L. Castanelli, R. L. Bruce A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.
Remarks	(Dyke) Low Si andesite *Loss on ignition					(Dome)	Low Si andesite	Low Si andesite	
SiO_2	55.68	60.80	59.75	59.40	58.19	57.60	56.30	54.80	54.20
Al_2O_3	14.29	15.50	14.00	14.81	14.62	13.50	17.20	17.20	18.30
Fe_2O_3	2.58	2.51	2.06	3.30	1.14	4.75	6.45	4.05	2.35
FeO	3.86	3.57	5.01	3.93	3.96	4.60	1.36	4.50	7.30
MgO	6.97	1.62	2.61	2.12	2.71	5.95	2.95	3.75	3.75
CaO	8.15	8.01	9.16	9.61	11.34	9.00	8.45	8.05	9.70
Na_2O	3.37	3.48	3.98	3.27	3.66	2.00	3.90	4.10	2.50
K_2O	2.54	1.82	1.91	2.33	2.12	1.45	1.54	1.69	0.88
$\text{H}_2\text{O} +$	0.31	0.29	0.21	0.11	0.23	0.33	0.24	0.14	0.26
$\text{H}_2\text{O} -$	—	0.27	0.07	0.02	0.06	0.16	—	—	0.13
CO_2	—	—	—	—	0.43	0.02	0.15	0.05	0.02
TiO_2	0.84	0.95	0.87	0.90	0.56	0.31	0.71	0.92	0.57
P_2O_5	0.49	1.00	0.54	0.95	nd	0.24	0.31	0.39	0.17
MnO	0.10	0.14	0.09	0.15	0.06	0.16	0.17	0.18	0.17
Other Constituents									
Age	99.18	99.96	100.26	100.90	99.08	100.07	99.73	99.82	100.30

g. $\text{CaO} > 8\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$

	10	11	12	13	14	15	16	17	18
Rock Name	Olivine-augite andesite	Olivine-augite andesite	Augite andesite	Porphyritic pyroxene andesite <i>Newcastle Range Volcanics</i>	Augite andesite <i>Bagana Volcanics</i>	Hypersthene augite andesite	Olivine-hypersthene augite andesite	Volcanic breccia	Pyroxene andesite
Locality	Uluman cone, Karkar I., PNG	Foot of Bagiari cone, Karkar I., PNG	Bagana volcano, Bougainville I.	51 km NNE of Georgetown, Qld 17°55'S, 143°48'E.	E. flank Bagana Volcano, Bougainville I.	SE. valley, Manam I., PNG	W. of Mungen, anchorage, Bagabag I., PNG	Yeoval, N.S.W.	Yeoval, N.S.W.
Reference	90; 92, 589	90; 92, 589	14, 137; 131, 18	28	15, 42	90; 92, 588	90; 92, 589	49	49
Analyst	L. Castanelli, R. L. Bruce A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	A. Jorgensen A.M.D.L.	C. R. Edmond A.M.D.L.	A. Jorgensen A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	B. L. Gulson	B. L. Gulson
Remarks		(Bomb)	Low Si andesite					*Total iron as FeO	*Total iron as FeO
SiO_2	54.20	54.20	54.00	54.00	54.00	53.90	53.30	50.91	50.89
Al_2O_3	18.10	18.60	16.50	17.20	16.50	16.60	17.80	17.35	13.89
Fe_2O_3	2.85	2.45	4.35	3.25	4.35	4.90	3.50	8.52*	10.58*
FeO	6.90	7.20	4.60	4.20	4.60	3.90	6.40		
MgO	3.25	3.50	4.55	4.25	4.55	6.70	4.90	8.64	7.62
CaO	9.65	9.80	8.40	9.05	8.40	10.50	9.50	9.49	11.07
Na_2O	2.50	2.60	5.20	2.80	5.20	2.40	2.40	1.26	1.64
K_2O	0.89	0.89	1.61	1.25	1.61	0.69	0.72	0.37	1.06
$\text{H}_2\text{O} +$	0.12	0.15	0.03	1.87	0.03	0.06	0.31	0.62	1.39
$\text{H}_2\text{O} -$	0.11	0.07	—	0.23	—	0.07	0.46	0.16	0.17
CO_2	0.04	0.05	0.10	0.42	0.10	0.05	0.02	0.09	0.21
TiO_2	0.75	0.59	0.27	1.24	0.27	0.38	0.68	0.74	0.76
P_2O_5	0.16	0.17	0.37	0.2	0.37	0.12	0.20	0.15	0.03
MnO	0.17	0.16	0.18	0.06	0.18	0.17	0.17	0.30	0.26
Other Constituents									
Age	99.69	100.43	100.11	100.0	100.11	100.44	100.36	99.61	99.57

TABLE I — ANDESITIC ROCKS
— $\text{SiO}_2 < 65\%$

g. $\text{CaO} > 8\%$		
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$		
	19	20
Rock Name	Volcanic intermediate rock	Andesitic tuff
Locality	Planet Bore, E. Maitland N.S.W.	E. Maitland N.S.W.
Reference	102, 22	102, 8
Analyst	J. H. Pyle	J. H. Pyle
Remarks		
SiO_2	46.96	45.54
Al_2O_3	18.04	16.35
Fe_2O_3	2.16	1.91
FeO	5.66	4.59
MgO	8.76	7.84
CaO	8.91	8.23
Na_2O	3.75	2.80
K_2O	0.37	0.10
$\text{H}_2\text{O} +$	3.50	5.38
$\text{H}_2\text{O} -$	0.63	2.77
CO_2	—	0.56
TiO_2	0.82	0.94
P_2O_5	0.34	0.10
MnO	0.16	0.12
Other Constituents	$\text{Cr}_2\text{O}_3 = 0.02$ $\text{Cl} = \text{Tr}$	
	100.08	100.23
Age		

TABLE I¹ — METAMORPHOSED ANDESITIC ROCKS

	1	2	3	4	5	6	7	8
Rock Name	Crushed and brecciated porphyrite Soda rhyolite	Amphibolite	Epidote-quartz-albite-stilpnomelane schist	Amphibole schist	Meta-andesite	Meta-andesite	Meta-andesite	Metamorphosed pyroxene andesite
Locality	Smithfield, nr Kalgoorlie, W.A.	Junction of Rocky and Whyte Rs, Tas.	Wamuran Basin, 5 km NE. of Mt Mee, Qld	Raglan Ra., Tas.	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.	Yeoval, N.S.W.
Reference	98	119, 26	114	117, 127; 41, 17	49	49	49	49
Analyst	W. R. O'Beirne	Tas. Dep. Mines	G. Shegheh	Tas. Dep. Mines	B. L. Gulson	B. L. Gulson	B. L. Gulson	B. L. Gulson
Remarks	Intrusive				*Total iron as FeO	*Total iron as FeO	*Total iron as FeO	*Total iron as FeO
SiO ₂	64.84	62.64	58.60	58.18	55.75	55.12	53.59	52.45
Al ₂ O ₃	18.20	13.87	6.05	15.36	15.72	16.97	17.22	17.28
Fe ₂ O ₃	1.07	1.18	19.40	0.79	} 7.87	} 7.94	} 9.10	} 9.06
FeO	1.57	3.17	0.72	5.31				
MgO	3.43	6.33	2.35	6.72	4.11	3.33	3.90	4.41
CaO	1.01	6.16	2.66	5.00	9.48	8.30	9.54	9.42
Na ₂ O	7.28	4.99	3.50	1.69	2.12	2.37	2.55	2.33
K ₂ O	0.18	0.93	0.50	2.95	1.80	2.06	0.80	1.81
H ₂ O +	1.26	1.12	4.40	2.61	0.87	1.08	1.01	1.15
H ₂ O -	0.03	abs	0.60	0.49	0.27	0.11	0.09	0.12
CO ₂	1.19	nd	—	nd	abs	0.09	0.16	0.11
TiO ₂	0.60	0.10	1.25	0.61	0.66	0.71	0.61	0.72
P ₂ O ₅	nd	abs	0.35	0.15	0.15	0.15	0.05	0.02
MnO	0.01	0.11	0.20	0.09	0.31	0.21	0.23	0.19
Other Constituents								
	100.67	100.60	100.58	99.95	99.11	98.44	98.85	99.07
Age								

TABLE I² — METASOMATIZED AND DEUTERICALLY ALTERED ANDESITIC ROCKS

b. Carbonated

	1	2	3	4	5	6	7	8	9
Rock Name	Carbonated porphyritic dacite	Altered carbonated porphyritic rock	Carbonated porphyritic dacite	Carbonated porphyritic dacite	Altered carbonated porphyritic rock	Carbonated porphyritic dacite or andesite	Carbonated porphyritic dacite	Carbonated porphyritic dacite or andesite	Carbonated porphyritic dacite or andesite
Locality	Kambalda, W.A. 1137160N, 470790E.	Hannans Lake, nr Kalgoorlie, W.A. 1188000N, 454830E.	Kambalda, W.A. 1137290N, 470830E.	Kambalda, W.A. 1137340N, 470890E.	Kalgoorlie, W.A. 1190000N, 452000E. approx.	Kalgoorlie, W.A. 1191000N, 452000E. approx.	Kambalda, W.A. 1137280N, 470740E.	Kalgoorlie, W.A. 1191000N, 452000E.	Kalgoorlie, W.A. 1191000N, 452000E. approx.
Reference	98	98	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks									
SiO ₂	63.08	62.94	62.13	60.70	58.12	57.73	57.55	57.24	52.89
Al ₂ O ₃	15.83	14.76	15.61	15.20	13.91	14.96	14.70	15.30	14.47
Fe ₂ O ₃	0.69	0.55	1.82	1.25	1.96	1.48	1.39	1.35	2.23
FeO	3.66	2.98	2.13	3.23	2.59	3.31	3.87	3.39	2.74
MgO	3.57	3.73	3.53	4.55	5.07	3.35	6.13	3.83	4.14
CaO	1.81	3.58	2.10	3.75	4.58	3.35	4.25	4.00	4.67
Na ₂ O	5.52	3.52	6.08	5.70	0.36	3.62	4.45	4.52	3.85
K ₂ O	1.82	2.07	2.93	2.09	4.39	2.39	1.68	1.87	1.61
H ₂ O +	1.43	1.02	0.32	0.33	0.52	1.21	1.44	1.00	0.92
H ₂ O -	0.10	0.05	0.15	0.06	0.05	0.07	0.13	0.03	0.05
CO ₂	1.87	3.80	1.76	2.10	6.81	7.11	3.55	6.48	12.43
TiO ₂	0.77	0.39	0.60	0.70	0.44	0.73	0.58	0.76	0.69
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	nd
MnO	0.06	0.05	0.05	0.07	0.15	0.07	0.09	0.07	0.08
Other Constituents									
Age	100.21	99.44	99.21	99.73	98.95	99.38	99.81	99.84	100.77

TABLE I⁵ —
OLD ANALYSES OF
ANDESITIC ROCKS

	1
Rock Name	Intermediate lava
Locality	Abau I., PNG
Reference	156 , 17
Analyst	Not Stated
Remarks	*Loss on Ignition
SiO ₂	54.95
Al ₂ O ₃	22.03
Fe ₂ O ₃	—
FeO	7.52
MgO	tr
CaO	7.32
Na ₂ O	4.30
K ₂ O	2.39
H ₂ O +	1.18*
H ₂ O —	—
CO ₂	—
TiO ₂	—
P ₂ O ₅	—
MnO	0.11
Other Constituents	
	—
Age	

TABLE I⁶ — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

$$\text{a. CaO/Alk} < 1$$
[illegible]

TABLE I⁶ — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

a. CaO/Alk < 1

	10	11	12	13	14	15	16	17
Rock Name	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>
Locality	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841
Reference	157, 206	157, 204	157, 207	157, 204	157, 204	157, 204	157, 206	157, 205
Analyst	R. E. Smith	R. E. Smith	N. de F. e Castro	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith
Remarks								
SiO ₂	49.80	49.69	49.51	49.12	48.67	48.46	46.91	46.23
Al ₂ O ₃	16.27	16.70	17.05	16.43	16.39	16.60	16.87	16.10
Fe ₂ O ₃	5.25	3.29	4.61	3.89	2.74	4.60	3.69	2.72
FeO	8.65	8.10	9.20	5.24	9.20	7.83	10.72	10.25
MgO	3.97	4.32	4.12	2.40	4.86	3.98	5.24	5.31
CaO	4.45	4.62	4.33	5.79	4.38	5.00	4.46	4.42
Na ₂ O	5.75	4.20	6.55	6.55	4.68	5.21	2.25	2.74
K ₂ O	0.57	3.00	—	1.93	1.96	1.51	3.04	3.98
H ₂ O +	2.51	2.84	3.05	1.66	3.29	3.12	4.83	3.75
H ₂ O —	0.15	0.35	0.35	0.35	0.15	0.22	0.20	0.23
CO ₂	0.70	1.55	—	4.86	2.40	1.30	0.30	2.60
TiO ₂	1.09	1.30	1.10	0.76	0.66	1.30	1.04	0.91
P ₂ O ₅	0.44	0.90	0.47	0.45	0.43	0.55	0.46	0.50
MnO	0.15	0.14	0.16	0.19	0.24	0.20	0.21	0.25
Other Constituents								
Age	99.75	99.83	100.29	99.63	100.05	99.88	100.22	99.99

TABLE I⁶ — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

b. $\text{CaO}/\text{Alk} = 1-2$ [illegible]

TABLE I⁶ — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

b. CaO/Alk = 1-2

	10	11	12	13	14	15	16	17	18
Rock Name	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>
Locality	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841
Reference	157, 207	157, 205	157, 204	157, 205	157, 205	157, 207	157, 205	157, 206	157, 204
Analyst	N. de F. e Castro	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith	N. de F. e Castro	R. E. Smith	R. E. Smith	R. E. Smith
Remarks									
SiO ₂	52.83	51.23	51.04	50.75	50.73	50.51	50.23	49.93	49.91
Al ₂ O ₃	16.42	15.62	16.50	16.20	15.67	17.26	16.30	15.73	17.40
Fe ₂ O ₃	4.38	3.95	5.46	5.14	6.12	4.26	4.25	4.38	7.40
FeO	7.30	7.85	5.89	5.64	6.64	7.17	6.74	7.22	4.78
MgO	3.20	4.21	2.99	3.27	3.35	3.18	3.66	3.20	2.24
CaO	5.37	6.65	7.64	9.17	6.74	6.39	7.88	8.56	7.55
Na ₂ O	4.93	4.49	5.02	3.81	5.40	5.85	4.82	4.12	5.26
K ₂ O	—	1.21	0.24	1.16	0.87	—	1.24	0.18	0.87
H ₂ O +	3.18	2.90	2.90	2.01	1.91	3.47	2.58	3.68	1.44
H ₂ O —	0.15	0.19	0.22	0.20	0.28	0.64	0.14	0.14	0.09
CO ₂	—	0.30	0.92	1.50	1.10	—	0.60	1.45	1.70
TiO ₂	1.15	1.08	0.88	0.93	0.99	1.15	1.10	0.80	0.72
P ₂ O ₅	0.46	0.44	0.38	0.33	0.36	0.46	0.45	0.29	0.51
MnO	0.10	0.22	0.17	0.16	0.15	0.10	0.12	0.14	0.16
Other Constituents									
Age	99.44	100.34	100.25	100.27	100.31	99.96	100.11	99.82	100.03

TABLE 1^o — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

b. CaO/Alk = 1-2						c. CaO/Alk = 2-10			
	19	20	21	22	23		1	2	3
Rock Name	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>		Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>
Locality	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841		Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst Sheet 1:250000 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841
Reference	157, 205	157, 205	157, 205	157, 205	157, 205		157, 206	157, 207	157, 205
Analyst	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith		R. E. Smith	N. de F. e Castro	R. E. Smith
Remarks									
SiO ₂	49.37	49.23	49.12	47.55	45.70		58.30	54.01	53.34
Al ₂ O ₃	16.35	15.95	16.00	16.10	16.30		14.70	16.51	14.72
Fe ₂ O ₃	4.22	3.24	3.39	4.48	5.32		5.02	4.51	3.06
FeO	6.82	6.95	8.03	10.55	10.23		2.56	3.45	5.21
MgO	3.22	2.99	4.11	5.08	5.28		1.14	2.18	2.29
CaO	9.30	7.86	6.16	6.03	5.49		10.89	11.06	12.72
Na ₂ O	3.82	4.64	4.23	3.89	3.70		2.52	3.93	2.33
K ₂ O	1.35	0.75	1.59	0.10	1.56		0.60	—	1.03
H ₂ O +	1.16	2.77	2.94	4.04	4.00		1.04	2.73	2.84
H ₂ O -	0.21	0.19	0.20	0.20	0.11		0.22	0.30	0.16
CO ₂	2.45	4.20	2.80	0.60	0.35		1.45	—	1.40
TiO ₂	1.01	0.89	0.68	1.12	1.63		0.77	1.00	0.80
P ₂ O ₅	0.39	0.34	0.42	0.39	0.55		0.36	0.43	0.34
MnO	0.14	0.15	0.21	0.18	0.17		0.11	0.09	0.14
Other Constituents									
Age	99.81	100.15	99.88	100.31	100.39		99.68	100.10	100.38

TABLE I^o — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

c. CaO/Alk = 2-10							d. CaO/Alk = 10 - 100	
	4	5	6	7	8	9		
Rock Name	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>		Altered andesite <i>Walli Andesite</i>
Locality	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841		Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841
Reference	157, 205	157, 205	157, 204	157, 204	157, 204	157, 207		157, 204
Analyst	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith	N. de F. e Castro		R. E. Smith
Remarks								
SiO ₂	53.04	51.10	48.51	48.10	47.40	38.17		59.10
Al ₂ O ₃	13.91	15.80	14.11	15.22	17.00	18.09		13.44
Fe ₂ O ₃	3.81	7.12	3.52	5.80	4.92	4.11		7.51
FeO	9.77	3.00	10.01	1.41	5.34	15.03		1.20
MgO	4.86	2.00	4.56	1.13	2.89	5.99		0.44
CaO	5.79	13.70	10.42	14.70	13.85	6.07		4.20
Na ₂ O	1.53	3.01	1.29	4.33	3.04	2.96		0.29
K ₂ O	1.11	0.45	0.42	0.49	0.16	—		0.16
H ₂ O +	4.53	0.74	4.84	0.22	2.93	6.35		0.18
H ₂ O -	0.20	0.10	0.27	0.10	0.19	0.26		0.04
CO ₂	0.40	1.90	0.30	6.86	1.90	—		2.39
TiO ₂	1.05	0.84	1.33	0.67	0.85	1.45		0.42
P ₂ O ₅	0.31	0.28	0.37	0.48	0.37	0.77		0.25
MnO	0.17	0.12	0.15	0.16	0.14	0.28		0.13
Other Constituents								
Age	100.48	100.16	100.10	99.67	99.98	99.39		99.75
								99.89

TABLE I⁶ — ANDESITIC ROCKS ALTERED BY BURIAL METAMORPHISM OR DIAGENESIS

d. CaO/Alk = 10 – 100					e. CaO/Alk > 100				
	3	4	5	6		1	2	3	4
Rock Name	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>		Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>	Altered andesite <i>Walli Andesite</i>
Locality	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841		Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841	Limestone Cr, Cliefden, N.S.W. Bathurst 1:250000 Sheet 188841
Reference	157, 204	157, 206	157, 204	157, 204		157, 206	157, 207	157, 206	157, 204
Analyst	R. E. Smith	R. E. Smith	R. E. Smith	R. E. Smith		R. E. Smith	N. de F. e Castro		
Remarks									
SiO ₂	48.85	47.00	42.55	40.90		55.35	50.73	50.03	47.55
Al ₂ O ₃	16.52	14.60	13.80	18.27		12.18	16.07	15.05	15.79
Fe ₂ O ₃	4.54	4.65	3.88	9.93		5.14	7.91	6.97	8.33
FeO	2.35	4.49	5.02	0.96		2.82	0.72	3.56	0.97
MgO	1.43	2.39	2.90	0.20		1.45	0.74	1.81	0.23
CaO	16.80	19.34	21.30	22.40		16.30	19.68	17.90	20.01
Na ₂ O	0.30	0.73	0.82	0.59		0.03	0.06	0.08	0.12
K ₂ O	0.02	0.11	0.17	0.05		0.02	—	0.01	0.03
H ₂ O +	4.12	2.58	2.95	0.41		3.32	1.06	2.41	0.35
H ₂ O –	0.09	0.19	0.30	0.06		0.18	0.05	0.21	0.11
CO ₂	3.90	2.35	5.20	3.80		2.40	—	0.90	5.30
TiO ₂	0.62	0.87	0.56	0.62		0.68	0.90	0.91	0.63
P ₂ O ₅	0.33	0.36	0.33	1.50		0.31	0.45	0.33	0.35
MnO	0.09	0.14	0.16	0.11		0.10	0.10	0.14	0.10
Other Constituents									
	99.96	99.80	100.22	99.80		100.28	98.63	100.31	99.87
Age									

a. CaO < 1%

K ₂ O/Na ₂ O > 1.25						K ₂ O/Na ₂ O = 1.25 - 0.75			
Rock Name	1	2	3	4	5	6	7	8	9
Trachyte	Trachyte	Trachyte <i>Wooltana</i> <i>Volcanics</i>	Trachyte <i>Cooby</i> <i>Trachyte</i>	Micro- syenite	Sanidine trachyte <i>Antrim</i> <i>Plateau</i> <i>Volcanics</i>	Comendite <i>Swanfels</i> <i>Member</i>	Quartz trachyte <i>Spicers Gap</i> <i>Member</i>	Trachyte	Aenigmatite trachyte
Locality	Teatree Pt, Penguin, Tas.	NE. Flinders Ra., 48 km W. of Lake Frome, S.A. 30°23'S, 139°27'E.	37 km NE. of Cooby Cr Dam, 027047 Jondargan 1-mile Sheet	DDH, W6, 0.4 km Yerrinbool railway station, N.S.W. 537542 Wollongong 1-mile Sheet	2 km WSW. junction of Camfield R. & Cattle Cr, N.T. Wave Hill Sheet	Hell Hole Cr, Main Ra., Qld 473107 Warwick 1-mile Sheet	Spicers Gap, Main Ra., Qld	1.5 km E. of Coryah Gap, Nandewar Mts, N.S.W.	Nandewar Mts, N.S.W.
Reference	24, 59	29	126	103, 5	39, 119; 104	123, 46	123, 46	2, 126	1, 18, 96; 2, 126
Analyst	C.J. Penman Tas. Dep. Mines	A. McClure	L. T. Sutherland	J. H. Pyle	B. Bonner, K. Bose, S. Alexander A.M.D.L.	Avery & Anderson	Avery & Anderson	M. J. Abbott	M. J. Abbott
Remarks	(Dyke)	*Loss on Ignition		1243'3" (379 m)					(Dome)
SiO ₂	72.82	72.22	66.47	58.03	53.40	73.24	70.17	68.26	65.59
Al ₂ O ₃	12.88	12.74	14.78	17.40	13.70	12.90	13.16	13.95	16.45
Fe ₂ O ₃	0.86	1.58	4.59	2.04	13.40	1.23	2.33	2.47	2.11
FeO	3.08	1.92	0.37	5.47	0.54	1.44	1.66	2.34	1.62
MgO	1.01	1.70	1.07	0.39	2.20	0.20	0.21	0.07	0.14
CaO	0.24	0.19	0.30	0.42	0.97	0.35	0.62	0.68	0.36
Na ₂ O	2.28	2.48	3.69	4.54	0.35	4.32	4.54	6.26	7.02
K ₂ O	3.79	5.92	5.22	6.48	10.40	5.26	4.94	5.17	5.57
H ₂ O +	2.00	0.93*	2.47	1.18	1.95	0.80	0.58	0.10	} 0.18
H ₂ O -	0.40	0.09	0.40	—	1.25	0.44	0.97	—	
CO ₂	0.21	—	nd	3.49	0.23	—	—	0.29	0.04
TiO ₂	0.25	0.20	0.54	0.34	1.32	0.26	0.48	0.34	0.41
P ₂ O ₅	0.06	0.13	0.16	0.21	0.12	0.12	0.27	0.03	0.07
MnO	0.06	0.05	0.03	0.17	0.04	0.025	0.03	0.14	0.08
Other Constituents				BaO = 0.02				BaO = tr SrO = tr Rb ₂ O = 0.02 ZrO ₂ = 0.05	Rb ₂ O = 0.01 ZrO ₂ = 0.09
Age	100.16	100.15	100.09	100.18	99.9	100.58	99.96	100.17	99.74

TABLE J — TRACHYTIC ROCKS

a. CaO < 1%				b. CaO = 1% - 2%					
K ₂ O/Na ₂ O = 1.25 - 0.75		K ₂ O/Na ₂ O < 0.75			K ₂ O/Na ₂ O > 1.25		K ₂ O/Na ₂ O = 1.25 - 0.75		
	10	11	12		1	2	3	4	5
Rock Name	Micro-syenite	Sodic quartz trachyte	Aegirine trachyte <i>Peak Range Volcanics</i>		Micro-syenite	Micro-syenite	Trachyte <i>Wooltana Volcanics</i>	Anorthoclase trachyte <i>Steamers Member</i>	Soda-potassic trachyte <i>Kerrison Volcanics</i>
Locality	DDH, W5, nr Avon dam, Nepean R., N.S.W. 503558 Wollongong 1-mile Sheet	Warrumbungle Mts, N.S.W. 187117 Gilgandra 4-mile Sheet	8 km W. of Calvert Peak, Qld 64271543		DDH. W11, 1155' (352 m), nr Avon dam, Nepean R., N.S.W.	DDH. W11, 1122' (342 m) nr Avon dam, Nepean R., N.S.W.	NE. Flinders Ra., 40 km W. of Lake Frome, S.A. 30°26'S, 139°24'E.	Queen Mary Falls, nr Killarney, Qld	Paloona, Tas.
Reference	103, 5	77, 230	85		103, 5	103, 5	29	123, 46	24, 38
Analyst	J. H. Pyle	G. I. Z. Kalocsai	K. J. Heinrich, H. W. Sears A.M.D.L.		J. H. Pyle	J. H. Pyle	S. Baker	Avery & Anderson	C.J. Penman Tas. Dep. Mines
Remarks	1157'4" (353 m)						*Loss on Ignition		(Lava fragment in agglomerate)
SiO ₂	60.20	69.30	66.00		58.83	54.31	73.76	66.57	64.30
Al ₂ O ₃	16.61	15.73	17.10		17.52	17.32	14.00	15.14	15.09
Fe ₂ O ₃	0.80	2.00	2.07		0.31	nd	2.00	1.15	1.61
FeO	6.21	1.26	0.79		5.64	7.71	1.67	1.90	3.24
MgO	0.16	0.08	0.15		0.60	0.70	0.35	0.56	3.16
CaO	0.27	0.39	0.36		1.13	1.35	1.47	1.50	1.78
Na ₂ O	5.26	6.45	7.15		4.20	2.80	3.41	4.18	3.66
K ₂ O	4.85	4.65	5.10		5.54	7.80	3.47	5.02	3.50
H ₂ O +	1.36	0.10	0.61		1.55	1.78	0.40*	0.38	1.90
H ₂ O -	—	0.20	0.32		—	—	—	2.63	0.45
CO ₂	3.77	—	0.04		3.92	5.37	—	—	—
TiO ₂	0.23	0.10	0.11		0.39	0.41	0.12	0.60	0.75
P ₂ O ₅	0.18	0.01	0.03		0.17	0.21	0.03	0.19	0.05
MnO	0.16	0.06	0.05		0.15	0.18	0.10	0.06	tr
Other Constituents	BaO=0.02 ZrO ₂ =0.06					ZrO ₂ =0.09 BaO=0.02			
Agg	100.14	100.33	99.9		100.04	100.05	100.78	100.13	99.49

TABLE J — TRACHYTIC ROCKS

b. CaO = 1% - 2%						c. CaO = 2% - 3%	
K ₂ O/Na ₂ O = 1.25 - 0.75			K ₂ O/Na ₂ O < 0.75			K ₂ O/Na ₂ O > 1.25	
	6	7	8	9	10	1	2
Rock Name	Trachyte	Aegirine trachyte <i>Peak Range Volcanics</i>	Aegirine trachyte <i>Peak Range Volcanics</i>	Micro-syenite	Micro-syenite	Trachyte <i>Cooby Trachyte</i>	Trachyte <i>Wooltana Volcanics</i>
Locality	Bullawa Cr, Nandewar Mts, N.S.W.	Ridge, S. from Calvert Peak, Peak Ra., Qld 64361535	2 km NW. of Scotts Peak, Peak Ra., Qld	DDH, W8A, nr Avon dam, Nepean R., N.S.W. 613538 Wollongong 1-mile Sheet	DDH. W11, 1212'6" (370 m) nr Avon dam, Nepean R., N.S.W.	6 km NNE. of Cooby Cr dam, Qld 027071 Jondaryan 1-mile Sheet	Wooltana Area, S.A.
Reference	2, 126	85	85	103, 5	103, 5	126	30, 154
Analyst	M. J. Abbott	K. J. Heinrich, H. W. Sears A.M.D.L.	K. J. Heinrich, H. W. Sears A.M.D.L.	J. H. Pyle	J. H. Pyle	S. Bagley	H. W. Sears A.M.D.L.
Remarks	(Dome)			1568' (478 m)			
SiO ₂	62.90	62.70	63.90	60.59	55.95	64.10	59.20
Al ₂ O ₃	16.15	16.70	15.90	14.58	18.33	14.40	11.20
Fe ₂ O ₃	1.37	3.79	3.80	nd	2.40	8.60	12.70
FeO	3.09	1.60	1.66	7.35	4.95	nd	abs
MgO	0.61	0.12	0.18	0.83	0.67	0.30	0.73
CaO	1.83	1.37	1.17	1.28	1.26	2.75	2.02
Na ₂ O	6.17	6.55	6.65	8.22	5.47	3.65	0.24
K ₂ O	5.57	5.45	4.95	0.25	4.52	5.07	10.20
H ₂ O +	0.13	0.87	0.53	0.82	1.53	nd	0.50
H ₂ O -	—	0.39	0.50	—	—	nd	0.17
CO ₂	0.26	0.10	0.15	5.54	4.27	—	2.22
TiO ₂	0.41	0.03	0.30	0.40	0.31	0.59	1.02
P ₂ O ₅	0.17	0.05	0.09	0.08	0.23	0.20	0.10
MnO	0.14	0.15	0.11	0.15	0.15	nd	0.44
Other Constituents	BaO=0.05 SrO=0.01 Rb ₂ O=0.01 ZrO ₂ =0.84				ZrO ₂ =0.09 BaO=tr		
	99.71	99.89	99.89	100.09	100.13	99.66	100.11
Age							

TABLE J — TRACHYTIC ROCKS

c. CaO = 2% — 3%					d. CaO = 3% — 4%				
K ₂ O/Na ₂ O = 1.25 — 0.75		K ₂ O/Na ₂ O < 0.75			K ₂ O/Na ₂ O = 1.25 — 0.75				
	3	4	5	6		1	2	3	4
Rock Name	Fayalite trachyte <i>Peak Range Volcanics</i>	Trachyte	Acid trachyte <i>Agnes Water Volcanics</i>	Syenite pegmatite		Banatite	Syenite <i>Mt Gibraltar Syenite</i>	Pyroxene trachyte <i>Wild Cattle Trachyte</i>	Pyroxene trachyte
Locality	Mt Macarthur, Qld	8 km N. of Killarney Gap, Nandewar Mts, N.S.W.	0.6 km E. of Agnes Water, Qld 016382 Bustard Head 1-mile Sheet	DDH, W8A, nr Avon dam head, Nepean R., N.S.W.		Nr Mt Dromedary Trig., N.S.W.	2 km NE. of Bowral, N.S.W	Wild Cattle Cr, Main Ra., Qld 558072 Warwick	E. of Cunninghams Gap, Main Ra., 526192½ Warwick 1-mile Sheet
Reference	85	2, 126	124, 152	103, 5		17	28	123, 46	123, 46
Analyst	K. J. Heinrich, H. W. Sears A.M.D.L.	M. J. Abbott	Avery & Anderson	J. H. Pyle		R. S. Boesen	D. K. Rowley A.M.D.L.	W. H. Herdsman	Avery & Anderson
Remarks		(Flow)		1479' (451 m)					
SiO ₂	60.80	60.14	66.24	59.55		64.02	59.90	58.12	57.11
Al ₂ O ₃	16.60	17.07	16.55	14.18		17.05	9.80	14.66	15.49
Fe ₂ O ₃	2.74	2.63	0.43	1.09		1.99	4.20	1.87	1.77
FeO	4.00	2.98	2.84	5.51		2.17	7.50	6.89	7.42
MgO	0.42	0.78	1.28	0.34		1.04	< 0.05	0.72	0.80
CaO	2.52	2.76	2.03	2.88		3.08	3.25	3.25	3.70
Na ₂ O	5.75	4.87	5.95	6.38		4.73	4.50	4.89	4.51
K ₂ O	5.25	5.26	1.76	3.85		4.67	1.05	4.78	4.60
H ₂ O +	0.64	0.31	1.26	1.15		0.62	1.30	0.95	0.79
H ₂ O —	0.59	0.05	0.17	—		abs	0.12	0.61	0.93
CO ₂	0.05	0.45	nd	4.80		0.23	4.05	2.38	1.64
TiO ₂	0.09	0.77	0.81	0.26		0.36	0.62	0.61	0.79
P ₂ O ₅	0.21	0.08	0.27	0.04		0.10	0.35	0.21	0.64
MnO	0.15	0.16	0.37	0.13		0.13	0.22	0.19	0.20
Other Constituents		BaO=0.16 SrO=0.03 ZrO ₂ =1.56		ZrO ₂ =0.03		BaO=0.12			
	99.8	100.06	99.96	100.19		100.31	99.9	100.13	100.39
Age									

d. CaO = 3% - 4%			e. CaO = 4% - 5%			f. CaO = > 5%	
K ₂ O/Na ₂ O = 1.25 - 0.75			K ₂ O/Na ₂ O < 0.75			K ₂ O/Na ₂ O < 0.75	
5			6			1	
Rock Name	Trachyte	Pyroxene leuco-trachyte		Alkaline trachyte		Hornblende syenite <i>Nicholson Granite</i>	Alkali syenite
Locality	Weir on Serpentine R., N.S.W.	Mt Alpen, Main Ra., Qld, 535170 Warwick 1-mile Sheet		Ipswich Bore NS. 93, Qld 967705 Ipswich 1-mile Sheet		29 km SW. Pandanus Cr, N.T. 17°55'S, 137°13'E.	Oakey Cr, Nandewar Mts, N.S.W.
Reference	146, 539	112		57, 15		28	2, 126
Analyst	J. H. Pyle	Avery & Anderson		C.H.Couper Qld Govt Chem Lab		C. R. Edmond A.M.D.L.	M. J. Abbott
Remarks				2628'6" (801 m)			
SiO ₂	56.63	63.05		55.10		54.10	56.42
Al ₂ O ₃	13.50	14.20		18.00		11.90	16.93
Fe ₂ O ₃	6.47	4.44		5.00		2.10	3.50
FeO	5.31	2.62		2.60		6.70	4.07
MgO	0.90	0.72		2.45		7.80	2.71
CaO	3.26	3.34		4.20		7.15	5.06
Na ₂ O	4.94	5.12		5.30		1.56	5.65
K ₂ O	4.84	3.26		1.20		4.95	3.07
H ₂ O +	1.20	0.95		1.25		2.00	0.87
H ₂ O -	1.06	1.75		0.53		0.08	—
CO ₂	0.20	—		1.08		0.09	0.10
TiO ₂	0.94	0.89		2.46		0.70	1.46
P ₂ O ₅	0.81	0.24		0.69		0.33	0.52
MnO	0.16	0.10		0.19		0.17	0.09
Other Constituents							BaO=0.17 SrO=0.06 Rb ₂ O=0.01 ZrO ₂ =0.04
Age	100.22	100.68		100.05		99.63	100.73

TABLE J² —
 METASOMATIZED
 AND
 DEUTERICALLY
 ALTERED
 TRACHYTIC ROCKS
 EPIDOLIZATION

	1
Rock Name	Epidotized trachyte <i>Wooltana</i> <i>Volcanics</i>
Locality	Wool- hamoka Well, Wooltana area, S.A.
Reference	30, 154
Analyst	H. W. Sears A.M.D.L.
Remarks	
SiO ₂	53.20
Al ₂ O ₃	12.30
Fe ₂ O ₃	10.92
FeO	0.73
MgO	2.36
CaO	15.80
Na ₂ O	0.16
K ₂ O	0.15
H ₂ O +	0.84
H ₂ O -	0.31
CO ₂	0.71
TiO ₂	1.42
P ₂ O ₅	0.13
MnO	0.14
Other Constituents	F = 0.03
Age	

TABLE J⁴ —
INCOMPLETE
ANALYSES OF
TRACHYTIC ROCKS

	1
Rock Name	Pyroxene trachyte
Locality	Mt Roberts, 4 km ENE. of Main Ra., Qld 625012 Dugandan 1 mile-Sheet
Reference	123, 49
Analyst	D. C. Green
Remarks	
SiO ₂	58.85
Al ₂ O ₃	—
Fe ₂ O ₃	—
FeO	—
MgO	—
CaO	—
Na ₂ O	5.5
K ₂ O	3.7
H ₂ O +	—
H ₂ O —	—
CO ₂	—
TiO ₂	—
P ₂ O ₅	—
MnO	—
Other Constituents	
Age	

TABLE J⁵ —
OLD ANALYSES OF
TRACHYTIC ROCKS

	1
Rock Name	Trachytic
Locality	Misima I., PNG
Reference	156, 26
Analyst	Not Stated
Remarks	*Loss on Ignition
SiO ₂	68.02
Al ₂ O ₃	14.08
Fe ₂ O ₃	5.19
FeO	0.29
MgO	—
CaO	5.30
Na ₂ O	5.17
K ₂ O	1.26
H ₂ O +	1.37*
H ₂ O —	—
CO ₂	—
TiO ₂	—
P ₂ O ₅	—
MnO	—
Other Constituents	
Age	

TABLE K — NEPHELINE AND ANALCIME-BEARING TRACHYTIC ROCKS

a. CaO < 1%				b. CaO = 1% - 2%			
K ₂ O/Na ₂ O < 0.75				K ₂ O/Na ₂ O = 1.25 - 0.75	K ₂ O/Na ₂ O < 0.75		
	1	2		1	2	3	4
Rock Name	Tinguaite	Tinguaite		Phonolite	Phonolite	Tinguaite	Tinguaite
Locality	Dhruwalgha, Mina-murra R., N.S.W.	Dhruwalgha, Mina-murra R., N.S.W.		Mt Smythe, Kiewa Area, Vic.	L. Eucumbene, Snowy Mts, N.S.W.	Dhruwalgha, Mina-murra R., N.S.W.	Dhruwalgha, Mina-murra R., N.S.W.
Reference	103, 5	103, 5		7, 375	78, 312	103, 5	103, 5
Analyst	J. H. Pyle	J. H. Pyle		V. Biskupsky	D. E. Mackenzie, B. W. Chappell	J. H. Pyle	J. H. Pyle
Remarks							
SiO ₂	54.40	53.59		59.22	57.28	55.38	54.30
Al ₂ O ₃	18.86	19.33		21.36	18.24	20.48	19.64
Fe ₂ O ₃	5.20	4.84		2.86	2.68	2.46	4.90
FeO	0.93	1.20		0.32	2.68	2.00	1.02
MgO	0.04	0.16		tr	0.28	0.15	0.22
CaO	0.72	0.66		1.25	1.59	1.25	1.27
Na ₂ O	9.91	10.57		4.60	8.22	10.54	9.93
K ₂ O	4.84	5.08		4.32	5.18	5.55	4.33
H ₂ O +	4.65	4.07		4.85	1.54	1.87	3.51
H ₂ O -	—	—		0.65	0.64	—	—
CO ₂	0.11	0.13		—	0.15	—	0.74
TiO ₂	0.02	0.02		—	1.38	0.05	0.04
P ₂ O ₅	0.21	0.16		0.02	0.03	0.20	0.06
MnO	0.19	0.33		0.11	0.32	0.22	0.35
Other Constituents							
Age	100.08	100.14		99.56	100.21	100.15	100.31

TABLE K — NEPHELINE AND ANALCIME-BEARING TRACHYTIC ROCKS

c. CaO = 2% - 3%					d. CaO = 3% - 4%		
K ₂ O/Na ₂ O = 1.25 - 0.75			K ₂ O/Na ₂ O > 0.75		K ₂ O/Na ₂ O < 0.75		
	1	2	3	4		1	2
Rock Name	Micro-syenite in <i>Clumber Teschenite</i>	Tinguaite	Analcime tinguaite	Analcime tinguaite		Melano-cratic natrolite-analcime tinguaite	Melano-cratic analcime tinguaite
Locality	2 km E. of Spicers Peak, Qld	Dhruwalgha, Mina-murra R., N.S.W.	Square Top, 3 km W. of Nundle, N.S.W.	Square Top, 3 km W. of Nundle, N.S.W.		Square Top, 3 km W. of Nundle, N.S.W.	Square Top, 3 km W. of Nundle, N.S.W.
Reference	112	103, 5	142, 423	142, 423; 143, 535		142, 423	142, 423; 143, 535
Analyst	R. E. Russell	J. H. Pyle	M. Chiba	M. Chiba		M. Chiba	M. Chiba
Remarks	Vein with 25% analcime						
SiO ₂	57.96	53.02	52.71	52.61		51.71	50.60
Al ₂ O ₃	15.85	17.83	18.59	18.88		18.30	17.85
Fe ₂ O ₃	1.20	2.91	4.23	4.06		4.01	4.11
FeO	2.77	4.02	1.93	1.72		2.69	3.13
MgO	1.04	0.94	1.75	1.62		2.42	3.13
CaO	2.35	2.57	2.77	2.43		3.31	3.87
Na ₂ O	4.82	5.23	9.23	8.93		8.86	8.03
K ₂ O	5.20	5.82	3.81	4.08		3.33	3.43
H ₂ O +	4.66	3.79	2.85	3.72		3.36	2.95
H ₂ O -	0.88	—	0.70	0.67		0.79	0.87
CO ₂	1.65	2.90	—	—		—	—
TiO ₂	1.05	0.51	0.47	0.38		0.64	0.78
P ₂ O ₅	0.17	0.46	0.65	0.55		0.57	0.78
MnO	0.14	0.15	0.12	0.11		0.12	0.13
Other Constituents							
	99.74	100.15	99.81	99.76		100.11	99.66
Age							

TABLE K — NEPHELINE AND ANALCIME-BEARING TRACHYTIC ROCKS

f. CaO > 5%

K ₂ O/Na ₂ O = 1.25 — 0.75		K ₂ O/Na ₂ O < 0.75	
	1	2	3
Rock Name	Analcime syenite	Analcime syenite pegmatite	Melanocratic analcime tinguaite
Locality	2 km E. of Spicers Peak, Qld 544143 Warwick 1-mile Sheet	2 km E. of Spicers Peak, Qld 542148 Warwick 1-mile Sheet	Square Top, 3 km W. of Nundle, N.S.W.
Reference	112	112	142, 423
Analyst	Avery & Anderson	Avery & Anderson	S. E. Shaw
Remarks			
SiO ₂	51.24	48.91	48.63
Al ₂ O ₃	15.83	15.39	16.60
Fe ₂ O ₃	2.03	3.57	3.03
FeO	6.25	6.32	5.18
MgO	2.63	2.82	5.01
CaO	5.42	5.56	6.07
Na ₂ O	5.32	5.17	7.33
K ₂ O	4.16	2.89	3.07
H ₂ O +	3.24	5.00	2.48
H ₂ O —	0.89	0.75	0.35
CO ₂	—	—	—
TiO ₂	2.50	2.78	1.22
P ₂ O ₅	0.89	1.13	0.71
MnO	0.14	0.11	0.18
Other Constituents			
	100.39	100.55	99.86
Age			

TABLE L — BASALTIC ROCKS — $\text{SiO}_2 > 54\%$

a. $\text{CaO}/\text{Alk} < 1$			b. $\text{CaO}/\text{Alk} = 1 - 2$						
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$			$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$				$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$		
Rock Name	1	2		1	2	3	4	5	6
	'Trachy-andesite' shoshonite <i>Uoivi Volcanics</i>	'Trachy-andesite' shoshonite <i>Uoivi Volcanics</i>		'Olivine latite' shoshonite <i>Uoivi Volcanics</i>	'Trachy-basalt' shoshonite <i>Sesara Volcanics</i>	'Latitic basalt' shoshonite <i>Uoivi Volcanics</i>	'Trachy-andesite' shoshonite <i>Uoivi Volcanics</i>	'Olivine basaltic doreite' trachybasalt <i>Hydro-graphers Volcanics</i>	Porphyritic tholeiitic basalt
Locality	Uoivi volcano, NE. Papua, PNG	Uoivi volcano, NE. Papua, PNG		Uoivi volcano, NE. Papua, PNG	Sesara volcano, NE. Papua, PNG	Uoivi volcano, NE. Papua, PNG	Uoivi volcano, NE. Papua, PNG	Hydro-graphers Ra., NE. Papua, PNG	Bagana volcano, Bougainville I., PNG
Reference	113, 358	113, 358		113, 358	113, 358	113, 358	113, 358	113, 358	28
Analyst	A.M.D.L.	A.M.D.L.		A.M.D.L.	A.M.D.L.	A.M.D.L.	A.M.D.L.	A.M.D.L.	K. Bose A.M.D.L.
Remarks		(Dome flow)			(Sill)		(Dome flow) *partly weathered		
SiO_2	56.50	55.50		55.04	55.50	55.10	54.30	56.50	55.40
Al_2O_3	14.20	17.00		16.61	15.20	14.60	20.00	14.50	17.80
Fe_2O_3	5.15	4.80		2.70	2.80	2.45	5.92	2.95	4.45
FeO	1.65	1.61		3.95	5.00	3.80	1.30	4.70	4.20
MgO	5.20	3.75		5.81	6.55	6.70	4.78	7.60	3.05
CaO	6.35	6.80		6.54	6.45	7.20	6.08	6.10	8.05
Na_2O	3.90	3.90		2.75	3.70	3.35	3.04	3.25	4.10
K_2O	3.50	3.05		3.69	2.35	3.75	2.77	2.25	1.57
$\text{H}_2\text{O} +$	0.34	1.01		1.02	0.21	0.32	2.88	0.58	0.02
$\text{H}_2\text{O} -$	1.73	0.53		0.31	0.49	0.29	*4.71	0.51	<0.01
CO_2	0.04	0.05		0.03	0.04	0.08	0.04	0.03	<0.01
TiO_2	0.97	1.02		0.91	1.37	1.40	1.08	0.86	0.83
P_2O_5	0.01	0.56		0.51	0.38	0.85	0.56	0.36	0.33
MnO	0.08	0.07		0.12	0.12	0.10	0.11	0.11	0.17
Other Constituents									
Age	99.62	99.65		99.99	100.16	99.99	99.98	100.30	99.97

TABLE L — BASALTIC ROCKS — $\text{SiO}_2 > 54\%$

b. $\text{CaO}/\text{Alk} = 1-2$							c. $\text{CaO}/\text{Alk} = 2-3$	
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75-0.30$							$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75-0.30$	
	7	8	9	10	11	12	1	2
Rock Name	Dolerite	'Basaltic doreite' trachybasalt <i>Hydrographers Volcanics</i>	Basalt	Porphyritic tholeiitic basalt	Tholeiitic basalt	Basalt	Quartz dolerite	Dolerite
Locality	DDH. 5123, Great Lake, Tas.	Hydrographers Ra., NE. Papua, PNG	Mt Langila, New Britain, PNG	Mt Bagana, Bougainville I.	Mt Bagana, Bougainville I.	The Mother, Rabaul Area, PNG	DDH. 5123, Great Lake, Tas.	DDH. 5123, Great Lake, Tas.
Reference	76, 120	113, 358	28	28	28	28	75, 304; 76, 120	76, 120
Analyst	Avery & Anderson	A.M.D.L.	H. Kresse A.M.D.L.	K. Bose A.M.D.L.	K. Bose A.M.D.L.	R.J. Buckley A.M.D.L.	Avery & Anderson	Avery & Anderson
Remarks	(Central Zone)		(Parasitic Cone)				(200')	(Central Zone)
SiO_2	55.36	55.20	55.10	55.00	54.10	54.00	56.30	55.54
Al_2O_3	15.27	16.00	17.00	17.60	17.00	16.70	16.42	15.84
Fe_2O_3	2.53	2.35	3.40	4.85	4.45	3.00	1.69	2.33
FeO	8.69	4.35	5.95	4.00	5.00	5.65	8.28	7.90
MgO	2.12	6.65	4.15	3.25	4.15	4.65	1.93	2.36
CaO	7.57	6.95	8.90	8.15	8.60	8.90	8.50	8.90
Na_2O	2.83	3.90	2.95	3.90	3.80	3.30	2.36	2.19
K_2O	1.92	1.90	1.57	1.57	1.61	1.47	1.52	1.52
$\text{H}_2\text{O}+$	1.42	0.41	0.14	0.26	0.04	0.56	0.78	0.81
$\text{H}_2\text{O}-$	0.87	0.46	<0.01	0.02	<0.01	0.12	1.14	1.16
CO_2	—	0.03	0.15	<0.01	<0.01	<0.05	nd	—
TiO_2	1.25	1.06	0.55	0.84	0.89	0.92	1.06	1.08
P_2O_5	0.21	0.51	0.17	0.32	0.33	0.21	0.20	0.13
MnO	0.16	0.11	0.18	0.17	0.17	0.16	0.16	0.16
Other Constituents								
	100.20	99.88	100.22	99.94	100.14	99.69	100.34	99.92
Age								

TABLE L — BASALTIC ROCKS — $\text{SiO}_2 > 54\%$

c. $\text{CaO}/\text{Alk} = 2 - 3$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$								$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.30$
	3	4	5	6	7	8	9	10
Rock Name	Basalt	Dolerite	Basalt	Basalt	Trachy-basalt <i>Sesara Volcanics</i>	Dolerite	Basalt	Clinoenstatite-bearing rock
Locality	Wittenoom-Port Hedland Rd, W.A. 21°59'S, 118°51'E	DDH. 5001, Great Lake, Tas.	Mt Langila, New Britain, PNG	N. flank of Mt Langila, New Britain, PNG	Sesara volcano, NE. Papua, PNG	DDH. 5123, Great Lake, Tas.	Wittenoom-Port Hedland Rd, W.A. 21°59'S, 118°51'E.	C. Vogel, PNG
Reference	134	76, 123	28	28	113, 358	76, 120	134	31, 233
Analyst	R. S. Pepper	Avery & Anderson	H. Kresse A.M.D.L.	A. Jorgensen A.M.D.L.	A.M.D.L.	Avery & Anderson	R. W. Lindsey	A. Jorgensen A.M.D.L.
Remarks			(Parasitic Cone)		(Sill)	(Central Zone)		
SiO_2	55.37	54.84	54.80	54.70	54.60	54.58	54.43	54.00
Al_2O_3	14.21	16.61	17.00	16.80	14.10	16.36	14.55	7.45
Fe_2O_3	0.96	2.53	5.40	4.20	3.05	1.71	0.97	1.60
FeO	7.92	7.42	4.05	6.20	4.90	8.40	8.05	7.10
MgO	5.75	2.82	4.20	4.70	8.50	3.49	6.02	18.60
CaO	7.65	9.42	8.95	8.65	8.45	9.40	7.91	3.80
Na_2O	2.16	2.00	2.95	2.55	2.35	2.15	2.06	1.22
K_2O	0.98	1.20	1.45	1.45	1.47	1.38	1.08	0.21
$\text{H}_2\text{O} +$	3.04	1.09	0.16	0.22	0.09	1.20	3.06	2.95
$\text{H}_2\text{O} -$	0.15	0.92	<0.01	0.04	0.41	0.65	0.12	2.11
CO_2	0.26	—	0.15	<0.01	0.02	—	0.36	0.04
TiO_2	0.65	0.91	0.56	0.54	1.12	0.84	0.75	0.32
P_2O_5	0.68	0.22	0.17	0.17	0.38	0.08	0.66	0.04
MnO	0.12	0.13	0.17	0.19	0.14	0.16	0.11	0.18
Other Constituents								
	99.90	100.11	100.02	100.42	99.58	100.40	100.13	99.62
Age								

d. $\text{CaO}/\text{Alk} > 3$

	$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$	$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$					$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.30$		
	1	2	3	4	5	6	7	8	9
Rock Name	Dolerite	Clinoen-statite-bearing rock	Dolerite	Clinoen-statite-bearing rock	Clinoen-statite-bearing rock	Clinoen-statite-bearing rock	Clinoen-statite-bearing rock	Clinoen-statite-bearing rock	Clinoen-statite-bearing rock
Locality	DDH 5084, Great Lake, Tas.	C. Vogel, PNG	DDH. 5084, Great Lake, Tas.	C. Vogel, PNG	C. Vogel, PNG	C. Vogel, PNG	C. Vogel, PNG	C. Vogel, PNG	C. Vogel, PNG
Reference	76, 126	31, 233	76, 126	31, 233	31, 233	31, 233	31, 233	31, 233	31, 233
Analyst	Avery & Anderson	L. Castanelli, A.M.D.L. J.R.Beevers, A. McClure	Avery & Anderson	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	L. Castanelli, A.M.D.L. A. McClure J.R.Beevers	A. Jorgensen A.M.D.L.	L. Castanelli A.M.D.L.	L. Castanelli A.M.D.L.
Remarks	(Central Zone)		(Central Zone)			Extra work on Ld10, Bull. 65			
SiO_2	54.33	54.40	54.38	54.20	54.10	54.09	55.90	55.10	54.20
Al_2O_3	16.34	10.80	15.42	11.00	6.00	9.55	7.60	8.75	8.35
Fe_2O_3	0.87	2.25	2.15	2.05	1.63	2.49	2.35	2.50	2.60
FeO	7.96	6.90	8.00	6.90	7.30	6.54	7.15	6.65	6.65
MgO	4.47	11.80	3.76	11.70	22.50	13.03	16.90	16.10	17.40
CaO	10.14	5.60	10.31	5.75	3.45	5.46	4.10	4.70	4.15
Na_2O	1.90	1.18	1.95	0.96	0.47	0.75	0.92	1.05	0.74
K_2O	1.28	0.40	1.12	0.36	0.15	0.41	0.23	0.21	0.16
$\text{H}_2\text{O} +$	1.19	4.35	1.02	2.80	2.60	4.66	2.75	2.65	2.60
$\text{H}_2\text{O} -$	0.68	1.96	0.65	3.15	1.16	2.70	1.67	1.73	2.80
CO_2	—	nd	—	0.07	0.13	0.14	0.02	nd	nd
TiO_2	0.63	0.40	0.79	0.48	0.26	0.30	0.32	0.32	0.30
P_2O_5	0.23	0.12	0.12	0.06	0.03	0.07	0.04	0.08	0.05
MnO	0.15	0.15	0.17	0.14	0.16	0.15	0.17	0.16	0.14
Other Constituents									
	100.17	100.31	99.84	99.62	99.94	100.34	100.12	100.00	100.14
Age									

TABLE L — BASALTIC ROCKS
— $\text{SiO}_2 > 54\%$

d. $\text{CaO}/\text{Alk} > 3$		
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.30$		
	10	11
Rock Name	Clinoen- statite- bearing rock	Clinoen- statite- bearing rock
Locality	C. Vogel, PNG	C. Vogel, PNG
Reference	32 , 387	31 , 233
Analyst	A. McClure	
Remarks		
SiO_2	54.09	54.00
Al_2O_3	8.39	7.60
Fe_2O_3	3.65	2.25
FeO	6.54	5.90
MgO	13.03	19.50
CaO	5.46	4.35
Na_2O	0.75	0.94
K_2O	0.41	0.22
$\text{H}_2\text{O} +$	4.66	2.35
$\text{H}_2\text{O} -$	2.70	1.94
CO_2	—	0.38
TiO_2	0.30	0.46
P_2O_5	0.07	0.03
MnO	0.15	0.18
Other Constituents		
	100.20	100.10
Age		

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

a. CaO/Alk < 1

	K ₂ O/Na ₂ O > 1.25	K ₂ O/Na ₂ O = 1.25 – 0.75				K ₂ O/Na ₂ O = 0.75 – 0.30			
	1	2	3	4	5	6	7	8	9
Rock Name	Monzonite	Basalt <i>Gomaren Basalt</i>	Mugearite glass	Tholeiitic basalt <i>Antrim Plateau Volcanics</i>	Benmoreite	Hawaiite <i>Main Range Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Monzonite <i>Bungle Mountain Sill</i>	Olivine basalt <i>Maer Volcanics</i>
Locality	Quarry, Central Tilba, N.S.W.	Spillway, Cooby Cr dam, Qld Jondaryn 1-mile Sheet	2.5 km W. of Coryah Gap, Nandewar Mts, N.S.W.	119 km SSW. of Katherine, N.T.	2.5 km W. of Coryah Gap, Nandewar Mts, N.S.W.	4 km SE. of Spicers Peak Qld 552118 Warwick 1-mile Sheet	Darnley I., Torres Strait, Qld 9°37'S, 143°44'E.	Bungle Mt, 21 km SW. of Mullaley, N.S.W.	Darnley I., Torres Strait, Qld 9°36'S, 143°45'E
Reference	17	125, 93	2, 126	104; 39, 119	2, 126	112	28	8	28
Analyst	R.S. Boesen	Avery & Anderson	M. J. Abbott	E. Bonner, K. Bose, S.A. Alexander A.M.D.L.	M. J. Abbott	R. E. Russell	A. Jorgensen A.M.D.L.	R. Bennett	A. Jorgensen A.M.D.L.
Remarks	Biotite-rich variety		Spatter cone						
SiO ₂	53.29	53.61	53.36	52.60	53.76	51.0	50.70	50.69	50.50
Al ₂ O ₃	17.32	15.42	16.04	13.60	16.27	—	14.70	18.20	14.60
Fe ₂ O ₃	2.00	1.42	5.71	11.50	4.75	—	3.40	2.03	3.75
FeO	5.28	10.48	3.73	3.55	4.99	—	5.75	6.62	5.50
MgO	3.73	2.04	2.73	3.50	1.89	4.1	7.65	2.03	7.45
CaO	6.92	5.14	5.10	5.00	5.16	5.1	6.95	4.83	6.75
Na ₂ O	3.23	3.62	4.24	2.95	5.80	5.35	4.50	5.85	4.30
K ₂ O	5.81	3.00	3.36	2.10	3.19	2.60	2.80	3.50	3.35
H ₂ O +	0.82	1.67	1.73	1.48	0.19	—	0.31	2.62	0.39
H ₂ O –	abs	0.64	0.10	1.00	0.06	—	0.35	0.39	0.35
CO ₂	ti	nd	0.10	0.13	0.08	—	< 0.05	—	< 0.05
TiO ₂	0.75	1.75	1.80	2.10	1.80	2.50	2.20	1.00	2.30
P ₂ O ₅	0.60	1.20	0.92	0.18	0.96	0.72	0.66	0.35	0.66
MnO	0.14	0.19	0.20	0.07	0.21	—	0.14	0.14	0.14
Other Constituents	BaO=0.03		BaO=0.16 SrO=0.07 Rb ₂ O=0.01 ZrO ₂ =0.05		BaO=0.15 SrO=0.08 Rb ₂ O=0.01 ZrO ₂ =0.05				
	99.92	100.18	99.41	99.76	100.12	—	100.16	98.25	100.09
Age									

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

a. CaO/Alk < 1						b. CaO/Alk = 1–2	
K ₂ O/Na ₂ O = 0.75–0.30						K ₂ O/Na ₂ O > 1.25	
	10	11	12	13	14	1	2
Rock Name	Olivine basalt <i>Maer Volcanics</i>	Mugearite	Hawaiite	Spilite	Amygda- loidal spilite	Basaltic latite <i>Uoivi Volcanics</i>	Latitic basalt <i>Sesara Volcanics</i>
Locality	Darnley I., Torres Strait, Qld 9°36'S, 143°45'E	4 km W. of Coryah Gap, Nandewar Mts, N.S.W.	2 km SE. of Spicers Peak, Qld 530128 Warwick 1-mile Sheet	Planet Bore, E... Maitland, N.S.W.		Uoivi volcano NE. Papua, PNG	Sesara volcano, NE. Papua, PNG
Reference	28	2, 126	112	102, 22	103, 5	113, 358	113, 358
Analyst	A. Jorgensen A.M.D.L.	M. J. Abbott	Avery & Anderson	J. H. Pyle	J. H. Pyle	A.M.D.L.	A.M.D.L.
Remarks							
SiO ₂	50.40	50.35	50.05	51.30	50.31	53.60	50.80
Al ₂ O ₃	14.80	15.89	15.79	18.61	15.29	14.70	12.90
Fe ₂ O ₃	4.20	5.92	0.52	2.61	3.53	1.21	3.80
FeO	4.95	5.07	7.80	3.94	7.18	4.40	5.20
MgO	7.00	4.10	6.30	7.16	3.63	9.20	9.00
CaO	6.75	6.68	6.33	3.74	3.82	7.45	8.00
Na ₂ O	4.25	4.68	4.56	6.28	5.90	2.80	2.80
K ₂ O	2.70	2.51	2.13	0.10	0.14	3.65	3.85
H ₂ O+	0.93	0.67	2.23	3.82	3.79	0.50	1.42
H ₂ O–	0.75	—	1.20	0.98	1.85	0.21	0.33
CO ₂	< 0.05	0.03	—	nd	2.31	0.05	0.04
TiO ₂	2.25	2.48	2.16	0.94	1.86	1.18	1.00
P ₂ O ₅	0.67	1.30	0.66	0.41	0.21	0.56	0.56
MnO	0.14	0.17	0.09	0.15	0.20	0.18	0.14
Other Constituents		BaO=0.09 SrO=0.09 Rb ₂ O=0.01 ZrO ₂ =0.04					
Age	99.84	100.08	99.82	100.04	100.02	99.69	99.93

b. CaO/Alk = 1–2

K ₂ O/Na ₂ O = 1.25–0.75							K ₂ O/Na ₂ O = 0.75–0.30		
Rock Name	3	4	5	6	7	8	9	10	11
	Quartz dolerite	Dolerite <i>Hart</i> <i>Dolerite</i>	Basalt <i>Carson</i> <i>Volcanics</i>	Basalt <i>Antrim</i> <i>Plateau</i> <i>Volcanics</i>	Basalt <i>Antrim</i> <i>Plateau</i> <i>Volcanics</i>	Olivine basalt <i>Maer</i> <i>Volcanics</i>	Basalt <i>Antrim</i> <i>Plateau</i> <i>Volcanics</i>	Doreiitic basalt <i>Hydro-</i> <i>graphers</i> <i>Volcanics</i>	Potassic tholeiitic andesite
Locality	Marenboy- Maineru track, N.T. 14°26'20"S, 133°30'E	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	10 km NW. of Gattenhoff Hill, W.A. 486731007 Ashton Sheet	About 160 km SW. of Katherine, N.T. 15°51'S, 131°48'E	About 160 km SW. of Katherine, N.T. 15°51'S, 131°48'E	Darnley I., Torres Strait, Qld	15 km W. of Mt Sullivan, Victoria R. Downs Area, N.T. 16°24'S, 131°34'E	Lava of Hydro- graphers Ra., PNG	Burleigh Heads, Qld
Reference	28	28	28	39, 119	39, 119	28	39, 119	113, 358	145, 289; 77, 230
Analyst	C. R. Edmond A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen, K. Bose A.M.D.L.	B. Bonner, K. Bose, S. A. Alexander A.M.D.L.	B. Bonner, K. Bose, S. A. Alexander A.M.D.L.	C. Holland A.M.D.L.	B. Bonner, K. Bose, S. A. Alexander A.M.D.L.	A.M.D.L.	G. I. Z. Kalocsai
Remarks									
SiO ₂	53.50	53.20	52.10	50.90	50.70	50.10	53.80	53.60	53.22
Al ₂ O ₃	12.50	13.10	13.90	13.70	15.00	14.50	14.20	18.00	14.96
Fe ₂ O ₃	3.50	0.97	1.98	12.50	7.95	4.85	5.10	3.45	1.93
FeO	10.10	15.00	9.40	0.89	3.35	4.20	4.00	3.90	8.78
MgO	3.65	1.15	4.70	2.80	2.00	6.95	4.10	6.20	3.43
CaO	7.60	6.60	7.00	6.10	7.95	7.10	7.40	7.00	7.18
Na ₂ O	2.15	2.75	3.55	2.35	3.60	3.50	3.45	3.90	3.82
K ₂ O	1.78	2.10	2.80	2.20	3.10	3.00	1.90	1.70	1.80
H ₂ O+	1.30	1.73	2.35	5.50	3.90	1.40	4.10	0.68	0.66
H ₂ O–	0.38	0.21	0.47	—	abs	1.27	—	0.80	0.94
CO ₂	0.25	0.10	0.06	0.35	0.42	0.21	0.50	0.05	—
TiO ₂	2.70	2.05	1.42	2.30	1.41	2.20	1.15	1.02	2.50
P ₂ O ₅	0.30	0.53	0.11	—	abs	0.65	—	0.01	0.68
MnO	0.18	0.27	0.14	0.11	0.07	0.12	0.13	0.10	0.13
Other Constituents									
Age	99.89	99.76	99.98	99.70	99.45	100.05	99.83	100.41	100.03

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

b. CaO/Alk = 1–2

K₂O/Na₂O = 0.75–0.30

	12	13	14	15	16	17	18	19	20
Rock Name	Basalt <i>Slaughter Bluff Volcanic Breccia</i>	Porphyritic basalt	Trachy-basalt <i>Uoivi Volcanics</i>	Tholeiitic basalt <i>Antrim Plateau Volcanics</i>	Trachyte basalt <i>Uoivi Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Potassic tholeiitic andesite <i>Tweed Volcanics</i>	Tholeiitic olivine basalt	Basalt <i>Helen Springs Volcanics</i>
Locality	C. Grim, Tas.	Below Lahey's Lookout, Mt Tamborine, Qld 347255 Tamborine 1-mile Sheet	Uoivi Volcanics NE. Papua, PNG	2 km WNW. of Top Springs, in Armstrong R., N.T.	Uoivi volcano, NE. Papua, PNG	Stephens I., Torres Strait, Qld 9°30'S, 143°52'E	Fingal Pt, N.S.W. G.R. 762002 Tweed 1-mile Sheet	S. slope Mt Phillips, Peak Ra., Qld 64401848 Clermont	N.T. 18°20'S, 133°49'E
Reference	129, 76	46	113, 358	104; 39, 119	113, 358	28	145, 289; 77, 230	85	39, 119
Analyst	D. I. Groves	D. C. Green	A.M.D.L.	B. Bonner, K. Bose, S.A.Alexander A.M.D.L.	A.M.D.L.	A. Jorgensen A.M.D.L.	G. I. Z. Kalocsai	K. J. Heinrich, H. W. Sears A.M.D.L.	A. Jorgensen, K. Bose A.M.D.L.
Remarks	*Loss on Ignition	1670 (509 m) above M.S.L.	Scoria Mound						
SiO ₂	53.01	52.3	52.30	52.10	51.60	51.50	51.08	50.90	50.70
Al ₂ O ₃	14.46	15.64	16.30	12.90	16.50	15.60	14.18	14.90	14.20
Fe ₂ O ₃	12.78	3.48	4.10	11.00	2.80	2.50	2.92	3.70	5.65
FeO		4.24	4.20	4.05	4.80	6.75	9.29	7.00	6.55
MgO	6.04	7.98	7.50	4.00	7.65	6.45	3.50	4.25	6.10
CaO	6.87	7.95	9.10	7.20	9.45	7.75	6.93	7.75	7.35
Na ₂ O	2.70	3.07	3.20	2.40	3.45	4.15	3.65	3.70	3.20
K ₂ O	1.40	1.05	1.71	1.73	1.51	1.64	1.95	1.15	1.11
H ₂ O +	0.76*	0.56	0.02	1.06	0.51	0.38	0.96	1.45	2.20
H ₂ O –		1.71	0.14	0.85	0.40	0.28	1.50	1.70	0.59
CO ₂	—	—	0.03	0.18	0.09	< 0.05	—	0.05	0.83
TiO ₂	2.25	1.55	1.15	2.15	1.16	2.15	3.35	2.80	1.23
P ₂ O ₅	0.28	—	0.46	0.15	0.40	0.46	0.76	0.56	0.08
MnO	0.19	0.14	0.13	0.05	0.11	0.15	0.13	0.09	0.12
Other Constituents									
Age	100.74	99.89	100.34	99.82	100.43	99.81	100.20	100.00	99.91

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

b. CaO/Alk = 1–2

K₂O/Na₂O = 0.75–0.30

	21	22	23	24	25	26	27	28
Rock Name	Olivine basalt <i>Maer Volcanics</i>	Hawaiite	Olivine basalt <i>Main Range Volcanics</i>	Olivine basalt <i>Main Range Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Tholeiitic olivine basalt	Hawaiite
Locality	Stephens I., Torres Strait, Qld 9°30'S, 143°32'E	5.5 km E. of Mt Dowes, Nandewar Mts, N.S.W.	0.4 km N. of Spicers Peak, Qld 515145 Warwick 1-mile Sheet	0.8 km N. of Spicers Peak, Qld 515146 Warwick 1-mile Sheet	Bramble Cay I., Torres Strait, Qld 9°7'S, 143°52'E	Darnley I., Torres Strait, Qld 9°35'S, 143°45'E	SE. end of Hodgson Ra., Peak Ra., Qld	0.4 km N. of Spicers Peak, Qld 515145 Warwick 1-mile Sheet
Reference	28	2, 126	112	112	28	28	85	112
Analyst	C. Holland A.M.D.L.	M. J. Abbott	R. E. Russell	R. E. Russell	C. Holland A.M.D.L.	C. Holland A.M.D.L.	K. J. Heinrich, H. W. Sears A.M.D.L.	R. E. Russell
Remarks								
SiO ₂	50.70	50.40	50.3	50.3	50.20	50.00	50.00	50.0
Al ₂ O ₃	15.50	16.32	—	—	15.30	14.30	14.10	—
Fe ₂ O ₃	4.75	3.84	—	—	2.20	1.82	4.10	—
FeO	4.60	6.35	—	—	6.90	6.90	8.00	—
MgO	6.05	4.96	5.3	8.9	7.40	7.45	4.30	7.1
CaO	7.45	7.43	7.2	8.4	7.20	7.20	7.05	7.3
Na ₂ O	4.05	4.26	3.95	3.75	4.65	3.95	3.80	4.24
K ₂ O	1.67	1.84	1.67	1.52	2.45	2.85	1.50	1.60
H ₂ O+	1.08	1.01	—	—	0.39	0.83	1.80	—
H ₂ O–	0.82	—	—	—	0.30	1.07	1.80	—
CO ₂	0.05	ti	—	—	0.06	0.35	0.05	—
TiO ₂	2.10	2.23	2.8	2.7	2.30	2.25	2.45	2.6
P ₂ O ₅	0.43	0.92	0.64	0.55	0.64	0.63	0.74	0.48
MnO	0.13	0.17	—	—	0.13	0.13	0.16	—
Other Constituents	SO ₃ = 0.54	BaO = 0.31 SrO = 0.09 Rb ₂ O = ti ZrO ₂ = 0.03				SO ₃ = 0.10		
Age	99.92	100.16	—	—	100.12	99.83	99.85	—

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

b. CaO/Alk = 1 – 2

K₂O/Na₂O < 0.30

	29	30	31	32	33	34	35	36	37
Rock Name	Spilite <i>Weir Basalt</i>	Spilite <i>Sugars Basalt</i>	Basalt <i>Silkstone Formation</i>	Potassic tholeiitic andesite	Basalt <i>Silkstone Formation</i>	Olivine tholeiite	Basalt	Basalt <i>Silkstone Formation</i>	Tholeiite olivine dolerite
Locality	Bore NS. 295 Ipswich, Qld	Bore NS. 256 Ipswich, Qld	Ipswich City Council Quarry, Booval, Ipswich, Qld 940733 Ipswich 1-mile Sheet 2nd edition	E. of Ebor, N.S.W.	Quarry, nr Bundamba Railway Station, Qld 954735 Ipswich 1-mile Sheet 2nd edition	Inverell Area, N.S.W. 404304 Inverell 4-mile Sheet	NS. 23 Bore, Brisbane, Qld 366907 Brisbane 1-mile Sheet	NS. 194 Bore, Ipswich, Qld 920713 Ipswich 1-mile Sheet 2nd edit.	3 km WNW. of Scotts Peak, Peak Ra., Qld
Reference	57, 3	57, 3	56, 4	77, 230; 146, 539	56, 4	72, 230	56, 15	56, 4	85
Analyst	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	J. H. Pyle, G. I. Z. Kalocsai	C. H. Couper Qld Govt Chem Lab	G. I. Z. Kalocsai	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	K. J. Heinrich, H. W. Sears A.M.D.L.
Remarks	133'6" (40.69 m)	3'4" (95.70 m)					128' (39.01 m)	802 (244.45 m)	
SiO ₂	53.60	51.80	51.70	51.46	51.30	51.30	51.00	51.00	50.80
Al ₂ O ₃	17.00	19.80	15.30	15.40	14.80	15.43	15.30	15.40	14.50
Fe ₂ O ₃	5.80	6.00	2.74	4.18	2.64	1.60	4.54	2.33	0.83
FeO	3.10	3.30	8.30	6.39	7.90	9.29	4.88	7.00	8.45
MgO	4.50	1.30	6.10	3.53	6.10	6.45	4.80	5.80	7.15
CaO	6.00	6.00	7.70	7.78	7.70	9.26	7.60	7.20	7.30
Na ₂ O	3.90	4.30	3.50	4.27	3.72	3.05	3.75	3.44	3.45
K ₂ O	0.66	0.65	0.36	1.25	0.66	0.47	0.52	0.68	1.05
H ₂ O+	2.00	3.70	1.37	1.06	1.65	0.66	1.72	2.53	1.00
H ₂ O–	0.38	0.58	1.23	1.19	1.65	1.07	4.15	2.37	0.23
CO ₂	1.04	0.18	0.31	abs	0.62	—	0.46	0.58	2.95
TiO ₂	1.72	2.32	1.41	2.62	1.59	1.40	1.52	1.67	1.47
P ₂ O ₅	0.30	0.22	0.14	0.78	0.18	0.16	0.14	0.21	0.38
MnO	0.16	0.09	0.16	0.13	0.14	0.14	0.16	0.16	0.13
Other Constituents									
Age	100.16	100.24	100.32	100.04	100.65	100.28	100.54	100.37	99.67

b. CaO/Alk = 1 - 2							
K ₂ O/Na ₂ O < 0.30							
	38	39	40	41	42	43	44
Rock Name	Basalt <i>Helen Springs Volcanics</i>	Spilite <i>Weir Basalt</i>	Olivine basalt <i>Nychum Volcanics</i>	Olivine tholeiite <i>Tweed Volcanics</i>	Basalt <i>Archerfield Basalt Member</i>	Basalt <i>Archerfield Basalt Member</i>	Basalt <i>Archerfield Basalt Member</i>
Locality	Head of Loveday Ck, NT. 18°27'S, 134°02'E	NS. 295 Bore, Ipswich, Qld	Yokas 1-mile Sheet Qld	NW. of Tabulam, N.S.W. 552436 Warwick 4-mile Sheet	NS. 25 Bore, Brisbane, Qld 148805 Ipswich 1-mile Sheet 2nd edition	Bore NS. 25, Brisbane, Qld 148805 Ipswich, 1-mile Sheet 2nd ed.	Bore NS. 25, Brisbane, Qld 148805 Ipswich, 1-mile Sheet 2nd ed.
Reference	39, 119	57, 3	87	145, 289	56, 4	56, 4	56, 4
Analyst	A. Jorgensen, K. Bose A.M.D.L.	C. H. Couper Qld Govt Chem Lab	S. Baker	C. I. Z. Kalocsai	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab
Remarks		200'5" (61.08 m)	*Loss on Ignition		347'11"-348'3" (106.04 m)-(106.45 m)	299'3"-299'6" (91.21 m)-(91.28 m)	238'10" (72.79 m)
SiO ₂	50.70	50.70	50.42	50.30	50.00	50.00	50.00
Al ₂ O ₃	14.90	17.10	17.52	15.19	15.50	15.70	15.80
Fe ₂ O ₃	3.95	5.90	0.59	1.88	6.10	7.20	6.00
FeO	4.80	3.20	6.55	9.65	3.50	2.70	4.50
MgO	6.15	5.10	5.95	6.85	5.90	5.50	5.50
CaO	9.10	6.20	9.25	8.24	6.60	7.00	7.20
Na ₂ O	5.25	4.30	5.43	3.35	3.20	3.51	3.40
K ₂ O	0.67	0.65	1.39	0.72	0.48	0.28	0.44
H ₂ O +	1.77	3.00	2.05*	0.56	1.25	1.06	0.80
H ₂ O -	0.99	0.44	0.25	1.04	5.1	5.3	4.30
CO ₂	0.49	0.94	—	—	0.45	0.27	0.27
TiO ₂	1.06	1.80	0.60	1.76	1.70	1.56	1.33
P ₂ O ₅	0.16	0.53	0.08	0.32	0.25	0.22	0.18
MnO	0.16	0.31	0.42	0.14	0.10	0.12	0.11
Other Constituents							
	100.15	100.16	100.50	100.00	107.13	100.42	99.83
Age							

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

c. CaO/Alk = 2–3

	K ₂ O/Na ₂ O = 1.25–0.75					K ₂ O/Na ₂ O = 0.75–0.30		K ₂ O/Na ₂ O < 0.30	
Rock Name	1	2	3	4	5	6	7	8	9
	Dolerite	Dolerite <i>Hart</i> <i>Dolerite</i>	Dolerite <i>Hart</i> <i>Dolerite</i>	Tholeiitic basalt <i>Antrim</i> <i>Plateau</i> <i>Volcanics</i>	Dolerite <i>Hart</i> <i>Dolerite</i>	Quartz dolerite	Porphyritic olivine- pyroxene basalt	Olivine tholeiite	Tholeiitic olivine basalt
Locality	Koolanooka Hills, W.A.	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	40 km NE. of Elsey Cemetery, N.T.	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	Mt Morumba Area, N.T. 05/2041/ 32643 13°34'S., 134°21'E.	Mt Trafalgar, C. Nelson Area, PNG	12 km S. of Inverell, N.S.W.	7EX Hill, St Leonards, Tas.
Reference	3	28	28	104; 39, 119	28	28	60, 262	146, 435	128, 29
Analyst	P. A. Arriens	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	B. Bonner, K. Bose, S. A. Alexander A.M.D.L.	A. Jorgensen A.M.D.L.	C. R. Edmond A.M.D.L.	P. Jokes	W. H. Herdsman	F. L. Sutherland
Remarks									*Loss on Ignition
SiO ₂	51.07	53.90	52.30	52.20	51.40	50.70	50.59	51.55	51.52
Al ₂ O ₃	14.17	15.10	14.70	13.60	14.80	12.80	16.29	12.56	13.76
Fe ₂ O ₃	2.63	0.76	1.66	4.35	0.24	3.30	3.66	3.94	1.43
FeO	8.20	7.95	9.90	7.20	11.00	11.80	5.08	8.05	0.78
MgO	6.25	5.50	4.40	5.60	6.55	4.30	8.96	7.02	7.95
CaO	10.34	10.20	8.60	8.30	8.40	8.75	9.50	9.18	8.46
Na ₂ O	1.92	2.50	2.50	2.70	2.50	2.45	2.89	2.96	2.65
K ₂ O	1.85	0.92	1.64	1.23	1.37	1.01	1.07	0.42	0.64
H ₂ O+	2.55	1.21	1.71	2.02	1.77	1.31	—	1.01	1.69*
H ₂ O—	0.08	0.07	0.15	0.33	0.15	0.19	—	1.66	0.15
CO ₂	—	0.18	0.14	0.35	0.04	0.18	—	0.04	—
TiO ₂	1.15	1.25	1.68	1.80	1.39	2.45	1.05	1.44	1.78
P ₂ O ₅	0.10	0.11	0.15	0.10	0.14	0.24	0.21	0.26	0.18
MnO	0.13	0.17	0.22	0.07	0.19	0.23	0.17	0.15	0.18
Other Constituents									
Age	100.44	99.82	99.85	99.85	99.94	99.71	100.28	100.24	99.17

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

c. CaO/Alk = 2–3							d. CaO/Alk > 3	
K ₂ O/Na ₂ O < 0.30							K ₂ O/Na ₂ O = 1.25–0.75	
	10	11	12	13	14	15	1	2
Rock Name	Dolerite <i>Hart</i> <i>Dolerite</i>	Basalt	Olivine tholeiite	Olivine tholeiite	Basalt	Olivine tholeiite	Clinoen- statite- bearing rock	Dolerite
Locality	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	60 km WNW. of Mt Mulligan, Qld 16°51'S, 144°18'E	Inverell Area, N.S.W.	NW. of Tabulam, N.S.W.	Giumu R., PNG 8°08'S, 147°22'E	New Myall Lake, N.S.W.	C. Vogel, PNG	Great Lake, DDH 5084, Tas.
Reference	28	89; 19, 112; 66, 73	77, 230	77, 230; 145, 289	28	146, 535	31, 233	76, 126
Analyst	A. Jorgensen A.M.D.L.	H. W. Sears A.M.D.L.	G. I. Z. Kalocsai	G. I. Z. Kalocsai	A. Jorgensen A.M.D.L.	J. H. Pyle	A. Jorgensen A.M.D.L.	Avery & Anderson
Remarks								Lower Zone
SiO ₂	51.40	51.30	51.30	50.30	50.30	50.04	53.60	53.50
Al ₂ O ₃	14.30	16.60	15.43	15.19	13.50	13.19	8.55	14.66
Fe ₂ O ₃	0.71	2.90	1.60	1.88	2.50	3.59	2.15	0.63
FeO	12.00	5.65	9.29	9.65	7.65	8.68	6.90	8.07
MgO	5.30	5.50	6.45	6.85	7.55	7.66	17.00	7.25
CaO	9.60	9.60	9.26	8.24	8.90	9.17	4.30	10.92
Na ₂ O	2.55	3.10	3.05	3.35	3.65	3.13	0.56	1.21
K ₂ O	0.76	0.58	0.47	0.72	0.03	0.34	0.43	1.03
H ₂ O +	1.28	1.37	0.66	0.56	3.50	1.09	2.85	1.36
H ₂ O –	0.04	1.37	1.07	1.04	0.30	1.06	2.80	0.74
CO ₂	0.06	0.31	—	—	0.08	0.06	0.12	—
TiO ₂	1.55	1.31	1.40	1.76	1.44	1.43	0.33	0.66
P ₂ O ₅	0.13	0.18	0.16	0.32	0.12	0.55	0.04	0.13
MnO	0.18	0.13	0.14	0.14	0.21	0.13	0.15	0.14
Other Constituents								
Age	99.86	99.9	100.28	100.00	99.73	100.12	99.78	100.30

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

d. CaO/Alk > 3

K ₂ O/Na ₂ O = 1.25 – 0.75							K ₂ O/Na ₂ O = 0.75 – 0.30		
Rock Name	3	4	5	6	7	8	9	10	11
	Dolerite	Clinoen-statite-bearing rock	Chilled dolerite	Dolerite	Dolerite	Dolerite	Dolerite	Clinoen-statite-bearing rock	Dolerite
Locality	Great Lake, DDH 5084, Tas.	C. Vogel, PNG	Great Lake, DDH 5084, Tas.	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5084, Tas.	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5001, Tas.	C. Vogel, PNG	Great Lake, DDH 5001, Tas.
Reference	76, 126	31, 233	75, 294	76, 121	76, 126	76, 121	76, 123	31, 233	76, 123
Analyst	Avery & Anderson	A. Jorgensen A.M.D.L.	Avery & Anderson	Avery & Anderson	Avery & Anderson	Avery & Anderson	Avery & Anderson	A. McClure, J. R. Beevers, L. Castanelli	Avery & Anderson
Remarks	Lower Zone		Lower contact of sheet	Lower Zone	Lower Zone	Lower Zone	Upper contact		Central Zone
SiO ₂	53.37	53.10	53.04	52.50	52.40	52.36	54.00	53.97	53.96
Al ₂ O ₃	14.05	9.30	14.74	13.87	13.72	12.64	14.37	7.97	15.22
Fe ₂ O ₃	1.13	1.41	1.64	0.57	0.96	0.44	1.39	2.57	1.30
FeO	7.72	7.20	7.43	6.89	7.28	7.68	8.18	6.95	8.47
MgO	7.83	15.90	6.88	10.67	10.43	11.48	6.51	16.03	4.90
CaO	11.01	5.35	10.29	12.28	11.59	12.04	10.87	4.79	10.35
Na ₂ O	1.30	0.56	1.75	0.98	1.04	0.80	1.77	0.60	2.03
K ₂ O	1.12	0.43	1.56	0.84	1.06	0.61	0.97	0.35	1.00
H ₂ O+	1.44	2.70	1.13	0.47	0.74	0.50	0.92	4.34	1.53
H ₂ O–	0.43	3.21	0.96	0.55	0.54	0.47	0.52	1.73	0.50
CO ₂	—	0.04	—	—	—	—	—	nd	—
TiO ₂	0.60	0.35	0.77	0.48	0.47	0.50	0.65	0.23	0.84
P ₂ O ₅	0.14	0.05	0.13	0.16	0.15	0.13	0.23	0.06	0.23
MnO	0.16	0.12	0.17	0.20	0.16	0.18	0.18	0.21	0.18
Other Constituents			FeS ₂ = nd						
Age	100.30	99.72	100.49	100.46	100.54	99.83	100.56	99.80	100.51

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

d. CaO/Alk > 3

K₂O/Na₂O = 0.75 – 0.30

	12	13	14	15	16	17	18	19	20
Rock Name	Clinoen- statite- bearing rock	Dolerite	Dolerite	Bronzite rock	Dolerite	Dolerite	Chilled dolerite	Dolerite	Dolerite
Locality	C. Vogel, PNG	Great Lake, DDH 5084, Tas.	Great Lake, DDH 5123, Tas.	C. Vogel, PNG	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5143, (15'), Tas.	Great Lake, DDH 5002, (138'), Tas.	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5084, Tas.
Reference	31, 233	76, 126	76, 120	31, 233	76, 120	76, 123	75, 294; 76, 123	76, 120	76, 126
Analyst	L.Castanelli A.M.D.L.	Avery & Anderson	Avery & Anderson	A.Jorgensen A.M.D.L.	Avery & Anderson	Avery & Anderson	Avery & Anderson	Avery & Anderson	Avery & Anderson
Remarks		Central zone			Central zone	Upper zone	Upper zone adjacent contact	Central zone	Lower zone
SiO ₂	53.9	53.82	53.72	53.70	53.42	53.34	53.32	53.20	53.15
Al ₂ O ₃	5.40	16.39	16.67	11.20	15.23	14.52	14.18	15.59	13.66
Fe ₂ O ₃	2.20	0.97	0.79	1.65	1.00	1.00	0.97	0.83	0.78
FeO	7.15	8.15	8.33	6.70	8.62	8.54	8.54	8.54	7.43
MgO	23.90	4.79	4.05	11.90	5.54	6.43	7.23	6.11	9.64
CaO	2.20	10.39	10.00	7.45	10.68	10.60	11.22	11.03	11.58
Na ₂ O	0.31	1.70	1.82	0.99	1.70	1.62	1.38	1.62	1.44
K ₂ O	0.23	1.15	1.35	0.39	1.22	0.80	0.87	1.14	0.65
H ₂ O +	1.90	1.22	1.26	2.65	1.39	1.47	1.00	1.09	0.94
H ₂ O –	2.30	0.44	0.52	2.65	0.60	0.80	0.64	0.27	0.35
CO ₂	nd	—	—	0.02	—	—	—	—	—
TiO ₂	0.09	0.67	0.96	0.31	0.74	0.70	0.70	0.72	0.50
P ₂ O ₅	0.02	0.26	0.12	0.03	0.10	0.20	0.20	0.15	0.14
MnO	0.18	0.14	0.18	0.15	0.16	0.18	0.18	0.16	0.19
Other Constituents									
	99.78	100.09	99.77	99.79	100.40	100.20	100.43	100.45	100.45
Age									

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

d. $\text{CaO}/\text{Alk} > 3$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$$
[illegible]

TABLE M — BASALTIC ROCKS — SiO₂ 54–50%

d. CaO/Alk > 3

K₂O/Na₂O = 0.75 – 0.30

	30	31	32	33	34	35	36	37	38
Rock Name	Dolerite	Dolerite	Dolerite	Dolerite <i>Hart</i> <i>Dolerite</i>	Dolerite	Dolerite	Dolerite	Dolerite	Dolerite
Locality	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5084, Tas.	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5084, Tas.	Great Lake, DDH 5123, Tas.	Great Lake, DDH 5123, Tas.
Reference	76, 121	76, 121	76, 126	28	76, 121	76, 121	76, 121	76, 121	76, 121
Analyst	Avery & Anderson	Avery & Anderson	Avery & Anderson	A.Jorgensen A.M.D.L.	Avery & Anderson	Avery & Anderson	Avery & Anderson	Avery & Anderson	Avery & Anderson
Remarks	Lower zone	Lower zone	Lower zone		Lower zone	Lower zone	Lower zone	Lower zone	
SiO ₂	52.56	52.47	52.43	52.40	52.32	52.27	52.18	51.96	51.73
Al ₂ O ₃	13.52	13.09	14.65	14.10	12.80	13.55	14.36	18.18	13.75
Fe ₂ O ₃	0.40	0.60	0.75	1.01	1.00	0.48	1.24	0.31	0.71
FeO	7.18	7.54	7.06	9.20	7.83	7.75	7.21	7.32	7.54
MgO	10.90	10.78	9.80	6.35	9.76	10.26	9.67	5.23	11.10
CaO	12.50	12.22	11.47	10.30	12.50	11.95	11.50	12.30	12.08
Na ₂ O	1.00	1.00	1.36	2.35	1.12	1.18	1.34	1.37	0.96
K ₂ O	0.68	0.62	0.64	1.02	0.82	0.74	0.77	0.96	0.63
H ₂ O +	0.48	0.34	0.93	1.59	0.96	0.54	1.11	1.18	0.74
H ₂ O –	0.60	0.58	0.48	0.11	0.39	0.56	0.38	0.38	0.51
CO ₂	—	—	—	0.08	—	—	—	—	—
TiO ₂	0.46	0.48	0.50	1.03	0.48	0.52	0.48	0.56	0.48
P ₂ O ₅	0.10	0.13	0.12	0.10	0.06	0.09	0.12	0.08	0.06
MnO	0.16	0.17	0.15	0.17	0.17	0.20	0.17	0.15	0.18
Other Constituents									
Age	100.54	100.02	100.34	99.81	100.21	100.09	100.53	99.98	100.47

TABLE M — BASALTIC ROCKS — SiO₂ 54 — 50%

d. CaO/Alk > 3					
	K ₂ O/Na ₂ O = 0.75 — 0.30	K ₂ O/Na ₂ O < 0.30			
	39	40	41	42	43
Rock Name	Dolerite	Olivine basalt	Olivine basalt	Olivine basalt	Aphyric dolerite
Locality	Great Lake, DDH 5123, Tas.	SE. valley Manam I., PNG	SE valley, Manam I., PNG	SE. Avalanche Valley, Manam I., PNG	54 km S. of Station 20, Macquarie I., Ant.
Reference	76, 121	90; 92, 589	90; 92, 589	90; 18, 20, 34	83, 120
Analyst	Avery & Anderson	L. Castanelli, R. L. Bruce A.M.D.L.	L. Castanelli, R. L. Bruce A.M.D.L.	S. Bela	A. R. Alderman
Remarks					
SiO ₂	51.68	52.90	52.70	51.10	50.12
Al ₂ O ₃	14.82	17.00	17.00	16.65	15.62
Fe ₂ O ₃	0.31	4.35	4.45	4.98	1.81
FeO	7.32	4.45	4.40	4.00	7.27
MgO	10.12	6.70	6.80	6.80	7.77
CaO	12.03	10.65	10.75	10.60	10.27
Na ₂ O	1.12	2.55	2.50	4.25	2.68
K ₂ O	0.77	0.67	0.66	0.88	0.46
H ₂ O+	0.54	0.15	0.08	—	1.58
H ₂ O—	0.48	0.03	abs	—	0.31
CO ₂	—	0.02	0.02	nd	—
TiO ₂	0.52	0.39	0.37	0.58	1.54
P ₂ O ₅	0.11	0.12	0.11	0.19	0.29
MnO	0.17	0.16	0.17	0.16	0.15
Other Constituents					
Age	99-99	100-14	100-01	100-19	99-86

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

a. CaO/Alk < 1

K ₂ O/Na ₂ O = 1.25 — 0.75			K ₂ O/Na ₂ O = 0.75 — 0.30						
	1	2	3	4	5	6	7	8	9
Rock Name	Olivine basalt <i>Maer Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Trachy-basalt	Olivine basalt <i>Maer Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Glenmorite	Andesine basalt	Leucocratic analcime-olivine theralite	Olivine basalt <i>McBride Basalt</i>
Locality	Maer I., Torres Strait, Qld 9°53'S, 144°3'E	Maer I., Torres Strait, Qld 9°54'S, 144°64'E	Mt Gower, (585 m), Lord Howe I., N.S.W.	Maer I., Torres Strait, Qld 9°53'S, 144°3'E	Maer I., Torres Strait, Qld 9°53'S, 144°3'E	Bingle Mt, 21 km SW. of Mullaley, N.S.W.	Mt Gower, (822 m), Lord Howe I., N.S.W.	Square Top, 3 km W. of Nundle, N.S.W.	Chubbers Hill, 61 km SSW. of Mt Garnet, Qld 18°14'S, 145°00'E
Reference	28	28	40, 257	28	28	8	40, 257	142, 423; 143, 535	86
Analyst	C. Holland A.M.D.L.	A.Jorgensen A.M.D.L.	A.J.Easton	C. Holland A.M.D.L.	C. Holland A.M.D.L.	R. Bennett	A. J. Easton	M. Chiba	S. Baker
Remarks									*Loss on Ignition
SiO ₂	48.40	47.70	49.60	49.20	48.90	48.63	48.30	47.16	47.00
Al ₂ O ₃	16.80	15.70	18.10	16.80	16.50	17.93	16.50	15.87	16.49
Fe ₂ O ₃	3.05	2.20	2.90	2.20	1.84	2.38	3.60	3.33	5.25
FeO	5.60	6.35	8.40	6.35	6.60	8.35	7.80	6.05	5.98
MgO	6.70	8.20	3.90	6.70	6.80	3.44	5.00	6.15	8.17
CaO	6.35	6.95	5.40	6.40	6.35	6.71	4.50	7.01	7.32
Na ₂ O	4.15	3.95	5.20	5.10	4.45	6.05	5.00	6.42	5.51
K ₂ O	3.25	3.10	1.80	1.93	3.40	2.60	2.10	2.29	2.28
H ₂ O +	2.00	1.95	1.40	1.52	1.59	1.12	3.20	2.57	*0.10
H ₂ O —	0.72	0.81	0.10	0.78	0.49	0.20	0.10	0.51	0.30
CO ₂	< 0.01	< 0.05	< 0.10	0.09	0.16	—	< 0.10	—	—
TiO ₂	2.00	1.93	2.30	2.00	1.96	1.60	2.30	1.60	1.28
P ₂ O ₅	0.77	0.74	0.39	0.79	0.75	0.40	0.83	0.94	0.14
MnO	0.14	0.15	0.13	0.14	0.14	0.50	0.13	0.14	0.40
Other Constituents			Cr ₂ O ₃ = 0.01				Cr ₂ O ₃ = 0.01		
Age	99.94	99.78	99.63	100.00	99.93	99.56	99.37	100.04	100.22

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

a. CaO/Alk < 1			b. CaO/Alk = 1 — 2						
	K ₂ O/Na ₂ O = 0.75 — 0.30	K ₂ O/Na ₂ O < 0.30		K ₂ O/Na ₂ O > 1.25	K ₂ O/Na ₂ O = 1.25 — 0.75				
	10	11		1	2	3	4	5	6
Rock Name	Analcime basalt	'Greenstone' <i>Neranleigh- Fernvale Group</i>		Ultra alkaline lava (Nepheline phonolite)	Latitic picrite	Dolerite <i>Hart Dolerite</i>	Olivine basalt <i>Main Range Volcanics</i>	Volcanic breccia	Basalt
Locality	Spring Mount, W. of Glen Innes, N.S.W.	Moggill Ck, Brookfield, Brisbane, Qld		Sesara, NE. Papua, PNG	Neck of Sesara volcano, NE. Papua, PNG	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	0.8 km NE. of Mt Alphen, Qld	Hornsby, nr Sydney, N.S.W.	Wellington Pt. Brisbane, Qld Brisbane 1-mile Sheet 422877
Reference	141, 195	58, 2		113, 358	113, 358	28	112	102, 8	56, 5
Analyst	W. H. Herdsman	C. H. Couper Qld Govt Chem Lab		A.M.D.L.	A.M.D.L.	A. Jorgensen A.M.D.L.	R. E. Russell	J. H. Pyle	C. H. Couper Qld Govt Chem Lab
Remarks		Massive lava							Winneils No. 1 Bore (340' - 350')
SiO ₂	46.31	48.30		49.70	50.00	49.70	47.50	46.65	46.20
Al ₂ O ₃	15.36	18.40		11.40	12.10	12.90	nd	13.27	16.20
Fe ₂ O ₃	4.66	4.72		2.20	3.05	0.05	nd	3.42	7.20
FeO	6.31	3.74		5.50	6.20	17.70	nd	5.90	3.20
MgO	4.26	6.50		10.80	12.30	2.20	9.70	5.55	6.25
CaO	5.21	3.80		9.55	9.25	7.30	8.50	5.22	7.60
Na ₂ O	5.20	5.20		2.35	2.65	2.35	2.70	1.53	2.18
K ₂ O	3.41	0.95		4.35	2.55	1.78	2.34	1.97	1.96
H ₂ O +	5.11	3.75		1.38	0.48	1.72	nd	3.68	4.70
H ₂ O —	1.91	0.05		0.39	0.50	0.11	nd	4.43	2.40
CO ₂	0.34	0.78		0.11	—	0.16	nd	5.53	0.20
TiO ₂	1.28	2.80		1.07	1.07	2.60	3.10	2.06	1.53
P ₂ O ₅	0.92	0.82		0.77	0.11	0.92	0.49	0.50	0.39
MnO	0.27	0.22		0.23	0.16	0.27	nd	0.11	0.08
Other Constituents									BaO = 0.02
Age	100.55	100.03		99.76	100.42	99.76	—	100.32	100.11

b. CaO/Alk = 1 - 2

K₂O/Na₂O = 0.75 - 0.30

	7	8	9	10	11	12	13	14	15
Rock Name	Olivine basalt glass <i>McLean Basalt</i>	Basalt <i>Sturgeon Basalt</i>	Olivine microtes- chenite	Olivine basalt <i>Maer Volcanics</i>	Olivine basalt <i>Maer Volcanics</i>	Basalt <i>Little Trefoil Basalt</i>	Basaltic pegmatite	Olivine basalt <i>Maer Volcanics</i>	Olivine basalt
Locality	Cooktown Area, Qld	Mt Spurgeon, Hughenden Area, Qld 20°15'S, 144°27'E	Peak Ra. Area, Qld 62351435 Clermont Downs Sheet	Darnley I., Torres Strait, Qld 9°36'S, 143°45'E	Bramble Cay, Torres Strait, Qld 9°7'S, 143°52'E	0.8 km N of C. Grim, Tas.	2 km N. of Craigburn, E. Tamar, Tas.	Darnley I., Torres Strait, Qld	Mt Grattai, Nandewar Mts, N.S.W.
Reference	91; 93, 71; 66, 104	28	85	28	28	129, 76	128, 29	28	2, 126
Analyst	C. R. Edmond, H. W. Sears A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	K. J. Heinrich, H. W. Sears A.M.D.L.	C. Holland A.M.D.L.	C. Holland A.M.D.L.	D. I. Groves	F. L. Sutherland	C. Holland A.M.D.L.	M. J. Abbott
Remarks						*Loss on ignition	In coarse olivine basalt *Loss on ignition		
SiO ₂	49.90	49.90	49.80	49.80	49.80	49.77	49.53	49.40	49.31
Al ₂ O ₃	13.20	14.90	16.80	14.10	15.40	13.10	14.34	14.80	14.82
Fe ₂ O ₃	1.53	3.35	1.35	2.65	2.30	} 13.61	2.84	3.75	4.27
FeO	9.15	7.54	7.35	6.40	6.65		8.76	5.70	6.40
MgO	9.30	6.97	5.15	7.50	7.10	8.82	5.27	7.65	7.45
CaO	8.30	8.32	8.85	7.40	7.20	6.00	8.41	6.70	7.83
Na ₂ O	3.30	3.90	4.40	3.55	4.70	2.39	4.05	3.65	3.60
K ₂ O	1.66	1.70	1.90	2.55	2.50	1.36	1.56	2.60	1.90
H ₂ O+	0.96	0.59	1.45	1.13	0.56	} 0.49*	1.45*	1.58	1.18
H ₂ O-	0.24	0.22	0.18	1.51	0.42		0.64	0.98	—
CO ₂	0.06	0.15	0.18	0.36	0.05	—	—	0.15	0.02
TiO ₂	2.05	1.85	1.95	2.20	2.35	2.09	3.21	2.15	2.20
P ₂ O ₅	0.45	0.50	0.62	0.58	0.71	0.29	0.62	0.70	0.75
MnO	0.14	—	0.11	0.14	0.13	0.10	0.18	0.13	0.16
Other Constituents									
	100.24	100.04	100.09	99.87	99.87	98.02	100.86	99.94	100.07
Age									

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

b. CaO/Alk = 1 — 2

K₂O/Na₂O = 0.75 — 0.30

	16	17	18	19	20	21	22	23	24
Rock Name	Hawaiite	Alkaline olivine basalt	Andesine basalt	Olivine basalt <i>Toowoomba Volcanics</i>	Hawaiite	Olivine basalt <i>Toowoomba Volcanics</i>	Olivine basalt <i>Main Range Volcanics</i>	Porphyritic olivine basalt <i>McBride Basalt</i>	Olivine basalt <i>Maer Volcanics</i>
Locality	3 km W. of Coryah Gap, Nandewar Mts, N.S.W.	Cameron Falls, N. Tamborine, Qld	Mt Lidgbird (91 m), Lord Howe I., N.S.W.	Toowoomba Qld 064786 Toowoomba 1-mile Sheet	Kyogle, N.S.W.	Toowoomba Qld 060792 Toowoomba 1-mile Sheet	2 km NE. of Spicers Peak, Qld 526154 Warwick 1-mile Sheet	37 km ESE. of Mt Surprise, Einasleigh Area, Qld	Maer I., Torres Strait, Qld 9°53'S, 144°3'E
Reference	2, 126	46	40, 257	125, 91	147, 555	125, 91	112	94, 45	28
Analyst	M. J. Abbott	D. C. Green	A. J. Easton	Avery & Anderson	G. I. Z. Kalocsai	Avery & Anderson	R. E. Russell	D. K. Rowley, H. W. Sears A.M.D.L.	C. Holland A.M.D.L.
Remarks									
SiO ₂	49.30	49.30	49.10	49.08	49.05	49.00	49.00	49.00	49.00
Al ₂ O ₃	17.60	14.81	15.30	13.83	15.40	14.00	nd	15.10	15.30
Fe ₂ O ₃	5.12	2.66	6.90	1.06	3.08	2.87	nd	2.19	2.25
FeO	4.78	7.89	5.20	9.07	7.41	7.83	nd	7.95	7.05
MgO	3.03	8.58	4.70	9.19	6.75	8.95	8.30	8.86	8.35
CaO	8.58	6.00	8.50	8.09	6.21	7.75	8.50	8.59	7.35
Na ₂ O	4.17	3.24	3.60	3.10	4.28	3.46	3.40	3.45	4.05
K ₂ O	2.06	1.86	1.30	0.98	1.61	1.22	1.05	1.45	2.45
H ₂ O +	0.50	1.12	1.20	1.92	2.01	1.62	nd	0.78	0.56
H ₂ O —	—	1.05	0.20	1.10	1.31	1.08	nd	0.20	0.62
CO ₂	0.40	—	0.20	nd	—	nd	nd	0.05	0.10
TiO ₂	2.76	2.67	3.00	2.35	2.02	1.87	2.40	1.62	1.95
P ₂ O ₅	1.04	0.50	0.54	0.57	0.68	0.45	0.47	0.56	0.71
MnO	0.13	0.13	0.16	0.15	0.13	0.16	nd	0.15	0.15
Other Constituents	BaO=0.07 SrO=0.10 Rb ₂ O=tr ZrO ₂ =0.03								
Age	99.67	99.81	99.91	100.49	99.94	100.26	—	100.00	99.89

b. CaO/Alk = 1 — 2

K₂O/Na₂O = 0.75 — 0.30

	25	26	27	28	29	30	31	32	33
Rock Name	Alkali basalt	Alkali olivine basalt	Olivine trachy-basalt	Olivine basalt <i>Main Range Volcanics</i>	Basalt <i>Helen Springs Volcanics</i>	Alkali olivine basalt	Olivine basalt <i>Maer Volcanics</i>	Dolerite	Basalt <i>Kinrara Basalt</i>
Locality	Neds Beach, Lord Howe I., N.S.W.	Mt Birdcage, Peak Ra. Area, Qld Clermont 65681429	Flying Fox Cr, Mt Tamborine Area, Qld 333142 Springbrook 1-mile Sheet	0.4 km N. of Spicers Peak, Qld 515145 Warwick 1-mile Sheet	Banka Banka Plain, Helen Springs Area, N.T.	Mt Lidgbird (341 m), Lord Howe I., N.S.W.	Maer I., Torres Strait, Qld 9°54'S, 144°04'E	Interview R., Pieman R., Tas.	Einasleigh Area, Qld
Reference	40, 257	85	46	112	39, 119	40, 257	28	119, 43	28
Analyst	A. J. Easton	K. J. Heinrich, H. W. Sears A.M.D.L.	D. C. Green	R. E. Russell	A. Jorgensen, K. Bose A.M.D.L.	A. J. Easton	A. Jorgensen A.M.D.L.	Tas. Dep. Mines	D. K. Rowley A.M.D.L.
Remarks	(dyke)		Basal Flow 165 m above S.L.					Dyke Swarm	
SiO ₂	48.90	48.80	48.70	48.60	48.50	48.50	48.50	43.38	48.30
Al ₂ O ₃	13.90	15.40	14.97	—	13.40	14.50	14.50	14.52	14.30
Fe ₂ O ₃	6.20	3.35	2.06	—	8.25	3.40	1.80	5.87	3.37
FeO	5.00	7.90	9.64	—	3.75	6.80	7.95	9.21	7.63
MgO	5.80	6.20	4.68	8.00	6.65	7.90	9.65	5.07	8.07
CaO	8.70	6.80	6.40	7.70	7.00	7.90	7.65	7.20	8.70
Na ₂ O	4.10	4.05	4.06	3.64	4.70	3.50	3.95	2.22	3.70
K ₂ O	1.00	1.60	2.18	1.30	2.00	1.70	2.15	1.50	1.75
H ₂ O +	1.00	2.50	1.42	—	1.90	2.30	0.72	3.40	0.70
H ₂ O —	2.30	0.55	2.01	—	0.86	0.10	0.30	0.49	0.33
CO ₂	0.40	0.04	—	—	1.78	0.30	< 0.05	—	0.54
TiO ₂	2.60	2.15	3.60	2.80	1.06	2.40	1.90	2.20	1.92
P ₂ O ₅	0.42	0.67	0.47	0.47	0.09	0.54	0.67	0.22	0.50
MnO	0.16	0.13	0.14	—	0.14	0.16	0.16	0.18	0.15
Other Constituents						Cr ₂ O ₃ = 0.05			
	100.48	100.14	100.33	—	100.08	100.05	99.95	100.40	99.96
Age									

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

b. CaO/Alk = 1 — 2

K₂O/Na₂O = 0.75 — 0.30

	34	35	36	37	38	39	40	41	42
Rock Name	Andesine basalt	Alkali olivine basalt	Olivine basalt <i>Maer Volcanics</i>	Olivine basalt	Vesicular olivine basalt <i>Kinrara Basalt</i>	Basalt	Basalt	Olivine basalt <i>Maer Volcanics</i>	Teschenite <i>Clumber Teschenite</i>
Locality	Mt Lidgbird (82 m), Lord Howe I., N.S.W.	Mt Birdcage, Peak Ra., Qld	Maier I., Torres Strait, Qld 9°57'S, 144°2'E	1.6 km W. of Coryah Gap, Nandewar Mts, N.S.W.	Burdekin R., Atherton Area, Qld	Brisbane, Qld 414847 Beenleigh 1-mile Sheet	Mt Alford, Qld	Maier I., Torres Strait, Qld	2 km E. of Spicers Peak, Qld 541147 Warwick 1-mile Sheet
Reference	40, 257	85	28	2, 126	94, 5	56, 5	122, 509	28	112
Analyst	A. J. Easton	K. J. Heinrich, H. W. Sears A.M.D.L.	C. Holland A.M.D.L.	M. J. Abbott	D. K. Rowley A.M.D.L.	C.H. Couper Qld Govt Chem Lab	Avery & Anderson	C. Holland A.M.D.L.	Avery & Anderson
Remarks						Bore NS21 (92')	Dyke invading granophyre		
SiO ₂	48.30	48.10	48.00	47.98	47.90	47.80	47.79	47.60	47.55
Al ₂ O ₃	15.40	14.60	15.10	17.53	14.80	17.00	14.09	14.80	15.45
Fe ₂ O ₃	3.00	1.85	2.00	4.06	1.63	2.90	2.67	2.35	1.96
FeO	7.30	9.35	8.00	5.09	8.60	6.00	8.93	7.55	7.62
MgO	4.30	7.30	8.55	5.27	9.90	3.40	3.89	8.80	6.82
CaO	9.30	8.15	7.85	9.70	8.32	6.60	8.06	8.15	7.88
Na ₂ O	3.70	3.20	4.05	3.73	3.65	2.38	3.32	4.30	3.98
K ₂ O	1.50	1.45	2.25	1.43	1.75	1.20	2.21	2.20	1.76
H ₂ O +	2.70	2.45	0.39	1.13	0.72	4.25	4.52	0.61	2.78
H ₂ O —	0.10	0.75	0.65	—	0.22	5.00	0.86	0.56	0.83
CO ₂	< 0.10	0.09	0.13	1.18	0.03	1.97	nd	0.03	—
TiO ₂	3.20	2.25	2.05	2.40	1.76	1.34	2.74	1.97	2.54
P ₂ O ₅	0.58	0.45	0.74	0.69	0.56	0.40	0.64	0.68	0.69
MnO	0.17	0.14	0.16	0.15	0.15	0.08	0.20	0.16	0.14
Other Constituents				BaO=0.06 SrO=0.11 Rb ₂ O=tr ZrO ₂ =0.03					
Age	99.57	100.10	99.92	100.53	99.99	100.30	99.92	99.76	100.00

b. $\text{CaO}/\text{Alk} = 1 - 2$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$

	43	44	45	46	47	48	49	50	51
Rock Name	Olivine basalt <i>Toowoomba Volcanics</i>	Olivine basalt <i>Main Range Volcanics</i>	Alkali andesite	Nepheline basanite	Olivine dolerite <i>Croftby Dolerite</i>	Olivine basalt	Basanite	Porphyritic olivine basalt <i>Kinrara Basalt</i>	Teschenite <i>Clumber Teschenite</i>
Locality	Toowoomba Old 061787 Toowoomba 1-mile Sheet	1 km NNE. of Spicers Peak, Qld 516151 Warwick 1-mile Sheet	Mt Lidgbird, (443 m), Lord Howe I., N.S.W.	Deviot Shore, West Tamar, Tas.	2 km SSW. of Mt Moon, Qld 656105 Dugandan 1-mile Sheet	E. end Greens Beach, Tamar Heads, Tas.	6 km W. of Kiandra, N.S.W.	64 km SE. of Mt Surprise, Atherton Area, Qld	2 km E. of Spicers Peak, Qld 544148 Warwick 1-mile Sheet
Reference	125, 91	112	40, 257	128, 29	112	128, 29	78, 312	94, 5	112
Analyst	Avery & Anderson	R. E. Russell	A. J. Easton	F. L. Sutherland	Avery & Anderson	F. L. Sutherland	D. E. Mackenzie, B. W. Chappell	D. K. Rowley A.M.D.L.	R. E. Russell
Remarks				Coarse olivine phase *Loss on ignition		Lower flow *Loss on ignition			
SiO_2	47.54	47.50	47.50	47.48	47.30	47.04	47.02	47.00	47.00
Al_2O_3	13.85	—	14.60	13.49	17.08	12.05	14.78	14.70	—
Fe_2O_3	4.22	—	4.10	2.15	2.16	0.31	2.55	4.12	—
FeO	6.90	—	7.60	10.45	7.24	9.98	8.25	6.60	—
MgO	9.00	8.90	7.10	8.76	5.45	13.59	9.67	9.82	11.30
CaO	7.37	8.10	8.50	8.07	10.03	8.34	10.07	8.24	7.40
Na_2O	2.90	3.47	3.50	3.61	4.12	3.20	3.49	3.65	3.40
K_2O	1.10	1.57	1.90	1.11	1.24	1.41	1.23	1.90	1.86
$\text{H}_2\text{O}+$	3.00	—	1.10	*2.80	2.06	*2.13	0.45	0.74	—
$\text{H}_2\text{O}-$	1.50	—	0.10	0.57	0.44	0.65	0.42	0.14	—
CO_2	nd	—	0.20	—	—	—	0.01	0.07	—
TiO_2	2.40	3.10	3.30	2.37	2.47	1.82	1.70	1.85	2.20
P_2O_5	0.53	0.69	0.53	0.42	0.80	0.53	0.94	0.85	0.72
MnO	0.19	—	0.14	0.19	0.11	0.24	0.18	0.17	—
Other Constituents			$\text{Cr}_2\text{O}_3 = 0.03$						
	100.50	—	100.20	101.47	100.50	101.29	100.76	99.85	—
Age									

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

b. CaO/Alk = 1 — 2

K₂O/Na₂O = 0.75 — 0.30

	52	53	54	55	56	57	58	59
Rock Name	Iddingsite basalt	Olivine trachy-basalt	Alkali olivine basalt	Basalt	Basalt	Alkali olivine basalt	Alkali olivine basalt	Basalt <i>Sturgeon Basalt</i>
Locality	Picnic Pt, Toowoomba Qld 065779 Toowoomba 1-mile Sheet	Mt Tamborine, Qld 343243 Tamborine 1-mile Sheet	NE. Puddledock Dam, nr Armidale, N.S.W.	Winneils No 1 Bore, Wellington Pt, Brisbane, Qld 422877 Brisbane 1-mile Sheet	Mt Jim, Kiewa Area, Vic.	Middle Beach, Lord Howe I., N.S.W.	Admiralty Is., Lord Howe I., N.S.W.	Hughenden Area, Qld 20°45'S, 144°11'E
Reference	125, 91	46	147, 533	56, 5	7, 375	40, 257	40, 257	28
Analyst	Avery & Anderson	Y. Watanabe	J. H. Pyle, G. I. Z. Kalocsai	C. H. Couper Qld Govt Chem Lab	V. Biskupsky	A. J. Easton	A. J. Easton	D. K. Rowley A.M.D.L.
Remarks		320 m above M.S.L.				Dyke	Dyke	
SiO ₂	46.90	46.88	46.75	46.60	46.59	46.40	46.30	46.00
Al ₂ O ₃	14.76	16.33	14.46	16.00	17.64	15.50	13.00	13.40
Fe ₂ O ₃	5.94	3.90	1.66	6.50	0.06	2.10	1.90	7.10
FeO	5.60	9.26	9.42	4.00	7.92	9.00	9.20	5.45
MgO	5.57	4.51	11.49	7.00	9.90	9.50	12.20	8.65
CaO	7.50	6.76	8.35	8.00	9.14	8.30	8.20	8.21
Na ₂ O	3.93	3.72	3.11	2.57	2.15	2.50	2.30	4.00
K ₂ O	2.45	1.94	1.09	1.78	1.54	1.10	1.10	1.70
H ₂ O +	1.92	1.44	0.37	3.80	0.45	1.40	2.10	1.19
H ₂ O —	1.26	1.60	0.81	2.00	2.20	0.70	0.90	0.47
CO ₂	—	—	0.05	0.22	—	0.20	0.20	0.04
TiO ₂	3.12	3.29	1.95	1.49	1.42	2.40	2.20	2.55
P ₂ O ₅	1.11	0.65	0.64	0.42	0.05	0.41	0.40	0.85
MnO	0.15	0.15	0.19	0.16	0.10	0.18	0.18	0.16
Other Constituents								
Age	100.21	100.43	100.34	100.58	99.20	99.79	100.39	99.77

b. CaO/Alk = 1 — 2

K₂O/Na₂O < 0.30

	60	61	62	63	64	65	66	67	68
Rock Name	Basalt <i>Archerfield Basalt Member</i>	Basalt <i>Eight Mile Plains Basalt Member</i>	Iddingsite- titanaugite basalt	Olivine dolerite <i>Mt Huntley Dolerite</i>	Spilite	Spilite <i>Sugars Basalt</i>	Olivine basalt	Basalt	Andesine dolerite <i>Brooks Creek Dolerite</i>
Locality	NS 25 Bore, Brisbane, Qld 148805 Ipswich 1-mile Sheet 2nd ed.	NS 5 Bore, Kuraby, Brisbane, Qld 270731 Beenleigh 1-mile Sheet 2nd ed.	Flying Fox Cr, Beechmont, N. Tamborine Area, Qld 338105 Springbrook 1-mile Sheet	2 km E of Mt Huntley, Qld 568095 Warwick 1-mile Sheet	Planet Bore E. Maitland, N.S.W.	Bore NS. 256, Ipswich, Qld	East Arm, NW. of Fourteen Mile Cr, E. Tamar, Tas.	Yeoval, N.S.W.	2 km E. of Spicers Peak, Qld 541142 Warwick 1-mile Sheet
Reference	56, 4	56, 5	46	112	102, 22	57, 3	128, 29	49	112
Analyst	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	D. C. Green	R. E. Russell	J. H. Pyle	C. H. Couper Qld Govt Chem Lab	F. L. Sutherland	B. L. Gulson	R. E. Russell
Remarks	331' 2" - 331' 6"					150' 1" - 150' 3	*Loss on ignition	(Dyke)	
SiO ₂	49.60	48.70	48.60	48.44	48.38	48.00	47.21	46.67	46.40
Al ₂ O ₃	16.20	12.50	12.82	18.19	17.31	17.80	14.26	13.49	18.02
Fe ₂ O ₃	6.00	1.85	6.89	1.56	2.28	6.60	1.01	0.08	3.83
FeO	3.40	8.10	7.30	8.47	3.86	3.30	9.33	11.60	6.09
MgO	5.00	6.75	8.70	7.09	10.51	5.20	6.64	9.05	8.11
CaO	6.90	9.60	6.56	7.20	6.28	5.30	9.26	9.00	8.03
Na ₂ O	3.62	3.02	2.94	3.04	4.59	4.30	3.77	3.74	3.36
K ₂ O	0.44	0.40	0.74	0.92	0.25	0.84	1.09	0.84	0.88
H ₂ O +	1.40	1.19	1.82	2.47	4.33	4.00	*3.52	1.43	0.94
H ₂ O -	5.10	0.50	1.52	0.20	0.95	0.80	0.40	0.48	1.32
CO ₂	0.40	3.55	—	—	nd	1.46	—	0.22	—
TiO ₂	1.53	2.06	1.72	1.74	0.71	1.77	2.15	2.52	2.69
P ₂ O ₅	0.26	0.42	0.35	0.22	0.30	0.32	0.42	0.136	0.43
MnO	0.11	0.20	0.15	0.18	0.22	0.25	0.15	0.23	0.06
Other Constituents					Cl = tr				
	99.96	98.84	100.11	99.72	99.97	99.94	99.21	99.49	100.16
Age									

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

c. CaO/Alk = 2 — 3

K ₂ O/Na ₂ O = 1.25 — 0.75			K ₂ O/Na ₂ O = 0.75 — 0.30						
Rock Name	1 Basalt	2 Basalt (Basanite)	3 Dolerite <i>Hart</i> <i>Dolerite</i>	4 Dolerite <i>Hart</i> <i>Dolerite</i>	5 Hornblende basalt	6 Iddingsite basalt <i>McLean</i> <i>Basalt</i>	7 Coarse olivine basalt (mesostasis rich phase)	8 Porphyritic olivine basalt	9 Basalt <i>Petrie</i> <i>Formation</i>
Locality	Ruined Castle, Kiewa Area, Vic.	Basalt Hill, Kiewa Area, Vic.	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	WNW of Uralla, N.S.W.	Cooktown Area, Qld	East Arm, 1 km NW. of Fourteen Mile Cr, E. Tamar, Tas.	East Arm, 1 km NW. of Fourteen Mile Cr, E. Tamar, Tas.	No. 19 Bore, Brisbane, Qld
Reference	7, 375	7, 375	28	28	105; 11	91; 93, 71; 66, 104	128, 29	128, 29	56, 5
Analyst	V. Biskupsky	V. Biskupsky	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	J. E. Ransley	C. R. Edmond, H. W. Sears A.M.D.L.	F. L. Sutherland	F. L. Sutherland	C. H. Couper Qld Govt Chem Lab
Remarks							*Loss on ignition	*Loss on ignition	660' 6"
SiO ₂	46.90	46.85	49.90	49.80	49.54	49.50	48.40	47.93	47.70
Al ₂ O ₃	17.89	17.75	15.30	14.20	17.70	12.90	15.49	15.28	17.60
Fe ₂ O ₃	0.06	0.12	1.01	0.26	1.02	5.95	3.61	1.43	2.30
FeO	8.10	8.08	11.00	15.40	7.92	5.25	6.67	8.78	5.60
MgO	9.63	9.84	7.60	3.60	8.02	7.80	5.89	7.60	5.10
CaO	9.26	9.19	8.70	8.40	10.68	8.90	9.69	10.00	8.90
Na ₂ O	2.35	2.09	2.20	2.55	2.83	2.85	3.37	3.54	2.50
K ₂ O	1.84	1.75	1.00	1.00	1.07	1.30	1.27	1.15	0.80
H ₂ O+	1.54	1.60	1.50	1.19	0.85	1.23	*1.59	*1.45	2.50
H ₂ O—	0.38	0.70	0.10	0.09	0.09	1.22	0.34	0.64	3.00
CO ₂	—	—	0.10	0.10	nd	0.26	—	—	1.86
TiO ₂	1.58	1.40	1.19	2.80	0.54	1.93	2.25	2.00	1.55
P ₂ O ₅	0.08	0.07	0.12	0.12	0.04	0.47	0.44	0.83	0.23
MnO	0.10	0.09	0.18	0.21	0.15	0.16	0.21	0.19	0.16
Other Constituents									
Age	99.79	99.53	99.90	99.72	100.45	99.72	99.22	100.82	99.80

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

c. CaO/Alk = 2 —3

K₂O/Na₂O = 0.75 —0.30

	10	11	12	13	14	15	16	17
Rock Name	Olivine basalt	Olivine basalt	Olivine dolerite	Olivine basalt	Olivine basalt	Olivine basalt <i>Main Range Volcanics</i>	Alkali olivine basalt	Basalt <i>Helen Springs Volcanics</i>
Locality	8 km E. of Mt Dowes, Nandewar Mts, N.S.W.	8 km S. of Rosevears, Tamar Area, Tas.	3 km SW. of Mt Greville, Qld 583160 Warwick 1-mile Sheet	Dawson R. Area, SW. Rockhampton Qld Baralaba 1:250000 Sheet	Inspection Hd, W. Tamar, Tas.	2 km. N of Mt Alphen, Spicers Peak Area, Qld 546193 Warwick 1-mile Sheet	Mt Lidgbird, Lord Howe I., N.S.W.	Helen Springs Area, N.T. 18°25'S, 133°52'E
Reference	2, 126	128, 29	112	28	128, 29	112	40, 257	39, 119
Analyst	M. J. Abbott	J. Furst Tas. Dep. Mines	R. E. Russell	M. A. Hanckel A.M.D.L.	J. Furst Tas. Dep. Mines	Avery & Anderson	A. J. Easton	A. Jorgensen, K. Bose A.M.D.L.
Remarks		*Loss on ignition			*Loss on ignition		1210'	
SiO ₂	47.51	47.50	47.30	46.70	46.30	46.23	46.00	49.70
Al ₂ O ₃	16.85	14.70	—	13.40	12.00	14.89	14.50	13.90
Fe ₂ O ₃	4.25	2.80	—	2.16	3.70	1.81	6.40	6.75
FeO	6.71	9.80	—	9.30	11.60	9.66	5.90	3.70
MgO	5.62	7.40	9.10	9.80	9.10	9.84	8.00	5.80
CaO	9.28	9.50	9.50	8.90	8.20	9.60	8.90	10.10
Na ₂ O	3.47	2.70	3.10	3.02	2.80	2.63	3.00	3.85
K ₂ O	1.08	1.30	1.20	1.40	1.00	1.10	1.30	1.19
H ₂ O+	0.59	*1.50	—	2.11	*1.30	1.16	2.20	1.23
H ₂ O—	—	0.67	—	0.16	0.71	0.51	0.10	1.21
CO ₂	0.01	—	—	0.18	—	—	0.20	1.47
TiO ₂	2.82	1.60	2.10	1.89	2.20	2.28	2.80	1.14
P ₂ O ₅	—	0.51	0.61	0.91	0.59	0.36	0.48	0.09
MnO	0.15	0.20	—	0.15	0.20	0.18	0.15	0.11
Other Constituents	BaO=0.10 SrO=0.10 Rb ₂ O=tr ZrO ₂ =0.02						Cr ₂ O ₃ = 0.04	
	99.49	100.18	—	100.08	99.70	100.25	99.97	100.24
Age								

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

c. CaO/Alk = 2 — 3

K ₂ O/Na ₂ O < 0.30									
	18	19	20	21	22	23	24	25	26
Rock Name	Porphyritic basalt	Alkali basalt	Basalt	Andesine dolerite	Aphyric dolerite	Tholeiitic olivine basalt	Olivine basalt	Tachylite glass	Tachylite glass
Locality	Witches Falls track at 503 m, N. Tam-borine, Qld	N. Beach, Lord Howe I., N.S.W.	Eia R., PNG 8°06'S, 147°37'E	Fraser No 1 Bore, Derby Area, W.A.	Isthmus Macquarie I., Ant.	2 km SSW. of Calvert Peak, Clermont, Qld 64311531	2 km N. of Mt Alphen, Spicers Peak Area, Qld 553195 Warwick 1-mile Sheet	N. Head Macquarie I., Ant.	N. Head Macquarie I., Ant.
Reference	46	40, 257	28	28	83, 131	85	112	83, 129	83, 129
Analyst	Avery & Anderson	A. J. Easton	A. Jorgensen A.M.D.L.	C. R. Edmond A.M.D.L.	R. G. Thomas	K. J. Heinrich, H. W. Sears A.M.D.L.	R. E. Russell	R. G. Thomas	A. R. Alderman
Remarks		Dyke			Dyke				
SiO ₂	49.68	49.60	49.50	49.20	49.02	49.00	48.80	48.42	48.41
Al ₂ O ₃	15.10	14.20	13.60	12.20	18.39	14.50	—	16.21	16.52
Fe ₂ O ₃	1.74	2.70	5.80	2.35	3.22	2.70	—	1.23	1.21
FeO	7.50	8.00	6.70	12.30	3.72	7.75	—	6.88	6.77
MgO	7.58	4.80	7.80	4.80	8.47	6.90	9.70	8.68	8.71
CaO	7.85	9.70	8.40	8.60	9.78	8.05	9.10	9.37	9.49
Na ₂ O	2.94	3.30	3.45	2.90	2.94	2.95	3.25	2.53	2.74
K ₂ O	0.72	1.20	0.11	0.77	0.29	0.46	0.77	0.61	0.69
H ₂ O +	2.40	3.00	2.75	1.57	1.68	1.76	—	1.68	1.51
H ₂ O —	1.58	0.10	0.47	0.36	0.78	1.70	—	1.14	1.10
CO ₂	—	0.20	0.06	0.09	—	2.12	—	—	—
TiO ₂	2.47	2.60	1.24	4.20	1.51	1.56	2.40	2.93	2.81
P ₂ O ₅	0.34	0.36	0.11	0.46	0.39	0.31	0.31	0.11	0.11
MnO	0.15	0.14	0.12	0.18	0.04	0.14	—	—	—
Other Constituents		Cr ₂ O ₃ = 0.07			S = 0.07				
	100.05	99.97	100.11	99.98	100.30	99.90	—	99.79	99.67
Age									

c. CaO/Alk = 2 - 3								
K ₂ O/Na ₂ O < 0.30								
	27	28	29	30	31	32	33	34
Rock Name	Basalt <i>Archerfield Basalt Member</i>	Tachylite glass	Basalt <i>Eight Mile Plains Basalt Member</i>	Coarse aphyric dolerite	Basalt <i>Sugars Basalt</i>	Olivine basalt <i>Main Range Volcanics</i>	Basalt <i>Archerfield Basalt Member</i>	Alkali basalt
Locality	Archerfield, Brisbane Qld 176765 Beenleigh 1-mile Sheet 2nd ed.	N. Head Macquarie I., Ant.	Brisbane, Qld 365835 Beenleigh 1-mile Sheet	Hassel- borough Bay, Macquarie I., Ant.	Bore NS. 256 (121 m) Ipswich, Qld	2 km SE. of Spicers Peak, Qld	Bore NS. 4 (158'-180') Brisbane, Qld 231773 Beenleigh 1-mile Sheet 2nd ed.	Blinken- thorpe Beach, Lord Howe I., N.S.W.
Reference	56, 4	83, 129	56, 5	83, 120	57, 3	112	56, 4	40, 257
Analyst	C. H. Couper Qld Govt Chem Lab	G. S. Piper	C. H. Couper Qld Govt Chem Lab	A. R. Alderman	C. H. Couper Qld Govt Chem Lab	R. E. Russell	C. H. Couper Qld Govt Chem Lab	A. J. Easton
Remarks				Dyke				(Dyke) Primary Carbonate
SiO ₂	48.40	48.15	48.00	47.81	47.60	47.0	46.60	46.30
Al ₂ O ₃	14.10	16.55	14.00	17.65	17.60	—	13.70	14.70
Fe ₂ O ₃	2.80	1.20	3.58	1.25	6.30	—	5.80	2.60
FeO	8.70	6.75	7.80	5.93	4.20	—	4.20	7.00
MgO	6.45	8.75	8.50	8.24	6.80	11.00	7.10	5.60
CaO	9.15	9.85	7.40	10.85	9.50	8.70	6.80	10.30
Na ₂ O	3.10	2.70	2.70	3.51	2.30	2.75	3.0	3.60
K ₂ O	0.26	0.70	0.26	0.65	0.62	0.80	0.13	0.60
H ₂ O +	1.78	1.60	2.85	1.82	2.20	—	3.65	1.00
H ₂ O -	0.60	1.00	2.90	0.92	0.38	—	5.15	1.00
CO ₂	3.35	—	0.67	—	0.33	—	1.40	4.80
TiO ₂	1.75	3.15	1.70	1.40	1.77	2.20	1.77	2.40
P ₂ O ₅	0.32	—	0.27	0.18	0.22	—	0.37	0.30
MnO	0.20	—	0.20	—	0.21	—	0.05	0.17
Other Constituents		S = 0.20						
	100.96	100.60	100.83	100.21	—	—	99.72	100.36
Age								

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

d. CaO/Alk > 3									
	K ₂ O/Na ₂ O = 1.25 — 0.75		K ₂ O/Na ₂ O = 0.75 — 0.30		K ₂ O/Na ₂ O < 0.30				
Rock Name	1	2	3	4	5	6	7	8	9
	Lamprophyre	Hornblende diabase	Spilitic basalt	Aphyric dolerite	Dolerite	Aphyric dolerite	Porphyritic basalt	Pyroxene basalt <i>Motton Spilite</i>	Volcanic ash
Locality	Raglan Ra., Tas.	Kanangra Plateau, nr Jenolan Caves, N.S.W. 815000N, 303000E. Jenolan 1-mile Sheet	Nr Jema village, Papua, PNG 8°03'S, 147°27'E	N. Mt Macquarie I., Ant.	Koolanooka Hills, W.A. 50007N, 2001E	Lusitania Bay, Macquarie I., Ant.	Palagaigaia, Rabaul Area, PNG.	W. Gawler R., Preston, Tas. 4090E, 9164N	Nordup, Rabaul Caldera, PNG.
Reference	41, 18	80	28	83, 120	3	83, 120	28	24, 45, 59	28
Analyst	Tas. Dep. Mines	B. J. Macora	A. Jorgensen A.M.D.L.	A. R. Alderman	P. A. Arriens	A. R. Alderman	R. J. Buckley A.M.D.L.	C.J. Penman Tas. Dep. Mines	A. Jorgensen A.M.D.L.
Remarks	Total very high. P ₂ O ₅ high	Misplaced; should be CaO/Alk = 1.2=b		(Dyke)					
SiO ₂	46.16	46.01	49.90	49.38	49.34	49.31	49.30	49.00	49.00
Al ₂ O ₃	12.70	18.83	13.70	18.23	16.27	14.81	19.60	13.21	18.50
Fe ₂ O ₃	1.58	5.77	4.80	1.44	0.71	1.55	5.00	1.57	10.70
FeO	9.51	5.56	8.50	4.94	10.80	8.17	5.05	12.07	0.47
MgO	12.79	7.24	6.75	5.45	8.95	7.92	4.40	7.10	5.80
CaO	6.12	8.00	10.90	13.75	8.83	10.80	11.20	10.00	11.60
Na ₂ O	0.94	2.72	2.10	2.97	1.53	2.86	2.55	1.77	2.30
K ₂ O	0.80	1.43	0.06	0.26	0.26	0.49	0.67	0.35	0.52
H ₂ O +	5.61	4.06	1.11	1.60	1.95	2.05	0.43	3.25	0.12
H ₂ O —	—	0.18	0.05	0.64	0.02	0.29	0.25	0.40	0.06
CO ₂	1.93	—	0.01	—	—	—	< 0.05	—	0.04
TiO ₂	0.71	1.21	1.49	1.39	1.14	1.39	0.92	1.75	0.82
P ₂ O ₅	5.13	—	0.12	0.21	0.08	0.29	0.12	—	0.13
MnO	1.31	—	0.20	0.12	0.18	0.18	0.18	0.13	0.17
Other Constituents									
Age	105.29	100.01	99.69	100.38	100.06	100.03	99.72	100.60	100.23

TABLE N — BASALTIC ROCKS — SiO₂ 50% — 46%

d. CaO/Alk > 3

K₂O/Na₂O < 0.30

	10	11	12	13	14	15	16	17
Rock Name	Lapilli	Basalt	Lapilli	Porphyritic basalt	Aphyritic basalt	Aphyritic dolerite	Basalt sand	Megaphyric bytownite basalt
Locality	Tavurvur, New Britain, PNG.	South Daughter, Rabaul Area, PNG.	Tavurvur, New Britain, PNG.	Lusitania Bay, Macquarie I., Ant.	Expedition hut, N. end Macquarie I., Ant.	Half-way Hill, Macquarie I., Ant.	Tavurvur, New Britain, PNG.	Lusitania Bay, Macquarie I., Ant.
Reference	84, 362	28	84, 362	83, 131	83, 131	83, 1	84, 362	83, 131
Analyst	Y. Miyake & Y. Sigiura	R. J. Buckley A.M.D.L.	Y. Miyake & Y. Sigiura	A. R. Alderman	A. R. Alderman	A. R. Alderman	Y. Miyake & Y. Sigiura	E. R. Segnit
Remarks								
SiO ₂	48.47	48.40	48.34	48.05	47.56	46.75	46.65	46.57
Al ₂ O ₃	18.81	19.60	17.75	17.75	15.50	15.95	20.11	22.93
Fe ₂ O ₃	3.70	3.60	4.64	1.13	1.88	3.84	4.49	0.87
FeO	6.39	5.95	6.73	6.19	6.82	4.49	5.96	4.43
MgO	5.68	5.45	5.35	7.69	7.77	9.33	5.38	6.02
CaO	12.75	12.60	11.96	11.32	10.92	10.91	11.40	12.09
Na ₂ O	1.94	2.25	3.19	2.99	2.53	2.25	2.19	2.60
K ₂ O	0.53	0.44	0.49	0.25	0.27	0.33	0.64	0.50
H ₂ O+	0.23	0.19	0.17	2.59	2.87	2.59	0.05	2.85
H ₂ O—	—	0.07	—	0.41	0.68	1.40	0.01	0.15
CO ₂	—	< 0.05	—	—	1.63	—	—	—
TiO ₂	0.77	0.83	0.85	1.30	1.41	1.55	1.17	0.60
P ₂ O ₅	0.25	0.11	0.75	0.21	0.20	0.43	0.31	0.08
MnO	0.19	0.16	0.23	—	0.13	0.15	0.28	0.04
Other Constituents								
	99.71	99.70	100.45	99.88	100.17	99.97	99.04	99.73
Age								

TABLE O — BASALTIC ROCKS — $\text{SiO}_2 < 46\%$

a. $\text{CaO}/\text{Alk} < 1$			b. $\text{CaO}/\text{Alk} = 1 - 2$						
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$			$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$	$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$	$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$				
	1	2		1	2	3	4	5	6
Rock Name	Analcime basalt	Spilite		'Lamprophyre' Absarokite	Picritic basalt	Alkali olivine basalt	Analcime basalt	Analcime basanite	Analcime-olivine theralite
Locality	Spring Mt, W. of Glen Innes, N.S.W.	Planet Bore, E. Maitland, N.S.W.		Bonua R., Papua, PNG. 9°52'S, 148°59'E	W. arm of Musa R., Papua, PNG. 9°24'S, 148°25'E	42 km N. of Guyra, N.S.W.	Peak Ra. Area, Qld	Peak Ra. Area, Qld	Square Top, 3 km W. of Nundle, N.S.W.
Reference	141, 195	102, 22		28	28	144, 850	85	85	142, 423
Analyst	Avery & Anderson	J. H. Pyle		A. Jorgensen A.M.D.L.	A. Jorgensen R. Wilson-Smith A.M.D.L. (Dyke)	S. E. Shaw	K. J. Heinrich, H. W. Sears A.M.D.L.	K. J. Heinrich, H. W. Sears A.M.D.L.	J. H. Pyle
Remarks									
SiO_2	45.20	44.90		43.40	42.30	45.60	45.6	45.3	45.26
Al_2O_3	15.51	18.64		13.10	1.35	15.36	15.6	14.4	14.77
Fe_2O_3	4.72	8.14		2.20	3.75	2.44	3.00	3.40	2.57
FeO	7.00	4.51		4.95	0.80	8.89	8.40	7.30	7.85
MgO	4.02	4.05		14.10	35.20	7.36	6.85	9.75	8.47
CaO	5.83	4.48		6.10	0.04	8.99	9.50	8.60	9.13
Na_2O	4.27	3.58		0.60	0.02	3.13	3.30	4.15	5.12
K_2O	3.76	2.26		4.80	0.02	1.68	2.10	2.30	1.77
$\text{H}_2\text{O} +$	5.29	5.02		5.65	6.55	3.27	2.55	1.35	2.02
$\text{H}_2\text{O} -$	1.96	1.48		1.72	3.60	0.38	0.32	0.27	0.15
CO_2	nd	nd		0.16	5.80	—	0.11	0.07	—
TiO_2	1.61	2.50		1.49	0.05	2.42	1.75	2.00	2.07
P_2O_5	1.17	0.31		1.48	0.01	0.80	0.69	0.89	0.82
MnO	0.20	0.19		0.11	0.11	0.15	0.22	0.13	0.17
Other Constituents									
	100.54	100.06		99.86	99.60	100.47	100.0	99.9	100.17
Age									

b. $\text{CaO}/\text{Alk} = 1 - 2$ $\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$

	7	8	9	10	11	12	13	14	15
Rock Name	Andesine dolerite <i>Croftby</i> <i>Dolerite</i>	Andesine dolerite pegmatite <i>Croftby</i> <i>Dolerite</i>	Basanoid	Olivine- titanaugite basalt <i>McBride</i> <i>Basalt</i>	Olivine dolerite <i>Croftby</i> <i>Dolerite</i>	Basanite	Olivine dolerite <i>Croftby</i> <i>Dolerite</i>	Analcime basanite	Olivine basalt
Locality	2 km SSW. of Mt Moon, Qld 655097 Dugandan 1-mile Sheet	2 km SSW. of Mt Moon, Qld 653102 Dugandan 1-mile Sheet	University site, Armidale, N.S.W.	29 km S. of Mt Garnet, Qld	3 km SSW. of Mt Moon, Qld 655096 Dugandan 1-mile Sheet	3 km WNW. of Kiandra, N.S.W.	2 km SSW. of Mt Moon, Qld 655106 Dugandan 1-mile Sheet	20 km WNW. of Kiandra, N.S.W.	Lytton Quarry, Brisbane, Qld 339963 Brisbane 1-mile Sheet
Reference	112	112	12, 34	86	112	78, 312	112	78, 312	56, 5
Analyst	R. E. Russell	R. E. Russell	G. I. Z. Kalocsai	S. Baker	R. E. Russell	D. E. Mackenzie B. W. Chappell	R. E. Russell	D. E. Mackenzie B. W. Chappell	C. H. Couper Qld Govt Chem Lab
Remarks				*Loss on ignition					
SiO_2	45.20	44.98	44.94	44.68	44.54	44.48	44.45	44.28	44.2
Al_2O_3	17.30	15.80	14.65	15.56	17.74	14.12	16.52	14.07	14.0
Fe_2O_3	2.13	2.79	4.53	4.17	1.33	2.90	1.35	3.38	3.10
FeO	7.46	8.58	8.17	7.01	7.97	7.94	8.80	7.48	9.0
MgO	4.93	5.04	8.94	9.84	9.54	9.97	9.54	10.32	10.1
CaO	8.94	6.97	8.13	8.70	8.34	10.42	8.18	10.50	7.95
Na_2O	4.45	4.82	4.45	4.88	3.79	3.93	3.75	3.95	2.68
K_2O	1.57	1.84	1.52	2.27	1.36	1.40	1.60	1.44	1.60
$\text{H}_2\text{O} +$	3.26	3.07	1.35	0.68*	2.36	0.35	2.53	0.30	2.56
$\text{H}_2\text{O} -$	0.38	0.60	0.03	0.45	0.37	0.32	0.40	0.27	0.94
CO_2	—	—	—	—	—	0.02	—	0.02	0.65
TiO_2	2.69	4.13	2.52	1.48	1.75	2.50	2.04	2.47	2.85
P_2O_5	0.78	1.05	0.78	0.16	0.63	1.30	0.70	1.34	0.76
MnO	0.20	0.22	0.19	0.40	0.10	0.18	0.13	0.18	0.20
Other Constituents									BaO = tr
	99.29	100.89	100.28	100.28	99.82	99.83	99.99	99.99	100.59
Age									

TABLE O — BASALTIC ROCKS — $\text{SiO}_2 < 46\%$

b. $\text{CaO}/\text{Alk} = 1 - 2$

	$K_2O/Na_2O = 0.75 - 0.30$						$K_2O/Na_2O < 0.30$		
	16	17	18	19	20	21	22	23	24
Rock Name	Olivine basalt	Nepheline-analcime basanite	Nepheline basanite <i>Piebold Basalt</i>	Olivine nephelinite	Olivine nephelinite	Olivine nephelinite	Nepheline basanite	'Basic Rock'	Olivine analcimites
Locality	E. Tamar, Tas.	2 km SW. of Kiandra, N.S.W.	6 km S. of Munburra, C. Melville, Qld	5 km W. of Inverell, N.S.W.	N. of Spring Bay, E. Tamar, Tas.	26 km SW. of Port Stewart, Qld 14°14'S, 143°34'E	Deviot shore, W. Tamar, Tas.	Mt Werong, N.S.W.	3 km N. of Byerstown Ra., Cooktown Area, Qld
Reference	128, 29	78, 312	91; 93, 71; 66, 104	146, 533	128, 29	28	128, 29	103, 5, 130	91; 93, 71; 66, 104
Analyst	F. L. Sutherland	D. E. Mackenzie B. W. Chappell	C. R. Edmond H. W. Sears A.M.D.L.	W. H. Herdsman	J. Furst Tas. Dep. Mines	A. Jorgensen A.M.D.L.	F. L. Sutherland	J. H. Pyle	C. R. Edmond H. W. Sears A.M.D.L.
Remarks	Coarse picritic phase *Loss on ignition				*Loss on ignition		Fine-grained phase		
SiO ₂	43.12	42.42	42.10	40.42	40.00	39.30	45.95	43.63	43.30
Al ₂ O ₃	13.07	13.60	12.40	11.63	12.20	12.00	13.05	16.01	12.30
Fe ₂ O ₃	0.93	4.74	4.20	6.50	3.90	6.25	1.53	5.44	4.80
FeO	10.83	6.70	10.20	7.18	10.70	7.50	10.29	6.87	6.95
MgO	11.46	8.73	7.70	9.70	11.20	11.30	8.58	8.50	10.20
CaO	9.67	11.07	9.70	10.33	9.40	11.30	10.02	9.26	9.30
Na ₂ O	3.83	4.30	4.20	3.77	3.60	5.10	4.11	4.56	4.50
K ₂ O	1.44	1.35	2.35	2.06	1.50	2.80	1.18	1.04	0.91
H ₂ O+	1.57*	1.15	2.20	2.36	2.0*	0.92	2.05	1.82	2.25
H ₂ O-	0.16	0.97	0.61	1.98	0.89	0.39	0.48	—	1.66
CO ₂	—	0.03	0.54	0.09	—	0.20	—	1.19	0.11
TiO ₂	2.53	2.79	2.35	2.47	2.80	2.20	2.42	1.07	2.25
P ₂ O ₅	0.44	1.85	1.04	1.38	1.20	0.83	0.98	0.62	0.98
MnO	0.13	0.19	0.28	0.26	0.24	0.15	0.24	0.20	0.18
Other Constituents									
Age	99.42	99.88	99.87	100.13	99.63	100.24	100.88	100.21	99.69

b. CaO/Alk = 1 - 2		c. CaO/Alk = 2 - 3							
K ₂ O/Na ₂ O < 0.30			K ₂ O/Na ₂ O = 1.25 - 0.75	K ₂ O/Na ₂ O = 0.75 - 0.30					
Rock Name	25		1	2	3	4	5	6	7
	Olivine-nepheline analcinite <i>McLean Basalt</i>		Basalt	Picritic teschenite	Analcime-olivine theralite	Alkali olivine basalt	Oceanite	Dolerite	Teschenite
Locality	Annan R. Tinfeld, Cooktown Area, Qld		Bore NS. 22, Brisbane, Qld 410848 Beenleigh 1-mile Sheet	Mt Oscar, Peak Ra, Area, Qld 60601599	Square Top, 3 km W. of Nundle, N.S.W.	Mt Gower (790 m), Lord Howe I., N.S.W.	Mt Gower (670 m), Lord Howe I., N.S.W.	No 4 Head race tunnel, Kiewa, Vic.	3 km W of Woronora Trig. Station, N.S.W. 916857 Camden 1-mile Sheet
Reference	91; 93, 71; 66, 104		56, 5	85	142, 423; 143, 535	40, 257	40, 257	7, 375	103, 5
Analyst	C. R. Edmond H. W. Sears A.M.D.L.		C. H. Couper Qld Govt Chem Lab	K. J. Heinrich H. W. Sears A.M.D.L.	M. Chiba	A. J. Easton	A. J. Easton	V. Biskupsky	J. H. Pyle
Remarks			189'6"						DDH. 68
SiO ₂	41.20		44.50	45.50	44.90	44.5	44.5	44.22	43.75
Al ₂ O ₃	11.20		14.60	10.50	14.97	13.3	10.6	19.00	13.33
Fe ₂ O ₃	3.50		7.80	3.10	2.62	3.5	5.1	1.75	3.58
FeO	8.90		4.16	8.55	8.26	8.4	8.7	7.20	8.73
MgO	11.50		4.70	14.70	8.45	11.8	17.0	5.50	6.69
CaO	10.70		9.80	9.20	9.08	8.7	7.5	6.93	11.47
Na ₂ O	4.30		1.80	2.70	5.02	2.0	1.9	1.65	3.54
K ₂ O	1.13		1.78	1.35	1.72	1.1	0.6	1.06	1.36
H ₂ O +	2.85		3.24	1.70	1.21	2.9	2.0	7.62	3.58
H ₂ O -	1.03		3.56	0.38	0.38	0.2	0.1	3.00	—
CO ₂	0.06		1.82	0.04	—	0.2	0.2	—	0.33
TiO ₂	2.45		2.07	1.75	2.13	2.6	1.8	1.48	2.85
P ₂ O ₅	1.16		0.62	0.57	0.97	0.48	0.23	0.05	0.70
MnO	0.20		0.18	0.16	0.15	0.15	0.14	0.68	0.15
Other Constituents						Cr ₂ O ₃ = 0.05			BaO = 0.05
Age	100.18		100.63	100.20	99.86	99.88	100.47	99.54	100.13

TABLE O — BASALTIC ROCKS — $\text{SiO}_2 < 46\%$ c. $\text{CaO}/\text{Alk} = 2 - 3$

$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$					$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.30$				
	8	9	10	11	12	13	14	15	16
Rock Name	Olivine basalt	Pillow lava (centre) <i>Neranleigh-Fernvale Group</i>	Olivine basalt	Olivine basalt	Basalt <i>Eight-mile Plains Basalt</i>	Basalt <i>Archerfield Basalt</i>	Nepheline-analcime basanite	Alkali olivine basalt	Megaphyric picritic dolerite
Locality	Rose Rivulet, Tamar, Tas.	Mt Ommaney, Brisbane, Qld	Upper W. Tamar, Tas.	2 km SE. of White Hills, Tamar, Tas.	Bore NS. 17, Brisbane, Qld 357831 Beenleigh 1-mile 2nd ed.	Bore NS. 5, Kuraby, Brisbane, Qld 270731 Beenleigh 1-mile 2nd ed.	6 km WSW. of Kiandra, N.S.W.	Barrington Tops, N.S.W. 446058 Tamworth 4-mile Sheet	Hut Pt, Macquarie I., Ant.
Reference	128, 29	58, 2	128, 29	128, 29	56, 5	56, 4	78, 312	77, 230	83, 120
Analyst	D. I. Groves G. Sanders	C. H. Couper Qld Govt Chem Lab	D. I. Groves G. Sanders	D. I. Groves G. Sanders	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	D. E. Mackenzie B. W. Chappell	G. I. Z. Kalocsai	A. R. Alderman
Remarks	*Loss on ignition		*Loss on ignition	*Loss on ignition	70' - 80'				(Dyke)
SiO_2	43.20	42.80	42.30	42.20	46.00	45.60	45.43	45.32	43.04
Al_2O_3	14.00	14.00	13.90	12.90	15.60	12.10	14.18	14.34	12.01
Fe_2O_3	4.40	7.48	4.30	4.70	5.70	4.70	3.61	3.56	3.19
FeO	9.20	3.80	9.20	10.00	4.60	7.40	7.04	8.64	3.74
MgO	10.50	5.50	10.70	10.50	6.20	9.64	10.20	8.67	26.75
CaO	11.10	9.00	10.90	9.30	9.30	7.85	10.10	10.50	6.72
Na_2O	3.03	3.60	3.06	2.50	3.10	2.44	3.85	3.25	2.64
K_2O	1.07	1.10	1.56	1.60	0.38	0.39	1.08	0.93	0.35
$\text{H}_2\text{O} +$	0.80*	4.64	1.05*	1.70*	3.10	3.41	0.86	1.13	1.02
$\text{H}_2\text{O} -$	0.16	0.16	1.10	1.10	2.54	2.40	0.59	0.54	0.41
CO_2	—	4.50	—	—	1.55	0.70	0.01	1.98	—
TiO_2	2.30	3.05	2.3	2.20	1.60	2.20	1.98	0.16	0.69
P_2O_5	0.79	0.37	1.53	0.86	0.43	0.45	1.22	0.68	0.31
MnO	0.10	0.19	0.1	0.22	0.17	0.20	0.18	—	—
Other Constituents									
Age	100.65	—	100.90	99.78	100.27	99.48	100.34	99.70	100.87

TABLE O — BASALTIC ROCKS — $\text{SiO}_2 < 46\%$

c. $\text{CaO}/\text{Alk} = 2 - 3$				d. $\text{CaO}/\text{Alk} > 3$					
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.30$				$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$					
	17	18	19		1	2	3	4	5
Rock Name	Basalt <i>Archerfield Basalt</i>	Nepheline basanite	Olivine nephelinite		Pyroxenite	Limburgite	Pyroxenite	Pyroxenite	Limburgite
Locality	Bore NS. 17, Brisbane, Qld 357831 Beenleigh 1-mile Sheet 2nd ed.	11 km W. of Inverell, N.S.W.	About 35 km NW. of Delegate, N.S.W.		Pooles Pt, Mt Dromedary, N.S.W.	Dibbins Lookout, Kiewa, Vic.	1 km E. of Central Tilba, N.S.W.	Pooles Pt, Mt Dromedary, N.S.W.	3 km ESE of St Leonards, Tas.
Reference	56, 4	144, 850	74		17	7, 375	17	38	128, 29
Analyst	C. H. Couper Qld Govt Chem Lab	M. Chiba	A. J. Easton		Avery & Anderson	V. Biskupsky	R. S. Boesen	Avery & Anderson	D. I. Groves G. Sanders
Remarks					(Dyke)		Very slightly altered	(Dyke)	
SiO_2	43.0	42.63	41.24		46.26	45.03	45.00	42.62	42.00
Al_2O_3	12.0	13.07	10.20		8.61	16.05	8.71	9.47	11.40
Fe_2O_3	5.1	2.02	4.93		3.36	1.41	5.46	6.00	4.00
FeO	5.4	10.78	6.69		7.87	7.56	6.74	8.49	10.40
MgO	5.6	10.19	15.87		11.72	12.99	10.99	12.57	11.70
CaO	8.5	10.97	11.92		15.15	9.36	17.79	16.56	11.30
Na_2O	3.0	3.35	2.88		1.62	1.70	0.96	0.56	1.80
K_2O	0.19	0.93	0.48		1.74	1.34	1.08	0.63	1.60
$\text{H}_2\text{O} +$	4.3	1.77	1.89		1.10	1.48	0.50	0.24	1.12*
$\text{H}_2\text{O} -$	4.4	1.22	0.19		0.19	0.62	—	0.14	0.40
CO_2	6.4	—	0.04		abs	—	0.12	abs	—
TiO_2	1.65	2.11	2.42		1.27	1.65	1.08	1.69	2.50
P_2O_5	0.43	1.00	1.04		0.70	0.22	0.65	1.29	0.83
MnO	0.26	0.20	0.20		0.21	0.09	1.14	0.17	0.20
Other Constituents			$\text{Cr}_2\text{O}_3 =$ 0.03		$\text{Cr}_2\text{O}_3 =$ 0.05			$\text{Cr}_2\text{O}_3 =$ 0.006	
	100.23	100.24	100.02		99.85	99.50	100.22	100.43	99.25
Age									

TABLE O — BASALTIC ROCKS — $\text{SiO}_2 < 46\%$ d. $\text{CaO}/\text{Alk} > 3$

	$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$		$\text{K}_2\text{O}/\text{Na}_2\text{O} = 0.75 - 0.30$			$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.30$			
	6	7	8	9	10	11	12	13	14
Rock Name	Pyroxenite	Laminated pyroxenite	Olivine basalt <i>Toowoomba Volcanics</i>	Pyroxene olivine basalt	'Spilite' <i>Neranleigh-Fernvale Group</i>	Laminated pyroxenite	Megaphyric bytownite dolerite	Dolerite <i>Hart Dolerite</i>	Spilite
Locality	Pooles Pt, Mt Dromedary Area, N.S.W.	Pooles Pt, Mt Dromedary Area, N.S.W.	Toowoomba Qld 071790 Toowoomba 1-mile Sheet	N. Esk, 2 km N. of Corra Linn, Tas.	Pullen Vale, Brisbane, Qld	Pooles Pt, Mt Dromedary Area, N.S.W.	Buckles Bay, Macquarie I., Ant.	5 km E. of Mt Herbert, W.A. 17°15'S, 125°16'E	Kirkham No. 1, 2562 m, N.S.W.
Reference	38	38	125	128, 29	58, 2	38	83, 120	28	103, 5
Analyst	Avery & Anderson	Avery & Anderson	Avery & Anderson	J. Furst Tas. Dep. Mines	C. H. Couper Qld Govt Chem Lab	Avery & Anderson	A. R. Alderman	A. Jorgensen A.M.D.L.	J. H. Pyle
Remarks				*Loss on ignition			(Dyke)		
SiO_2	40.94	38.82	45.15	43.0	42.50	38.04	45.88	45.60	35.56
Al_2O_3	4.56	18.41	14.89	13.6	14.60	16.86	24.55	14.50	11.42
Fe_2O_3	9.84	8.87	1.29	4.1	4.40	8.59	0.38	1.85	3.45
FeO	10.02	6.35	10.08	8.0	3.68	8.26	3.64	15.40	10.95
MgO	12.70	6.40	9.57	12.4	5.40	7.60	5.04	4.70	4.84
CaO	17.00	15.04	9.78	11.2	14.80	15.16	14.22	9.10	13.22
Na_2O	0.62	0.78	1.94	2.2	2.70	0.90	2.85	2.20	3.25
K_2O	0.56	0.90	0.74	1.0	1.00	0.44	0.18	0.64	0.18
$\text{H}_2\text{O} +$	0.78	0.98	3.08	0.94*	2.66	0.72	2.20	0.98	4.65
$\text{H}_2\text{O} -$	0.20	0.25	1.37	0.84	0.34	0.18	0.67	0.10	1.18
CO_2	abs	abs	nd	—	5.80	abs	—	0.12	8.02
TiO_2	2.10	1.84	2.11	2.3	1.80	1.63	0.79	4.20	2.41
P_2O_5	0.23	1.49	0.22	0.62	0.22	1.34	0.09	0.08	0.52
MnO	0.17	0.13	0.18	0.17	0.21	0.19	—	0.20	0.37
Other Constituents	$\text{Cr}_2\text{O}_3 = \text{abs}$								
Age	99.72	100.26	100.40	100.37	100.11	99.91	99.49	99.67	100.02

TABLE LM¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ > 50%

a. CaO/Alk < 1		b. CaO/Alk = 1 – 2				c. CaO/Alk = 2 – 3			
K ₂ O/Na ₂ O < 0.30		K ₂ O/Na ₂ O = 0.75 – 0.30		K ₂ O/Na ₂ O < 0.30		K ₂ O/Na ₂ O = 0.75 – 0.30		K ₂ O/Na ₂ O < 0.30	
	1		1	2	3		1	2	3
Rock Name	Quartz- cordierite- antho- phyllite hornfels		Mafic granulite	Mafic granulite	Metabasalt		Mafic granulite	Mafic granulite	Mafic granulite
Locality	Yalwal, N.S.W. 378882 Yalwal		C. Naturaliste, W.A.	Pt Irby, W.A.	Girewa R., nr Pongani, Papua, PNG 9°05½'S, 148°31'E		Fraser Ra., W.A.	Musgrave Ra., S.A.	Musgrave Ra., S.A.
Reference	135, 92		68; 69	65	28		68; 69	68; 69	68; 69; 151
Analyst	W. H. Herdsman		I. B. Lambert	M. B. Costello	A. Jorgensen, R. Wilson- Smith A.M.D.L.		I. B. Lambert	I. B. Lambert	I. B. Lambert
Remarks									
SiO ₂	61.28		54.10	54.5	53.10		50.72	52.85	51.52
Al ₂ O ₃	12.11		11.36	18.7	14.60		14.71	15.83	13.78
Fe ₂ O ₃	3.54		15.50	1.30	2.85		14.67	12.06	3.00
FeO	10.78			6.95	7.40				9.88
MgO	2.36		4.46	2.52	5.05		3.96	2.93	7.76
CaO	1.52		7.21	7.07	6.20		9.02	9.75	9.32
Na ₂ O	4.22		2.53	4.99	4.80		2.25	3.40	2.52
K ₂ O	0.12		1.50	0.98	0.52		0.90	0.72	0.68
H ₂ O +	1.74		—	0.63	2.60		—	—	—
H ₂ O –	0.10		—	0.41	0.52		—	—	—
CO ₂	nd		—	0.44	1.57		—	—	—
TiO ₂	1.64		3.10	0.84	0.93		2.03	0.99	0.98
P ₂ O ₅	0.41		0.46	0.50	0.09		0.37	0.19	0.12
MnO	0.06		0.20	0.14	0.14		0.31	0.22	0.26
Other Constituents				S = 0.03					
Less O = Cl, F, S				0.01					
	99.88		—	99.99	100.37		—	—	—
Age									

TABLE LM¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ > 50%

c. CaO/Alk = 2 – 3			d. CaO/Alk > 3						
K ₂ O/Na ₂ O < 0.30				K ₂ O/Na ₂ O 1.25 – 0.75	K ₂ O/Na ₂ O = 0.75 – 0.30				
Rock Name	4	5		1	2	3	4	5	6
	Quartz- ilmenite amphibolite <i>Tickalara Metamor- phics</i>	Mafic granulite		Eclogite	Quartz- andesine amphibolite <i>Tickalara Metamor- phics</i>	Pyroxene gneiss <i>Willyama Complex</i>	Pyroxene- quartz cumming- tonite granulite <i>Tickalara Metamorphics</i>	Glauco- phane schist	Cordierite- antho- phyllite rock
Locality	About 32 km NW. of Halls Cr, W.A.	C. Naturaliste, W.A.		Lyell Hwy, 34 km from Queens- town, Tas.	10 km W. of Mt Ranford Dixon Ra., W.A. 17°28'15", 128°06'	The Pinnacles Area, Broken Hill, N.S.W. 330W, 210S Z.C. Map	8 km SW. of Turkey Hill, Dixon Ra., W.A. 17°02', 128°10'55"	4 km NW. of Mt Mee, Qld 897405 Caboolture 1-mile Sheet	Koolanooka Hills, W.A.
Reference	42; 43; 46	68; 69		117, 127; 118, 590	42; 43, 46	9, 289	42; 43, 46	153	3
Analyst	M. R. Hanckel, R. L. Bruce A.M.D.L.	I. B. Lambert		W. St C. Manson	E. L. Bruce A.M.D.L.	R. A. Binns	L. Castanelli M. R. Hanckel A.M.D.L.	M. M. Wilson	P. A. Arriens
Remarks							Labradorite		
SiO ₂	50.80	50.57		50.92	54.00	53.73	52.70	51.98	50.89
Al ₂ O ₃	14.30	24.57		16.83	14.00	14.47	13.00	12.28	16.12
Fe ₂ O ₃	2.25	5.65		1.11	2.60	1.14	2.20	7.67	0.54
FeO	10.20			9.78	7.45	13.68	7.50	4.38	11.59
MgO	4.05	1.15		7.99	6.90	5.24	14.20	10.11	16.78
CaO	8.55	11.03		9.87	10.60	8.66	7.70	4.30	0.44
Na ₂ O	3.06	4.31		1.15	1.29	0.49	0.84	4.52	0.09
K ₂ O	0.20	0.85		1.12	0.54	0.16	0.46	1.80	0.04
H ₂ O+	1.12	—		0.96	1.36	0.42	0.90	1.54	1.77
H ₂ O—	0.18	—		0.14	0.09	abs	0.13	0.04	0.02
CO ₂	0.08	—		nd	0.04	—	0.35	—	—
TiO ₂	4.60	0.78		0.60	0.74	1.70	0.26	0.58	1.68
P ₂ O ₅	0.70	0.33		0.02	0.09	0.04	0.04	—	0.12
MnO	0.17	0.10		0.18	0.16	0.36	0.15	0.17	0.13
Other Constituents									
Age	100.26	—		100.67	99.86	100.09	100.43	99.94	100.21

TABLE LM¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ > 50%

d. CaO/Alk > 3

	K ₂ O/Na ₂ O = 0.75 — 0.30	K ₂ O/Na ₂ O < 0.30					
	7	8	9	10	11	12	13
Rock Name	Quartz-labradorite amphibolite <i>Tickalara Metamorphics</i>	Mafic granulite	Amphibolite	Pyroxene quartz-hornblende granulite <i>Tickalara Metamorphics</i>	Amphibolite	Pyroxene gneiss <i>Willyama Complex</i>	Plagioclase-hornblende-actinolite hornfels
Locality	10 km SW. of Turkey Hill, Dixon Ra., W.A. 17°04'45", 128°11'45"	Musgrave Ra., S.A.	Rum Jungle Area, N.T.	13 km SW. of Violet Hill, Dixon Ra., W.A. 17°19'45", 127°59'10"	Rum Jungle Area, N.T. 12°57'S, 130°59'30"E	The Pinnacles Area, Broken Hill, N.S.W. 330W, 210S Zinc Corp. Map	Yarra-munmun Cr, Yalwal, N.S.W. 389883 Yalwal
Reference	42; 43, 46	68; 69; 151	107; 108	42; 43, 46	107; 108	9, 289	135, 92
Analyst	R. L. Bruce A.M.D.L.		C. R. Edmond A.M.D.L.	M. R. Hanckel A.M.D.L.	C. R. Edmond A.M.D.L.	R. A. Binns	W. H. Herdsman
Remarks				Bytownite present			
SiO ₂	50.80	52.56	52.50	51.50	51.50	50.55	50.32
Al ₂ O ₃	15.50	16.13	12.80	14.50	13.80	17.08	13.35
Fe ₂ O ₃	1.07	0.90	1.78	1.02	2.40	0.36	2.95
FeO	9.70	8.12	11.90	11.40	8.70	11.80	11.50
MgO	6.80	8.68	5.35	7.30	7.65	5.80	4.40
CaO	13.00	10.02	9.40	10.90	11.40	10.47	8.48
Na ₂ O	0.63	2.44	2.70	0.77	1.37	1.67	2.28
K ₂ O	0.18	0.38	0.17	0.22	0.18	0.12	0.49
H ₂ O+	1.25	—	1.71	0.75	1.71	0.56	2.47
H ₂ O—	0.06	—	0.14	0.07	0.16	abs	0.38
CO ₂	0.07	—	0.09	0.16	0.08	—	nd
TiO ₂	0.82	0.42	1.01	0.92	0.72	1.28	2.50
P ₂ O ₅	0.09	0.02	0.31	0.05	0.08	0.09	0.46
MnO	0.17	0.28	0.21	0.21	0.18	0.16	0.45
Other Constituents							
Age	100.14	—	100.07	99.77	99.93	99.94	100.03

TABLE N¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ 50% — 46%

b. CaO/Alk = 1 — 2			c. CaO/Alk = 2 — 3						
K ₂ O/Na ₂ O = 1.25 — 0.75		K ₂ O/Na ₂ O < 0.30		K ₂ O/Na ₂ O = 0.75 — 0.30			K ₂ O/Na ₂ O < 0.30		
	1	2		1	2	3	4	5	6
Rock Name	Mafic granulite	Meta-volcanic <i>Hodgkinson Formation</i>		Metabasalt schist	Meta-dolerite	Mafic granulite	Mafic granulite	Mafic granulite	Mafic granulite
Locality	Bremer Bay, W.A.	Cannibal Cr, Qld		Labi Cr, Musa Valley, Kambari, PNG.	Herding Yard Cr, 2 km NNW. of Liston, N.S.W.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	Pt Irby, W.A.	C. Naturaliste, W.A.
Reference	65	66, 38		28	100, 197; 101, 164	68; 69	68; 69	65	68; 69
Analyst	R. S. Pepper	D. K. Rowley A.M.D.L.		A. Jorgensen R. Wilson-Smith A.M.D.L.	Avery & Anderson	I. B. Lambert	I. B. Lambert	M. B. Costello	I. B. Lambert
Remarks							Amphibolite facies		Amphibolite facies
SiO ₂	49.50	49.90		47.70	46.78	46.41	49.30	48.30	48.07
Al ₂ O ₃	12.80	15.40		14.20	15.43	15.42	21.08	11.90	21.58
Fe ₂ O ₃	1.71	1.75		8.55	2.70	12.40	9.51	3.52	8.90
FeO	9.66	9.39		3.40	9.58			12.90	
MgO	9.83	6.29		5.95	6.79	8.08	2.50	4.04	3.02
CaO	8.69	7.47		11.40	9.13	10.51	10.90	9.04	11.44
Na ₂ O	2.48	4.25		2.50	2.72	3.63	3.65	2.86	3.15
K ₂ O	2.36	0.13		1.33	1.21	1.13	0.80	0.75	0.97
H ₂ O +	1.30	3.10		2.25	2.20	—	—	2.36	—
H ₂ O —	0.21	0.04		0.19	0.13	—	—	0.31	—
CO ₂	0.16	0.04		0.34	—	—	—	0.23	—
TiO ₂	0.87	1.93		1.70	2.88	1.96	2.30	3.08	1.70
P ₂ O ₅	0.23	0.18		0.16	0.40	0.43	0.39	0.44	0.26
MnO	0.05	0.15		0.18	0.22	0.15	0.11	0.19	0.13
Other Constituents	S = 0.08							S = 0.16	
Less O = Cl, F S	0.02							0.04	
Age	100.01	100.02		99.85	100.17	—	—	100.04	—

TABLE N¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ 50% — 46%

c. CaO/Alk = 2 -3				d. CaO/Alk > 3					
K ₂ O/Na ₂ O < 0.30				K ₂ O/Na ₂ O = 0.75 -0.30					
Rock Name	7	8	9		1	2	3	4	5
	Actinolite hornfels	Amphibolite hornfels	Amphibolite hornfels		Mafic granulite	Mafic granulite	Mafic granulite	Amphibolite <i>Willyama Complex</i>	Mafic granulite
Locality	Kanangra Plateau, nr Jenolan Caves, N.S.W. 813000N 303000E. Jenolan	Kanangra Plateau, nr Jenolan Caves, N.S.W. 812000N 303000E. Jenolan	Kanangra Plateau, nr Jenolan Caves, N.S.W. 21300N, 303000E, Jenolan		Fraser Ra., W.A.	Fraser Ra., W.A.	Fraser Ra., W.A.	Lakes Grave Area, Broken Hill, N.S.W. 535W, 515N. Zinc Corp. Map	Fraser Ra., W.A.
Reference	80	80	80		68; 69	151; 68; 69	68; 69	9, 289	68; 69
Analyst	B. J. Macara	B. J. Macara	B. J. Macara		I. B. Lambert	Not stated	I. B. Lambert	R. A. Binns	I. B. Lambert
Remarks						Except for SiO ₂ =49.58 This is identical to analysis from Musgrave Ra. (Wilson)			
SiO ₂	47.27	46.40	46.80		49.99	49.98	49.43	49.36	47.58
Al ₂ O ₃	16.52	19.06	18.42		16.85	16.67	14.23	17.47	16.04
Fe ₂ O ₃	4.01	3.24	2.55		11.21	0.68	15.55	3.09	12.95
FeO	6.20	6.56	6.61			11.16		10.55	
MgO	9.17	8.66	9.99		7.45	7.64	4.98	3.89	8.10
CaO	7.13	8.82	8.80		10.35	9.22	9.40	11.36	8.99
Na ₂ O	2.58	2.45	3.38		2.10	1.87	2.43	1.04	1.35
K ₂ O	0.85	0.74	0.86		0.66	0.78	0.95	0.41	0.65
H ₂ O+	3.81	2.91	2.70		—	—	—	0.55	—
H ₂ O—	0.22	0.11	0.10		—	—	—	abs	—
CO ₂	nd	nd	nd		—	—	—	—	—
TiO ₂	0.65	0.61	0.47		1.03	1.19	2.30	1.80	0.95
P ₂ O ₅	nd	nd	—		0.14	0.09	0.36	0.08	0.22
MnO	nd	nd	—		0.22	0.26	0.29	0.12	0.22
Other Constituents									
	98.41	99.56	100.68		—	—	—	99.72	—
Age									

TABLE N¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ 50% — 46%

d. $\text{CaO}/\text{Alk} > 3$

K ₂ O/Na ₂ O = 0.75 – 0.30			K ₂ O/Na ₂ O < 0.30						
	6	7	8	9	10	11	12	13	14
Rock Name	Amphibolite <i>Willyama Complex</i>	Spinel-bearing metagabbro	Metagabbro	Metabasalt	Spinel-bearing metagabbro	Amphibolite <i>Willyama Complex</i>	Amphibole	Altered dolerite	Epidiorite
Locality	Lakes Grave Area, Broken Hill, N.S.W. 535W, 515N. Zinc Corp. Map	Fraser Ra., W.A.	Black Hill, nr Silverton, Broken Hill, N.S.W. 695W, 015N. Zinc Corp. Map	Nr Salamaua, Bowutu Mts, PNG. 7°04'S, 147°04'E.	Fraser R., W.A.	'Limestone Area', Broken Hill, N.S.W. 215W, 220N. Zinc Corp. Map	Stringers Cr, Pieman R., Tas.	Nr Canberra, A.C.T.	Halls Grampians, Emmaville, N.S.W.
Reference	9, 289	152, 96	13	28	152, 96	9, 289	119, 26	28	70
Analyst	R. A. Binns	D. D. Middleton	R. A. Binns	A. Jorgensen L. Castanelli A.M.D.L.	D. D. Middleton	R. A. Binns	Tas. Dep. Mines	K. J. Heinrich A.M.D.L.	V. G. Anderson
Remarks									(metamorphosed dyke)
SiO ₂	46.03	45.88	49.85	49.60	49.23	49.21	49.20	49.2	48.95
Al ₂ O ₃	12.94	10.51	16.14	13.50	14.63	14.18	13.59	16.0	17.06
Fe ₂ O ₃	2.81	2.37	3.05	2.15	2.49	0.92	2.78	1.35	0.61
FeO	15.99	10.46	8.33	8.85	10.12	13.66	10.98	7.80	8.75
MgO	4.33	19.15	7.36	7.85	11.29	6.16	6.66	8.00	8.00
CaO	11.75	7.50	12.14	10.60	8.85	10.61	8.13	11.50	9.78
Na ₂ O	0.84	1.80	1.87	3.00	2.15	1.43	3.18	2.50	2.52
K ₂ O	0.70	0.56	0.22	0.13	0.43	0.30	0.08	0.13	0.50
H ₂ O +	1.56	0.86	0.46	2.20	0.40	1.52	3.28	2.00	1.30
H ₂ O –	abs	0.05	0.06	0.57	0.04	0.04	0.05	0.07	0.12
CO ₂	—	—	—	0.16	—	—	nd	0.23	—
TiO ₂	2.76	0.60	1.06	1.36	0.70	1.75	1.63	1.16	1.60
P ₂ O ₅	0.19	0.15	0.02	0.13	0.04	0.04	0.21	0.12	—
MnO	0.14	tr	0.19	0.18	tr	0.13	0.21	0.11	0.93
Other Constituents									
Age	100.04	99.89	100.75	100.28	100.37	99.95	99.97	100.2	100.12

d. CaO/Alk > 3

K₂O/Na₂O < 0.30

	15	16	17	18	19	20	21	22	23
Rock Name	Basic granulite	Amphibolite <i>Willyama Complex</i>	Metabasalt	Glaucophane amphibolite	Spinel-bearing metagabbro	Mafic granulite	Mafic granulite	Quartz-albite-epidote amphibolite <i>Tickalara Metamorphics</i>	Mafic granulite
Locality	Musa, Kambari, PNG. 9°14'S, 148°08'E.	'Centennial' Area, Broken Hill, N.S.W. 245W, 370N. Zinc Corp. Map	Buiasin Cr, Bowutu Mts, PNG. 7°10½'S, 147°02'E.	S. of Stringers Cr and Pieman R., Junction, Tas.	Fraser Ra., W.A.	C. Naturaliste, W.A.	Musgrave Ras, S.A.	8 km NW. of Mt Ranford, Dixon Ra., W.A. 17°28', 128°07'	C. Naturaliste, W.A.
Reference	28	9 , 289	28	119 , 26	152 , 96	68 ; 69	151	42 ; 43 , 46	68 , 69
Analyst	A. Jorgensen R. Wilson-Smith A.M.D.L.	R. A. Binns	A. Jorgensen L. Castanelli A.M.D.L.	Tas. Dep. Mines	A. F. Wilson	I. B. Lambert	A. F. Wilson	M. R. Hanckel R. L. Bruce A.M.D.L.	I. B. Lambert
Remarks									
SiO ₂	48.60	48.47	48.40	48.38	48.03	47.88	47.29	47.10	46.98
Al ₂ O ₃	14.70	15.28	12.50	11.52	14.56	14.22	17.02	16.50	12.76
Fe ₂ O ₃	1.05	1.39	2.40	7.05	1.76	1.73	4.39	1.92	} 16.85
FeO	7.85	13.40	9.45	7.15	10.08	12.36	7.88	9.20	
MgO	9.10	6.23	7.90	7.11	12.57	6.35	8.62	6.20	6.37
CaO	13.20	10.96	11.00	7.10	9.04	10.23	10.54	12.00	10.40
Na ₂ O	1.65	1.29	1.99	4.43	1.69	2.47	2.23	2.63	2.52
K ₂ O	0.11	0.29	0.04	0.30	0.41	0.51	0.56	0.18	0.66
H ₂ O +	2.30	1.16	3.70	2.50	0.34	—	—	1.47	—
H ₂ O —	0.24	abs	0.34	0.06	0.22	—	—	0.09	—
CO ₂	—	—	0.16	nd	—	—	—	1.42	—
TiO ₂	0.70	1.70	1.45	2.02	1.08	2.95	0.70	1.06	2.97
P ₂ O ₅	0.05	0.09	0.12	0.12	0.23	0.40	0.09	0.10	0.48
MnO	0.17	0.34	0.21	0.22	0.24	—	0.21	0.16	0.22
Other Constituents									
Age	99.72	100.60	99.66	99.96	100.25	—	—	100.03	—

TABLE N¹ — METAMORPHOSED
MAFIC ROCKS—SiO₂ 50% — 46%

d. CaO/Alk > 3

K ₂ O/Na ₂ O < 0.30		
	24	25
Rock Name	Altered basalt	Pyroxene gneiss <i>Willyama Complex</i>
Locality	Bernafai Ridge, Pieman R., Tas.	Broken Hill, N.S.W.
Reference	119, 31, 43	9, 289
Analyst	Tas. Dep. Mines	R. A. Binns
Remarks		
SiO ₂	46.74	46.36
Al ₂ O ₃	14.94	18.39
Fe ₂ O ₃	2.90	0.58
FeO	10.66	14.33
MgO	7.04	5.75
CaO	9.60	10.62
Na ₂ O	2.77	1.59
K ₂ O	0.06	0.08
H ₂ O +	3.54	0.54
H ₂ O —	0.14	0.03
CO ₂	nd	—
TiO ₂	1.75	1.51
P ₂ O ₅	0.16	0.10
MnO	0.26	0.35
Other Constituents		
	99.93	100.23
Age		

TABLE O¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ < 46%

a. CaO/Alk < 1			c. CaO/Alk = 2 – 3			d. CaO/Alk > 3		
K ₂ O/Na ₂ O = 1.25 – 0.75		K ₂ O/Na ₂ O = 0.75 – 0.30	K ₂ O/Na ₂ O = 0.75 – 0.30		K ₂ O/Na ₂ O > 1.25			
	1	2		1	2		1	2
Rock Name	Cordierite-antho-phyllite hornfels	Cordierite antho-phyllite hornfels		Mafic granulite	Mafic granulite		Actinolite-epidote schist	Cumming-tonite jaspilite
Locality	Yalwal, N.S.W. 378882 Yalwal	Yalwal, N.S.W. 378882 Yalwal		C. Naturaliste, W.A.	C. Naturaliste, W.A.		About 8 km NW. of Mt Mee, Qld 878452 Caboolture 1-mile Sheet	Koolanooka Hills, W.A.
Reference	135, 92	135, 92		68; 69	68; 69		151	3
Analyst	W. H. Herdsman	W. H. Herdsman		I. B. Lambert	I. B. Lambert		M. M. Wilson	P. A. Arriens
Remarks					Amphibolite facies			
SiO ₂	40.07	43.24		45.78	45.55		45.76	40.17
Al ₂ O ₃	17.01	16.36		13.92	12.63		10.99	1.49
Fe ₂ O ₃	5.12	4.99		14.10	17.78		6.35	44.65
FeO	20.26	17.10				6.63	8.18	
MgO	5.78	4.63		8.60	5.30		14.34	2.79
CaO	0.84	1.56		10.72	8.99		9.98	2.25
Na ₂ O	1.24	3.09		3.29	2.72		1.10	0.02
K ₂ O	1.25	1.03		1.24	1.26		1.76	0.03
H ₂ O +	5.66	4.81		—	—		1.90	1.31
H ₂ O –	0.17	0.13		—	—		0.73	0.08
CO ₂	nd	nd		—	—		0.80	—
TiO ₂	2.41	2.16		2.22	5.13		0.66	0.28
P ₂ O ₅	0.32	0.75		0.35	0.57		0.75	0.11
MnO	0.14	0.11		0.18	0.22		0.13	0.04
Other Constituents								
	100.27	99.96		—	—		100.21	99.40
Age								

TABLE O¹ — METAMORPHOSED MAFIC ROCKS — SiO₂ < 46%

d. CaO/Alk > 3

	K ₂ O/Na ₂ O = 1.25 – 0.75		K ₂ O/Na ₂ O = 0.75 – 0.30			K ₂ O/Na ₂ O < 0.30			
	3	4	5	6	7	8	9	10	11
Rock Name	Albite-actinolite schist	Mafic granulite	Metagabbro	Pegmatoid in mafic granulite	Glaucophane chlorite schist	Pyroxene gneiss <i>Willyama Complex</i>	Mafic granulite	Garnet amphibolite	Amphibolite <i>Willyama Complex</i>
Locality	About 5 km N. of Mt Mee, Qld 928430 Caboolture 1-mile Sheet	Pt Irby, W.A.	Fraser Ra., W.A.	W. Cape Howe, W.A.	4 km NNW of Mt Mee, Qld 898410 Caboolture 1-mile Sheet	Broken Hill, N.S.W.	Musgrave Ras., S.A.	Raglan Ra., Tas.	Broken Hill, N.S.W.
Reference	153	65	150, 96	68	153	9, 289	151	118, 590; 117, 127; 41, 8	9, 289
Analyst	M. M. Wilson	M. B. Costello		M. B. Costello	M. M. Wilson	R. A. Binns	W. H. Herdsman	Tas. Dep. Mines	R. A. Binns
Remarks		Metamorphic differentiate							
SiO ₂	45.06	39.1	45.88	44.5	40.51	45.06	44.87	44.78	44.04
Al ₂ O ₃	14.73	10.0	10.51	11.0	14.61	17.84	16.22	13.44	12.46
Fe ₂ O ₃	4.51	5.08	2.37	5.39	5.80	0.67	2.45	2.41	2.49
FeO	6.57	17.5	10.46	15.2	6.18	16.21	13.39	16.22	16.88
MgO	12.47	7.03	19.15	4.52	16.08	5.33	7.58	7.01	6.29
CaO	11.88	11.0	7.50	8.56	7.94	9.85	9.84	9.2	10.04
Na ₂ O	1.07	1.50	1.80	2.01	2.35	1.63	1.74	1.65	2.56
K ₂ O	1.24	1.40	0.56	0.87	1.20	0.16	0.29	0.47	0.64
H ₂ O+	1.04	2.58	0.86	1.51	1.58	0.86	—	1.58	1.18
H ₂ O–	—	0.29	0.05	0.13	0.25	0.03	—	0.07	0.02
CO ₂	—	abs	—	0.15	2.2	—	—	nd	nd
TiO ₂	0.95	3.24	0.60	5.35	0.61	2.15	2.56	2.81	2.91
P ₂ O ₅	0.53	0.50	0.15	0.33	0.56	0.08	0.43	0.40	0.07
MnO	0.27	0.27	tr	0.20	0.32	0.49	0.32	0.36	0.32
Other Constituents		S=0.18		S=0.22					
Less O = Cl, F, S		0.04		0.05					
Age	99.96	99.63	99.89	99.95	99.76	100.36	99.69	100.32	99.90

TABLE O¹ — METAMORPHOSED
MAFIC ROCKS — SiO₂ < 46%

d. CaO/Alk > 3

K ₂ O/Na ₂ O < 0.30		
	12	13
Rock Name	Amphibolite	Garnet amphibolite <i>Willyama Complex</i>
Locality	Bond Bay, Port Davey, Tas.	Limestone Area, Broken Hill, N.S.W.
Reference	120, 21	9, 290
Analyst	Tas. Dep. Mines	R. A. Binns
Remarks		
SiO ₂	43.16	42.38
Al ₂ O ₃	16.12	15.01
Fe ₂ O ₃	2.89	2.78
FeO	14.86	16.67
MgO	5.89	5.41
CaO	10.22	10.96
Na ₂ O	1.63	1.26
K ₂ O	0.32	0.43
H ₂ O+	2.68	1.52
H ₂ O—	0.18	0.08
CO ₂	nd	—
TiO ₂	2.00	2.84
P ₂ O ₅	0.12	0.08
MnO	0.24	0.87
Other Constituents		
	100.31	100.29
Age		

TABLE L² - O² — METASOMATIZED AND DEUTERICALLY ALTERED MAFIC ROCKS

Amphibolized									
	1	2	3	4	5	6	7	8	9
Rock Name	Uralitized basalt	Uralitized gabbro	Amphibolized dolerite <i>Woodward Dolerite</i>	Uralitized basalt	Amphibolized dolerite <i>Woodward Dolerite</i>	Amphibolized dolerite <i>Woodward Dolerite</i>	Amphibolized dolerite <i>Woodward Dolerite</i>	Uralitized 'basalt'	Amphibolized dolerite <i>Woodward Dolerite</i>
Locality	Ajura Kujara Ra., PNG. 8°37'S, 147°50'E.	Koolanooka Hills, W.A.	5 km W. of Richenda Gorge, Lennard R. Area, W.A. 321500, 2803100	Lower Waria R., PNG. 8°02'S, 147°27'E.	4 km NNE. of Blackhill Yard, Lennard R. Area, W.A. 313500, 2804600	NE. of Blackhill Yard, Lennard R. Area, W.A. 324700, 2803100	3 km NE. of Blackhill Yard, Lennard R. Area, W.A. 314100, 2803900	Eia R., PNG. 8°06'S, 147°37'E.	6 km W. of Richenda Gorge, Lennard R. Area, W.A. 324100, 2802700
Reference	28	3	28	28	28	28	28	28	28
Analyst	A. Jorgensen A.M.D.L.	P. A. Arriens	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen R. Wilson-Smith A.M.D.L.	A. Jorgensen A.M.D.L.
Remarks	also silicified								
SiO ₂	54.70	52.04	51.00	50.50	49.10	49.00	49.00	46.10	45.60
Al ₂ O ₃	14.50	8.33	15.80	13.50	14.50	15.10	16.00	0.10	21.50
Fe ₂ O ₃	4.15	2.20	1.46	4.60	1.24	1.85	1.50	0.20	2.75
FeO	6.40	7.56	8.45	7.90	9.80	8.75	7.80	1.00	5.20
MgO	5.45	10.43	7.35	7.30	8.80	7.95	8.95	34.90	8.95
CaO	9.65	12.36	9.45	11.10	10.80	10.60	12.50	0.10	10.50
Na ₂ O	2.80	2.75	2.20	1.79	2.15	1.69	1.58	1.10	1.62
K ₂ O	0.09	0.75	0.89	0.03	0.13	0.43	0.21	0.05	0.14
H ₂ O+	0.94	1.43	2.20	1.78	1.71	2.60	1.12	1.67	2.65
H ₂ O—	0.10	0.12	0.23	0.20	0.17	0.15	0.07	6.34	0.16
CO ₂	0.03	0.04	0.06	0.05	0.04	0.05	0.06	8.55	0.09
TiO ₂	0.70	1.26	0.94	0.75	0.80	1.07	0.61	0.01	0.65
P ₂ O ₅	0.08	0.25	0.07	0.05	0.06	0.10	0.05	0.02	0.07
MnO	0.10	0.74	0.17	0.22	0.13	0.17	0.16	0.03	0.18
Other Constituents			BaO=0.01 SrO=0.01 Cr ₂ O ₃ =0.03 NiO=0.01 ZrO ₂ =<0.002 F=0.05 S=0.01		BaO=0.02 SrO=0.01 ZrO ₂ =0.02 NiO=0.01 F=<0.05 S=0.10	BaO=0.02 SrO=0.01 ZrO ₂ =0.01 Cr ₂ O ₃ =0.03 NiO=0.01 F=<0.05 S=0.10	BaO=0.01 SrO=0.01 Cr ₂ O ₃ =0.07 NiO=0.01 F=<0.05 S=0.04		BaO=0.02 SrO=0.01 Cr ₂ O ₃ =0.01 NiO=0.01 F=<0.05 S=0.03
Less O = Cl, F, S			0.02		0.03	0.06	0.04		0.02
	99.69	100.26	100.40	99.77	99.64	99.85	99.85	100.17	100.18

TABLE L² - O² — METASOMATIZED AND DEUTERICALLY ALTERED MAFIC ROCKS

Iddingsitized								Serpentinized
	10	11	12	13	14	15	16	17
Rock Name	Iddingsitized porphyritic olivine basalt <i>Younger McBride Basalt</i>	Porphyritic olivine basalt	Iddingsitized porphyritic olivine basalt	Porphyritic olivine basalt	Porphyritic olivine basalt	Porphyritic olivine-nepheline analcinite	Olivine basalt <i>Younger McBride Basalt</i>	Porphyritic olivine basalt <i>Younger McBride Basalt</i>
Locality	89 km SE. of Mt Surprise, Atherton Burdekin R. Area, Qld	Near Vine Ck, 2 km SSW. of Ravenshoe, Qld	10 km NNW. of Ravenshoe, Qld	McKinley's dam 11 km NNW. of Ravenshoe, Qld	6 km SW. of Ravenshoe, Qld	Wallaroo Hill, Qld	34 km SE. of Mt Surprise, Atherton Burdekin R. Area, Qld	25 km SSE. of Mt Surprise, Atherton Burdekin R. Area, Qld
Reference	94, 5	94, 4	94, 4	94, 4	94, 4	94, 4	94, 5	94, 5
Analyst	D. K. Rowley A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	D. K. Rowley, H. W. Sears A.M.D.L.	D. K. Rowley A.M.D.L.	D. K. Rowley A.M.D.L.
Remarks		Partly iddingsitized			Partly iddingsitized	Partly iddingsitized		Partly serpentinized
SiO ₂	48.90	48.90	48.30	47.10	46.80	46.40	44.20	44.90
Al ₂ O ₃	15.00	14.40	13.40	12.80	13.40	13.10	14.10	13.20
Fe ₂ O ₃	6.92	4.47	2.24	2.41	2.51	6.11	4.40	4.34
FeO	4.93	5.75	8.42	8.60	8.83	6.58	7.14	7.08
MgO	7.28	6.93	9.64	9.98	8.83	6.33	7.24	11.10
CaO	8.28	8.87	8.59	9.11	9.08	9.00	9.07	9.51
Na ₂ O	3.40	3.35	3.45	2.85	2.60	4.75	2.85	3.30
K ₂ O	1.15	1.40	2.10	2.30	1.80	2.30	2.55	1.60
H ₂ O+	1.14	1.49	0.54	0.99	2.42	0.70	3.23	1.46
H ₂ O-	0.68	1.44	0.38	0.62	0.82	0.46	0.67	0.47
CO ₂	0.12	0.16	0.26	0.24	0.04	0.18	0.91	0.05
TiO ₂	1.68	2.06	1.97	2.19	1.89	2.61	2.39	2.01
P ₂ O ₅	0.33	0.67	0.55	0.58	0.62	1.13	1.06	0.62
MnO	0.16	0.13	0.16	0.17	0.17	0.18	0.14	0.17
Other Constituents								
	99.97	100.02	100.00	99.94	99.81	99.83	100.01	99.81
Age	-							

TABLE L² - O² — METASOMATIZED AND DEUTERICALLY ALTERED MAFIC ROCKS

Zeolitized									
	18	19	20	21	22	23	24	26	27
Rock Name	Olivine Zeolitite <i>McLean Basalt</i>	Pegmatoid mafic rock	Pegmatoid mafic rock	Pegmatoid mafic rock	Natrolite- rich olivine nephelinite	Pegmatoid mafic rock	Natrolite- rich olivine nephelinite	Natrolite- rich olivine nephelinite	Pegmatoid mafic rock
Locality	Cooktown Area, Qld	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.
Reference	91; 93, 71; 66, 104	22	22	22	22	22	22	22	22
Analyst	C.R. Edmond, H. W. Sears A.M.D.L.	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab
Remarks	Really an- alcimite and should be in Table O	Intrusion in Tongarra Coal Seam, DDH. 815'	In American Cr Coal Seam, DDH. 5, 772'3"	In Tongarra Coal Seam, DDH. 6, 817'4"	In Tongarra Coal Seam, DDH. 818'4"	In Tongarra Coal Seam, DDH. 6, 814'2"	In American Cr Coal Seam, DDH 5, 780'	In American Cr Coal Seam, DDH. 5, 776'1"	In Tongarra Coal Seam, DDH. 6, 815'8"
SiO ₂	44.20	41.9	40.8	40.7	40.3	39.9	39.4	39.3	39.20
Al ₂ O ₃	11.10	15.3	14.8	13.3	11.9	13.6	11.7	12.0	13.50
Fe ₂ O ₃	8.20	0.20	2.37	4.00	0.71	3.95	3.04	4.69	3.62
FeO	4.35	10.6	7.8	8.11	12.32	8.92	10.2	9.1	8.48
MgO	9.25	3.6	4.45	7.0	8.1	4.78	8.8	9.1	6.10
CaO	10.10	9.1	11.4	10.4	10.6	10.8	11.3	11.5	11.40
Na ₂ O	3.95	3.17	2.69	3.93	3.06	3.08	3.72	3.12	4.00
K ₂ O	1.06	3.54	2.98	1.55	1.63	2.88	1.44	1.56	1.51
H ₂ O +	2.25	4.22	4.18	4.36	4.23	3.58	3.43	3.54	3.76
H ₂ O -	1.49	3.89	2.56	1.10	1.32	2.24	1.20	1.24	0.96
CO ₂	0.18	0.60	1.12	0.29	0.50	0.57	1.16	0.66	1.54
TiO ₂	2.35	2.42	2.48	3.51	3.32	3.00	3.12	3.12	3.33
P ₂ O ₅	1.05	0.96	1.30	1.27	1.18	1.42	1.10	1.05	1.29
MnO	0.19	0.24	0.21	0.15	0.18	0.25	0.26	0.26	0.21
Other Constituents		SrO = 0.70	SrO = 0.51 T.C. = 0.02	SrO = 0.31 T.C. = 0.03	SrO = 0.40 T.C. = 0.04	SrO = 0.53 T.C. = 0.03	SrO = 0.10 T.C. = 0.01	SrO = 0.13 T.C. = 0.09	SrO = 0.26 T.C. = 0.22
Age	99.72	100.44	99.67	100.00	99.79	99.53	99.98	100.46	99.38

TABLE L² - O² — METASOMATIZED AND DEUTERICALLY ALTERED MAFIC ROCKS

Zeolitized									
	28	29	30	31	32	33	34	35	36
Rock Name	Pegmatoid mafic rock	Natrolite-rich olivine nephelinite	Pegmatoid mafic rock	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite
Locality	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.
Reference	22	22	22	22	22	22	22	22	22
Analyst	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab
Remarks	In Tongarra Coal Seam, DDH. 6	In Tongarra Coal Seam, DDH. 6, 805'1"	In American Cr Coal Seam, DDH. 5	In American Cr Coal Seam, DDH. 5, 776'9"	In American Cr Coal Seam, DDH. 5	In Tongarra Coal Seam, DDH. 6, 835'10"	In American Cr Coal Seam, DDH. 5, 785'	In American Cr Coal Seam, DDH. 5, 769'	In Tongarra Coal Seam, DDH. 6
SiO ₂	38.80	38.7	38.60	38.5	34.40	38.3	37.9	37.8	37.8
Al ₂ O ₃	15.40	11.9	15.00	11.5	12.50	12.0	10.6	10.6	13.10
Fe ₂ O ₃	5.98	2.07	4.83	3.22	7.26	1.86	3.98	abs	8.26
FeO	5.95	8.28	6.45	10.1	7.40	7.47	9.7	13.30	5.90
MgO	4.38	5.60	4.72	8.8	9.30	7.80	11.5	9.3	9.3
CaO	9.00	10.8	9.60	11.5	8.40	10.8	10.8	11.8	8.8
Na ₂ O	3.31	3.21	3.48	2.92	3.27	3.47	2.78	3.22	4.07
K ₂ O	2.62	1.71	2.34	1.64	1.30	1.55	1.14	1.59	0.92
H ₂ O +	4.78	3.75	5.30	3.74	3.78	4.01	3.94	3.82	4.48
H ₂ O -	2.62	1.85	2.52	1.74	1.10	1.81	1.60	1.60	1.36
CO ₂	0.97	5.32	1.96	1.54	0.69	2.40	1.64	2.07	0.39
TiO ₂	3.09	3.46	3.08	3.12	3.16	3.51	3.08	3.48	3.18
P ₂ O ₅	1.58	1.13	1.48	1.17	1.10	1.11	0.99	1.02	1.08
MnO	0.22	0.16	0.20	0.23	0.22	0.20	0.23	0.25	0.21
Other Constituents	T.C.=2.92 S=0.68 SrO=0.08 ZnO=0.08 Rb ₂ O=0.04	SrO=0.26 T.C.=0.03	S=0.30 SrO=0.12 ZnO=0.06 Rb ₂ O=0.04 T.C.=0.03	SrO=0.13 T.C.=0.02	Cl=0.01 S=0.35 SrO=0.08 ZnO=0.06 Rb ₂ O=0.02 T.C.=2.34	SrO=0.30 T.C.=0.01	SrO=0.10 T.C.=0.04	SrO=0.33 T.C.=0.03	S=0.30 SrO=0.06 ZnO=0.06 Rb ₂ O=0.02 T.C.=0.03
Less O = Cl, F, S	0.31		0.13		0.14				
	100.21	98.83	99.98	99.87	96.60	99.60	100.02	100.21	99.32
Age									

TABLE L² - O² — METASOMATIZED AND DEUTERICALLY ALTERED MAFIC ROCKS

Zeolitized								Palagonitized
	37	38	39	40	41	42	43	44
Rock Name	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Natrolite-rich olivine nephelinite	Tachylite
Locality	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	Avon R., S. of Wongawilli Colliery, N.S.W.	N. Head, Macquarie I., Ant.
Reference	22	22	22	22	22	22	22	83, 129
Analyst	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	B.H.P. Lab	R. G. Thomas
Remarks	In Tongarra Coal Seam, DDH. 6, 810'	In Tongarra Coal Seam, DDH. 6, 819'5"	In Tongarra Coal Seam, DDH. 6, 821'5"	In Tongarra Coal Seam, DDH. 6, 832'	In American Cr Coal Seam, DDH. 5, 791'9"	In American Cr Coal Seam, DDH. 5, 789'	In Tongarra Coal Seam, DDH. 6, 820'5"	Semi-palagonitized
SiO ₂	37.7	37.6	37.5	37.5	37.1	37.0	36.8	44.28
Al ₂ O ₃	11.7	11.4	11.6	11.6	11.1	11.3	10.9	18.06
Fe ₂ O ₃	4.20	5.44	5.01	5.15	5.29	4.15	5.29	2.51
FeO	9.24	8.50	9.26	8.75	9.21	9.65	8.76	5.78
MgO	8.7	9.8	10.2	9.7	9.4	9.2	10.6	7.97
CaO	10.7	12.1	10.9	12.3	10.0	12.2	11.4	9.98
Na ₂ O	3.65	3.05	3.11	2.67	2.63	2.51	2.84	1.49
K ₂ O	1.58	1.38	1.21	1.36	1.09	1.69	1.26	0.75
H ₂ O +	3.34	3.90	3.86	4.01	4.51	4.01	3.72	3.05
H ₂ O -	0.84	0.80	1.12	1.80	1.75	1.37	1.35	3.59
CO ₂	2.17	1.16	1.31	0.46	2.72	1.20	2.22	—
TiO ₂	3.20	3.32	3.22	3.39	3.22	3.28	3.16	1.98
P ₂ O ₅	1.10	1.07	1.13	1.08	1.11	1.08	0.99	0.65
MnO	0.23	0.24	0.24	0.25	0.23	1.07	0.26	0.12
Other Constituents		SrO = 0.36 T.C. = 0.07	SrO = 0.32 T.C. = 0.01	SrO = 0.48 T.C. = 0.02	SrO = 0.24 T.C. = 0.24	SrO = 0.36 T.C. = 0.07	SrO = 0.39 T.C. = 0.01	
Age	98.62	100.19	100.00	100.52	99.84	100.14	99.95	100.29

TABLE L² - O² — METASOMATIZED AND DEUTERICALLY ALTERED MAFIC ROCKS

Carbonated				Type of Alteration not stated (Possibly Diagenesis = L ⁶ - O ⁶)				
	45	46	47	48	49	50	51	52
Rock Name	Basalt	Basalt	Dolerite	Tuff <i>Sugars Basalt</i>	Tuff	Altered (?) basalt	Altered Basalt	Altered Basalt
Locality	Normanby I., PNG	Tributary of Bonua R., PNG	Morobe R., PNG	Ipswich, NS. 256 Bore 179'4" (54·65 m) Qld	Ipswich, NS. 93 Bore 2371'6" (722·7 m) Qld 967705 Ipswich 1-mile Sheet	Ipswich, NS. 93 Bore 2535' (772·6 m) Qld 967705 Ipswich 1-mile Sheet	Ipswich NS. 93 Bore 2426'6" (739·2 m) Qld 967705 Ipswich 1-mile Sheet	DDH. 4948'-4957' (1508- 1510·8 m), N.S.W.
Reference	28	28	28	57, 3	57, 15	57, 15	57, 15	103, 5
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	C. H. Couper Qld Govt Chem Lab	H. J. Pyle
Remarks		Calcite veins	Also chloritized					
SiO ₂	51·30	45·70	45·40	74·40	60·90	57·60	49·60	48·25
Al ₂ O ₃	13·30	15·80	13·60	6·90	17·80	19·00	18·00	17·12
Fe ₂ O ₃	4·85	4·85	2·25	4·50	3·20	5·30	7·50	4·29
FeO	1·48	4·95	5·25	2·30	0·37	2·60	2·00	5·27
MgO	2·85	6·95	6·70	2·00	0·05	1·40	4·90	4·76
CaO	8·45	12·40	10·80	2·30	5·20	3·40	4·60	7·52
Na ₂ O	1·81	2·65	3·90	0·60	4·50	4·80	5·40	4·65
K ₂ O	2·75	0·39	0·29	0·60	0·03	0·67	0·32	0·68
H ₂ O +	3·10	2·35	3·40	3·10	5·30	1·20	3·00	3·64
H ₂ O -	3·40	0·65	0·52	0·54	0·86	0·10	0·50	1·35
CO ₂	5·25	1·49	7·50	2·40	0·07	1·08	1·13	0·30
TiO ₂	0·96	0·99	0·44	0·23	0·18	1·86	2·28	1·54
P ₂ O ₅	0·35	0·73	0·03	0·01	0·06	0·45	0·40	0·48
MnO	0·11	0·13	0·19	0·17	0·06	0·18	0·21	0·12
Other Constituents								
	99·96	100·03	100·27	100·05	99·58	99·64	99·84	99·97
Age								

TABLE L⁴ - O⁴ — PARTIAL ANALYSES OF MAFIC ROCKS

	1	2	3	4	5	6
Rock Name	Mugearite (Oligoclase basalt)	Mugearite (Oligoclase basalt)	Mugearite (Oligoclase basalt)	Hawaiite (Andesine basalt)	Hawaiite (Andesine basalt)	Olivine basalt
Locality	Wild Cattle Cr, Main Ra., Qld 556082 Warwick 1-mile Sheet	Spicers Peak Main Ra., Qld 532142 Warwick 1-mile Sheet	Mt Matheson, Main Ra., Qld 528186 Warwick 1-mile Sheet	Spicers Peak Main Ra., Qld 547107 Warwick 1-mile Sheet	Cunning- hams Gap, Main Ra., Qld 505197 Warwick 1-mile Sheet	Mt Mitchell, Main Ra., Qld 496191 Warwick 1-mile Sheet
Reference	123, 49	123, 49	123, 49	123, 49	123, 49	123, 49
Analyst	Avery & Anderson	D. C. Green	N. C. Stevens	D. C. Green N. C. Stevens	N. C. Stevens	D. C. Green
Remarks						
SiO ₂	56.56	54.5	—	53.7	—	48.55
Al ₂ O ₃	—	—	—	—	—	—
Fe ₂ O ₃	—	—	—	—	—	—
FeO	—	—	—	—	—	—
MgO	—	—	—	—	—	—
CaO	—	—	—	—	—	—
Na ₂ O	—	5.2	4.95	4.8	5.4	3.9
K ₂ O	—	3.75	3.6	2.9	2.6	2.2
H ₂ O +	—	—	—	—	—	—
H ₂ O -	—	—	—	—	—	—
CO ₂	—	—	—	—	—	—
TiO ₂	—	—	—	—	—	—
P ₂ O ₅	—	—	—	—	—	—
MnO	—	—	—	—	—	—
Other Constituents						
	—	—	—	—	—	—
Age						

TABLE L⁵ - O⁵ — OLD AND
UNRELIABLE ANALYSES OF
MAFIC ROCKS

	1	2
Rock Name	Porphyritic basalt	Decom- posed basalt
Locality	Mullens Har., Papua, PNG	Goulburn Area, N.S.W.
Reference	156 , 19	72
Analyst	Not Stated	N.S.W. Dep. Mines
Remarks	*Loss on ignition	*Loss on ignition
SiO ₂	48.76	41.05
Al ₂ O ₃	20.46	13.20
Fe ₂ O ₃	—	14.35
FeO	9.54	—
MgO	—	7.00
CaO	10.41	8.97
Na ₂ O	5.55	} 0.49
K ₂ O	1.38	
H ₂ O +	2.53*	11.46
H ₂ O —	—	—
CO ₂	—	—
TiO ₂	—	2.20
P ₂ O ₅	—	1.28
MnO	tr	
Other Constituents		
	98.63	100.00
Age		

TABLE L⁶ - O⁶ — ANALYSES OF MAFIC ROCKS ALTERED BY DIAGENESIS

Chloritized and Silicified								
	1	2	3	4	5	6	7	8
Rock Name	Siliceous matrix of chloritized basalt fragment	Core of basalt fragment	Rim of basaltic fragment	Altered basaltic fragment	Volcano-genic matrix of basaltic fragment	Volcano-genic matrix of basaltic fragment	Rim of chloritized basaltic fragment	Core of chloritized basaltic fragment
Locality	Boolijah Cr, 11 km SSW. of Yalwal, N.S.W. 337760, Tianjara	Danjera Cr, 8.5 km SW. of Yalwal, N.S.W. 334801, Yalwal	Danjera Cr, 8.5 km SW. of Yalwal, N.S.W. 334801, Yalwal	Danjera Cr, 8.5 km SW. of Yalwal, N.S.W. 334801, Yalwal	Danjera Cr, 8.5 km SW. of Yalwal, N.S.W. 334801, Yalwal	Danjera Cr, 8.5 km SW. of Yalwal, N.S.W. 334801, Yalwal	Boolijah Cr, 11 km SSW. of Yalwal, N.S.W. 337760, Tianjara	Boolijah Cr, 11 km SSW. of Yalwal, N.S.W. 337760, Tianjara
Reference	135, 92	135, 92	135, 92	135, 92	135, 92	135, 92	135, 92	135, 92
Analyst	W. H. Herdsman	W. H. Herdsman	W. H. Herdsman	W. H. Herdsman	W. H. Herdsman	W. H. Herdsman	W. H. Herdsman	W. H. Herdsman
Remarks	From breccia	From breccia	From breccia	From breccia	From breccia	From breccia	From breccia	From breccia
SiO ₂	86.20	49.74	48.71	46.08	42.58	41.11	31.24	30.73
Al ₂ O ₃	4.27	15.27	15.19	14.65	18.14	16.71	15.82	18.51
Fe ₂ O ₃	1.92	2.74	4.11	3.45	3.55	4.34	8.84	5.84
FeO	2.44	7.33	7.90	9.05	8.04	10.06	17.24	17.96
MgO	1.02	6.29	6.18	8.29	7.52	9.96	9.64	9.72
CaO	0.50	9.87	9.80	7.68	8.86	5.90	1.30	2.16
Na ₂ O	nd	3.42	3.28	3.09	2.47	2.61	nd	1.34
K ₂ O	1.25	0.12	0.18	0.21	0.21	0.12	1.03	0.21
H ₂ O+	1.58	2.80	2.59	4.50	5.19	6.80	9.51	8.47
H ₂ O—	0.26	0.25	0.29	0.78	0.61	0.94	0.84	0.57
CO ₂	nd	0.32	0.34	0.88	0.34	nd	nd	0.90
TiO ₂	0.35	1.44	1.12	0.91	1.91	1.19	3.38	2.65
P ₂ O ₅	nd	0.39	0.39	0.38	0.64	0.35	0.58	0.66
MnO	0.06	0.20	0.18	0.20	0.16	0.16	0.38	0.29
Other Constituents								
	99.85	100.18	100.26	100.15	100.22	100.25	99.80	100.01
Age								

TABLE P — LEUCITE-BEARING BASALTIC ROCKS

a. CaO/Alk < 1

K₂O/Na₂O > 1.25

	1	2	3	4	5	6	7	8	9
Rock Name	Wolgidite	Mamilite-cedricite	Wolgidite	Mamilite-cedricite	Olivine-cedricite	Wolgidite	Wyomingite	Fitzroyite-mamilite	Fitzroyite
Locality	1.5 km ENE. of Prairie Hill, Lennard R. Area, W.A. 375300, 2757000	1.5 km ENE. of Prairie Hill, Lennard R. Area, W.A. 375300, 2757000	Old Leopold plug, Lennard R. Area, W.A. 386500, 2761000	Hill Cone, Noonkanbah Area, W.A. 2700, 26930	Dadja Hill, Noonkanbah Area, W.A. 18°32'S, 124°51'E.	Dadja Hill, Noonkanbah Area, W.A.	Dadja Hill, Noonkanbah Area, W.A. 18°32'S, 124°51'E.	81-Mile Plug, Lennard R. Area, W.A. 2694, 2783	Dadja Hill, Noonkanbah Area, W.A.
Reference	28	28	28	28	28	28	28	28	28
Analyst	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.	A.Jorgensen A.M.D.L.
Remarks									
SiO ₂	59.80	57.40	52.80	52.50	52.40	52.40	52.00	51.90	51.70
Al ₂ O ₃	7.60	7.75	8.30	8.65	9.25	8.20	7.65	8.00	9.20
Fe ₂ O ₃	5.30	6.00	5.75	5.55	5.25	5.15	5.30	5.30	4.95
FeO	0.79	0.97	1.55	1.77	1.77	1.30	1.01	0.85	1.16
MgO	3.90	4.15	6.60	6.50	6.10	6.50	7.80	7.15	7.00
CaO	1.74	2.15	3.40	2.10	2.85	2.85	3.00	2.20	1.97
Na ₂ O	0.31	0.26	1.02	0.52	0.64	0.66	0.56	0.59	0.63
K ₂ O	9.15	9.05	10.00	10.70	10.80	10.40	10.10	11.40	10.50
H ₂ O+	2.05	2.05	1.24	1.74	1.45	2.75	1.89	1.60	2.60
H ₂ O—	1.53	1.67	0.83	1.32	1.30	1.25	1.66	1.12	2.20
CO ₂	0.06	0.04	0.06	0.05	0.04	0.06	0.05	0.14	0.03
TiO ₂	4.95	5.40	5.65	6.35	5.80	6.15	6.35	6.00	5.05
P ₂ O ₅	0.77	0.80	0.69	0.12	0.26	0.12	0.13	0.92	0.73
MnO	0.08	0.05	0.09	0.08	0.07	0.07	0.07	0.07	0.04
Other Constituents	BaO=1.10 F=0.30 S=0.17 ZrO ₂ =0.16 SrO=0.09 NiO=0.01 Cr ₂ O ₃ =0.04	BaO=1.20 F=0.25 Cr ₂ O ₃ =0.06 ZrO ₂ =0.18 SrO=0.11 S=0.13 NiO=0.01	BaO=0.15 F=0.35 Cr ₂ O ₃ =0.06 ZrO ₂ =0.18 SrO=0.12 S=0.11 NiO=0.01	BaO=1.00 F=0.30 Cr ₂ O ₃ =0.04 ZrO ₂ =0.18 SrO=0.10 S=0.14 NiO=0.03	BaO=1.05 F=0.30 Cr ₂ O ₃ =0.06 ZrO ₂ =0.16 SrO=0.11 S=0.08 NiO=0.03	BaO=1.45 F=0.25 Cr ₂ O ₃ =0.02 ZrO ₂ =0.18 SrO=0.15 S=0.19 NiO=0.02	BaO=1.30 F=0.25 Cr ₂ O ₃ =0.04 ZrO ₂ =0.18 SrO=0.15 S=0.12 NiO=0.02	BaO=1.20 F=0.45 Cr ₂ O ₃ =0.04 ZrO ₂ =0.26 SrO=0.20 S=0.24 NiO=0.03	BaO=0.95 F=0.25 Cr ₂ O ₃ =0.05 ZrO ₂ =0.18 SrO=0.21 S=0.12 NiO=0.03
Less O = Cl, F, S	0.13	0.16	0.19	0.18	0.17	0.19	0.15	0.29	0.16
	99.77	99.53	99.74	99.56	99.59	99.95	99.48	99.37	99.45
Age									

TABLE P — LEUCITE-BEARING BASALTIC ROCKS

a. CaO/Alk < 1								
K ₂ O/Na ₂ O > 1.25								
	10	11	12	13	14	15	16	17
Rock Name	Wolgidite	Olivine-cedricite	Fitzroyite-wolgidite	Olivine-wyomingite	Fitzroyite-wyomingite	Fitzroyite	Fitzroyite	Fitzroyite-mamilite
Locality	Mt Rose, Lennard R. Area, W.A. 335300, 2795300	Mt Cedric, Noonkanbah Area, W.A. 18°22'S, 124°41'E.	Mt Rose, Lennard R. Area, W.A. 335300, 2795300	Mt Cedric, Noonkanbah Area, W.A. 18°22'S, 124°41'E.	Mt Rose, Lennard R. Area, W.A. 335300, 2795300	Mt Percy, Lennard R. Area, W.A. 275100, 2784600	81-Mile Plug, Lennard R. Area, W.A. 2694, 2783	Mt Worth, Lennard R. Area, W.A. 2619, 27998
Reference	28	28	28	28	28	28	28	28
Analyst	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.	A. Jorgensen A.M.D.L.
Remarks								
SiO ₂	51.40	50.40	50.20	49.90	49.10	48.90	48.00	46.90
Al ₂ O ₃	9.70	7.65	8.65	7.50	7.80	8.20	6.25	6.20
Fe ₂ O ₃	5.05	5.05	5.30	4.85	5.60	5.60	5.80	5.75
FeO	2.00	1.48	1.99	1.95	1.88	1.41	1.52	1.91
MgO	6.40	10.00	9.35	12.40	9.85	7.35	11.20	10.80
CaO	1.96	3.35	2.95	4.30	4.35	1.95	2.65	3.95
Na ₂ O	0.75	0.75	0.80	0.89	0.67	0.60	0.50	0.93
K ₂ O	10.80	8.75	9.65	7.45	8.20	12.70	9.50	8.55
H ₂ O+	2.25	1.97	1.76	2.20	2.60	2.70	2.25	2.20
H ₂ O-	1.38	2.55	1.32	2.00	1.53	2.15	1.20	2.00
CO ₂	0.03	0.13	0.07	0.12	0.07	0.14	0.06	0.08
TiO ₂	4.85	5.60	5.05	4.40	5.20	5.55	7.15	6.30
P ₂ O ₅	0.53	0.37	8.35	0.41	0.66	0.94	0.81	0.99
MnO	0.06	0.06	0.05	0.05	0.08	0.04	0.09	0.10
Other Constituents	BaO=1.35 F=0.30 Cr ₂ O ₃ =0.06 ZrO ₂ =0.17 SrO=0.09 S=0.29 NiO=0.04	BaO=0.78 F=0.30 Cr ₂ O ₃ =0.06 ZrO ₂ =0.17 SrO=0.12 S=0.15 NiO=0.03	BaO=1.25 F=0.40 Cr ₂ O ₃ =0.08 ZrO ₂ =0.18 SrO=0.09 S=0.23 NiO=0.03	BaO=0.61 F=0.25 Cr ₂ O ₃ =0.06 ZrO ₂ =0.12 SrO=0.12 S=0.09 NiO=0.05	BaO=1.55 F=0.40 Cr ₂ O ₃ =0.03 ZrO ₂ =0.18 SrO=0.09 S=0.19 NiO=0.02	BaO=0.72 F=0.30 Cr ₂ O ₃ =0.03 ZrO ₂ =0.18 SrO=0.12 S=0.09 NiO=0.02	BaO=1.40 F=0.50 Cr ₂ O ₃ =0.05 ZrO ₂ =0.27 SrO=0.22 S=0.23 NiO=0.03	BaO=1.85 F=0.60 Cr ₂ O ₃ =0.06 ZrO ₂ =0.27 SrO=0.21 S=0.19 NiO=0.03
Less O = Cl, F, S	0.25	0.19	0.34	0.14	0.25	0.16	0.30	0.33
	99.21	99.53	99.41	99.60	99.83	99.53	99.38	99.54
Age								

TABLE Q — XENOLITHS IN VOLCANIC ROCKS

a. IGNEOUS INCLUSIONS

CaO < 5%								
	1	2	3	4	5	6	7	8
Rock Name	Harzburgite	Amphibole-plagioclase (mica) inclusion	Amphibole-(mica)-plagioclase inclusion	Charnockite inclusion	Amphibole-biotite (plagioclase) inclusion	Amphibole-(biotite)-plagioclase inclusion	Amphibole-clino-pyroxene-plagioclase inclusion	Clino-pyroxene-tremolite-olivine plagioclase-spinel inclusion
Locality	35 km NW. of Delegate, N.S.W.	Upper NW. slope Mt Victory, PNG	Upper NW. slope Mt Victory, PNG	About 35 km NW. of Delegate, N.S.W.	Upper NE. slope Mt Victory, PNG	Upper NW. slope Mt Victory, PNG	Upper NE. slope Mt Victory, PNG	Upper NE. slope Mt Victory, PNG
Reference	74, 35	60, 268	60, 268	74	60, 268	60, 268	60, 268	60, 268
Analyst	A. J. Easton	P. Jakes	P. Jakes	E. Kiss	P. Jakes	P. Jakes	P. Jakes	P. Jakes
Remarks		(in andesite)	(in andesite)	(in basaltic breccia pipe)	(in andesite)	(in andesite)	(in andesite)	(in andesite)
SiO ₂	44.11	57.26	56.80	55.64	54.34	54.26	53.87	50.54
Al ₂ O ₃	1.93	15.60	15.21	16.88	15.64	16.13	15.63	16.76
Fe ₂ O ₃	2.07	2.31	4.72	2.21	3.58	3.14	3.68	0.39
FeO	6.21	3.52	1.75	5.59	3.32	3.72	3.34	2.86
MgO	41.14	6.36	6.96	4.93	7.23	6.55	6.95	9.88
CaO	0.91	7.32	8.12	7.07	8.12	8.01	8.21	18.84
Na ₂ O	0.06	3.83	3.84	2.26	4.09	3.94	3.44	1.08
K ₂ O	0.02	1.49	1.46	3.24	2.12	1.83	1.68	0.09
H ₂ O +	2.96	} 0.78	} 0.81	1.00	} 0.43	} 0.93	} 0.99	} 0.37
H ₂ O -	abs			0.29				
CO ₂	0.28			0.08				
TiO ₂	0.05	0.75	0.78	1.06	1.15	1.14	0.92	0.06
P ₂ O ₅	0.03	0.22	0.33	0.17	0.59	0.82	0.38	0.02
MnO	0.13	0.09	0.11	0.17	0.10	0.11	0.12	0.09
Other Constituents				Cr ₂ O ₃ = 0.01				
Age	100.24	99.53	100.89	100.60	100.71	100.28	99.21	100.98

TABLE Q — XENOLITHS IN VOLCANIC ROCKS

a. IGNEOUS INCLUSIONS

	CaO < 5%		CaO > 5%				
	9	10	11	12	13	14	15
Rock Name	Two-pyroxene granulite	Amphibole-plagioclase clinopyroxene inclusion	Fassaite eclogite	Fassaite eclogite	Fassaite eclogite	Fassaite eclogite	Fassaite eclogite
Locality	35 km NW. of Delegate, N.S.W.	Upper NE. slope Mt Victory, PNG	35 km NW. of Delegate, N.S.W.	35 km NW. of Delegate, N.S.W.	35 km NW. of Delegate, N.S.W.	35 km NW. of Delegate, N.S.W.	35 km NW. of Delegate, N.S.W.
Reference	74, 17	60, 268	74, 17	74, 17	74, 17	74, 17	74, 17
Analyst	E. Kiss	P. Jakes	E. Kiss	A.J. Easton	E. Kiss	A.J. Easton	A.J. Easton
Remarks	(in basaltic breccia pipe)	(in andesite)	(In basaltic breccia pipe)	(In basaltic breccia pipe)	(In basaltic breccia pipe)	(In basaltic breccia pipe)	(In basaltic breccia pipe)
SiO ₂	49.76	48.07	46.26	46.12	45.84	45.09	44.12
Al ₂ O ₃	16.83	16.55	11.89	15.05	16.28	12.53	19.04
Fe ₂ O ₃	1.86	1.99	2.89	1.49	2.13	7.62	1.01
FeO	7.09	3.99	4.52	4.87	4.02	8.21	5.88
MgO	8.25	10.94	14.47	15.09	13.71	10.12	14.62
CaO	11.07	15.04	16.23	14.61	14.34	12.37	12.80
Na ₂ O	2.78	1.08	1.57	0.82	1.80	2.02	0.83
K ₂ O	0.32	0.03	0.05	0.22	0.12	0.17	0.08
H ₂ O +	1.10	0.61	1.02	1.09	0.82	0.37	0.69
H ₂ O -	0.14		0.13	abs	0.27	0.12	abs
CO ₂	0.24		0.12	0.20	0.20	0.23	0.16
TiO ₂	0.69	1.59	0.73	0.44	0.55	1.26	0.31
P ₂ O ₅	0.08	0.07	0.05	0.04	0.02	0.34	0.02
MnO	0.17	0.11	0.17	0.11	0.11	0.23	0.13
Other Constituents	Cr ₂ O ₃ = 0.02			Cr ₂ O ₃ = 0.16		Cr ₂ O ₃ = 0.03	
Age	100.40	100.07	100.10	100.31	100.21	100.71	99.97

TABLE R — SERPENTINITES AND ASSOCIATED ULTRAMAFIC ROCKS

a. CaO < 1%							b. CaO = 1% — 5%	
	1	2	3	4	5	6	1	2
Rock Name	Enstatite olivinite	Bastite serpentinite	Bastite serpentinite	Serpentinite	Serpentinized dunite	Serpentinized dunite	Orthopyroxenite	Enstatite pyroxenite
Locality	Paiawa R., PNG 7°34'S, 147°12'E.	Nr Brungle Bridge, Tumut, N.S.W.	Tumut, N.S.W.	12 km SE. of Coolac, N.S.W.	Buiasin R., Bowutu Mts, PNG 7°14'S, 147°02'E.	Buiasin R., Bowutu Mts, PNG 7°14'S, 147°02'E.	Daiuwa R., Musa, PNG 9°19'S, 148°17'E.	Bitoi R., PNG 7°13'S, 147°01'E.
Reference	35; 36, 215	136	136	45; 102, 8	28	28	28	35; 36, 215
Analyst	A. Jorgensen, L. Castanelli A.M.D.L.	A. Ithikasem Thai Geol Surv	A. Ithikasem Thai Geol Surv	J. H. Pyle	A. Jorgensen, L. Castanelli A.M.D.L.	A. Jorgensen, L. Castanelli A.M.D.L.	A. Jorgensen, L. Castanelli A.M.D.L.	A. Jorgensen, L. Castanelli A.M.D.L.
Remarks					(rather weathered)			
SiO ₂	42.80	39.92	39.82	39.71	39.20	37.80	55.30	55.20
Al ₂ O ₃	0.23	0.04	1.12	0.34	0.25	0.50	0.99	0.71
Fe ₂ O ₃	0.99	7.53	5.27	8.51	4.10	2.30	1.03	3.00
FeO	6.45	2.15	2.80	0.84	3.75	5.15	7.15	3.90
MgO	48.00	38.52	38.78	36.67	44.30	46.00	32.10	34.10
CaO	0.55	0.18	0.54	abs	0.37	0.68	1.36	1.96
Na ₂ O	0.07	0.03	0.04	0.01	0.03	0.07	0.04	0.05
K ₂ O	0.01	0.02	0.02	tr	0.02	0.03	< 0.01	0.02
H ₂ O+	0.24	10.84	10.72	11.15	6.30	6.40	1.07	1.04
H ₂ O—	0.19	0.04	0.08	1.90	1.06	0.34	0.11	0.08
CO ₂	0.05	0.32	0.22	abs	0.12	0.26	0.11	0.06
TiO ₂	0.02	0.03	0.03	0.02	—	—	0.04	0.02
P ₂ O ₅	—	0.02	0.11	tr	0.08	0.01	0.01	0.01
MnO	0.10	0.06	—	0.06	0.10	0.10	0.19	0.16
Other Constituents		F=0.14 C=0.12 Li ₂ O=0.01	F=0.13 C=0.07 Li ₂ O=0.01	Cr ₂ O ₃ =0.55 NiO=0.46 C=abs				
Less O = Cl, F, S		0.06	0.06					
Age	99.70	99.91	99.73	100.22	99.68	99.64	99.51	100.31

TABLE R — SERPENTINITES AND ASSOCIATED ULTRAMAFIC ROCKS

b. CaO = 1% - 5%							c. CaO > 5%	
	3	4	5	6	7	8	1	2
Rock Name	Orthopyroxenite	Orthopyroxenite	Olivine orthopyroxenite <i>Giles Complex</i>	Harzburgite	Serpentinite	Harzburgite	Gabbroic anorthosite	Clinopyroxenite <i>Giles Complex</i>
Locality	Nr Umwate, Musa, PNG 9°16'50"S, 148°15'E.	Daiuwa R., Musa, PNG 9°19'S, 148°16'E.	Gosse Pile, S.A. 26°11'30"S, 129°18'50"E.	Mt Lightning, S.E. of Coolac, N.S.W.	Koolanooka Hills, W.A.	Mt Lightning, 11 km SE. of Coolac, N.S.W.	Musgrave Ras, S.A.	5 km WNW. of Mt Davies Trig., S.A.
Reference	28	28	97, 5	45; 102, 8	3	45; 102, 8	68	97, 5
Analyst	A. Jorgensen L. Castanelli A.M.D.L.	A. Jorgensen		J. H. Pyle	P. A. Arriens	J. H. Pyle	I. B. Lambert	A.M.D.L.
Remarks				Partly serpentinized		Partly serpentinized		
SiO ₂	54.30	54.10	47.20	41.79	41.33	40.88	53.90	51.25
Al ₂ O ₃	1.59	1.17	5.25	2.28	4.60	1.30	19.80	5.90
Fe ₂ O ₃	3.05	2.15	2.10	1.40	4.77	2.18	2.70	1.10
FeO	8.65	9.95	8.15	6.25	4.36	5.77	4.63	3.30
MgO	28.80	30.00	32.00	39.52	32.60	41.49	4.15	17.80
CaO	2.00	1.10	3.45	2.35	2.01	1.51	9.80	19.70
Na ₂ O	0.07	0.02	0.46	0.05	0.02	0.10	3.45	0.38
K ₂ O	0.11	0.01	0.03	0.04	0.01	0.06	0.59	0.02
H ₂ O +	0.42	0.42	0.26	5.45	8.57	5.66	—	0.07
H ₂ O -	0.13	0.14	0.10	0.03	0.08	0.32	—	0.12
CO ₂	0.76	0.06	0.27	0.09	nd	abs	—	0.08
TiO ₂	0.07	0.05	0.13	0.05	0.28	0.02	0.30	0.16
P ₂ O ₅	0.01	0.01	0.02	tr	0.05	tr	0.02	0.02
MnO	0.23	0.18	0.16	0.11	0.14	0.15	—	0.03
Other Constituents	NiO=0.10 CoO=0.03 V ₂ O ₅ =0.01 ZnO=0.01	NiO=0.20 CoO=0.04 V ₂ O ₅ =0.01 ZnO=0.01		NiO=0.17 Cr ₂ O ₃ =0.38 C=0.10	FeS ₂ =nd	NiO=0.25 Cr ₂ O ₃ =0.35 C=abs.		
	100.24	99.62	99.58	100.06	98.85	100.04	—	99.93
Age								

TABLE R — SERPENTITES AND
ASSOCIATED ULTRAMAFIC
ROCKS

c. CaO > 5%		
	3	4
Rock Name	Anorthosite <i>Giles Complex</i>	Alkali pyroxenite
Locality	5 km WNW. of Mt Davies Trig., S.A. Zone 4, map 560 Davies 1-mile Sheet	19 km SW. of Broken Hill, N.S.W.
Reference	97, 5	10, 353
Analyst	A.M.D.L.	M. Chiba
Remarks		
SiO ₂	46.20	39.20
Al ₂ O ₃	32.80	4.78
Fe ₂ O ₃	0.20	12.43
FeO	0.20	8.36
MgO	0.60	10.85
CaO	17.50	17.22
Na ₂ O	1.48	1.37
K ₂ O	0.07	0.33
H ₂ O+	0.29	0.71
H ₂ O—	0.20	0.63
CO ₂	0.04	—
TiO ₂	0.07	3.99
P ₂ O ₅	0.04	0.08
MnO	0.01	0.23
Other Constituents		
	99.70	100.18
Age		

TABLE S — METAMORPHIC ROCKS OF GRANITIC COMPOSITION ($\text{SiO}_2 > 70\%$)

a. $\text{CaO} < 1\%$

$$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$$
[illegible]

TABLE S — METAMORPHIC ROCKS OF GRANITIC COMPOSITION ($\text{SiO}_2 > 70\%$)

a. $\text{CaO} < 1\%$				b. $\text{CaO} = 1\% - 2\%$					
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$				$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$					
	10	11	12		1	2	3	4	5
Rock Name	Acid granulite	Acid granulite	Acid granulite		Biotite-quartz feldspar gneiss	Sillimanite-garnet-cordierite granulite <i>Bradshaw Granite</i>	Acid granulite	Acid granulite	Biotite gneiss
Locality	C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.		Parkinson Peak, Wilson Hills, Oates Land, Ant. 69°26'S, 158°20'E.	Wargarpunda Pt, N.T. 12°11'S, 136°41'E.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	Koolanooka Hills, W.A.
Reference	68; 69	68; 69	68; 69		79, 49	28	68; 69	68; 69	3
Analyst	I. B. Lambert	I. B. Lambert	I. B. Lambert		H. W. Sears A.M.D.L.	C. Edmond A.M.D.L.	I. B. Lambert	I. B. Lambert	P. A. Arriens
Remarks							Amphibolite facies	Amphibolite facies	
SiO_2	76.69	75.27	70.23		76.80	74.80	73.63	73.62	73.45
Al_2O_3	11.89	11.84	13.37		10.80	13.90	12.65	13.68	14.33
Fe_2O_3	} 1.01	} 2.79	} 3.57		0.59	0.13	} 2.10	} 0.99	0.50
FeO					2.72	0.89			0.94
MgO	0.05	0.03	0.05		1.20	0.15	0.34	0.10	0.22
CaO	0.40	0.39	0.79		1.73	1.01	1.54	1.00	1.58
Na_2O	3.99	3.48	4.28		1.94	2.95	2.39	3.50	3.22
K_2O	4.61	4.76	5.81		2.70	5.10	5.49	5.29	5.00
$\text{H}_2\text{O} +$	—	—	—		0.72	0.61	—	—	0.52
$\text{H}_2\text{O} -$	—	—	—		0.09	0.07	—	—	abs
CO_2	—	—	—		0.13	0.25	—	—	—
TiO_2	0.08	0.25	0.30		0.46	0.05	0.29	0.11	0.20
P_2O_5	0.15	0.15	0.17		0.14	0.15	0.18	0.14	0.05
MnO	0.02	0.01	0.06		0.03	0.02	0.01	0.01	0.02
Other Constituents									
	—	—	—		100.1	100.08	—	—	100.03
Age									

TABLE S — METAMORPHIC ROCKS OF GRANITIC COMPOSITION ($\text{SiO}_2 > 70\%$)b. $\text{CaO} = 1\% - 2\%$ $\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$

	6	7	8	9	10	11	12	13	14
Rock Name	Acid granulite	Acid granulite	Acid granulite	Granitized actinolite-biotite schist <i>Waterhouse Granite</i>	Acid granulite	Granite gneiss <i>Rum Jungle Complex</i>	Acid granulite	Acid granulite	Acid granulite
Locality	Fraser Ra., W.A.	C. Naturaliste, W.A.	Fraser Ra., W.A.	Rum Jungle N.T.	C. Naturaliste, W.A.	7 km N. of Batchelor, N.T., 12°59'S, 131°02'E.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.
Reference	68; 69	68; 69	68; 69	137; 299	68; 69	137; 293	68; 69	68; 69	68; 69
Analyst	I. B. Lambert	I. B. Lambert	I. B. Lambert	C. R. Edmond A.M.D.L.	I. B. Lambert	C. R. Edmond A.M.D.L.	I. B. Lambert	I. B. Lambert	I. B. Lambert
Remarks					Amphibolite facies			Amphibolite facies	
SiO_2	73.09	73.03	73.02	73.00	72.73	72.50	71.92	71.73	71.41
Al_2O_3	12.52	12.69	12.99	12.80	13.77	14.10	13.68	12.30	13.85
Fe_2O_3	} 2.83	} 3.00	} 2.49	0.26	} 1.80	0.41	} 2.38	} 3.87	} 2.08
FeO				1.22		1.25			
MgO	0.30	0.20	0.25	0.90	0.30	0.49	0.46	0.17	0.18
CaO	1.48	1.55	1.29	1.46	1.53	1.39	1.89	1.20	1.65
Na_2O	2.09	2.60	2.13	3.30	2.22	3.55	2.59	2.09	2.83
K_2O	5.63	4.95	6.17	5.10	6.24	5.25	5.49	6.25	6.03
H_2O^+	—	—	—	0.70	—	0.47	—	—	—
H_2O^-	—	—	—	0.07	—	0.07	—	—	—
CO_2	—	—	—	1.00	—	0.21	—	—	—
TiO_2	0.42	0.12	0.36	0.12	0.22	0.20	0.33	0.41	0.13
P_2O_5	0.16	0.16	0.09	0.08	0.22	0.09	0.20	0.20	0.25
MnO	0.06	0.05	0.06	0.03	0.01	0.03	0.04	0.04	0.02
Other Constituents									
Age	—	—	—	100.0	—	100.0	—	—	—

TABLE S — METAMORPHIC ROCKS OF GRANITIC COMPOSITION ($\text{SiO}_2 > 70\%$)b. $\text{CaO} = 1\% - 2\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$						$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$			
	15	16	17	18	19	20	21	22	23
Rock Name	Acid granulite	Acid granulite	Acid granulite	Acid granulite	Garnetiferous gneissic adamellite <i>Mirarrmina Complex</i>	Granite-gneiss <i>Rathjen Granitic Gneiss</i>	Gneiss	Granite-gneiss	Gneissic granite <i>Rathjen Granitic Gneiss</i>
Locality	C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	6 km W. of Mitchell Ra., N.T. 12°57'50"S, 135°28'30"E.	Palmer Area, S.A.	Koolanooka Hills, W.A.	Copley, S.A. 30°26'S, 139°24'E.	Palmer Area, S.A.
Reference	68; 69	68; 69	68; 69	68; 69	28	139, 181	3	28	139, 181
Analyst	I. B. Lambert	I. B. Lambert	I. B. Lambert	I. B. Lambert	L. Castanelli A.M.D.L.	A. J. R. White	P. A. Arriens	S. Baker BMR	A. J. R. White
Remarks	Amphibolite facies	Amphibolite facies							
SiO_2	71.21	71.02	70.97	70.69	70.30	76.32	75.33	73.76	73.70
Al_2O_3	12.69	11.94	13.69	13.07	14.20	12.38	13.56	14.00	12.78
Fe_2O_3	4.69	5.39	2.94	3.77	0.67	0.90	0.22	2.00	1.09
FeO					3.05	1.00	0.74	1.67	1.82
MgO	0.40	0.04	0.03	0.40	1.02	0.48	0.06	0.35	0.83
CaO	1.92	1.02	1.34	1.79	1.22	1.19	1.17	1.47	1.65
Na_2O	2.71	2.59	2.96	2.61	2.85	3.67	3.92	3.41	3.71
K_2O	4.30	5.67	6.20	5.46	4.35	3.71	4.61	3.47	3.50
$\text{H}_2\text{O} +$	—	—	—	—	1.32	0.22	0.27	0.40	0.32
$\text{H}_2\text{O} -$	—	—	—	—	0.04	—	abs	abs	0.02
CO_2	—	—	—	—	abs	0.02	—	—	0.07
TiO_2	0.53	0.31	0.21	0.43	0.53	0.36	0.08	0.12	0.48
P_2O_5	0.20	0.18	0.20	0.22	0.16	0.08	0.01	0.03	0.12
MnO	0.07	0.07	0.02	0.03	0.04	0.04	0.03	0.10	0.04
Other Constituents						Rb ₂ O=0.01 SrO=0.02 BaO=0.08 ZrO ₂ =0.03			Rb ₂ O=0.02 SrO=0.01 BaO=0.08 ZrO ₂ =0.04
	—	—	—	—	99.75	100.51	100.00	100.8	100.28
Age									

TABLE S — METAMORPHIC ROCKS OF GRANITIC COMPOSITION ($\text{SiO}_2 > 70\%$)

b. CaO = 1% - 2%					c. CaO = 2% - 3%				
$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$					$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$				
	24	25	26	27		1	2	3	4
Rock Name	Gneissic granite <i>Rathjen Granitic Gneiss</i>	Acid granulite	Gneiss <i>Rum Jungle Complex</i>	Acid granulite		Acid granulite	Gneissic granite <i>Rathjen Granitic Gneiss</i>	Sub-acid granulite	Granite gneiss <i>Rum Jungle Complex</i>
Locality	Palmer Area, S.A.	C. Naturaliste, W.A.	Rum Jungle, N.T. 12°57'S, 131°03'E.	C. Naturaliste, W.A.		Musgrave Ras, S.A.	Palmer Area, S.A.	Musgrave Ras., S.A.	Rum Jungle, N.T. 12°57'S, 131°03'E.
Reference	139, 181	68; 69	137, 293	68; 69		68; 69	139, 181	68; 69	137, 293
Analyst	A. J. R. White	I. B. Lambert	C. R. Edmond A.M.D.L.	I. B. Lambert			A. J. R. White		C. R. Edmond A.M.D.L.
Remarks									
SiO_2	73.27	72.34	71.00	70.29		70.12	71.28	70.50	70.40
Al_2O_3	12.90	11.93	14.40	13.90		13.31	12.98	12.76	14.60
Fe_2O_3	1.32	} 3.97	0.84	} 3.25		} 3.27	1.16	} 5.21	0.89
FeO	1.92		1.53				2.85		1.56
MgO	0.86	2.39	1.52	0.05		2.19	1.22	2.29	0.91
CaO	1.74	1.80	1.37	1.03		2.56	2.62	2.32	2.55
Na_2O	3.61	2.64	3.45	4.60		2.35	3.71	2.32	3.90
K_2O	3.48	3.55	4.40	5.49		5.05	3.03	3.30	3.45
$\text{H}_2\text{O} +$	0.24	—	0.63	—		—	0.48	—	0.84
$\text{H}_2\text{O} -$	0.04	—	0.13	—		—	0.05	—	0.09
CO_2	0.07	—	0.12	—		—	—	—	0.08
TiO_2	0.56	0.20	0.24	0.23		0.54	0.66	0.57	0.32
P_2O_5	0.13	0.13	0.10	0.15		0.15	0.18	0.08	0.14
MnO	0.04	0.15	0.05	0.04		0.08	0.07	0.14	0.06
Other Constituents	Rb ₂ O=0.01 SrO=0.01 BaO=0.08 ZrO ₂ =0.04						Rb ₂ O=0.01 SrO=0.01 BaO=0.08 ZrO ₂ =0.05		
Age	100.32	—	99.8	—		—	100.44	—	99.80

TABLE S — METAMORPHIC
ROCKS OF GRANITIC
COMPOSITION ($\text{SiO}_2 > 70\%$)

c. $\text{CaO} = 2\% - 3\%$		
$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$		
	5	6
Rock Name	Garnet-biotite gneiss	Granitic gneiss <i>Rathjen Granitic Gneiss</i>
Locality	2 km E. of Hopetoun, Ravensthorpe Area, W.A. 33°51'S, 120°11'E.	Palmer Area, S.A.
Reference	28	139, 181
Analyst	C. R. Edmond A.M.D.L.	A. J. R. White
Remarks		
SiO_2	71.00	70.04
Al_2O_3	15.40	13.23
Fe_2O_3	0.50	1.53
FeO	1.90	3.44
MgO	0.71	1.33
CaO	3.00	2.59
Na_2O	4.85	3.77
K_2O	1.28	2.77
$\text{H}_2\text{O} +$	0.51	0.40
$\text{H}_2\text{O} -$	0.07	0.06
CO_2	0.19	0.10
TiO_2	0.26	0.82
P_2O_5	0.09	0.21
MnO	0.02	0.07
Other Constituents		Rb ₂ O=0.01 SrO=0.02 BaO=0.08 ZrO ₂ =0.05
	99.80	100.52
Age		

TABLE T — METAMORPHIC ROCKS OF GRANITIC COMPOSITION $\text{SiO}_2 < 70\%$

a. CaO < 1%		b. CaO = 1% - 2%					
K ₂ O/Na ₂ O > 1.25		K ₂ O/Na ₂ O > 1.25					K ₂ O/Na ₂ O = 1.25 - 0.75
	1		1	2	3	4	5
Rock Name	Quartz-mica plagioclase granulite		Acid granulite	Sub-acid granulite	Sub-acid granulite	Garnet-biotite adamellite gneiss <i>Bradshaw Granite</i>	Migmatite
Locality	6 km W. of Mitchell Ra., N.T.		C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	10 km W. of mouth of Holly Inlet, N.T. 12°34'S, 136°38'E.	2 km SW. of Palmer, S.A.
Reference	28		68; 69	68; 69	68; 69	28	139, 180
Analyst	C. R. Edmond A.M.D.L.		I. B. Lambert	I. B. Lambert	I. B. Lambert	L. Castanelli A.M.D.L.	A. J. R. White
Remarks					Amphibolite facies		
SiO ₂	65.80		69.92	69.35	68.80	67.30	69.56
Al ₂ O ₃	15.80		14.93	14.69	13.39	14.80	13.18
Fe ₂ O ₃	0.76		2.69	2.73	4.60	0.73	1.57
FeO	5.25					4.55	3.97
MgO	2.30		0.34	0.50	0.28	1.18	1.63
CaO	0.93		1.99	1.81	1.60	1.98	1.25
Na ₂ O	1.52		2.61	2.69	3.39	2.25	3.15
K ₂ O	3.60		6.34	6.21	5.92	5.30	3.87
H ₂ O +	2.55		—	—	—	1.07	0.67
H ₂ O -	0.11		—	—	—	0.11	0.05
CO ₂	0.68		—	—	—	abs	0.06
TiO ₂	0.60		0.31	0.42	0.50	0.77	0.67
P ₂ O ₅	0.07		0.25	0.24	0.23	0.18	0.23
MnO	0.07		0.04	0.02	0.06	0.06	0.03
Other Constituents							BaO=0.10 SrO=0.03 Rb ₂ O=0.02 ZrO ₂ =0.04
	100.04		—	—	—	100.28	100.08
Age							

TABLE T — METAMORPHIC ROCKS OF GRANITIC COMPOSITION $\text{SiO}_2 < 70\%$ c. $\text{CaO} = 2\% - 3\%$

$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$							$\text{K}_2\text{O}/\text{Na}_2\text{O} = 1.25 - 0.75$		
Rock Name	1	2	3	4	5	6	7	8	9
	Sub-acid granulite	Sub-acid granulite	Sub-acid granulite	Sub-acid granulite	Garnet-biotite adamellite gneiss <i>Bradshaw Granite</i>	Inter-mediate granulite	Sub-acid granulite	Garnet-biotite granulite	Biotite-plagioclase gneiss
Locality	C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	C. Naturaliste, W.A.	10 km W. of mouth of Holly Inlet, N.T. 12°34'S, 136°38'E.	C. Naturaliste, W.A.	Musgrave Ras, S.A.	Charlton I., Frazier I., Ant. 66°11'S, 110°07'E.	Berkley I., Windmill Is., Ant.
Reference	68; 69	68; 69	68; 69	68; 69	28	68; 69	68; 69	79, 49	79, 49
Analyst	I. B. Lambert	I. B. Lambert	I. B. Lambert	I. B. Lambert	L. Castanelli A.M.D.L.	I. B. Lambert	I. B. Lambert	H. W. Sears A.M.D.L.	H. W. Sears A.M.D.L.
Remarks			Amphibolite facies	Amphibolite facies					
SiO_2	69.91	69.07	68.86	67.57	66.60	65.21	69.16	68.80	67.00
Al_2O_3	12.55	13.69	12.92	12.83	15.20	12.68	14.45	12.70	13.20
Fe_2O_3	} 4.38	} 5.09	} 6.07	} 5.99	0.39	} 8.21	} 3.34	1.36	1.73
FeO					5.00			5.75	4.75
MgO	1.16	1.03	0.35	0.87	1.26	0.92	1.99	2.20	2.45
CaO	2.30	2.39	2.47	2.59	2.10	2.66	2.98	2.25	2.65
Na_2O	2.71	2.30	2.42	2.75	2.45	1.75	3.34	2.15	2.45
K_2O	4.88	4.87	4.49	4.90	3.85	4.20	3.42	2.40	2.85
$\text{H}_2\text{O} +$	—	—	—	—	1.55	—	—	1.14	1.36
$\text{H}_2\text{O} -$	—	—	—	—	0.15	—	—	0.12	0.14
CO_2	—	—	—	—	abs	—	—	0.12	0.10
TiO_2	1.03	0.56	0.82	0.88	0.80	1.70	0.40	0.84	0.75
P_2O_5	0.23	0.23	0.26	0.32	0.16	0.30	0.12	0.08	0.10
MnO	0.05	0.10	0.13	0.10	0.09	0.12	0.11	0.13	0.11
Other Constituents									
Age	—	—	—	—	99.60	—	—	100.00	99.70

TABLE T — METAMORPHIC ROCKS OF GRANITIC
COMPOSITION $\text{SiO}_2 < 70\%$

d. CaO = 3% – 4%		e. CaO = 4% – 5%	
	$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$	$\text{K}_2\text{O}/\text{Na}_2\text{O} < 0.75$	$\text{K}_2\text{O}/\text{Na}_2\text{O} > 1.25$
	1	2	1
Rock Name	Sub-acid granulite	Metamorphosed diorite	Sub-acid granulite
Locality	Musgrave Ras, S.A.	Olary Area, S.A. 32°47'S, 140°03'E.	Fraser Ra., W.A.
Reference	68; 69	28	68; 69
Analyst	I. B. Lambert	D. K. Rowley H. W. Sears A.M.D.L.	I. B. Lambert
Remarks			
SiO_2	69.18	66.10	66.44
Al_2O_3	14.37	14.90	16.80
Fe_2O_3	} 3.43	2.56	} 2.81
FeO		3.04	
MgO	2.09	1.31	1.37
CaO	3.19	2.39	4.12
Na_2O	2.74	4.47	3.40
K_2O	3.75	3.17	4.21
$\text{H}_2\text{O} +$	—	0.65	—
$\text{H}_2\text{O} -$	—	0.05	—
CO_2	—	0.05	—
TiO_2	0.63	0.80	0.29
P_2O_5	0.14	0.38	0.11
MnO	0.09	0.03	0.08
Other Constituents			
	—	99.90	—
Age			

TABLE U — METAMORPHOSED ROCKS OF DIORITIC COMPOSITION

a. CaO < 3%			b. CaO = 3% - 4%			c. CaO = 4% - 5%			
K ₂ O/Na ₂ O > 1.25			K ₂ O/Na ₂ O = 1.25 - 0.75			K ₂ O/Na ₂ O > 1.25			
	1	2		1	2	3		1	2
Rock Name	Inter- mediate granulite	Sillimanite- garnet- cordierite granulite <i>Bradshaw Granite</i>		Gneiss <i>Rum Jungle Complex</i>	Inter- mediate granulite	Biotite gneiss <i>Rum Jungle Complex</i>		Inter- mediate granulite	Inter- mediate granulite
Locality	C. Naturaliste, W.A.	Wargar- punda Pt, N.T. 12°11'S, 136°41'E.		E. of Mt Fitch, Rum Jungle Area, N.T.	Musgrave Ras, S.A.	Rum Jungle Area, N.T. 12°59'S, 131°03'E.		Fraser Ra., W.A.	Fraser Ra., W.A.
Reference	68; 69	28		137, 293	68; 69	137, 294		68; 69	68; 69
Analyst	I. B. Lambert	C. R. Edmond A.M.D.L.		C. R. Edmond A.M.D.L.	I. B. Lambert	H. W. Sears A.M.D.L.		I. B. Lambert	I. B. Lambert
Remarks									
SiO ₂	62.47	59.80		62.20	61.50	58.00		63.57	63.53
Al ₂ O ₃	16.49	29.60		14.10	13.40	17.10		14.28	14.04
Fe ₂ O ₃	4.89	2.65		3.70	3.80	2.20	}	7.49	8.16
FeO		4.20		3.80	6.25	4.50			
MgO	1.65	2.55		2.55	1.10	2.75		0.40	0.25
CaO	2.92	0.73		3.10	3.95	3.60		4.10	4.58
Na ₂ O	3.59	2.10		3.65	2.90	4.75		2.25	2.21
K ₂ O	4.99	4.40		3.90	3.60	3.05		4.13	3.97
H ₂ O +	—	1.65		0.78	—	1.59		—	—
H ₂ O -	—	0.10		0.11	—	0.11		—	—
CO ₂	—	0.34		0.15	—	0.27		—	—
TiO ₂	0.86	0.58		1.32	1.62	1.15		1.08	1.21
P ₂ O ₅	0.35	0.12		0.64	0.82	0.51		0.22	0.23
MnO	0.03	0.11		0.11	—	0.10		0.18	0.17
Other Constituents									
Age	—	99.93		100.11	—	99.68		—	—

TABLE U — METAMORPHOSED ROCKS OF DIORITIC COMPOSITION

c. CaO = 4% - 5%				d. CaO = 5% - 6%		e. CaO = 6% - 7%		f. CaO = 7% - 8%	
K ₂ O/Na ₂ O = 1.25 - 0.75				K ₂ O/Na ₂ O > 1.25		K ₂ O/Na ₂ O < 0.75		K ₂ O/Na ₂ O = 1.25 - 0.75	
	3	4		1		1		1	2
Rock Name	Inter-mediate granulite	Granulite <i>Rum Jungle Complex</i>		Inter-mediate granulite		Inter-mediate granulite		Inter-mediate granulite	Inter-mediate granulite
Locality	Fraser Ra., W.A.	Rum Jungle Area, N.T. 12°50'S, 130°58'E.		C. Naturaliste, W.A.		Musgrave Ra., S.A.		Fraser Ra., W.A.	Musgrave Ra., S.A.
Reference	68; 69	137, 294		68; 69		68; 69		68; 69	68; 69
Analyst	I. B. Lambert	C. R. Edmond A.MD.L.		I. B. Lambert		I. B. Lambert		I. B. Lambert	I. B. Lambert
Remarks				Amphibolite facies					
SiO ₂	63.31	60.40		59.03		55.09		56.29	55.01
Al ₂ O ₃	14.91	16.80		13.01		22.57		15.09	14.21
Fe ₂ O ₃	2.00	2.45		} 9.43		} 4.90		} 10.95	} 12.09
FeO	4.70	2.85							
MgO	2.65	1.43		3.72		3.40		0.80	4.93
CaO	4.60	4.75		5.51		6.95		7.61	7.31
Na ₂ O	2.65	4.20		2.16		4.11		2.60	2.19
K ₂ O	3.20	3.75		3.61		1.26		2.53	2.18
H ₂ O +	—	0.87		—		—		—	—
H ₂ O -	—	0.10		—		—		—	—
CO ₂	—	0.67		—		—		—	—
TiO ₂	0.70	1.15		1.94		0.62		1.61	1.20
P ₂ O ₅	0.17	0.50		0.43		0.25		0.23	0.38
MnO	0.19	0.10		0.18		0.08		0.23	0.29
Other Constituents									
	—	100.02		—		—		—	—
Age									

TABLE U —
METAMORPHOSED
ROCKS OF DIORITIC
COMPOSITION

g. CaO = 8% — 9%	
K ₂ O/Na ₂ O > 1.25	
	1
Rock Name	Inter- mediate granulite
Locality	C. Naturaliste, W.A.
Reference	68; 69
Analyst	I. B. Lambert
Remarks	
SiO ₂	56.31
Al ₂ O ₃	17.93
Fe ₂ O ₃	} 5.69
FeO	
MgO	0.76
CaO	8.79
Na ₂ O	3.67
K ₂ O	4.87
H ₂ O +	—
H ₂ O —	—
CO ₂	—
TiO ₂	0.52
P ₂ O ₅	0.20
MnO	0.38
Other Constituents	
	—
Age	

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

a. $\text{SiO}_2/\text{Al}_2\text{O}_3 > 5$

CaO < 1%

	1	2	3	4	5	6	7	8	9
Rock Name	Plagioclase-chlorite-muscovite hornfels	Plagioclase-chlorite-muscovite hornfels	Plagioclase-chlorite-muscovite hornfels	Schist mylonite	Feldspar-biotite-cordierite-andalusite gneiss <i>Tickalara Metamorphics</i>	Quartz-biotite schist <i>Mt Nelse Schist</i>	Albite Schist <i>Franklin Group</i>	Phyllite <i>Mary Group</i>	Chloritized garnet schist <i>Franklin Group</i>
Locality	13 km WSW. of Captains Flat, N.S.W. 35°37'S, 149°17'E.	13 km WSW. of Captains Flat, N.S.W. 35°37'S, 149°17'E.	13 km WSW. of Captains Flat, N.S.W. 35°37'S, 149°17'E.	Cobungra Gap, Upper Kiewa Valley, Vic.	Dixon Ra. Area, W.A. 17°155'30"S, 127°34'10"E.	Cobungra Gap, Kiewa Valley, Vic.	Cardigan R., Tas.	Mt Mary, Tas.	W. Raglan Ra., Tas.
Reference	63	63	63	5, 61	43, 36	5, 61; 7, 364	117, 127	117, 127	41, 17; 117, 127
Analyst	K. Bose A.M.D.L.	K. Bose A.M.D.L.	K. Bose A.M.D.L.	V. Biskupsky	J. Gamble W.A. Govt Chem Lab	V. Biskupsky	Tas. Dept Mines	Tas. Dept Mines Bull. 65, Va 35	Tas. Dep. Mines
Remarks					Contains spinel				
SiO ₂	81.40	80.50	80.40	79.42	75.49	75.45	75.24	74.32	73.70
Al ₂ O ₃	9.05	9.35	9.25	10.75	12.43	13.76	13.27	12.90	11.62
Fe ₂ O ₃	0.35	0.84	0.50	3.75	0.61	1.21	1.28	0.43	2.95
FeO	2.30	1.93	3.15	0.12	2.86	2.09	1.41	2.69	3.69
MgO	1.31	1.33	1.56	0.21	0.96	1.40	0.94	3.27	2.00
CaO	0.28	0.21	0.21	0.29	0.68	0.24	0.04	abs	0.04
Na ₂ O	1.83	1.16	1.13	0.40	1.01	0.45	1.98	0.44	0.09
K ₂ O	1.30	1.74	1.30	2.11	3.88	3.47	3.36	3.08	2.47
H ₂ O+	1.33	2.15	1.72	2.90	1.00	2.01	1.43	2.90	2.96
H ₂ O-	0.13	0.19	0.30	0.37	0.18	0.12	0.20	0.20	0.36
CO ₂	0.05	0.03	0.09	—	—	—	nd	nd	nd
TiO ₂	0.45	0.49	0.47	0.51	0.47	0.51	0.04	0.35	0.45
P ₂ O ₅	0.13	0.12	0.11	0.05	0.08	0.08	0.02	0.05	0.03
MnO	0.03	0.03	0.05	0.02	0.03	0.03	0.03	tr	0.04
Other Constituents	S = 0.02	S = 0.01	S = 0.02		FeS ₂ = 0.04 Li ₂ O = 0.18				
Age	99.96	100.08	100.26	100.90	99.90	100.82	99.24	100.63	100.40

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

a. $\text{SiO}_2/\text{Al}_2\text{O}_3 > 5$

	CaO < 1%						CaO > 1%		
	10	11	12	13	14	15	16	17	18
Rock Name	Albite schist	Andalusite-biotite graphite (cordierite) hornfels	Phyllite <i>Scotchfire Group</i>	Andalusite-mica-graphite hornfels	Andalusite-sericite graphite hornfels	Garnet schist <i>Franklin Group</i>	Foliated siltstone <i>Whyte River Schist</i>	Garnet-sillimanite cordierite gneiss	Schist <i>Scotchfire Group</i>
Locality	Bond Bay, Port Davey, Tas.	Big Hill, Bendigo, Vic	Mt Arrowsmith Tas.	Big Hill, Bendigo, Vic.	Big Hill, Bendigo, Vic.	Cardigan R., Tas.	Pieman R., Tas.	Lilienthal I., Donovan Is., Ant. 66°13'S, 110°22'E.	Jane R., Tas.
Reference	120, 21	6, 97	117, 127	6, 97	6, 97	117, 127	119, 26	79, 49	117, 127
Analyst	R. L. Bruce, L. W. Castanelli A.M.D.L.	V. Biskupsky	Tas. Dep Mines	V. Biskupsky	V. Biskupsky	Tas. Dep. Mines	Tas. Dep. Mines	C. R. Edmond A.M.D.L.	Tas. Dep. Mines
Remarks									
SiO ₂	73.10	72.52	71.72	70.85	69.58	60.12	80.14	71.90	70.72
Al ₂ O ₃	13.60	13.35	13.99	13.86	12.68	11.60	6.18	11.80	10.51
Fe ₂ O ₃	0.80	3.01	1.67	3.04	4.61	1.00	1.21	1.55	0.97
FeO	3.30	0.66	1.20	0.26	0.34	14.47	2.05	5.60	4.91
MgO	1.05	0.69	2.01	0.65	0.38	7.00	2.25	1.87	4.91
CaO	0.66	0.41	0.08	0.56	0.50	0.68	1.64	1.60	1.52
Na ₂ O	4.00	0.86	0.05	0.51	0.81	0.16	0.37	1.37	1.29
K ₂ O	1.18	3.23	6.02	4.29	4.20	0.32	1.45	1.98	1.12
H ₂ O +	1.40	3.23	2.48	4.10	4.90	4.20	3.47	0.52	2.97
H ₂ O -	0.39	—	0.26	—	—	0.18	0.17	0.10	0.18
CO ₂	nd	—	nd	—	—	—	nd	0.04	nd
TiO ₂	nd	0.41	0.34	0.54	0.55	0.30	0.47	1.14	0.44
P ₂ O ₅	nd	—	0.07	—	—	0.07	0.12	0.12	0.11
MnO	nd	—	nd	—	—	0.06	0.05	0.20	0.07
Other Constituents		C = 0.57		C = 0.80	C = 1.10				
	99.47	98.94	99.89	99.38	99.65	100.16	99.57	99.79	99.72
Age									

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

a. $\text{SiO}_2/\text{Al}_2\text{O}_3 > 5$			b. $\text{SiO}_2/\text{Al}_2\text{O}_3 = 5 - 4$						
CaO > 1%			CaO < 1%						
Rock Name	19	20		1	2	3	4	5	6
	Biotite-plagioclase schist	Quartz-sericite schist		Leucocratic lens in permeation-gneiss	Muscovite-chlorite schist <i>Franklin Group</i>	Plagioclase-chlorite muscovite hornfels	Garnet schist <i>Franklin Group</i>	Quartz-mica-cordierite schist	Phyllite
Locality	Chappel I., Donovan Is., Ant.	Kalgoorlie, WA.		Rocky Valley, Kiewa Valley, Vic.	Raglan Ra., Tas.	13 km WSW. of Captains Flat, N.S.W. 35°37'S, 149°17'E.	Raglan Ra., Tas.	Big Hill, Bendigo, Vic.	Joyce Cr, Raglan Ra., Tas.
Reference	79, 49	98		7, 366	41, 17, 117, 127	5	41, 17; 117, 127	6, 97	41; 17, 127
Analyst	H. W. Sears A.M.D.L.	W. R. O'Beirne		V. Biskupsky	Tas. Dep. Mines	K. Bose A.M.D.L.	Tas. Dep. Mines Bull. 65, Vb11	V. Biskupsky	Tas. Dep. Mines
Remarks									
SiO ₂	68.50	67.35		72.65	71.60	69.30	69.28	68.49	68.00
Al ₂ O ₃	13.20	12.67		16.81	14.72	15.00	15.64	15.05	15.72
Fe ₂ O ₃	0.90	1.66		1.07	1.04	0.58	0.57	4.01	0.92
FeO	5.25	2.03		2.08	8.84	3.75	4.61	0.35	3.02
MgO	2.20	2.40		1.29	2.56	2.70	1.48	0.84	1.43
CaO	2.40	3.49		0.80	0.16	0.18	0.68	0.49	0.32
Na ₂ O	2.35	0.46		1.50	1.71	1.05	1.93	0.55	1.18
K ₂ O	2.20	3.25		2.50	3.02	2.85	3.42	3.21	3.64
H ₂ O +	1.39	0.58		1.35	2.94	3.10	1.96	5.27	2.79
H ₂ O -	0.10	0.02		0.13	0.14	0.23	0.10	—	0.12
CO ₂	0.12	4.44		—	nd	0.18	nd	—	nd
TiO ₂	0.86	0.38		0.40	0.69	0.69	0.45	0.43	0.78
P ₂ O ₅	0.11	nd		0.04	0.05	0.13	0.05	—	0.06
MnO	0.07	0.07		0.05	0.02	0.04	tr	—	0.02
Other Constituents						S = 0.03			FeS ₂ = 1.29 SO ₃ = 0.14
Age	99.65	98.80		100.67	101.27	99.81	100.17	99.23	99.89

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

b. $\text{SiO}_2/\text{Al}_2\text{O}_3 = 5 - 4$								c. $\text{SiO}_2/\text{Al}_2\text{O}_3 = 4 - 3$	
CaO < 1%				CaO > 1%				CaO < 1%	
	7	8	9	10	11	12	13	1	
Rock Name	Quartz-biotite almandine schist <i>Mt Nelse Schist</i>	Biotite-andalusite-graphite hornfels	Chlorite-sericite phyllite <i>Bunya Phyllite</i>	Meta-sediment <i>Nairne Pyrite Member</i>	Sillimanite-biotite-cordierite schist	Hornfels	Meta-sediment <i>Nairne Pyrite Member</i>	Quartz-sillimanite mica-garnet schist <i>Tickalara Metamorphics</i>	
Locality	W. Kiewa, Vic.	Big Hill, Bendigo, Vic.	Taringa, Qld	Nairne, S.A.	Nelly I., Frazier Is, Ant.	Granville Har., Tas.	Nairne, S.A.	Dixon Ra. Area, W.A. 17°30'50"S, 128°05'15"E.	
Reference	7, 364	6, 97	58, 2	44, 4	79, 49	119, 31	44, 4	42; 43, 36	
Analyst	V. Biskupsky	V. Biskupsky	C.H.Couper Qld Govt Chem Lab	R. J. George	C. R. Edmond A.M.D.L.	Tas. Dep. Mines	R. J. George	L. W. Castanelli, M.R. Hænckel A.M.D.L.	
Remarks									
SiO_2	66.71	66.38	63.60	65.58	63.50	61.90	59.21	69.60	
Al_2O_3	16.48	15.15	15.00	13.58	13.90	14.25	13.71	17.50	
Fe_2O_3	0.45	4.42	3.18	—	2.35	1.00	—	1.09	
FeO	4.10	0.44	2.40	—	6.90	3.53	—	4.05	
MgO	2.41	0.53	3.20	2.69	2.95	6.76	3.01	1.88	
CaO	0.54	0.54	0.50	4.05	1.30	4.39	2.77	0.26	
Na_2O	0.58	0.46	2.50	1.76	3.60	3.44	1.92	0.11	
K_2O	4.22	4.23	3.50	2.40	3.20	1.50	3.08	2.94	
$\text{H}_2\text{O} +$	3.05	5.15	4.05	—	0.62	2.01	—	1.26	
$\text{H}_2\text{O} -$	0.35	—	0.05	—	0.12	abs	—	0.13	
CO_2	—	—	1.47	—	0.03	nd	—	0.03	
TiO_2	0.70	0.59	0.72	0.67	1.44	0.62	0.54	0.54	
P_2O_5	0.10	—	0.14	—	0.18	0.15	—	0.13	
MnO	0.07	—	0.13	—	0.06	0.05	—	0.04	
Other Constituents		C=1.00	S=0.016 PbO=0.003 C=0.48	$\text{Fe}_{0.97}\text{S}=7.18$ $\text{FeS}_2=1.89$			$\text{Fe}_{0.97}\text{S}=7.18$ $\text{FeS}_2=6.92$		
	99.76	98.86	100.93	99.80	100.20	99.60	98.34	99.56	
Age									

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

$$\text{c. SiO}_2/\text{Al}_2\text{O}_3 = 4 - 3$$
$$\text{CaO} < 1\%$$

	2	3		5	6	7	8	9	10
Rock Name	Sericite-andalusite-graphite-quartz hornfels	Garnet-albite schist <i>Franklin Group</i>	Mica schist <i>Franklin Group</i>	Cordierite-biotite-andalusite-sillimanite gneiss <i>Tickalara Metamorphics</i>	Phyllite	Andalusite hornfels	Plagioclase-chlorite-muscovite-quartz hornfels	Quartz-mica-andalusite hornfels	Sheared quartz-mica hornfels
Locality	Big Hill, Bendigo, Vic	Raglan Ra., Tas.	Raglan Ra., Tas.	Dixon Ra. Area, W.A. 16°52'S, 128°15'E.	Joyce Cr, Raglan Ra., Tas.	Big Hill, Bendigo, Vic.	13 km WSW. of Captains Flat, N.S.W. 35°37'S, 149°17'E.	Big Hill, Bendigo, Vic.	Big Hill, Bendigo, Vic.
Reference	6, 97	41, 17, 117, 127	41; 117, 127	42; 43, 36	117, 127	6, 99	63	6, 97	6, 97
Analyst	V. Biskupsky	Tas. Dep. Mines	Tas. Dep. Mines	M.R.Hanckel, R. L. Bruce A.M.D.L.	Tas. Dep. Mines	V. Biskupsky	K. Bose A.M.D.L.	V. Biskupsky	V. Biskupsky
Remarks									
SiO ₂	68.89	68.00	67.20	66.50	66.38	65.73	65.40	64.75	64.45
Al ₂ O ₃	18.65	17.00	17.67	17.70	18.21	17.05	16.50	16.25	16.92
Fe ₂ O ₃	1.26	1.96	2.30	0.83	1.46	3.67	0.85	4.12	4.49
FeO	0.26	2.54	2.72	4.55	2.34	0.62	4.50	1.24	0.24
MgO	0.32	1.16	1.19	1.73	1.74	0.84	3.40	0.82	0.25
CaO	0.56	0.60	0.32	0.95	0.44	0.54	0.07	0.52	0.41
Na ₂ O	0.51	1.31	0.98	1.35	1.25	0.68	0.65	0.80	0.61
K ₂ O	4.65	3.64	3.47	4.46	4.23	4.10	3.70	4.65	4.85
H ₂ O +	4.76	2.93	3.06	0.93	2.93	4.81	3.55	4.38	6.48
H ₂ O —	—	0.19	0.18	0.19	0.47	—	0.35	—	—
CO ₂	—	nd	nd	0.04	nd	—	0.06	—	—
TiO ₂	0.54	0.69	0.94	0.56	0.94	0.59	0.74	0.59	0.58
P ₂ O ₅	—	0.06	0.40	0.09	0.07	—	0.11	—	—
MnO	—	0.02	0.02	0.04	0.01	—	0.05	—	—
Other Constituents	C = tr					C = 0.63	S = 0.02	C = tr	C = 0.10
Age	100.40	100.01	100.45	99.92	100.47	99.26	99.95	98.12	99.38

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

c. $\text{SiO}_2/\text{Al}_2\text{O}_3 = 4-3$

CaO < 1%

	11	12	13	14	15	16	17	18	19
Rock Name	Chlorite-sericite-andalusite-graphite hornfels	Quartz-mica-plagioclase schist <i>Soldiers Cap Formation</i>	Phyllite <i>Whyte Schist</i>	Hornfels	Quartz-sericite-muscovite (andalusite) hornfels	Quartz-sericite-muscovite-chlorite hornfels	Sericite-quartz-biotite-chlorite hornfels	Sericite-quartz-biotite-chlorite hornfels	Sericite-quartz-biotite-chlorite hornfels
Locality	Big Hill, Bendigo, Vic.	24 km SE. of Cloncurry, Qld	Pieman R., Tas.	Big Hill, Bendigo, Vic.	Big Hill, Bendigo, Vic.	Big Hill, Bendigo, Vic.	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.
Reference	6, 97	28	119, 26	6, 99	6, 97	6, 97	63	63	63
Analyst	V. Biskupsky	C. R. Edmond A.M.D.L.	Tas. Dep. Mines	V. Biskupsky	V. Biskupsky	V. Biskupsky	K. Bose A.M.D.L.	K. Bose A.M.D.L.	K. Bose A.M.D.L.
Remarks									
SiO ₂	63.95	63.80	63.38	62.15	60.55	60.33	59.50	59.50	58.90
Al ₂ O ₃	20.10	20.80	17.84	17.87	19.10	15.45	19.20	19.70	19.60
Fe ₂ O ₃	2.09	1.01	1.68	6.23	4.80	12.02	1.40	0.46	0.82
FeO	0.71	3.75	3.05	0.43	0.64	0.64	5.05	5.45	5.65
MgO	—	1.88	3.49	0.60	0.98	0.80	3.25	3.15	3.25
CaO	0.59	0.48	tr	0.39	0.65	0.27	0.14	0.29	0.17
Na ₂ O	0.53	1.60	0.48	0.98	1.00	0.80	0.31	0.45	0.33
K ₂ O	3.15	4.25	4.31	4.35	4.80	4.29	5.35	5.75	5.85
H ₂ O +	7.25	1.13	4.61	5.49	5.40	5.48	3.95	3.75	3.85
H ₂ O —	—	0.09	0.13	—	—	—	0.56	0.35	0.41
CO ₂	—	0.03	p.n.d.	—	—	—	0.01	0.06	0.06
TiO ₂	0.40	0.63	0.85	0.53	0.60	0.12	0.72	0.81	0.70
P ₂ O ₅	—	0.21	0.12	—	—	—	0.17	0.14	0.16
MnO	—	0.05	tr	—	—	—	0.05	0.04	0.04
Other Constituents	C = 0.40						S = 0.03	S = 0.25	S = 0.09
	99.17	99.70	99.94	99.02	98.52	100.77	99.69	100.15	99.88
Age									

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

c. $\text{SiO}_2/\text{Al}_2\text{O}_3 = 4 - 3$

	CaO < 1%	CaO > 1%							
	20	21	22	23	24	25	26	27	28
Rock Name	Hornblende- pyroxene- garnet-biotite gneiss <i>Tickalara Metamorphics</i>	Permeation gneiss	Quartz- cordierite- andesine- biotite gneiss <i>Tickalara Metamorphics</i>	Meta- sediments <i>Nairne Pyrite Member</i>	Meta- sediment <i>Nairne Pyrite Member</i>	Meta- sediment <i>Nairne Pyrite Member</i>	Quartz- mica schist <i>Einiasleigh Metamor- phics</i>	Quartz- feldspar- cordierite- garnet- sillimanite gneiss <i>Tickalara Metamorphics</i>	Meta- sediment <i>Nairne Pyrite Member</i>
Locality	Dixon Ra., W.A. 17°27'S, 128°05'50E.	Rocky Valley, Kiewa Area, Vic.	Dixon Ra. Area, W.A. 17°21'00"S, 128°07'10"E.	Nairne, S.A.	Nairne, S.A.	Nairne, S.A.	Georgetown Area, Qld Georgetown 1:250000 Sheet	Dixon Ra. Area, W.A.	Nairne, S.A.
Reference	42, 43, 36	5, 61, 75, 366	42; 43, 36	44, 4	44, 4	44, 4	28	42; 43, 36	44, 4
Analyst	L. W. Castanelli, M.R.Hanckel A.M.D.L.	V. Biskupsky	M. R. Hanckel, R. L. Bruce A.M.D.L.	R. J. George	R. J. George	R. J. George	D. K. Rowley A.M.D.L.	R. W. Lindsay, W.A. Govt Chem Lab	R. J. George
Remarks									
SiO ₂	53.10	70.49	66.30	63.62	61.95	61.89	60.80	60.61	57.78
Al ₂ O ₃	18.10	17.73	17.00	17.01	16.42	16.91	18.90	20.14	14.89
Fe ₂ O ₃	7.10	1.04	1.74	—	—	—	0.42	1.53	—
FeO	9.40	1.56	5.40	3.72	—	2.11	6.78	5.34	—
MgO	3.33	1.31	1.92	3.14	3.30	3.38	2.35	2.46	3.05
CaO	0.55	1.40	3.00	2.17	2.25	1.97	1.31	2.05	1.76
Na ₂ O	0.30	1.60	2.24	1.96	2.10	2.12	1.15	2.08	2.03
K ₂ O	3.66	2.80	0.55	3.39	3.65	3.52	3.70	3.83	3.31
H ₂ O +	2.95	1.30	0.52	—	—	—	2.88	0.73	—
H ₂ O —	0.32	0.13	0.11	—	—	—	0.10	0.12	—
CO ₂	0.02	—	0.03	—	—	—	0.04	—	—
TiO ₂	1.37	0.36	1.00	0.53	0.60	0.57	0.93	1.19	0.49
P ₂ O ₅	0.12	0.03	0.05	—	—	—	0.20	0.02	—
MnO	0.09	0.04	0.05	—	—	—	0.07	0.04	—
Other Constituents				Fe _{0.047} S=3.24	Fe _{0.047} S=6.89 FeS ₂ =2.06	Fe _{0.047} S=4.64	C=0.25		Fe _{0.047} S=12.78 FeS ₂ =2.93
Age	100.41	99.79	99.91	98.78	99.22	97.11	99.88	100.14	99.02

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

c. $\text{SiO}_2/\text{Al}_2\text{O}_3 = 4 - 3$

CaO > 1%

	29	30	31	32	33	34	35	36	37
Rock Name	Meta-sediment <i>Nairne Pyrite Member</i>	Meta-sediment <i>Nairne Pyrite Member</i>	Mica phyllite <i>Bunya Phyllite</i>	Meta-sediment <i>Nairne Pyrite Member</i>	Meta-sediment <i>Nairne Pyrite Member</i>	Meta-sediment <i>Nairne Pyrite Member</i>	Meta-sediment <i>Nairne Pyrite Member</i>	Metamorphosed clay-rich clastic sediment <i>Nairne Pyrite Member</i>	Metamorphosed clay-rich clastic sediment <i>Nairne Pyrite Member</i>
Locality	Nairne, S.A.	Nairne, S.A.	Bore St Lucia, Brisbane, Qld	Nairne, S.A.	Nairne, S.A.	Nairne, S.A.	Nairne, S.A.	Nairne, S.A.	Nairne, S.A.
Reference	44, 4	44, 4	58, 2	44, 4	44, 4	44, 4	44, 4	44, 4	44, 4
Analyst	R. J. George	R. J. George	C.H. Couper Qld Govt Chem Lab	R. J. George	R. J. George	R. J. George	R. J. George	R. J. George	R. J. George
Remarks			45'0''(14m)						
SiO_2	57.56	56.78	54.00	53.85	50.30	49.90	47.77	47.64	47.63
Al_2O_3	16.93	15.10	17.90	15.28	13.06	14.23	13.61	12.45	14.29
Fe_2O_3	—	—	7.20	—	—	—	—	—	—
FeO	0.58	—	2.56	—	—	—	—	—	—
MgO	3.40	3.11	2.64	2.99	2.68	2.78	2.38	2.46	2.69
CaO	1.75	1.84	1.10	1.98	1.89	1.89	2.01	2.08	1.59
Na_2O	1.96	1.82	2.00	1.81	1.62	1.62	1.49	1.65	1.72
K_2O	4.02	3.78	4.80	3.42	2.98	3.53	3.04	2.67	3.18
$\text{H}_2\text{O} +$	—	—	0.65	—	—	—	—	—	—
$\text{H}_2\text{O} -$	—	—	2.95	—	—	—	—	—	—
CO_2	—	—	3.10	—	—	—	—	—	—
TiO_2	0.64	0.57	0.81	0.58	0.50	0.55	0.58	0.33	0.53
P_2O_5	—	—	0.21	—	—	—	—	—	—
MnO	—	—	0.16	—	—	—	—	—	—
Constituents	$\text{Fe}_{0.917}\text{S} = 11.01$	$\text{Fe}_{0.917}\text{S} = 13.85$	$\text{C} = 0.12$	$\text{Fe}_{0.947}\text{S} = 7.84$	$\text{Fe}_{0.947}\text{S} = 10.28$	$\text{Fe}_{0.947}\text{S} = 8.79$	$\text{Fe}_{0.917}\text{S} = 13.15$	$\text{Fe}_{0.947}\text{S} = 9.81$	$\text{Fe}_{0.947}\text{S} = 11.85$
Other		$\text{FeS}_2 = 1.65$		$\text{FeS}_2 = 11.08$	$\text{FeS}_2 = 14.82$	$\text{FeS}_2 = 15.12$	$\text{FeS}_2 = 14.92$	$\text{FeS}_2 = 19.66$	$\text{FeS}_2 = 16.13$
	97.85	98.50	100.20	98.83	98.13	98.41	98.95	98.75	99.61
Age									

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

[illegible]

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

d. $\text{SiO}_2/\text{Al}_2\text{O}_3 < 3$

CaO < 1%

	7	8	9	10	11	12	13	14	15
Rock Name	Quartz-biotite-sericite-chlorite hornfels	Quartz-biotite-sericite-chlorite hornfels	Knotted schist <i>Mt Nelse Schist</i>	Quartz-biotite-sericite-chlorite hornfels	Quartz-biotite-sericite-chlorite hornfels	Quartz-biotite-sericite-chlorite hornfels	Cordierite-bearing knotted schist	Mica phyllite <i>Bunya Phyllite</i>	Andalusite-mica-cordierite-graphite hornfels
Locality	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.	Mt Bogong, Kiewa Area, Vic.	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.	13 km S. of Captains Flat, N.S.W. 35°42'S, 149°26'E.	13 km. S of Captains Flat, N.S.W. 35°42'S, 149°26'E.	Tumbarumba-Geehi Area, N.S.W.	DD. Camp Mountain Area, Qld	Big Hill, Bendigo, Vic.
Reference	63	63	7, 364	63	63	63	51	58, 2	6, 97
Analyst	K. Bose A.M.D.L.	K. Bose A.M.D.L.	V. Biskupsky	K. Bose A.M.D.L.	K. Bose A.M.D.L.	K. Bose A.M.D.L.	B. B. Guy	C. H. Couper Qld Govt Chem Lab	V. Biskupsky
Remarks								38'6" (12 m)	
SiO_2	57.30	56.90	56.90	56.80	55.80	55.00	54.67	54.40	54.25
Al_2O_3	20.90	20.60	21.85	20.70	21.20	21.90	21.21	19.00	23.34
Fe_2O_3	1.40	0.85	0.65	1.60	1.44	2.20	0.22	6.40	5.70
FeO	4.45	5.65	3.98	4.80	5.15	4.30	5.45	2.50	1.10
MgO	3.00	3.40	2.09	3.10	3.25	3.05	3.66	3.30	3.19
CaO	0.14	0.16	0.78	0.14	0.14	0.19	0.91	0.50	0.60
Na_2O	0.32	0.28	0.64	0.36	0.67	0.47	1.14	1.80	0.65
K_2O	6.40	6.60	5.93	6.40	6.55	7.00	6.43	5.60	3.75
$\text{H}_2\text{O} +$	3.95	3.90	5.15	4.10	4.00	4.00	3.29	4.47	4.18
$\text{H}_2\text{O} -$	0.79	0.38	0.67	0.64	0.48	0.75	0.43	0.33	—
CO_2	0.06	0.07	—	0.38	0.03	0.06	—	0.23	—
TiO_2	0.73	0.67	0.71	0.70	0.77	0.75	2.20	0.84	0.95
P_2O_5	0.15	0.15	0.09	0.15	0.17	0.14	0.11	0.23	—
MnO	0.04	0.04	0.04	0.04	0.05	0.04	0.03	0.17	—
Other Constituents	S=0.04	S=0.14		S=0.03	S=0.04			C=0.20	C=1.80
	99.67	99.79	99.48	99.94	99.74	99.85	99.75	99.97	99.51
Age									

TABLE V — METAMORPHOSED PELITIC ROCKS (NON-CALCAREOUS)

d. $\text{SiO}_2/\text{Al}_2\text{O}_3 < 3$									
CaO < 1%							CaO > 1%		
	16	17	18	19	20	21	22	23	24
Rock Name	Quartz-biotite-sericite-chlorite hornfels	Sillimanite-cordierite hornfels	Sillimanite-biotite-muscovite schist <i>Willyama Complex</i>	Slate	Knotted albite schist <i>Franklin Group</i>	Cordierite-biotite-sillimanite-andalusite gneiss <i>Tickalara Metamorphics</i>	Knotted schist	Sillimanite-garnet-staurolite schist <i>Tickalara Metamorphics</i>	Chloritoid-chlorite-muscovite schist <i>Tickalara Metamorphics</i>
Locality	13 km S. of Captains Flat, N.S.W.	10 km W. of Mt Alexander, N.T. 12°41'S, 136°37'E.	Umberumberka Area, nr Broken Hill, N.S.W. 530W, 435N. Zinc Corp. map	Mt Hotham, Kiewa Area, Vic.	Raglan Ra., Tas.	Dixon Ra. Area, W.A. 17°09'15"S, 128°04'50"E.	Tumbarumba-Geehi Area, N.S.W.	13 km NNW. of Mt Ranford, Dixon Ra. Area, W.A. 17°21'25"S, 128°09'40"E.	19 km SW. of Mt Ranford, Dixon Ra. Area, W.A.
Reference	63	28	9, 303	7, 362	41, 17; 117, 127	42; 43, 35	51	42; 43, 36	42; 43, 36
Analyst	K. Bose A.M.D.L.	L. Castanelli A.M.D.L.	W. H. Herdsman	V. Biskupsky	Tas. Dep. Mines	M. R. Hanckel, R. L. Bruce A.M.D.L.	B. B. Guy	L. W. Castanelli, M. R. Hanckel A.M.D.L.	L. W. Castanelli, M. R. Hanckel A.M.D.L.
Remarks									
SiO_2	54.00	52.10	51.49	50.64	49.92	46.50	52.35	48.30	36.60
Al_2O_3	21.80	26.20	26.86	24.55	16.76	31.30	24.08	18.20	27.40
Fe_2O_3	1.33	1.50	4.36	2.32	4.81	2.25	1.93	7.45	6.15
FeO	5.60	6.10	6.04	4.44	8.84	9.70	4.09	13.90	8.80
MgO	3.40	3.50	1.39	2.61	6.91	3.00	3.18	4.65	4.95
CaO	0.17	0.63	0.07	0.25	0.72	0.67	1.00	1.65	1.34
Na_2O	0.36	2.10	0.47	0.30	2.12	0.89	0.73	1.13	0.90
K_2O	7.20	5.20	5.22	5.95	1.61	2.35	6.75	2.35	3.90
$\text{H}_2\text{O} +$	4.10	1.59	2.89	6.65	5.33	1.70	4.08	0.82	6.17
$\text{H}_2\text{O} -$	0.44	0.42	abs	0.32	0.53	0.28	0.16	0.18	0.24
CO_2	0.28	0.02	—	—	nd	0.07	—	0.11	0.55
TiO_2	0.80	0.84	0.70	0.83	2.44	1.02	1.80	1.49	2.53
P_2O_5	0.16	0.11	0.25	0.05	0.24	0.12	0.07	0.05	0.15
MnO	0.04	0.04	0.14	0.03	0.05	0.05	0.06	0.08	0.18
Other Constituents			F = 0.25						
Less O = Cl, F, S			0.11						
	99.68	100.35	100.02	98.94	99.23	99.90	100.28	100.36	99.86
Age									

TABLE W — METAMORPHOSED PSAMMITIC ROCKS (EXCLUDING CALCAREOUS TYPES)

a. $\text{SiO}_2/\text{Al}_2\text{O}_3 > 5$

CaO < 1%

	1	2	3	4	5	6	7	8	9
Rock Name	Quartzschist	Meta-quartzite	Quartzschist <i>Mary Group</i>	Meta-quartzite	Quartzite	Quartzfeldspar-sericite (graphite) metagreywacke	Quartzite	Quartz-mica meta-greywacke	Quartzite
Locality	Mt Nelse North, Kiewa Area, Vic.	Big Hill, Bendigo, Vic.	Mt Mary, Tas.	Big Hill, Bendigo, Vic.	Oonah Hill, Tas.	Big Hill, Bendigo, Vic.	Between Howth and Somers, Tas.	Big Hill, Bendigo, Vic.	Oonah Hill, Tas.
Reference	7, 364	6, 97	117, 127	6, 97	119, 31	6, 97	119, 31	6, 97	119, 31
Analyst	V. Biskupsky	V. Biskupsky	Tas. Dep. Mines	V. Biskupsky	Tas. Dep. Mines	V. Biskupsky	Tas. Dep. Mines	V. Biskupsky	Tas. Dep. Mines
Remarks									
SiO ₂	99.35	98.67	98.00	89.50	87.54	86.13	86.08	85.98	85.46
Al ₂ O ₃	0.65	0.88	0.62	4.78	6.42	3.99	7.40	5.85	7.76
Fe ₂ O ₃	0.05	0.09	tr	1.01	0.46	3.81	0.50	1.91	0.71
FeO	—	—	0.77	0.49	0.80	1.00	0.83	0.08	0.51
MgO	—	—	abs	0.20	0.41	0.41	0.51	0.30	0.61
CaO	—	0.37	0.04	0.65	tr	0.75	0.24	0.61	tr
Na ₂ O	—	0.10	0.18	0.98	0.05	0.64	0.18	1.83	0.18
K ₂ O	—	0.12	0.24	0.91	1.49	0.89	2.19	0.83	2.06
H ₂ O+	0.02	0.30	0.18	1.21	1.84	2.18	1.42	1.42	1.83
H ₂ O—	0.03	—	0.04	—	0.15	—	0.13	—	0.11
CO ₂	—	—	nd	—	nd	—	nd	—	nd
TiO ₂	0.01	0.47	0.05	0.41	0.42	0.61	0.42	0.20	0.45
P ₂ O ₅	—	—	tr	—	0.08	—	0.03	—	0.05
MnO	—	—	tr	—	tr	—	tr	—	tr
Other Constituents						C = tr			
	100.11	100.38	100.12	100.14	99.66	100.41	100.00	99.01	99.64
Age									

TABLE W — METAMORPHOSED PSAMMITIC ROCKS
(EXCLUDING CALCAREOUS TYPES)

a. $\text{SiO}_2/\text{Al}_2\text{O}_3 > 5$							
$\text{CaO} < 1\%$							$\text{CaO} = 1-2$
	10	11	12	13	14	15	16
Rock Name	Quartzofeldspathic schist	Quartzfeldspar-sericite meta-greywacke	Quartzofeldspathic schist	Quartzofeldspathic schist	Quartzofeldspathic schist	Quartzofeldspathic schist	Quartzofeldspathic schist
Locality	Palmer Area, E. Mt Lofty, S.A.	Big Hill, Bendigo, Vic.	Palmer Area, E. Mt Lofty, S.A.	Palmer Area, E. Mt Lofty, S.A.	Nr Harrogate, E. Mt Lofty, S.A.	Palmer Area, E. Mt Lofty, S.A.	Palmer Area, E. Mt Lofty, S.A.
Reference	139, 176	6, 97	139, 176	139, 176	139, 176	139, 176	139, 176
Analyst	A. J. R. White	V. Biskupsky	A. J. R. White	A. J. R. White	A. J. R. White	A. J. R. White	A. J. R. White
Remarks							
SiO_2	79.94	79.89	79.08	78.95	78.46	77.47	81.10
Al_2O_3	10.51	8.68	11.58	10.66	10.90	10.99	10.11
Fe_2O_3	1.22	1.88	0.35	1.16	0.68	0.91	0.76
FeO	0.83	1.04	0.89	1.23	1.26	1.71	0.91
MgO	0.62	0.42	0.07	0.67	0.32	1.11	0.63
CaO	0.44	0.65	0.96	0.73	0.59	0.97	1.22
Na_2O	3.15	0.95	3.75	3.16	3.23	2.24	2.19
K_2O	2.53	2.20	3.14	2.14	3.54	3.28	2.52
$\text{H}_2\text{O} +$	0.71	2.76	0.26	0.06	0.40	0.58	0.34
$\text{H}_2\text{O} -$	0.10	—	0.06	0.16	0.10	0.15	0.11
CO_2	0.05	—	0.01	0.02	0.04	0.01	0.02
TiO_2	0.22	0.47	0.25	0.39	0.26	0.27	0.18
P_2O_5	0.11	—	0.10	0.16	0.12	0.08	0.06
MnO	0.02	—	0.02	0.02	0.02	0.03	0.04
Other Constituents	BaO = 0.10 SrO = 0.02 Rb ₂ O = 0.01 ZrO ₂ = 0.02		BaO = 0.06 SrO = 0.01 Rb ₂ O = 0.01 ZrO ₂ = 0.03	BaO = 0.08 SrO = 0.03 Rb ₂ O = 0.01 ZrO ₂ = 0.03	BaO = 0.13 SrO = 0.02 Rb ₂ O = 0.01 ZrO ₂ = 0.02	BaO = 0.10 SrO = 0.01 Rb ₂ O = 0.01 ZrO ₂ = 0.02	BaO = 0.07 SrO = 0.01 Rb ₂ O = 0.01 ZrO ₂ = 0.01
Age	100-60	98-94	100-62	100-26	100-10	99-94	100-29

TABLE W — METAMORPHOSED PSAMMITIC
ROCKS (EXCLUDING CALCAREOUS TYPES)

b. $\text{SiO}_2/\text{Al}_2\text{O}_3 < 5$

CaO < 1%			
	1	2	3
Rock Name	Buchite	Quartz- biotite (cordierite) meta- greywacke	Quartz- mica- cordierite meta- greywacke
Locality	Apsley, Tas.	Big Hill, Bendigo, Vic.	Big Hill, Bendigo, Vic.
Reference	121, 527	6, 97	6, 97
Analyst	Tas. Dep. Mines	V. Biskupsky	V. Biskupsky
Remarks			
SiO_2	70.88	67.80	62.50
Al_2O_3	15.12	14.45	15.63
Fe_2O_3	0.93	4.89	6.40
FeO	3.03	0.83	0.50
MgO	1.45	1.43	0.73
CaO	0.88	0.74	0.52
Na_2O	0.62	0.64	1.45
K_2O	2.70	2.96	4.86
$\text{H}_2\text{O} +$	2.24	4.58	4.98
$\text{H}_2\text{O} -$	1.18	—	—
CO_2	nd	—	—
TiO_2	0.76	0.74	0.83
P_2O_5	0.14	—	—
MnO	0.04	—	—
Other Constituents			
	99.98	99.06	98.49
Age			

TABLE X — METAMORPHOSED CALCAREOUS ROCKS

a. CALCAREOUS PSAMMITES			b. CALCAREOUS PELITES AND SILICEOUS LIMESTONE			
CaO/MgO > 1			CaO/MgO > 1			
	1		1	2	3	4
Rock Name	Quartz-amphibole almandine schist		Actinolite hornfels	Calcareous gneiss <i>Tickalara Metamorphics</i>	Calcareous meta-sediment <i>Nairne Pyrite Member</i>	Diopside-garnet-scapolite-epidote hornfels <i>Tickalara Metamorphics</i>
Locality	Mt Nelse, Kiewa Area, Vic.		Koolanooka Hills, W.A. 4972N, 1231E.	11 km NW. of Mt Ranford, Dixon Ra. Area, W.A. 17°25'35", 127°05'40"E.	Nairne, SA.	16 km SW. of Dave Hill, Dixon Ra. Area, W.A.
Reference	7, 364		3	42, 43, 36	44, 4	42, 43, 42
Analyst	V. Biskupsky		P. A. Arriens	M.R.Hanckel, R. L. Bruce A.M.D.L.	R. J. George	M. R. Hanckel A.M.D.L.
Remarks						
SiO ₂	72.49		57.03	51.40	51.27	44.50
Al ₂ O ₃	14.78		15.03	18.20	16.52	13.70
Fe ₂ O ₃	0.88		1.95	2.30	—	4.46
FeO	2.20		6.69	7.45	—	4.50
MgO	1.11		5.16	2.11	7.41	0.67
CaO	6.82		10.55	12.10	11.36	27.00
Na ₂ O	0.45		1.52	0.74	2.44	1.20
K ₂ O	tr		0.15	2.47	0.22	0.19
H ₂ O +	0.69		1.00	0.53	—	1.13
H ₂ O —	0.21		0.04	0.05	—	0.05
CO ₂	—		—	1.68	1.36	1.51
TiO ₂	0.51		0.88	0.95	—	1.05
P ₂ O ₅	0.15		0.12	0.08	—	0.07
MnO	0.05		0.16	0.24	—	0.19
Other Constituents					Fe _{0.017} S=9.03 FeS ₂ =0.92	
Age	100.34		100.28	100.30	100.53	100.22

TABLE Y — METAMORPHOSED AND METASOMATIZED MISCELLANEOUS SEDIMENTARY ROCKS

a. CHERTS AND JASPERS

	1	2	3	4		1	2	3	4
Rock Name	Chert	Chert	Chert conglomerate	Chert conglomerate		Silicified and metamorphosed conglomerate porphyry wacke	Arkosic wacke	Conglomerate porphyry wacke	Conglomerate lithic wacke
Locality	Barrington, Tas.	Barrington, Tas.	Penguin, Tas.	Penguin, Tas.		Widgie-mooltha, W.A. 1107800N, 459100E.	Widgie-mooltha, W.A. 1106500N, 460000E.	Widgie-mooltha, W.A. 1106500N, 459750E.	Wongi dam, nr Kambalda, W.A. 1164090N, 447130E.
Reference	24, 43	24, 43	24, 43	24, 43		98	98	98	98
Analyst	C. J. Penman Tas. Dep. Mines	C. J. Penman Tas. Dep. Mines	C. J. Penman Tas. Dep. Mines	C. J. Penman Tas. Dep. Mines		W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks									
SiO ₂	95.50	93.66	85.56	84.46		82.88	75.62	75.62	74.58
Al ₂ O ₃	1.25	1.71	5.53	7.46		10.59	14.32	13.34	13.39
Fe ₂ O ₃	0.50	2.27	2.92	1.25		abs	0.45	0.01	0.74
FeO	0.26	0.38	0.90	0.61		0.59	1.07	1.56	1.05
MgO	0.29	0.45	1.01	1.19		0.16	0.47	0.30	0.29
CaO	1.28	0.03	0.38	0.26		0.41	1.39	0.81	2.06
Na ₂ O	1.14	0.07	0.20	0.26		3.04	3.54	4.42	4.86
K ₂ O	0.11	0.24	1.64	2.29		1.88	2.21	2.04	1.39
H ₂ O +	0.75	1.00	1.50	1.89		0.14	0.24	0.18	0.68
H ₂ O -	abs	0.20	0.15	0.81		0.03	0.22	0.19	0.08
CO ₂	—	—	abs	abs		0.11	nd	nd	0.90
TiO ₂	0.08	0.06	0.37	0.50		abs	0.45	0.40	0.25
P ₂ O ₅	0.52	0.02	0.18	0.15		nd	nd	nd	nd
MnO	abs	abs	tr	tr		0.02	0.01	0.01	0.04
Other Constituents			FeS ₂ = tr	FeS ₂ = tr					
Age	100.68	100.09	100.34	100.50		99.85	99.99	98.88	100.31

TABLE Y — METAMORPHOSED AND METASOMATIZED MISCELLANEOUS SEDIMENTARY ROCKS

b. ARKOSIC ROCKS, ETC.

	5	6	7	8	9	10	11	12	13
Rock Name	Arkosic wacke	Conglo- merate porphyry wacke	Arkosic wacke	Conglo- merate lithic wacke	Conglo- meratic porphyry wacke	Conglo- merate porphyry wacke	Conglo- meratic lithic wacke	Conglo- merate porphyry wacke	Arkosic wacke
Locality	Widgie- mooltha, W.A. 1103270N, 462120E.	Widgie- mooltha, W.A. 1104300N, 460900E.	Widgie- mooltha, W.A. 1106500N, 459940E.	Emu well, nr Widgie- mooltha, W.A. 1126600N, 453100E.	Widgie- mooltha, W.A. 1107900N, 459300E.	Wongi dam nr Kambalda, W.A. 1160570N, 450670E.	Emu well, nr Widgie- mooltha, W.A. 1123300N, 454300E.	Widgie- mooltha, W.A. 1103750N, 461700E.	Widgie- mooltha, W.A. 1106500N, 459900E.
Reference	98	98	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks									
SiO ₂	73.09	73.07	72.87	72.76	72.54	71.82	71.51	71.27	70.94
Al ₂ O ₃	14.09	14.60	15.73	15.15	15.49	15.17	14.65	16.48	16.85
Fe ₂ O ₃	0.12	0.36	0.20	1.17	0.02	0.17	1.08	0.89	0.06
FeO	1.16	1.33	1.28	0.80	1.02	0.88	1.22	0.90	1.02
MgO	0.62	1.07	0.86	0.34	0.79	0.84	1.33	0.33	0.59
CaO	4.32	1.31	1.45	0.10	1.28	2.06	1.19	1.78	1.71
Na ₂ O	3.80	4.02	2.78	3.70	3.81	3.26	4.08	4.71	4.93
K ₂ O	0.92	2.58	3.52	4.65	3.32	5.04	3.79	1.52	2.65
H ₂ O +	0.19	0.16	0.34	0.45	0.46	0.30	0.28	0.23	0.28
H ₂ O —	0.16	0.04	0.10	0.14	0.01	0.15	0.03	0.23	0.15
CO ₂	nd	nd	nd	nd	nd	nd	nd	0.07	nd
TiO ₂	0.32	0.61	0.36	0.27	0.45	0.03	0.28	0.40	0.43
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	nd
MnO	0.05	0.02	abs	abs	0.02	abs	0.03	0.01	0.02
Other Constituents									
	98.84	99.17	99.49	99.53	99.21	99.72	99.47	98.82	99.63
Age									

TABLE Y — METAMORPHOSED AND METASOMATIZED MISCELLANEOUS SEDIMENTARY ROCKS

b. ARKOSIC ROCKS, ETC.

	14	15	16	17	18	19	20	21	22
Rock Name	Arkosic wacke	Conglo- meratic porphyry wacke	Greywacke	Conglo- meratic lithic wacke	Greywacke	Conglo- meratic porphyry wacke	Conglo- meratic porphyry wacke	Conglo- meratic lithic wacke	Conglo- meratic porphyry wacke
Locality	Widgie- mooltha, W.A. 1106500N, 459000E.	Widgie- mooltha, W.A. 1106500N, 460000E.	Widgie- mooltha, W.A. 1110500N, 459200E.	Nr Widgie- mooltha, W.A. 1126460N, 462440E.	Widgie- mooltha, W.A. 1109910N, 458420E.	Nr Widgie- mooltha, W.A. 1125180N, 461100E.	Emu well, nr Widgie- mooltha, W.A. 1123300N, 453800E.	Wongi dam, nr Kambalda, W.A. 1160530N, 450660E.	Nr Widgie- mooltha, W.A. 1124960N, 460990E.
Reference	98	98	98	98	98	98	98	98	98
Analyst	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne	W. R. O'Beirne
Remarks									
SiO ₂	70.77	70.53	69.42	69.12	68.38	68.20	68.18	66.66	64.50
Al ₂ O ₃	17.02	15.35	13.98	18.50	11.07	15.05	16.27	18.44	15.99
Fe ₂ O ₃	0.53	1.38	0.95	1.39	1.49	0.19	0.51	0.07	1.29
FeO	1.49	1.54	3.47	1.62	3.38	4.12	2.19	1.30	5.16
MgO	0.40	0.71	3.15	1.02	4.08	3.61	2.15	1.36	3.20
CaO	1.81	1.83	2.08	0.91	2.56	2.52	0.84	1.56	1.13
Na ₂ O	3.88	4.48	3.67	5.51	2.83	3.52	3.56	4.80	5.85
K ₂ O	2.81	3.08	2.24	1.20	1.58	1.49	5.26	4.14	1.14
H ₂ O+	0.42	0.61	0.56	0.48	0.85	0.43	0.41	0.21	0.93
H ₂ O-	0.12	0.18	0.13	0.29	0.06	0.03	0.11	0.10	0.09
CO ₂	nd	nd	nd	nd	2.40	nd	0.23	nd	nd
TiO ₂	0.46	0.44	0.42	0.60	0.51	0.62	0.34	0.37	0.96
P ₂ O ₅	nd	nd	nd	nd	nd	nd	nd	nd	nd
MnO	0.01	0.02	0.08	abs	0.10	0.10	0.05	0.05	0.05
Other Constituents									
	99.72	100.15	100.15	100.64	99.29	99.88	100.10	99.06	100.29
Age									

TABLE Y — METAMORPHOSED AND
METASOMATIZED MISCELLANEOUS
SEDIMENTARY ROCKS

c. TUFFS WITH LITHIC FRAGMENTS			
	1	2	3
Rock Name	Lithic tuff <i>Beecraft</i> <i>Mega-</i> <i>breccia</i>	Vitreous tuff with chert granules <i>Beecraft</i> <i>Mega-</i> <i>breccia</i>	Vitreous tuff with chert granules <i>Beecraft</i> <i>Mega-</i> <i>breccia</i>
Locality	Preston, Gawler R., Tas. 40755E, 9361N.	Preston, Gawler R., Tas.	Preston, Gawler R., Tas. 4080E, 93605N.
Reference	24, 45	24, 45	24, 45
Analyst	C. J. Penman Tas. Dep. Mines	C. J. Penman Tas. Dep. Mines	
Remarks			
SiO ₂	58.48	55.26	51.26
Al ₂ O ₃	13.73	12.42	12.69
Fe ₂ O ₃	2.11	4.06	0.80
FeO	5.65	5.33	3.47
MgO	8.60	7.13	3.76
CaO	1.00	7.40	12.60
Na ₂ O	3.12	4.40	4.74
K ₂ O	0.93	0.59	0.82
H ₂ O +	3.75	2.12	1.43
H ₂ O -	0.37	0.13	0.20
CO ₂	0.34	0.07	6.22
TiO ₂	1.22	1.15	1.14
P ₂ O ₅	0.17	0.19	0.18
MnO	0.12	0.18	0.12
Other Constituents	FeS ₂ = 0.15	FeS ₂ = 0.11	FeS ₂ = 0.62
	99.74	100.54	100.05
Age			

TABLE Z — NATURAL SLAGS, SINTERS, AND CLINKERS

	1	2	3	4	5	6	7	8	9
Rock Name	Dirty white glass <i>Darwin Glass</i>	Olive green glass <i>Darwin Glass</i>	Glass <i>Darwin Glass</i>	Pale grey-green glass <i>Darwin Glass</i>	Glass <i>Darwin Glass</i>	Smokey grey glass <i>Darwin Glass</i>	Glass <i>Darwin Glass</i>	Glass <i>Darwin Glass</i>	Glass <i>Darwin Glass</i>
Locality	Mt Darwin, SE. of Queens-town, Tas.	Mt Darwin, SE. of Queens-town, Tas.	Ten Mile Hill, 5 km S. of Mt Darwin, 19 km SSE. of Queens-town, Tas.	Mt Darwin, SE. of Queens-town, Tas.	Ten Mile Hill, 5 km S. of Mt Darwin, 19 km SSE. of Queens-town, Tas.	Mt Darwin, SE. of Queens-town, Tas.	Mt Darwin, SE. of Queens-town, Tas.	Mt Darwin, SE. of Queens-town, Tas.	Mt Darwin, SE. of Queens-town, Tas.
Reference	127; 132, 47	127; 132, 472	132, 477	34, 178; 132, 472	132, 477	34, 178; 132, 472	132, 477	132, 477	132, 477
Analyst	E. Ludwig	E. Ludwig	H. B. Wiik CaO = A. Halsey Alk = J. Cooper	G. A. Ampt	H. B. Wiik CaO = A. Halsey Alk = J. Cooper	G. A. Ampt	H. B. Wiik CaO = A. Halsey Alk = J. Cooper	H. B. Wiik CaO = A. Halsey Alk = J. Cooper	H. B. Wiik CaO = A. Halsey Alk = J. Cooper
Remarks									
SiO ₂	89.81	88.76	87.07	87.00	86.84	86.34	85.20	84.94	84.08
Al ₂ O ₃	6.21	6.13	5.80	8.00	6.25	7.82	6.55	7.17	7.45
Fe ₂ O ₃	0.26	—	2.23	0.19	2.10	0.63	2.41	2.29	2.65
FeO	0.90	1.24	1.40	1.93	1.60	2.08	2.10	1.60	1.60
MgO	0.73	0.58	0.98	0.82	0.87	0.92	0.94	0.93	1.24
CaO	—	0.17	0.08	abs	0.11	0.05	0.088	0.052	0.12
Na ₂ O	0.01	0.13	0.05	0.14	0.038	0.15	0.044	0.047	0.065
K ₂ O	1.05	1.36	1.79	0.99	1.78	0.87	1.78	1.96	1.99
H ₂ O +	—	—	0.08	0.36	0.03	0.46	0.17	0.14	0.18
H ₂ O —	—	—	abs	—	0.06	—	0.05	0.01	0.01
CO ₂	—	—	—	—	—	—	—	—	—
TiO ₂	0.86	1.24	0.57	0.51	0.56	0.52	0.56	0.58	0.58
P ₂ O ₅	—	—	—	—	—	—	—	—	—
MnO	tr	tr	—	—	—	—	—	—	—
Other Constituents				ZrO ₂ = tr					
	99.83	99.61	100.05	99.94	100.24	99.95	99.89	99.72	99.96
Age									

TABLE Z — NATURAL SLAGS, SINTERS,
AND CLINKERS

	10	11	12
Rock Name	Natural glass	Mullite rock	Mullite rock
Locality	Widgie-mooltha, W.A.	3 km S. of Murulla Siding, nr Mt Wingen, N.S.W.	2 km SE. of Murulla Siding, nr Mt Wingen, N.S.W.
Reference	138	106	106
Analyst	R. S. Pepper	J. H. Rattigan	J. H. Rattigan
Remarks	*Loss on ignition. Wood ash and soil fused in bushfire	Fused by burning coal seam	Fused by burning coal seam
SiO ₂	54.90	51.97	51.70
Al ₂ O ₃	9.12	43.00	43.77
Fe ₂ O ₃	5.75	2.37	2.60
FeO	—	nd	nd
MgO	3.27	0.11	0.13
CaO	12.00	0.13	0.10
Na ₂ O	2.05	0.22	0.21
K ₂ O	1.64	0.36	0.26
H ₂ O +	—	—	—
H ₂ O —	—	0.47	0.41
CO ₂	—	nd	nd
TiO ₂	0.06	1.70	1.03
P ₂ O ₅	0.15	tr	tr
MnO	0.02	nd	nd
Other Constituents			
	—	100.32	100.14
Age			

TABLE Z⁴ — PARTIAL ANALYSES OF
NATURAL SLAGS, ETC.

	1	2	3
Rock Name	Glass <i>Darwin</i> <i>Glass</i>	Glass <i>Darwin</i> <i>Glass</i>	Glass <i>Darwin</i> <i>Glass</i>
Locality	Ten Mile Hill, S. of Mt Darwin, SSE. of Queens- town, Tas.	Ten Mile Hill, S. of Mt Darwin, 19 km SSE. of Queens- town, Tas.	Ten Mile Hill, S. of Mt Darwin, 19 km SSE. of Queens- town, Tas.
Reference	132, 477	132, 477	132, 477
Analyst	Alk = J. Cooper The rest = A. Halsey	Alk = J. Cooper The rest = A. Halsey	Alk = J. Cooper The rest = A. Halsey
Remarks			
SiO ₂	—	—	—
Al ₂ O ₃	—	—	—
Fe ₂ O ₃	—	—	—
FeO	—	—	—
MgO	0.66	0.68	1.36
CaO	0.078	0.10	0.19
Na ₂ O	0.042	0.042	0.075
K ₂ O	1.72	1.66	1.77
H ₂ O +	—	—	—
H ₂ O —	—	—	—
CO ₂	—	—	—
TiO ₂	0.63	0.59	0.62
P ₂ O ₅	—	—	—
MnO	—	—	—
Other Constituents			
	—	—	—
Age			

INDEX OF FORMALLY NAMED ROCKS

Those in italics refer to analyses already published in Bulletin 65.

- Agate Creek Volcanics—If10
 Agnes Water Volcanics—Hb26, Jc5
 Albury Gneiss—*Aa30, Aa125*
 Allia Creek Granite—*Aa99, Db4*
 Almaden Granite—Be1, Be8
 Antrim Plateau Volcanics—Ja5, Ma4, Mb6, Mb7, Mb9, Mb15, Mc4
 Archerfield Basalt Member—Mb42, Mb43, Mb44, Nb60, Nc27, Nc33, Oc13, Oc17
 Argyle Basalt—*Mb17*
 Arunta Complex—Hd6
 Attunga Creek Adamellite—Ac31, Bc30

 Bagana Volcanics—If5, If9, Ig8, Ig14
 Bagstowe Ring-dyke Complex—*Aa74, Aa77, Ha16*
 Banshee Adamellite—Ab79, Ac18, Ad2
 Beecraft Megabreccia—He6, He7, Yc1, Yc2, Yc3
 Bega Granite—Ac35
 Bemboka Granite—Ad3
 Bendemeer Adamellite—Ab8, Bc10
 Berkley (Latite) Shoshonite—*Ma1*
 Bernafai Volcanics—*N¹d24, N¹d61*
 Berridale Granite—Bc21, Bd2, Bd10, Be15
 Billyrimba Leucoadamellite—Ab71
 Blowhole (Latite) Shoshonite—*Mb9*
 Bodalla Granite—Ac36
 Bogandyera Granite—Ab72
 Bogong Granite—Aa33
 Bolairo Granodiorite—*Bc10, Bc18, AB¹⁵*
 Bombala Granite—Ab18
 Bong Bong Basalt—*Mb38, Mb55, Nb47*
 Boolcoomata Granite—*Aa162*
 Boomerang Creek Granite Gneiss—Ba3, Ba4, Bb8
 Boro Granite—*Ac1*
 Bow River Granite—Ab45
 Bradshaw Granite—*Aa73, Ab13, Bb4, Bb6, Sa4, Sa7, Sa9, Sb2, Tb4, Tc5, Ua2*
 Braidwood Granite—*Bd2*
 Brisbane Tuff—Hb5
 Brooks Creek Dolerite—Nb68
 Bumbo (Latite) Shoshonite—*La4, La8, La9, La10, Ma2, Ma3, Ma7*
 Bungle Mountain Sill—Ma8
 Bungulla Adamellite—Bd35
 Bungulla Porphyritic Adamellite—Bc3
 Bunya Phyllite—Vb9, Vc31, Vd14, *Vb27, Vd64*
 Bunyan Leucogranite—*Aa12, Aa51*
 Burnside Granite—Aa53, Aa61

 Butlers Volcanics—Dc12
 Byrock Granite—*Aa86*

 Caledon Granite—Aa59, Bc16
 Callemondah Granodiorite—*Bc4*
 Calyerup Granodiorite—*Bc52*
 Cambewarra Latite—*La1, La6*
 Cannibal Creek Granite—*Aa161*
 Carson Volcanics—Mb5
 Charleston Granite—*Aa62, Ac17*
 Chillingham Volcanics—*Ha32*
 Clear Range Granodiorite—*Bc11, Bc16*
 Clive Adamellite—Aa30
 Clumber Teschenite—Kc1, Nb42, Nb51
 Cobaw Granite—Ac34, Bd17
 Cooby Trachyte—Ja3, Jc1
 Cooe Dolerite—Ob2
 Cooma Granite Gneiss—Ba1, *Aa123*
 Corella Schist—Vd5
 Corryong Granite—Ab55, Bb1, Bc4
 Croftby Dolerite—Nb47, Ob7, Ob8, Ob11, Ob13
 Croydon Volcanics—Ha17
 Cullen Granite—Bd7, *Aa92, Aa117*

 Dargalong Metamorphics—*Bc62*
 Darwin Glass—Z1, Z2, Z3, Z4, Z5, Z6, Z7, Z8, Z9, Z¹, Z², Z³
 Dhruwalgha Tinguaita—*Kb6*
 Dido Granite—Bf1, *De9, De12*
 Dove Granite—Aa109, Ab20, De1
 Dumbano Granite—Ab53, Ac14, Ac15, *Aa8, Aa46, Ab25, Ab56, Ab80, Ac36, Bc55, Bc58*
 Dundee Adamellite Porphyrite—Bd34

 Eastern Creek Volcanics—H¹4
 Eight Mile Plains Basalt Member—Nb61, Nc29, Oc12
 Einasleigh Metamorphics—Aa72, Db14, Vc26
 Elizabeth Creek Granite—Aa1, Aa4, Aa8, Aa19, Aa76, Aa80, Aa90, Aa93, Ab17, Ab19, *Aa2, Aa10, Aa129, Aa142, Ab73*
 Ensay Granite—Dd15
 Erimeran Granite—*AB¹, Aa84*
 Esmeralda Granite—Ab78, Ba6, *Aa31, Ab97, Bb10*
 Eucumbene Granite—Aa26, Aa31
 Eulogie Park Gabbro—Eb10
 Everard Adamellite—*Bd10*
 Ewen Granite—Ab3, Ab37

- Fagan Volcanics—Ia2
 Featherbed Volcanics—Ha25
 Fenton Granite—Aa95
 Finlayson Granite—Aa44
 Flowerdale Granodiorite—Bb14
 Footwall Gneiss—Tb6, Td1, Te4, Ud3
 Forsayth Granite—Ab31, Ab36, Ac10,
 Ac20, Bc2, Db3, Aa153, Ab11, Ab37,
 Ab102, Ac25, Ac33
 Franklin Group—Va7, Va9, Va15, Vb2,
 Vb4, Vc3, Vc4, Vd20

 Geehi Granite—Ba2.
 Giddy Granite—Aa60, Ab44, Ab46
 Giles Complex—Ea14, Ea19, Ea20, Eb5,
 Eb8, Eb15, Eb16, Eb19, Eb28, Eb32,
 Rc3, Rc2, Rb5
 Gilmore Volcanics—Id12
 Gingera Granite—Bc14, Bc15, Bc15
 Gomaren Basalt—Ma2
 Gracemere Granite—Dg2
 Greymare Gneissic Granite—Bd40
 Guanaba Volcanics—Ha13, Ha18, Ha87

 Hanging Wall Gneiss—Sb13
 Happy Jacks Granite—Bd1
 Happy Valley Granite—Bc7, Bc12, Bc13,
 Bc34
 Happy Valley Granodiorite—Bd22
 Hart Dolerite—Ac26, Db10, Mb4, Mc2,
 Mc3, Mc5, Mc10, Md33, Nb3, Nc3,
 Nc4, Od13
 Hawkesview Granite—Aa118, Bb3
 Heemskirk Granite—Aa40, Aa45, Aa52,
 Aa57, Aa103, Ab26, Ab27, Ab30,
 Ab32
 Helen Springs Volcanics—Mb20, Mb38,
 Nb29, Nc17
 Herbert River Granite—Aa7, Ab2, Ac24,
 Be11, Ab8, Ac14, Ac21
 Hodgkinson Formation—N'b2
 Hydrographers Volcanics—Ie6, Lb5, Lb8,
 Mb10

 Inkamulla Granodiorite—Dd3
 Inlet Monzonite—Dc2, Dc9
 Island Bend Granite—Ab77, Bd9

 Jackson Granite—Aa24
 Jerangle Granite—Ad1
 Jerramungup Adamellite—Dc3
 Jindabyne Granite—Dd4

 Kalkadoon Granite—Ba5, Ab30, Ac9,
 Ac11, Bb21, Db16
 Kanangra Granite—Aa78, Aa95

 Kerrison Volcanics—Ia6, Ib4, Ib9, Jb5
 Khancoban Granite—Ac13, Ac16, Ac17,
 Ac32
 Kiara Adamellite—Ab33
 Kieta Volcanics—Ie1
 Kinrara Basalt—Nb33, Nb38, Nb50
 Kintore Adamellite—Ab63
 Kosciusko Granite—Ac5, Ac9, Ad4, Bb11,
 Bc5, Bc6, Bc19
 Kyambra Granodiorite—Ab36

 Leucoandesite (Moonabie)—Porphyry—Hd8
 Litchfield Complex—Aa50, Ac28
 Little Trefoil Basalt—Nb12
 Lobster Creek Volcanics—Id15
 Lochaber Granite—Aa83, Aa27, Aa28
 Lysterfield Granodiorite—Db1

 McBride Basalt—Na9, Nb23, Ob10,
 L²-O²10, L²-O²16, L²-O²17
 McIntosh Gabbro—Ea3, Ea21, Eb34,
 E23, E25, E28, E29

 Mackenzie Adamellite—Aa35, Ab75
 McKinlay Granite—Bb16, Bb17
 McLean Basalt—Nb7, Nc6, Ob25, L²-O²18
 Mabel Downs Granodiorite—Bd5
 Maer Volcanics—Ma7, Ma9, Ma10, Mb8,
 Mb17, Mb21, Mb25, Mb26, Na1, Na2,
 Na4, Na5, Nb10, Nb11, Nb14, Nb24,
 Nb31, Nb36, Nb41
 Main Range Volcanics—Ic17, Ic19, Ma6,
 Mb23, Mb24, Nb4, Nb22, Nb28,
 Nb44, Nc15, Nc32
 Manna Volcanics—Hc2, Hc3, Hd5
 Mareeba Granite—Aa10, Aa102, Ab6,
 Ab14, Ab35, Ab66, Ab81, Ac4, Ac22,
 Bc28, Aa158, Ac2, Bb22
 Mary Group—Va8, Wa3
 Meredith Granite—Ab49
 Micalong Granodiorite—De3
 Minnages Mountain Granophyre—Bc46,
 Bd25
 Minnamurra (Latite) Shoshonite—Ma13
 Mirarrmina Complex—Sb19
 Mole Granite—Aa3
 Monserrat Granophyre—Bc49, Bc50
 Moonabie Porphyry—Hd7
 Moonbi Adamellite—Bd3, Bd4
 Moruya Granite—Be13
 Motton Spilite—He8, Nd8
 Mount Barker Granodiorite—Be14, Be16
 Mount Barney Granophyre—Aa25, Aa83,
 Ab14
 Mount Bunday Granite—Ab29, Ab91
 Mount Cameron Granite—Ab10

Mount Disappointment Granodiorite—
 Bc17, Bd27
 Mount Gibraltar Syenite—Jd2
 Mount Huntley Dolerite—Nb63
 Mount Livingstone Granite—Aa55
 Mount Mittamatite Granite—Ab58
 Mount Nelse Schist—Va6, Vb7, Vc9
 Mount Robertson Quartz Hypersthene
 Diorite—Df11
 Mount Stewart Granite—Bc20
 Munderoo Granodiorite—Ac29
 Mundi Mundi Granite—Aa154, Aa159
 Murray Bridge Granite—Ab74

 Nairne Pyrite Member—Vb10, Vb13, Vc23,
 Vc24, Vc25, Vc28, Vc29, Vc30, Vc32,
 Vc33, Vc34, Vc35, Vc36 Vc37, Vc38,
 Vc39, Xb3
 Nanambu Granite—Aa18
 Nanyeta Volcanics—Hb6
 Naraku Granite—Aa87, Aa98, Ab85
 Neranleigh-Fernvale Group—Na11, Oc9,
 Od10
 Newcastle Range Volcanics—Ha21, Hc1,
 Ig13
 Nicholson Granite—Aa49, Bc1, Jf1, Bc26,
 Bc42
 Nimbawah Granite—Dc4
 Norris Granite—Aa55, Ac6, Ac7
 Nychum Volcanics—Hb11, Ia1, Ic5, Ic7,
 Id11, Mb40
 Nymagee Granite—Aa71

 Ogilvies Granite—Aa74

 Packsaddle Microgranite—Aa71
 Palmer Granite—Aa36, Aa39, Ab21, Ab64,
 Ab68, Ab69, Ab70
 Peak Range Volcanics—Ha15, Ha33, Ha51,
 Ja12, Jb7, Jb8, Jc3
 Petrie Formation—Nc 9
 Piebald Basalt—Ob18
 Pine Mountain Granite—Aa28
 Platy Gneiss—Sb15, Td4, Te1
 Potosi Gneiss—Td2
 Prestwood Microgranite—Bd38
 Prices Springs Granite—Ab41, Bb5, Bb14
 Prison Farm Granodiorite—Be7
 Protogine Granite—Aa63
 Puckleigh Granite—Ac12
 Pyes Creek Leucadamellite—Aa88

 Quarry Hill Granodiorite—Bd12
 Queen Bee Porphyry—Hb17

 Rathjen Granite Gneiss—Sb20, Sb23, Sb24,
 Sc2, Sc6, Sb18

Reedy Creek Quartz Dolerite—Da7
 Reini Volcanics—Ig7
 Retreat Granite—Be6, Be9, De6, Df5
 Riddock Amphibolite—LM'd38
 Roberts Creek Granite—Ab82
 Robin Hood Granite—Ab64
 Rocksberg Greenstone—LM'c12
 Round Mountain Adamellite—Aa18, Ab59
 Ruby Creek Adamellite—Aa22, Aa25
 Rum Jungle Complex—Aa42, Aa43, Aa46,
 Aa50, Aa51, Aa54, Aa56, Aa58, Aa65,
 Aa66, Aa68, Aa75, Aa81, Ab23, Ab41,
 Ab56, Bb2, Bb7, Bb10, Dc22, Dd25,
 Sb11, Sb26, Sc4, Ub1, Ub3, Uc4

 Saddleback(Latite)Shoshonite—Mb7, Mb20,
 Mb22
 Sandy Flat Adamellite—Ab11
 Sapling Flat Granite—Aa32
 Scammels Granite—Aa94
 Scardans Volcanics—Ha53
 Scotchfire Group—Va12, Va18
 Sesara Volcanics—Lb2, Lc7, Mb2
 Shannons Flat Granodiorite—Ac3, Ac5,
 Ac10, Ac13
 Shoebridge Granite—Aa69, Ab48, Ab51,
 Ab76, Bc23, Da1, Da2, Da4, Da6,
 Db4, Db5, Db6, Db7, Dc3, Dc4, Dc5,
 Dc6, Dd2, Dd3, Ab54, Ab59
 Silkstone Formation—Mb31, Mb33, Mb36
 Slaughterhouse Bluff Volcanic Breccia—
 Mb12
 Sleaford Gneiss—Ua3
 Soldiers Cap Formation—Vc12
 Spicers Gap Member—Ja7
 St Andrews Quartz Diorite—Df12
 Stanthorpe Granite—Aa64, Ab25, Bc29,
 Ab*7, AB*12, AB*13, AB*16
 Steamers Member—Jb4
 Stewartfields Adamellite—Bc7
 Strathbogie Granite—Ab47
 Sturgeon Basalt—Nb8, Nb59
 Sugars Basalt—Mb30, Nb65, Nc31, L²-O²48
 Swanfels Member—Ja6
 Sybella Granite—Aa47, Ab16, Aa23,
 Aa183, Ab29, Ab49, Ac30, Bb6, Bb23,
 Db14

 Talmo Quartz Porphyry—Hc12
 Taroka Volcanics—Ie3
 Tharwa Adamellite—Ac4, Ac6
 Thunderbolt Granite—Ac30
 Tickalara Metamorphics—LM¹c4, LM¹d2,
 LM¹d4, LM¹d7, LM¹d10, N¹d22, Va5,
 Vc1, Vc5, Vc20, Vc22, Vc27, Vd21,
 Vd23, Vd24, Xb2, Xb4

Tinderra Granite—*Aa67*
 Tocumwal Granite—*Ab65*
 Tollu Volcanics—*Ha19, Hb3, Hb4*
 Toowoomba Volcanics—*Nb19, Nb21, Nb43, Od8*
 Tor Granite—*Ab27*
 Towallum Basalt—*Ob60*
 Trevethan Granite—*Ab7, Be2, Be5*
 Tweed Volcanics—*Mb18, Mb41*
 Ulverstone Metamorphics—*Vd2, Vd3*
 Undercliff Falls Porphyritic Adamellite—*Bc33, Bd16, Bd18, Bd33, Dc15*
 Uoivi Volcanics—*Ic16, Ie5, La1, La2, Lb1, Lb3, Lb4, Mb1, Mb14, Mb16*
 Upper Deep Creek Granite—*Aa21*
 Urannah Complex—*Ab1, Be10*
 Wallaya Dolerite—*Ob10*
 Walli Andesite—*I^aa1, I^aa2, I^aa3, I^aa4, I^aa5, I^aa6, I^aa7, I^aa8, I^aa9, I^aa10, I^aa11, I^aa12, I^aa13, I^aa14, I^aa15, I^aa16, I^aa17, I^bb1, I^bb2, I^bb3, I^bb4, I^bb5, I^bb6, I^bb7, I^bb8, I^bb9, I^bb10, I^bb11, I^bb12, I^bb13, I^bb14, I^bb15, I^bb16, I^bb17, I^bb18, I^bb19, I^bb20, I^bb21, I^bb22, I^bb23, I^cc1, I^cc2, I^cc3, I^cc4, I^cc5, I^cc6, I^cc7, I^cc8, I^cc9, I^dd1, I^dd2, I^dd3, I^dd4, I^dd5, I^dd6, I^ee1, I^ee2, I^ee3, I^ee4*
 Waterhouse Granite—*Ab38, AB²2, Sb9, Aa100, Aa127*
 Weir Basalt—*Mb29, Mb39*
 Welumba Granite—*Aa38*
 Whyte River Schist—*Va16, Vc13*
 Wild Cattle Trachyte—*Jd3*
 Williams Granite—*Aa160, Ab90, Ab99*
 Willona Granodiorite—*Bc21*
 Willyama Complex *LM¹d3, LM¹d12, N¹d4, N¹d6, N¹d11, N¹d16, N¹d25, O¹d8, O¹d11, O¹d13, Sa8, Vd18*
 Wimberu Granite—*Ab73, Aa78, Ab83*
 Wombarella Quartz Gabbro—*Ea1, Ea2, Ea8, Ea10, Ea11, Eb11*
 Wonga Granite—*Bc37, Aa38, Aa102, Ab28, Ab32, Ab53, Ab55*
 Woodward Dolerite—*Ea22, E²6, E²7, E²10, L²-O²3, L²-O²5, L²-O²6, L²-O²7, L²-O²9*
 Woolshed Granite—*Bc34*
 Woollana Volcanics—*Hd8, Ja2, Jb3, Jc2, J²1*
 Yarraman Granodiorite—*Bd15*
 Yarrowyke Granodiorite—*Bd32*
 Yaouk Leucogranite—*Aa34, Aa4*

LOCALITY INDEX

Antarctica

Balaena Islands—Bc18, Bd6, Eb22
 Thompson Island—Bc18, Bd6
 Davis Islands—Bc11
 Hudson Island—Bc11
 Vincennes Bay—Bc11
 Donovan Islands
 Chappel Island—Va19
 Lilienthal Island—Va17
 Frazier Islands
 Charlton Island—Tc8
 Nelly Island—Vb11
 Macquarie Island
 Blakes Station 2—Eb20
 Buckles Bay—Od12
 Expedition Hut—Nd14
 Half Moon Bay—Eb42
 Half-way Hill—Nd15
 Handspike Point—Eb36
 Hasselborough Bay—Nc30
 Hut Point—Oc16
 Isthmus—Nc22
 Lusitania Bay—Nd6, Nd13, Nd17
 North Head—Nc25, Nc26, Nc28,
 L²-O²44
 North Mountain—Nd4
 Station 20—Md43
 Nella Island—Bc8
 Oates Land—Ab39, Sb1
 Aviation Island—Ab39
 Parkinson Peak—Sb1
 Wilson Hills—Sb1
 Thala Island—Ac3
 Windmill Islands—Ac25
 Berkley Island—Tc9
 Ford Island—Ac25

Australian Capital Territory

Canberra—N¹d13
 Mount Mugga Mugga—Hd2

New South Wales

Adaminaby—Aa34, Bc14, Bc15, Bd10,
 Be15
 Armidale—Bc25, Bc27, Nb54, Ob9
 Attunga—Ac31, Bc30, Dc2, Dc9, Dd1
 Avon Dam—Ja10, Jb1, Jb2, Jb9, Jb10,
 Jc6
 Avon River—G1, G2, G3, G4, G5, G6,
 L²-O²19, L²-O²20, L²-O²21, L²-O²22,
 L²-O²23, L²-O²24, L²-O²25, L²-O²26,
 L²-O²27, L²-O²28, L²-O²29, L²-O²30,
 L²-O²31, L²-O²32, L²-O²33, L²-O²34,

L²-O²35, L²-O²36, L²-O²37, L²-O²38,
 L²-O²39, L²-O²40, L²-O²41, L²-O²42,
 L²-O²43

Bakers Hill—Ab25, Hb10
 Balickera—Id12
 Barrington Tops—Oc15
 Batemans Bay—Ac28
 Bega—Ac35
 Bemboka—Ad3
 Bendemeer—Ab8, Ab33, Ac31, Bc10, Bd4
 Berridale—Ac5, Bc21, Bd10, Be15
 Bingle Mountain—Na6
 Black Hill—N¹d8
 Bodalla—Ac36
 Bolivia—Aa88
 Bombala—Ab18, Bd24, Be3
 Bonshaw—Bb15
 Bookookoorara Creek—Dc15
 Boolijah Creek—L⁶-O⁶1, L⁶-O⁶7, L⁶-O⁶8
 Boonoo Boonoo—Aa64
 Bourke—De12
 Bowral—Jd2
 Braidwood—F3
 Broken Hill—LM¹d3, LM¹d12, N¹d4,
 N¹d6, N¹d8, N¹d11, N¹d16, N¹d25,
 O¹d8, O¹d11, O¹d13, Rc4, Sa8, Vd18
 Bruxner—Aa30
 Buchan—Bb9
 Bukalong—Ab18
 Bullawa Creek—Jb⁶
 Bungendore—Aa11, Eb25
 Bungle Mountain—Ma8
 Byrock—Ab28
 Captains Flat—Ad1, Va1, Va2, Va3, Vb3,
 Vc8, Vc17, Vc18, Vc19, Vd6, Vd7,
 Vd8, Vd10, Vd11, Vd12, Vd16
 Cathedral Rocks—Aa18
 Central Tilba—Ma1, Od3
 Cessnock—Dd20
 Cliefden—I⁶a1, I⁶a2, I⁶a3, I⁶a4, I⁶a5,
 I⁶a6, I⁶a7, I⁶a8, I⁶a9, I⁶a10, I⁶a11,
 I⁶a12, I⁶a13, I⁶a14, I⁶a15, I⁶a16, I⁶a17,
 I⁶b1, I⁶b2, I⁶b3, I⁶b4, I⁶b5, I⁶b6, I⁶b7,
 I⁶b8, I⁶b9, I⁶b10, I⁶b11, I⁶b12, I⁶b13,
 I⁶b14, I⁶b15, I⁶b16, I⁶b17, I⁶b18,
 I⁶b19, I⁶b20, I⁶b21, I⁶b22, I⁶b23,
 I⁶c1, I⁶c2, I⁶c3, I⁶c4, I⁶c5, I⁶c6, I⁶c7,
 I⁶c8, I⁶c9, I⁶d1, I⁶d2, I⁶d3, I⁶d4, I⁶d5,
 I⁶d6, I⁶e1, I⁶e2, I⁶e3, I⁶e4
 Clive—Aa30, Ab75
 Cocomingla—Eb6, Eb9
 Comboyne—H31
 Compton Downs Siding—De12

Condobolin—Ab52
 Coolac—Ra4, Rb6, Rb8
 Cooma—Ba1, Bd2
 Cootamundra—Bb3
 Coryah Gap—Ja8, Ma3, Ma5, Ma11, Nb16, Nb37
 Cowra—Ab9
 Dalgety—Ab24, Ac8, Be3
 Danjera Creek—L⁶-O⁶2, L⁶-O⁶3, L⁶-O⁶4, L⁶-O⁶5, L⁶-O⁶6
 Dead Horse Gap—Ac9
 Delegate—Ac8, Oc19, Qa1, Qa4, Qa9, Qa11, Qa12, Qa13, Qa14, Qa15
 Dhruwalgha—Ka1, Ka2, Kb3, Kb4, Kc2
 Drake—Bd35
 Dubbo—Aa92
 East Maitland—Ic20, Ie9, Ig19, Ig20, Ma13, Nb64, Oa2
 Ebor—Mb32
 Emmaville—Bb15, Bd34, N¹d14
 Eucumbene—Aa26, Aa31, Bc6, Bc19
 Fingal Point—Mb18
 Forbes—Bc9
 Frog Hollow—Ac35
 Geehi—Aa94, Ab55, Ba2, Bb1, Bc4, Bd40, Dg2, F2, F5, F12, Vd13, Vd22
 Girral—Bc9
 Glen Innes—Na10, Oa1
 Goulburn—Ab5, Ac11, Ac23, Ac33, L⁵-O⁵2
 Gulgong—Aa37
 Guthega—Bb11
 Guyra—Ob3
 Halls Grampians—N¹d14
 Hartley—Bd12, Bd13, Bd14, Bd15, Bd20, Bd25, Bd26, Bd28, Bd30, Ab⁴17, AB⁴18, AB⁴19, AB⁴20, AB⁴21, AB⁴22, AB⁴23, AB⁴24, AB⁴25, AB⁴26, AB⁴27, AB⁴28, AB⁴29, AB⁴30, AB⁴31, AB⁴32, AB⁴33, AB⁴34, AB⁴35, AB⁴36, AB⁴37, AB⁴38, AB⁴39
 Herding Yard Creek—N¹c2
 Hornsby—Nb5
 Horse Arm Creek—Dc2, Dc9
 Inverell—Mb34, Mc8, Mc12, Ob19, Oc18, Od14
 Island Bend—Aa26, Aa31, Ab77, Bb11, Bc6, Bc19, Bd9
 Jenolan Caves—Nd2, N¹c7, N¹c8, N¹c9
 Jerangle—Aa32, Ad1
 Jindabyne—Ac5, Ad4, Dd4
 Kamarah—Aa23
 Kanangra Plateau—Nd2, N¹c7, N¹c8, N¹c9
 Khancoban—Aa9, Aa38, Ac13, Ac17, F1
 Kiandra—Aa21, Bc14, Nb49, Ob12, Ob14, Ob17, Oc14
 Killarney Gap—Ha34, Jc4
 Kingsgate—Aa2, Aa3, Aa105
 Kyogle—Ha24, Ib10, Nb20
 Lake Cargelligo—Ab40
 Lake Eucumbene—Kb2
 Lakes Grave—N¹d4, N¹d6, Sa8
 Landsdowne—Ha31
 Liston—Aa25, Bc33, Bd16, Bd33, Dc15, N¹c2
 Little Thredbo River—Ad4
 Lord Howe Island—
 Admiralty Islets—Nb58
 Blinkenthorpe Beach—Nc34
 Middle Beach—Nb57
 Mount Gower—Na3, Na7, Oc4, Oc5
 Mount Lidgbird—Nb18, Nb30, Nb34, Nb45, Nc16
 Neds Beach—Nb25
 North Beach—Nc19
 Mannus—Ac29, Be7
 Marulan—H⁵4
 Maryland River—Bc33, Bd16
 Micalong Creek—De3
 Middlingbank—Bc21
 Minnamurra River—Ka1, Ka2, Kb3, Kb4, Kc2
 Moonbi Lookout—Bd4
 Moonbi Range—Bd3
 Moruya—Be13
 Mount Blanche—Bc30
 Mount Dowes, Mb22, Nc10
 Mount Dromedary—Jd1, Od1, Od4, Od6, Od7, Od11
 Mount Gilmore—Ib7
 Mount Grattai—Nb15
 Mount Lawler—Ha35
 Mount Lightning—Rb6, Rb8
 Mount Oliver—Ha31
 Mount View—Dd20
 Mount Waa—Ha37
 Mount Warning—Ab74
 Mount Werong—Aa78, Aa95, Ab79, Ac18, Ad2, Ob23
 Mount Wingen—Z11, Z12
 Mullaley—Ma8, Na6
 Murray River—Aa94, Ac16, Ac32, Bd40
 Murulla Siding—Z11, Z12
 Murwillumbah—Ab74
 Nandewar Mountains—Ha34, Ha35, Ha37, Ha43, Ha55, Ha77, Ja8, Ja9, Jb6, Jc4, Jf3, Ma3, Ma5, Ma11, Mb22, Nb15, Nb16, Nb37, Nc10
 Narrandera—Aa23
 Narromine—Aa87, Aa91
 Nelligen—Ac28

Nepean River—Ja10, Jb1, Jb2, Jb9, Jb10,
 Jc6
 New England—Bd3, Bd4, Hd4
 New Myall Lake—Mc15
 Nobbys—Ha43 Ha77
 Nundle—Kc3, Kc4, Kd1, Kd2, Kf3, Na8,
 Ob6, Oc3
 Nymagee—AB²1
 Oakey Creek—Jf2
 Perisher—Bc5
 Pipers Creek—Bb11
 Pokolbin—Dd20
 Pooles Point—Od1, Od4, Od6, Od7, Od11
 Port Stephens—H⁵1
 Pound Mountain—Ha55
 Puddledock Dam—Nb54
 Rivertree—Bd33
 Rock Creek—Bb15
 Ruby Creek—Aa22, Aa25
 Rugby—Ac23
 Sandy Flat—Ab11
 Serpentine River—Jd5
 Shannons Flat—Aa34
 Snowy Mountains—Aa26, Aa31, Aa94,
 Ab77, Ac5, Ac9, Ac16, Ac32, Bc5,
 Bc6, Bc7, Bc12, Bc13, Bc15, Bc19,
 Bc34, Bd1, Bd22, Bd23, Bd31, Bd40,
 Dd4, K52
 Spring Flat Creek—Dg2
 Spring Mount—Na10, Oa1
 Square Top—Kc3, Kc4, Kd1, Kd2, Kf3,
 Na8, Ob6, Oc3
 Stanhope—Id9
 Stanthorpe Gate—Aa22
 Stony Plain Creek—Bd1
 Sydney—Nb5
 Tabulam—Mb41, Mc13
 Talbingo—Aa33
 Tamworth—Be12
 Tarago—Aa11, Eb25
 Taree—Ha31
 Temora—Ab50
 Tenterfield—Aa35, Ab71, Ab75, Bc3, Bd35,
 F8
 Tent Hill—Bc22, Bd29
 The Pinnacles—LM¹d3, LM¹d12
 Thredbo—Ad4
 Tocumwal—Ab65
 Tooma—Aa14, Aa38, Ab72
 Tumbarumba—Ab55, Ba2, Bb1, Bb12,
 Bc4, Be7, AB⁴1, AB⁴2, AB⁴3, Dg2,
 F2, F5, F12, Vd13, Vd22
 Tumut—Ab34, Ba3, Ba4, Bb8, Bc7, Bc12,
 Bc13, Bc34, Bd22, Bd23, Bd31, Ra2,
 Ra3

Umberumberka—Vd18
 Undercliff Falls—Bd18, Bd33
 Uralla—Bc26, Bc27, Bd32, Db8, Nc5
 Warrumbungle Mountains—Ja11
 Wee Jasper—Ab34, De3
 West Wyalong—Ab40
 Williams River—Ib7
 Wilsons Downfall—Bc29
 Wollomombi—Aa18, Ab59
 Woronora Trig. Station—Oc7
 Yalwal—LM¹a1, LM¹d13, O¹a1, O¹a2,
 L⁶-O⁶1, L⁶-O⁶2, L⁶-O⁶3, L⁶-O⁶4,
 L⁶-O⁶5, L⁶-O⁶6, L⁶-O⁶7, L⁶-O⁶8
 Yaouk—Bc15
 Yarramunmun Creek —LM¹d13
 Yass—Ab34
 Yarrowyke—Bc27
 Yeoval—Aa89, Aa96, Aa97, Aa98, Aa100,
 Aa104, Ab15, Ab67, Db9, Db12,
 Db13, Db15, Dc17, Dc18, Dc20, Dd5,
 Dd6, Dd9, Dd10, Dd17, Dd22, Dd24,
 De2, De4, De5, De8, De10, Df1, Df7,
 Df8, Dg1, Dg6, Dg8, D²1, D²2, D²3,
 D²4, D²5, D²6, D⁴1, D⁴2, Eb2, Eb18,
 Eb33 Eb35, Eb38, Eb41, Eb43, F6,
 F7, Hb8, Hc9, Hd1, Hd10, Ig17, Ig18,
 I¹5, I¹6, I¹7, I¹8, Nb67
 Yerrinbool—Ja4

Northern Territory

Allia Creek—Aa99
 Armstrong River—Mb15
 Arnhem Bay—Aa59, Aa60
 Arnhem Land—Ab13, Ab46
 Banka Banka Plain—Nb29
 Batchelor—Aa51, Ab23, Sb11
 Brocks Creek—Aa53
 Brocks Creek Siding—Aa61
 Burrundi—Ab42, Bb5
 Caledon Bay—Bc16
 Calvert Hills—Aa49, Aa55, Aa71, Ac6,
 Ac7, Bc1
 Camfield River—Ja5
 Cattle Creek—Ja5
 Darwin—Aa69, Ab29, Ab48, Ab51, Ab76,
 Bc23, Da1, Da2, Da4, Da6, Db4, Db5,
 Db6, Db7, Dc3, Dc4, Dc5, Dc6, Dd2,
 Dd3
 Drimmie Head—Ab44, Bb6
 Dysons Prospect—Aa68
 Edith River—Bd7
 Elsey Cemetery—Mc4
 Grove Hill—Ab42, Bb5
 Helen Springs—Nb29, Nc17

Holly Inlet—Aa73, Tb4, Tc5
 Katherine—Ma4, Mb6, Mb7
 Koolatong River—Ha27
 Loveday Creek—Mb38
 Maineru Track—Mb3
 Maranboy—Mb3
 Melville Bay—Ab44, Bb6
 Mitchell Range—Sb19, Ta1
 Mount Alexander—Bb4, Sa4, Vd17
 Mount Bunday—Ab29
 Mount Fitch—Aa65, Ub1
 Mount Leister—Hd6
 Mount Liebig—Hd6
 Mount Morumba—Mc6
 Mount Rennie—Hd6
 Mount Sullivan—Mb9
 Pandanus Creek—Ac7, Bc1, Jf1
 Parsons Range—Ha27, Ia2
 Pine Creek—Aa99
 Rising Tide Prospect—Aa53, Aa61
 Rum Jungle—Aa42, Aa43, Aa46, Aa50,
 Aa51, Aa54, Aa56, Aa58, Aa65, Aa66,
 Aa68, Aa75, Aa81, Ab23, Ab38, Ab41,
 Ab56, Bb2, Bb7, Bb10, Bd7, Ab22,
 Dc22, Dd25, LM¹d9, LM¹d11, Sb9,
 Sb26, Sc4, Ub1, Ub3, Uc4
 Sheridan Creek—Ia2
 Top Springs—Mb15
 Victoria River Downs—Mb9
 Wargarpunda Point—Sa7, Sa9, Sb2, Ua2
 Whites Prospect—Ab41, Bb2
 Yirrkala Mission—Ab46

Papua New Guinea

(Eia, Tari and Waria Rivers cross the border of Papua and New Guinea)

Papua

Abai—I⁵1
 Abau River—Eb23
 Ajura Kujara Range—Eb13, Eb24, Eb30,
 L²-O²1
 Bolu Creek—Eb29
 Bonua River—Dc21, Eb23, Ob1, L²-O²46
 Cape Nelson—Mc7
 Cape Vogel—Lc10, Ld2, Ld4, Ld5, Ld6,
 Ld7, Ld8, Ld9, Ld10, Ld11, Md1,
 Md4, Md10, Md12, Md15
 Daiuwa River—Eb21, Rb1, Rb4
 Dobu Island—Ha41, Ha83, Ha85, H⁵3, Ia4
 Fergusson Island—Ha32, Ha38, H⁵2
 Lamonia Crater—Ha39, Ha79
 Oian Crater—Ha42, Ha81, Ha84
 Girewa River—LM¹b3

Giumu River—Mc14
 Hydrographers Range—Id14, Ie6, Lb5,
 Lb8, Mb10
 Imo River—Eb1, Eb12
 Jema Village—Bf2, Nd3
 Kambari—N¹c1, N¹d15
 Labai Creek—N¹c1
 Lake Waria—Hc5
 Manna Volcano—Hc2, Hc3, Hd5
 Misima Island—J⁵1
 Mount Suckling—De19
 Mount Trafalgar—Ic1, Ic3, Ic4, Ic18, Id16,
 Id17, Ie8, If4, If8, If11, Mc7
 Mount Victory—Ia3, Ib6, Ic9, Id3, Id4, Id5,
 Id7, Id10, Id13, Id18, If12, Ig1, Qa2,
 Qa3, Qa5, Qa6, Qa7, Qa8, Qa10
 Mullens Harbour—L⁵-O⁵1
 Musa Valley—Eb7, Eb21, Ie7, N¹c1, N¹d15,
 Rb1, Rb3, Rb4
 Musia River—Ob2
 Normanby Island—L²-O²45
 Opi River—Eb13, Eb24, Eb30
 Pongani—Eb1, LM¹b3
 Sesara Volcano—Lb2, Lc7, Mb2, Nb1, Nb2
 Sibium Range—Eb12
 Sisiworo River—Eb7
 Tavi River—Hc5
 Umwate—Rb3
 Uoivi Volcano—Ic16, Ie5, La1, La2, Lb1,
 Lb3, Lb4, Mb1, Mb14, Mb16

New Guinea

Bagabag Island—
 Mungen Anchorage—Ig16
 Bitoi River—Rb2
 Blup Blup Island—If3
 Bougainville Island Id1
 Bagana Volcano—If5, If9, Ig8, Ig12,
 Ig14, Lb6, Lb10, Lb11
 Billy Mitchell Volcano—Id6
 Buin—Ie1
 Konga—Ie3
 Luluai River—He5
 Malabita Hill—Ie1
 Mount Takuan—He5
 Reini Volcano—Ig7
 Bowutu Mountains—Bd37, Ea6, Eb14,
 Eb27, Eb29, N¹d9, N¹d17
 Buiasin River—Eb27, N¹d17, Ra5, Ra6
 Eia River—De17, Nc20, L²-O²8
 Kadovar Island—Ig⁶
 Karkar Island—If6, Ig9
 Bagiari Cone—If2, Ig11
 Ulumam Cone—Ig10

Kui—Df4, Ia5
 Lake Waria—Hc5
 Long Island—If7
 Lower Waria River—Hd7, L²-O²4
 Manam Island
 Avalanche Valley—Md42
 Southeast Valley—Ie4, Ig15, Md40,
 Md41
 Madang—Dd19
 Morobe River—Dg3, He1, L²-O²47
 Mount Yelia—Id8
 New Britain
 Gazelle Peninsula Ac37, Ad6, Bd13,
 Bc24, Bd36, Bd39, Da5, Db2, Db11,
 Dc14, Dc19, Dd12, Dd13, Dd14, Dd16,
 Dd18, Dd21, Dd26, De9, De11, De13,
 De14, De15, De16, Df2, Df6, Df9,
 Df10, Dg9, Ea7, Ea9, Ea16, Eb31,
 Eb39
 Mount Baluan—If1
 Mount Kombiu—Ig2, Ig3, Ig4
 Mount Langila—Lb9, Lc5, Lc6
 Palagaigaia—Nd7
 Rabaul Volcano—Hb20, Ib1, Ib2, Ib3,
 Ib5, Ic6, Ic8, Ic12, Ic13, Ic15, Nd9
 South Daughter—Nd11
 Talsea—Hb9, H²25
 Tavurvur—Nd10, Nd12, Nd16
 The Mother—Lb12
 Nordup—Nd9
 Oroa Creek—Dg5
 Paiawa River—Bd37, Ra1
 Saia River—Ea6
 Salamaua—N¹d9
 Sou River—Eb14
 Uriwa Creek—Dg3
 Woiba Island—Ia5
 Yanderra Village—Dd19

Queensland

Adavale—Aa6
 Agnes Water—Hb26, Jc5
 Almaden—Aa19
 Anakie—Df5
 Annan River—Ob25
 Archerfield—Nc27
 Atherton—Ha53, Nb38, Nb50, L²-O²10,
 L²-O²16, L²-O²17
 Ballandean—AB⁴4, AB⁴5, AB⁴6, AB⁴7,
 AB⁴8, AB⁴9, AB⁴10, AB⁴11, AB⁴12,
 AB⁴13, AB⁴14, AB⁴15, AB⁴16
 Battle Camp Siding—Ac12
 Beachmont—Nb62
 Bowen Township—Be4

Briaba—Ac30
 Brisbane—Ha14, Hb5, Mb35, Mb42, Mb43,
 Mb44, Na11, Nb6, Nb39, Nb55, Nb60,
 Nb61, Nc9, Nc27, Nc29, Nc33, Ob15,
 Oc1, Oc9, Oc12, Oc13, Oc17, Od10,
 Vc31
 Brookfield—Na11
 Bundamba—Mb33
 Burdekin River—Nb38, L²-O²10, L²-O²16,
 L²-O²17
 Burleigh Heads—Mb11
 Bustard Head—Hb26
 Byerstown Range—Ob24
 Caboolture—Eb26
 Calvert Peak—Ja12, Jb7, Nc23
 Cameron Falls—Nb17
 Camp Mountain—Vd14
 Cannibal Creek—N¹b2
 Cape Melville—Ob18
 Cappa Junction—Ha25
 Carbine—Ac4
 Chillagoe—Ac24
 Chubbers Hill—Na9
 Clarke River—Aa74, Aa83, Ab61, Bf1
 Cloncurry—Ba5, Vc12, Vd5
 Coen—Ab63
 Collinsville—Ab1
 Cooktown—Aa44, Aa82, Ab7, Be2, Be5,
 Nb7, Nc6, Ob24, Ob25, L²-O²18
 Cooby Creek Dam—Ja3, Jc1, Ma2
 Croydon—Aa48, Ba6
 Cunninghams Gap—Jd4, L⁴-O⁴5
 Dawson River—Nc13
 Dimbulah—Ab2
 Dobbryn—Ab3, Ab37
 Duaringa—Dg4
 Duchess—Bc37
 Emerald—De6, Df5
 Einasleigh—Aa1, Aa7, Aa77, Aa90, Ab17,
 Db14, Dc12, Ha16, Ha21, Ha53,
 Hc1, If10, Nb23, Nb33
 Eulogie Park—Eb10
 Finneys Hill—Ha23
 Fish River—Aa49, Aa55
 Flying Fox Creek—Nb27, Nb62
 Forsyth—Ac10, Bc2
 Georgetown—Aa4, Aa93, Ab31, Ab36,
 Ab78, Ac10, Ac20, Bc2, Bd38, Db3,
 Ha17, Ig13, Ve26
 Gilberton—Aa72, Ab53, Ac14, Ac15
 Glennies Point—Ha8
 Grassy Hill—Ab7
 Gulf of Carpentaria—Da3
 Hell Hole Creek—Ja6
 Herbert River Falls—Aa7

Hodgson Range—Mb27
 Hughendon—Nb8, Nb39
 Indooroopilly—Ha23
 Ipswich—Je1, Mb29, Mb30, Mb31, Mb36,
 Mb39, Nb65, Nc31, L²-O²48, L²-O²49,
 L²-O²50, L²-O²51
 Kidston—Ab53
 Killarney—Jb4
 Kuraby—Nb61, Oc13
 Laheys Lookout—Mb13
 Lighthouse Mountain—Ab14
 Little Mulgrave River—Ab66
 Lizard Lookout—Ic17
 Main Range—Ic17, Ic19, Ja6, Ja7, Jd3,
 Jd4, Jd6, J⁴1, L⁴-O⁴1, L⁴-O⁴2, L⁴-O⁴3,
 L⁴-O⁴5, L⁴-O⁴6
 Malbon—Ab73
 Mareeba—Hb11, Ia1, Ic5, Ic7, Id11
 McLeod River—Ac4
 Minto Crags—Ha30
 Moggill Creek—Na11
 Monsildale—De18, Dg7, Dg10, Eb40
 Mornington Island—Da3
 Mossman—Aa10, Aa102, Ab6, Ab14,
 Ab35, Ab54, Ab81, Ac22, Bc28, Be1,
 Be8
 Mount Alford—Ab60, Dd23, Ha8, Ha30,
 Ib8, Nb40
 Mount Alphen—Ic19, Jd6, Nb4, Nc15,
 Nc24
 Mount Birdcage—Nb26, Nb35
 Mount Carbine—Ac4
 Mount Castor—Ha11
 Mount Coolon—Be10, Be14, Be16
 Mount Garnet—Ab19, Na9, Ob10
 Mount Grenville—Nc12
 Mount Huntley—Nb63
 Mount Isa—Aa47, Ab16, H⁴4
 Mount Lewis Forest—Ab35
 Mount Macarthur—Ha33, Jc3
 Mount Matheson—L⁴-O⁴3
 Mount Mee—I¹3, LM¹d5, O¹d1, O¹d3,
 O¹d7
 Mount Mitchell—L⁴-O⁴6
 Mount Moon—Nb47, Ob7, Ob8, Ob11,
 Ob13
 Mount Morgan—Ac19, Eb10
 Mount Mulligan—Ab54, Mc11
 Mount Nielson—Ic17
 Mount Ommaney—Oc9
 Mount Oscar—Oc2
 Mount Phillips—Mb19
 Mount Pollux—Ha15
 Mount Roberts—J⁴1
 Mount Surgeon—Ac22, Nb8

Mount Surprise—Nb23, Nb50, L²-O²10,
 L²-O²16, L²-O²17
 Mount Tamborine—Ha13, Ha18, Ha87,
 Mb13, Nb27 Nb53
 Munburra—Ob18
 Nanango—Dg7, Dg10
 Numinbah Valley—Ha20
 Nymbool—Hb6
 Ord Siding—Be11
 Peak Range—Ha11, Ha15, Ha33, Ha51,
 Jb7, Jb8, Mb19, Mb27, Mb37, Nb9,
 Nb26, Nb35, Ob4, Ob5, Oc2
 Picnic Point—Nb52
 Port Stewart—Ob21
 Pullenvale—Od10
 Queen Mary Falls—Jb4
 Ravenshoe—Aa8, Aa80, Hb7, L²-O²11,
 L²-O²12, L²-O²13, L²-O²14
 Rockhampton—Nc13
 Roma—Ab12
 Ropers Peak—Ha51
 Rossville—Aa44
 Rubyvale—Be6, Be9
 Scotts Peak—Jb8, Mb37
 Somerset Dam—Aa5, Eb26, Eb37
 Spicers Peak—Ic19, Ke1, Kf1, Kf2, Ma6,
 Ma12, Mb23, Mb24, Mb28, Nb22,
 Nb28, Nb42, Nb44, Nb51, Nb68,
 Nc15, Nc24, Nc32, L⁴-O⁴2, L⁴-O⁴4
 Springbrook—Ha20
 Stannary Hills—Aa76
 St Lucia—Vc31
 Tamborine Mountain (see Mount Tam-
 borine)
 North Tamborine—Nb17, Nb62, Nc18
 Witches Falls—Nc18
 Taringa—Vb9
 Tate River—Aa19
 Toowoomba—Nb19, Nb21, Nb43, Nb52,
 Od10
 Torres Strait
 Bramble Cay—Mb25, Nb11
 Darnley Island—Ma7, Ma9, Ma10,
 Mb8, Mb26, Nb10, Nb14
 Maer Island—Na1, Na2, Na4, Na5,
 Nb24, Nb31
 Stephens Island—Mb17, Mb21
 Waier Islands—Nb36, Nb41
 Urannah—Ad5
 Vine Creek—L²-O²11
 Violet Vale—Ab63
 Wallangarra—AB⁴4, AB⁴5, AB⁴6, AB⁴7,
 AB⁴8, AB⁴9, AB⁴10, AB⁴11,
 AB⁴12, AB⁴13, AB⁴14, AB⁴15,
 AB⁴16

Wallaroo Hill—L²-O²15
 Wamuran Basin—I³
 Wellington Point—Nb6, Nb55
 Wild Cattle Creek—Jd3, L⁴-O⁴1
 Windsor—Ha14
 Witches Falls—Nc18
 Yokas—Mb40

South Australia

Copley—Sb22
 Flinders Range—Hd8, Ja2, Jb3
 Gosse Pile—Rb5
 Harrogate—Wa14
 Lake Frome—Hd8, Ja2, Jb3
 Mount Davies—Eb19, Eb28, Rc2, Rc3
 Mount Lofty Range—Aa39, Ab21, Ab64,
 Ab68, Ab69, Ab70, Wa10, Wa12,
 Wa13, Wa14, Wa15, Wa16
 Musgrave Ranges—LM¹c2, LM¹c3, LM¹d8,
 N¹d21, O¹d9, Rc1, Sc1, Sc3, Tc7,
 Td1, Ub2, Ue1, Uf2
 Nairne—Vb10, Vb13, Vc23, Vc24, Vc25,
 Vc28, Vc29, Vc30, Vc32, Vc33, Vc34,
 Vc35, Vc36, Vc37, Vc38, Vc39, Xb3
 Olary—Td2
 Palmer—Aa36, Aa62, Aa63, Aa67, Aa70,
 Ab²21, Sa2, Sa6, Sb20, Sb23, Sb24,
 Sc2, Sc6, Tb5, Wa10, Wa12, Wa13,
 Wa15, Wa16
 Port Augusta—Bc35
 Whyalla—Hd3
 Wilkatanna—Bc35
 Wooltana Area—Jc2, J²1

Tasmania

Allisons Range—Id15
 Apsley—Wb1
 Barrington—Ya1, Ya2
 Bernafai Ridge—N¹d24
 Bond Bay—O¹d12, Va10
 Bridport—Dd8
 Cardigan River—Va7, Va15
 Cape Grim—Mb12, Nb12
 Corra Linn—Od9
 Craighburn—Nb13
 Derby—Aa79
 Deviot Shore—Nb46, Ob22
 East Arm—Nb66, Nc7, Nc8
 East Tamar—Nb13, Nb66, Nc7, Nc8,
 Ob16, Ob20
 Fisher River—De1
 Fourteen Mile Creek—Nb66, Nc7, Nc8
 Gawler—Ib9, Vd2, Vd3
 Gawler River—Nd8, Yc1, Yc2, Yc3

George River—Ac1
 Gladstone—Ab10
 Granville Harbour—Aa40, Vb12
 Great Lake—Dd7, De7, Lb7, Lc1, Lc2,
 Lc4, Lc8, Ld1, Ld3, Md2, Md3, Md5,
 Md6, Md7, Md8, Md9, Md11, Md13,
 Md14, Md16, Md17, Md18, Md19,
 Md20, Md21, Md22, Md23, Md24,
 Md26, Md27, Md28, Md29, Md30,
 Md31, Md32, Md34, Md35, Md36,
 Md37, Md38, Md39
 Greens Beach—Nb48
 Half Moon Bay—Aa12
 Hardstaff Creek—Ia6
 Heemskirk—Aa13, Aa15, Aa16, Aa17,
 Aa29, Aa45, Aa52, Aa57, Ab26, Ab30,
 Ab32, E²4
 Howth—Wa7
 Inspection Head—Nc14
 Interview River—Nb32
 Jane River—Va18
 Joyce Creek—Vb6, Vc6
 Kerrison Siding—Ib4
 Leven River—Ia6, Id15
 Lyell Highway—LM¹d1
 Mersey Valley—Aa109, Ab20, De1
 Mount Arrowsmith—Va12
 Mount Barrow—Dc8
 Mount Bischoff—Ha22, H²14, H²15, H²16,
 H²17, H²18
 Mount Darwin—Z1, Z2, Z3, Z4, Z5, Z6,
 Z7, Z8, Z9, Z⁴1, Z⁴2, Z⁴3
 Mount Mary—Va8, Wa3
 Nietta Railway—Ib4
 North Esk—Od9
 Oonah Hill—Wa5, Wa9
 Paloona—Jb5
 Penguin—He6, He7, He8, Ja1, Ya3, Ya4
 Petches Bay—Ic2
 Pieman River—Nb32, N¹d12, N¹d18,
 N¹d24, Va16, Vc13
 Port Cygnet—Ic2
 Port Davey—O¹d12, Va10
 Preston—Nd8, Yc1, Yc2, Yc3
 Queenstown—LM¹d1, Z1, Z2, Z3, Z4, Z5,
 Z6, Z7, Z8, Z9, Z⁴1, Z⁴2, Z⁴3
 Raglan Range—I⁴4, Nd1, O¹d10, Va9, Vb2,
 Vb4, Vb6, Vc3, Vc4, Vc6, Vd20
 Rocky River—I²
 Rose Rivulet—Oc8
 Rosevears—Nc11
 Scottsdale—Aa79, Ab57
 Somerset—Wa7
 St Helens—Ab22, Ac1
 St Leonards—Mc9, Od5

St Marys—Ac2
 Stringers Creek—N^d12, N^d18
 Tamar—Nc11, Oc8, Oc11
 Tamar Heads—Nb48
 Tasman River—Aa103
 Ten Mile Hill—Z3, Z4, Z5, Z¹, Z², Z³
 Trial Harbour—Ab27
 Upper Blessington—Bd11
 Upper Esk—Bd11
 Waratah—Ab49
 West Tamar—Nb46, Nc14, Ob22, Oc10
 White Hills—Oc11
 Whyte River—I²
 Zeehan—Aa40

Victoria

Avenel—Ab47
 Bairnsdale—Aa27, Ab62, Bc20
 Bald Hill—Dc13
 Basalt Hill—Nc2
 Beckraith Creek—Df3
 Beechworth—Aa41
 Bendigo—Aa20, Ac27, Dc13, Va11, Va13,
 Va14, Vb5, Vb8, Vc2, Vc7, Vc9, Vc10,
 Vc11, Vc14, Vc15, Vc16, Vd4, Vd15,
 Wa2, Wa4, Wa6, Wa8, Wa11, Wb2,
 Wb3
 Big Hill (see Bendigo)
 Bogong—Bc36, AB¹, AB²
 Buchan—Bb9
 Clover Dam—Dc16
 Cobungra Gap—Va4, Va6
 Delegate River—Bb9
 Dibbins Lookout—AB¹2, Od2
 Diamantina River—AB¹3
 Ensay—Dd15
 Flowerdale—Bb14
 Kiewa—Bc36, Bd8, Dc1, Dc13, Dc16, Df3,
 Kb1, Nb56, Nc1, Nc2, Oc6, Od2, Va6,
 Vb1, Vb7, Vc21, Vd9, Vd19, Wa1,
 Xa1
 Kinglake—Bb14, Bc17, Bd27, Da7, Df11,
 Df12
 Lancefield—Ac34, Bd17
 Lysterfield—Db1
 McKay Creek—Bd8
 Mount Bogong—Vd9
 Mount Disappointment—Bc17, Bd27
 Mount Herbert—Aa20
 Mount Hotham—Vd19
 Mount Jim—Nb56
 Mount Nelse—Wa1, Xa1
 Mount Robertson—Df11

Mount Smythe—Kb1
 Pretty Valley Dam—Dc1
 Reedy Creek—Da7
 Rocky Valley—Vb1, Vc21
 Ruined Castle—Nc1
 Skipton—Vd1
 Tintaldra—Aa28, Ab58
 Tooborac—Ac34, Bd17
 Upper Kiewa Valley—AB¹1, AB¹2, AB¹3,
 AB²5, Va4
 Walwa—Aa28

Western Australia

Alice Hill—E³, E⁸
 Binduli—Ha47, Ha70, Ha76, Ha78, Ha80,
 Hb34, Hb35, Hb36, Hc7, Hd13, He3,
 H¹1, H¹2, H²3
 Black Flag—Ha63, Ha67, Ha69, Ha71,
 Ha72, Hb15, Hb18, Hb29, Hb32
 Blackhill Yard—L²-O²5, L²-O²6, L²-O²7
 Blackstone Range—Ea19, Ea20, Eb32,
 Ha19, Hb3, Hb4
 Bremer Bay—N¹b1
 Bulong—Ha65, He4
 Cape Naturaliste—LM¹b1, LM¹c5, N¹c3,
 N¹c4, N¹c6, N¹d20, N¹d23, O¹c1,
 O¹c2, Sa1, Sa3, Sa5, Sa10, Sa11, Sa12,
 Sb3, Sb4, Sb7, Sb10, Sb12, Sb13, Sb14,
 Sb15, Sb16, Sb17, Sb18, Sb25, Sb27,
 Tb1, Tb2, Tb3, Tc1, Tc2, Tc3, Tc4,
 Tc6, Ua1, Ud1, Ug1
 Coates Siding—Ea23, E³1
 Dadja Hill—Pa5, Pa6, Pa7, Pa9
 Dave Hill—E²9, Xb4
 Derby—Nc21
 Dixon Range—Ab45, Ea3, Ea21, Eb34,
 E²3, E²5, E²8, E²9, LM¹d2, LM¹d4,
 LM¹d7, LM¹d10, N¹d22, Va5, Vc1,
 Vc5, Vc20, Vc22, Vc27, Vd21, Vd23,
 Vd24, Xb2, Xb4
 Eastmans Bore—Ea22, E²6, E²7, E²10
 Eighty One Mile Plug—Pa8, Pa16
 Emu Well—Yb8, Yb11, Yb20
 Fraser Range—LM¹c1, N¹d1, N¹d2, N¹d3,
 N¹d5, N¹d7, N¹d10, N¹d19,
 O¹d5, Sb6, Sb8, Te1, Uc1, Uc2, Uc3,
 Uf1
 Gattenhoff Hill—Mb5
 Halls Creek—LM¹c4
 Hampton Boulder Mine—Ha48, Hb24, Hc8
 Hannans Lake—Hb38, H²6, H²7, H²8, H²9,
 H²21, H²22, Ia7, Ig5, I²2
 Hopetoun—Sc5

Jameson Range—Ea14, Ea15
 Jimberlana—Ea5, Ea13, Ea17, Ea18, Eb4, E21
 Kalgoorlie—Aa101, Aa112, Ab24, Ha1, Ha2, Ha3, Ha4, Ha5, Ha6, Ha10, Ha28, Ha29, Ha45, Ha46, Ha47, Ha48, Ha49, Ha52, Ha54, Ha56, Ha57, Ha58, Ha63, Ha67, Ha69, Ha71, Ha72, Ha73, Ha74, Ha75, Ha76, Ha78, Ha80, Ha82, Ha86, Hb14, Hb15, Hb18, Hb23, Hb29, Hb32, Hb34, Hb35, Hb36, Hb37, Hb38, Hc4, Hc6, Hc7, Hc8, Hd9, Hd11, Hd12, Hd13, He2, He3, He4, H11, H12, H111, H114, H21, H22, H23, H24, H25, H26, H27, H28, H29, H210, H219, H220, H221, H222, H223, H224, Ia7, Ic10, Ic11, Ic14, Id2, Ie2, Ig5, I11, I22, I25, I26, I28, I29, Va20
 Kambalda—Aa85, Aa86, Aa107, Aa108, Aa110, Aa111, Aa113, Ab80, Ab82, AB23, Ha26, Ha36, Ha40, Ha44, Ha59, Ha60, Ha61, Ha62, Ha64, Ha66, Ha68, Hb12, Hb13, Hb16, Hb17, Hb19, Hb21, Hb22, Hb25, Hb27, Hb28, Hb30, Hb31, Hb33, H13, H15, H16, H17, H18, H19, H110, H112, H113, H115, H211, H212, H213, I21, I23, I24, I27, Yb4, Yb10, Yb21
 Kanowna—Ab24, Ha1, Ha2, Ha4, Ha5, Ha6, Ha10, Ha45, H116
 Kimberley—Pa1, Pa2, Pa3, Pa4, Pa5, Pa6, Pa7, Pa8, Pa9, Pa10, Pa11, Pa12, Pa13, Pa14, Pa15, Pa16, Pa17
 Koolanooka Hills—Aa24, Aa84, Ab43, Bc31, Bc32, Bd19, Bd21, Dc7, Dc10, Dc11, Dd11, F4, F9, F10, F11, Ha7, Ha9, Ha12, Hb1, Hb2, Mc1, Nd5, LM1d6, O1d2, L2-O22, Rb7, Sb5, Sb21, Xb1
 Lake Gidgi—Ha3, Hc4, H22
 Lennard River—Ac26, Db10, Ea1, Ea2, Ea8, Ea10, Ea11, Eb11, L2-O23, L2-O25, L2-O26, L2-O27, L2-O29, Pa1, Pa2, Pa3, Pa8, Pa10, Pa12, Pa14, Pa15, Pa16, Pa17
 Lissadell Hill—Bd5
 Michael Hills—Eb5, Eb8, Eb15, Eb16
 Mount Cedric—Pa13
 Mount Herbert—Ac26, Db10, Mb4, Mc2, Mc3, Mc5, Mc10, Md33, Nb3, Nc3, Nc4, Od13
 Mount Hunt—Ha46
 Mount Norcott—Ea4
 Mount North—E22
 Mount Percy—Pa15
 Mount Pleasant—Ha29, Ha49
 Mount Ramsay—Ea22, E26, E27, E210
 Mount Ranford—LM1d2, N1d22, Vd23, Vd24, Xb2
 Mount Remarkable—Ab45
 Mount Rose—Pa10, Pa12, Pa14
 Mount Shea—Ha54, Ha57, Ha73, Ha74, Ha82, Ha86, Hc6, Hd9, Hd12, He2, H25, H219, Ic11, Ic14, Id2, Ie2
 Mount Worth—Pa17
 Murgan—Aa101
 Noonkanbah—Pa4, Pa5, Pa6, Pa7, Pa9, Pa11, Pa13
 Norseman—Aa106, Ea4, Ea5, Ea12, Ea13, Ea17, Ea18, Eb3, Eb4, Eb17, E21, E22
 Oldfield River—Ac21
 Perseverance Mine—H21, H210
 Perth—Ea23, E31
 Point Irby—LM1b2, N1c5, O1d4
 Port Hedland—Lc3, Lc9
 Prairie Hill—Pa1, Pa2
 Ravensthorpe—Ac21, Sc5
 Red Hill—AB24
 Red Lake—Ha58, Hb14, Hd11
 Richenda Gorge—L2-O23, L2-O29
 Ringneck—Aa85, Aa86, Aa107, Aa108, Aa111, Aa113, Ab80, Ab82, Ha60, Ha68, Hb23
 Smithfield—Aa112, Ha75, H111, H114, I11
 Springvale Hill—E25
 Stumpy's Jump Up—Ea1, Ea2, Ea8, Ea10, Ea11, Eb11
 Tollu Mining Camp—Ha19, Hb3, Hb4
 Turkey Hill—Ea3, LM1d4, LM1d7
 Violet Hill—LM1d10
 West Cape Howe—O1d6
 White Hope—Ha52, Hb21
 Widgiemooltha—Yb1, Yb2, Yb3, Yb5, Yb6, Yb7, Yb8, Yb9, Yb11, Yb12, Yb13, Yb14, Yb15, Yb16, Yb17, Yb18, Yb19, Yb20, Yb22, Z10
 Wittenoom—Lc3, Lc9
 Wongi Dam—Ha26, Ha36, Ha40, Ha59, H13, H15, H16, H17, H18, H19, H110, H112, H113, H115, Yb4, Yb21
 Yowalga—Md25

REFERENCES

1. ABBOTT, M. J., 1967—A migmatite from the groundmass of a peralkaline trachyte. *Amer. Miner.*, 52, 1895-901.
2. ABBOTT, M. J., 1969—Petrology of the Nandewar volcano, N.S.W., Australia. *Contr. Mineral. Petrol.*, 20, 115-34.
3. ARRIENS, P. A., 1963—The petrology and geochronology of the Koolanooka Hills, W.A., *Univ. Cambridge, Ph.D. Thesis*.
4. ARRIENS, P. A., BROOKS, C., BOFINGER, V. M., & COMPSTON, W., 1966—The discordance of mineral ages in granite rocks resulting from the redistribution of rubidium and strontium. *J. geophys. Res.*, 71, 4981-94.
5. BEAVIS, F. C., 1961—Mylonites of the Upper Kiewa Valley. *Proc. Roy. Soc. Vic.*, 74(1), 55-67.
6. BEAVIS, F. C., 1962—Contact metamorphism at Big Hill, Bendigo, Victoria. *Ibid.*, 75(1), 89-100.
7. BEAVIS, F. C. 1962—The geology of the Kiewa area. *Ibid.*, 75(2), 349-410.
8. BENNETT, R., 1967—The petrology of Bingle Mountain. *Univ. New England, B.Sc. (Hons) Thesis*.
9. BINNS, R. A., 1964—Zones of progressive metamorphism in the Willyama Complex, Broken Hill district, N.S.W. *J. geol. Soc. Aust.*, 11, 282-330.
10. BINNS, R. A., 1966—An alkaline pyroxenite of jacupirangitic affinities from Broken Hill, N.S.W. *Aust. J. Sci.* 28, 353-4.
11. BINNS, R. A., 1968—Geological map of the southern New England Tableland. *Univ. New England*.
12. BINNS, R. A., 1969—High pressure megacrysts in basanitic lavas near Armidale, N.S.W., *Amer. J. Sci. (Schairer Vol.)*, 267A, 33-49.
13. BINNS, R. A.—Unpublished analyses.
14. BLAKE, D. H., 1968—Post Miocene volcanoes on Bougainville Island, Territory of Papua and New Guinea. *Bull. volc.*, 32, 121-38.
15. BLAKE, D. H., & MIEZITIS, Y., 1967—Geology of Bougainville and Buka Islands, New Guinea. *Bur. Miner. Resour. Aust. Bull.* 93.
16. BLISSETT, A. H., 1962: Explanatory Report—Zeehan, K55/5/50. *Tas. geol. Surv.*
17. BOESEN, R. S., 1964—Re-examination of the monzonitic complex at Mount Dromedary, N.S.W. *Aust. nat. Univ., Ph.D. Thesis*.
18. BRANCH, C. D., 1965—The April 1964 eruption of Manam volcano. *Bur. Miner. Resour. Aust. Rec.* 1965/68 (unpubl.).
19. BRANCH, C. D., 1966—Volcanic cauldrons, ring complexes and associated granites of the Georgetown Inlier, Queensland. *Ibid. Bull.* 76, 1-159.
20. BRANCH, C. D., 1967—The April 1964 eruption of Manam volcano. *Ibid. Rep.* 107.
21. BRIGGS, C., 1929—The Brisbane Tuff. *Proc. Roy. Soc. Qld*, 40, 147-64.
22. BROKEN HILL PROPRIETARY LTD—Rep. C.R.L. 20/64.
23. BROOKS, C., & COMPSTON, W., 1965—The age and initial $\text{Sr}^{87}/\text{Sr}^{86}$ of the Heemskirk Granite, western Tasmania. *J. geophys. Res.*, 70, 6249-62.
24. BURNS, K. L., 1964—Explanatory Report — Devonport, K55/6/29. *Tas. geol. Surv.*, 1-270.
25. CAMPBELL, I. H., 1966—The petrology of the Jimberlana Norite near Norseman, W.A. *Univ. W. Aust., B.Sc. (Hons) Thesis*.
26. CHAPPELL, B. W., 1969—Granitic intrusions from the southern end of the New England Batholith. *J. geol. Soc. Aust.*, 16, 278-82.
27. COLLERSON, K. D., 1967—The Wollomombi-Wongwibinda-Guy Fawkes area: some aspects of the igneous and metamorphic petrology. *Univ. New England, B.Sc. (Hons) Thesis*.

28. COMMONWEALTH OF AUSTRALIA, Bureau of Mineral Resources, Geology, and Geophysics—Unpublished analyses.
29. CRAWFORD, A. R., 1960—The geology of the Woollana volcanic belt, S.A. *Univ. Adelaide, M.Sc. Thesis*.
30. CRAWFORD, A. R., 1963—The Woollana volcanic belt, S.A. *Trans. Roy. Soc. S. Aust.*, 87, 123-54.
31. DALLWITZ, W. B., 1968—Chemical composition and genesis of clinoenstatite-bearing volcanic rocks from Cape Vogel, Papua: A discussion. *Proc. 23rd int. geol. Cong.*, 2, 229-42.
32. DALLWITZ, W. B., GREEN, D. H., & THOMPSON, J. E., 1966—Clinoenstatite in a volcanic rock from Cape Vogel, Papua. *J. Petrol.*, 375-403.
33. DANIELS, J. L., 1970—Unpublished analyses.
34. DAVID, T. W. E., SUMMERS, H. S., & AMPT, G. A., 1927—The Tasmanian tektite—Darwin glass. *Proc. Roy. Soc. Vic.*, 39, 167-90.
35. DAVIES, H. L., 1967—Papuan ultramafic belt. *Bur. Miner. Resour. Aust. Rec.* 1967/107 (unpubl.).
36. DAVIES, H. L., 1968—Papuan ultramafic belt. *Proc. 23rd int. geol. Congr.*, 1, 215.
37. DAVIES, H. L., 1969—Normanby Island, P.N.G., reconnaissance geology. *Bur. Miner. Resour. Aust. Rec.* 1969/46 (unpubl.).
38. DEPARTMENT OF GEOPHYSICS AND GEOCHEMISTRY, AUSTRALIAN NATIONAL UNIVERSITY—Unpublished analyses.
39. DUNN, P. R., & BROWN, M. C., 1969—North Australia plateau volcanics. *Geol. Soc. Aust., spec. Publ.* 2, 117-21.
40. GAME, P. M., 1970—Petrology of Lord Howe Island, Pt 1: the younger volcanics. *Bull. Brit. Mus. (nat. Hist.)*, 2(5), 223-84.
41. GEE, R. D., 1963—Structure and petrology of the Raglan Range. *Geol. Surv. Tas. Bull.* 47.
42. GEMUTS, I., 1965—Metamorphism and igneous activity in the Lamboo Complex, East Kimberley area, W.A. *Bur. Miner. Resour. Aust. Rec.* 1965/242 (unpubl.).
43. GEMUTS, I., 1971—Metamorphic and igneous rocks of the Lamboo Complex, East Kimberley region, W.A. *Ibid.*, *Bull.* 107.
44. GEORGE, R. J., 1969—Sulphide-silicate reactions during metamorphism of the Nairne pyrite deposit. *Proc. Aust. Inst. Min. Metall.*, 230, 1-7.
45. GOLDING, H. G., 1966—The constitution and genesis of the chrome ores in the Coolac serpentinite belt, N.S.W., Australia. *Univ. N.S.W., Ph.D. Thesis*.
46. GREEN, D. C., 1964—The volcanic rocks of Mt Tamborine, S.E. Queensland. *Univ. Qld, M.Sc. Thesis*.
47. GROVES, D. I., & SOLOMON, M., 1964—The geology of the Mount Bischoff district, Tasmania. *Proc. Roy. Soc. Tas.*, 98, 1-22.
48. GRUBB, P. L. C., 1965—Fused laterite in a caldera near Skipton, western Victoria. *Proc. Roy. Soc. Vic.*, 78, 197-9.
49. GULSON, B. L., 1968—The evolution of dioritic rocks with special reference to the high potassium diorites of the Yeoval igneous complex, N.S.W. *Aust. nat. Univ., Ph.D. Thesis*.
50. GULSON, B. L., LOVERING, J. F., TAYLOR, S. R., & WHITE, A. J. R. (in prep.)—High-K diorites and their relationship to andesites.
51. GUY, B. B., 1964—Petrological and mineralogical studies in the plutonic geology of the Tumbarumba-Geehi district, N.S.W. *Univ. Sydney, Ph.D. Thesis*.
52. GUY, B. B., 1969—Granitic development and emplacement in the Tumbarumba-Geehi District, N.S.W.; I: The foliated granites. *J. Roy. Soc. N.S.W.*, 102, 11-20.
53. GUY, B. B., 1969—Idem; II: The massive granites. *Ibid.*, 102, 149-56.

54. HEIER, K. S., & BROOKS, C., 1966—Geochemistry and genesis of the Heemskirk Granite, west Tasmania. *Geochim. cosmochim. Acta*, 30, 633-43.
55. HEIER, K. S., & RHODES, J. M., 1966—Thorium, uranium and potassium concentrations in granites and gneisses of the Rum Jungle Complex, Northern Territory, Australia. *Econ. Geol.*, 66, 563-71.
56. HOUSTON, B. R., 1965—The Tertiary basalt of the City of Brisbane and environs. *Geol. Surv. Qld. Publ.*, 32, 1-10.
57. HOUSTON, B. R., 1965—Triassic volcanics from the base of the Ipswich Coal Measures, south east Queensland. *Ibid.*, 327, 1-18.
58. HOUSTON, B. R., & TUCKER, R. M., 1965—The geology of the City of Brisbane area. *Ibid.* 324.
59. HUDSON, D. R., 1967—The vanadium-bearing magnetite gabbro at Coates Western Australia. *J. Roy. Soc. W. Aust.* 50(2), 60-4.
60. JAKES, P., & SMITH, I. E., 1970—High potassium calcalkaline rocks from Cape Nelson, east Papua. *Contr. Mineral. Petrol.*, 28, 259-71.
61. JENNINGS, I. B., 1963—Explanatory Report—Middlesex, K55/6/45. *Geol. Surv., Tas.*, 1-151.
62. JONES, O. A., & STEVENS, N. C., 1967—Notes on the geology of the University of Queensland experimental mine. *Univ. Qld. Dep. Geol. Pap.*, 6(4), 99-108.
63. JOYCE, A. S., 1967—Redistribution of elements by metamorphism. *Bur. Miner. Resour. Aust. Rec.* 1967/33 (unpub.).
64. JOYCE, A. S., 1970—Idem. *Chem. Geol.*, 6(1), 51-8.
65. KAY, J. G., 1958—The high grade metamorphics of Cape Naturaliste W.A. *Univ. W. Aust. B.Sc. (Hons) Thesis*.
66. KEYSER, F. de, & LUCAS, K. G., 1966—Geology of the Hodgkinson Basin. *Bur. Miner. Resour. Aust. Bull.* 84.
67. KOLBE, P., & TAYLOR, S. R., 1966—Geochemical investigation of the granitic rocks of the Snowy Mountains area, N.S.W. *J. geol. Soc. Aust.*, 13(1), 1-25.
68. LAMBERT, I. B., 1967—Investigations of high grade regional metamorphic and associated rocks. *Aust. nat. Univ. Ph.D. Thesis*.
69. LAMBERT, I. B., & HEIER, K. S., 1968—Geochemical investigations of deep-seated rocks in the Australian shield. *Lithos*, 1(1), 29-53.
70. LAWRENCE, L. J., 1955—The nature and genesis of the ore deposits of the Mole Tableland with special reference to tin and tungsten. *Univ. N.S.W., Ph.D. Thesis*.
71. LAWRENCE, L. J., & MARKHAM, N. L., 1962—A contribution to the molybdenite pipes of Kingsgate, N.S.W., with special reference to ore mineralogy. *Proc. Aust. Inst. Min. Metall.* 203, 67-94.
72. LIVERSIDGE, A., 1888—THE MINERALS OF NEW SOUTH WALES. *London, Trübner*.
73. LOUGHLAN, F. C., 1966—Analcite in the Newcastle Coalmeasures. *Amer. Miner.*, 51, 486-94.
74. LOVERING, J. F., & WHITE, A. J. R., 1969—Granulitic eclogite inclusions from basic pipes at Delegate, Australia. *Contr. Mineral. Petrol.*, 21, 9-52.
75. McDougall, I., 1962—Differentiation of Tasmanian dolerite: Red Hill dolerite-granophyre association. *Bull. geol. Soc. Amer.*, 73, 279-316.
76. McDougall, I., 1964—Differentiation of the Great Lake dolerite sheet, Tasmania. *J. geol. Soc. Aust.*, 11, 107-32.
77. McDougall, I., & WILKINSON, J. F. G., 1967—Potassium-argon dates on some Cainozoic volcanic rocks from northeastern N.S.W. *J. geol. Soc. Aust.*, 14, 225-33.
78. MacKENZIE, D. E., & WHITE, A. J. R., 1970—Phonolite globules in basanite from Kiandra, N.S.W., *Lithos*, 3, 309-17.

79. MCLEOD, I. R., & GREGORY, C. M., 1967—Geological investigations along the Antarctic coast between longitudes 108°E and 166°E. *Bur. Miner. Resour. Aust. Rep.* 78.
80. MACARA, B. J., 1964—The chemical petrology of the Budthimgeroo metadiabase, a metamorphosed basic intrusion outcropping on the Kanangra Plateau, eastern N.S.W. *Univ. N.S.W., M.Sc. Thesis.*
81. MATHISON, C. J., 1964—Variations in the Somerset Dam layered basic complex. *Univ. Qld, B.Sc. (Hons) Thesis.*
82. MATHISON, C. J., 1967—The Somerset Dam layered basic intrusion, southeastern Queensland. *J. geol. Soc. Aust.*, 14, 57-86.
83. MAWSON, D., 1943—Macquarie Island: its geology and geography. *Aust. Ant. Exped., 1911-14. Sci. Rep. Ser. A.*, 5, 1-94.
84. MIYAKE, Y., and SIGIURA, Y., 1952—On the chemical composition of the volcanic eruptives in New Britain. *7th Pan-Pacif. Sci. Cong.*, II, 361-3.
85. MOLLAN, R. G., 1965—Tertiary volcanic rocks in the Peak Range, central Queensland. *Bur. Miner. Resour. Aust. Rec.* 1965/241 (unpubl.).
86. MORGAN, W. R., 1961—The petrology of some Cainozoic olivine basalts from the Cairns hinterland, N. Queensland. *Bur. Miner. Resour. Aust. Rec.* 1961/124 (unpubl.).
87. MORGAN, W. R., 1961—The Carboniferous and Permo-Triassic igneous rocks of the Mossman 4-mile Sheet area, north Queensland. *Ibid. Rec.* 1961/125 (unpubl.).
88. MORGAN, W. R., 1963—The petrology of lava samples from Mount Victory and Mount Yelia, PNG. *Ibid. Rec.* 1963/60 (unpubl.).
89. MORGAN, W. R., 1964—The igneous geology of the Mossman 1:250 000 Sheet area, North Queensland. *Ibid. Rec.* 1964/75 (unpubl.).
90. MORGAN, W. R., 1965—The petrology of lavas and pyroclastics from some New Guinea volcanics. *Ibid. Rec.* 1965/38 (unpubl.).
91. MORGAN, W. R., 1965—The geology and petrology of the Cooktown 1:250 000 Sheet area, north Queensland. *Ibid. Rec.* 1965/118 (unpubl.).
92. MORGAN, W. R., 1966—A note on the petrology of some lava types from east New Guinea. *J. geol. Soc. Aust.* 13(2), 583-91.
93. MORGAN, W. R., 1968—The geology and petrology of Cainozoic basaltic rocks in the Cooktown area of north Queensland. *Ibid.*, 15(1), 65-78.
94. MORGAN, W. R., 1969—The petrology of some Cainozoic basaltic rocks from the Atherton Tableland and Einasleigh-Mt Garnet area, north Queensland. *Proc. Roy. Soc. Qld*, 80, 1-12.
95. MURRAY, C. G., 1964—The occurrence of the Monsildale orbicular gabbros and associated rocks. *Univ. Qld, B.Sc. (Hons) Thesis.*
96. NESBITT, R. W., 1966—The Giles igneous province, central Australia: an example of an eroded volcanic zone. *Bull. volc.*, 29, 271-82.
97. NESBITT, R. W., & TALBOT, J. C., 1966—The layered basic and ultra-basic intrusives of the Giles Complex, central Australia. *Contr. Mineral. Petrol.*, 13, 1-11.
98. O'BEIRNE, W. R., 1968—The acid porphyries and porphyroid rocks of the Kalgoorlie area, W.A. *Univ. W. Aust., Ph.D. Thesis.*
99. PEERS, R., & TRENDALL, A. F., 1968—Precambrian rocks encountered during drilling of the main Phanerozoic sedimentary basins of W.A. *Geol. Surv. W. Aust. ann. Rep.* 1967, 73.
100. PHILLIPS, E. R., 1968—Some plutonic rocks from the northern part of the New England batholith. *Pap. Dep. Geol. Univ. Qld*, 6(7), 159-206.
101. PHILLIPS, E. R., 1968—Mafic hybrid rocks from the New England batholith, N.S.W. *Geol. Mag.*, 105, 160-5.

102. PYLE, J. H., 1965—Rock and mineral analyses section: selected records of the chemical laboratory for the years 1962, 1963 and 1964. *N.S.W. Dep. Min., Chem. Lab. Rep.* 10.
103. PYLE, J. H., & RICE, T. D., 1967—Idem: for the years 1965-66. *Ibid.* *Rep.* 14.
104. RANDAL, M. A., & BROWN, M. C., 1967—The geology of the northern part of the Wiso Basin, Northern Territory. *Bur. Miner. Resour. Aust. Rec.* 1967/110. (unpubl.).
105. RANSLEY, J. E., 1970—The petrology of the New England batholith in the Yarrowych-Balala-Uralla area, north-eastern N.S.W. *Univ. New England, M.Sc. Thesis.*
106. RATTIGAN, J. H.—Unpublished analyses.
107. RHODES, J. M., 1964—The geological relationships of the Rum Jungle Complex. *Bur. Miner. Resour. Aust. Rec.* 1964/89 (unpubl.).
108. RHODES, J. M., 1965—Ibid. *Rec.* 1965/89 (unpubl.).
109. RHODES, J. M., 1966—The structure and chemistry of feldspars in selected Australian granites. *Aust. nat. Univ., M.Sc. Thesis.*
110. RHODES, J. M., 1969—The application of cluster discriminatory analyses in the mapping of granitic intrusions. *Lithos*, 2, 233-7.
111. ROBERTSON, A. D., 1964—The geology of the Kilminster area, Ballandea. *Univ. Qld, B.Sc. (Hons) Thesis.*
112. RUSSELL, R. E., 1966—The lavas and basic intrusions of the Spicer's Peak region, S.E. Queensland. *Univ. Qld, M.Sc. Thesis.*
113. RUXTON, B. P., 1966—A late Pleistocene to Recent rhyodacite-trachybasalt-basaltic latite volcanic association in N.E. Papua. *Bull. volc.*, 29, 347-74.
114. SBEGHEN, G., 1965—A study of the stilpnomelane schists and associated rocks of the Wamuran area, S.E. Queensland. *Univ. Qld, B.Sc. (Hons) Thesis.*
115. SHAW, S. E., 1963—The petrology of portion of the New England batholith, Tenterfield. *Univ. New England, Ph.D. Thesis.*
116. SHAW, S. E., 1969—Granitic rocks from the northern portion of the New England batholith. *J. geol. Soc. Aust.*, 16, 285-90.
117. SPRY, A. H., 1963—The Precambrian rocks of Tasmania, Pt 5: Petrology and structure of the Frenchmans Cap area. *Pap. Proc. Roy. Soc. Tas.*, 97, 105-27.
118. SPRY, A. H., 1963—The occurrence of eclogite on the Lyell Highway, Tasmania. *Miner. Mag.*, 33, 589-93.
119. SPRY, A. H., 1964—The Precambrian rocks of Tasmania, Pt 6: The Zeehan-Corinna area. *Pap. Proc. Roy. Soc. Tas.*, 98, 23-48.
120. SPRY, A. H., & BAKER, W. E., 1965—Idem, Pt 7: Notes on the petrology of some rocks from Port Davey-Bathurst Harbour area. *Ibid.*, 99, 17-26.
121. SPRY, A. H., & SOLOMON, M., 1964—Columnar buchite at Apsley, Tasmania. *Quart. J. geol. Soc. Lond.*, 120, 519-44.
122. STEVENS, N. C., 1962—The petrology of the Mount Alford ring-complex, S.E. Queensland. *Geol. Mag.*, 99, 501-15.
123. STEVENS, N. C., 1965—The volcanic rocks of the southern part of the Main Range, S.E. Queensland. *Proc. Roy. Soc. Qld*, 77, 37-52.
124. STEVENS, N. C., 1968—Triassic volcanic rocks of Agnes Water, Queensland. *Pap. Dep. Geol. Univ. Qld*, 6(6), 147-155.
125. STEVENS, N. C., 1969—The Tertiary volcanic rocks of Toowoomba and Cooby Creek, S.E. Queensland. *Proc. Roy. Soc. Qld*, 80, 85-96.
126. STEVENS, N. C.—Unpublished analyses.
127. SUISS, F. E., 1914—Rückschau und Neues über die Tektitfrage. *Mitt. geol. Ges. Wien*, 7, 51-121.
128. SUTHERLAND, F. L., 1969—The mineralogy, petrochemistry and magmatic history of the Tamar lavas, northern Tasmania. *Pap. Proc. Roy. Soc. Tas.*, 103, 17-33.

129. SUTHERLAND, F. L., & CORBETT, K. D., 1967—The Tertiary volcanic rocks of far northwestern Tasmania. *Ibid.*, 101, 71-90.
130. SYLVESTER, G., 1966—The geology of the Mount Werong area. *Univ. N.S.W., B.Sc. (Hons) Thesis*.
131. TAYLOR, S. R., CAPP, A. C., GRAHAM, A. L., & BLAKE, D. H., 1969—Trace element abundance in andesites. *Contr. Mineral. Petrol.*, 23, 1-26.
132. TAYLOR, S. R., & SOLOMON, M., 1964—The geochemistry of Darwin glass. *Geochim. cosmochim. Acta*, 28, 471-92.
133. THOMPSON, A. M., 1870—Notes on the geology of the country around Goulburn. *Trans. Roy. Soc. N.S.W.*, 57-72.
134. TRENDALL, A. F.—Unpublished analyses.
135. VALLANCE, T. G., 1967—Mafic rock alteration and isochemical development of some cordierite-anthophyllite rocks. *J. Petrol.*, 8, 84-96.
136. VEERABURUS, M., 1963—Geology of the Brungle-Adjungbilly district. *Univ. N.S.W., M.Sc. Thesis*.
137. WALPOLE, B. P., CROHN, P. W., DUNN, P. R. & RANDAL, M. A., 1967—Geology of the Katherine-Darwin region, Northern Territory. *Bur. Miner. Resour. Aust. Bull.* 82.
138. WESTERN AUSTRALIAN DEPARTMENT OF MINES (Govt Chem. Lab.)—Unpublished analyses.
139. WHITE, A. J. R., 1966—Genesis of migmatites from the Palmer region of South Australia. *Chem. Geol.* 1, 165-200.
140. WHITE, A. J. R., COMPSTON, W., & KLEEMAN, A. W., 1967—The Palmer Granite: A study of granite within a regional metamorphic environment. *J. Petrol.*, 8(1), 29-50.
141. WILKINSON, J. F. G., 1962—Mineralogical, geochemical and petrogenetic aspects of an analcite basalt from the New England District of N.S.W. *J. Petrol.*, 3, 192-214.
142. WILKINSON, J. F. G., 1965—Some feldspars, nephelines and analcimes from the Square Top intrusion, Nundle, N.S.W. *Ibid.*, 6, 420-44.
143. WILKINSON, J. F. G., 1965—Titanomagnetites from a differentiate sequence, analcime-olivine theralite to analcime tinguaitite. *Miner. Mag. Lond. (Tilley Vol.)*, 34, 528-41.
144. WILKINSON, J. F. G., 1966—Residual glasses from some alkali basaltic lavas from New South Wales. *Ibid.*, 36, 847-60.
145. WILKINSON, J. F. G., 1968—The magmatic affinities of some volcanic rocks from the Tweed shield volcano, S.E. Queensland. *Geol. Mag.*, 105, 275-89.
146. WILKINSON, J. F. G., 1969—Basaltic and associated igneous rocks of north-eastern N.S.W. *J. geol. Soc. Aust. (N.S.W.)*, 16(1), 530-5.
147. WILKINSON, J. F. G., & BINNS, R. A., 1969—Hawaiite of high pressure origin from northeastern N.S.W. *Nature*, 222, (5193), 553-5.
148. WILKINSON, J. F. G., VERNON, R. H., & SHAW, S. E., 1964—The petrology of an adamellite-porphyrite from the New England batholith, N.S.W. *J. Petrol.*, 5(3), 461-88.
149. WILKINSON, J. F. G., & WHITTEN, J. T., 1964—Some analcime-bearing pyroclastic and sedimentary rocks from N.S.W. *J. sediment Petrol.*, 34, 543-53.
150. WILLIAMS, G. E., 1964—The geology of the Kinglake district, central Victoria. *Proc. Roy. Soc. Vic.*, 77, 273-327.
151. WILSON, A. F., 1954—The charnockitic granulites and associated gneisses of the Musgrave Range, central Australia. *Univ. W. Aust., D.Sc. Thesis*.
152. WILSON, A. F., & MIDDLETON, D. D., 1968—Some petrological features of a spinel-bearing metagabbro in the pyroxene granulites of the Fraser Range, W.A. *J. Roy. Soc. W. Aust.*, 51(3), 89-96.

153. WILSON, M. M., 1964—A study of soda amphibole, actinolite and chlorite schists of the Mount Mee area, Queensland. *Univ. Qld, B.Sc. (Hons) Thesis*.
154. WILSON, M. M., & MATHISON, C. I., 1968—The Eulogie Park Gabbro, a layered intrusion from eastern Queensland. *J. Geol. Soc. Aust.*, 15(1), 139-58.
155. ZIMMERMAN, D. O., YATES, K. R., & AMOS, B. J., 1963—The geology and mineral deposits of the Mount Garnet area, north Queensland. *Bur. Miner. Resour. Aust. Rec.* 1963/77 (unpubl.).
156. MAITLAND, A. Gibb, 1892—Geological observations in British New Guinea. *Qld geol. Surv. Publ.*, 85, 1-33.
157. SMITH, R. E., 1968—Redistribution of major elements in the alteration of some basic lavas during burial metamorphism. *J. Petrol.*, 9, 191-219.