

Bulletin 148 PNG 8

# Explanatory Notes on the 1:2 500 000 Mineral Deposits Map of Papua New Guinea

D. J. Grainger and R. L. Grainger



## DEPARTMENT OF MINERALS AND ENERGY BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS DEPARTMENT OF LANDS, SURVEYS AND MINES GEOLOGICAL SURVEY OF PAPUA NEW GUINEA

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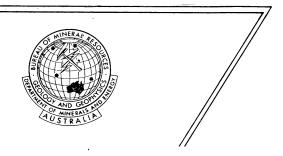
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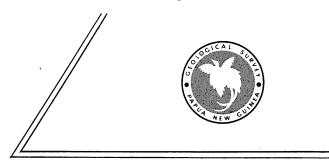
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#### **SUMMARY**

Gold, accompanied by silver and small amounts of osmiridium and platinum, is widely distributed through Papua New Guinea and is associated with acid and intermediate rocks of various Tertiary ages. Gold mining, both alluvial and lode, was the mainstay of the country's mining industry before World War II, but production since then has been limited. However, with the opening of the Panguna copper mine a dramatic increase in gold production has taken place. All the major non-ferrous metals, except tin, occur in Papua New Guinea. Several deposits of bauxite occur on Manus Island, terra rossa deposits are known on New Ireland, and aluminous clays occur on the mainland. Papua New Guinea is a major porphyry copper province and copper is now the country's main mineral export; the Panguna and Ok Tedi deposits are of major importance, and other important deposits on New Ireland, New Britain, and Manus Island are being actively explored. Only minor lead-zinc mineralization is known and it is mostly subordinate to gold, copper, and iron mineralization. Of the ferrous metals, chromium, iron, molybdenum, and nickel occur in Papua New Guinea. Chromite is disseminated in ultramafic rocks in southeast Papua; it forms residual concentrations in lateritic soil, and alluvial concentrations in streams and beach deposits. Small deposits of iron are known on Woodlark Island and New Britain, but neither is economic. Molybdenum is found in several minor occurrences, and nickel mineralization occurs in the ultramafic rocks of southeast Papua, where nickeliferous laterite deposits have been investigated. Small deposits of asbestos, diatomite, graphite, mercury, pumice, and sulphur are known, but none is economic. Small amounts of manganese and phosphate rock have been produced but mining has now ceased. Many occurrences of lignite are known, but most are low-grade and situated in remote localities. Many oil and gas seepages occur; however, extensive exploration over a period of more than 50 years has failed to locate any economic deposits although large quantities of gas are known to occur.

#### INTRODUCTION

The Mineral Deposits Map of Papua New Guinea has been compiled jointly by the Bureau of Mineral Resources (BMR) and the Geological Survey of Papua New Guinea. Open-file data have been used in the compilation of the map, which is envisaged as an aid to exploration and for official purposes; it is not intended to be a metallogenic map. Metals, mineral fuels, and industrial minerals are plotted but construction and fluxing materials and groundwater are excluded. The commodities in the map and tables are present in, or have been extracted from, each deposit as shown, and the importance of the deposit has been assessed on available information.

The notes supplement the map by providing detailed information on each commodity. They are organized into sections which correspond to the commodity groups discussed below, and within each section the data on individual commodities are present in tabular form. Appendix II lists the commodities occurring in each Papua New Guinea 1:250 000 Sheet area. Figure 1 is a reference map of the Sheet areas.

Most statistics, quoted from earlier papers, retain the Imperial measurements used; metric equivalents are given in parentheses in the text.

Commodity Groups. The commodities are divided into five groups, each having a distinctive colour-code on the map as indicated:

Precious metals	(yellow)
Non-ferrous metals	(red)
Iron and ferro-alloy metals	(green)
Industrial minerals	(blue)
Fuel minerals	(black)

Commodities. Each commodity within a commodity group is distinguished on the map by the shape of the symbol if the deposit in which the commodity occurs is classified as a prospect or larger. For an occurrence the commodity is indicated by a letter symbol.

Categories. Five categories of deposit are distinguished on the map:

Occurrence — little or no information about size and importance, or known to be small; some are of mineralogical interest only. Shown by a bold black dot; commodities for each deposit are listed in order of importance; minor or accessory commodities are in parentheses.

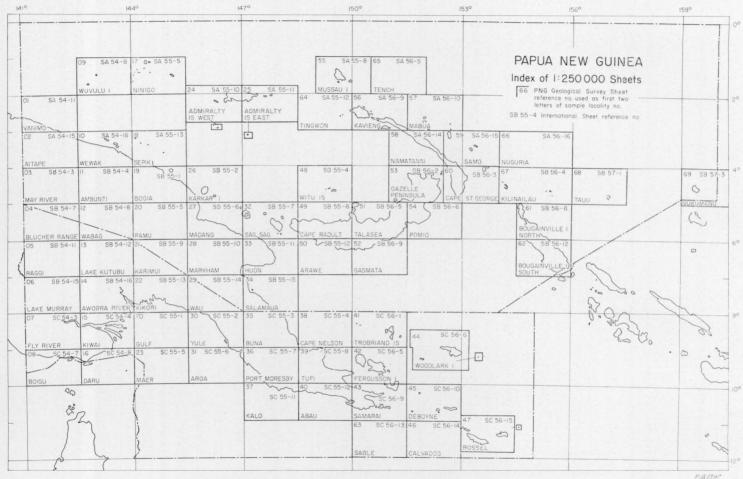


Fig. 1. Papua New Guinea: Index of 1:250 000 Sheets.

Prospect

— exploration has revealed an area of mineralized ground; exploration in progress or suspended. Shown by circular symbol infilled with the colour of the major commodity; other commodities listed alongside as for 'Occurrence'.

Minor deposit

— has produced, or is capable of minor production. Shown by a simple shape infilled with the colour of the major commodity; if more than one important commodity, a combined symbol is used; other commodities listed alongside as for 'Occurrence'.

Medium deposit

— has produced, or is capable of producing a substantial amount of ore; would probably require capitalization of up to \$10 million, or have a value of production or reserves of up to \$40 million. The term 'reserves' means measured and probable (indicated) reserves, but excludes possible or inferred reserves. Shown in same way as 'Minor Deposit' but by larger shapes.

Major deposit

— has produced, or is capable of producing very large amounts of ore; would probably require capitalization well in excess of \$10 million, or have value of production or reserves well in excess of \$40 million. Shown in same way as 'Minor' and 'Medium Deposits' but by still larger shapes.

Subjective assessment has been necessary in the allocation of the deposits to the various categories; economic viability is not implied; the values of production and reserves are at 1972 prices.

Oil and gas wells, seepages, and impregnations are shown by standard BMR symbols.

Index number. To permit cross-reference from the map to the notes, each mineral locality has a four-figure number. The first two figures indicate the 1:250 000 Sheet area in which the mineral deposit, prospect, or occurrence is located. The Sheet reference numbers are those used by the Geological Survey of Papua New Guinea (Fig. 1).

Map insets. Because of the concentration of many mineral localities in small areas it has been necessary to produce 1:250 000-scale insets for the Wau area of the Morobe Goldfield, the Laloki and Rigo areas of the Astrolabe Mineral Field, Woodlark Island, and Misima Island.

#### Acknowledgements

The authors have drawn freely on the work of McLeod (1965), whose reference volume outlines Australia's mineral resources. The following general references on economic geology and mineral resources were consulted: Bateman (1950), Flawn (1966), Park & McDiarmid (1964).

Figures for mineral production before 1951 have been taken from Nye & Fisher (1954); later statistics were compiled from the Australian Mineral Industry Annual Reviews of BMR and from data supplied by the Mines Division of the Papua New Guinea Department of Lands, Surveys, and Mines.

Much of the preparatory work on the compilation of data for the map and the commodity data sheets was carried out by R. L. Grainger at the headquarters of the Geological Survey of Papua New Guinea, and the assistance of the Survey is gratefully acknowledged.

#### GENERAL INFORMATION

#### Physical features

Papua New Guinea has a land area of about 462 000 km<sup>2</sup>. It occupies the eastern part of the island of New Guinea, and includes the Bismarck Archipelago and Bougainville Island. It has a frontier with Indonesia (Irian Jaya) along longitude 141°E, and the boundary with the State of Queensland skirts the Papuan coast in Torres Strait. Bougainville Island is the most northerly of the Solomon Islands group; the remaining islands of the group form the British Solomon Islands Protectorate.

For the most part Papua New Guinea is a land of high rugged jungle-covered mountains, vast areas of swamp, and meandering rivers, which with the heavy rainfall and numerous offshore islands create communication difficulties and add considerably to the problems of mineral exploration and development.

#### Administration

Before it was invaded during World War II Papua New Guinea was divided into the Territory of Papua administered as a colony of Australia, and the Mandated Territory of New Guinea governed by Australia on behalf of the League of Nations. After World War II, New Guinea became a Trust Territory of the United Nations; it is administered jointly with Papua, and both territories are being prepared by Australia for self-government and independence.

#### **Population**

In June 1971 the population consisted of 2 466 000 indigenes and 53 000 non-indigenes. Most of the work-force indigenes are subsistence farmers or plantation workers, and most non-indigenes are public servants and their dependents. The proportion of the indigenous population engaged in the mineral industry is small, although some are employed in unskilled or semi-skilled positions with mining, quarrying, and exploration companies. Individuals and small groups of indigenes supplement subsistence agriculture with small-scale alluvial gold mining.

#### History of mining

Papua. The mining of gold began in the earliest days of European exploration. In 1877 there was a small unsuccessful gold rush to the Goldie River near Port Moresby, but the first major development was in 1888 when gold was discovered on Sudest Island. Other Papuan goldfields were discovered in the late nineteenth and early twentieth centuries and most were worked for only a few years. Small amounts of osmiridium and platinum have been found with the alluvial gold, which also contains silver.

In the early 1900s copper mineralization was found near Port Moresby and the export of copper ore began in 1906. A smelter was erected in 1922 and copper matte was produced until 1927 when mining ceased owing to technical and financial problems. In 1938 there was a revival of mining and smelting, but the enterprise was interrupted by World War II and there has been no production from the district since 1941.

Small deposits of manganese ore near Rigo, southeast of Port Moresby, were intermittently mined between 1937 and 1964 and a total of 2200 tons (2235 tonnes) of battery-grade ore was exported, mostly during World War II. Small amounts of iron ore for use as pigment have been exported from near Rigo. New Guinea. Small amounts of phosphate rock were exported from the Purdy Islands during the German administration of New Guinea. Development of a major mining industry began in 1922 when gold was discovered near Wau, and in 1926 the discovery of the phenomenally rich alluvial gold deposits of the nearby upper Edie Creek started a major gold rush. Further exploration outlined the dredging areas of the Bulolo and Watut Rivers and by the early 1930s air transport had developed sufficiently to enable large dismantled dredges to be air-freighted into the Bulolo valley. Dredging began in 1932, and by 1940 eight dredges were being operated by the Bulolo Gold Dredging Company.

Discoveries of gold followed European exploration of the country. In 1924 gold was found in the interior of Bougainville Island and in the late 1920s and early 1930s in the central highlands of New Guinea and in the mid-1930s in the Prince Alexander Mountains north of the Sepik River. By 1935 New Guinea gold production was valued at more than \$3 million annually and hundreds of kilograms of silver were obtained with the gold.

The mining industry did not recover from the effects of World War II and although gold dredging recommenced in the Bulolo area the number of dredges soon declined and mining activities were reduced to an open-cut gold mine at Wau and small-scale alluvial gold workings.

#### Recent mining and exploration activities

As a result of recent mineral exploration, Papua New Guinea is now recognized as a major porphyry copper province. The most important discovery was the vast porphyry copper-gold deposit at Panguna, on Bougainville Island, from which the export of concentrates began in 1972. The Ok Tedi deposit, in the remote Star Mountains near the Irian Jaya border, and the porphyry copper deposit at Frieda River are in advanced stages of exploration. Other parts of the mainland, Manus Island, New Britain, New Ireland, and Misima Island have favourable environments for porphyry-type mineralization and are being investigated.

Several nickel prospects have been investigated, with particular attention being given to the possible existence of lateritic ores overlying ultramafic rocks. Extensive exploration has also been undertaken for bauxite and beach sands.

#### Petroleum exploration

Surface indications of petroleum are common in several parts of the country and extensive exploration has been undertaken since 1912, mostly in Papua. However, no economic concentrations of oil have been found although substantial quantities of natural gas are known to occur offshore and onshore in the Gulf of Papua area.

Petroleum exploration is continuing at a reduced level of activity and more emphasis is being placed on prospective offshore areas.

Year		Gold and Silver				Gold Ore Platinum		Osi	Osmiridium			Copper		Manganese			
	Bullion & Native Gold oz	Gold Fine oz (e)	Silver Fine oz (e)	Value \$A	Tons	Fine oz	Value \$A	20	Value \$A	20	Value \$A	Ore tons	Matte tons	Value \$A	Tons	Value \$A	\$ <b>A</b>
1888/89	3 850	3 387	460	28 774													28 774
1889/90	3 470	2 929	540	24 880	-		_			_					_		24 880
1890/91	2 426	1 971	450	16 742						_		***	-				16 742
1891/92	1 235	1 017	210	8 644	-												8 644
1892/93	1 200	1 059	140	9 000					_	-							9 000
1893/94	1 128	920	200	7 812					_								7 812
1894/95	728	640	120	5 130	-					_							5 130
895/96	12 840	10 593	2 240	90 000	-												90 000
896/97	20 860	17 206	3 650	146 170													146 170
897/98	15 822	13 344	2 470	113 364													
898/99	17 550	15 167	2 380	128 850													113 364 128 850
899/1900	24 450	20 970	3 480	178 150		-		-				-					
1900/01	21 703	18 612	3 090	158 120				_						-			178 150
1901/02	20 873	17 903	3 070	152 094			_		<del></del>			-					158 120
1902/03	24 048	20 609	3 430	179 090								-	_				152 094
1902/03	23 380	19 994	3 380	169 860							_						179 090
1903/04	23 380 22 <b>7</b> 29	19 478	3 250	165 472		_						-					169 860
1904/03	24 227	20 686		175 738				_				+	_				165 472
			3 540					_					_				175 738
1906/07	16 103	13 863	2 240	117 772			-					137		8 196			125 968
1907/08	14 557	12 012	2 540	102 048		_						176		4 958		_	107 006
1908/09	14 710	12 032	2 670	102 216							-	67		2 680			104 896
1909/10	16 151	14 168	1 980	120 362					_	_		72		2 878			122 240
1910/11	18 497	16 197	2 300	137 606			_		_		_	403	_	24 772			162 378
911/12	17 047	14 273	2 770	121 256					*****			598		19 362			140 618
912/13	18 247	15 094	3 150	128 230							-	1 285		37 994			166 224
913/14	14 666	11 797	2 860	100 220		·		-	_			1 150		39 466			139 686
914/15	15 290	12 058	3 230	102 442					_			695		11 212			113 654
915/16	10 930	10 181	740	86 496	_							864		19 942			106 438
1916/17	9 678	8 943	<b>730</b>	75 976	•							1 322		28 100			104 076
1917/18	12 168	7 889	4 270	67 024			-	_				1 112		23 144			90 168
1918/19	11 769	6 272	5 490	73 282						_		224		3 226			56 508
919/20	11 751	5 122	6 620	43 514						89	5 860	10		214			49 589
920/21	13 232	4 350	8 880	36 956						208	12 490	225		3 660			53 10
921/22	52 704	13 799	38 900	117 230						56	1 918	2 700	-	27 028			146 176
1922/23	17 033	5 295	11 700	44 988			_			145	5 580	2 700	1	28			50 596

9

TABLE 1. MINERAL PRODUCTION, PAPUA: 1888-1951. (Continued)

Year	Gold and Silver				Gold Ore Platinum		0.	Osmiridium Copper			Manganese		Total Value				
	Bullion & Native Gold oz	Gold Fine oz (e)	Silver Fine oz (e)	Value \$A	Tons	Fine oz	Value \$A	$z_C$	Value \$A	20	Value \$A	Ore tons	Matte tons	Value \$A	Tons	Value \$A	& A
1923/24 1924/25 1925/26 1926/27 1927/28 1928/29 1929/30 1930/31 1931/32 1932/33 1933/34 1934/35 1935/36 1936/37 1937/38 1938/39 1939/40 1940/41 1941/42 (e) 1942/43 1944/45 1945/46 1946/47 1947/48 1948/49	2 166 4 947 7 746 8 140 2 408 2 287 3 634 6 923 8 574 15 268 19 496 21 732 26 199 33 580 41 308 64 622 46 239 —— 23 893 —— 446 283 27	1 578 4 153 6 388 6 150 1 704 1 625 2 368 5 283 8 014 9 387 10 814 16 136 19 254 21 605 25 835 35 808 30 422 ———————————————————————————————————	580 790 1 350 1 990 660 1 260 1 640 560 5 800 8 600 5 500 6 900 11 900 28 800 15 800 9 600 ———————————————————————————————————	13 404 35 284 54 268 52 248 14 480 13 802 20 118 52 194 108 482 140 674 175 786 281 384 334 346 375 562 446 320 650 232 632 406 — 266 682 — 8 154 4 592 528	3 1 4 6 6 6 3 3 2 1 5 5 3 7 4 4 1 1 2 8 8 6 6 6 8 7 7 7 7 8 7 8 7 8 7 8 7 8 7	7 47 136 202 193 32 143 25 65 131 127 86 551 184 196 351 — — — — —	60 400 1 160 1 712 1 640 274 1 212 292 2 50 2 016 2 222 2 216 1 502 9 544 3 194 3 810 7 484 ———————————————————————————————————	96 46 21 8 41 2 	1 588 636 342 188 826 30 ———————————————————————————————————	119 116 50 266 37 29 29 47 1 — 9 5 4 4 — — — — — — — — — — — — — — — — —	7 066 7 260 3 000 860 1 100 750 1 000 1 400 24 224 118 80 60		8 2 089 11 466 582 16 	240 83 348 403 464 71 598 416 — 188 — 120 — 148 — 4 600 69 310 75 020 11 998 — — — — — — — — — — — — — — — — — —			20 770 126 292 461 892 126 418 17 636 14 826 22 518 33 886 109 576 142 690 179 744 284 460 336 210 385 412 455 020 724 060 717 470 18 596 271 630 5 134 2 434 622 8 984 5 550 2 562
1949/50 (e) 1950/51 (e) TOTAL	2 018 587 869 574	788 248 612 026	1 210 333 256 675	21 750 7 432 7 021 636	241	2 607	39 768	<u>-</u>	3 720	971	48 790	11 066	15 453	977 512	59 42 1 999	2 960 1 690 33 960	24 710 9 122 8 125 386

Data from Nye & Fisher (1954)
(e) estimated.

#### Mineral production

Precious metals have formed the bulk of mineral production, but copper matte and ore, manganese ore, phosphate rock, and pigment minerals have also been exported, and there have been trial shipments of lead-zinc ore.

TABLE 2. MINERAL PRODUCTION, NEW GUINEA

Year	(	Gold	Silve	er	Total Value
	Fine oz	Value \$A	Fine oz	Value \$A	\$4
To Dec. 1926	23 000	200 000	11 000	3 000	203 000
Jan. 1927 to June 1928	100 365	853 104	92 640	20 382	873 486
1928/29	44 277	376 352	34 500	5 174	381 526
1929/30	30 254	257 160	22 800	3 420	260 580
1930/31	29 858	308 092	19 800	2 970	311 062
1931/32	63 485	868 704	36 000	5 420	874 124
1932/33	121 913	1 851 798	54 150	11 380	1 863 178
1933/34	164 381	2 691 604	78 636	15 938	2 707 542
1934/35	196 498	3 477 122	68 964	25 484	3 502 606
1935/36	190 727	3 336 928	94 371	23 860	3 360 788
1936/37	222 816	3 922 250	123 820	27 144	3 949 394
1937/38	223 880	3 904 688	172 201	36 080	3 940 768
1938/39	237 705	4 386 876	148 040	31 964	4 418 840
1939/40	278 940	5 908 398	195 300	46 612	5 955 010
1940/41	263 096	5 617 666	184 584	43 930	5 661 596
1941/42*	91 <b>7</b> 99	1 964 500	57 613	12 158	1 976 658
1942/43		. —	_		-
1943/44					
1944/45					
1945/46					
1946/47	18 459	297 328	12 607	15 842	403 170
1947/48	82 852	1 798 888	56 644	26 622	1 825 510
1948/49	91 296	1 965 144	62 347	28 784	1 993 928
1949/50	84 958	2 420 550	57 982	35 876	2 456 426
1950/51	87 593	2 713 924	60 204	45 152	2 759 076
TOTAL	2 648 151	49 221 078	1 662 203	457 192	49 678 270

Data from Nye & Fisher (1954)

<sup>\*</sup> Production ceased January, 1942 and figures are available only for July-November, 1941.

TABLE 3. MINERAL PRODUCTION, PAPUA NEW GUINEA

		Gold	Sil	er	Pla	tinum	1	Coppe	r	Lea	d-Zinc	Manganese		
Year	Fine oz	Value \$A	Fine oz	Value \$A	Oz	Value \$A	Ore tons	Matte tons	Value \$A	Ore tons	Value \$A	Ore tons	Value \$A	Total Value \$A
1951	94 437	2 926 344	41 455	32 372	6	362	_	_	_	53	5 200	40	1 600	2 965 878
1952	127 579	3 952 346	63 010	46 438	7	388	14	11/4	1 576	51	8 740	_	_	4 009 488
1953	120 848	3 744 290	58 793	43 148	6	404	25	_	1 730	_	_	42	2 100	3 791 672
1954	86 728	2 699 918	49 062	35 760	19	1 288	34		6 060	_	_	_	_	2 743 026
1955	79 092	2 470 674	44 713	34 350	10	648	_	_	_	_	_	20	800	2 506 276
1956	79 476	2 483 644	42 549	34 080	9	734	_		_	_	_	13	614	2 519 072
1957	69 029	2 157 166	38 101	29 870	14	1 028	51	_	5 3 3 6	_	_	_	_	2 193 400
1958	43 812	1 369 124	25 065	18 952	28	1 420	2	_	644	-	_	_	_	1 390 140
1959	46 820	1 463 120	36 830	28 958	10	650	_	_	_		_	_	_	1 492 728
1960	45 150	1 410 950	33 060	26 044	4	208	_	_	_	-	_	48	3 348	1 440 550
1961	41 820	1 306 868	30 246	24 130	5	260	_	_	_	_	_	2	146	1 331 404
1962	39 052	1 220 378	24 511	21 996	4	214	_	_	_		_	_	-	1 242 588
1963	43 599	1 362 482	23 696	25 834	5	246	_	-	_	_	_	3	190	1 388 752
1964	38 977	1 218 048	23 206	25 602	1	74	_		_	_	_	3	142	1 243 866
1965	32 494	1 015 441	19 663	21 351	4	262	_	-	_	_	_	_	_	1 037 054
1966	28 106	878 316	18 052	19 901	_		_	_	_	_	_	_	_	878 316
1967	27 671	864 708	17 176	23 517	_	_	_	_	_	_	_	_	_	888 225
1968	26 144	817 008	18 139	33 867	_	_	_	_	_	_	_	_	_	850 875
1969	25 859	808 099	17 206	26 600	_	_	_	_	_	_	_	_	_	836 099
1970	23 798	743 679	17 178	25 491	_	_	1	-	1 399	-	_	_	_	770 569
TOTAL	1 120 491	34 912 403	641 711	586 861	132	8 186	127	11/4	16 745	104	13 940	171	8 940	35 519 978

Data from Australian Mineral Industry Annual Reviews (BMR).

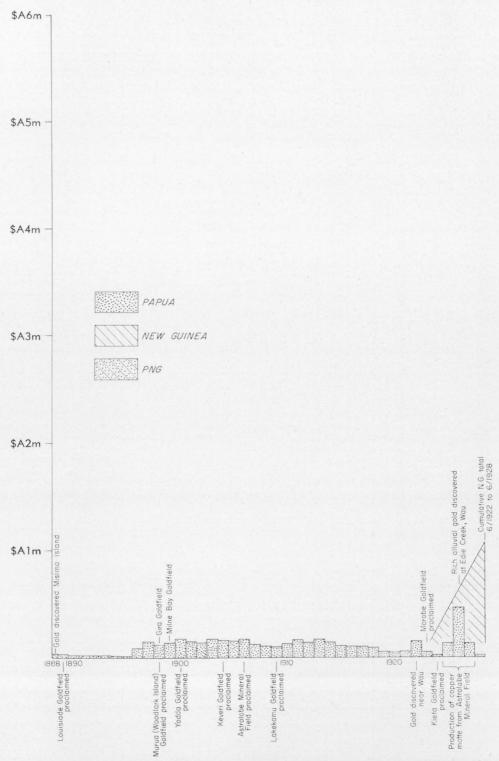
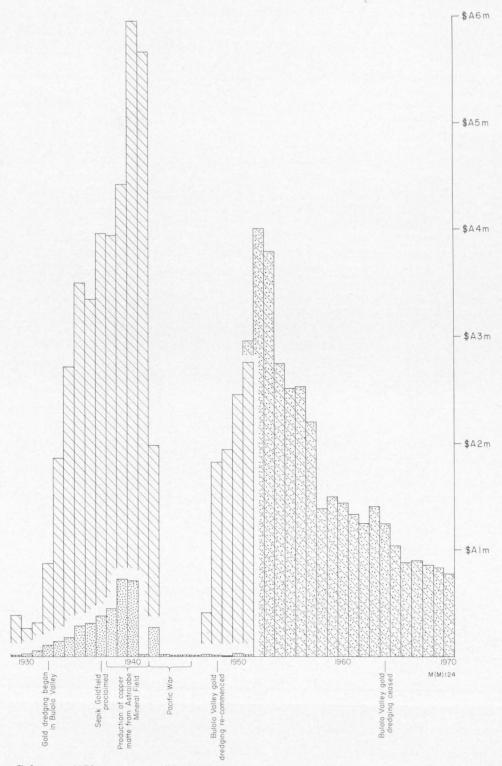


Fig. 2. Graph of annual value of mineral production in Papua New



Guinea to 1970, annotated with major events in the mining industry.

Mineral production figures to the end of 1970 are given in Tables 1, 2, and 3. The total value of production from 1888 to 1970 is estimated at \$93.3 million, of which gold and silver, mostly from New Guinea, made up \$92 million. The figures exclude commercial production from the Panguna copper mine, Bougainville Island, which began on 1 April 1972. To 31 December 1972, 395 092 dry tonnes of concentrate, containing 123 961 tonnes of copper, were produced. Figure 2 is a graphic representation of the total value of production and is annotated with the major events that have affected the mining industry.

#### PRECIOUS METALS

The mining of precious metals, particularly gold, was the mainstay of the mining industry of Papua New Guinea from the 1880s until recently when copper production began at the vast Panguna mine on Bougainville Island. However, the exploitation of the Panguna deposit has considerably increased precious metal production as gold and silver are obtained as by-products.

Gold has been won from alluvial and lode deposits and was a by-product of the copper mines of the Astrolabe Mineral Field near Port Moresby. Silver has been obtained as a by-product of gold mining, and small amounts of osmiridium

and platinum were won from some alluvial gold workings.

The total production of precious metals to the end of 1970 was about \$92 290 000, of which gold from the Wau-Bulolo area (Morobe Goldfield) has been the major contributor.

#### GOLD (occurrences tabulated on pp. 32-71)

Gold is a soft yellowish metal of specific gravity 19.3 and melting point 1063°C. It is highly resistant to chemical attack and in the pure state is the most malleable and ductile of all metals.

Uses. Gold has a small but increasing application in industry. It is used mainly for monetary purposes to provide backing for paper currency and in international financial transactions. Large amounts are also used in jewellery and ornaments, and gold for these purposes is generally alloyed with various amounts of silver. The industrial and scientific uses of gold depend on its high conductivity and high chemical resistance, and comprise mainly protective coatings and electrical and laboratory equipment.

Occurrence. Most of the gold mined occurs in native (i.e. elemental) form, but minor amounts are obtained from gold tellurides. Native gold is rarely pure; almost invariably it is alloyed with about 5 to 15 percent silver, and occasionally the silver

content may be as high as 50 percent.

Genesis. Gold occurs in a wide variety of environments and deposits. Primary gold deposits are generally associated with acid igneous intrusions. A few gold deposits have been formed by contact metamorphism, but most are hydrothermal vein and replacement bodies. Gold, either in the free state or in combination with other metals, occurs in many base-metal deposits. Because of its chemical inertness, gold is not altered by weathering and accumulates in the soil near gold-bearing rocks as eluvial deposits, and is eventually concentrated as alluvial (placer) deposits in streams. Gold placers may also accumulate as the result of wave and current action giving rise to beach or marine placers.

Papua New Guinea. Gold, accompanied by silver, is widely distributed through

Papua New Guinea. The following are the major goldfields:

Morobe		south and west of the Huon Gulf; proclaimed 1923; total production to June 1972 was 3.65 million f.oz (113 530 kg), mostly from dredging and sluicing in the Bulolo Valley (Index Nos. 2920, 2921, 2922).
Louisiade		islands of Louisiade Archipelago; proclaimed 1889, first goldfield in Papua; production to June 1962 was 0.24 million f.oz (7460 kg), mostly from Misima Island (Inset 5) pre-1942, including about 100 000 f.oz. (3100 kg) from alluvial workings; about 10 000 f.oz (310 kg) from Sudest Island, mostly pre-1900.
Woodlark (Murua)		Woodlark Island (Inset 4); proclaimed 1898; production about 0.2 million f.oz (6200 kg), mostly pre-1932; lode, alluvial, eluvial.
Other goldfields in order	of j	proclamation are:
Gira		headwaters of Gira River, Owen Stanley Range; production to December 1932 was 67 880 f.oz (2110 kg), mostly pre-1909; alluvial.
Milne Bay	-	southeast Papua mainland; proclaimed 1899; production about 15 000 f.oz (470 kg), mostly pre-1909; alluvial and minor lode.
Yodda		100 km northeast of Port Moresby; proclaimed 1900; production was 81 000 f.oz (2500 kg), mostly pre-1909; alluvial.
Keveri		160 km east of Port Moresby; proclaimed 1904; production was about 5000 f.oz (155 kg), none recorded since 1926; alluvial.
Lakekamu		about 220 km north-northwest of Port Moresby; proclaimed 1909; production was about 37 000 f.oz (1150 kg) mostly before 1920; alluvial.
Kieta		central Bougainville Island; proclaimed 1924; production to June 1971 was 2284 f.oz (70 kg), mostly pre-1941; lode, eluvial, and alluvial.
Sepik		area north of Sepik River, main production from Prince Alexander Mountains; proclaimed 1937; production to June 1972 was 52 870 f.oz (1640 kg); alluvial.

Production from other parts of Papua New Guinea amounted to only a few hundred kilograms of gold, mostly from the Kainantu and Goroka area of the Eastern Highlands field, 24 000 f.oz (750 kg), and near Madang, 2000 f.oz (60 kg). Provisional goldfields of one square mile (2.5 km²) were declared at Talele, near Cape Lambert in New Britain, in 1933, and Tugi Tugi, on Tatau Island off the east coast of New Ireland, in 1934; production was negligible.

Gold mineralization in Papua New Guinea is associated with intermediate and acid intrusions into a variety of host rocks. The gold of the Morobe Goldfield was introduced by hydrothermal mineralization associated with the Pliocene andesitic Edie Porphyry and the middle Miocene Morobe Granodiorite, which intrude the

Mesozoic Owen Stanley Metamorphics. The gold occurs mainly in stringers, most of which are too small to be worked, but are the source of rich alluvial gold deposits. Workable gold lodes are manganiferous fissure veins up to 8 m wide. In most mines there was considerable secondary enrichment near the surface and only the oxidized ore was worked.

The gold associated with the Edie Porphyry is of low fineness and contains up to 50 percent silver in the upper Edie Creek area. Bullion obtained by cyanidation from the Enterprise, Day Dawn South, and Edie Creek mines (Index Nos. 2904, 2906, 2907; Inset 1) was very rich in silver and some of it contained only a small percentage of gold. The gold associated with the Morobe Granodiorite is of much higher fineness.

In the Sepik and Louisiade goldfields (Index Nos. 1001, etc., and Inset 5) the geological environment is similar to that of the Morobe field: diorite and granite intrude Mesozoic metamorphics. On Woodlark Island (Inset 4) gold mineralization was introduced by late-stage hydrothermal activity in Miocene volcanics intruded by granitic rocks.

Gold was a by-product of some copper mines on the Astrolabe Mineral Field, near Port Moresby. Total gold production is not known, but 5460 f.oz (170 kg) was obtained from the Sapphire/Moresby King Mine (Index No. 3603; Inset 2) mostly between 1936 and 1942.

Future prospects. Gold mining was an important industry in Papua New Guinea before World War II, but production is now limited to that from the Upper Ridges open-cut mine (Index No. 2909; Inset 1) at Wau, and small-scale alluvial workings in many parts of the country. Total production was 23 798 f.oz (740 kg) in 1970. However, the recent establishment of a major copper mining industry will significantly increase gold production as gold is a by-product from the Panguna porphyry copper deposit (Index No. 6203). The annual mineral production from the Panguna mine will include up to 700 000 f.oz (21 770 kg) of gold in concentrate, equivalent to nearly 1.5 percent of world production.

The Kathnel gold mine (Index No. 2809) at Kainantu is to re-open to produce 100 tonnes of ore per day, but major increases in gold production are now tied to the mining of gold-bearing porphyry copper deposits.

#### PLATINUM, OSMIUM, and IRIDIUM (occurrences tabulated on pp. 70-73)

The platinum group metals are platinum, palladium, rhodium, ruthenium, iridium, and osmium; platinum and osmiridium (a natural alloy of osmium and iridium) occur in Papua New Guinea. The platinum group metals are classed as precious because of their rarity and possession of a combination of special properties. In general they are hard silvery-white metals with high specific gravity, high melting point, and chemical inertness. Osmium, with a specific gravity of 22.48, is the heaviest substance known, and has a melting point of 2700°C.

Uses. Platinum and platinum alloys have many industrial applications based principally on their outstanding resistance to chemical corrosion, high resistance to the effects of both heat and oxidation, superior catalytic properties, and high electrical conductivity. Platinum is used in the electrical and chemical industries, and for dental, jewellery, and decorative purposes. Osmium and iridium are used principally for alloying other elements to improve their properties.

Occurrences. The chief platinum mineral is the native metal but platinum also occurs in combination with other elements, notably arsenic. The platinum group metals form natural alloys with one another and with gold, copper, and iron; native platinum averages about 80 percent platinum, and native osmiridium about 30 percent osmium and 30 percent iridium.

Genesis. Platinum group metals occur in ultrabasic rocks, mainly as disseminations and seams in olivine-rich and chromite-rich rocks, or in ores associated with sulphide minerals. Weathering of primary deposits forms alluvial (placer) deposits which are the source of the bulk of production. Gold and platinum group metals are commonly associated in placers.

Papua New Guinea. In Papua New Guinea, alluvial platinum and osmiridium have been recorded from most alluvial gold workings in areas where ultrabasic rocks are known. About 700 f.oz (22 kg) of osmiridium and platinum was won from the Gira Goldfield (Index Nos. 3504, 3505) and lesser amounts from the Yodda Goldfield (Index No. 3512). There was a small short-lived platinum rush to the Milne Bay Goldfield in the mid-1930s, and 220 f.oz (7 kg) was won. Total production for Papua New Guinea has been about 970 f.oz (30 kg) osmiridium and about 350 f.oz (11 kg) platinum.

Future prospects. Small amounts of platinum group metals will continue to be won during alluvial gold mining; increased production thus depends on future developments in the gold mining industry.

#### SILVER (occurrences tabulated on pp. 72-75)

Silver is a white lustrous metal of specific gravity 10.5 and melting point 961°C; it is the most efficient electrical conductor of all metals and, next to gold, the most malleable. It has good resistance to corrosion, but tarnishes on exposure to hydrogen sulphide, which is present in the atmosphere of industrial areas.

*Uses*. Silver is used mainly in comage, tableware, artware, jewellery, and electroplating. The industrial uses of silver are increasing and include the manufacture of light-sensitive photographic materials, surgical wires and plates, and medicinal compounds; because of its high conductivity and resistance to corrosion, silver has many applications in the electrical industry.

Occurrence. Many silver-bearing minerals are known, of which the most important are native silver, argentite, various silver-antimony sulphides, and cerargyrite. Native silver often occurs alloyed with gold (see GOLD), and the lead and copper minerals galena and tetrahedrite-tennantite commonly contain an important proportion of silver.

Genesis. Most of the world's silver production is a by-product of gold, lead-zinc, and copper mining. Deposits worked primarily for silver are hydrothermal vein and replacement bodies associated with Tertiary acid to intermediate intrusive rocks.

Papua New Guinea. No mineral deposits in Papua New Guinea have been worked solely for silver, and production has been as a by-product of gold and copper mining. Throughout the country, gold is alloyed with varying amounts of silver to a maximum of 50 percent in the upper Edie Creek area of the Morobe Goldfield (Inset 1), where low-fineness gold and silver-bearing minerals were introduced by

the Edie Porphyry. Bullion obtained by cyanidation from the Enterprise, Day Dawn South, and Edie Creek mines (Index Nos. 2904, 2906, 2907; Inset 1) was very rich in silver and sometimes contained only a small percentage of gold.

Some silver was obtained from copper-gold mines near Port Moresby (e.g. Index No. 3601; Inset 2). Gold-in-concentrate produced from the Panguna porphyry copper deposit (Index No. 6203) contains a small proportion of silver, and silver is present as an accessory mineral in the Plesyumi porphyry copper prospect (Index No. 5105).

Total silver production to 1970 has been about 2.56 million f.oz (79 620 kg), mostly from the Wau/Edie Creek area of the Morobe Goldfield.

Future prospects. As silver is closely associated with gold and copper, an increase in silver production is only possible by increased gold and copper production, and this is most likely to be through further exploitation of porphyry copper deposits.

#### **NON-FERROUS METALS**

The major non-ferrous metals are aluminium, copper, lead, zinc, and tin, and all except tin are known to occur in Papua New Guinea.

Papua New Guinea is a major porphyry copper province and copper is its most important mineral export. There is minor lead-zinc mineralization, and bauxite is widespread but no economic deposits have been discovered.

#### ALUMINIUM (occurrences tabulated on pp. 76-77)

Aluminium is a soft silvery ductile metal with specific gravity 2.7 and melting point 660°C. It is a good conductor of heat and electricity and, weight for weight, is the most efficient electrical conductor of all the metals. Most of the uses of aluminium are related to its properties of lightness, strength, good electrical conductivity, and resistance to corrosion.

Uses. Aluminium and its alloys are widely used in the transport, canning, and construction industries, in household items, power transmission cables, corrosion-resistant equipment for the chemical industry, and as foil for packaging and insulation. Because of its great affinity for oxygen, aluminium is used as a deoxidizing agent in steel foundries and, admixed with iron oxide, for welding.

Bauxite is used in the manufacture of quick-setting cement and refractories, and as a flux in steel production. Alumina, the intermediate product between bauxite and aluminium, is used as an abrasive, absorptive, and refractory.

Occurrence. Aluminium is a major constituent of many rocks, particularly clay and shale, but at the present time the only ore of aluminium is bauxite, which consists of hydrated oxides of aluminium containing up to 55 percent alumina.

Genesis. Bauxite is formed by the lateritic weathering of aluminium-bearing rocks. A variation is the terra rossa-type of deposit, a residual red aluminous clay formed from the weathering of argillaceous limestone.

Papua New Guinea. Several deposits of bauxite, consisting of aluminous clays containing bauxite nodules, occur on Manus Island (Index Nos. 2402, 2501, 2502). Tera rossa deposits occur on New Ireland, and isolated occurrences of bauxite and aluminous clays at Sogeri, Bereina, and Cape Nelson.

Future prospects. The Manus Island bauxites have been examined in some detail and the Lepatuan Prospect is estimated to contain 600 000 tonnes of bauxite.

Recent prospecting for bauxite in Papua New Guinea has been directed towards the search for terra rossa-type deposits by using airborne scintillometers to identify areas of residual concentration. Although no economic-grade deposits have been found, the method was proved successful and further investigation of large areas of limestone may be justified.

#### COPPER (occurrences tabulated on pp. 78-97)

Copper is a reddish metal of specific gravity 8.95 and melting point 1084°C. Its properties of high electrical and thermal conductivity, ductility, malleability, formability, strength, and resistance to corrosion enable a wide range of end uses. In addition, copper is non-magnetic and is easily finished by polishing, plating, or lacquering.

Uses. Copper is used mainly in the electrical industry, but has innumerable uses in the construction and transport industries, appliances, scientific instruments, utensils, jewellery, and coinage. Important industrial alloys include brass (copper and zinc) and bronze (copper and tin). Brass is easily machined, spun, and stamped, and resists corrosion. Duralium, an aluminium alloy containing a small amount of copper, is used extensively in aircraft production and for other purposes where lightness and strength are important. Copper compounds are used as disinfectants and fungicides, and for cloth printing and dyeing, preserving timber, and colouring glass.

Occurrence. Copper occurs as native copper, but its most important source is in copper sulphide ores, where it is often associated with other base or precious metals. The most important primary copper mineral is chalcopyrite. Minerals produced by oxidation of the sulphide minerals form rich ore in the upper parts of many deposits.

Genesis. Copper is found in many different geological environments. Economies of scale allow the mining of very large low-grade copper deposits associated with intrusive igneous rocks of acid to intermediate composition. The diagnostic characteristic of these so-called porphyry deposits is the dissemination of copper through large volumes of rock, so that although the grade of ore is low, commonly less than one percent copper, tonnages are enormous. Large tonnages of copper ores, of higher grade than porphyry copper deposits, occur in extensive stratiform bodies in sedimentary rocks. In Precambrian shield areas copper is associated with nickel in ultrabasic rocks, and with zinc in low-grade metamorphic rocks. Native copper may occur in lava flows and in associated conglomerate, sandstone, and shale. Some of the highest-grade ores come from vein and contact metamorphic deposits but tonnages are not usually very large. Many copper deposits were formed through enrichment of original lean mineralization by secondary processes.

Papua New Guinea. Papua New Guinea is well endowed with copper mineralization. The porphyry copper deposits of Panguna (Index No. 6203), and Ok Tedi (Index No. 0401) are of major importance, and there is porphyry-type mineralization at Woitape (Index No. 3522) and on Manus Island, New Britain, New Ireland, and Misima Island. Mineralization at the Frieda River Prospect (Index No. 0303) is of the porphyry type. There are some sedimentary copper deposits near Port Moresby in the Astrolabe Mineral Field (e.g. Index No. 3601; Inset 2). Minor vein copper mineralization is widespread and is commonly associated with lode gold. Small amounts of native copper occur in lava flows in the Huon Peninsula (Index No. 3302), and there is minor disseminated copper mineralization in ultrabasic and basic rocks of the Papuan Ultramafic Belt and elsewhere.

Copper was intermittently mined in the Port Moresby area from 1906 to 1941 and production was about 85 000 tonnes of ore. The main deposits were not worked out and although individual orebodies are not large, the area remains prospective for small-scale mining, and its potential is enhanced by proximity to Port Moresby.

However, the most important developments in the copper mining industry in Papua New Guinea will come through exploitation of porphyry-type deposits. Bougainville Copper Pty Ltd began mining the 900-million-tonne Panguna deposit in 1972 on the basis of a daily ore throughput of 90 000 tonnes. The annual production will be at least 180 000 tonnes of copper-in-concentrate (equivalent to more than Australia's copper production in calendar year 1971) and about 700 000 f.oz (21 770 kg) gold in concentrate.

Future prospects. The porphyry deposit at Ok Tedi is in an advanced stage of exploration, and economic feasibility studies are being undertaken. Similar mineralization at Frieda River (Index No. 0303), Manus Island (Index Nos. 2401, 2406), New Britain (Index Nos. 5101, 5104, 5105) and New Ireland (Index Nos. 5804, 5805, 5806) is being investigated, and it is possible that other porphyry copper deposits will be proved in the geologically favourable environment of the central highlands and the Bismarck Archipelago.

#### LEAD and ZINC (occurrences tabulated on pp. 98-103)

Lead and zinc commonly occur together in nature, but whereas lead deposits are almost invariably sources of zinc, zinc deposits may have a very low lead content.

Many metals are obtained as by-products of lead-zinc mining, such as silver and gold, cadmium, antimony, bismuth, arsenic, tellurium, germanium, gallium, and indium.

Lead is a grey soft malleable corrosion-resistant metal of specific gravity 11.3, melting point 327°C, and boiling point about 1525°C. Zinc is a bluish-white metal of specific gravity 7.1, melting point 420°C, and boiling point 906°C; its hardness and ductility depend on the casting conditions and temperature.

Uses. The principal uses of lead are in storage batteries, as a protective sheathing and caulking compound, and in ammunition. Lead alloys are used as solders, bearing and type metals, and low-temperature alloys. Large quantities of tetraethyl lead are used as an anti-knock compound in petrol. Other lead compounds are used as pigments and fillers and for stabilizing plastics. An important but minor use of lead is as a shield against atomic and gamma radiation.

The most important uses of zinc are as a protective coating on steel products (galvanizing), and in die-casting alloys. Brass, a copper-zinc alloy, has many applications. Zinc is used in dry batteries and extruded metal products, and zinc compounds, of which the oxide is the most important, are used as fillers and pigments.

Occurrence. The most important sources of lead and zinc are the sulphides galena and sphalerite, respectively. Some deposits are enriched by secondary lead and zinc minerals formed during weathering.

Genesis. Most lead-zinc deposits are in metamorphosed or unmetamorphosed sedimentary rocks, in the form of veins, as stratiform replacements and disseminations in limestone and dolomite, and in a few cases as residual deposits resulting from the solution of carbonate rocks. Many deposits have a hydrothermal origin

as emanations from magmatic sources, but there has been considerable controversy over the origin of several important stratiform orebodies for which there is no direct igneous connexion. Lead and zinc sulphides often accompany copper mineralization.

Papua New Guinea. Only minor lead-zinc mineralization is known in Papua New Guinea. Lead and zinc sulphides are the major minerals in the Efontera and Daiva prospects (Index Nos. 2811, 3516), and elsewhere lead-zinc mineralization is subsidiary to gold, copper, and iron. Lead and zinc minerals are present as accessories in the Panguna and Plesyumi porphyry copper deposits (Index Nos. 6203, 5105), and in the copper deposits near Port Moresby (e.g. Index No. 3601; Inset 2). Lode gold deposits on Misima Island contain base-metal sulphides and in 1952 a trial shipment of 53 tonnes of semi-oxidized silver-lead-zinc ore was sent from the Umuna gold mine (Index No. 4502).

Future prospects. Papua New Guinea is not a lead-zinc province; it seems unlikely that large lead-zinc deposits are present, but further prospecting of Misima Island may be warranted.

#### IRON AND FERRO-ALLOY METALS

Metals of this group which are known to occur in Papua New Guinea are chromium, iron, molybdenum, and nickel. These and other metals, such as cobalt, metallurgical manganese, tungsten, and vanadium are used mainly in the steel industry. The ores of iron and ferro-alloy metals have not been worked in Papua New Guinea.

CHROMIUM (occurrences tabulated on pp. 104-107)

Chromium is a hard brittle steel-grey metal of specific gravity 7.2 and melting point 1900°C. It does not tarnish in air but is soluble in the common acids and alkalis.

Uses. The main uses of chromite are in metallurgy, as a refractory, and in the manufacture of chromium chemicals.

The major metallurgical application is the conversion of chromite to ferroalloys, which are used in stainless, high-speed, and other steels where increased hardness, tensile strength, and shock resistance are required. Nickel-base chromium alloys are used in heat-resistant and electrical resistance alloys, cobalt-base chromium alloys are used to resist abrasion and corrosion at high temperatures, and chromium increases the strength and hardness of copper with minimal reduction in conductivity. Chromite owes its importance as a refractory to its high fusion point and its chemical neutrality. Chromium salts have many uses, such as electroplating, leather tanning, and pigments.

Occurrence. The only ore mineral of chromium is chromite, and few chromite ores contain more than 50 percent  $Cr_2O_3$ .

Genesis. Chromite is a common constituent of ultrabasic rocks and most commercial deposits are magmatic segregations, but some are placers formed after the weathering of primary sources.

Papua New Guinea. Chromite is disseminated in ultrabasic rocks on Fergusson Island (Index No. 4206), and in southeastern Papua where it forms small segregation lenses (Index No. 3411) and residual concentrations in lateritic soils (Index No. 3503). Chromite was found during eluvial gold mining on Sudest Island (Index No. 4701), but its source is not known. Several streams draining ultrabasic outcrops contain minor amounts of chromite (Index Nos. 1101, 3301, 3508), and

chromite is found in beach sands near Vanimo (Index Nos. 0101, 0106), on Cape Vogel peninsula (Index No. 3909), and north of Morobe (Index Nos. 3420, 3421, 3422).

The Morobe coast deposits are the most important so far discovered in Papua New Guinea. The chromite was derived by erosion of chromite-bearing rocks of the Papuan Ultramafic Belt and transported by rivers to the coast where it has been concentrated by wave action in estuaries and bays.

Future prospects. The Morobe coast is a prospective area for commercial chromite beach sand deposits.

#### IRON (occurrences tabulated on pp. 106-113)

Iron is a silvery-white, tenacious, lustrous, malleable, ductile metal rarely found in the native state. It is magnetic and can be magnetized, is brittle at very low temperatures, softens at red heat, and can be welded at white heat. Pure iron has specific gravity 7.9, and melting point 1530°C.

*Uses.* Iron is used on a far greater scale and over a far wider range of applications than any other metal, principally as steel for structural materials, machinery, tools, and containers, and in the transport industries.

Occurrence. The principal sources of iron are the oxides hematite, magnetite, geothite, and limonite and the carbonate siderite. Steel is essentially iron alloyed with small quantities of one or more elements such as carbon, manganese, silicon, chromium, and tungsten.

Genesis. The major iron deposits of the world occur in Precambrian regions where iron-rich sedimentary rocks, commonly siliceous, have been enriched by weathering. Iron deposits also occur around igneous intrusions where emanations from magmas reacted with the country rock to form bodies of hematite and magnetite that are commonly of high grade.

Sedimentary ores are generally low-grade and consist of beds of limonite and hematite or are iron silicates and carbonates converted to limonite by weathering. Lateritic iron ores occur in tropical and semi-tropical areas where leaching has removed silica and left a concentration of iron oxides; they are generally low-grade deposits. Beach sand deposits formed by the concentration of magnetite derived from igneous rocks are a potential source of iron.

Papua New Guinea. No large deposits of iron ore are known in Papua New Guinea. A magmatic skarn deposit on Suloga Peninsula, on Woodlark Island (Index No. 4407) has been estimated to contain more than 400 000 tonnes of magnetite ore of 66 percent iron and minor copper. Smaller magnetite deposits crop out near Cape Lambert, New Britain (Index No. 5301). A small amount of iron oxide for use as pigment has been extracted from the Mount Louis Mine near Rigo (Index No. 3612).

Future prospects. Titaniferous magnetite beach sands are common on the shores of Bougainville Island (Index Nos. 6102, 6206, 6210, etc.) and the Gulf of Papua (Index Nos. 1501, 1502) and future prospecting for iron ore in Papua New Guinea could be directed towards such deposits.

#### MOLYBDENUM (occurrences tabulated on pp. 112-113)

Molybdenum is a hard elastic metal of specific gravity 10.2 and melting point about 2600°C. It is dark grey in powder form, and silver-white and lustrous when compact.

Uses. The most important use of molybdenum is as an alloying agent in ferrous metallurgy. Like tungsten, molybdenum increases the hardness and toughness of steel, its resistance to shock and corrosion, and its strength at high temperatures. Molybdenum is used also in the production of malleable iron castings. It is used in the manufacture of electronic equipment, heating coils, glass to metal seals, and electrical contact points. Molybdenum compounds are used as catalysts, lubricants, pigments, chemical reagents, and in agriculture to rectify trace element deficiencies in soils.

Occurrence. Practically all molybdenum is obtained from the sulphide molybdenite; molybdite and wulfenite are minor sources.

Genesis. Molybdenite is associated with acid or intermediate igneous rocks. It occurs as the main sulphide mineral in some hydrothermal fissure veins and replacements, with copper in porphyry copper deposits, and with tungsten in contact metasomatic deposits.

Papua New Guinea. Minor occurrences of molybdenite are known in the central highlands (Index Nos. 2002, 2017, 2031) and on the Gazelle Peninsula (Index Nos. 5306, 5309). Molybdenite is present in subeconomic quantities in the Panguna porphyry copper deposit on Bougainville Island (Index No. 6203) and it has been found in porphyry copper prospects on Manus Island (Index No. 2406) and New Britain (Index Nos. 5101, 5104, 5105).

Future prospects. The best prospect for molybdenite extraction in Papua New Guinea appears to be as a by-product of the mining of porphyry copper deposits, but large low-grade porphyry-type molybdenite deposits or higher grade stockworks may occur.

#### NICKEL (occurrences tabulated on pp. 114-117)

Nickel is a silver-white metal of specific gravity 8.9 and melting point 1455°C.

*Uses*. Nickel is one of the most widely used alloying elements in ferrous and nonferrous metallurgy. It imparts toughness, strength, and resistance to corrosion to metals with which it is alloyed, as well as giving improved electrical, magnetic, and thermal properties. Copper-nickel alloys are widely used in coinage. Nickel is used in electroplating and electronic valves, and nickel compounds have a wide variety of uses such as the manufacture of alkaline storage batteries and ceramic coatings.

Occurrence. The principal nickel minerals are the primary sulphides millerite and pentlandite and the secondary silicate mineral garnierite (4 to 6 percent nickel).

Genesis. The principal types of deposit are nickel-copper sulphides forming segregations in intrusive ultrabasic rocks, or hydrothermal vein deposits, and concentration of nickel resulting from the lateritic weathering of nickeliferous serpentinites and other ultrabasic rocks. A potential source of nickel is seafloor manganese nodules, which commonly contain up to one percent nickel.

Papua New Guinea. Minor nickel sulphide mineralization occurs in the Papuan Ultramafic Belt (Index Nos. 3404, 3405, 3906), and nickel minerals are found in beach sands near Vanimo (Index No. 0101). Nickel silicates are present in the Papuan Ultramafic Belt at the Koreppa Prospect (Index No. 3404), in several minor occurrences, and as concentrations in large low-grade nickeliferous laterite deposits at Lake Trist, Kokoda, and Wowo Gap (Index Nos. 2916, 3501, 3904). The Marum Nickel Prospect is a similar laterite deposit formed in the Marum Basic Belt (Index No. 2018).

Future prospects. Limited testing of the Papua New Guinea laterite deposits has been carried out by mining companies, but no economic nickel deposits have been found. In all probability there has been insufficient geological stability to allow the accumulation of laterite deposits of economic grade and size, but the laterite areas warrant more detailed prospecting to assess their full potential.

#### INDUSTRIAL MINERALS

A large number of unrelated materials used mainly for industrial, chemical (including fertilizer), and manufacturing purposes are here grouped together under the term 'industrial minerals'. All are non-metallic except mercury, which, because of its properties and its main use in the manufacturing industry, has been included in the group.

The materials considered under this heading which are present in Papua New Guinea are:

Asbestos Diatomite Graphite Manganese Mercury Phosphate Pumice Sulphur

of which only manganese and phosphate have been worked. An occurrence of gypsum noted by Stanley (1924) southeast of Yule Island is shown on the map.

#### **ASBESTOS**

Asbestos comprises a group of minerals that separate readily into fibres, are resistant to fire and acid, and are good insulators of heat and electricity.

Uses. Chrysotile, because of the length and high tensile strength of its fibres, is particularly suitable for spinning into fireproof cloth; crocidolite can also be spun, but has a lower resistance to heat and is used where chemical inertness is required. The other varieties of asbestos generally have short brittle fibres which cannot be spun but can be used for thermal insulation, friction materials, asbestos cement, as a filler in paints and plastics, and as a chemically inert filter medium.

Occurrence. The two main types of asbestos minerals are serpentine and amphibole; serpentine includes the mineral chrysotile, and amphibole includes crocidolite, amosite, anthophyllite, tremolite, and actinolite. The minerals differ in chemical composition and in the strength, flexibility, and end uses of their fibres.

Genesis. Commercial deposits of asbestos minerals occur in veins rarely more than a few centimetres wide. They are formed by the hydrothermal alteration of ultrabasic rocks or by metamorphism and metasomatism. Chrysotile is found in serpentinites, and crocidolite and amosite in metamorphic rocks associated with dolomites, all generally as cross-fibres normal to the vein walls. Anthophyllite, tremolite, and actinolite commonly occur as slip-fibres parallel to the vein walls, along foliation zones and shears in metamorphic rocks; tremolite and actinolite also form cross-fibre veins in serpentinites.

Papua New Guinea. Very few occurrences of asbestos have been discovered in Papua New Guinea, but no specific exploration for asbestos has been undertaken. Small cross-fibre veins of chrysotile have been found in various places in serpen-

tinized peridotite of the Papuan Ultramafic Belt. They are of mineralogical interest only and have not been shown on the map.

Future prospects. The Papuan Ultramafic Belt and other ultrabasic areas may warrant systematic exploration for asbestos.

#### DIATOMITE (occurrence tabulated on pp. 118-119)

Diatomite is a sedimentary rock formed by the accumulation of the siliceous skeletal remains of diatoms, minute aquatic plants related to algae. It is friable, light, and has high absorbtive capacity, low heat conductivity, and chemical inertness. *Uses*. The principal uses of diatomite are as a filtering medium, as a thermal and acoustic insulator, and as a filler.

Genesis. Diatomite may be of freshwater or marine origin; present-day deposits are accumulating on lake-bottoms and in swamps and marshes. It is probable that the diatoms flourished in waters containing unusually high concentrations of dissolved silica and suspended silicates, which may have been the products of contemporary volcanism.

Papua New Guinea. The Baiyer River diatomite in the central highlands (Index No. 2009), the only known occurrence in Papua New Guinea, is several metres thick within Quaternary lacustrine beds.

Future prospects. It is possible that other lacustrine sediments may contain accumulations of diatomite, especially in areas of contemporary volcanism.

#### GRAPHITE (occurrences tabulated on pp. 118-119)

Graphite, a naturally occurring crystalline form of carbon, is a black greasy flaky mineral with a metallic lustre, is extremely soft, and has high heat and electrical conductivity, refractory properties (melting point 3500°C), and chemical inertness.

Uses. Graphite is used as a refractory (crucibles, retort linings, foundry facings), as brushes in electric motors, as a moderator in atomic reactors, and in lubricants, dry cells, lead pencils, and paints. For trade purposes natural graphite is divided into crystalline and amorphous.

Genesis. Graphite occurs chiefly in regional and contact metamorphic rocks such as schist, gneiss, quartzite, recrystallized limestone, and altered coal beds, and also in quartz veins and pegmatite. Much of the crystalline graphite occurs in minute flakes scattered through metamorphic rocks and was probably derived from organic carbonaceous material in the original sediments or by dissociation of carbonate during metamorphism. Crystalline graphite also occurs as fissure-vein deposits and in pegmatites and is considered to be of hydrothermal origin, the carbon being derived from gaseous compounds given off from the magma or derived from intruded rocks and later redeposited. Amorphous graphite consists of microscopic flakes inextricably mixed with other minerals and is usually formed by the metamorphism of coal or carbonaceous shale.

Papua New Guinea. Very few occurrences of graphite have been discovered in Papua New Guinea, but no specific exploration for graphite has been undertaken. Graphitic schist has been found in the Border Mountains and Torricelli Mountains of northern New Guinea (Index Nos. 0208, 0216), and there are small lenses of graphite in the Sogeri area near Port Moresby (Index No. 3620).

Future prospects. The Owen Stanley Metamorphics and other metamorphic areas may warrant exploration for graphite.

#### MANGANESE (occurrences tabulated on pp. 118-121)

Manganese is a hard brittle greyish metal of specific gravity 7.42 and melting point about 1245°C, and is a moderate conductor of heat and electricity.

Uses. The three major uses of manganese ore, for which different grades of purity and physical characteristics are required, are metallurgical, chemical, and battery manufacture. Manganese is here included with the industrial minerals, because ore that has been exported from Papua New Guinea was of battery grade (75+percent manganese dioxide). Manganese ore of high purity is required for dry batteries, glass making, paints, pigments, dyes, and fertilizers, but lower-grade ore is used for metallurgical purposes by adding it to iron and steel to counteract the effects of sulphur and to make high-manganese steel.

Occurrence. The most important source of manganese is the oxide, which forms the ores psilomelane and pyrolusite, and the impure mixture wad.

Genesis. Most commercial manganese orebodies are of sedimentary or residual origin, but manganese minerals of hydrothermal origin may be present in fissure veins. In the sedimentary deposits, manganese derived from volcanic emanations or from the decomposition of primary manganese minerals sparsely distributed in many igneous and metamorphic rocks is deposited from solution onto sea-floors and lake-bottoms. It typically forms narrow lenticular bodies, and scattered concretionary masses and nodules. Residual deposits are surficial materials that have resulted from the weathering of manganese-bearing minerals. Both main types of manganese deposit are commonly enriched by mechanical concentration, or by solution and redeposition of the manganese minerals.

Papua New Guinea. Sedimentary manganese mineralization occurs sporadically in Eocene chert and shale in a narrow coastal strip extending from a few kilometres northwest of Port Moresby to the Rigo area 70 km to the southeast. Similar minor mineralization is present on Cape Vogel Peninsula (Index No. 3903) and in the Milne Bay area (Index No. 4305). Vein manganese minerals occur on Woodlark Island (Index No. 4411) and in many gold lodes, especially in the Wau/Edie Creek area of the Morobe Goldfield.

Battery-grade ore has been mined from several small deposits in the Rigo area (Index Nos. 3621, 3622, etc; Inset 3) and about 2200 tonnes was exported between 1939 and 1964. Most production was during World War II.

Future prospects. Other deposits of high-grade ore suitable for small-scale mining may be found in the Port Moresby-Rigo area.

#### MERCURY (occurrences tabulated on pp. 120-121)

Mercury is the only metal that is liquid at normal temperature. It is a heavy silvery metal of specific gravity 13.6, melting point minus 38°C, and boiling point 357°C. It is insoluble in water, but soluble in acids, and has relatively good heat and electrical conductivity.

Uses. Its physical and chemical characteristics make mercury an extremely useful commodity, especially in circumstances where metallic properties are required, but for which solid metals are unsuitable. The main use of mercury is in the electrolytic manufacture of chlorine and caustic soda. It is used also to separate native gold from its ores, in electrical apparatus, scientific equipment, and control instruments, as a catalyst and antifouling agent, and in the manufacture of pigments, pharmaceuticals, and explosives.

Occurrence. The sulphide, cinnabar, is the most important ore and usually occurs

in narrow veins or as disseminations or impregnations in rocks of many types. In all occurrences the cinnabar appears to have been deposited from epithermal solutions associated with volcanic activity and the deposits rarely persist to any great depth.

Papua New Guinea. In Papua New Guinea cinnabar has been found in the Morobe Goldfield in the Enterprise and Upper Edie Creek mines and in alluvial deposits in upper Edie Creek (Index Nos. 2904, 2924, 2936; Inset 1), and was presumably introduced by hydrothermal gold mineralization. Alluvial cinnabar has also been found in Efontera Creek near Kainantu (Index No. 2828), but its source is not known.

Future prospects. There has been no systematic search for mercury deposits in Papua New Guinea. The Wau/Edie Creek area offers the best potential for future prospecting, but extensive mercury mineralization is unlikely.

#### PHOSPHATE (occurrences tabulated on pp. 120-125)

Naturally occurring phosphates of economic importance include phosphate rock, apatite, guano, and cave earth. Phosphate rock in its broadest sense includes any rock composed principally of phosphate minerals, and phosphatic rock includes those with lesser proportions of phosphate minerals. In this broad sense, apatite, guano, and cave earth are varieties of phosphate rock.

*Uses.* Natural phosphates are used chiefly as raw material for the manufacture of phosphate fertilizers, principally superphosphates. A small amount is ground and applied directly to the soil. Other uses include the manufacture of ferrophosphorus, and phosphorous and phosphoric acids and their salts.

Genesis. The chief primary phosphate mineral is apatite, which occurs as an accessory mineral in many types of igneous, sedimentary, and metamorphic rocks, occasionally in workable quantities. Marine sedimentary phosphate rock deposits composed mainly of collophane are chemical depositions in large enclosed basins and supply most of the world's phosphate. A potential source of phosphate is the submarine phosphate nodules on the continental shelf.

Important deposits of phosphate are formed of guano accumulated from the excrement of sea birds which have congregated for long periods on oceanic islands and desert coasts. Phosphoric acid leached from the guano may convert the underlying rock, especially limestone, into phosphate rock. Bat guano, or cave earth, commonly accumulates in caves in tropical areas. Most phosphate deposits in Papua New Guinea are of the guano type.

Papua New Guinea. Small deposits of guano and its derivatives occur in the Admiralty Islands and on islands to the west. Small tonnages of phosphate from the Purdy Islands (Index Nos. 2404, 2405), south of Manus Island, were mined during the German administration of New Guinea and were the first mineral exports from the country. Guano-type phosphate is found on Cannac Island (Index No. 4413), east of Woodlark Island, and isolated occurrences of phosphatic sediments occur near Mount Karimui (Index No. 2109), and near the Dilava River (Index No. 3002). Bat guano has accumulated in the Kaut Caves (Index No. 5601) at the northern end of New Ireland.

Future prospects. An extensive search has been made for guano-type phosphate in the islands of Papua New Guinea; while it is unlikely that major new discoveries will be made, no systematic exploration for sedimentary phosphate rock has been undertaken. The largest phosphate deposit is on Nauna Island and consists of about

125 000 tonnes of low-grade phosphatic clay and 15 000 tonnes of higher-grade oolitic phosphate; both types are derived from guano. There are important accumulations on Sae Island (Index No. 1701), and on the Bat Islands (Index No. 2403) of the Purdy Islands, and smaller tonnages are available on Manu Island (Index No. 0903), Cannac Island, and in the Kaut Caves. Many of these deposits could be mined on a small scale.

#### PUMICE (occurrences tabulated on pp. 124-125)

Pumice is a natural silicate abrasive. In block form it is used for wood finishing, metal scouring, and polishing before plating, and also for rubbing down wood and metal surfaces. Ground pumice is used mainly in cleansers and scourers. Genesis. Pumice is the natural volcanic product or frothy glass of steam-expanded siliceous lava.

Papua New Guinea. In Papua New Guinea large deposits of pumice occur in the Matupi and Vulcan volcanoes (Index Nos. 5307, 5313) at Rabaul, Mount Oiau (Index No. 4207) on Fergusson Island, and Dobu Island (Index No. 4208) between Fergusson and Normanby Island.

Future prospects. None of the deposits has been worked, but those at Rabaul are well favoured for future exploitation because they are close to a major port. Other deposits of pumice probably occur in areas of recent volcanicity.

#### SULPHUR (occurrences tabulated on pp. 124-127)

Sulphur occurs both in the free state and in combination with other elements as sulphides and sulphates. The stable elemental form under normal conditions is a pale yellow brittle crystalline solid of specific gravity 2.07, melting point 112.8°C, and ignition point 255°C.

Uses. Sulphur is perhaps the most important element used in the chemical industry and by far its major use is in the manufacture of sulphuric acid. Sulphuric acid is an essential raw material for fertilizers and many industrial chemicals, pigments, and dyes. It is used in petroleum refining, in the rayon industry, and for pickling steel before galvanizing, and in extractive metallurgy has important applications such as the electrolytic refining of copper and zinc and the extraction of uranium oxide and titanium dioxide. Elemental sulphur is used mainly as an insecticide and fungicide, and in the rubber industry.

Genesis. Native sulphur occurs as depositions around volcanoes, in salt-dome caprocks, and as sedimentary beds. In volcanic areas sulphur is deposited from sulphurous gases or is formed by bacterial action on sulphurous waters of thermal springs. Native sulphur in salt-dome caprocks is thought to have originated by the bacterial reduction of gypsum or anhydrite. Sedimentary sulphur can be formed by bacterial action on hydrogen sulphide released during the decay of organic matter.

Sulphur can be obtained from industrial gases and from some crude oil and natural gas, and is extracted from sulphide minerals of iron (pyrite), lead (galena), zinc (sphalerite), and copper (chalcopyrite). Except in the case of pyrite the sulphur is a by-product of the extraction of the metal from the mineral. Pyrite is the most common sulphide mineral and is found in most sulphide ore deposits. It forms in a wide range of geological environments from sedimentary to igneous. Papua New Guinea. In Papua New Guinea small deposits of native sulphur occur

in several areas of Fergusson Island and New Britain, where present-day solfataric volcanic activity is taking place.

The largest known sulphur deposit is on Pago volcano (Index No. 5107) in the Hoskins area of New Britain and contains about 4000 tonnes of native sulphur, 80 percent pure. Smaller tonnages occur on Willaumez Peninsula, New Britain (Index Nos. 5106, 5108), on Lolobau Island (Index No. 5308) off the northern coast, and in the Iamelele thermal area (Index No. 4203) of Fergusson Island. Several streams in the Iamelele area have high concentrations of sulphuric acid. Most volcanic areas in Papua New Guinea have been studied in detail, geologically and for volcano surveillance, and it is unlikely that there are large deposits of native sulphur still to be found. A potential source of sulphur is from smelter gases if a local copper smelting industry is developed.

Pyrite is present in all the base metal deposits and in many gold lodes, but only one locality, the Mount Victor mine (Index No. 2807) near Kainantu, might be worked solely for pyrite.

Future prospects. Exploitation of pyrite as a source of sulphur or sulphuric acid depends on the industrialization of Papua New Guinea. There has been no exploitation of the sulphur deposits, but small-scale production might be feasible at several localities.

#### **FUEL MINERALS**

Indigenous fossil fuels have not been exploited and except for wood burnt for domestic purposes the power requirements of the country are met by hydroelectricity and imported fuel oil.

Many occurrences of coal (lignite) are known, but most are in remote localities and of low grade; none has been worked.

Oil and gas seepages were discovered in 1912 near Kerema; extensive exploration has failed to discover commercial deposits, although large quantities of natural gas are known to occur.

#### PETROLEUM (occurrences tabulated on pp. 128-145)

Petroleum is a complex mixture of hydrocarbons occurring naturally in a free state in solid, liquid, or gaseous form. The liquid (crude oil) and the gas (natural gas) are found in Papua New Guinea but only trace amounts of solid petroleum (bitumen and wax) are known.

Uses. By far the most important use of natural gas and refined crude oil products is as a fuel. Petroleum is also the basis of the petrochemical industry, whose products include plastics, solvents, detergents, synthetic rubber, synthetic fibres, nitrogenous fertilizers, sulphur, carbon black, and bitumen.

Genesis. Petroleum is formed from organic material in fine-grained sediments deposited in a wide range of environments from non-marine through deltaic to marine. The organic material is converted to petroleum by the action of heat associated with burial of the sediments. The depth of formation of petroleum varies with geothermal gradient and the duration of heating. The composition of the product is determined primarily by the conditions of the environment of deposition, and the extent of heating during diagenesis. From the source rock the petroleum migrates to a permeable reservoir rock in which it accumulates owing to subsurface structural and/or lithological conditions which prevent or restrict its further movement.

Papua New Guinea. The discovery of oil seepages in 1911 at Upoia (Index No. 2945), near the mouth of the Vailala River 250 km northwest of Port Moresby, prompted an extensive search for petroleum which is still continuing. In the course of surface exploration in both western Papua (A.P.C., 1961) and New Guinea, especially in the area north of the Sepik River, many additional seepages of oil and gas were found. Deep drilling began in the Papuan Basin after World War II and some considerable flows of gas, and one of oil, were met in the Iehi, Barikewa, Puri (oil and gas), Bwata (gas condensate), and Kuru wells (Index Nos. 1315, 1401, 2213, 2226, and 2228).

During the 1960s the emphasis on petroleum exploration was transferred to the Gulf of Papua, where several offshore wells were drilled and gas and condensate were discovered in the Uramu and Pasca wells (Index Nos. 2233, 7003, and 7004).

The Papuan Basin, in which all wells with appreciable flows of petroleum have been drilled, is essentially a Tertiary feature superimposed on a larger Mesozoic basin, the limits of which are not well known. The Papuan Basin is broadly divisible into three depositional provinces:

- 1. A narrow northeastern zone flanking the Owen Stanley Range northwest of Port Moresby, in which medium to coarse clastic sediments, some volcanic rocks, and local limestone reefs and shoals have been deposited and subsequently broadly folded.
- 2. The Aure Trough, a broad northwest-trending belt forming much of the mountainous interior of the island of New Guinea and extending south into the Gulf of Papua. The Aure Trough contains fine clastic sediments, 10 000 to 13 000 m thick, ranging in age from lower Miocene to Pliocene; most surface indications of petroleum emanate from greywacke beds within the thick sedimentary pile. However, tight folding, thrust-faulting, and low permeability and lack of lateral persistence of the greywacke units make exploration difficult and depreciate the Aure Trough as a reservoir for large petroleum accumulations.
- 3. A broad carbonate shelf on the southwestern flank made up mainly of algal and bryozoan reef detritus of Tertiary age, up to 3000 m thick on its basinward margin and decreasing progressively to about 100 m towards the outcropping granite of the Daru area on the south coast. The limestone lies unconformably over a marine Cretaceous and partly terrestrial Jurassic clastic sequence. Both the Tertiary and Mesozoic successions are broadly folded along the basinward margin of the shelf and drilling in this area at Iehi and Barikewa encountered high-pressure dry gas in Cretaceous sandstone.

The Kuru, Bwata, Uramu, Iehi, and Pasca wells, which produced substantial quantities of gas during testing, and the Puri well, which produced gas and oil, were located within the transition zone between the thick clastic sedimentary pile of the Aure Trough and the shallow-water limestone of the shelf. In this zone impervious Miocene clastic sediments overlain by or interbedded with limestone are folded and faulted. The Urami, Pasca, and Bwata wells produced both gas and condensate from Miocene reef limestone which has good reservoir characteristics and petroleum potential.

Future prospects. Sixty years of petroleum exploration has failed to discover commercial oil or gas fields in Papua New Guinea, but considerable amounts of gas are known to occur. Petroleum exploration is continuing with special emphasis

being placed on offshore areas — the Gulf of Papua, Trobriand Islands Shelf, off Bougainville Island, and off the north coast of New Guinea. In addition, the test drilling of prospective structures on the south side of the Torricelli Mountains is programmed for 1973.

#### COAL (LIGNITE) (occurrences tabulated on pp. 144-153)

Lignite (or brown coal) is a low-grade coal with up to 60 percent moisture and an average fixed carbon percentage of about 33.

Uses. Lignite is a relatively inexpensive fuel for heating and power generation. It can be easily gasified to produce water-gas (chiefly hydrogen and carbon monoxide), which is used in the production of ammonia, solvents, synthetic liquid fuels, and hydrogen. Carbonization of lignite produces a soft char used in the manufacture of briquettes. Lignite is a source of industrial carbon for decolourizing and purifying solutions and for absorbing liquids from gases, and is also a source of industrial gases. Some lignites yield montan wax, which is used in shoe polishes, adhesives, inks, greases, textiles, carbon paper, and hardened wood.

Genesis. Lignite is an intermediate stage in the metamorphosis of vegetable matter to bituminous coal.

Papua New Guinea. The most important known lignite deposits are located in the Kereru Range and the Era, Pide, Vailala, and Purari river systems of the Gulf District of Papua. Lignite also occurs in the central highlands and north of the Sepik River and as isolated occurrences in New Britain and New Ireland.

There have been few systematic investigations of the lignite deposits: in 1912 Carne studied the initial discoveries in Samia Creek (Index No. 2111); Noakes (1942) described the lignite at Matakan Plantation in New Ireland; and proximate analyses have been made on samples from other localities (Grainger, 1969). In general the quality of the lignites compares well with Australian deposits.

The most important deposits are of Pliocene age. In the Gulf District, Tertiary sedimentation took place in a large coastal embayment now occupied by the deltas of the Taurama, Kikori, Era, and Purari Rivers and the foothills to the north. Widespread marine regression began in the upper Miocene, and in the Purari delta hinterland the marine Pliocene sediments are subsidiary to thick sequences of non-marine clastic sediments which, in the middle part of the succession, contain coal measures.

Future prospects. Lignite is a low-grade commodity and needs low-cost transport for economic extraction. It is therefore unfortunate that the thickest most extensive seams so far discovered are in the Pide river system and south of the Kereru Range in remote areas near un-navigable rivers. Because water transport is so important the Ia Purari locality (Index No. 2207) near the navigable Purari River is of potential interest, and similarly the Hohoro (Index No. 2209) and Kuku (Index No. 2208) areas near the mouth of the Vailala River, and the Era River localities (Index No. 2206) near the limit of wet-season navigation, may warrant investigation.

The rapid development of hydro-electricity generation in Papua New Guinea and the presence of untapped reserves of natural gas suggest that lignite is unlikely to be used for power generation, but Gulf District lignite has been suggested as fuel for a local cement industry. It is also possible that, with increasing industrialization of Papua New Guinea, lignite could be used as a chemical industry raw material.

#### PRECIOUS METALS

#### GOLD

Index Name No.	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
AITAPE SA/5	4-15	,,						
0224	Gold	Gold	Alluvial	Occurrences	Producers		Border Mts	03°10′ <b>S</b> ; 141°15′E
SECTION AND CALL	E4 16						1,110	
WEWAK SA/5 1001	Gold, (silver,	Gold/silver,	Alluvial	Minor deposits	Past producers		Prince Alexander	03°33′S; 143°06′E
	platinum)			•	•		Mts	
						-		
1002	Gold, (silver, platinum)	Gold/silver, platinum	Alluvial	Minor deposits	Past producers		Prince Alexander Mts	03°36′S; 143°24′E
	piaunum)						MIS	
AMBUNTI SI	R/54-A							
1101	Gold, (chrom-	Gold, chromite	Alluvial	Occurrences			Yuat R	04°47′S; 143°52′E
	ium)	chromite						(position approx.)
								/
1102	Gold,	Gold,	Alluvial	Occurrence			April R	04°42′S;
	plati <b>num</b>	platinum						142°32′E
WABAG SB/5								
1201	Gold, platinum	Gold, platinum	Alluvial	Occurrence	Minor past producers		Timun <b>R</b>	05°21′S; 143°53′E
1202	Gold	Gold	Alluvial	Occurrence	Minor		Lamant	05°15′S;
					past producer		R	143°52′E
1203 Porgera Alluvial Working	silver	Gold/silver	Alluvial	Minor deposit	Producer		Porgera	05°28′ <b>S</b> ; <b>143</b> °07′E

Pro- duction	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
Total for	Sluicing		Gold	Miocene sediments	Concentration	Fisher	Several deposits
Sepik G.F. (1935- 1971): 52 500 f. oz gold; 4200 f. oz silver; minor platinum			900-940 fine	overlying Cretaceous to Eocene metamorphics intruded by Oligocene — I. Miocene intrusives	by streams from Miocene conglomerate	(1940); Nye & Fisher (1954)	centred on 03°33′S; 143°06′E
Total for Sepik G.F. (1935- 1971): 52 500 f. oz gold; 4200 f. oz silver; minor platinum	Sluicing		Gold 900-940 fine	Miocene sediments overlying Cretaceous to Eocene meta- morphics intruded by Oligocene — 1. Miocene intrusives	Concentration by streams from Miocene conglomerate	Fisher (1940); Nye & Fisher (1954)	Several deposits centred on 03°36'S; 143°24'E
Small gold rush to Yuat R area pre-1940 but no mining				River alluvium overlying Pliocene sediments	Maramuni Diorite	Dow et al. (1968); Thompson (1953)	Poor results from percussion drilling in 1. Maramuni R; chromite in concentrate sluiced from Yuat R (Thompson, 1953)
				Float of Miocene April Ultramafics and hornblende andesite-porphyry	Gold probably from porphyry; platinum from April Ultramafics	Dow et al. (1968)	
Small production	Sluicing			Miocene Maramuni Diorite, restricted lacustrine beds	Maramuni Diorite; metals accumulated in lacustrine beds	Dow et al. (1968)	Concentration by streams from lacustrine beds
Small production	Sluicing			Stocks of highly propylitized andesite-porphyry	Andesite- porphyry	Dow et al. (1968)	
1949- 1968: 10 039 f. oz gold	Sluicing		Gold 768-785 fine	Jurassic to Paleocene Lagaip Beds intruded by small stocks of Miocene Maramuni Diorite	Maramuni Diorite	Dow et al. (1968)	Gold shedding from stockworks of quartz veins in Lagaip Beds

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
1204	Porgera Prospect	Gold, (silver, zinc, lead, copper)	Gold/silver, sphalerite, galena, chalcopyrite	Vein	Prospect		Mt Isa Mines	Porgera	05°31′S; 143°06′E
1206		Gold,	Gold	Alluvial	Occurrence	Minor past producers		Head- waters of Sau R	05° <b>26′S</b> ; 143°46′E
RAM	U SB/55-5	j							
	Yanderra Copper Prospect	Copper, (gold,			Prospect			— See C	COPPER
2003		Gold	Gold	Alluvial	Occurrence	Minor producers (1967)		Marram R	05°36 <b>′S</b> ; 144°35′E
2004		Gold	Gold	Alluvial	Occurrence	Minor past producers		Yanderra	05°45′ <b>S</b> ; 145°10′E
2011		Gold	Gold	Alluvial	Occurrence			L. Simbai R	05°19′S; 144°52′E
2012		Gold	Gold	Alluvial	Occurrence			Kunun R	05°22′S; 144°32′E
2013		Gold	Gold	Alluvial	Occurrence			U. Simbai R	05°22′S; 144°39′E
	Kuta Gold Prospect	Gold, silver	Gold/silver	Alluvial	Minor deposit	Past producer		Kuta	05°54′ <b>S</b> ; 144°14′E
	Kumbruf Gold Prospect	Gold	Gold	Alluvial	Minor deposit	Producers (1967)		N Bismarck Ra	05°19′ <b>S</b> ; 144°36′E
2022		Gold	Gold	Alluvial	Occurrence			Piut R	05°25′S; 144°39′E
2023		Gold	Gold	Alluvial	Occurrence			U. Jimi R	05°39′S; 144°55′E

Pro- duction	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
anction	Prospecting in progress			Jurassic to Palaeocene Lagaip Beds intruded by small stocks of Miocene Maramuni	Maramuni Diorite		Mineralization in stockworks of quartz veins in Lagaip Beds
				Diorite Miocene Maramuni Diorite	Maramuni Diorite	Ward (1949)	
- RAMU	J <b>SB/5</b> 5-5						
Few oz per month	Sluicing			Triassic Kana Volcanics intruded by Miocene inter- mediate porphyry	Porphyry	Clema (1967)	
Not recorded	Sluicing			Miocene Bismarck Intrusive Complex	Probably from mineralization at Yanderra (2001)	McMillan & Malone (1960)	
					Gold from Kumbruf area	Dow & Dekker (1963)	Locality in Dow & Dekker (1963, pl I)
		Trace gold in alluvial terraces	Gold 870-900 fine	U. Jurassic phyllite and sediments intruded by Miocene Oipo Intrusives	Oipo Intrusives	Dow & Dekker (1963)	
		Trace gold		L. Cretaceous Kumbruf Volcanics intruded by Miocene Oipo Intrusives	Oipo Intrusives	Dow & Dekker (1963)	Locality in Dow & Dekker (1963, pl I)
3603 f. oz gold (1935- 1948)	Sluicing		Gold 753 fine	L. Cretaceous Kondaku Tuff intruded by m. Miocene Benembi Diorite	Probably from quartz stringers associated with Benembi Diorite	Ward (1949)	Auriferous gravels resting on tuffaceous sandstone
1958 1967: about 1060 f. oz gold	Sluicing	Est max 300 000 m³ of auriferous wash (Dow, 1959)	Gold 890 fine	Cretaceous to L. Tertiary volcanics and phyllite intruded by Miocene Oipo Intrusives	Quartz/ hematite stringers of Oipo Intrusives	Dow (1959); Bain (1967)	
		Trace gold in alluvial terrace	Gold 890 fine	U. Jurassic Kompiai Formation phyllite and sedi- ments intruded by Miocene Oipo Intrusives	Oipo Intrusives	Dow & Dekker (1963)	
		Minor gold in alluvial terraces		Mesozoic sediments and volcanics	Probably from Mesozoic arkose and granitic conglomerate	Dow & Dekker (1963)	

GOLD (Continued)

Index No.	: Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2024		Gold	Gold	Alluvial	Occurrence			Mamp R	05°35′S; 144°56′E
2025		Gold	Gold	Alluvial	Occurrence	Producer (1963)		Yigile R	05°31′ <b>S</b> ; 144°52′E
2026		Gold	Gold	Alluvial	Occurrence			Yemi R	05°36′S; 145°00′E
MAR	KHAM SI	B/55-10							
2802	Barola Reefs Mine	Gold, (silver, copper)	Gold, pyrite, native copper	Alluvial and vein	Minor deposit	Past producer		Aifunka Hill	06°19′ <b>S</b> ; 145°49′E
2804		Gold	Gold	Vein	Occurrence	·		Aionora	06°18′S 145°53′E
2805	Mt Ubank Prospect	Gold	Gold	Vein	Occurrence			About 30 km SE of Kainantu	06°24′S; 145°57′E
2807	Mt Victor/ Clarke Ridge Mine	Gold, silver	Gold/silver	Vein	Minor deposit	Past producer		16 km SE of Kainantu	06°23′S; 145°59′E
2809	Kathnel Mine	Gold, silver	Gold/silver	Vein: auriferous quartz-pyrite veins	Minor deposit	Producer	Highland Gold Devel	Kainantu	06°16′S; 145°51′E

Pro-	Method of		<i>C</i> 1	Caratin and I	Carrain	Principal	Demonto.
duction	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
		Traces of gold — no extensive terraces		Mesozoic sediments and volcanics intruded by Miocene Oipo Intrusives	Probably from more acid phases of Oipo Intrusives	Dow & Dekker (1963)	
Minor	Sluicing	Not known but no extensive alluvial terraces	High fine- ness gold	Cretaceous sediments	Probably from more acid phases of Oipo Intrusives	Dow & Dekker (1963)	
		Traces of gold in alluvial terraces		Mesozoic sediments intruded by Miocene Oipo Intrusives	Probably by Oipo Intrusives	Dow & Dekker (1963)	
Alluvial: 800 f. oz bullion (1930s) lode: (1953-1961) 371 f. oz gold, 29 f. oz silver	Sluicing and under- ground		Gold 870-930 fine	Garnetite lodes within m. Miocene intermediate Aifunka Volcanics	Epithermal by Miocene volcanism	Dow & Plane (1965)	Diamond-drilled 1957-58; poor results. Native copper associated with gossan in lodes, percussion-drilled 1962; grade not economic
				Miocene Akuna Intrusive Complex intrudes Oligocene Omaura Greywacke	Hydrothermal by Akuna Intrusive Complex	Dow & Plane (1965)	
		Small	Low	Oligocene Omaura Greywacke intruded by u. Miocene Elandora Porphyry	Hydrothermal by Elandora Porphyry	Dow & Plane (1965)	Gold in ferruginous quartz and weathered porphyry near intrusive contact
High- grade ore worked out post- 1963	Under- ground	Mt Victor (1961) 100 000 tons oxidized pyritic ore; Clarke Ridge 50 000 tons	Mt Victor 4.4-6.5 dwt gold/ton; Clarke Ridge 2-3 dwt gold/ton	Pyritized quartz lode on faulted contact of Cretaceous Mt Victor Granodiorite and u. Miocene Elandora Porphyry	Hydrothermal by Elandora Porphyry	Dow (1961c)	Mt Victor Mine worked about 1963; no working at Clarke Ridge, a detached part of Mt Victor lode. Large tonnage of pyritic ore containing up to 50% pyrite—30 m thick at Mt Victor Mine
1966- 1970: about 2000 f. oz gold, 700 f. oz silver	Under- ground. Bulk sampling and develop- ment post-1970			Lode in contact zone between schist of Mesozoic Bena Bena Formation and u. Miocene Elandora Porphyry	Hydrothermal by Elandora Porphyry	Smit (1965b)	Work began 1972 on 100-ton/day treatment plant for reopened mine

GOLD (Continued)

Index Name No.	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2810	Gold	Gold	Alluvial	Occurrence	Past producer		Wongom- bungor <b>Cr</b>	06°49′S; 146°39′E
2814	Gold	Gold	Alluvial	Occurrence	Past producer		Subroar Cr	06°57′S; 146°30′E
2815	Gold (copper, see 2803)	Gold	Alluvial	Minor deposit	Past producer		Yonki Cr	06°14′S; 145°56′E
2816	Gold	Gold	Alluvial	Occurrences	Minor past producers		Karman- tina R	06°14′S; 145°43′E
2817	Gold	Gold	Alluvial	Occurrence	Minor past producer		Ornapinka and Barola Crs	. 06°17′S; 145°39′E
2818	Gold	Gold	Alluvial	Occurrences	?Minor past producer		Sonofi	06°21′S; 145°41′E
2819	Gold	Gold	Alluvial	Occurrences	Past producers		Ramu R	06°18′S; 145°50′E
2820	Gold	Gold	Alluvial	Occurrences	Minor past producers		Ramu R	06°21′S; 145°48′E
2821	Gold	Gold	Alluvial	Occurrences	Past producers		Omaura	06°22′S; 145°58′E
2822	Gold	Gold	Alluvial	Occurrence	?Minor past producer		Wanton R	06°22′S; 146°07′E
2823	Gold	Gold	Vein: manganiferous auriferous stringers	Occurrence			NW slopes Mt Elandora	06°28′S; 146°01′E

Pro-	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
duction	w orking	Keser ves			Genesis		Kemurks
Not known. Slugs of gold up to 5 oz common. Large nuggets sometimes found	Sluicing, ?hydrau- licking	Soon worked out	High- grade gold 935 fine	M. Miocene Morobe Granodiorite intruding Mesozoic Owen Stanley Metamorphics	Hydrothermal by Morobe Granodiorite	Fisher (1935d, 1945)	Highest-grade gold of Morobe Goldfield. Gold caught in natural riffles of schist
Not known	Sluicing	Soon worked out	High- grade gold 889-897 fine	M. Miocene Morobe Granodiorite intruding Mesozoic Owen Stanley Metamorphics	Hydrothermal by Morobe Granodiorite	Fisher (1935e, 1945)	Small gold lode worked close to contact of granodiorite with metamorphics
Pre-1940 about 3300 f. oz gold, some later production	Sluicing		Av gold 908 fine	Schist of Mesozoic Bena Bena Formation intruded by m. Miocene Akuna Intrusive Complex	Hydrothermal by Akuna Intrusive Complex	McMillan & Malone (1960); Fisher (1945)	Gold associated with magnetite
			Gold 785-815 fine	Mesozoic Bena Bena Formation intruded by Mesozoic Karmantina Gneissic Granite	Hydrothermal into metamorphics by granite	Dow & Plane (1965)	Locality in Dow & Plane (1965, pl 5)
Several hundred f. oz gold	Sluicing					Dow & Plane (1965)	Locality in Dow & Plane (1965, pl 5)
						Dow & Plane (1965)	Locality in Dow & Plane (1965, pl 5)
			Gold 781-820 fine	Pleistocene lacustrine Kainantu Beds	From Kainantu Beds	Dow & Plane (1965)	Localities in Dow & Plane (1965, pl 5)
			Gold av 767-785 fine	Miocene Aifunka Volcanics overlying Oligocene Omaura Greywacke and Nasananka Conglomerate	Probably from Aifunka Volcanics	Dow & Plane (1965)	Locality shown in Dow & Plane (1965, pl 5)
			High- fineness gold 850-880 av	U. Miocene Elandora Porphyry intruding Oligocene Omaura Greywacke and Cretaceous Mt Victor Granodiorite	From Mt Victor mineralization (Elandora Porphyry)	Dow & Plane (1965)	
			Gold 873-895 fine	Oligocene Omaura Greywacke intruded by Miocene Elandora Porphyry	Hydrothermal by Elandora Porphyry	Dow & Plane (1965)	Locality in Dow & Plane (1965, pl 5)
			Gold 847-855 fine	U. Miocene Elandora porphyry	Hydrothermal by Porphyry	Dow & Plane (1965)	

GOLD (Continued)

Index No.	Name	Com- modities	Minerals .	Mineralization	Category	Status	Company	Area	Lat/Long
2824		Gold	Gold	Alluvial	Occurrences	Minor past producers		Head- waters Karman- tina R	06°11′S; 145°47′E
2825		Gold	Gold	Alluvial	Occurrence	Minor past producer		Wafi R	06°53′S; 146°26′E
2826		Gold	Gold	Alluvial	Occurrence	Minor past producers		Wampit R	06°45′S; 146°40′E
2827		Gold	Gold	Alluvial	Occurrence	Minor past producer		Waim R	06°46′S; 146°31′E
WAII	SB/55-14								
2901		Gold, silver, (osmium, iridium)	Gold/silver, osmiridium	Alluvial	Minor deposits	Past producers		Lakekamu R	07°48′S; 146°26′E
2902		Gold, (lead, zinc, copper)	Gold, galena, sphalerite, chalcopyrite	Alluvial (and vein)	Minor deposit			Kapua R	07°31′S; 146°12′E
2903	Karuka Mine	Gold, silver	Gold/silver	Vein (manganiferous)	Minor deposit	Past producer		Inset 1	07°20′S; 146°44′E

Pro-	Method of					Principal	
duction	oj Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
			Gold 780-900 fine	Mesozoic Bena Bena Formation intruded by Miocene Akuna Intrusive Complex	Hydrothermal by Akuna Intrusive Complex	Dow & Plane (1965)	Locality in Dow & Plane (1965, pl 5)
Not known	Sluicing			M. Miocene Morobe Granodiorite intruding Mesozoic Owen Stanley Metamorphics	Hydrothermal by Morobe Granodiorite	Nye & Fisher (1954)	
Up to 2000 f. oz from Wampit R and tributaries	Sluicing		High fineness		Hydrothermal by Morobe Granodiorite	Nye & Fisher (1954)	
Small	Sluicing		High- fineness gold 866 fine	Mesozoic Owen Stanley Meta- morphics intruded by minor intrusions of m. Miocene Morobe Grano- diorite	Hydrothermal by Morobe Granodiorite	Nye & Fisher (1954); Fisher (1945)	
Total for Lakekamu G.F. 1909- 1931: 37 425 f. oz bullion (mostly 1909- 1918)	?Sluicing; some dredging				Auriferous gravels reworked by present-day rivers	Kingsbury (1932)	Dredging 1933-35, no details
Total for Lakekamu G.F. 1909- 1931: 37 425 f. oz bullion (mostly 1909- 1918)				Mesozoic Owen Stanley Meta- morphics	Base metals in mineralized belt (?fault) 2000 m long in phyllite	Kingsbury (1932)	Coarse alluvial gold
	Under- ground	1941: 12 000 tons 5.4 dwt gold/ton recov- erable reserves	Av assay 5-12 dwt gold/ton with richer patches. High silver values	Lode within altered Mesozoic Owen Stanley Metamorphics near contact of Pliocene Edie Porphyry	Hydrothermal by porphyry	Fisher (1939b, 1945)	Lode up to 5 m wide Worked in conjunction with Edie Cr Mine

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2904	Enter- prise Mine	Gold, silver, (mercury)	Gold/silver, cinnabar	Vein	Minor deposit	Past producer		Inset 1	07°20′S; 146°44′E
2905	Day Dawn Mine	Gold, silver	Gold/silver, native silver, sulphanti- monides and sulphar- senides	Vein (quartz and manganese)	Minor deposit	Past producer		Inset 1	07°20′S; 146°44′E
2906	Day	Gold,	Gold/silver	Vein	Minor	Past		Inset 1	07°20′S;
	Dawn South Mine	silver		(manganiferous)		producer			146°44′E
2907	Edie Cr	Gold,	Gold/silver	Vein	Minor	Past		Inset 1	07°30′S;
	Mine	silver		(manganiferous)	deposit	producer			146°44′E
2908	Surmans Vein	Gold	Gold	Vein (manganiferous)	Occurrence			Inset 1	07°20′S; 146°44′E
2909	Upper Ridges Mine	Gold, silver	Gold/silver	Vein and replacement (mangano-calcite)	Medium deposit	Producer	New Guinea Goldfields	Inset 1	07°20′S; 146°44′E

Pro-	Method of					Principal	
duction	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
	Under- ground	1946: 58 300 tons 7 dwt gold/ton, plus probable 11 500 tons	Silver/ gold ratio 10:1. Gold 500 fine. Secondary enrich- ment of silver	Fault fissure within altered Mesozoic Owen Stanley Metamorphics near intrusion of Pliocene Edie Porphyry	Late-stage emanations from Edie Porphyry	Noakes (1946)	Mercury associated with pyrite in lower levels of mine. Lode up to 5 m wide
1931- 1935: 21 000 f. oz gold, 20 500 f. oz silver. Recovery (amalga- mation) 68% gold, 12% silver	Under- ground		Av gold fineness 520. Secondary enrichment of silver and gold near surface. Silver/ gold ratio 30:1. Av assays 11.37 dwt gold/ton, 13.61 f. oz silver/ton	Lode at faulted contact of Mesozoic Owen Stanley Metamorphics and Pliocene Edie Porphyry	Hydrothermal by porphyry	Fisher (1939b)	Richest surface deposit in Morobe G.F. Minor workings nearby (Merri Cr Mine) in late 1950s and early 1960s
	Under- ground		Second- ary enrich- ment of gold and silver. Values decrease with depth	Lode partly along contact of altered Mesozoic Owen Stanley Meta- morphics and Pliocene Edie Porphyry	Late-stage emanations from porphyry	Fisher (1936a)	Lode 1 m wide
About 10 000 f. oz gold	Under- ground	(1941) 18 000 tons 8 dwt gold/ton	Av gold 534 fine	No. 1 lode within Pliocene Edie Porphyry; No. 2-5 in altered Mesozoic Owen Stanley Metamorphics near porphyry	Hydrothermal by Edie Porphyry	Fisher (1939b); Nye & Fisher (1954)	Worked in conjunction with Karuka Mine
				Altered Mesozoic Owen Stanley Metamorphics near contact with Pliocene Edie Porphyry	Hydrothermal by Edie Porphyry	Nye & Fisher (1954)	
1948- 1972: 264 264 f. oz gold, 293 830 f. oz silver	Open cut (originally under- ground)		Av grade 0.13 f. oz gold/ton. Gold 600 fine. Silver/ gold ratio 2:1. Minor mechanical enrichment	Shallow epithermal deposit emplaced by fissure filling and replacement in Pliocene explosion breccia overlying Owen Stanley Meta- morphics	Hydrothermal by Edie Porphyry	Siedner (1959); Fisher (1939b)	Tabular, shallow-dipping lodes

GOLD (Continued)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2910	Golden Ridges Mine	Gold, silver	Gold/silver	Vein (mangano- calcite and replacement)	Minor deposit	Past producer		Inset 1	07°20′S; 146°44′E
2911	Mt Kaindi Mine	Gold, silver	Gold/silver	Vein	Minor deposit	Producer		Inset 1	07°20′S; 146°44′E
2912		Gold, (silver)	Gold/silver	Alluvial	Minor deposits	Past producers		Inset 1	07°20′S; 146°44′E
2913		Gold, (silver)	Gold/silver	Alluvial	Minor deposits	Past producers		Bitoi Cr	07°17′S; 146°51′E
2914	Ander- sons Cr lode	Gold, silver	Gold/silver	Vein (mangano- calcite)	Minor deposit	Past producer		Inset 1	07°20′S; 146°44′E
2917		Gold	Gold	Alluvial	Minor deposits	Producer and past producers		Biaru R	07°51′ <b>S</b> : 146°58′E
2918		Gold	Gold	Alluvial	Minor deposits	Producer and past producers		Eloa R	07°46′S; 146°31′E
2920	Bulolo Gold Dredg- ing Ltd	Gold, silver	Gold/silver	Alluvial	Major deposit	Past producer	Bulolo Gold Dredging	M. Bulolo R	07°13′S; 146°40′E

	Method				· · · · · · · · · · · · · · · · · · ·		
Pro- duction	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
150 000 tons, av 1 f. oz gold/ton	Under- ground		Gold 600 fine. Silver/ gold 2:1	Shallow epithermal deposit emplaced by fissure filling and replacement in Pliocene explosion breccia overlying Mesozoic Owen Stanley Metamorphics	Hydrothermal by Edie Porphyry	Nye & Fisher (1954)	Worked out pre-1941
	Under- ground		Gold 630-640 fine. Silver values low	Mesozoic Owen Stanley Metamorphics intruded by quartz veins	Hydrothermal by Edie Porphyry	Fisher (1935b)	
Thous- ands f. oz bullion	Dredging at mouth of creek; sluicing upstream		Av gold 860 fine	Mesozoic Owen Stanley Metamorphics intruded by m. Miocene Morobe Granodiorite	Hydrothermal by granodiorite	Fisher (1935c; 1945)	
1400 f. oz gold per annum (1938)			Av gold about 875 fine	Mesozoic Owen Stanley Metamorphics intruded by m. Miocene Morobe Granodiorite	Hydrothermal by granodiorite	Noakes (1938); Fisher (1945)	
	Under- ground	(1938) 5000 tons 1 f. oz ore on main level; 90-100 ton/ft below	Primary ore 10 dwt gold/ ton; gold 590 fine. Second- ary enrich- ment, several f. oz/ton	Shallow epithermal deposit emplaced as fissure fillings in Mesozoic Owen Stanley Metamorphics	Hydrothermal by Edie Porphyry	Fisher (1938; 1939b)	Steeply dipping lode 4-5 m thick
			2, 22, 322		Andesitic volcanics	Smit (1965a)	Area being worked in 1965 on small scale
					Morobe Granodiorite and Edie Porphyry	Smit (1965a)	Area being worked in 1965 on small scale
1932- 41: 1 196 930 f. oz gold. 1948-1965: several hundred thousand f. oz gold. Total of several hundred thousand f. oz silver	:		Gold 656-716 fine	Dredging area in Pleistocene lacustrine Otibanda Formation; worked to depth of 70 m	Mainly from u. Edie Cr, some from u. Bulolo R area	Nye & Fisher (1954); Fisher (1945)	Dredging began 1933, recommenced 1948; operation soon greatly reduced but one dredge continued working until 1965

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2921	Bulolo Gold Dredg- ing Ltd	Gold, silver	Gold/silver	Alluvial	Medium deposit	Past producer	Bulolo Gold Dredging	L. Bulolo R and U. Watut R	07°06′S; 146°38′E
2922	Bulolo Gold Dredg- ing Ltd	Gold, silver	Gold/silver	Alluvial	Minor deposit	Past producer	Bulolo Gold Dredging	Inset 1	07°20′S; 146°44′E
2923		Gold, silver	Gold/silver	Alluvial	Minor deposits	Past and present		Inset 1	07°20′S; 146°44′E
2924		Gold, silver, (mercury)	Gold/silver, cinnabar	Alluvial .	Minor deposits	Past producer		Inset 1	07°20′S; 146°44′E
2925		Gold, silver	Gold/silver	Alluvial	Minor deposits	Past producers		Inset 1	07°20′S; 146°44′E
2926		Gold, silver	Gold/silver	Alluvial	Minor deposits	Present and past producers		Inset 1	07°20′S; 146°44′E
2927		Gold, (silver)	Gold/silver	Alluvial	Occurrence	Past producer		Inset 1	07°20′S; 146°44′E
2928		Gold, (silver)	Gold/silver	Alluvial	Occurrence	Past producer		Inset 1	07°20′S; 146°44′E
2929		Gold, silver	Gold/silver	Alluvial	Occurrence	Past producer		Inset 1	07°20′S; 146°44′E

*** **********************************	Method						
Pro- duction	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
1932-41: 1 196 930 f. oz gold; 1948-65: several hundred thousand f. oz gold. Total of several hundred thousand f. oz silver			Gold 738-766 fine	Dredging areas in Pleistocene lacustrine Otibanda Formation	From Edie Cr-Bulolo R and u. Watut R	Nye & Fisher (1954); Fisher (1945)	Dredging recommenced 1948, operation soon greatly reduced
1932-41: 1 196 930 f. oz gold; 1948-65: several hundred thousand f. oz gold. Total of several hundred thousand f. oz silver	Dredging (1 dredge)		Gold 718-782 fine	Dredging area in Pleistocene lacustrine Otibanda Formation	From Karanga Cr and Wau area and from Morobe Granodiorite of Bulolo Valley	Nye & Fisher (1954); Fisher (1945)	Dredging recommenced 1948 but operation on u. Bulolo R ceased 1951
Several ten thousand f. oz bullion	Sluicing		Gold 637-671 fine		Hydrothermal by Edie Porphyry in u. Edie Cr	Fisher (1945)	
Several ten thousand f. oz bullion	Sluicing		Gold 530-562 fine		Hydrothermal by Edie Porphyry	Fisher (1945)	Rich gold discoveries in u. Edi Cr in 1926 marked beginning of intensive developmen of Morobe G.F. Alluvial cinnabar found
Thousands f. oz bullion	Sluicing		Gold 549-559 fine		Hydrothermal by Edie Porphyry	Fisher (1945)	Very rich deposits found in early days o Morobe G.F.
Tens of thousand f. oz of bullion	Sluicing		Gold 606 fine		Hydrothermal by Edie Porphyry, and reworking of Otibanda Formation	Fisher (1945)	First gold discovery on Morobe G.F. made 1922
Very minor	Sluicing		Gold 789 fine		Hydrothermal by Morobe Granodiorite	Fisher (1945)	
Very minor	Sluicing		Gold 748 fine		Reworking of Otibanda Formation	Fisher (1945)	
Very minor	Sluicing		Gold 613-640 fine		Mostly Edie Porphyry	Fisher (1945)	

GOLD (Continued)

Index Name No.	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2930	Gold, (silver)	Gold/silver	Alluvial	Occurrences			Hidden Valley	07°24′S; 146°39′E
2931	Gold, (silver)	Gold/silver	Alluvial	Minor deposits	Past producers		Iroa Cr, Surprise Cr, Roaring	07°15′S; 146°33′E
2932	Gold, (silver)	Gold/silver	Alluvial	Minor deposits	Past producers		Cr U. Watut R	07°12′S; 146°34′E
2933	Gold, silver	Gold/silver	Alluvial	Minor deposits	Present and past producers		Inset 1	07°20′S; 146°44′E
2934	Gold	Gold	Alluvial	Occurrences			Head- waters Kapau and Lakekamu Rs	07°25′S; 146°21′E
2935	Gold	Gold	Alluvial	Occurrence			Tauri	07°16′S;
2936	Gold, silver, (mercury)	Gold/silver, cinnabar	Alluvial and vein	Occurrences	Past producer		R Kau Cr	145°58′E 07°52′S; 146°56′E
SALAMAUA	CD /EE 1E							
3401	Gold	Gold	Alluvial	Occurrence			Kila	07°03′S; 147°03′E
3406	Gold .	Gold	Alluvial	Occurrence			Mo R	07°49′S; 147°32′E
3407	Gold	Gold	Alluvial	Occurrence	Minor past producer		Timangosa	07°47′S; 147°03′E

Pro- duction	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
			Gold		Hydrothermal	Fisher	
			728 fine		by Morobe Granodiorite and possibly Edie Porphyry	(1945)	
Several thousand f. oz of bullion	Sluicing		Gold 881-887 fine		Hydrothermal by Morobe Granodiorite	Fisher (1945)	
Several thousand f. oz of bullion	Sluicing		Gold 836-840 fine		Hydrothermal by Morobe Granodiorite, concentrated in Otibanda Formation, and reworked	Fisher (1945)	Rich alluvial ground above u. Watut R gorge
Several thousand f. oz of bullion	Sluicing		Gold 600 fine		From u. Edie Cr area and u. Bulolo R	Fisher (1945)	Present-day workings in this area
							Several localities centred on 07°25'S; 146°21'E
Minor alluvial gold workings			Trace gold, about 4 f. oz silver/ton in quartz reefs	Hornblende andesite-porphyry (?Pliocene)		Dow & Davies (1964)	Alluvial cinnabar noted
			Low- grade gold, 660 fine			Fisher (1945)	
				Mageri Volcanics		Dow & Davies (1964); Gessner (1965)	Pre-1914 trenches and pits in same general area
Minor production pre-1940; total for m. and l. Waria R. about 1000 f. oz gold			Gold 760 fine	Andesite-porphyry intruding Mesozoic Owen Stanley Metamorphics	Andesite- porphyry	Fisher (1945) Dow & Davies (1964)	Alluvial gold deposited below gorge of Ono R

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
3408		Gold, (plati- num)	Gold, platinum	Alluvial	Occurrence	Minor past producer		Juni	07°49′S; 147°09′E
3409	·	Gold	Gold	Alluvial	Occurrence	Minor past producer		Assama	07°58′S; 147°10′E
3412		Gold, copper	Gold, malachite	Vein (boulders)	Occurrence			Paiewa R	07°30′S; 147°12′E
3413		Gold, platinum	Gold, platinum	Alluvial	Occurrence			Saia R	07°21′S; 147°08′E
3415		Copper,			Occurrence			— See	COPPER
3416		Gold, platinum	Gold, platinum	Alluvial	Occurrence			Mubo	07°13′S; 147°00′E
3418		Gold, copper	Gold, chalcopyrite	Vein	Occurrence			Tida-ura	07°56′S; 147°12′E
3419		Gold, lead	Gold, galena	Vein (boulder)	Occurrence			Paiawa R	07°34′S; 147°13′E
BUNA	A SC/55-3								
3504	Aikora Gold Sluicing Syndicate	Gold, osmium, iridium, (plati- num)	Gold, osmiridium, platinum	Alluvial	Minor deposit	Past producer	Aikora Gold Sluicing	Aikora R	08°19′ <b>S</b> ; 147°36′E
3505	Gira R Sluicing Co	Gold, osmium, iridium, (plati- num)	Gold, osmiridium, platinum	Alluvial	Minor deposit	Past producer	Gira River Sluicing	Gira R	08°19′S; 147°40′E
3506		Gold	Gold	Alluvial	Occurrence	Minor producer (1969)		Gira R	08°17′S; 147°37′E

Pro- duction	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
Minor production pre-1940; Total for m. and l. Waria R. about 1000 f. oz gold	Sluicing		Gold 780 fine		Monzonite stock	Fisher (1945); Dow & Davies (1964)	
			Gold 788 fine			Fisher (1945)	
			0.26 f. oz gold/ton,	Vein quartz in boulders		Davies (1969)	
						Dow & Davies (1964)	Locality in Dow & Davies (1964, map)
—SALAM	AUA SB/5	5-15					
						Dow & Davies (1964)	Locality in Dow & Davies (1964, map)
				Narrow quartz vein intruding gabbro and pyroxenite of Papuan Ultramafic Belt	Hydrothermal	Dow & Davies (1964)	
			0.27 f. oz gold/ton	Deit		Davies (1969)	Gold/galena in quartz vein in boulder
Total for Gira G.F.: 68 000 f. oz gold; about 700 f. oz osmiri- dium and platinum				Papuan Ultramafic Belt	Papuan Ultramafic Belt	Nye & Fisher (1954); Davies (1969)	Only minor production on Gira G.F. post-1931; most between 1898-1909
Total for Gira G.F.: 68 000 f. oz gold; about 700 f. oz osmiri- dium and platinum	;			Papuan Ultramafic Belt	Papuan Ultramafic Belt	Nye & Fisher (1954); Davies (1969)	Only minor production on Gira G.F. post-1931; most between 1898-1909
•				Papuan Ultramafic Belt	Papuan Ultramafic Belt	Davies (1969)	Workings in Davies (1969, map)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
3507		Gold, (plati- num)	Gold, platinum	Alluvial	Occurrence	Minor past producer		L. Gira R	08°11′S; 147°47′E
3509		Gold	Gold	Alluvial	Occurrence	Minor past producer		Ioma	08°21′S; 147°45′E
						producer			
3510		Gold	Gold	Alluvial	Occurrences		-	Ioma	08°21′S; 147°49′E
3511		Gold	Gold	Alluvial	Occurrences			Streams draining into m. Mambare R	(approx.) 08°25′S; 147°47′E (approx.)
3512		Gold, (osmium, iridium, plati- num)	Gold, osmiridium, platinum	Alluvial	Minor deposits	Past producers	•	Mambare R	08°41′S; 147°40′E
3513	Yodda Goldfields Co	Gold	Gold	Alluvial	Minor deposit	Past producer	Yodda Goldfields	Mambare R	08°41'S; 147°40'E (approx.)
3514		Gold	Gold	Alluvial	Occurrence	•		Okawu Cr	08°44′S; 147°44′E
3515		Gold	Gold	Alluvial	Minor deposit	Minor past		U. Mambare	(approx.) 08°47′S; 147°40′E
3518		Gold	Gold	Alluvial	Occurrence	producer		R Wuwu R	(approx.) 08°02′S; 147°39′E

	Method						
Pro- duction	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
Total for Gira G.F.: 68 000 f. oz gold; about 700 f. oz osmiri- dium and						Davies (1969)	Workings in Davies (1969, map)
platinum Total for Gira G.F.: 68 000 f. oz gold; about 700 f. oz osmiridium and platinum						Davies (1969)	Workings in Davies (1969, map)
platinam						Davies (1969)	
						Davies (1969)	
Total for Yodda G.F.: about 77 000 f. oz gold 1900- 1931; most production 1900-	Sluicing			Mesozoic Owen Stanley Meta- morphics; Papuan Ultramafic Belt	Mostly from Owen Stanley Metamorphics; platinum and osmiridium from Papuan Ultramafic Belt	Nye & Fisher (1954); Davies (1959a)	
1923 About 8000 f. oz gold 1934- 1941	Dredging	1941: reserves reported as running		Mesozoic Owen Stanley Meta- morphics; Papuan Ultramafic Belt	Mainly from Owen Stanley Metamorphics	Nye & Fisher (1954); Davies (1959a)	Precise locality of dredging operation not known
		out Trace alluvial gold		Papuan Ultramafic Belt	Papuan Ultramafic Belt	Thompson (1962a)	
		0		Mesozoic Owen Stanley Metamorphics	Owen Stanley Metamorphics	Davies (1971) Dow & Davies (1964)	Abandoned workings in Davies (1971, map) Locality in Dow & Davies (1964, map)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
						Diaras	Company	21700	
		SY SC/55-7			Minor			Saa	COPPER
3601	Laloki Mine	Copper, gold, (silver, zinc,			deposit			_ See	COLLEK
3602	Dubuna Mine	lead) Copper, (gold, silver,			Minor deposit			— See	COPPER
3603	Sapphire/ Moresby King Mine		Chalcopyrite, sphalerite, gold	Sedimentary syngenetic	Minor deposit	Past producer		Inset 2	09°25′S; 147°20′E
3606	Federal	Copper,			Minor			— See	COPPER
	Flag Mine	(gold, silver)			deposit				
3611	Mount Diamond Mine	Copper, (zinc, gold, silver)			Minor deposit			— See	COPPER
3613	Pari Prospect	Copper,			Occurrence			— See	COPPER
3615	Sapphire King Mine	Copper, gold, silver		•	Minor deposit			— See	COPPER
3618	Iawarere Gold Prospect	Gold, (lead)	Gold, galena	Alluvial		Past producer		Sogeri	09°28′S; 147°36′E
3629		Gold	Gold	Alluvial	Occurrence			Inland from Kupiano	09°52′S; 148°15′E
<b>TUFI</b> 3902	SC/55-8	Copper,			Occurrence			— See	COPPER
2005	Keveri	gold Gold	Gold	Alluvial	Minor	Past		U. Adau	09°54′S;
3905	Goldfield		Gold	2 Min vidi	deposits	producers		R R	148°42′E

Method						
of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
MORESBY	? SC/55-7					
MORESBY	? SC/55-7					
Under- ground	Fisher (1941) 9000 tons 10 dwt gold/ton	Oxidized ore: 10 dwt gold/ton, 1-2% copper. Sulphide ore: 3 dwt gold/ton, 4% copper	Massive sulphide orebody in shale facies of Eocene Port Moresby Beds	Colloidal deposition	Fisher (1941); Yates & de Ferranti (1967)	Thirdmost productive mine in Astrolabe Mineral Field; orebody 300 x 220 x 2 m
MORESBY	7 SC/55-7					
MORESBY	C SC/55-7					
MORESBY	C SC/55-7					
?Sluicing. Prospect- ing shaft non- productive	e	Coarse- grained angular gold	Quartz veins in phyllite yield traces of gold	Hydrothermal	Hamilton (1962a)	Galena in alluvium as discrete grains
					Hamilton (1963)	Gold discovered in headwaters of Imila R pre-1940
SC/55-8						
Sluicing			Mesozoic Owen Stanley Metamorphics	Probably from auriferous quartz veins within metamorphics	Thompson (1958); Nye & Fisher (1954)	Alluvial gold deposits small and soon worked out
	MORESBY  MORESBY  Underground  MORESBY  MORESBY  MORESBY  *Sluicing.  Prospecting shaft non-productive  SC/55-8  Sluicing	MORESBY SC/55-7  Underground Fisher (1941) 9000 tons 10 dwt gold/ton  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  **Sluicing.** Prospecting shaft non-productive**  **SC/55-8  Sluicing.** Sluicing.** Sluicing.** Sluicing.** Prospecting shaft non-productive**	MORESBY SC/55-7  Underground Fisher (1941) ore: 10 9000 dwt 1-2% gold/ton Copper. Sulphide ore: 3 dwt gold/ton, 4% copper  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  **Sluicing.** Prospecting shaft non-productive Coracle angular gold  **SC/55-8** Sluicing.**  **SC/55-8** Sluicing.**  **SC/55-8** Sluicing.**  **A **Coracle Grained angular gold**  **A **SC/55-8** Sluicing.**  **A **SC/55-8** Slui	MORESBY SC/55-7  Under-ground (1941) 9000 dwt 1-2% gold/ton, dwt gold/ton, 4% copper  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  Sluicing. Prospecting shaft non-productive Coarse-grained angular non-productive Ground gold Massive sulphide ore: 10 dwt orebody in shale facies of Eocene Port Moresby Beds  Massive sulphide orebody in shale facies of Eocene Port Moresby Beds  Moresby SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  Sluicing. Coarse-grained angular gold phyllite yield traces of gold  SC/55-8  Sluicing Mesozoic Owen Stanley Metamorphics	MORESBY SC/55-7  Underground (1941) ore: 10 yold wit ons 10 dwt gold/ton, 4% copper  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  MORESBY SC/55-7  Sluicing Prospecting and angular non-productive  SC/55-8  Sluicing Mesozoic Owen Stanley Metamorphics  Mesozoic Owen Stanley Metamorphics	of Working     Reserves     Grade     Stratigraphy     Genesis     Principal References       MORESBY     SC/55-7       MORESBY     SC/55-7       Underground (1941)     Oxidized fore: 10 you down tons 10 you down tons 10 gold/ton ore: 3 dwn gold/ton, 4/% copper.     Massive sulphide ore: 10 orebody in shale facies of Eocene Port Moresby Beds ore: 3 dwn gold/ton, 4/% copper.     Genesis     Fisher (1941); Yates & de Perranti (1967)       MORESBY     SC/55-7     Sulphide ore: 3 dwn gold/ton, 4/% copper     Hydrothermal phyllite yield traces of gold traces.     Hamilton (1962a)       SSC/55-8     Sluicing     Mesozoic Owen Stanley Metamorphics     Probably from auriferous quartz veins within metamorphics     Thompson auriferous quartz veins within metamorphics     Mye & Fisher (1984)

GOLD (Continued)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
3908		Gold, copper	Gold chalcopyrite, pyrite	Disseminated, igneous	Occurrence			Suzy Cr	09°57′S; 148°46′E
3910		Gold	Gold	Alluvial	Occurrences			Musa R gorge	09°32′S; 148°42′E
			•						
FFRC	I MOSSIT	SLAND SC	1/56-5						
4201	OBSOIT I	Gold	Gold	Alluvial	Occurrence	Minor past producer		Good- enough I	09°22′S; 150°19′E
4202		Gold .	Gold	Alluvial	Occurrence	Minor past producer		Good- enough I	09°24′S; 150°11′E
4204		Gold	Gold	Alluvial	Occurrence	Minor producer (1961)		Salakadi, Fergusson I	09°32′S; 150°37′E
SAMA	RAI SC/	56-9							
4303		Gold, (plati- num)	Gold, platinum	Alluvial	Minor deposit	Past producer		Gabahus- uhusu Cr	10°24′S; 150°25′E
4304	Louise Mine	Gold, (copper)	Gold, copper minerals	Vein	Occurrence	Past producer		Oura Oura	10°25′S; 150°20′E
4307		Gold, (plati- num)	Gold, platinum	Alluvial	Minor deposit	Past producer		Sagari R	10°27′S; 150°15′E
WOOT	NI ADIZ T	07 AND 00	156.6						
	LARK IS Kulumad Mine	SLAND SC, au Gold, (lead, zinc)	7 56-6 Gold, galena, sphalerite	Vein	Medium deposit	Past producer	Kuluma- dau (Wood- lark I) Gold Mining	Inset 4	09°08′S; 152°45′F

Pro-	Method of		<i>C</i> ,	Constant T		Principal	D 1
duction	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
		Dis- seminated pyrite with minor gold and copper values	4 dwt gold/ton, trace copper	Andesite-porphyry	Porphyry	Brouxhon (1965)	
		Minor amounts of gold		Present-day river gravels	Probably from reworking of Plio-Pleistocene lake sediments; probably originally from Owen Stanley Metamorphics	Thompson (1958)	
Unknown				Mesozoic metamorphics	Probably from auriferous quartz veins in metamorphic	, ,	
Unknown				Mesozoic metamorphics	Probably from auriferous quartz veins in metamorphic	Davies & Ives (1965)	
Few f. oz gold	Panning and sluicing			Mesozoic metamorphics intruded by granodiorite	Probably from granodiorite	Davies & Ives (1965)	Creek reworking older alluvium
Total for Milne Bay G.F.: 20 000 f. oz gold; 220 f. oz platinum	Sluicing			Ultramafics and Tertiary volcanics and sediments intruded by syenite	Gold probably from syenite; platinum from peridotite of ultramafic bodies	Davies (1967)	Platinum discovered in Milne Bay G.F. 1931; most production 1933-35
1938-39: less than 100 f. oz gold	Under- ground			Pyritic shears and quartz-pyrite lodes in olivine gabbro intruded by granodiorite	Hydrothermal by granodiorite	Davies (1967)	The larger Rough Ridge Mine (771 f. oz gold 1938-39) and Juno and Jumbo Mine also in Milne Bay G.F. but location unknown
Total for Milne Bay G.F.: 20 000 f. oz gold; 220 f. oz platinum	z			Ultramafics and Tertiary volcanics and sediments intruded by syenite	Probably from syenite	Davies (1967)	Platinum discovered in Milne Bay G.F. 1931; most production 1933-1935
1901- 1918 about 60 000 f. oz gold (details in- complete)	Underground, 5 levels to 125 m deep; open cut	1918: 6000 tons	14 dwt gold/ton No. 4 level	Vertical shear zone in l. Miocene Okiduse Volcanics	Hydrothermal by late-phase volcanism	Trail (1967)	Minor galena and sphalerite in shear pug. Diamond drilling 1962, 1963

GOLD (Continued)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
4402	Murua United, Federatio Vulcan Mines	Gold, (lead, n, zinc)	Gold, galena, sphalerite	Vein	Minor deposits	Past producers	,	Inset 4	09°08′S; 152°45′E
4403	Little McKenzie Mine	Gold	Gold	Vein	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E
4404		Gold	Gold	Alluvial	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E
4405		Gold	Gold	Vein: quartz- pyrite; alluvial	?Occurrence			Inset 4	09°08′S; 152°45′E
4406		Copper, iron,			Occurrence			— See C	COPPER
4408	McKenzie Cr Mine	(gold) s Gold	Gold	Alluvial, vein	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E
4409	Okiduse Mine	Gold	Gold	Vein	?Occurrence	Minor past producer		Inset 4	09°08′S; 152°45′E
4412	Woodlark King Mine	Gold	Gold	Vein	Minor deposit	Past producer	Wood- lark King Gold Mining	Inset 4	09°08′S; 152°45′E
4414		Gold	Gold	Alluvial	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E
4415		Gold	Gold	Alluvial	Occurrence	Minor past producer		Inset 4	09°08′S; 152°45′E

Pro-	Method of					Principal	
duction	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
Unknown. Discovered 1902, dumps reworked 1930s for 317 f. oz	Murua United open cut; under- ground			Shear zones in Miocene Okiduse Volcanics intruded by granite	Hydrothermal by late-phase voicanism	Trail (1967)	Diamond-drilled 1962
1910- 1912: 1048 f. oz gold; figures in- complete	Under- ground		1.7 f. oz gold per ton	Miocene Okiduse Volcanics intruded by granite	Hydrothermal by late-phase volcanism	Trail (1967)	Abundant manganese but less widely distributed than gol- and sulphide mineralization
-	Sluicing		Coarse, well-worn gold	Miocene volcanics and volcanolithic sediments	Hydrothermal by late-phase volcanism	Trail (1967)	
				Tertiary Loluia Volcanics; Miocene Wonai Hill Formation intruded by granite	Vein: hydro- thermal by late-phase volcanism; alluvial: auriferous conglomerate and granite	Trail (1967)	
— WOOI	OLARK ISI	LAND SC/	56-6				
Several thousand f. oz gold from alluvial workings	Sluicing; open cut			Miocene Okiduse Volcanics	Hydrothermal by late-phase volcanism	Trail (1967)	Open cut began 1906; rich pockets of gold in ferruginous quartz lode 5 m wid and in surrounding decomposed volcanic
				Miocene Okiduse Volcanics intruded by granite; ferru- ginous lodes near contact	Hydrothermal	Trail (1967)	
	** •		Up to 3		TT., d., . 4b 1	Trail	Worked 1904-1924
1910- 1912: about 6000 f. oz gold; dumps reworked 1930s for 1279 f. oz gold; details in- complete	Under- ground		f. oz gold/ ton	Shear zone in granite intruding Miocene Okiduse Volcanics	Hydrothermal by late-phase volcanism	(1967)	(dumps reworked 1930s)
1912: about 6000 f. oz gold; dumps reworked 1930s for 1279 f. oz gold; details in-			f. oz gold/	granite intruding Miocene Okiduse	by late-phase		(dumps reworked

No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
4416		Gold	Gold	Alluvial	Occurrence	Minor past producer		Inset 4	09°08′S; 152°45′E
4417		Gold	Gold	Alluvial	Occurrence	Minor past producer		Inset 4	09°08′ <b>S</b> ; 152°45′E (approx.)
4418	Colemans Cr Gold Workings		Gold	Alluvial	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E
4419	Sinkurai R Gold Workings		Gold	Alluvial	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E (approx.)
4420	Reillys Cr Gold Workings	Gold	Gold	Alluvial	Minor deposit	Past producer		Inset 4	09°08′S; 152°45′E
DEBO	YNE SC/	56-10							
4501	Mt Sisa Mine	Gold, silver	Gold/silver	Vein	Minor deposit	Past producer	Gold Mines of Papua	Inset 5	10°40′S; 152°49′E
4502	Umuna Mine	Gold, (silver, lead, zinc, copper)	Gold, galena, sphalerite, chalcopyrite	Vein: shear zone traversed by veins and stringers of quartz	Medium deposit	Past producer	Several; most important: Block 10 Misima Gold Mines (1914-22), Cuthberts Misima Gold Mine (1935-42)	Inset 5	10°40′S; 152°49′E
4503	Quartz Mt Mine	Gold, (lead, zinc, copper)	Gold, galena, sphalerite, chalcopyrite, malachite	Vein: quart- zose and manganiferous in shear zones	Occurrence .	Minor past producer	Quartz Mountain (Papua) (pre- 1941); Quartz Invest- ment (post- 1946)	Inset 5	10°40′S; 152°49′E
4504	Scottish Queen Mine, Mararoa Mine	Gold	Gold	Vein in fault zone: possibly pipeform at intersection of two planes of weakness	Occurrence	Past producer	H. Glad- stone; Mararoa Gold Mines	Inset 5	10°40′S; 152°49′E

	Method						
Pro- duction	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
No details	?Sluicing	110001100		Miocene Okiduse Volcanics	Gold shed from volcanics	Trail (1967)	Traces of small alluvial workings
No details	?Sluicing			Tertiary Loluai Volcanics intruded by granite	Gold shed from volcanics	Trail (1967)	Traces of small alluvial workings
	Sluicing			Miocene Okiduse Volcanics intruded by granite	Gold shed from volcanics and intrusives	Trail (1967)	Gold also from conglomerate within marine clays in Busai area
	Sluicing			Miocene Okiduse Volcanics intruded by granite	Gold shed from volcanics and intrusives	Trail (1967)	Possible dredging areas in Holocene deposits along Sinkurai R
	Sluicing			Miocene Okiduse Volcanics intruded by granite	Gold shed from volcanics and intrusives	Trail (1967)	
1937- 1939: 8500 f. oz gold, 24 000 f. oz silver	Underground by adits. Develop- ment work began 1933	June 1937: 400 000 tons (including 45 000 tons oxidized ore)	Average 4.2 dwt gold/ton	Mesozoic low- grade metamorphics intruded by inter- mediate or acid porphyry	Epithermal by porphyry; or thermal mobilization of metallics from metamorphics	de Keyser (1961)	Gold production probably higher than recorded as much considered stolen. Prospecting in 1940 did not reveal profitable ore
Plus 127 000 f. oz gold pre-1914 to 1942. Only oxidized ore worked; primary sulphides present below No. 7 level	Underground by adits; 7 levels	Oxidized ore 270 000 - 400 000 tons probable and possible (post- 1946 figures)	Average 6.0 dwt gold/ton	Mesozoic low- grade metamorphics intruded by inter- mediate or acid porphyry	Epithermal by porphyry; or thermal mobilization of metallics from metamorphics	de Keyser (1961)	Main orebody probably within halo of low-grade mineralization. Attempt at reopening mine 1949. Bulk assay of 52-ton parcel semi-oxidized ore shipped 1952: 18.5 dwt gold/ton, 3.0 f. oz silver/ton, 20.0% lead, 36.1% zinc
55 f. oz gold (1937)	Under- ground develop- ment and open cut	6 lodes in area of 2 km <sup>2</sup>	Good ore values very patchy. Assays about 6 dwt gold/ton	Mesozoic low- grade metamorphics intruded by inter- mediate or acid porphyry	Epithermal by porphyry; or thermal mobilization of metallics from metamorphics	de Keyser (1961)	'Open Cut' — area of quartz boulders set in clay. Some lodes within limestone; sulphides disseminated within quartz lodes and locally in the limestone
Mararoa Mine (1947-48) 150 f. oz gold; Scottish Queen (1953-55) 1225 f. oz gold			Scottish Queen average 1 f. oz gold/ton; several rich pockets	Mesozoic low- grade metamorphics intruded by inter- mediate or acid porphyry	Epithermal by porphyry; or thermal mobilization of metallics from metamorphics	de Keyser (1961)	Small lake drained to expose Scottish Queen lode. Gold in grey fault pug

GOLD (Continued)

No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
4505	Kulu- malia mining area	Gold	Gold	Vein: in shear zones	Occurrence	Minor past producer	Misima Gold Reefs (1935- 1940); Gordons Misima (1940- 1942)	Inset 5	10°40′S; 152°49′E
4506	Double Chance Mine	Gold, (lead, zinc, copper)	Gold, galena, sphalerite, chalcopyrite	Vein: quart- zose and manganiferous in shear zones	Occurrence	Past producer		Inset 5	10°40′S; 152°49′E
450 <b>7</b>		Gold	Gold	Alluvial	Minor deposit			Inset 5	10°40′S; 152°49′E
4508		Gold	Gold	Alluvial	Minor deposits	Past producers		Inset 5	10°40′S; 152°49′E
4509		Gold	Gold	Alluvial	Minor deposits	Past producers		Inset 5	10°40′S; 152°49′E
4510		Gold	Gold	Alluvial	Minor deposits	Past producers		Inset 5	10°40′S; 152°49′E
4511		Gold	Gold	Alluvial	Minor deposits	Past producers		Inset 5	10°40′S; 152°49′E

_	Method					Principal	
	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
150 tons of better- grade ore milled post-1945 but no production details		1938: 40 000 tons payable ore	Estimates vary from 4.8 to 9.0 dwt gold/ton	Mesozoic Iow- grade metamorphics intruded by inter- mediate or acid porphyry	Epithermal by porphyry; or thermal mobilization of metallics from metamorphics	de Keyser (1961)	S extension of Umuna lode; 3 main lodes and at least 5 others
1957-58: 230 f. oz gold	Open cut		Variable: 2-7 dwt gold/ton; recovery grade 2.0 dwt gold/ton; gold 800 fine	Mesozoic low- grade metamorphics intruded by inter- mediate or acid porphyry	Epithermal by porphyry; or thermal mobilization of metallics from metamorphics	de Keyser (1961)	Shear zone at boundary of greenschist and overlying phyllite and mica schist
	Tested by drilling and sampling 1939	1.1 million m <sup>3</sup>	10.5 gr gold/cu yd	Swampy Quaternary alluvium	Mineralization in Quartz Mt area	de Keyser (1961)	Possible dredging area but 80% of gold very fine and difficult to recover
Total alluvial gold Misima I at least 80 000- 100 000 f. oz; details in-	Sluicing			Present-day stream deposits	Gold from Double Chance Mine area	de Keyser (1961)	Possible potential deposits in swampy flats at mouth of creek. First gold workings on Misima I
complete Total alluvial gold Misima I at least 80 000- 100 000 f. oz; details	Sluicing			Present-day stream deposits	Gold from Umuna lode and Double Chance area	de Keyser (1961)	Possible potential deposits in swampy flats at mouth of creek
incomplete Total alluvial gold Misima I at least 80 000- 100 000 f. oz; details incomplete				Present-day stream deposits	Gold from N Umuna lode area	de Keyser (1961)	
Total alluvial gold Misima I at least 80 000-100 000 f. oz; details incomplete	Sluicing			Present-day stream deposits	Gold from Umuna lode area	de Keyser (1961)	

GOLD (Continued)

GOL	Comm							· · · · · · · · · · · · · · · · · · ·	
Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
4512		Gold	Gold.	Alluvial	Minor deposits	Past producers		Inset 5	10°40′S; 15 <b>2</b> °49′E
			••	•					
ROSS]	EL SC/56	-15							
4701	Griffin Pt Mining Area	Gold, (chrom- ium)	Gold, chromite	Eluvial and alluvial	Minor deposits (numerous workings)	Past producers	Louisiade Gold (1930s). Up to 400 individuals	Sudest I	11°25′ <b>S</b> ; 153°21′E
4702		Gold	Gold	Alluvial	Occurrence	?Producer	1888-89	E Sudest I	11°35′ <b>S</b> ; 153°35′E
¥703	Cornu- copia Mine	Gold	Gold	Vein: quartz stringers and veins	Occurrence	Minor past producer	Cornu- copia Syndicate	Central Sudest I	11°30′S; 153°26′E
4704		Gold	Gold	Alluvial	Occurrence			S coast Sudest I	11°30′S; 153°21′E
<b>47</b> 05	Cale- donian Mine	Gold, (silver)	Gold/ silver	Vein: quartzose, pyritic, manganiferous	Occurrence	Minor past producer		W Sudest I	11°22′S; 153°14′E
4706	Mt Adelaide Mine	Gold	Gold	Vein: quartz	Occurrence	Minor past producer		Central Sudest I	11°27′S; 153°21′E
470 <b>7</b>		Gold	Gold	Alluvial	Occurrence			W Sudest I	11°24′S; 153°18′E
4708		Gold	Gold	Alluvial	Occurrence			W Sudest I	11°25′S; 153°16′E

0	Method					Principal	
Pro- duction	of Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
Total alluvial gold Misima I at least 80 000-100 000 f. oz; details incomplete	Sluicing			Present-day stream deposits	Gold from Umuna lode area	de Keyser (1961)	
6000 f. oz gold 1888- 1893; minor production since; mostly eluvial	Sluicing			Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Smith & Pieters (1969)	Chromite with gold from Fourmile Cr; source unknown as no ultrabasic rocks mapped on Sudest I
Not recorded. Total for Sudest I about 10 000 f. oz gold	Sluicing			Mesozoic Calvados Schist	Auriferous quartz stringers; hydiothermal	Smith & Pieters (1969)	Minor production (1969)
Minor. Total for Sudest I about 10 000 f. oz gold	Under- ground by adits		Variable up to 5 f. oz gold/ton	Mesozoic Calvados Schis <sup>4</sup>	Hydrothermal	Davies (1959b)	Discovered 1937, abandoned 1938. Veins up to 50 cm wide
				Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Smith & Pieters (1969)	Locality in Smith & Pieters (1969, fig. 7)
Minor, 1890-93. Total for Sudest I about 10 000 f. oz gold			Three tons ore yielded 4 f. oz 18 dwt gold and 1 f. oz 21 gr silver	Mesozoic Calvados Schist; Tertiary acid intrusives in vicinity	Hydrothermal	Davies (1959b)	First auriferous reef discovered on Sudest I
Minor. Total for Sudest I about 10 000 f. oz gold	Under- ground by adits			Mesozoic Calvados Schist	Hydrothermal	Smith & Pieters (1969)	Yielded large quantity of auriferous quartz for unknown return, 1893-1899. Visible fine gold in quartz in places. Mine closed because of gale damage
				Mesozoic Calvados Schist intruded by Tertiary basic and intermediate intrusives	Auriferous quartz stringers; hydrothermal	Smith & Pieters (1969)	Locality in Smith & Pieters (1969, fig. 7)
				Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Smith & Pieters (1969)	Locality in Smith & Pieters (1969, fig. 7)

GOLD (Continued)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
4709		Gold	Gold	Alluvial	Occurrence			N-Central Sudest I	11°27′S; 153°24′E
4710		Gold	Gold	Vein: quartz	Occurrence			Yeina I	11°20′S; 153°27′E (approx.)
4711		Gold	Gold	Alluvial	Occurrence	Past producer		Central Sudest I	11°33′S; 153°28′E
4712		Gold	Gold	Alluvial	Occurrence	Past producer		Central Sudest I	11°29′S; 153°22′E
	SEA SB/							0	loppen.
5105	Plesyumi (Metelen Prospect	) (zinc,			Prospect			— See C	COPPER
GAZE	LLE PE	NINSULA S	SB/56-2						
5304	Talele Provisional G.F.	Gold, (silver, copper, lead, zinc)	Gold, (tetrahedrite, chalcopyrite, galena, sphalerite, cerussite)	Alluvial and vein	Occurrence			C Lambert	04°13′S; 151°33′E
5305		Gold	Gold	Alluvial	Occurrence			Marambu R	04°39′S; 152°16′E
MARI	UA SA/50	6-10							
5701	Tugi Tugi Provi- sional G.F.	Gold, silver	Gold/silver	Alluvial	Minor deposit	Past producer		Tatau I	02°46′S; 151°57′E (approx.)
SAMO	SA/56-1	.5							
5901		Copper, gold			Occurrence			— See C	COPPER

	Method	· · · · · · · · · · · · · · · · · · ·					
Pro- duction	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
				Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Smith & Pieters (1969)	Locality in Smith & Pieters (1969, fig. 7)
				Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Smith & Pieters (1969)	
Not recorded. Total for Sudest I about 10 000 f. oz gold	Sluicing			Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Davies (1959b)	
Not recorded. Total for Sudest I about 10 000 f. oz gold	Sluicing			Mesozoic Calvados Schist	Auriferous quartz stringers; hydrothermal	Davies (1959b)	
— TALA	SEA SB/56	-9					
Few f. oz gold in 1930s	Sluicing; minor under- ground workings, costeans, and open cut		Gold 850-880 fine. McLean's lode up to 1 f. oz gold/ton, 15 dwt silver/ ton; Fairli Reef: trace gold, up to 2 f. oz silver/ton		Hydrothermal by intrusion	Fisher (1942b)	Talele Provisional G.F. of 2.5 km² proclaimed 1933. Metal sulphides in Fairli Reef
		Payable auri- ferous gravels		U. Miocene- Pliocene Sigule Volcanics	Probably hydrothermal within volcanics	Edwards (1951)	
1935-41: 347 f. oz gold, 59 f. oz silver	Sluicing			Hydrothermally altered pre-l. Miocene andesitic or basic volcanics	Probably hydrothermal by volcanism	Nye & Fisher (1954); Hohnen (in prep.)	Tugi Tugi Provisional G.F. of 2.5 km <sup>2</sup> proclaimed June 1934
_ SAMO	SA/56-15	·					

No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
CAPE 6003	ST GEOI	RGE SB/56		Allowiol	0			Tomadin	04°09′S;
3003		Gold	Gold	Alluvial	Occurrence			R	152°40′E
BOUG	GAINVILI	LE ISLANI	SOUTH SB/5	6-12					
6203	Panguna Mine	gold, (silver, molyb- denum, zinc,			Major deposit			— See C	COPPER
6204	Kupei Mine	lead) Gold, silver, (lead, copper, zinc)	Gold/silver, chalcopyrite, bornite, malachite, galena, sphalerite	Vein: stock- work of mineralized quartz stringers	Minor deposit	Past producer		Crown Prince Ra	06°19′S; 155°31′E
<b>620</b> 5	Moroni Mine	Gold, (copper, zinc)	Gold, bornite, sphalerite	Eluvial	Occurrence	Past producer		Crown Prince Ra	06°19′S; 155° <b>2</b> 9′E
6207		Gold, zinc, copper		?Vein: as float	Occurrence			Abia R	06°37′S; 155°50′E
5211		Gold	Gold	Alluvial	Occurrence			Orovani R	06°15′S; 155°28′E
6213		Gold	Gold	Alluvial	Occurrence			Lower Kaverong R	(approx.) 06°23′S; 155°23′E (approx.)
				-					
6214		Gold	Gold	Alluvial	Occurrence	Minor past producer	Watson, Doyle, etc. syndicate	Atamo	06°11′S; 155°20′E

Pro- duction	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References Remarks	
Gold reported obtained by Germans pre-1914				Oligocene andesitic Jaulu Volcanics	Probably hydrothermal	Hohnen (1970)	

## BOUGAINVILLE SOUTH ISLAND SB/56-12

Total for Kieta G.F. 1935-41 about 1790 f. oz gold, some silver; most from Kupei Mine	Open cut: under- ground 3 drives from adit	(1936) 7400 tons ore; almost one- third mined by 1941	8-10 dwt gold/ton; gold 830-896 fine. Assay 3.2% copper, 9.13 dwt gold/ton, 6.0 dwt silver/ ton	Oligocene andesitic Kieta Volcanics intruded by quartz- veined porphyry microdiorite of Pliocene Kaverong Quartz Diorite	Hydrothermal by Kaverong Quartz Diorite	Fisher (1936b)	Orebody 70 x 30 m; pinches out between 30 and 70 m below surface
Small: total for Kieta G.F. 1935- 1941 about 1790 f. oz gold			Gold 824 fine	Andesitic breccia and agglomerate of Oligocene Kieta Volcanics near contact with Pliocene Kaverong Quartz Diorite	Hydrothermal by Kaverong Quartz Diorite	Fisher (1935b)	Bornite and sphalerite reported from this area
C			Highly mineral- ized ore	Oligocene Kieta Volcanics overlain by Quaternary Taroka Volcanics	Hydrothermal	Deland (1933)	
				Oligocene Kieta Volcanics	Hydrothermal within volcanics	Deland (1933)	
			Gold 842 fine	Quaternary alluvium; Oligocene andesitic-basaltic Kieta Volcanics	Hydrothermal	Thompson (1962b); Fisher (1936b)	Tested by drilling 1937, 1953; poor results. Fisher (1936b) records traces of alluvial gold near junction Kaverong R and Corana Cr
Total for Kieta G.F. 1949-59; about 490 f. oz gold	Sluicing			Oligocene andesitic-basaltic Kieta Volcanics	Hydrothermal	Thompson (1962b)	Minor production post-1945

## GOLD (Continued)

Index Na <b>me</b> No.	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
6215	Gold	Gold	Alluvial	Occurrence	Minor past producer	Hether- ington and Gleeson	Crown Prince Ra	06°13′S; 155°20′E
6216	Gold	Gold	Alluvial	Occurrence	Minor past producer	Watson, Doyle, etc. syndicate	Karato	06°12′S; 155°15′E

# PLATINUM

Index No.	Name	Commodities	Category	Area	Lat/Long
AITAPE	SA/54-15				
0201	Kilipas Platinum Prospect	Platinum	Occurrence	Bewani Mts	03°12′S; 141°21′E
WEWAK	X SA/54-16				
1001	Sepik Goldfield	Gold, (silver, platinum)	Minor deposits		<ul><li>See GOLD</li></ul>
1002	Sepik Goldfield	Gold, (silver, platinum)	Minor deposits		- See GOLD
<b>AMBUN</b>	TI SB/54-4				
1102		Gold, platinum	Occurrence		— See GOLD
WABAG	SB/54-8				
1201		Gold, platinum	Occurrence		— See GOLD
SALAMA	AUA SB/55-15				
3408		Gold, (platinum)	Occurrence		— See GOLD
3413		Gold, platinum	Occurrence		— See GOLD
3416		Gold, platinum	Occurrence		- See GOLD
BUNA S					
3504	Aikora Gold Sluicing Syndicate	Gold, osmium, iridium, (platinum)	Minor deposit		— See GOLD
3505	Gira R Sluicing Co	Gold, osmium, iridium, (platinum)	Minor deposit		- See GOLD
3507		Gold, (platinum)	Occurrence		- See GOLD
3512	McLaughlins Cr	Gold, (osmium, iridium) platinum)	Minor deposits		— See GOLD
SAMAR	AI SC/56-9				
4303		Gold, (platinum)	Minor deposit		— See GOLD

Pro- duction	Method of Working	Reserves	Grade	Genesis	Stratigraphy	Principal References	
Total for Kieta G.F. 1949-59; about 490 f. oz gold	Sluicing			Oligocene andesitic-basaltic Kieta Volcanics	Hydrothermal	Thompson (1962b)	Minor production 1949-1954
Total for Kieta G.F. 1949-59; about 490 f. oz gold	Sluicing			Oligocene andesitic-basaltic Kieta Volcanics	Hydrothermal	Thompson (1962b)	Minor production post-1945

Production	Stratigraphy	Genesis	Principal References	Remarks
	Miocene mudstone, sandstone, and conglomerate	Probably from ultrabasic rocks in Bewani Mts; concentrated in Miocene conglomerate	Black (1968a)	Alluvial prospect examined by C.R.A.

- WEWAK SA/54-16
- WEWAK SA/54-16
- AMBUNTI SB/54-4
- WABAG SB/54-8
- SALAMAUA SB/55-15
- SALAMAUA SB/55-15SALAMAUA SB/55-15
- BUNA SC/55-3
- BUNA SC/55-3
- BUNA SC/55-3
- BUNA SC/55-3
- SAMARAI SC/56-9

# PLATINUM (Continued)

Name

Index

No.	Commodities	Category	Area	Lat/Long
4306	Platinum	Occurrence	Debolina Cr	10°32′S; 150°25′E
4307	Gold, (platinum)	Minor deposit		- See GOLD

Minor deposit

#### OSMIUM AND IRIDIUM

Index No.	Name	Commodities	Category
WAU	SB/55-14		
2901	Lakekamu G.F.	Gold, silver (osmium, iridium)	Minor deposits  — See GOLD — WAU SB/55-14
BUNA	SC/55-3		
3504	Aikora Gold Sluicing Syndicate	Gold, osmium, iridium, (platinum)	Minor deposit  — See GOLD — BUNA SC/55-3
3505	Gira R Sluicing Co	Gold, osmium, iridium, (platinum)	Minor deposit  — See GOLD — BUNA SC/55-3
3512	Mc- Laughlins Cr	Gold, osmium, iridium, platinum)	Minor deposit  — See GOLD — BUNA SC/55-3

#### SILVER

Index No.	Name	Commodities	Category
WEW	AK SC/54-10	5	
1001	Sepik G.F.	Gold, (silver, platinum)	Minor deposits  — See GOLD — WEWAK SC/54-16
1002	Sepik G.F.	Gold, (silver, platinum)	Minor deposits  — See GOLD — WEWAK SC/54-16
WAB	AG SB/54-8		
1203	Porgera Alluvial Workings	Gold, silver	Minor deposit — See GOLD — WABAG SB/54-8
1204	Porgera	Gold, silver, zinc, lead, copper	Prospect — See GOLD — WABAG SB/54-8
RAM	U SB/55-5		
2001	Yanderra Copper Prospect	Copper, (gold, silver)	Prospect — See COPPER — RAMU SB/55-5
2019	Kuta Gold Prospect	Gold, silver	Minor deposit — See GOLD — RAMU SB/55-5

Production	Stratigraphy	Genesis	Principal References	Remarks
Total for Milne Bay G.F.: 220 f. oz platinum	Small ultrabasic bodies and Tertiary volcanics and sediments	From peridotite and concentrated in natural riffles in Tertiary sediments	Thompson & Fisher (1965)	Alluvial platinum discovered in Milne Bay G.F. in 1931; most production 1933-1935 by sluicing.
— SAMARA	I SC/56-9			

#### SILVER (Continued)

Index No.	Name	Commodities	Category
MAR	KHAM SB/5	5-10	
2802	Barola Reefs Mine	Gold, (silver, copper)	Minor deposit — See GOLD — MARKHAM SB/55-10
2809	Kathnel Mine	Gold, (silver)	Minor deposit — See GOLD — MARKHAM SB/55-10
WAU	SB/55-14		
2901	Lakekamu G.F.	Gold, silver, (osmium, iridium)	Minor deposit — See GOLD — WAU SB/55-14
2903	Karuka Mine	Gold, silver	Minor deposit — See GOLD — WAU SB/55-14
2904	Enterprise Mine	Gold, silver, (mercury)	Minor deposit — See GOLD — WAU SB/55-14
2905	Day Dawn Mine	Gold, silver	Minor deposit — See GOLD — WAU SB/55-14
2906	Day Dawn South Mine	Gold, silver	Minor deposit — See GOLD — WAU SB/55-14
2907	Edie Cr Mine	Gold, silver	Minor deposit — See GOLD — WAU SB/55-14
2909	Upper Ridges Mine	Gold, silver	Medium deposit — See GOLD — WAU SB/55-14
2910	Golden Ridges Mine	Gold, silver	Minor deposit — See GOLD — WAU SB/55-14
2911	Mt Kaindi Mine	Gold, (silver)	Minor deposit — See GOLD — WAU SB/55-14
2912		Gold, (silver)	Minor deposits — See GOLD — WAU SB/55-14
2913		Gold, (silver)	Minor deposits — See GOLD — WAU SB/55-14
2914	Andersons Cr Lode	Gold, silver	Minor deposit — See GOLD — WAU SB/55-14
2920	Bulolo Gold Dredging Ltd	Gold, silver	Major deposit — See GOLD — WAU SB/55-14

Index No.	: Name	Commodities	Category
2921	Bulolo Gold Dredging Ltd	Gold, silver	Medium deposit  — See GOLD — WAU SB/55-14
2922	Bulolo Gold Dredging Ltd	Gold, silver	Minor deposit  — See GOLD — WAU SB/55-14
2923		Gold, silver	Minor deposits  — See GOLD — WAU SB/55-14
2924		Gold, silver, (mercury)	Minor deposits  — See GOLD — WAU SB/55-14
2925		Gold, silver	Minor deposits  — See GOLD — WAU SB/55-14
2926		Gold, silver	Minor deposits — See GOLD — WAU SB/55-14
2927		Gold, (silver)	Occurrence — See GOLD — WAU SB/55-14
2928		Gold, (silver)	Occurrence — See GOLD — WAU SB/55-14
2929		Gold, silver	Occurrence — See GOLD — WAU SB/55-14
2930		Gold, silver	Occurrences — See GOLD — WAU SB/55-14
2931		Gold, (silver)	Minor deposits  — See GOLD — WAU SB/55-14
2932		Gold, (silver)	Minor deposits  — See GOLD — WAU SB/55-14
2933		Gold, silver	Minor deposits  — See GOLD — WAU SB/55-14
2936		Gold, silver, (mercury)	Occurrence — See GOLD — WAU SB/55-14
PORT	MORESBY	SC/55-7	
3601	Laloki Mine	Copper, gold, (silver, zinc, lead)	Minor deposit  — See COPPER — PORT MORESBY SC/55-7
3602	Dubuna Mine	Copper, (gold, silver, zinc)	Minor deposit  — See COPPER — PORT MORESBY SC/55-7
3606	Federal Flag Mine	Copper, (gold, silver)	Minor deposit  — See COPPER — PORT MORESBY SC/55-7
3611	Mt Diamond Mine	Copper, (zinc, gold, silver)	Minor deposit  — See COPPER — PORT MORESBY SC/55-7

# SILVER (Continued)

	Name		
No. 		Commodities	Category
3615	Sapphire King Mine	Copper, gold, (silver)	Minor deposit  — See COPPER — PORT MORESBY SC/55-7
SAM	ARAI SC/56-	9	
4302	•	Copper, (silver)	Occurrence — See COPPER — SAMARAI SC/56-9
DEBO	YNE SC/56	-10	
4501	Mt Sisa Mine	Gold, silver	Minor deposit — See GOLD — DEBOYNE SC/56-10
4502	Umuna Mine	Gold, (silver, lead, zinc, copper)	Medium deposit  — See GOLD — DEBOYNE SC/56-10
ROSS	SEL SC/56-15	;	
4505	Caledonian Mine	Gold, (silver)	Occurrence — See GOLD — ROSSEL SC/56-15
TALA	ASEA SB/56-	5	
5105	Plesyumi (Metelen) Prospect	Copper, (zinc, lead, molybdenum, silver, gold)	Prospect — See COPPER — TALASEA SB/56-5
GAZ	ELLE PENIN	NSULA SB/56-2	
5304	Talele Provisional G.F.	Gold, (silver, copper, lead, zinc)	Occurrence — See GOLD — GAZELLE PENINSULA SB/56-2
MAB	UA SA/56-10	)	
5701	Tugi Tugi Provisional G.F.	Gold, silver	Minor deposit — See GOLD — MABUA SA/56-10
BOU	GAINVILLE	ISLAND SOUTH	SB/56-12
6203	Panguna Mine	Copper, gold, (silver, molybdenum, zinc, lead)	Major deposit  — See GOLD — BOUGAINVILLE ISLAND SOUTH SB/56-12
6204	Kupei Mine	Gold, silver, (copper, lead, zinc)	Minor deposit  — See GOLD — BOUGAINVILLE ISLAND SOUTH SB/56-12

# **NON-FERROUS METALS**

#### ALUMINIUM

Index No.	Name	Commodities DS WEST SA/5	Minerals 5-10	Mineral- ization	Category	Area	Lat/Long
2402	Lepatuan Prospect	Aluminium	Bauxite	Laterite	Prospect	Manus I	02°04′S; 146°44′E
<b>ADMIR</b> 2501	RALTY ISLAN	DS EAST SA/55 Aluminium	-11 Bauxite	Laterite	Occurrence	Nabobi	02°06′S; 147°05′E
2502		Aluminium	Bauxite	Laterite	Occurrence	Lorengau	02°01′S; 147°18′E
<b>NAMAT</b> 5802	TANAI SA/56-1	14 Aluminium	Aluminous clay	Terra Rossa	Occurrences	Lelet Plateau	03°20′S; 151°57′E
5803		Aluminium	Aluminous clay	Terra Rossa	Occurrences	Schleinitz Plateau	03°11′S; 151°41′E

Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
Test pits	600 000 tons; area 20 hectares	Granular: 1% silica, 55% alumina, 10-13% ferric oxide, 1% titania. Nodular: 12% silica, 51% alumina, 11% ferric oxide, 1% titania	Dacite flow and bedded tuff	Lateritization	Owen (1953)	Granular porous bauxite developed on dacite; nodular gibbsite in clayey bauxite developed on tuff
Two prospect pits	Bauxite over area 2.5 hectares; nodules and fragments	About 4-16% silica, 43-54% alumina, 12-16% ferric oxide, 1-1.5% titania. Available alumina 38-51%		Lateritization	Owen (1953)	Bauxite nodules, etc. sparsely distributed
		11-12% silica, 55% alumina, 5% ferric oxide, 0.75% titania. Available alumina 43%	Weathered tuff	Selective bauxitization (lateritization) of thin seams of coarse tuff	Owen (1953)	Nodules sparsely distributed
		Samples high in alumina but sub-economic	Miocene Lelet Limestone	Solution of limestone and segregation of remaining clayey material	Hohnen (1970)	
		Samples high in alumina but sub-economic	Miocene Lelet Limestone	Solution of limestone and segregation of remaining clayey material	Hohnen (1970)	·

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
AITA	PE SA/54	-15							
0202		Copper	Chalcopyrite	Disseminated	Occurrences			Bewani Mts	03°11′S, 141°42′E
0212		Copper	Chalcopyrite	Disseminated	Occurrences			Bewani Mts	03°09′S, 142°38′E
MAY	RIVER S	B/54-3							
0301		Copper	Chalcopyrite	Disseminated, igneous	Occurrence			West Ra	04°17′S, 141°25′E
0302		Copper, zinc	Chalcocite, chalcopyrite, sphalerite	Disseminated and vein	Occurrence			Left May R	04°10′S, 141°29′E
0303	Frieda Prospect	Copper	Chalcopyrite, chalcocite	Porphyry copper	Prospect		Car- pentaria Expl	Frieda R	04°42′S, 141°46′E
BLU	CHER RA	NGE SB/54	<b>1</b> -7						
0401	Mt Fubilan (Ok Tedi) Copper Deposit	Copper	Chalcopyrite	Porphyry copper: disseminated, massive sulphide, and skarn	Major deposit	Potential producer	Kenne- cott (Pacific)	Ok Tedi	05°12′S, 141°08′E
0404		Copper		Porphyry copper and skarn	Prospect		Kenne- cott (Pacific)	Tifalmin	05°05′S, 141°20′E
AMBI	UNTI SB/	54-4							
1103	C. (.2.2 S.2.)	Copper	Chalcopyrite	Disseminated, igneous	Occurrence			Mara- muni R	04°48′S, 143°49′E
1104		Copper	Chalcopyrite	Disseminated, igneous	Occurrence			Mara- muni Yuat divide	04°52′S, 143°50′E
1105		Copper	Chalcopyrite	Disseminated, igneous	Оссиггенсе			E Central Ra	04°53′S, 143°36′E
1106		Copper	Chalcopyrite	Disseminated, igneous	Occurrences			Central Ra	04°52′S, 143°12′E
WABA	AG SB/54	-8							
1204	Porgera Gold Prospect	Gold, (silver, zinc, lead, copper)			Prospect			— See (	GOLD
1208		Copper	Bornite, and secondary copper minerals	Disseminated, sedimentary	Occurrences			Lagaip R, near Laiagam	05°24′S, 143°24′E
1209		Copper	Chalcopyrite	Disseminated, igneous	Occurrence			Yuat R	05°09′S, 143°50′E

	Method						·
Produc- tion	of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
						Black (1968b) Black (1968b)	Several localities centred on 0202 Several localities centred on 0212
				Granodiorite	Intrusion	INCO (1969)	
				Tuff and basalt of Dimaie Volcanics	Volcanism	INCO (1969)	
	Intensive prospect- ing and evalua- tion			Miocene porphyry intruding Miocene and older sedi- ments and low- grade metamorphics	Porphyry	Dow et al. (1968)	Blueschist meta- morphics and ultramafic rocks nearby indicate possible former plate boundary
	Second- stage drilling program in progress		Unofficial 1+% Cu	Plio-Pleistocene granodiorite stocks intruding Miocene limestone and siltstone	Magmatic and hydrothermal by porphyry	Bamford (1972)	Age of hypogene mineralization 1.2 m.y. Supergene sulphide enrichment 300 m thick beneath oxidized capping
	Prelim- inary diamond drilling			Pliocene granodiorite stocks	Magmatic and hydrothermal by intrusion	Davies & Norvick (in press)	
				Miocene Maramuni Diorite	Diorite	Dow et al. (1967); Dow et al. (1968)	Locality in Dow et al (1967, map). Minor mineralization
				Miocene Maramuni Diorite	Diorite	Dow et al. (1967); Dow et al. (1968)	Locality in Dow et al. (1967, map). Minor mineralization
				Miocene Maramuni Diorite	Diorite	Dow et al. (1967); Dow et al. (1968)	Locality in Dow et al. (1967, map). Minor mineralization
				Miocene Maramuni Diorite	Diorite	Dow et al. (1967); Dow et al. (1968)	Locality in Dow et al. (1967, map). Minor mineralization
— WAI	BAG SB/54-	8					
			Selected sample 2.95% Cu	Red marl of Jurassic to Paleocene Lagaip Beds	Syngenetic sedimentary	Dekker & Faulks (1964)	Isolated nodules of bornite; secondary copper on small joint planes
				Miocene Maramuni Diorite	Mineralized Maramuni Diorite	Dow et al. (1967); Dow et al. (1968)	Locality in Dow et al. (1967, map)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
B <b>OGI</b> 1901	A SB/55-1	Copper	Chalcopyrite	Disseminated	Occurrence			Clay R head- waters	04°54′S, 144°04′I
	U SB/55-5 Yanderra Copper Prospect	Copper, (gold, silver)	Chalcopyrite, cuprite, malachite, gold/silver	Disseminated, igneous; vein	Prospect		Kenne- cott Expl (Aust)	Mt Wilhelm	05°46′S, 145°09′E
2005		Copper	Chalcopyrite	Disseminated,	Occurrence			Sau R	05°20′S, 144°03′F
.007		Copper	Chalcopyrite	Disseminated, igneous	Occurrence			Bismarck Ra	05°36′S, 144°45′E
8008		Copper	Chalcopyrite	Disseminated, igneous	Occurrence			Bismarck Ra	05°28′S, 144°48′E
014		Copper	Malachite, chrysocolla, chalcopyrite, bornite	Vein (joint); disseminated, igneous	Occurrence			Bismarck Ra	05°47′S, 145°03′E
015		Copper	Chalcopyrite, bornite, chalcocite, covellite	Vein: in joints and shears	Occurrence			Bismarck Ra	05°51′S, 145°16′E
016		Copper	Chalcopyrite, bornite	Vein: in fractures	Occurrence			Bismarck Ra	05°53′S, 145°12′E
2017		Copper, molyb- denum	Chalcopyrite, molybdenite	Quartz vein (float)	Occurrence			Tuman R	05°52′S, 144°29′F
027		Copper	Chalcopyrite	Disseminated, igneous	Occurrence			Marum R	05°40′S, 145°04′E
028		Copper	Chalcopyrite	Disseminated, igneous (boulders)	Occurrence			Bundi	05°42′S, 145°16′E
2029		Copper	Chalcopyrite	Vein; shear	Occurrence			Singari R	05°30′S, 145°08′F
2030		Copper, lead	Malachite, galena	Vein (float)	Occurrence			Simbai R	05°26′S, 144°53′E

Produc-	Method of					Principal	
tion	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
				Basic igneous rocks of Kumbruf Volcanics, possibly intruded by acid pluton	Probably by acid pluton	Dow et al. (1968)	Metasomatic alteration. Rare disseminated chalco- pyrite
•	Explora- tion in progress		Av 0.153% Cu; selected brecciated samples up to 10%; 4 dwt/ton Au, minor Ag	Miocene Bismarck Intrusive Complex intruded and brecciated by intermediate porphyry dykes	Porphyry dykes	Plane (1965); McMillan & Malone (1960)	Disseminated mineralization widespread, mainly in brecciated areas
				Miocene Maramuni Diorite	Diorite	Dow (1961b)	Scattered chalco- pyrite crystals
				Gabbro phase of Miocene Oipo Intrusives	Oipo Intrusives	Kennecott (1968)	Sparse disseminated chalcopyrite
				Gabbro phase of Miocene Oipo Intrusives	Oipo Intrusives	Kennecott (1968)	Sparse disseminated chalcopyrite
			Up to 2.0% Cu	Miocene Bismarck Intrusive Complex intruded by basic dykes	Basic dykes: gabbro and hornblendite	Felderhof (1968c)	Secondary copper minerals stain joints; trace chalcopyrite disseminated
			Up to 20% Cu; rapid varia- tion	Miocene Bismarck Intrusive Complex	Joints and shears	Felderhof (1968d)	Small pockets of mineralization
				Miocene Bismarck Intrusive Complex; diorite dyke phase	Bismarck Intrusive Complex	Felderhof (1968d)	Scattered minor mineralization
				Permian Kubor Granodiorite intruding pre- Permian Omung Metamorphics	Probably granodiorite	Roberts (1967)	
			Sample 0.06% Cu	Miocene Bismarck Intrusive Complex	Gabbro phase of Bismarck Intrusive Complex	Dow & Dekker (1963)	Widespread minor mineralization
			Sample 0.11% Cu	Miocene Marum Basic Belt	Gabbro intrusion	Dow & Dekker (1963)	
			Selected samples 3.45% Cu	Miocene Marum Basic Belt; sheared gabbro	Small shear zone	Dow & Dekker (1963)	Mineralized boulders from small shear zone
				Miocene Marum Basic Belt	Hydrothermal into Marum Basic belt	Dow & Dekker (1963)	Mineralization in vein quartz

Index No.	: Name	Com- modities	Minerals	Mineralization	Categ <b>ory</b>	Status	Company	Area	Lat/Long
2031		Lead, molyb- denum, zinc, copper			Occurrence			— See I	EAD
KARI 2101	IMUI SB/5	5 <b>5-9</b> Copper	Chalcopyrite	Vein	Occurrence			Bena Bena R head- waters	06°00′S, 145°30′E
ADM	TRALTY 1	ISLANDS V	WEST SA/55-10	)					
	Mt Kren Prospect	Copper	TEST Sia, ee	?Porphyry copper	Prospect		Exoil Con- sortium	Manus I	02°08′S, 146°58′E
2406	Arie Prospect	Copper, molyb- denum	Chalcopyrite, molybdenite	Porphyry copper, disseminated copper sulphide	Prospect		Exoil Con- sortium	Manus I	02°02′S, 146°54′E
2801	KHAM SE	3/55-10 Copper Gold,	Chalcopyrite	Vein .	Occurrence Minor			Bena Bena R	06°08′S, 145°34′E
2002	Reefs Mine	(silver, copper)			deposit			— Sec •	JOLD
2803	Yonki Cr Prospect and adjacent areas	Copper (gold, see 2815)	Malachite, covellite, chalcopyrite	Vein	Occurrence	Minor past producer		Yonki Cr	06°13′S, 145°55′E
2806	Bilimoia Copper Prospect	Copper	Chalcopyrite, malachite, bornite, chalcocite	Vein	Occurrence	Minor past producer		Bilimoia	06°08′S, 145°52′E
2808		Copper	Chalcocite, covellite, chalcopyrite	Vein: stringers in granodiorite and float boulders	Occurrences			Head- waters Karman- tina R	06°10′S, 145°46′E
2812		Copper	Malachite	Disseminated, near gabbro intrusion	Occurrence			Leron R	06°15′S, 146°30′E

Produc- tion	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
— RAM	SB/55-5						
				Biotite schist of Mesozoic Goroka Formation intruded by stocks of Miocene Bismarck Intrusive Complex	Hydrothermal by Bismarck Intrusive Complex	Felderhof (1968a)	Quartz stringers contain chalcopyrite
	Prospect- ing in progress					BMR Tech File PNG SA/ 55-10	
	Prospecting in progress		Av diamond-drill samples 0.2-0.4% Cu, highest 0.57%	Highly fractured and altered quartz diorite	Diorite	BMR Tech File PNG SA/ 55/10	High geochemical anomalies over area 1100 x 100 m
				Biotite schist of Mesozoic Goroka Formation intruded by stocks of Miocene Bismarck Intrusive Complex	Hydrothermal by Bismarck Intrusive Complex	Felderhof (1968a)	Quartz stringers contain chalcopyrite
— MAR	KHAM SB	<sup>7</sup> 55-10					
8 tons hand- picked oxidized ore 8% copper 1955	Costean			Quartz-pyrite- chalcopyrite veins in skarn rock formed by Miocene Akuna Intrusive Complex intruding limestone	Skarn and hydrothermal by Akuna Intrusive Complex	Dow & Plane (1965)	Intense pyrite mineralization
\$3 800 ore 1967- 1970	Costeans			Mesozoic Bena Bena Formation intruded by small bodies of Miocene Akuna Intrusive Complex	Hydrothermal by Akuna Intrusive Complex	Buchanan (1966)	
				Mesozoic Bena Bena Formation intruded by stocks of Miocene Akuna Intrusive Complex	Hydrothermal by Akuna Intrusive Complex	Felderhof (1968b)	
				Miocene gabbro intruding Oligocene Mebu Beds	Gabbro intrusion	Grainger (1971)	Minor secondary copper mineralization in Nambayat Cr

Index No. No		Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
2813	C	Copper		Vein: quartz-copper	Occurrence			8 km SW of Gusap	06°06′S, 145°53′E
WAU SB	/55-14								
2902	( z.	Gold, lead, inc, opper)			Minor deposits			— See	GOLD
2919		Copper	Chalcopyrite, malachite	Disseminated, igneous	Occurrence	-		Slate Cr	07°14′S, 146°29′E
3302		Copper	Native copper	Disseminated, igneous	Occurrence			Lenge- bati	06°21′S, 147°21′E
SALAMA	AUA SB/:	55-15							
3403	C	Copper	Chalcopyrite, chalcocite, malachite	Vein	Occurrence			Enoto Pt	07°27′S, 147°16′
3404		Copper, (nickel)	Chalcopyrite, ?millerite	Replacement	Occurrence			Saia R	07°23′S, 147°08′E
3405		Copper, (nickel)	Chalcopyrite, millerite	Replacement	Occurrence	V		Paiawa drainage	07°36′S, 147°13′E
3410	(	Copper	Chalcopyrite	Vein	Occurrence			S of Kui	07°30′S, 147°15′E
3412		Gold, copper			Occurrence			— See	GOLD
3414	(	Copper	Copper sulphides	Disseminated, igneous (boulders)	Occurrence			Baden Bay	07°27′S, 147°11′E
3415		Copper, gold	Malachite, gold	Alluvial gold; copper in boulders				Buso R	07°25′S, 147°09′E
3418		Gold, copper			Occurrence			— See	GOLD
BUNA S		-FF77							
3502 U; (E H		Copper	Chalcocite, chrysocolla, chalcopyrite	Vein	Occurrence			Waria Valley	08°04′S, 147°23′E

	Method					Primain -1	
Produc- tion	of Working	Reserves	Grade	Stratig <b>raphy</b>	Genesis	Principal References	Remarks
				Mesozoic Goroka Formation intruded by minor intrusions of ?Akuna Intru- sive Complex	Hydrothermal by minor intrusions	McMillan & Malone (1960)	
— WA	U SB/55-14						
		Mineral- ization sparse		Baiune Granodiorite	Granodiorite	Dow (1961a)	Chalcopyrite oxidized to malachite which lines irregular joints in granodiorite
				Oligocene Finisterre Volcanics	Minor hydro- thermal by basalt	Horne (1963)	Specks of native copper obtained from stream courses
				Thin quartz vein intrudes brecciated silicified andesite or dolerite. Breccia zone 30 m wide	Hydrothermal	Dow & Davies (1964)	
				Basic boulders partly replaced by iron, copper, and rare nickel sul- phides		Gessner (1965); Dow & Davies (1964)	
				Basic boulders partly replaced by iron, copper, and nickel sulphides		Dow & Davies (1964)	Stream boulders in Sou Cr, source unknown
				Eocene tonalite weakly fractured and quartz-veined	Hydrothermal	Gessner (1965)	
— SAL	AMAUA S	B/55-15					
						Davies (1969)	Several occurrences of sulphide-bearing stream boulders
						Davies (1969)	Malachite-stained boulders; minor gold
— SAL	AMAUA S	B/55-15					
				Papuan Ultramafic Belt fractured by Timeno Fault	Hydrothermal by acid igneous intrusions	Dow & Davies (1964); Gibson (1957)	Copper-bearing quartz reef 0.6 x 2 m

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
3517		Copper	Chalcopyrite	Vein; disseminated, igneous	Occurrence			L. Waria R	08°01′S, 147°31′E
3522	Woitape Prospect	Copper		Porphyry	Prospect	Kenne- cott Expl (Aust)		Kailape R	08°30′S, 147°02′E
PORT	MORESB	Y SC/55-7							
	Laloki Mine	Copper, gold, (silver, zinc, lead)	Chalcopyrite, sphalerite, galena, gold	Sedimentary syngenetic	Minor deposit	Past producer		Inset 2	09°25′S, 147°20′E
3602	Dubuna Mine	Copper, (gold, silver, zinc)	Sphalerite, chalcopyrite, gold	Sedimentary syngenetic	Minor deposit	Past producer		Inset 2	09°25′S, 147°20′E
3603	Sapphire/ Moresby	Gold, copper,			Minor deposit	·		— See	GOLD
	King Mine	(zinc)			•				
3604	Astrolabe (Dubuna North) Mine	Copper		Sedimentary syngenetic	Occurrence	?Past producer		Inset 2	09°25′S, 147°20′E
3605	Elvina Mine	Copper, (zinc, lead)	Chalcopyrite, sphalerite, galena	Sedimentary syngenetic	Minor deposit			Inset 2	09°25′S, 147°20′E

Produc-	Method of	ъ	G	St. Carrie	Come	Principal	D 1
tion	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
			Pocket of chal- copyrite enrich- ment assayed 9.25% Cu	Basalt of Papuan Ultramafic Belt	Volcanism	Davies (1969)	Gossanous coatings on basalt outcrop. Minor mineralization in joints and disseminated in basalt
	Prospecting in progress			Quartz monzonite and hornblende porphyry intruding schist of Owen Stanley Metamorphics	Intrusions	Jones (1973)	
40 000 tons 1907-25 1936-41; mostly 1917-25	Underground and open cut	Fisher (1941): 265 000 tons 4.5% Cu, 4.14 dwt/ton Au		Massive sulphide orebody in shale facies of Eocene Port Moresby Beds	Colloidal deposition	Fisher (1941); Yates & de Ferranti (1967)	Most productive mine in Astrolabe Mineral Field. Orebody 150 x 30 x 20 m
About 20 000 tons 1910-26	Underground and open cut	25 000 tons	Oxidized ore: 21-29% Cu, 4-4.4 dwt Au/ ton. Sulphide ore: 3.82% Cu, 2.8 dwt Au/ ton, 8.2 dwt Ag/ton	Massive sulphide orebody in shale facies of Eocene Port Moresby Beds	Colloidal deposition	Yates & de Ferranti (1967)	Secondmost productive mine in Astrolabe Mineral Field
— POR	T MORESB	Y SC/55-7					
No details	Under- ground			Shale facies of Eocene Port Moresby Beds		Yates & de Ferranti (1967)	No mineralization seen by Yates & de Ferranti
None recorded	Underground development	Stanley (1918): 5280 tons 2.5-3% Cu	Av assays 3.1 % Cu, 3.02 % Zn, 0.25 % Pb	Massive sulphide orebody in shale facies of Eocene Port Moresby Beds	Colloidal deposition	Stanley (1918); Yates & de Ferranti (1967)	Two steeply dipping sulphide lenses

Index No.	c Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
3606	Federal Flag Mine	Copper, (gold, silver)		Alluvial and sedimentary syngenetic	Minor deposit	Past producer	,	Inset 2	09°25′S 147°20′I
3607	Hector Mine	Copper	Oxide and sulphide copper minerals	Sedimentary syngenetic	Minor deposit	Past producer		Inset 2	09°25′S, 147°20′E
3608	Lulu Mine	Copper			Occurrence	Past producer		Inset 2	09°22′S, 147°15′E (approx.)
3609	Merrie England Mine	Copper	Copper carbonates	Gossan	Occurrence	Past producer		Inset 2	09°25′S, 147°20′F
3610	Mt Cook Mine	Copper		Gossan	Occurrence			Inset 2	09°25′S, 147°20′E
3611	Mt Diamond Mine	Copper (zinc, gold, silver)	Chalcopyrite, sphalerite, ?enargite	Sedimentary syngenetic	Minor deposit	?Past producer		Inset 2	09°25′S, 147°20′E
3612	Mt Louis Mine	Copper, iron	Secondary copper sulphides, hematite	Gossan	Occurrence			Inset 3	09°48′S, 147°34′E
3613	Pari Prospect	Copper, gold	Chalcopyrite, gold, malachite	Gossan; sedimentary syngenetic	Occurrence			Inset 2	09°25′S, 147°20′E

Produc- tion	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
Until 1909 — 91 tons 40% Cu (alluvial). 1912-17 342 tons (under- ground)	Alluvial and under- ground		Av assays under-ground ore: 33.2% Cu, 4.6 dwt Au/ton, 2.8 f. oz Ag/ton	Shale facies of Eocene Port Moresby Beds		Yates & de Ferranti (1967)	
1907-08 153.5 tons 25% Cu; 1916-17 122 tons	Open cut and shaft		Oxidized enriched ore at surface; low- grade sulphide ore below	Limonitic shale of Eocene Port Moresby Beds. Sadowa Gabbro at shallow depth.		Yates & de Ferranti (1967)	One of first ore- bodies discovered; 30 x 10 x 2 m
Before 1912 few bags oxidized ore av 24.4% Cu						Yates & de Ferranti (1967)	
2.5 tons before 1911	Trench and under- ground Under- ground develop-		4-7% Cu	Gossan in shale facies of Eocene Port Moresby Beds Shale xenoliths in Oligocene Sadowa Gabbro	Colloidal deposition	Yates & de Ferranti (1967)  Yates & de Ferranti (1967)	
Not known	ment Under- ground	24 000 tons	Av assays: 4.3% Cu, 0.9% Zn, 1.1 dwt Au/ton, 0.3 f. oz Ag/ton	Massive sulphide orebody in shale facies of Eocene Port Moresby Beds	Colloidal deposition	Yates & de Ferranti (1967)	Ore very similar to Laloki Mine
10 tons copper ore exported 1920	Under- ground develop- ment	Very small	Gossan 0.33- 2.91% Cu; second- ary sulphides 10.2% Cu	Hematite-rich gossans in xeno- lith of shale in Sadowa Gabbro. Gabbro not mineralized.		Yates & de Ferranti (1967); Stanley (1919)	Iron ore used as pigment (Stanley, 1924)
	Under- ground develop- ment	Very small	Assays: 1.2% Cu, 3.3 dwt Au/ton (sulphide ore)	Shale of Eocene Port Moresby Beds	Colloidal deposition	Yates & de Ferranti (1967)	Mining not economic

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
3614	Hercules Prospect	Copper	Copper carbonates	Gossan	Occurrence			Inset 2	09°25′S, 147°20′E
3615	Sapphire King Mine	Copper, gold, (silver)		Sedimentary syngenetic	Minor deposit	Past producer		Inset 2	09°25′S, 147°20′E
3616	Ventura Prospect	Copper	Chalcopyrite	Gossan and sedimentary syngenetic	Occurrence			Inset 2	09°25′S, 147°20′E
3617	Victoria Hampton Prospect	Copper	Chalcopyrite, bornite, copper carbonates	Sedimentary syngenetic	Occurrence			Inset 2	09°25′S, 147°20′E
			,						
3619	Little Mt Lawes Prospect	Copper	Copper carbonates	Sedimentary syngenetic	Occurrence			Astrolabe Mineral Field	09°18′S, 147°14′E
TUFI 3902	SC/55-8	Copper, gold	Copper minerals, gold	Gossan	Occurrence			C Vogel Pen	09°42′S, 149°48′E
3906	Doriri Cr Nickel Prospect	Nickel, (copper)	gold		Occurrence				NICKEL
3908	r	Gold, copper			Occurrence			- See G	GOLD
FERG	SUSSON IS	SLAND SC	56-5						
4205		Copper	Chalcopyrite, covellite, malachite	Gossan boulders	Occurrence			Ipwa- paia Cr	09°38′S, 150°34′E

Produc-	Method of				-	Principal	
tion	Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
	Trenches and shafts			Copper carbonate at contact of Sadowa Gabbro and sediments	Possible local concentration by intrusion	Yates & de Ferranti (1967)	Massive manganese minerals in gossan
1938-40 2252 tons 1.2% Cu, 5.3 dwt Au/ ton, 0.96 f. oz Ag/ ton				Shale facies of Eocene Port Moresby Beds	Colloidal deposition	Yates & de Ferranti (1967)	
	Prospect- ing shaft		Carne (1913); no copper values in gossan	Gossan and massive pyritic ore in shales over- lying Oligocene Sadowa Gabbro	Colloidal deposition	Yates & de Ferranti (1967)	Diamond-drilled 1964; results not encouraging
	Prospecting shafts		No. 1 shaft: 0.9% Cu, 0.6 dwt Au/ton, 0.1 oz Ag/ton; No. 2 shaft: 2.83% Cu, 12 g Au/ton, 2 dwt Ag/ton	Roof pendant of gossan and shale facies of Eocene Port Moresby Beds surrounded by Oligocene Sadowa Gabbro	Colloidal deposition	Yates & de Ferranti (1967)	
		·		Roof pendant of black shale of Eocene Port Moresby Beds in Sadowa Gabbro	Colloidal deposition	PNGGS Catalogue of Data Files (1970)	Drilled by Mines Division 1969; no mineralization
				Brecciated Tertiary rocks		Stanley (1916a)	
— TUF	I SC/55-8						
— TUF	I SC/55-8						
			Selected speci- mens 1.3% Cu	Mesozoic amphibolite facies metamorphics	Gossan probably developed on narrow sulphide- bearing amphibolite	Davies & Ives (1962)	Gossan boulders in landslip scree

Index No.	Name	Com- modities	Minerals	Mineralization	Status	Category	Company	Area	Lat/Long
SAMA	RAI SC/5	56-9							
4301		Copper		Gossan	Occurrence	e		Yamaloi, Sideia I	10°36′S, 150°53′E
4302		Copper, (silver)	Azurite, malachite, (silver minerals)	Gossan	Occurrence	e		Magi- pota, Sideia I	10°34′S, 150°50′E
4304	Louise Mine	Gold, (copper)			Occurrence	e		— See	GOLD
4308		Copper		Disseminated, ?igneous	Occurrence	e		N Side Milne Bay	10°15′S, 150°32′E
wool	DLARK IS	SLAND SC	/ 56-6						
4406		Copper, iron, (gold)	Malachite, azurite, magnetite, hematite, gold	Skarn	Occurrenc	e		Inset 4	09°08′S, 152°45′E
4407 4410		Iron, copper Iron,			Occurrence				IRON IRON
		copper							
	YNE SC/				N. 6. 12			g.	COLD
4502	Umuna Mine	Gold, (silver, lead, zinc, copper)			Medium deposit			— See (	GOLD
4503	Quartz Mt Mine	Gold, (lead, zinc, copper)			Occurrence	е		— See	GOLD
4506	Double Chance Mine	Gold, (lead, zinc, copper)			Occurrence	e		— See	GOLD
4513		Copper	Native copper	Grains on joint planes	Occurrence	e		Pana- pompom <b>I</b>	10°46′S, 152°24′E
TALA	SEA SB/S	56-5						-	
5101	Kulu R Prospect	Copper, (molybdenum)	Chalcopyrite, molybdenite	?Porphyry copper	Prospect		BHP- Hanna	White- man Ra	05°46′S, 150°02′E (approx)

Produc-	Method of	P	Const	Ctuation and	Genesis	Principal References	Damarka
tion	Working	Reserves	Grade	Stratigraphy	Genesis	Kejerences	Remarks
	Prospect- ing pits		One assay 2.55% Cu	Tertiary sediments and minor igneous intrusions	Probably by minor intrusions	Hamilton (1962b)	Sideia Mineral Field proclaimed 1915, soon abandoned
			0.73- 20.0% Cu; up to 1 f. oz Ag/ton	Ferruginous and silicified Tertiary sediments hornfelsed by sill	Possibly by sill contact metamorphic zone	Hamilton (1962b); Stanley (1916b)	Sideia Mineral Field proclaimed 1915, soon abandoned
— SAM	ARAI SC/5	6-9					
			0.8- 22.4% Cu	Eocene volcanics intruded by minor ultrabasic body	Ultramafic body	BMR Tech File PNG SC/55-8	Mineralization near margin of ultramafic rock
10 tons hand- picked ore to Japan for assay 1957	Prospecting pits		Copper ore dumps up to 12.3% Cu; iron ore dumps up to 62.5% Fe	Tertiary Loluai Volcanics intruded by dolerite	Fugative metallic constituents from dolerite concentrated in skarns	Trail (1967)	Auriferous quartz leaders reported in Loluai area. Copper mineralization diamond-drilled 1962
- woo	DDLARK IS	SLAND SC					
- woo	DDLARK IS	SLAND SC	/56-6				
— DEB	OYNE SC/:	56-10					
— DEB	OYNE SC/:	56-10					
— DEB	BOYNE SC/	′56-10					
				Cretaceous metavolcanics	Minor hydrothermal	Smith & Pieters (1969)	
	Prospecting in progress. Diamond-drilled by CRA (1968)			Eocene andesitic- basaltic Bainings Volcanics intruded by Oligocene intermediate-acid New Britain Intrusives	Intrusions	Mackenzie (1971)	

(Mete Prosp  POMIO SB/ 5401  GAZELLE F 5301 C Lambiron deposi	yumi Copper, telen) (zinc, pect lead, molybdenum, silver, gold)	molybdenite	Porphyry copper  Porphyry copper; disseminated and veinlets  Disseminated igneous	Prospect  Prospect  Occurrence	Triako Mines  Triako Mines	Metelen R	05°01′S,
GAZELLE F 5301 C Lambiron deposis 5304 Talele Provisional	telen) (zinc, pect lead, molyb- denum, silver, gold)	bornite; minor sphalerite, galena; trace molybdenite, gold; secondary copper minerals	copper; disseminated and veinlets  Disseminated			R	150°23′E
GAZELLE F 5301 C Lambiron deposi 5304 Talele Provisional				Occurrence		Sai R	
5301 C Lambiron deposi 5304 Talele Provisional	Copper	Chalcopyrite		Occurrence		Sai R	05°01′S, 151°45′E
5301 C Lamber iron deposition  Talele Provisional							
sional	lead, sit zinc) le Gold,			Occurrence Occurrence		<ul><li>See I</li><li>See G</li></ul>	RON GOLD
	i- (silver, il copper,			Occurrence		— See C	iOLD
5306	zinc) Copper, (molyb- denum, lead, zinc)	Chalcopyrite, bornite, molybdenite, galena, sphalerite	Vein: quartz, quartz- calcite, pegmatite; minor disseminated, igneous	Occurrence		U. Waran- goi R	04°38′S, 152°06′E
5309	Copper,	Chalcopyrite, molybdenite	Disseminated,	Occurrence		Batonga R	04°21′S, 151°48′E

Produc- tion	Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
	Prospect- ing in progress			Eocene andesitic- basaltic Bainings Volcanics intruded by Oligocene intermediate-acid New Britain Intrusives	Intrusions	Mackenzie (1971)	
	Diamond drilling (Placer, 1970), costeans, trial adits; prospect- ing in progress	Copper- bearing ground 5 km <sup>2</sup>		Eocene andesitic- basaltic Bainings Volcanics; Oligo- cene intermediate- acid New Britain Intrusives; Pliocene Ania Tuff	Intermediate- acid intrusive- extrusive fragmental complex	Titley & Bell (1971)	Deep-seated structural control probable
		Minor mineral- ization	Specimen from stream boulder downstream on Sai R	Tonalite of Oligocene intrusives in Eocene Baining Volcanics	Hydrothermal by intrusion	Mackenzie (1971); Macnab (1970)	

## — GAZELLE PENINSULA SB/56-2

#### — GAZELLE PENINSULA SB/56-2

Investi- gated by ASARCO 1968, proved un- economic	Minor vein mineralization throughout diorite pluton of 5 km²; veins up to 0.5 m wide but most of pluton barren	Patchy sulphide mineral- ization in veins	Oligocene to Pliocene diorite pluton intruding Eocene Bainings Volcanics and bounded by Baining Fault	Hydrothermal by diorite	Macnab (1970)	Mineralization antedated Bainings Fault. Minor altera- tion of diorite
			Oligocene to Pliocene tonalite porphyry	Hydrothermal by tonalite	Macnab (1970)	Tonalite highly sericitized. Stream boulders of tonalite contain abundant pyrite, minor chalcopyrite and molybdenite

Index No.	: Name	Com- modities	Minerals	Mineralization	Category	Status	Company	Area	Lat/Long
5310		Copper	Malachite	Secondary copper staining	Occurrence			Neng- mukta Mts	04°34′S 152°02′I
5311		Copper	Bornite	Vein: quartz	Occurrence			S Bainings Mts	04°53′S, 152°04′F
5312		Copper, lead, zinc	Chalcopyrite, galena, sphalerite	Vein: quartz	Occurrence	·		Neng- mukta R	04°36′S, 152°02′E
	ATANAI Legusu- lum-	SB/56-14 Copper	Chalcopyrite, pyrite	Porphyry	Prospect		Swiss Alum-	Central New	03°11′S, 151°40′E
5805	Prospect Kaluan Prospect	Copper		Porphyry	Prospect		inium Swiss Alum- inium	Ireland Central New Ireland	03°21′S, 151°53′E
	Sinelu River Prospect	Copper		Porphyry	Prospect		Swiss Alum- inium	Central New Ireland	03°24′S, 151°59′E
SAM(	SA/56-15	5							
5901		Copper, gold	Malachite, gold	Disseminated, igneous (copper); alluvial (gold)	Occurrence			Pala- bong	03°58′S, 152°36′E
B <b>OU</b> 6 6203	GAINVILL Panguna Mine	Copper, gold, (silver, molyb-	SOUTH SB/56 Primary: chalcopyrite, bornite, gold, silver,	6-12 Porphyry	Major deposit	Producer	Bougain- ville Copper	Crown Prince Ra	06°20′S, 155°30′E
		denum, zinc, lead)	molybdenite; trace sphalerite, galena; secondary: cuprite, malachite, chalcocite						
6204	Kupei Mine	Gold, silver, (copper, lead,			Minor deposit			— See (	GOLD
5205		zinc) Gold, (copper, zinc)			Occurrence			— See C	GOLD
520 <b>7</b>		Gold, zinc, copper			Occurrence			— See C	GOLD
5212,		Copper	Chalcopyrite	Vein: quartz in fault fissure	Occurrence			Iwi Planta- tion	06°22′S, 155°47′E

of Working	Reserves	Grade	Stratigraphy	Genesis	References Principal	Remarks
	•		Oligocene to Pliocene plutonic rocks adjacent to Bainings Fault	Hydrothermal by intrusion	Macnab (1970)	Minor malachite staining
		٠	Eocene Baining Volcanics intruded by Oligocene to Miocene plutonic rocks	Hydrothermal by intrusion	Macnab (1970)	Mineralization in brecciated Bainings Volcanics. Minor bornite
			Fault breccia in Miocene Nengmukta Volcanics	Hydrothermal	Macnab (1970)	Sulphides sparsely scattered
Prospecting in progress Prospecting in progress						
Prospect- ing in progress						
			Oligocene andesitic Jaulu Volcanics and acid to basic Leman Intrusives	Probable hydrothermal by intrusions	Hohnen (1970)	Rocks propylitized. Malachite-stained boulders on beach near Palabong
Open cut	900 million tons	0.48% Cu, 0.36 dwt Au/ton. Concen- trate 30% Cu, 1 f. oz Au/ton, some Ag	Oligocene andesitic Kieta Volcanics intruded by Plio- cene Kaverong Quartz Diorite; hydrothermal alteration	Kaverong Quartz Diorite; economic concentrations in marginal facies	Macnamara (1968); Page (1971); Mining Journal 14/4/72	Capitalization \$400 million. Concentrate export began 1972. Hydrothermal alteration and mineralization about 0.5-1.5 m.y., about 0.5-1.5 m.y. after emplacement of Kaverong Diorite; lode gold (Pumkur worked 1935-41 (Fisher, 1936b)
	ing in progress Prospecting in progress Prospecting in progress Prospecting in progress	ong in progress Prospecting in progress Prospecting in progress Prospecting in progress Propress Progress Progr	orgess Prospecting in progress Prospecting in progress Prospecting in progress  Open cut 900 0.48% million Cu, tons 0.36 dwt Au/ton. Concentrate 30% Cu, 1 f. oz Au/ton,	Eocene Baining Volcanics intruded by Oligocene to Miocene plutonic rocks Fault breccia in Miocene Nengmukta Volcanics Prospect- ing in progress Prospect- ing in progress Prospect- ing in progress Oligocene andesitic Jaulu Volcanics and acid to basic Leman Intrusives  Open cut million Cu, tons O.36 dwt Au/ton, Concen- trate Jow Cu, 1 f. oz Au/ton, A	Prospecting in progress  Open cut 900 0.48% Oligocene and acid to basic Leman Intrusives  Open cut 900 0.36 dwt intruded by intrusions  Open cut Au/ton. Concentrate hydrothermal by intrusion  Open cut 400 0.48% Oligocene and concentrate hydrothermal by intrusions  Open cut 900 0.48% Oligocene and concentrations in marginal facies  Open cut 900 0.48% Oligocene and concentrations in marginal facies	Prospecting in progress  Oligocene andesitic Jaulu Volcanics  Oligocene andesitic Jaulu Volcanics  Prospecting in progress  Oligocene andesitic Jaulu Volcanics and acid to basic Leman Intrusives  Oligocene andesitic Vaulu Volcanics and acid to basic Leman Intrusives  Open cut 900 0.48% Oligocene andesitic Kaverong Macnamara (1970)  Macnab dy intrusion  Macnab dy intrusion  Macnab (1970)  Macnab dy intrusion  Macnab dy intr

# BOUGAINVILLE ISLAND SOUTH SB/56-12

# BOUGAINVILLE ISLAND SOUTH SB/56-12

BOOGHITTEEL	IODATIO	500111	00/3012	
			Oligocene Volcanics	Kieta

Hydrothermal into fault zone

Blake & Miezitis (1967)

# LEAD

Index	Name			Mineral-		4	TT
No.		Commodities	Minerals	ization	Category	Area	Lat/Long
	G SB/54-8						
1204	Porgera Prospect	Gold, silver, zinc, lead, copper			Prospect	— Se	ee GÓLD
RAMU	SB/55-5						
2030		Copper, lead			Occurrence		ee COPPER
2031		Lead, molybdenum, zinc, copper	Galena, molybdenite, sphalerite, chalcopyrite	Vein, in boulders		Marum R	05°41′S; 145°05′E
MARK	HAM SB/55-10						
2811	Efontera Prospect	Lead, zinc	Galena, marmatite	Vein: mineralized shear zone		Efontera Cr	06°15′S; 145°50′E
WAU S	SB/55-14						
2902	Lakekamu Goldfield	Gold, (lead, zinc, copper)			Minor deposit	— Se	ee GOLD
2915		Zinc, lead			Occurrence	S	ee ZINC
	1AUA SB/55-15					C.	COLD
3419	SO/EE 2	Gold, lead			Occurrence	_ Se	ee GOLD
3516	SC/55-3 Gaiva	Lead, zinc	Galena,	Vein and	Occurrence V	Woitape-	08°34′S;
	Prospect	Done, Marc	sphalerite	disseminated		Fapini	147°03′E
ካለውፐ ነ	MODESDY SC/	5					
3601	MORESBY SC/S Laloki	Copper, gold,			Minor deposit	— Se	e COPPER
3001	Mine	(silver, zinc, lead)			willor deposit		i corre
3605	Elvina Mine	Copper, (zinc, lead)			Minor deposit		e COPPER
3619		Gold, (lead)			Occurrence	— Se	ee GOLD
	LARK ISLAND				3.5. 11	C.	COLD
4401	Kulumadau Mine	Gold, (lead, zinc)			Medium deposit	- 56	ee GOLD
4402	Murua United, Federation, Vulcan Mines	Gold, (lead, zinc)		·	Minor deposits	— Se	ee GOLD
DEBOY	NE SC/56-10						
4502	Umuna Mine	Gold, (silver, lead, zinc,			Medium deposit	— Se	ee GOLD
4503	Quartz Mt Mine	copper) Gold, (lead, zinc, copper)			Occurrence	Se	e GOLD
4506	Double Chance Mine	Gold, (lead, zinc, copper)			Occurrence	— Se	e GOLD

Grade	Stratigraphy	Genesis	Principal References	Remarks
— WABAG SB/54-8				
— RAMU SB/55-5	Miocene Bismarck Intrusive Complex	Bismarck Intrusive	Dow & Dekker	
	musive complex	Complex	(1963)	
	Shear zone in schist of Mesozoic Bena Bena Formation intruded by acid dykes	Hydrothermal	Dow & Plane (1965)	Diamond-drilled 1958; results not encouraging
— WAU SB/55-14				
— WAU SB/55-14				
- SALAMAUA SB/55-15				
A.A.S. analyses: Pb 340 to >10 000 ppm; Zn 730 to >10 000 ppm; Ag 6-320 ppm	Owen Stanley Metamorphics. Pyritic veins and pyritic-metasomatic rock		French (1965)	
PORT MORESBY SC/55-7				
<ul> <li>PORT MORESBY SC/55-7</li> </ul>				
<ul> <li>PORT MORESBY SC/55-7</li> </ul>				
— WOODLARK ISLAND SC/56-6				
<ul> <li>WOODLARK ISLAND SC/56-6</li> </ul>				
— DEBOYNE SC/56-10				
- DEBOYNE SC/56-10				
— DEBOYNE SC/56-10				

#### LEAD (Continued)

Index	Name					
No.		Commodities	Minerals	Mineralization	Category	Area
TALAS	EA SB/56-5					
5105	Plesyumi (Metelen) Prospect	Copper, (zinc, lead, molybdenum, silver, gold)			Prospect	— See COPPER
GAZEL	LE PENINSUL	A SB/56-2				
5301	C Lambert iron deposit	Iron, (copper, lead, zinc)			Occurrence	— See IRON
5304	Talele Provisional G.F.	Gold, (silver, copper, lead, zinc)			Occurrence	- See GOLD
5306		Copper, (molybdenum, lead, zinc)			Occurrence	- See COPPER
5312		Copper, lead, zinc			Occurrence	- See COPPER
BOUGA	INVILLE ISLA	ND SOUTH SB/56	-12			
6203	Panguna Mine	Copper, gold, (silver, molybdenum, zinc, lead)			Major deposit	— See COPPER
6204	Kupei Mine	Gold, silver, (copper, lead, zinc)			Minor deposit	— See GOLD

#### ZINC

Index No.	Name	Commoditie <b>s</b>	Minerals	Mineralization	Category
MAY RI	VER SB/54-3				
0302		Copper, zinc			Occurrence
WABAG	SB/54-8				
1204	Porgera Prospect	Gold, silver, zinc, lead, copper			Prospect
RAMU S	SB/55-5				
2006		Zinc	Sphalerite	Vein; not in situ	Occurrence
2031		Lead, molybdenum, zinc, copper			Occurrence
MARKH	IAM SB/55-10				•
2811		Lead, zinc			Occurrence
WAU SE	8/55-14				
2902	Lakekamu G.F.	Gold, (lead, zinc, copper)			Minor deposit
2915		Zinc, lead	Marmatite, galena	Replacement	Occurrence
BUNA S	SC/55-3				
3516		Lead, zinc			Occurrence
PORT M	ORESBY SC/55-7				
3601	Laloki Mine	Copper, gold, (silver, zinc, lead)			Minor deposit

G;	rade	Stratigraphy	Genesis	Principal References	Remarks			
— TALASEA SB	/56-5	•						
— GAZELLE PE								
- GAZELLE PE	ninsula s	B/56-2						
— GAZELLE PENINSULA SB/56-2								
GAZELLE PENINSULA SB/56-2								
— BOUGAINVII	LE ISLAND	SOUTH SB/56-12						
— BOUGAINVIL	— BOUGAINVILLE ISLAND SOUTH SB/56-12							
Area	Lat/Lon	g Genesis	Principal Re	eferences	Remarks			
- See COPPER		— MAY RIVER SB/54-3						
— See GOLD		— WABAG SB/54-8						
Piut R	05°24′S; 144°36′E		Kennecott (	1968)	Sphalerite in quartz pebble			
- See LEAD	144 30 E	— RAMU SB/55-5						
— See LEAD		— MARKHAM SB/55-10						
— See GOLD		— WAU SB/55-14						
Inset 1	07°20′S; 146°44′E	Replacement of U. Tertiary Edie Porphyry adjacent to a fault zone	Thompson (	(1952a)	Gossanous outcrops Wau/ Edie Cr road near Kunai Cr			

— BUNA SC/55-3

- PORT MORESBY SC/55-7

See LEAD

- See COPPER

## ZINC (Continued)

Index	Name				
No.		Commodities	Minerals	Mineralization	Category
3602	Dubuna Mine	Copper, (gold, silver, zinc)			Minor deposit
3603	Sapphire/ Moresby King Mine	Gold, copper, (zinc)			Minor deposit
3605	Elvina Mine	Copper, (zinc, lead)			Minor deposit
3611	Mt Diamond Mine	Copper, (zinc, gold, silver)			Minor deposit
woodl	ARK ISLAND SO	C/ <b>56-6</b>			
4401	Kulumadau Mine	Gold, (lead, zinc)			Medium deposit
4402	Murua United, Federation, Vulcan Mines	Gold, (lead, zinc)			Minor deposits
DEBOY	NE SC/56-10				
4502	Umuna Mine	Gold, (silver, lead, zinc, copper)			Medium deposit
4503	Quartz Mt Mine	Gold, (lead, zinc, copper)			Occurrence
4506	Double Chance Mine	Gold, (lead, zinc, copper)			Occurrence
TALASE	CA SB/56-5				
5105	Plesyumi (Metelen) P <b>ro</b> spect	Copper, (zinc, lead, molybdenum, silver, gold)			Prospect
GAZELI	LE PENINSULA	SB/56-2			
5301	C Lambert iron deposit	Iron, (copper, lead, zinc)			Occurrence
5304	Talele Provisional G.F.	Gold, (silver, copper, lead, zinc)			Occurrence
5306		Copper, (molybdenum, lead, zinc)			Occurrence
5312		Copper, lead, zinc			Occurrence
BOUGA	INVILLE ISLANI	SOUTH SB/56-12			
6203	Panguna Mine	Copper, gold, (silver, molybdenum, zinc, lead)			Major deposit
6204	Kupei Mine	Gold, silver, (copper, lead, zinc)			Minor deposit
6205		Gold, (copper, zinc)			Occurrence
6207		Gold, zinc, copper			Occurrence

Area	Lat/Long Genesis	Principal References	Remarks
- See COPPER	— PORT MORESI		
<ul><li>See GOLD</li></ul>	<ul><li>PORT MORESI</li></ul>		•
<ul><li>See COPPER</li><li>See COPPER</li></ul>	<ul><li>PORT MORESI</li><li>PORT MORESI</li></ul>		
- See GOLD	WOODLARK I	SLAND SC/56-6	
— See GOLD	- WOODLARK I	SLAND SC/56-6	
See GOLD	— DEBOYNE SCA	/56-10	
— See GOLD	- DEBOYNE SC	/56-10	
— See GOLD	<ul><li>DEBOYNE SC/</li></ul>	/56-10	
<ul><li>See COPPER</li></ul>	TALASEA SC.	154.5	
— See COFFER	— TALASEA SC/	30-3	
g vpov	0475115 000	MINION A CD /5C 2	
- See IRON		NINSULA SB/56-2	
— See GOLD	— GAZELLE PER	NINSULA SB/56-2	
— See COPPER	— GAZELLE PEN	NINSULA SB/56-2	
- See COPPER	— GAZELLE PEN	NINSULA SB/56-2	
Con CODDED	DOLIC A INIVITA	LE ISLAND COUTH SD/54 12	
— See COPPER	— BOUGAINVILI	LE ISLAND SOUTH SB/56-12	
- See GOLD	— BOUGAINVILI	LE ISLAND SOUTH SB/56-12	
<ul><li>See GOLD</li><li>See GOLD</li></ul>		LE ISLAND SOUTH SB/56-12 LE ISLAND SOUTH SB/56-12	
500 CC2D	= III (		

# IRON AND FERRO-ALLOY METALS

#### CHROMIUM

Index No.	Name	Commodities	Mineral <b>s</b>	Mineral- ization	Category	Status	Area .
VANIN	MO SA/54-1	11					
0101		Nickel, chromium			Occurrence	•	<ul><li>See NICKEL</li></ul>
0106		Chromium	Chromite	Beach sand	Occurrence		Vanimo
AMBU	NTI SB/54	-4					
1101		Gold, (chromium)			Occurrence		— See GOLD
HUON	SB/55-11	(omomun)					
3301		Chromium	Chromite	Alluvial	Occurrence		Nimba R
SALAN 3411	MAUA SB/	55-15 Chromium	Chromite	Igneous	Occurrence		Paiawa R
3411		Cinoninan	Cironite	Ignoods	Gecarrence		Turawa It
3420		Chromium	Chromite	Alluvial	Occurrence		Sachsen Bay
3421	Sela R Chromite	Chromium	Chromite	Alluvial	Prospect	Potential producer	Sela R delta
	Prospect					F	
		<i>:</i>					
3422		Chromium	Chromite	Alluvial	Occurrence		Paiawa R
3422		Chromium	Chromite	Alluviai	Occurrence		Palawa K
	SC/55-3						
3503		Chromium	Chromite	Residual	Occurrence		Gira R
3508		Chromium	Chromite	Alluvial	Occurrences		Kokoda
2000							
TUFI S	SC/55-8						
3909		Chromium	Chromite	Beach sand	Occurrence		Posa Posa Har

	Method of				Principal	
Lat/Long	Working	Grade	Stratigraphy	Genesis	References	Remarks
- VANI	MO SA/54-11					
02°38′S; 141°14′E (approx)		Black sand contained about 88% chromite and ilmenite: Cr <sub>2</sub> O <sub>3</sub> : Fe <sub>2</sub> O <sub>3</sub> = 58.7: 17.8	Black sand	Probably from ultramafic rocks of Oenake Ra	Thompson (1962a)	
— AMBU	JNTI SB/54-4					
06°25′ <b>S</b> ; 147° <b>02′E</b>		Panned concentrate contained 20% chromite		From mineralized ultramafic intrusion	Grainger (1971)	
07°37′S; 147°03′E		Chromite conc. 59.5% and 45.8% (assays on two samples)	Hartzburgite/ dunite of Papuan Ultramafic Belt	Magmatic segregation	Davies (1969)	Main lens 7-15 cm thick, 1½ m long
07°19 <b>′S;</b> 147° <b>09′E</b>		,		From Papuan Ultramafic Belt. Brought down by Alealer R	Thompson (1962a)	Concentrated on beaches and at mouth of river
07°21′S; 147°10′ <b>E</b>	Dredging			From Papuan Ultramafic Belt. Brought down by Sela R	Thompson (1962a); Metals Expl Directors' Report, 30 June 1972	Concentrated in alluvial deposit in delta
07°32 <b>′S;</b> 147°23 <b>′E</b>				From Papuan Ultramafic Belt. Brought down by Paiawa R	Thompson (1962a)	Concentrated on beaches and at mouth of river
08°17′ <b>S;</b> 147° <b>39′E</b>	·	1-8% Cr in lateritic soil	Papuan Ultra- mafic Belt	Weathering	Mortensen (1969)	Disseminated chromite in residual soils
08°51′ <b>S;</b> 147°46′E			Papuan Ultra- mafic Belt	From Papuan Ultramafic Belt	Thompson (1962a)	Several streams near Botue village
09°38′S; 149°46′E		41-68% chromite, 5% magnetite, 10% ilmenite, 4.4% zircon, minor hematite, 10% transparent minerals	Tertiary sediments	Probably from ultramafic clastic components of Tertiary sediments	Thompson (1962a)	

### CHROMIUM (Continued)

Index No.	Name	Commodities	Mineral <b>s</b>	Mineral- ization	Category	Status	Area	
FERG	USSON I	SLAND SC/56-5						
4206		Chromium	Chromite	Disseminated, igneous	Occurrence		Mebul	ili Cr
ROSSI	EL SC/56	-15						
4701	Griffin Pt Mining area	Gold, (chromium)			Minor deposit		— Se	e GOLD
IRON								
Index No.	Name	Commodities	Minerals	Mineral- ization	Category	Company	Area	Lat/Long
KIWA 1501	I SC/54-4	Iron	Titaniferous magnetite	Beach sand	Occurrence		Kiwai	08°41′S; 143°39′E
1502		Iron	Titaniferous magnetite	Beach sand	Occurrence		Dibiri I	08°13′S; 143°44′E
KIKO	RI SB/55-	.13						
2202	<b></b> 52, 50	Iron	Titaniferous magnetite	Beach sand	Occurrence		Goaribari I	07°49′S; 144°15′E
2203		Iron	Titaniferous magnetite	Beach sand	Occurrence		C Blackwood	07°47′S; 144°29′E
2239		Iron	Magnetite	Beach sand	Occurrence	James Wallace	Deception Bay	07°39′S; 144°34′E
PORT	MORES	BY SC/55-7						
3612	Mt Louis Mine	Copper, iron			Occurrence		— See CC	PPER
woor	DLARK IS	SLAND SC/56-6						
4406		Copper, iron (gold)			Occurrence		— See CC	PPER
4407		Iron, copper	Magnetite, hematite, malachite, native copper	Skarn	Occurrence		Inset 4	09°08′S; 152°45′E

Lat/Long	Method of Working	Grade	Stratigraphy	Genesis	Principal References	Remarks
09°31′ <b>S;</b> 150°51′E		1.51% Cr (one sample)	Opalized serpentine breccia after dunite (Mesozoic)	Magmatic segregation	Davies & Ives (1965)	Disseminated chromite crystals up to 6 mm long common throughout ultramafic rocks of Fergusson I

— ROSSEL SC/56-15

Method of Working	Reserv <b>es</b>	Grade	Stratigraphy	Genesis	Principal References	Remarks
		9.0% TiO <sub>2</sub> ; magnetic fraction 90.5% wt (88% vol)		Erosion products of Fly R; concentrated by wave action	Pontifex (1965)	
					BMR Tech File PNG SB/55-13	
		8.55% TiO <sub>2</sub> ; magnetic fraction 85.7% wt (80% vol)		Erosion products of Kikori R; concentrated by wave action	Pontifex (1965)	
		,			BMR Tech File PNG SB/55-13	
	19 million tons	Av 12%		Erosion products of Kikori R; concentrated by wave action	Company rep PNGGS	

#### WOODLARK ISLAND SC/56-6

Prospecting pits	Est 420 000 tons iron ore above sea level in the two main lodes;	Up to 65.7% Fe; up to 4.3% Cu	Skarn of probable Miocene Suloga Limestone intruded by dolerite	Fugitive metallic constituents from dolerite concentrated in skarn	Trail (1967)
	up to 15 m wide				

IRON (Continued)

Index No.	Name	Commodities	Minerals	Mineral- ization	Category	Company	Area	Lat/Long
4410		Iron, copper	Magnetite, hematite, limonite, malachite	Skarn (boulder outcrop only)	Occurrence		Inset 4	09°08′S; 152°45′E
GAZEI	LLE PEI	NINSULA SB/50	5-2					
5301		Iron, (copper, lead, zinc)	Magnetite, hematite, chalcopyrite, galena, sphalerite	Vein and minor replacement (iron); vein (sulphides)	Occurrence		C Lambert	04°13′S; 151°33′E
	AINVILL	E ISLAND NO						
6101		Iron	Titaniferous magnetite	Beach sand	Occurrence		Wakunai	05°53′S; 155°12′E
6102		Iron	Titaniferous magnetite	Beach sand	Occurrence		Near mouth of Genga R	05°40′S; 154°44′E
							K	
6103		Iron	Titaniferous magnetite	Beach sand	Occurrence		Tinputz Har	05°33′S; 154°59′F
6104		Iron	Titaniferous magnetite	Beach sand	Occurrence	·	Near Konua Plantation	05°50′E 154°45′E
BOUGA	AINVILI	E ISLAND SOU	JTH SB/56-12					
5201		Iron	Titaniferous magnetite	Beach sand	Occurrence		Between Kieta and Aropa	06°17′S; 155°42′E

1ethod f	Dogower	Crada	Stratigranh	Genesis	Principal References	Remarks
rospecting hafts and	Reserves	Trace malachite	Stratigraphy  Tertiary Loluai  Volcanics	Fugative metallic constituents from	Trail (1967)	Skarn not exposed
its			intruded by dolerite	dolerite concentrated in skarn		
nvestigated y costeans nd iamond rilling	Probable; about 80 000 tons; small steeply dipping lenses, max 130 x 4 m	60-72% Fe, <3% silica, <0.1% Ti, trace phos- phate, av 5% pyrite	Eocene Baining Volcanics intruded by Oligocene- Pliocene basic- acid plutonic rocks	At least two phases of hydro- thermal mineral- ization by plutonic intrusions	Gardner (1957)	Magnetite as fissure fillings and local replacement in garnet skarn rock; later mineralization introduced metal sulphides in quartz veins
			Quaternary andesitic Numa Numa Volcanics; Quaternary andesitic-basaltic Volcanics to N and inland	From unconsolidated pyroclasts of Mt Balbi volcano; transported by Wakunai R; concentrated by wave action	Thompson (1961)	
	Several former strand lines	87% magnetite containing 8.18% TiO <sub>2</sub>	Quaternary andesitic-basaltic Emperor Ra Volcanic Beds	From pyroclasts of Emperor Ra; concentrated by wave action	Thompson (1961)	Rapid accretion of coastal plain. Sample probably not representa- tive of all strand lines
		91.5% magnetite, 3.8% ilmenite, 4.0% pyroxene	Pleistocene Sohano Limestone, Quaternary andesitic-basaltic Emperor Ra Volcanic Beds	From pyroclasts of Emperor Ra; concentrated by wave action	Thompson (1961)	
			Quaternary andesitic-basaltic Emperor Ra Volcanic Beds	From pyroclasts of Emperor Ra; concentrated by wave action	Thompson (1961)	
	Several small deposits; at Kaukau-wiriai lens of pure magnetite sand 0.6 m thick, 60 - 100 m long, 100 tons	About 98% magnetite containing 3.97% TiO <sub>2</sub>	Oligocene andesitic-basaltic Kieta Volcanics	Probably from erosion of Kieta Volcanics or from Quaternary Taroka Volcanics and transported by long-shore currents; concentrated by wave action	Thompson (1961)	Several small deposits concentrated by wave action against headlands at N end of beaches

IRON (Continued)

Index No.	Name	Commodities	Minerals	Mineral- ization	Category	Company	Area	Lat/Long
6202		Iron	Titaniferous magnetite	Beach sand	Occurrence		Kererina Pt	06°11′S; 155°31′E
6206		Iron	Titaniferous magnetite	Beach sand	Occurrence		Loluai R delta	06°31′S; 155°54′E
6208		Iron	Titaniferous magnetite	Beach sand	Occurrence		Mouth of Abia R	06°38′S; 155°55′E
6209		Iron	Titaniferous magnetite	Beach sand	Occurrence		Toimonapu Plantation	06°27′S; 155°50′E
6210		Iron	Titaniferous magnetite	Beach sand	Occurrence		Empress Augusta Bay	06°30′S; 155°13′E
6217		Iron	Titaniferous magnetite	Beach sand	Occurrence		SE of C Moltke	06°06′S; 154°55′E
6218		Iron	Titaniferous magnetite	Beach sand	Occurrence		C Moltke	06°03′S; 154°52′E

1ethod					D ' I	
f Vorking	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
			Oligocene andesitic-basaltic Kieta Volcanics	Probably from erosion of Kieta Volcanics; concentrated by wave action	Blake & Miezitis (1967)	Locality in Blake & Miezitis (1967, map)
	Large reserves possible in former strand lines of delta		Oligocene Kieta Volcanics and Quaternary andesitic Taroka Volcanics	From unconsolidated pyroclasts of Mt Taroka volcano; concentrated by wave action	Thompson (1961)	
			Quaternary andesitic Taroka Volcanics	From unconsolidated pyroclasts of Mt Taroka volcano; concentrated by wave action	Thompson (1961)	
	Thin films on present- day beaches		Quaternary alluvium; Oligocene andesitic-basaltic Kieta Volcanics; Quaternary andesitic Taroka Volcanics inland to S	From unconsolidated pyroclasts of Mt Taroka volcano; transported by long-shore currents; concentrated by wave action	Thompson (1961)	
	Thin films on present- day beaches	5% magnetite in unconcentrated sand	Quaternary alluvium; Quaternary andesitic Taroka Volcanics inland	From unconsolidated pyroclasts of Mt Taroka volcano; concentrated by wave action	Thompson (1961)	Rapid beach accretion on W coast, possibly economic concentra- tion of magnetite inland in old strand lines of Empress Augusta Ba
			Miocene Keriaka Lime- stone; Quaternary andesitic Bagana Volcanics to S	From unconsolidated pyroclasts of Mt Bagana volcano; transported by long-shore currents; concentrated by wave action	Blake & Miezitis (1967)	Locality in Blake & Miezitis (1967, map)
			Miocene Keriaka Lime- stone; Quaternary andesitic Bagana Volcanics to S	From unconsolidated pyroclasts of Mt Bagana volcano; transported by long-shore currents; concentrated by wave action	Thompson (1961)	

RON .	(Continued)	

Name

Commodities

Minerals

Index No.

NO.	Com	moaines Minerais	izaiion	!	Category	Company	Area	Lai/Long
6219	Iron	Titaniferou magnetite	Beach	sand	Occurrence		Orava	06°44′S; 155°56′E
6220	Iron	Titaniferou magnetite	s Beach	sand	Occurrence		Moila Pt	06°49′S; 155°44′E
6221	Iron	Titaniferou	s Beach	sand	Occurrence		Motupena	06°31′S;
0221	11011	magnetite	. Dodon	Surid	Geediteliee		Pt	155°10′E
MOLYI Index	BDENUM Name							
No.	1vanie	Commodities	Minerals		Mineralization	Category	Area	
	SB/55-5					_		
2002		Molybdenum	Molybdenite		Disseminated, igneous	Occurrence	Marram	R
2017		Copper, molybdenum				Occurrence	— See	COPPER
2031	NATION FOR AN	Lead, molybdenum, zinc, copper				Occurrence	— See	LEAD
ADMIR 2406	Arie	DS WEST SA/55-10 Copper				Prospect	_ See	COPPER
	Prospect EA SB/56-5	molybdenum				Trospect	- 500	COTTER
5101	Kulu R Prospect	Copper, (molybdenum)				Prospect	— See	COPPER
5104	Pelapuna Prospect	Copper, (molybdenum)				Prospect	— See	COPPER
5105	Plesyumi (Metelen) Prospect	Copper, (zinc, lead, molybdenum, silver, gold)				Prospect	— See	COPPER
GAZEL	LE PENINSU	LA SB/56-2						
5306		Copper, (molybdenum, lead, zinc)				Occurrence	— See	COPPER
5309		Copper, molybdenum				Occurrence	— See	COPPER
		AND SOUTH SB/56-1	12				_	
6203	Panguna Mine	Copper, gold, (silver, molybdenum, zinc, lead)				Major deposit	— See	COPPER

Mineral-ization

Category

Company

Area

Lat/Long

1ethod f Vorking	Reserve <b>s</b>	Grade	Stratigraphy	Genesis	Principal References	Remarks
		Thin films on present- day beaches	Andesitic and basaltic volcanics and volcanolithic sediments of Oligocene Kieta Volcanics	Erosion of andesitic volcanics; concentrated by wave action	Thompson (1961)	
		Thin films on present- day beaches	Quaternary andesitic Taroka Volcanics	From unconsolidated pyroclasts of Mt Taroka volcano; concentrated by wave action	Thompson (1961)	
		Thin films on present- day beaches	Quaternary alluvium, coral	From unconsolidated andesitic pyroclasts of Mt Taroka volcano; concentrated by wave action	Thompson (1961)	Motupena Pt formed by long- shore drift from SE

Lat/Long	Reserves	Stratigraphy	Genesis	Principal References	Remarks
)5°38′ <b>S;</b> 144°34′E	Traces of molybdenite	Triassic Kana Volcanics intruded by Miocene intermediate porphyry	Strongly altered porphyry	Clema (1967)	Mineralization in altered quartz-feldspar rock

- -- RAMU SB/55-5
- RAMU SB/55-5
- ADMIRALTY ISLANDS WEST SA/55-10
- TALASEA SB/56-5
- TALASEA SB/56-5
- TALASEA SB/56-5
- GAZELLE PENINSULA SB/56-2
- GAZELLE PENINSULA SB/56-2
- BOUGAINVILLE ISLAND SOUTH SB/56-12

#### NICKEL

3520

Nickel

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Company	Area	Lat/Lon
VANII	MO SA/55	-11						
0101		Nickel, chromium		Beach sands	Occurrences		Vanimo	Several occurrences centred on 02°36′S; 141°05′
MAY	RIVER SB.	/54-3						
304		Nickel		Laterite	Occurrences	BHP - Hanna	Frieda R	04°40′S; 141°56′I
RAMU	SB/55-5							
2018	Marum Nickel Prospect	Nickel		Laterite	Prospect		N side Bismarck Ra	05°33′S 145°12′
WAU	SB/55-14							
2916	L Trist Nickel Prospect	Nickel		Laterite	Prospect	Minerals Expl	L Trist	07°29′S; 146°58′I
2947		Nickel		Silicate	Occurrences		Iwiri R	07°34′S 146°58′
SAT A	MAUA SB.	/55_15						
3402	MAUA SB. Koreppa Nickel Prospect	Nickel, chromium	Garnierite, chromite	Nickel silicates in fractures; alluvial chromite	Prospect		Waria Valley	07°57′S 147°15′
3404/ 3405		Copper, (nickel)			Occurrence		— See CO	PPER
3417		Nickel	Nickel silicates	Laterite	Occurrence	Placer Prospecting	Bovio Hill	07°45′S 147°02′I
3423		Nickel			Occurrence		Garaina	07°48′S; 147°05′J
BUNA	SC/55-3							147 03 1
3501	Kokoda Nickel Deposit	Nickel		Laterite	Prospect	Papuan Nickel Expl	Kokoda	08°49′S; 147°45′]
3519		Nickel			Occurrence		M. Waria Valley	08°01′S; 147°20′I
3520		Nickel			Oggurran		Ailrone Cine	00014/0

Occurrence

08°14′S; 147°35′I

Aikora-Gira

Method of					Principal	
Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
				Probably from basic and ultramafic rocks of Oenake Ra	Thompson (1953)	
		Up to 1.6% Ni	Ultramafics	Thin laterite on ultramatics	Company rep GSPNG	One area 455 km². Second area 630 km²
	Up to 85 million tons indicated	Up to 1.5% Ni	M. Miocene Marum Basic Belt	Laterite developed on ultramafic rocks of Marum Basic Belt	Metals Explora- tion (1968)	About 200 km <sup>2</sup> of iron laterite 10-20 m thick
Tested by hand augering. Prospect- ing in progress	Large low-grade deposit		Nickeliferous laterite overlies peridotite of Papuan Ultramafic Belt		Thompson (1962a)	
progress					Dow & Davies (1964)	Boulders in Iviri R
	1 112 000 tons of 0.86% Ni (Campbell, 1958)	0.30% at surface to 1.86% Ni 4-5 m down (Thomp- son, 1962)	Serpentinized peridotite of Papuan Ultramafic Belt		Campbell (1958); Thompson (1962a)	Nickel silicates in small landslips and test pits. Alluvial chromite in Zarau Cr
— SALAN	MAUA SB/55-15	1902)				
	12 million tons	Av 0.7% Ni	Dunite-serpentinite of Papuan Ultramafic Belt	Nickel-bearing mantle on ultramafics	Dow & Davies (1964)	Up to 3 m of nickel-bearing mantle on ultramatics
					Gibson (1957)	
Augering and test pitting. Prospect- ing in progress		Low-grade nickeli- ferous laterite. Peak values 1-2% Ni	Papuan Ultramafic Belt		Thompson (1962a)	Veinlets of green asbestos in serpentinized dunite in Kokoda area
		1-2/0 141			?Gibson (1957)	No details available
					?Gibson (1957)	No details available

#### NICKEL (Continued)

Index No.	Name	Com- modities	Minerals	Mineralization	Category	Company	Area	Lat/Long
3521		Nickel	Garnierite	Silicate	Occurrence		Kumusi R	08°58′S; 148°01′E
TUFI	SC/55-8							
3904	Wowo Gap Nickel Prospect	Nickel		Laterite	Prospect	Papuan Nickel Expl	Wowo Gap, Didana Ra	09°30′S; 148°34′E
3906	Doriri Cr Nickel Prospect	Nickel, (copper)	Nickeliferous pyrite, pentlandite, chalcopyrite	Sulphide-rich lenses; igneous	Prospect		U. Adau R. Owen Stanley Ra	09°51′S; 148°45′É
SAMA	ARAI SC/56	6-9						
4309		Nickel			Occurrence	Planet Mining	S of Sewa Bay, Normanby I	10°02′S; 151°00′E

Method of Working	Reserves	Grade	Stratigrap <b>h</b> y	Genesis	Principal References	Remarks
			Peridotite breccia slightly enriched in nickel		Woodhill (1968)	Breccia of limited areal extent
Prospecting in progress	Possible reserves 89 million tons oxidized ore, and 46 million tons unoxidized ore	Av 1.5% Ni; oxidized ore 1.3%; unoxidized ore 1.0-1.93%	Peridotite breccia of Papuan Ultramafic Belt	From weathering of peridotite and preserved by lateritic cover	Thompson (1968)	
Prospect- ing costeans	Two sulphide- rich lenses plus smaller lenses of nickel and copper mineralization	In costean av 2.43% Ni over 7.5 m	Sheared and hydrothermally altered peridotite lens in gabbro of Papuan Ultramafic Belt	Mineralization into shear zone	Klingner (1967); Thieme (1970)	Investigated by C.R.A. 1966 and INCO 1967-8
		1% Ni	Ultramafics		Company rep at GSPNG	

#### INDUSTRIAL MINERALS

Commodities

Minerals

TY	A 7	$\Gamma \cap$	N #	ITE.

Index No.

3623

3624

3625

3626

Walburn

Prospect

Skull

Prospect

Girabu

Prospect

Manganese

Manganese

Manganese

Manganese

Pyrolusite

Pyrolusite

Pyrolusite

2009	J <b>SB/55-5</b> Diat	omite	Diatomit	e Sedir	nentary	Occurrence		Baiyer R
OD A DI								
GRAPI Index No.	Name	Сотто	dities	Minerals	Mineralization	Catego	ory	Area
AITAP	PE SA/54-15			1				
0208		Graphite	e .	Graphite	Metamorphic	Occurr	ence	Green R
0216		Graphite	e	Graphite	Metamorphic	Occurr	rence	Torricelli Mts
<b>PORT</b> 3620	MORESBY SO Buckleys Graphite Prospect	C/ <b>55-7</b> Graphite	e (	Graphite	Metamorphic	Occurr	ence	Sogeri
MANG	ANESE							
Index	ANESE Name	Com- modities	Minerals	Mineral- ization	Category	Status	Area	Lat/Loi
Index No.		modities	Minerals		Category	Status	Area	Lat/Lor
Index No.	Name	modities	Minerals  Pyrolusite, psilomelane manganite	ization Sedimentary	Category  Minor deposit	Status  Past producer	Area Inset 3	09°47′S
Index No. PORT	Name  MORESBY SO Pandora	modities C/ <b>55-7</b>	Pyrolusite, psilomelane	ization Sedimentary	Minor	Past		09°47′S
Index No. PORT	Name  MORESBY SO Pandora	modities C/ <b>55-7</b>	Pyrolusite, psilomelane	ization Sedimentary	Minor	Past		Lat/Lon 09°47′S 147°34′

Mineralization

Category

Area

Sedimentary

Sedimentary

Sedimentary

Vein

Occurrence

Occurrence

Occurrence

Occurrence

Inset 3

Inset 3

Inset 3

Gaile

09°47′S;

147°34′E

09°47′S;

147°34′E

09°47′S;

147°34′E

09°41′S; 147°26′E

1 ...

Lat/Long	Stratigraphy	Genesis	Principal References	Remarks
05°33′S; 144°11′E	Quaternary lacustrine deposits	Accumulation of siliceous diatom remains	Bain (in press)	Diatomite several metres thick

Lat/Long	Reserves	Stratigraphy	Genesis	Principal References	Remarks
03°45′S; 141°11′E		Mesozoic graphitic schist	Metamorphism of organic material	A.A.P. (1970)	
03°45′S; 142°29′E		Mesozoic graphitic schist	Metamorphism of organic material	C.O.C. (1970)	
09°27′S; 147°35′E	18 tons	Shale and phyllite	Metamorphism of organic material	Ivanac (1959)	One main graphite lens; other minor occurrences along road

Production	Method of Working	Grade	Stratigraphy	Genesis	Principal References	Remarks
2200 tons exported 1939-1964 (includes small amounts from Doavagi	Under- ground and open cut	87% manganese dioxide; battery- grade ore	Lenses within chert of Eocene Port Moresby Beds	Precipitation from sea water	Edwards & Best (1952); Yates & de Ferranti (1967)	Ore hand-picked for export
Prospect) About 200 tons 1939- 1964, included in figures for Pandora	Under- ground		Chert facies of Eocene Port Moresby Beds	Precipitation from sea water	Edwards & Best (1952); Yates & de Ferranti (1967)	
Mine	Prospecting costeans	82% manganese dioxide (No. 2 costean)	Chert facies of Eocene Port Moresby Beds	Precipitation from sea water	Perry (1954)	Manganese lenses up to 6 x 3 m
			Chert facies of Eocene Port Moresby Beds	Precipitation from sea water	Yates & de Ferranti (1967)	Locality Yates & de Ferranti (1967, pl. 12)
	Prospecting costeans		Chert facies of Eocene Port Moresby Beds	Precipitation from sea water	Yates & de Ferranti (1967)	
			Chert facies of Eocene Port Moresby Beds	Precipitation from sea water; later mobilization into fractures	Yates & de Ferranti (1967)	Small veinlets of pyrolusite in fractured yellow chert

# MANGANESE (Continued)

Index No.	Name	Com- modities	Minerals	Mineral- ization	Category	Status	Area	Lat/Long
3627		Manganese		Sedimentary	Occurrence		Gebore Hill	09°24′S; 147°06′E
3628		Manganese	Pyrolusite	Sedimentary	Occurrence		Port Moresby airport	09°28′S; 147°15′E
TUFI S 3903	SC/55-8	Manganese	Pyrolusite	Vein; sedimentary nodules	Occurrence		C Vogel Pen	09°40′S; 149°51′E
SAMAI	RAI SC/56-9							
4305		Manganese			Occurrence		Alotau	10°18′S; 150°17′E
wood	LARK ISLAN	ND SC/56-6						
4411		Manganese	Manganese oxides	Vein	Occurrence		Inset 4	09°13′S; 152°47′E

### MERCURY

Index No.	Name	Commodities	Minerals	Mineralization	Category
MARKHAM	SB/55-10				
2828	•	Mercury	Cinnabar	Alluvial	Occurrence
WAU SB/55-	14				
2904	Enterprise Mine	Gold, silver, (mercury)			Minor deposit
2924		Gold, silver, (mercury)			Minor deposit
2936		Gold, silver, (mercury)			Occurrence

#### PHOSPHATE

Index Com- No. modities	Minerals	Mineral- ization	Category	Status	Area	Lat/Long	Production
WUVULU ISLA 0901 Phosphate	ND SA/54-8	Guano	Occurrence		Wuvulu I	01°43′S; 142°50′E	

Production	Method of Working	Grade	Stratigraphy	Gen <b>esis</b>	Principal References	Remarks
		Representative sample assayed 58.6% manganese dioxide	Chert facies of Eocene Port Moresby Beds	Precipitation from sea water	BMR Tech File PNG/SC/55-7	
			Shale and chert of Eocene Port Moresby Beds	Precipitation from sea water; some later mobilization into fractures	BMR Tech File PNG/SC/55-7	Clusters and bands of manganese nodules and small lenses in shale; fracture fillings
			Miocene clastic and volcanolithic sediments	Precipitation from sea water and some remobilization	Stanley (1916a); Fisher (1965)	Brecciated manganese-veined boulders and manganese nodules
			Quaternary sediments			
		Typical specimen 41.0% manganese	Tertiary Loluai Volcanics	Hydrothermal by late-phase volcanism	Trail (1967)	Vertical lode about 1 m wide

Area	Lat/Lo	ong	Stratigraphy	Genesis	Principal References	Remarks
Efontera Cr	06°15′′ 145°51 (appro	Έ	Mesozoic Bena Bena Formation and Pleistocene Kainantu Beds	Epithermal mineralization; source unknown	Dow & Plane (1965)	Cinnabar from stream gravels
— See GOLD	_	WAU S	SB/55-14			
— See GOLD	-	WAU	SB/55-14			
— See GOLD		WAU	SB/55-14			

Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
	Phosphate scattered over about 0.4 hectares		Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	

PHOSPHATE (Continued)

Index No.	Com- modities	Minerals	Mineral- izati <b>o</b> n	Category	Status	Area	Lat/Long	Production
0902	Phosphate		Guano	Minor deposit		Aua I	01°27′S; 143°03′E	
0903	Phosphate		Guano	Minor deposit		Manu I	01°18′S; 143°35′E	
NINI	GO SA/55-5							
	Phosphate		Guano	Minor deposit		Sae I	00°45′S; 145°17′E	
KARI	IMUI SB/55	-9						
2109	Phosphate		Sedi- mentary	Occurrence		Confluence Uru Cr and Pio R	06°43′S; 144°44′E	
ADM	IRALTY ISI	LANDS WEST	Γ SA/55-10					
2403	Phosphate		Guano	Minor deposit		N and S Bat Is	02°51′S; 146°15′S;	
2404	Phosphate		Guano	Occurrence	Past producer	Mole I	02°52′S; 146°27′E	Mole and Mouse Is: about 1000 tons 1890, minor production 1910
2405	Phosphate		Guano	Occurrence	Past producer	Mouse I	02°53′S; 146°24′E	Mouse and Mole Is: about 1000 tons 1890, minor production 1910
ADM	IRALTY ISI	LANDS EAST	SA/55-11					-,
2503	Phosphate		Guano	Occurrence		Alim I	02°53′S; 147°05′E	
2504	Phosphate		Guano	Minor deposit		Nauna I	02°11′S; 148°12′E	
	E SC/55-2 Phosphate	Phosphatic argillite	Sedi- mentary	Occurrence		Dilava R	08°41′S; 146°58′E	
	U SC/55-12 Phosphate		Sedi- mentary	Occurrence		Near Nigo Nigo R	10°20′S; 149°55′E	
woo	DLARK ISI	AND SC/56-	6					
4413	Phosphate		Guano	Minor deposit		Cannac I	09°19′S; 153°34′E	

Method of					Principal	
Working	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
	Phosphate over about 8 hectares; about 0.5 m thick		Phosphate-cemented coral sand interbedded with coral rock, sand, and mud	Solutions leaching bird guano	White & Warin (1964)	Sample pits pre-1914
	15 000 tons phosphatic sand; 11 000 tons phosphatic mud	Sand 26% P <sub>2</sub> O <sub>5</sub> ; mud 32% P <sub>2</sub> O <sub>5</sub>	Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	
	About 70 000 tons	23% P <sub>2</sub> O <sub>5</sub>	Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	
	Phosphatic beds 15 m thick	1.46 - 1.84% P <sub>2</sub> O <sub>5</sub>	Eocene glauconitic limestone and glauconitic grit	Sedimentary	Zimmerman & Battersby (1966)	No other markedly phosphatic beds noted
	Total for Bat Is 50 000 tons	$^{23 \; - \; 38\%}_{P_2O_5}$	Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	
Open cut	Worked out; up to 1000 tons stock- piled		Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	
Open cut	Worked out		Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	
			Phosphate-cemented coral sand	Solutions leaching bird guano	White & Warin (1964)	
	About 125 000 tons phosphatic clay and 15 000 tons phosphatic oolitic clay. Phosphate between limestone pillars	Phosphatic clay 16% $P_2O_5$ ; colitic clay 33% $P_2O_5$	Coral limestone	Solutions leaching bird guano	White & Warin (1964)	Largest deposit in Papua New Guinea
		$6.8\%$ $P_2O_5$ (1 sample)	U. Cretaceous-l. Miocene Auga Beds		Hohnen (1968)	
		6% P <sub>2</sub> O <sub>5</sub>	Thin Eocene glauconitic phosphorite beds	Sedimentary	File GSPNG	
	About 8000 tons; about 0.8 hectares; 1 m thick	Av of 3 analyses 39% P <sub>2</sub> O <sub>5</sub>	Phosphatized slate and basic volcanics	Solutions leaching bird guano	Stanley (1917); White & Warin (1964)	

Index		ontinued)							
No.	Com- modities	Minerals	Mineral- ization	Category	Status		Area	Lat/Long	Production
ROSS	EL SC/56-15	5 .							
	Phosphate	Phosphatic limestone	Sedi- mentary	Occurrence			Manuga R	fs 11°00′S; 153°22′E	
	Phosphate	<b>6-9</b>	Guano	Minor deposit			Kaut Cave	s 02°46S'; 150°53'E	
PUM!	ICE								
Index No.		es Miner	als	Mineralizatio	n	Catego	ry	Area	Lat/Long
FERG 4207	GUSSON ISI Pumice	AND SC/56-	5	Volcanic		Minor	deposit	Mt Oiau	09°42′S; 150°50′I
4208	Pumice			Volcanic		Minor	deposit	Dobu I	09°46′S; 150°51′I
		NSULA SB/56		17:1::::::::::::::::::::::::::::::::::		<b>N</b> #		Material and large	04915/5
5307	Pumice, (sulphu		ur	Volcanic and solfataric		MINOF	deposit	Matupi volcano	04°15′S; 152°11′ <b>I</b>
5313	Pumice			Volcanic		Minor	deposit'	Vulcan volcano	04°16′S; 152°09′E
SULP: Index									
No.	moditie			Mineralization	n	Catego	ry .	Area	Lat/Long
FERG 4203	SUSSON ISL Sulphur	AND SC/56-5 Sulphi		Solfataric		Minor	deposits	Iamelele	09°31′S; 150°31′E
	SEA SB/56-			0-16-4		0		D I	050407
5103	Sulphur	Sulphu	II.	Solfataric		Occurr	енсе	Bamus volcano	05°10′S; 151°15′E

Occurrence

Mt Krummel

Solfataric

05°26′S; 150°01′E

5106

Sulphur

Sulphur

Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
		$^{15.4\%}_{\rm P_2O_5}$			File GSPNG	
	5000 - 10 000 tons	14 - 43% P <sub>2</sub> O <sub>5</sub>	Quaternary raised coral limestone	Bat guano	Hutchinson (1941)	Bat guano accumulated in caves

Reserves	Grade	Stratigraphy	Genesis	Principal References
At least 7.5 million m <sup>3</sup>	Dust to 15 cm fragments; 50% by volume greater than 0.6 cm	Quaternary volcanics	Highly vesicular lava formed by rapid escape of gas during cooling	Davies & Ives (1965)
		Quaternary volcanics	Highly vesicular lava formed by rapid escape of gas during cooling	Davies & Ives (1965)
Large quantities pumice, about 50 tons sulphur	Sulphur up to 95% pure	Quaternary pumiceous ash and minor lava	Pumice: highly vesicular lava formed by rapid escape of gas during cooling; sulphur: volcanic exhalations	BMR Tech File PNG SB/56-2
Large		Quaternary pumiceous ash and minor lava	Highly vesicular lava formed by rapid escape of gas during cooling	BMR Tech File PNG SB/56-2

Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
1000 tons clean sulphur, 3000 tons contamin- ated sulphur; 1.5 m deep; approx 4 hectares	Surface: 86% sulphur, 12-13% silica; subsurface varies 16 - 46.5% sulphur, 47 - 74% silica	Quaternary volcanics	Deposition from active solfataric vents	Davies & Ives (1962)	Clean sulphur could be hand-picked and shipped without treatment. High concentration of sulphuric acid in some streams
Few hundred tons reported 1937; only minor amount 1969		Quaternary volcanics	Volcanic exhalations	Johnson (1971)	Sulphur of 1937 assumed removed by erosion
Several small deposits, largest about 2000 tons	Pure crystalline sulphur	Quaternary volcanics	Volcanic exhalations	Placer (1968)	

### SULPHUR (Continued)

Index No.	Com- modities	Minerals	Mineralization	Category	Area	Lat/Long
5107	Sulphur	Sulphur	Solfataric	Minor deposit	Pago volcano	05°35′S; 150°30′E
5108	Sulphur	Sulphur	Solfataric	Occurrence	Mt Garbuna	05°25′S; 150°01′E
5109	Sulphur	Sulphur	Solfataric	Occurrence	Pangalu volcano	05°15′S; 150°02′E
GAZELI	LE PENINSUI	LA SB/56-2				
5307	Pumice, (sulphur)			Minor deposit		See PUMICE
5308	Sulphur	Sulphur	Solfataric	Occurrence	Lolobau I	04°56′S; 151°09′E

Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
About 4000 tons	About 80% pure	Quaternary volcanics	Volcanic exhalations	Fisher (1942a)	
About 1100 tons	Pure sulphur	Quaternary New Britain Volcanics	Volcanic exhalations	Fisher (1942a)	
Few hundred tons		Quaternary volcanics	Volcanic exhalations	Fisher (1950)	
GAZELLE PENI	INSULA SB/56-2				
About 1000 tons	•	Quaternary volcanics	Volcanic exhalations	Fisher (1950)	

# **FUEL MINERALS**

# PETROLEUM

Index No. Nam	. Com- e modities	Туре	Category	Status :	Company	Area	Lat/Long
AITAPE SA	A/54-15						
0204	Gas	Seepage				Torricelli Mts	03°15′S; 142°04′E
0205	Gas	Seepage				Torricelli Mts	03°32′S; 142°16′E
0213	Gas	Seepage				Torricelli Mts	03°33′S; 142°26′E
0218	Gas	Seepage				Bewani Mts	03°06′S; 141°24′E
0220	Gas	Seepage				Bewani Mts	03°04′S; 141°32′F
BLUCHER	RANGE SB/54-7	-					
0402	Oil	Impreg- nations				Victor Emanuel Ra	05°19′S; 141°21′E
0403	Oil	Seepage				Telefomin	05°04′S; 141°36′E
0405	Gas, (oil)	Seepage, impreg- nation				Palmer - Black Rs confluence	05°46′S; 141°41′E
0406	Oil	Impreg- nation				Strickland R	05°52′S; 142°09′E
0407	Oil	Seepage	•			N of L Kopiago	05°15′S; 142°30′E
0408	Gas	Seepage				L Kopiago airstrip	05°19′S; 142°27′E
0409	Gas	Seepage				Strickland R	05°18′S; 142°18′E
0410	. Oil	Seepage				SW of Oksapmin	05°18′S; 142°07′E
0411	Gas	Seepage				Victor Emanuel Ra	05°08′S; 142°06′E
0412	Gas	Seepage				Telefomin	05°00′S; 141°40′E
0413	Oil	Seepages				Ok Tedi	05°19′S; 141°10′E
0414	Oil	Seepage				Ok Tedi	05°13′S; 141°11′E
RAGGI SB	54-11						
0501 Cecil No.		Well	New field wildcat — dry	Plugged and abandoned	Texaco - Calasiatic - Australas Petrol	Cecilia - Nomad Rs	06°06′S; 142°25′E
	RRAY SB/54-15						
0601 Aram No. :		Well	New field wildcat — dry (minor dissolved gas shows)	Plugged and abandoned	Island Expl	Aramia R	07°50′S; 142°18′E

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
			Dry Gas		A.A.P. (1970)	
					A.A.P. (1970)	
				U. Miocene sandy	C.O.C. (1970)	
				mudstone	C.O.C. (1970)	
					C.O.C. (1970)	
				Cretaceous sandstone, m. Miocene clastic beds	A.P.C. (1961)	
				Jurassic shale and mudstone	A.P.C. (1961)	
			Gas: 85% methane, no higher hydro- carbons	L. Miocene detrital limestone; Mesozoic sediments	A.P.C. (1961)	Gas in Miocene rocks; traces of oil in Mesozoic rocks
			Light volatile kerosene-like oil	Pliocene sandstone on N flank Cecilia Anticline	A.P.C. (1961)	Where Strickland R cuts Cecilia Anticline
				Cretaceous sediments, anticlinal structure	Jenkins (1972)	
				Cretaceous sediments, anticlinal structure	Jenkins (1972)	Two large gas seepages close together
				Limestone thrust blocks	Jenkins (1972)	Gas seepage from beneath limestone block
				Oligocene-Miocene sediments	Jenkins (1972)	Oil seepage reported
				Cretaceous sediments	Davies & Norvick (in press)	
				Jurassic sediments	Davies & Norvick (in press)	
				Oligocene-Miocene sediments	Davies & Nor- vick (in press)	
				Pliocene sediments	Davies & Norvick (in press)	
April - July 1971	12 355			Base of Miocene limestone at 4380 ft.	Australas Oil Gas Rev Sept 1971	
1955	Interval tested 6260 - 6302		63% methane, 1.8% ethane, 0.3% propane, 33% nitrogen, 1.7% helium, 0.3% carbon dioxide	Mesozoic (Jurassic)	Konecki & Blair (1970)	. :

# PETROLEUM (Continued)

Index No.	Name	Com- modities	Type	Category	Status	Company	Area	Lat/Long
	DIVED SC/5	1 2						
0701	RIVER SC/54 Morehead No. 1	<del></del>	Well	New field wildcat — dry (minor dissolved gas shows)	Plugged and abandoned	Island Expl	Morehead	08°42′S; 141°29′E
WEW	AK SA/54-16	i						
1005		Gas	Seepage				Coastal area	03°21′S; 142°59′F
1010		Gas, (oil)	Seepage				Coast SE of Wewak	03°38′S; 143°49′I
1012 -		Gas	Seepage				S side Torricelli Mts	03°41′S; 142°31′F
<b>WAB</b> 1210	AG SB/54-8	Gas	Seepages				Waga R	05°55′S; 143°20′I
1211		Oil	Seepage				Muller Ra	05°46′S; 142°36′F
1212		Gas	Seepage				Laiagam- Wabag	05°28′S; 143°36′E
	E KUTUBU S		6				II For	0602615
1303		Oil	Seepage				U. Erave drainage	06°26′S; 143°30′E
1304		Oil, gas	Seepages				Wage R	06°08′S; 143°22′E
1305		Oil, gas	Seepages				Nipa	06°07′S; 143°28′E
1306		Gas	Seepage				Nipa	06°13′S; 143°27′E
1307		Gas	Seepage				Near Lai - Erave Rs	06°18′S; 143°37′E
1308		Oil, gas	Seepages				confluence 32 km SE of Mendi	06°22′S; 143°53′E

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
				Drilled from Pliocene through Mesozoic to decomposed granitic basement	A.P.C. (1961)	Slight shows dissolved gas 7277-7293 and 7304-7691 ft (Mesozoic)
				Miocene sediments	A.A.P. (1970)	
				Miocene sediments	A.A.P. (1970)	
				Pliocene sediments of Bongos Anticline	C.O.C. (1970)	Seepage at W end anticline
			Methane 78-84%, ethane 0.1-0.3%, nitrogen 14-21%	Tertiary sediments	Jenkins et al. (1969)	Two fairly vigorous seepages
			S.G. 0.951; sulphur 0.12%	Believed associated with Cretaceous siltstone; crest of faulted Lavani structure	A.P.C. (1961)	
			Gas contains methane		MacKay (1952)	Minor amounts of gas
			Paraffinic	Calcareous rocks continuous with Mubi Anticline	Jenkins et al. (1969)	
			Oil: paraffinic; S.G. 0.951, 0.28% sulphur. Gas: 73% methane, 1.4% ethane	?Miocene Orubadi Formation close to contact with Miocene Darai Limestone. Thrust fault nearby	Jenkins et al. (1969); A.P.C. (1961)	A.P.C. (1961) report gas in area
			Gas: 0.11% methane, 82% nitrogen, 18% oxygen. Light gas oil	Paleocene and Cretaceous sediments in core of complex faulted anticlinal structure	Jenkins et al. (1969)	
			94% methane, 2.2% ethane; sulphurous smell	U. Miocene mudstone bounded by thrust to E and overlain by limestone to W Located on fault	Jenkins et al. (1969)  Jenkins et al. (1969)	Vigorous gas seepages from several pools. Gas probably migrated along thrust plane Locality in Jenkins et al. (1969, pl. XXIX)
			Oil: very light; S.G. 0.773, sulphur 0.08%	Oil from sheared Cretaceous mudstone faulted against Eocene or basal Miocene	A.P.C. (1961); Jenkins et al. (1969)	Several oil seepages. Gas reported same general area by Jenkins et al. (1969)

#### PETROLEUM (Continued)

Index No.	: Name	Com- modities	Туре	Category	Status	Company	Area	Lat/Long
1309		Oil, gas	Seepages				About 30 km SE of Mendi	06°24′S; 143°55′E
1310		Oil, gas	Seepages				Erave R	06°28′S; 143°50′E
1311		Oil	Seepage				SE end of L Kutubu	06°29′S; 143°22′E
1312		Oil	Seepage				About 30 km SE of Mendi	06°21′S; 143°51′E
1313		Oil	Seepages				Erave R	06°38′S; 143°50′E
1314		Oil	Seepages				Erave R	06°39′S; 143°57′E
1315	Iehi No. 1	Gas	Well	New field discovery	Plugged and abandoned	Australas Petroleum	M. Kikori R	06°57′S; 143°52′E
1316	Mananda No. 1		Well	New field wildcat — dry	Plugged and abandoned	A.P.C Oil Search - B.P. - Mobil	N of Mt Bosavi	06°10′S; 142°49′E
	RRA RIVER		*** #	N. 0.11	70			0.00.00.00
1401	Barikewa No. 1	Gas	Well	New field discovery	Plugged and abandoned	Island Expl	M. Kikori R	07°07′S; 143°51′E
1402	Komewu No. 1		Well	New field wildcat — dry	Plugged and abandoned	Island Expl	Bamu (Guavi) R	07°16′S; 143°05′E
1403	Komewu No. 2		Well	New field wildcat — dry (very minor gas shows)	Plugged and abandoned	Island Expl	Bamu (Guavi) R	07°17′S; 143°04′E

Date Drilled	Total Depth (ft)	Producti <b>on</b>	Grade	Stratigraphy	Principal References	Remarks
			Oil: heavy, brown, S.G. 0.952; no wax or asphalt	Sheared Cretaceous mudstone faulted against m. Miocene limestone.	A.P.C. (1961); Jenkins et al. (1969)	Oil from several seepages along Pauopi Fault. Gas seepages reported by Jenkins et al. (1969) same area
			Oil: light and colourless to viscous and brown	Seepages from fractured Cretaceous mudstone near Tibitomi and Mugiri faults	A.P.C. (1961)	About 12 oil seepages, some with gas
			S.G. 0.977, sulphur 0.35%	Tege Syncline; m. and u. Miocene sediments	A.P.C. (1961)	Collects in dug trench
				Cretaceous Pangia Group	Jenkins et al. (1969)	
					A.P.C. (1961)	
			Heavy brown oil, aromatic smell	Near major fault, l. Miocene limestone uplifted against u. Miocene mudstone	A.P.C. (1961)	Oil globules from small springs
1960	10 042	32.6 MMCF/D (4722-4835 ft). Pressure declined during test	Dry gas	Gas from L. Cretaceous. Exposed Miocene limestone, Cretaceous clastic sediments at 2400 ft., bottomed in Jurassic sediments	A.P.C. (1961)	Significant gas discovery. Iehi Anticline
Sept Dec. 1971	9200			Tertiary and Cretaceous sediments of Mananda Anticline	Australas Oil Gas Rev, Jan 1972	Anticline thrust- faulted and Miocene Darai limestone repeated in well
May - June 1958	13 890	Est open-flow production capacity: 18 MMCF/D from 5468-5488 ft.; 90 MMCF/D from 5997-6015 ft.	Dry gas, 1% higher hydrocarbons, 17-20% nitrogen	Gas from L. Cretaceous. Drilled from exposed Miocene limestone into Cretaceous and Jurassic rocks	A.P.C. (1961)	Drilled broad Barikewa Anticline to test thick Mesozoic sequence beneath Tertiary limestone proved in Omati Nos. 1 & 2. Significant gas discovery
1958				Drilled from Pliocene through Mesozoic to weathered granitic basement (dacite)	A.P.C. (1961)	
May 1958	About 10 000		9756-9810 ft dry gas dissolved in brine. 75% methane, 0.8% ethane, 0.2% propane, 23% nitrogen, 0.4% helium	Drilled from Pliocene through Mesozoic to weathered granitic basement	A.P.C. (1961); Konecki & Blair (1970)	Gas where Mesozoic rocks rest on weathered basement. Komewu Nos. 1 & 2 separated by Komewu Fault

Index		Com-						
No.	Name	modities	Type	Category	Status	Company	Area	Lat/Long
1404	Omati Nos. 1 & 2		Well	New field wildcat — minor gas show in No. 1	Plugged and abandoned	Island Expl	Omati R	07°26′S; 143°56′E
KIW	AI SC/54-4							
1503	Iamara No. 1		Well	New field wildcat — dry	Plugged and abandoned	Oriomo Oil	Fly R	08°26′S; 142°56′E
1504	Magobu No. 1		Well	New field wildcat — dry	Plugged and abandoned	Endeavour - Interstate - Island Expl	Magobu I	08°32′S; 143°16′E
1505	Mutare No. 1		Well	New field wildcat — dry	Plugged and abandoned	Oriomo Oil	NNW from Daru	08°36′S; 142°48′E
1506	Wuroi No. 1		Well	New field wildcat — dry	Plugged and abandoned	Oil Search	Oriomo R	08°50′S 143°02′E
1507	Maremosab No. 1		Well	New field wildcat — dry	Plugged and abandoned	Oriomo Oil	NW from Daru	08°55′S; 143°03′E
1508	Wohomul Nos. 1 & 2		Well	New field wildcat — dry	Plugged and abandoned	Oriomo Oil	NW from Daru	08°57′S; 143°05′E
	K SA/55-13	-						
1801		Gas	Seepage				Coast W of Sepik R	03°53′S; 144°11′E
1802	Ormildah No. 1		Well	New field wildcat — dry	Plugged and abandoned	Ormildah Oil Devel	Marienburg	03°56′S; 144°14′E
RAM	U SB/55-5							
2010		Gas	Seepages				N side Ramu Valley	From 05°16′S; 145°04′E to 05°25′S; 145°30′E
KARI 2103	MUI SB/55-9	Oil	Seepage				N side Mt Murray	06°43′S; 144°09′E
2104	Domo Seepages	Oil	Seepages				N side Mt Murray	06°47′S; 144°11′E
2105		Gas	Seepage				Uu Cr	07°00′S; 145°10′E
2106		Gas	Seepages				Purari R	06°54′S; 144°49′E
2107		Gas	Seepage				Purari R	06°54′S; 144°52′E

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
1955	No. 1, 14 352; No. 2, 10 880	10 MCF/D gas, rate subsequently declined; gas produced very minor condensate	86% methane, 8.2% ethane, 3.7% propane, 1.4% butane, 0.4% pentane, 0.8% nitrogen	Thick Tertiary limestone overlying Cretaceous fine- grained clastic sediments and Jurassic sandstone	A.P.C. (1961)	No. 1 gas show in Jurassic sandstone at 13 470 ft. No. 2 well drilled 3 km W of No. 1 and abandoned when gas in No. 1 proved non-commercial
Nov Dec. 1970	8644				Australas Oil Gas Rev, Feb 1971	
Sept Nov. 1964	4249				Henry & Jeffery (1965)	Minor oil show at 175 ft in Wonia geological test bore (APOC, 1930); possibly near Wuroi No. 1
1928	1560			Miocene 'Oriomo Limestone' over- lying granite	A.P.O.C. (1930)	
No. 1 1925; No. 2 1928	No. 1, 1260; No. 2, 1320			Miocene 'Oriomo Limestone'	A.P.O.C. (1930)	No. 1 minor bitumen 771-776 ft; paraffin-wax 1260 ft
					A.A.P. (1970)	
1928	2705				Australas Oil Gas J, Vol 1, 1954-55	Minor gas and trace oil at several levels
				Pliocene sediments	C.O.C. (1969)	Several seepages
			Yellow medium- gravity oil	Cretaceous (Ceno- manian) sandstone of Kerabi Anticline	A.P.C. (1961)	Oil rises along joint planes
			Light green, free of wax and asphalt; S.G. 0.891	Cretaceous (Cenomanian) sandstone	A.P.C. (1961)	
			82% methane, 8% higher hydrocarbons, 10% inerts	L. Miocene limestone	A.P.C. (1961)	Limestone smells of paraffin. Strong gas seepage from limestone joints and talus
			14% higher hydrocarbons	Miocene mudstone, N flank Pide Syncline	A.P.C. (1961)	Two large seepages. Gas similar to Bwata seepages (2214)
			5% higher hydrocarbons	Miocene mudstone N. flank Pide Syncline	A.P.C. (1961)	Small vents scattered over 100 m <sup>2</sup>

### PETROLEUM (Continued)

Index No.	Name	Com- modities	Type	Category	Status	Company	Area	Lat/Long
2108		Gas	Seepage				M. Purari R	06°56′S; 145°03′E
2110		Gas	Seepage				MacGregor Peaks	06°47′S; 144°43′E
KIKC	ORI SB/55-13						r cans	111 13 2
2210		Gas	Seepages				Mina R	07°16′S; 144°33′E
2211		Gas	Seepage				Sire R	07°12′S; 144°26′E
2212		Gas	Seepage				Sirebi R	07°05′S; 144°25′E
2213	Puri No. 1	Oil, gas	Well	New field discovery	Plugged and abandoned	Australas Petrol	Era R	07°07′S; 144°54′E
2214		Gas	Seepages				Pide R	07°01′S; 144°48′E
215		Oil	Impreg- nation /Seepage				M. Vailala R	07°36′S; 145°26′E
216		Gas, (oil)	Seepages				Coast, 1. Vailala R	07°56′S; 145°24′E
217		Gas	Seepages				Coast W of Vailala R	07°50′S; 145°19′E
218		Gas, (oil)	Seepages	·			Coast E of Vailala R	07°54′S; 145°28′E
219		Oil	Seepages				L. Vailala	07°50′S;
220		Gas	Seepages				R L. Purari	145°28′E 07°45′S;
221		Gas	Seepage				- Vailala Rs L. Purari	145°22′E 07°46′S;
222		Oil	Seepage				- Vailala Rs Ebala	145°16′E 07°32′S;
223		Gas	Seepage				Sa-ori Cr	145°15′E 07°17′S;
224	-	Gas	Seepages				Era -	145°15′E 07°07′S;
225		Gas	Seepages				Purari Rs Purari R	145°07′E 07°29′S; 145°25′E

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
				Faulted I. and m. Miocene sediments	A.P.C. (1961)	Locality in A.P.C. (1961, pl 1)
				Paleogene sediments	A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
			17% higher hydrocarbons	U. Miocene	A.P.C. (1961)	
			-	Toi Anticline, u. Miocene	A.P.C. (1961)	
				Kuru Anticline, u. Miocene	A.P.C. (1961)	
1958	10 100	Gas: max. 8 MMCF/D; oil: max. 1600 BBL/D. Rates rapidly declined-final test 330 MCF/D gas, plus trace of oil	Gas: 82-86% methane	Production from 1. Miocene limestone beneath thrust fault. Puri Anticline	A.P.C. (1961)	Several oil and gas seepages in u. Miocene mudstone on Puri Anticline
			11-18% higher hydrocarbons	Bwata Anticline, u. Miocene mudstone	A.P.C. (1961)	Near site of Bwata No. 1 well. 18% ethane is highest value recorded for Papuan gas
				M. Miocene grey- wacke and sandstone; steep S flank Pemani Anticline		Oil impregnation and globules of oil in small creek
			Gas: 86% hydrocarbons of which 5% higher hydrocarbons	U. Miocene mudstone; SE end of faulted Aro Aro structure	A.P.C. (1961)	20 gas blows with minor saline water and traces of oil
				U. Miocene mudstone on narrow crestal strip of Hohoro Anticline	A.P.C. (1961)	
				U. Miocene sediments	A.P.C. (1961)	Gas blows from muddy springs; traces of oil reported
				U. Miocene sediments	A.P.C. (1961)	•
				M. and l. Miocene sediments	A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
				M. and l. Miocene sediments	A.P.C. (1961)	
				U. Miocene sediments	A.P.C. (1961)	
				U. Miocene sediments	A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
				U. Miocene sediments	A.P.C. (1961)	
				Pliocene sediments	A.P.C. (1961)	

Index No.	Name	Com- modities	Type	Category	Status	Company	Area	Lat/Long
2226	Bwata No. 1	Gas conden- sate	Well	New field discovery	Plugged	Australas Petrol	Pide R	07°01′S; 144°50′I
2227	Sireru No. 1		Well	New field wildcat — dry	Plugged and abandoned	Australas Petrol	Sireru R	07°01′S; 144°26′E
2228	Kuru Nos. 1, 2 & 3	Gas .	Well	New field discovery	Plugged and abandoned	Australas Petrol	Kuru Cr	07°07′S; 144°28′E
2229	Muabu No. 1		Well	New field wildcat — dry	Plugged and abandoned	Oil Search	L. Era R	07°23′S; 144°40′E
2230	Wana No. 1	Minor gas	Well	New field wildcat — dry	Plugged and abandoned	Australas Petrol	Era R estuary	07°30′S; 144°44′E
2231	Iviri No. 1		Well	New field wildcat — dry	Plugged and abandoned	Australas Petrol	Deception Bay	07°36′S; 144°46′E
2232	Ini No. 1		Well	New field wildcat — dry	Plugged and abandoned	Esso Expl Production Aust	Ini I	07°37′S; 144°44′E
2233	Uramu Nos. 1 & 1A	Gas conden- sate	Well	New field discovery	Plugged and abandoned	Phillips Aust Oil	Deception Bay	07°48′S; 144°42′E
			•					
2234	Kariava No. 1	Minor gas	Well	New field wildcat — minor gas	Plugged and abandoned	Australas Petrol	U. Vailala R	07°25′S; 144°29′E
2235	Upoia No. 1		Well	New field wildcat — minor gas shows	Plugged and abandoned	Australas Petrol	L. Vailala R	07°46′S; 145°29′E

Date Drilled	Total Depth (ft)	Grade	Production	Stratigraphy	Principal References	Remarks
1960	7302	MMCF/D open-flow capacity, 4750-5266 ft; 0.23 gall. condensate per MCF gas	90% methane, 10% higher hydrocarbons	U. Miocene sandstone on I. Miocene limestone	A.P.C. (1961)	Minor gas in u. Miocene sandstone at 3207-3238 ft. Significant gas discovery. Gas seepages (2214) near well
1957	Unknown		87% methane, 2.3% ethane, 10% nitrogen, 0.1% carbon- dioxide	Miocene limestone	Konecki & Blair (1970)	Minor gas in water at 726-778 ft
1956	No. 1 about 1000; No. 3 about 8900	Gas blowout of No. 1 50-100 MMCF/D (est.); minor gas shows in Nos. 2 & 3	No. 1: 72% methane, 8% ethane, etc., 7% carbondioxide, 15% inert; No. 3: 69% methane, 4% ethane, etc., 10% carbondioxide, 16% nitrogen	Kuru Anticline, u. Miocene mudstone above l. to m. Miocene limestone	A.P.C. (1961)	No. 1 gas blowout on entering m. Miocene limestone
March - June 1967	12 029		-	Eocene	Pet Tech Sec (1969)	Minor gas in water 8221-8370 ft
	Plus 9300	6.5 MCF/D gas and 18 000 BBL/D brine from Eocene limestone	7-20% higher hydrocarbons	U. Miocene mud- stone on l. Miocene limestone and Eocene limestone	A.P.C. (1961)	Minor gas shows at 5400 ft (u. Miocene), 8600 ft (l. Miocene), and 9300 ft (Eocene)
July - Nov. 1965	12 015				Pet Tech Sec (1966)	
July - Oct. 1968	8970				Pet Tech Sec (1970a)	
No. 1 Nov Dec. 1967; No. 1A (redrill No. 1) Jan March 1968	No. 1, 6432; No. 1A, 10 106	No. 1 gas blowout; No. 1A 19.35 MMCF/D from 6143-6433 ft	93% methane, 2% ethane	L. Miocene reef formation	Konecki & Blair (1970); Pet Tech Sec (1970a,b)	Offshore. Significant gas discovery
1941	12 621	24 MCF/D gas; 32 000 gall. saline water/day	99-100% methane, trace higher hydrocarbons. Dry gas	M. and l. Miocene greywacke and mud- stone of Kariava Anticline	A.P.C. (1961); Konecki & Blair (1970)	Flow of gas and water attributed to fracture permeability
1950s	5356			M. and u. Miocene mudstone and greywacke	A.P.C. (1961)	Five shallow wells drilled by A.P.O.C. 1920-1929, deepest 2707 ft; all abandoned because of technical difficulties. All met shows of gas; light oil also obtained

PETROLEUM (Continued)								
Index No.	Name	Com- modities	Туре	Category	Status	Company	Area	Lat/Long
2236	Hohoro Nos. 1 & 2		Wells	New field wildcat — dry	Plugged and abandoned	Australas Petrol	Coast W of Vailala R mouth	07°52′S; 145°22′E
2237	Ipigo No. 1		Well	New field wildcat — dry	Plugged and abandoned	Australas Petrol	Between Pie and Era Rs	07°19′S; 144°53′E
2238	Rarako Cr No. 1		Well	New field wildcat — dry	Plugged and abandoned	Nakoro Petrol	Vailala R	07°38′S; 144°24′E
WAU	SB/55-14							
2937		Gas, oil	Seepage and impreg- nations				Vailala R	07°30′ <b>S</b> ; 145°31′E
-								
2938		Gas, oil	Seepages and impreg-				U. Vailala R	07°39′S; 145°41′E
2939		Oil, gas	nations Seepages				Uaba Hills	07°41′S; 145°33′E
2940		Gas, oil	Seepages and impreg- nations				Evori Cr, Vailala R	07°48′S; 145°33′E
2941		Gas	Seepages				Evori Cr/ Heva Cr, Vailala R	07°50′S; 145°36′E
2942		Gas	Seepage				Inland from Kerema	07°52′S; 145°41′E
2943	,	Gas	Seepage				Bay L. Vailala	07°52′S;
2944		Gas, oil	Seepages				R Kerema	145°32′E 07°55′S; 145°40′E
2945	Upoia	Oil, gas	Seepages				Upoia	07°44′S; 145°31′E

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
1951	No. 1, 4721; No. 2, 10 642	Brackish water and small quantities of dry gas	95% methane, 5% nitrogen	Miocene sediments forming Hohoro Anticline	A.P.C. (1961); Konecki & Blair (1970)	Show of gas and oil in well put down to 1517 ft New Guinea Oil Co Ltd in 1926 on Hohoro Anticline
1970 Feb	9252 10 015				Australas Oil Gas Rev, Aug 1970 Pet Tech Sec (1969)	
July 1967					(1909)	
			Gas: 92% methane, 1.8% carbon dioxide, 6% inert, 0.3% oxygen. Oil: S.G. 0.965 distillate similar to diesel fuel oil	M. Miocene alternating greywacke and mudstone of Aure facies. Ivori Junction Anticline	A.P.C. (1961)	Strong gas seepage and saline water in steep crustal zone of anticline. Oil impregnations along crest. Oil film associated with gas seepage but gas itself is dry
				M. and l. Miocene. Dude Anticline	A.P.C. (1961)	
			Gas: mainly hydrocarbons, 3% higher hydrocarbons Oil: S.G. 0.974, no light fractions, boils below 240°C	M. Miocene mudstone and greywacke. Napeare Anticline	A.P.C. (1961)	Globules of oil brought up by small spring; gas from nearby vents
			Gas. 1-10% higher hydrocarbons	M. Miocene calcareous sandstone and sandy limestone. Iavokia Anticline	A.P.C. (1961)	Gas vents at several localities on faulted crest of anticline. Oil impregnations in fault. Globules of oil where Evori Cr crosses faulted crest
			1-10% higher hydrocarbons	M. Miocene	A.P.C. (1961)	Gas seepages at SE end of Iavokia Anticline
			nyaroomoono	M. and l. Miocene	A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
				Alluvium	A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
		Samples mainly hydrocarbons, 1-2% higher hydrocarbons	Anticline. M. Miocene mudstone	A.P.C. (1961)	Disturbed anticlinal structure; geology variously interpreted	
		Pale yellow to light brown oil; heavy, no light fractions		A.P.C. (1961)	Small amounts of oil and gas associated with saline springs. Search for oil in Papua dates from identification by Carne in 1912 of oil seepage at Upoia	

PETROLEUM (Continued)

Index No.	Name	Com- modities	Туре	Category	Status	Company	Area	Lat/Long
2946		Gas	Seepage				Lohiki R, Vailala R	07°43′S; 145°42′E
YULI	E SC/55-2							
3001	Tovala Nos. 1 & 1A		Well	New field wildcat — dry	Plugged and abandoned	Basin Oil	Malalaua, l. Tauri R	08°04′S; 146°09′E
3003		Gas	Seepages				Inland from Freshwater Bay	08°03′S; 146°02′E
3004		Gas	Seepage	•			Freshwater Bay	08°02′S; 145°55′E
3005		Oil	Seepage				Freshwater Bay	08°02′S; 145°53′E
3006		Gas	Seepages				Freshwater Bay	08°01′S; 145°50′E
3007		Gas	Seepages				Kapuri R	08°12′S; 146°18′E
3008	Kapuri No. 1		Well	New field wildcat — dry	Plugged and abandoned	Phillips Aust Oil	Gulf of Papua	08°18′S; 146°08′E
3009	Iokea No. 1		Well	New field wildcat — dry	Plugged and abandoned	Phillips Aust Oil	Gulf of Papua	08°23′S; 146°12′E
3010	Maiva No. 1		Well	New field wildcat — dry	Plugged and abandoned	Phillips Aust Oil	Gulf of Papua	08°27′S; 146°06′E
3011		Gas	Seepages				Biaru R	08°25′S; 146°20′E
3012	Oroi No. 1	Gas	Well	New field wildcat — minor gas show	Plugged and abandoned	Australas Petrol	Near C Suckling	08°58′S; 146°36′E
AROA	A SB/55-6							
	Kaufana No. 1 SC/55-8		Well	New field wildcat — dry	Plugged and abandoned		L. Aroa - Kubuna Rs	09°01′S; 146°48′E
	Kukuia Nos. 1, 2 & 3		Well	New field wildcat — dry		Vogel (Papuan) Petrol	C Vogel Pen	09°41′S; 149°46′E
	F SC/55-1 Orokolo		Well	New field	Plugged and	Phillips Aust	Gulf of	08°04′S;
	F SC/55-1 Orokolo No. 1		Well	New field wildcat — dry	Plugged and abandoned	Phillips Oil	Aust	Aust Gulf of Papua

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
				M. and l. Miocene	A.P.C. (1961)	Location in A.P.C. (1961, pl. 1). Seepage SSE along crest of Dude Anticline from 2938
April 1969	No. 1, 4636; No. 1A,				Pet Tech Sec (1970)	
	10 522				A.P.C. (1961)	Localities in A.P.C. (1961, pl. 1)
					A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
					A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
					A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1)
				Anticline in Pliocene rocks	A.P.C. (1961)	Locality in A.P.C. (1961, pl. 1). N end of anticlinal structure
July 1968	5572				Pet Tech Sec (1970)	Offshore
June - July	4840				Pet Tech Sec (1970)	Offshore
1968 May - June 1968	9807				Pet Tech Sec (1970)	Offshore
1906					A.P.C. (1961)	Lecality in A.P.C. (1961, pl. 1)
1948	5516	Minor gas shows, especially 1535 to 1694 ft (with brackish water)	Methane 97-100%, ethane 0-3%	L. Miocene siltstone, sandstone, con- glomerate of Oroi Anticline	A.P.C. (1961); Konecki & Blair (1970)	No oil. Hole abandoned in strata with steep dips. Gas seepage at surface
1927-28	No. 1, 180; No. 2, 1018; No. 3, unknown			Tertiary sediments	A.P.O.C. (1930)	Gas probably originated in sandy marl with lignite and carbonized vegetable matter. Traces of oil and gas reported at shallow depths
March - May 1968	11 999				Pet Tech Sec (1970a)	Offshore

PETROLEUM (Continued)

Index No.	Name	Com- modities	Туре	Category	Status	Company	Area	Lat/Long
7002	Borabi No. 1		Well	New field wildcat — dry	Plugged and abandoned	Phillips Aust Oil	Gulf of Papua	08°10′S; 144°22′E
7003	Pasca No. 1	Gas conden- sate	Well	New field discovery	Plugged	Phillips Aust Oil	Gulf of Papua	08°36′S; 144°54′E
7004	Pasca A No. 2	Gas conden- sate	Well	New field discovery	Plugged	Phillips Aust Oil	Gulf of Papua	08°36′S; 144°55′E
7005	Pasca C No. 1		Well	New field wildcat — dry	Plugged and abandoned	Phillips Aust Oil	Gulf of Papua	08°31′S; 144°59′E
7006	Pasca C No. 2		Well	New field wildcat — dry	Plugged and abandoned	Phillips Aust Oil	Gulf of Papua	08°31′S; 144°59′E

### COAL

Index No.		Minerals	Mineralization	Category	Area	Lat/Long	Production
VANI	MO SA/5	4-11					
0102	Coal	Lignite	Sedimentary	Occurrence	Vanimo	02°43′S; 141°10′E	
0103	Coal	Lignite	Sedimentary	Occurrence	Puari R	02°53′S; 141°40′E	
0104	Coal	Sub-bituminous	Sedimentary	Occurrence	Serra Hills	02°58′S; 141°37′E	
0105	Coal	Lignite	Sedimentary	Occurrence	Serra Hills	02°59′S; 141°33′E	
AITA	PE SA/54	-15					
0203	Coal	?Sub-bituminous	Sedimentary	Occurrences	Puwani R	03°04′S; 141°06′E	
0207	Coal	Lignite	Sedimentary	Occurrence	E Bewani Mts	03°04′S; 141°33′E	
0209	Coal	Lignite	Sedimentary	Occurrence	Lumi	03°45′S; 141°59′E	
0210	Coal	Lignite	Sedimentary	Occurrence	Lumi	03°40′S; 142°03′E	
0211	Coal	Lignite	Sedimentary	Occurrence	S side Torricelli Mts	03°43′S; 142°21′E	
0214	Coal	Lignite	Sedimentary	Occurrence	Torricelli Mts	03°28′S; 142°28′E	

Date Drilled	Total Depth (ft)	Production	Grade	Stratigraphy	Principal References	Remarks
Oct Nov. 1967	9442				Pet Tech Sec (1969)	Offshore
Aug Oct. 1968	8447	Gas: up to 8.01 MMCF/D; oil: up to 2427 BBL/D (interval tested 7211-7245 ft)	Gas: 77% methane, 7% ethane, 7% propane, 3% isobutane, 1.7% N-butane, 0.6% isopentane, 0.2% N-pentane, 0.2%	Miocene reef formation	Pet Tech Sec (1970a); Konecki & Blair (1970)	Offshore. Significant discovery
Dec. 1968 - Jan. 1969	8506	Gas: up to 17.2 MMCF/D; oil: 1100 BBL/D (interval tested 7550-7570 ft)	Gas: 80% methane, 6% ethane, 4% propane	Miocene reef formation	Pet Tech Sec (1970b); Konecki & Blair (1970)	Significant gas discovery. Pasca Field (offshore)
Oct Dec. 1968	14 001	,			Pet Tech Sec (1970a)	Offshore
May - June 1969	10 475				Pet Tech Sec (1970b)	Offshore

Method of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
		Lignite	Miocene-Pliocene calcareous sedi- ments, marl, and lignite	Coalification	A.A.P. (1970)	
		Lignite		Coalification	A.A.P. (1970)	
		Sub- bituminous		Coalification	C.O.C. (1970)	
		Lignite		Coalification	A.A.P. (1970)	
	Seams up to 0.6 m thick	?Sub- bituminous ('hard coal')	Pliocene sediments	In situ coalification	Osborne (1942)	,
		Lignite	Pliocene siltstone with lignite	Coalification	C.O.C. (1970)	
		Lignite	Plio-Pleistocene siltstone	Coalification	A.A.P. (1970)	
		Lignite	?Pleistocene sandstone	Coalification	A.A.P. (1970)	
		Lignite	Pleistocene mud- stone and conglomerate	Coalification	A.A.P. (1970)	
		Lignite	U. Miocene carbonaceous and lignitic sandstone	Coalification	C.O.C. (1970)	

COAL (Continued)

Index No.	Com- modities	s Minerals	Mineralization	Category	Area	Lat/Long	Production
0215	Coal	Lignite	Sedimentary	Occurrences	S side Torricelli Mts	03°43′S; 142°27′E	
0217	Coal	Lignite	Sedimentary	Occurrence	E Bewani Mts	03°05′S; 141°23′E	
0219	Coal	Lignite	Sedimentary	Occurrence	E Bewani Mts	03°07′S; 141°30′E	
0221	Coal	Lignite	Sedimentary	Occurrence	E Bewani Mts	03°08′S; 141°29′E	
0222	Coal	Lignite	Sedimentary	Occurrence	E Bewani Mts	03°06′S; 141°37′E	
WEWA	AK SA/5	4-16					
1003	Coal	Lignite	Sedimentary	Occurrence	Torricelli Mts	03°34′S; 142°37′E	
1004	Coal	Lignite	Sedimentary	Occurrences	Torricelli Mts	03°37′S; 142°36′E	
1006	Coal	Lignite	Sedimentary	Occurrence	Coast W of Wewak	03°26′S; 143°26′E	
1007	Coal	Lignite	Sedimentary	Occurrence	Coastal	03°25′S; 143°16′E	
1008	Coal	Lignite	Sedimentary	Occurrence	Maprik	03°33′S; 143°09′E	
1009	Coal	Lignite	Sedimentary	Occurrence	Maprik	03°34′S; 143°04′E	
1011	Coal	Lignite	Sedimentary	Occurrences	Wewak	03°36′S; 143°34′E	
1013	Coal	Lignite	Sedimentary	Occurrence	Maprik	03°40′S; 143°08′E	
WABA	G SB/54	-8					
1205	Coal	Cannel, lignite	Sedimentary	Occurrence	Koroba	05°42′S; 142°43′E	
1207	Coal	Lignite	Sedimentary	Occurrénce	Lagaip Valley	05°29′S; 143°28′E	Small-scale by locals
LAKE	KUTUB	BU SB/54-12					
1301	Coal	Lignite; and ?sub-bituminous	Sedimentary	Occurrence	Hegigio (U. Kikori) R	06°32′S; 143°05′E (approx.)	
1302	Coal	Lignite; and ?sub-bituminous	Sedimentary	Occurrence	NW end L Kutubu	06°23′S; 143°13′E	

Method						
of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remark <b>s</b>
		Lignite	Pliocene lignitic mudstone	Coalification	C.O.C. (1970)	
		Lignite	Pliocene mudstone with coal	Coalification	C.O.C. (1970)	
		Lignite	Pliocene sandstone with occasional coal layers	Coalification	C.O.C. (1970)	
		Lignite	U. Miocene siltstone with lignite	Coalification	C.O.C. (1970)	
		Lignite	L. Miocene siltstone with some lignite	Coalification	C.O.C. (1970)	
		Lignite	Pliocene siltstone, mudstone, conglomerate	Coalification	A.A.P. (1970)	
		Lignite	Pliocene mudstone and sandstone	Coalification	A.A.P. (1970)	
		Lignite	Pliocene sediments	Coalification	A.A.P. (1970)	
		Lignite	Miocene sediments	Coalification	A.A.P. (1970)	
		Lignite	Miocene sediments	Coalification	A.A.P. (1970)	
		Lignite	Miocene sediments	Coalification	A.A.P. (1970)	
		Lignite .	Miocene sediments	Coalification	A.A.P. (1970)	
		Lignite	Pliocene sediments	Coalification	A.A.P. (1970)	
	3-m thick section of coal- bearing strata	Cannel and low- grade lignite	Holocene lacustrine deposit	In situ coalification	Grainger (1969)	Several small seams exposed during construction of Koroba Patrol Post
Trenches		Moisture 7%, fixed carbon 13%, volatile matter 31%	Lacustrine deposits	Coalification	Dekker & Faulks (1964)	
	Seams up to 1 m thick	Lignite and ?sub- bituminous High-grade	Pliocene non-marine sequence 150-300 m thick	In situ coalification In situ	Grainger (1969) Grainger	Hard bright coal as float in Hegigio R reported 1911
	seams 1 m thick, steeply dipping	lignite and ?sub- bituminous		coalification	(1969)	

COAL (Continued)

Index No.	Com- moditie:	s Minerals	Mineralization	Category	Area	Lat/Long Production
2020	J <b>SB/55-</b> Coal	5 Lignite	Sedimentary	Occurrence	N of Mt Hagen	05°48′S; 144°13′E (approx.)
<b>KARIN</b> 2102	MUI SB/ Coal	55-9 Lignite	Sedimentary	Occurrence	Asaro R	06°05′S; 145°20′E
2111	Coal	Cannel or sub-bituminous	Sedimentary	Occurrence	Samia Valley	06°54′S; 144°36′E
2112	Coal	Cannel or sub-bituminous	Sedimentary	Occurrences	Fogite	06°52′S; 144°26′E
2113	Coal	Cannel or sub-bituminous	Sedimentary	Occurrences	Siligi R	06°52′S; 144°19′E
<b>KIKO</b> 2201	RI SB/55 Coal	5-13 Lignite	Sedimentary	Occurrence	Purari R	07°19′S; 145°08′E
2204	Coal	Lignite	Sedimentary	Occurrences	Tributaries of Era R	From 07°08'S; 144°34'E to 07°09'S; 144°53'E
2205	Coal	Sub-bituminous	Sedimentary	Occurrences	Pide R	07°01′S; 144°54′E
2206	Coal	Lignite	Sedimentary	Occurrences	Era R/ Mena R	07°13′S; 145°00′E

Method						
of Working	Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
		Lignite	Quaternary sediments	Coalification	Grainger (1969)	Reported occurrence
	0.5 m thick and at least 500 m long	Ash 28%; previous sample from Goroka area: ash 8%, moisture 18%		In situ coalification	Grainger (1969)	Shales baked by burning coal reported from Asaro R area
	At least 2 seams 1.5 m thick	Cannel or sub- bituminous	Non-marine Pliocene sequence on N limb Irou Anticline	In situ coalification	Grainger (1969)	Several exposures of coal in Samia Valley
		Cannel or sub-bituminous	Non-marine Pliocene sequence on N limb Irou Anticline	In situ coalification	Grainger (1969)	Along strike from 2111
		Cannel or sub- bituminous	Non-marine Pliocene sequence on N limb Irou Anticline	In situ coalification	Grainger (1969)	Along strike from 2111 and 2112
	Two seams about 1 m thick	High- moisture (15-20%) lignite	Tertiary sediments faulted and folded	In situ coalification	Carne (1913)	'Coal Creek'
	Lenses 1 cm thick to seams 8 m thick. Some can be traced along strike for over	Lignite	Pliocene Shu Coal Group along both flanks of Abede Anticline and in Tau Syncline	In situ coalification	Grainger (1969)	Several localities. Considerable lateral and vertical variation in dimensions of seams. Considerable faulting and often steeply dipping.
	1500 m At least 4 seams 5 cm to 2 m thick. Lensing common	Sub- bituminous	Argillaceous Pliocene Shu Coal Group. Steep dips common	In situ coalification	Grainger (1969)	
	Seam 1 m thick on Era R (coal- bearing strata reported to form rapids); thick seam on nearby Mena R	Mena R: moisture 18%, ash 3%, sulphur 0.7%, fixed carbon 44%, volatiles 56%, fuel ratio 0.8	Tertiary sediments	In situ coalification	Grainger (1969)	Seam 4-5 m thick reported on Era R in same general area

COAL (Continued)

Index No.	Com- modities	Minerals	Mineralization	Category	Area	Lat/Long Produ	uction
2207	Coal	?Lignite	Sedimentary	Occurrence	Ia Purari Cr	07°34′S; 145°06′E	
2208	Coal	?Lignite	Sedimentary	Occurrence	L. Vailala R	07°51′S; 145°23′E	
2209	Coal	?Lignite	Sedimentary	Occurrence	L. Vailala R	07°48′S; 145°24′E	
<b>MAD</b> A 2701	ANG SB/S Coal	55-6 Lignite	Sedimentary	Occurrence	S of Astrolabe Bay	05°31′S; 145°48′E (approx.)	
HUON	SB/55-11	1					
3303	Coal	Lignite	Sedimentary	Occurrence	Finsch- hafen	06°37′S; 147°52′E (approx.)	
	SC/55-8					, 11	
3901	Coal	Lignite	Sedimentary	Occurrence	C Vogel Pen	09°44′S; 149°48′E	
'AT.AS	SEA SB/5	6-5			•		
5102	Coal	Lignite	Sedimentary	Occurrence	Rano Plantation	05°55′S; 151°09′E	
GAZE 5302	LLE PEN Coal	INSULA SB/56-2 Lignite	Sedimentary	Occurrence	Pondo	04°33′S;	
		_				151°39′E	
5303	Coal	Lignite	Sedimentary	Occurrence	Torio R	04°42′S; 151°46′E (approx.)	
NAMA 5801	TANAI S Coal	SA/56-14 Lignite/cannel	Sedimentary	Occurrence	Matakan	03°49′S;	
7001	Coai	Liginite/ Camilei	Scannentary	Occurrence	Plantation	152°27′E	

Method of	_			~ ·	Principal	
Working 	Reserves	Grade	Stratigraphy	Genesis	References	Remarks
	Seam 1.25 m thick	?Lignite	Pliocene sandstone, mudstone, and coal seams in Orloi Anticline	In situ coalification	Grainger (1969)	
		?Lignite	Coal seams over 150 m intervals in u. Pliocene sandstone in Kuku Syncline	In situ coalification	Grainger (1969)	
	Seams up to 0.6 m thick	?Lignite	Coal-bearing strata in u. Pliocene sequence on N flank Hohoro Anticline	In situ coalification	Grainger (1969)	Correlated with Shu Coal Group (2204, 2205)
		Comparable with Purari occurrences	Miocene-Pliocene sediments	In situ coalification	Stanley (1923)	
		Low-grade lignite	Tertiary sediments	Coalification	Grainger (1969)	Sample sent by District Commissioner 1963
		Poor- quality lignite	Seams of lignite with limestone bands in Tertiary sediments	Coalification	Stanley (1916a)	
			Miocene sediments	Coalification	Noakes (1942)	Reported occurrence
		Lignite	Miocene sediments	Coalification	Noakes (1942)	
		Moisture 20%, ash 13%, sulphur 3%, fixed carbon 27%, volatiles 40%	Miocene mudstone and sandstone with carbonaceous remains and minor coal seams	Coalification	Grainger (1969)	Lignite similar to 5801
	Seven outcrops up to 0.6 m thick and up to 8 m long	Moisture 20%, ash 14%, sulphur 6%, fixed carbon 45%, volatiles 55%, fuel ratio 0.8	Tertiary marine shale, mudstone and minor volcanics; slight meta- morphism	Coalification in estuarine conditions	Noakes (1939b)	

#### COAL (Continued)

Index No.	Com- moditie	es Minerals	Mineralization	Category	Area	Lat/Long	Production
<b>CAPE</b> 6001	ST GEO Coal	ORGE SB/56-3 Lignite	Sedimentary	Occurrence	Tamul- Tamai Rs	04°27′S; 153°00′E	
6002	Coal	Lignite	Sedimentary	Occurrence	Topajo R	04°26′S; 152°44′E	

Reserves	Grade	Stratigraphy	Genesis	Principal References	Remarks
Seams up to 3 m thick	Lignite similar to 5801 but higher fixed carbon values	Miocene-Pliocene Tamul Beds: clay, marl and tuff with thin lignite seams	Coalification	French (1966)	In Tamul R burning lignite heat source for boiling mud depositing sulphur
	Lignite similar to 5801	Miocene-Pliocene Tamul Beds	Coalification	French (1966)	

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## APPENDIX I

## ABBREVIATIONS USED IN TEXT AND TABLES

C	Cape	M.(m.)	Middle
Cr	Creek	MCF/D	Thousands cubic feet per day
G.F.	Goldfield	MMCF/D	Millions cubic feet per day
GSPNG	Geological Survey of Papua	BBL/D	Barrels per day
	New Guinea	R	River
fine	Pure gold is 1000 parts fine	Ra	Range
oz	Ounce (troy)	S.G.	Specific gravity
f.oz	Fine ounce (troy)	U.(u.)	Upper
dwt	Pennyweight (troy)	BTU	British Thermal Units per lb
gr	Grain (troy)		•
L	Lake	E,W,	East, West,
L.(1.)	Lower	N,S	North, South

### Definitions

New field wildcat —	A.A.P.G./A.P.E.A. classification of wells: A new field wildcat is located far from producing pools, and on a structure which has not produced before. In regions where local structure has little or no control on accumulation, these holes are generally at least two miles (3 km) from the nearest productive area. However, distance is not the determining factor. The classification is based on the degree of risk assumed by the operator, and his intention to test a structure or stratigraphic condition not previously proven productive.
Condensate —	Liquid petroleum formed when higher hydrocarbons of natural gas condense as the reservoir pressure is reduced. The term usually refers to a light-coloured liquid of 50° API gravity or lighter, obtained from hydrocarbon systems that exist in the gaseous phase in the reservoir.
Dry Gas —	Natural gas composed mainly of methane.

# APPENDIX II COMMODITIES LISTED BY 1:250 000 SHEET AREAS

о.	Commodities	Category
ANIMO SA/54-11		_
01	Nickel, chromium	Occurrences
02	Coal	Occurrence
03	Coal	Occurrence
04	Coal	Occurrence
05	Coal	Occurrence
06	Chromium	Occurrence
TAPE SA/54-15		
01 Kilipas Prospect	Platinum	Occurrence
02 .	Copper	Occurrences
03	Coal	Occurrence
04	Gas	(Seepage)
05	Gas	(Seepage)
06	Gold	Occurrences
07	Coal	Occurrence
08	Graphite	Occurrence
09	Coal	Occurrence
10	Coal	Occurrence
11	Coal	Occurrence
12	Copper	Occurrence
13	Gas	(Seepage)
14	Coal	Occurrence
15	Coal	Occurrence
16	Graphite	Occurrence

Index No.	Name	Commodities	Category
0217		Coal	Occurrence
0218		Gas	(Seepage)
0219		Coal	Occurrence
0220		Gas	(Seepage)
0221		Coal	Occurrence
0222		Coal	Occurrence
MAY	RIVER SB/54-3		
0301		Copper	Occurrence
0302		Copper, zinc	Occurrence
0303	Frieda Prospect	Copper	Prospect
0304		Nickel	Occurrence
BLUC	HER RANGE SB/54-7		
0401	Mount Fubilan (Ok Tedi) Copper Deposit	Copper	Major deposit
0402	-	Oil	(Impregnations)
0403		Oil	(Seepage)
0404		Copper	Prospect
0405		Gas, oil	(Seepage/
			impregnation)
0406		Oil	(Impregnation)
0407		Oil	(Seepage)
0408		Gas	(Seepage)
0409		Gas	(Seepage)
0410		Oil	(Seepage)
0411		Gas	(Seepage)
0412		Gas	(Seepage)
0413		Oil	(Seepages)
0414		Oil	(Seepage)
	GI SB/54-11 Cecilia No. 1 Well		New field wildcat—dry
	MURRAY SB/54-15 Aramia No. 1 Well		New field wildcat—dry
	RIVER SC/54-3		rien neid middet dry
	Morehead No. 1 Well		New field wildcat—dry
WUVU	JLU ISLAND SA/54-8		
0901		Phosphate	Occurrence
0902		Phosphate	Minor deposit
0903		Phosphate	Minor deposit
WEWA	AK SA/54-16		
1001		Gold, (silver, platinum)	Minor deposits
1002		Gold, (silver, platinum)	Minor deposits
1003		Coal	Occurrence
1004		Coal	Occurrences
1005		Gas	(Seepage)
1006		Coal	Occurrence
1007		Coal	Occurrence
1008		Coal	Occurrence
1009		Coal	Occurrence
1010		Oil, gas	(Seepages)
1011		Coal	Occurrences
1012		Gas	(Seepage)
1013		Coal	Occurrence

No.	Name	Commodities	Category
AMBU	JNTI SB/55-4		
1101		Gold, (chromium)	Occurrences
1102		Gold, platinum	Occurrence
1103		Copper	Occurrence
1104		Copper	Occurrence
1105		Copper	Occurrence
1106		Copper	Occurrences
WABA	AG SB/54-8		
1201		Gold, platinum	Occurrence
1202		Gold	Occurrence
1203	Porgera Alluvial Workings	Gold, silver	Minor deposit
1204	Porgera Prospect	Gold, (silver, zinc, lead, copper)	Prospect
1205		Coal	Occurrence
1206		Gold	Occurrence
1207		Coal	Occurrence
1208		Copper	Occurrences
1209		Copper	Occurrence
1210		Gas	(Seepages)
1211		Oil	(Seepages)
1212		Gas	(Seepage)
LAKE	KUTUBU SB/54-12		( 1 5 /
1301		Coal	Occurrence
1302		Coal	Occurrence
1303		Oil	(Seepage)
1304		Oil, gas	(Seepages)
1305		Oil, gas	(Seepages)
1306		Gas	(Seepage)
1307		Gas	(Seepage)
1308		Oil, gas	(Seepages)
1309		Oil, gas	(Seepages)
1310		Oil, gas	(Seepages)
1311		Oil, gas	
1312		Oil	(Seepage)
1312		Oil	(Seepage)
1314		Oil	(Seepage)
1315	Iehi No. 1 Well	Gas	(Seepages)
1315	Mananda No. 1 Well	Gas	New field discovery New field wildcat—dry
	RRA RIVER SB/54-16	_	
1401	Barikewa No. 1 Well	Gas	New field discovery
1402	Komewu No. 1 Well		New field wildcat—dry
1403	Komewu No. 2 Well		New field wildcat—dry
1404	Omati No. 1 & 2 Wells		New field wildcat—dry
	AI SC/54-4		
1501		Iron	Occurrence
1502		Iron	Occurrence
1503	Iamara No. 1 Well		New field wildcat-dry
1504	Magobu No. 1 Well		New field wildcat-dry
1505	Mutare No. 1 Well		New field wildcat-dry
1506	Wuroi No. 1 Well		New field wildcat-dry
1507	Maremosab No. 1 Well		New field wildcat—dry
1508	Wohomul No. 1 & 2 Wells		New field wildcat—dry
NINI	GO SA/55-5		
1701		Phosphate	Minor deposit

Index No.	Name	Commodities	Category
SEPIR	ζ SA/55-13		
1801		Gas	(Seepage)
1802	Ormildah No. 1 Well		New field wildcat—dry
BOGI	A SB/55-1		
1901		Copper	Occurrence
RAM	U SB/55-5		
2001	Yanderra Copper Prospect	Copper, (gold, silver)	Prospect
2002		Molybdenum	Occurrence
2003		Gold Gold	Occurrence Occurrence
2004 2005		Copper	Occurrence
2005		Zinc	Occurrence
2007		Copper	Occurrence
2008		Copper	Occurrence
2009		Diatomite	Occurrence
2010		Gas	(Seepages)
2011		Gold	Occurrence
2012		Gold	Occurrence
2013		Gold Copper	Occurrence Occurrence
2014 2015		Copper	Occurrence
2016		Copper	Occurrence
2017		Copper, molybdenum	Occurrence
2018	Marum Nickel Prospect	Nickel	Prospect
2019	Kuta Gold Prospect	Gold, silver	Minor deposit
2020		Coal	Occurrence
2021	Kumbruf Gold Prospect	Gold	Minor deposit
2022		Gold	Occurrence
2023 2024		Gold Gold	Occurrence Occurrence
2024		Gold	Occurrence
2026		Gold	Occurrence
2027		Copper	Occurrence
2028		Copper	Occurrence
2029		Copper	Occurrence
2030		Copper, lead	Occurrence
2031		Lead, molybdenum, zinc, copper	Occurrence
KARI	MUI SB/55-9	zine, copper	
2101		Copper	Occurrence
2102		Coal	Occurrence
2103		Oil	(Seepage)
2104		Oil	(Seepages)
2105		Gas	(Seepage)
2106	•	Gas	(Seepage)
2107		Gas Gas	(Seepage) (Seepage)
2108 2109		Phosphate	Occurrence
2110		Gas	(Seepage)
2111		Coal	Occurrences
2112		Coal	Occurrences
2113		Coal	Occurrences
KIKO	ORI SB/55-13		
2201		Coal	Occurrence
2202		Iron	Occurrence

Index No.	Name	Commodities	Category
2203		Iron	Occurrence
2204		Coal	Occurrences
2205		Coal	Occurrences
2206		Coal	Occurrences
2207		Coal	Occurrence
2208		Coal	Occurrence
2209		Coal	Occurrence
2210		Gas	(Seepages)
2211		Gas	(Seepage)
2212		Gas	(Seepage)
2213	Puri No. 1 Well	Oil, gas	New field discovery
2214		Gas	(Seepages)
2215		Oil	(Impregnation/
			seepage)
2216		Gas, (oil)	(Seepages)
2217		Gas	(Seepages)
2218		Gas, (oil)	(Seepages)
2219		Oil	(Seepages)
2220		Gas	(Seepages)
2221		Gas	(Seepage)
2222		Oil	(Seepage)
2223		Gas	(Seepage)
2224		Gas	(Seepages)
2225		Gas	(Seepages)
2226	Bwata No. 1 Well	Gas condensate	New field discovery
2227	Sireru No. 1 Well		New field wildcat—dry
2228	Kuru No. 1, 2, & 3 Wells	Gas	New field discovery
2229	Muabu No. 1 Well		New field wildcat—dry
2230	Wana No. 1 Well		New field wildcat—dry
2231	Iviri No. 1 Well		New field wildcat—dry
2232	Ini No. 1 Well		New field wildcat—dry
2233	Uramu No. 1, 1A Well	Gas condensate	New field discovery
2234	Kariava No. 1 Well		New field wildcat—dry
2235	Upoia No. 1 Well		New field wildcat—dry
2236	Hohoro No. 1 & 2 Wells		New field wildcat—dry
2237	Ipigo No. 1 Well		New field wildcat—dry
2238	Rarako Creek No. 1 Well	<b>-</b>	New field wildcat—dry
2239		Iron	Occurrence
ADM	IRALTY ISLANDS WEST SA/	55-10	
2401	Mount Kren Prospect	Copper	Prospect
2402	Lepatuan Prospect	Aluminium	Prospect
2403		Phosphate	Minor deposit
2404		Phosphate	Occurrence
2405		Phosphate	Occurrence
2406	Arie Prospect	Copper, molybdenum	Prospect
ADM	IRALTY ISLANDS EAST SA/5		
2501		Aluminium	Occurrence
2502		Aluminium	Occurrence
2503		Phosphate	Occurrence
2504		Phosphate	Minor deposit
MAD	ANG SB/55-6		
2701		Coal	Occurrence
MAR	KHAM SB/55-10		
2801	D 1 D 6 M	Copper	Occurrence
2802	Barola Reefs Mine	Gold, (silver, copper)	Minor deposit

Index No.	Name	Commodities	Category
2803	Yonki Creek Copper Prospect	Copper	Occurrence
2804		Gold	Occurrence
2805	Mount Ubank Prospect	Gold	Occurrence
2806	Bilimoia Copper Prospect	Copper	Occurrence
2807	Mount Victor/Clarke Ridge Mine	Gold, silver	Minor deposit
2808		Copper	Occurrences
2809	Kathnel Mine	Gold, silver	Minor deposit
2810		Gold	Occurrence
2811	Efontera Prospect	Lead, zinc	Occurrence
2812	-	Copper	Occurrence
2813		Copper	Occurrence
2814		Gold	Occurrence
2815		Gold	Minor deposit
2816		Gold	Occurrences
2817		Gold	Occurrence
2818		Gold	Occurrence
2819		Gold	Occurrences
2820		Gold	Occurrence
2821		Gold	Occurrence
2822		Gold	Occurrence
2823		Gold	Occurrence
2824		Gold	Occurrences
2825		Gold	Occurrence
2826		Gold	Occurrence
2827		Gold	Occurrence
2828		Mercury	Occurrence
WAU	SB/55-14		
2901		Gold, silver	Minor deposits
2902		Gold, (lead, zinc, copper)	Minor deposit
2903	Karuka Mine	Gold, silver	Minor deposit
2904	Enterprise Mine	Gold, silver, (mercury)	Minor deposit
2905	Day Dawn Mine	Gold, silver	Minor deposit
2906	Day Dawn South Mine	Gold, silver	Minor deposit
2907	Edie Creek Mine	Gold, silver	Minor deposit
2908	Surmans Vein	Gold	Occurrence
2909	Upper Ridges Mine	Gold, silver	Medium deposit
2910	Golden Ridges Mine	Gold, silver	Minor deposit
2911	Mount Kaindi Mine	Gold, silver	Minor deposit
2912		Gold, (silver)	Minor deposits
2712			
		Gold, (silver)	Minor deposits
2913	Andersons Creek Lode		Minor deposits Minor deposit
2913 2914		Gold, (silver)	
2913 2914 2915	Andersons Creek Lode  Lake Trist Nickel Prospect	Gold, (silver) Gold, silver	Minor deposit
2913 2914 2915 2916		Gold, (silver) Gold, silver Zinc, lead	Minor deposit Occurrence
2913 2914 2915 2916 2917		Gold, (silver) Gold, silver Zinc, lead Nickel	Minor deposit Occurrence Prospect
2913 2914 2915 2916 2917 2918		Gold, (silver) Gold, silver Zinc, lead Nickel Gold	Minor deposit Occurrence Prospect Minor deposits
2913 2914 2915 2916 2917 2918 2919		Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold	Minor deposit Occurrence Prospect Minor deposits Minor deposits
2913 2914 2915 2916 2917 2918 2919 2920	Lake Trist Nickel Prospect	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence
2913 2914 2915 2916 2917 2918 2919 2920 2921	Lake Trist Nickel Prospect  Bulolo Gold Dredging Ltd	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper Gold, silver	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence Major deposit
2913 2914 2915 2916 2917 2918 2919 2920 2921 2922	Lake Trist Nickel Prospect  Bulolo Gold Dredging Ltd Bulolo Gold Dredging Ltd	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper Gold, silver Gold, silver	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence Major deposit Medium deposit
2913 2914 2915 2916 2917 2918 2919 2920 2921 2922 2923	Lake Trist Nickel Prospect  Bulolo Gold Dredging Ltd Bulolo Gold Dredging Ltd	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper Gold, silver Gold, silver Gold, silver Gold, silver Gold, silver	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence Major deposit Medium deposit Minor deposit Minor deposit
2913 2914 2915 2916 2917 2918 2919 2920 2921 2922 2923 2924	Lake Trist Nickel Prospect  Bulolo Gold Dredging Ltd Bulolo Gold Dredging Ltd	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper Gold, silver Gold, silver Gold, silver	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence Major deposit Medium deposit Minor deposit
2913 2914 2915 2916 2917 2918 2919 2920 2921 2922 2923 2924 2925	Lake Trist Nickel Prospect  Bulolo Gold Dredging Ltd Bulolo Gold Dredging Ltd	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper Gold, silver	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence Major deposit Medium deposit Minor deposit Minor deposits Minor deposits Minor deposits Minor deposits Minor deposits
2913 2914 2915 2916 2917 2918 2919 2920 2921 2922 2923	Lake Trist Nickel Prospect  Bulolo Gold Dredging Ltd Bulolo Gold Dredging Ltd	Gold, (silver) Gold, silver Zinc, lead Nickel Gold Gold Copper Gold, silver	Minor deposit Occurrence Prospect Minor deposits Minor deposits Occurrence Major deposit Medium deposit Minor deposit Minor deposit Minor deposits Minor deposits

Index No.	name	Commodities	Category
2929 2930		Gold, silver Gold, (silver)	Occurrence Occurrences
2931		Gold, (silver)	Minor deposits
2932		Gold, (silver)	Minor deposits
2933		Gold, silver	Minor deposits
		Gold, shver	Occurrences
2934			
2935		Gold	Occurrence
2936		Gold, silver, (mercury)	Occurrences
2937		Gas, oil	(Seepage/ impregnations)
2938		Gas, oil	(Seepages/ impregnations)
2939		Oil, gas	(Seepages)
2940		Gas, oil	(Seepages/
			impregnations)
2941		Gas	(Seepages)
2942		Gas	(Seepage)
2943		Gas	(Seepage)
2944		Gas, oil	(Seepages)
2945		Oil, gas	(Seepages)
2946		Gas	(Seepage)
2947		Nickel	Occurrence
2947		INICKEI	Occurrence
YULE	SC/55-2		
3001	Tovala No. 1 & 1A Well		New field wildcat-dry
3002	Tovala 140. I & IA Well	Phosphate	Occurrence
3002		Gas	(Seepages)
		Gas	, _ ,
3004			(Seepage)
3005		Oil	(Seepage)
3006		Gas	(Seepages)
3007		Gas	(Seepages)
3008	Kapuri No. 1 Well		New field wildcat—dry
3009	Iokea No. 1 Well		New field wildcat—dry
3010	Maiva No. 1 Well		New field wildcat—dry
3011		Gas	(Seepages)
3012	Oroi No. 1 Well		New field wildcat—dry
AROA	A SC/55-6		
3101	Kaufana No. 1 Well		New field wildcat—dry
HUON	N SB/55-11		
3301		Chromium	Occurrence
3302		Copper	Occurrence
3303		Coal	Occurrence
SALA	MAUA SB/55-15		
3401		Gold	Occurrence
3402	Koreppa Nickel Prospect	Nickel, chromium	Prospect
3403	EE	Copper	Occurrence
3404		Copper, (nickel)	Occurrence
3405		Copper, (nickel)	Occurrence
3405		Gold	Occurrence
3407		Gold	Occurrence
3408		Gold, platinum	Occurrence
3409		Gold	Occurrence
3410		Copper	Occurrence
3411		Chromium	Occurrence
3412	•	Gold, copper	Occurrence
3413		Gold, (platinum)	Occurrence

Index No.	Name	Commodities	Category
3414		Copper	Occurrence
3415		Copper, gold	Occurrence
3416		Gold, platinum	Occurrence
3417		Nickel	Occurrence
3418		Gold, copper	Occurrence
3419		Gold, lead	Occurrence
3420		Chromium	Occurrence
	Sela River Chromite Prospect	Chromium	Prospect
3422	Som tavel caronine receptor	Chromium	Occurrence
3423		Nickel	Occurrence
BUNA	A SC/55-3		
3501	Kokoda Nickel Deposit	Nickel	Prospect
3502	Upupuru (Bakewa Hill) Prospect	Copper	Occurrence
3503		Chromium	Occurrence
3504	Aikora Gold Sluicing Syndicate	Gold, osmium, iridium, (platinum)	Minor deposit
3505	Gira River Sluicing Company	Gold, osmium, iridium, (platinum)	Minor deposit
3506		Gold	Occurrence
3507		Gold, (platinum)	Occurrence
3508		Chromium	Occurrences
3509		Gold	Occurrence
3510		Gold	Occurrences
3511		Gold	Occurrences
3512	McLaughlins Creek Workings	Gold, (osmium, iridium, platimum)	Minor deposits
3513	Yodda Goldfields Company	Gold	Minor deposit
3514	_ •	Gold	Occurrence
3515		Gold	Minor deposit
3516	Gaiva Prospect	Lead, zinc	Occurrence
3517	_	Copper	Occurrence
3618	Tawarere Gold Prospect	Gold	Occurrence
3519	•	Nickel	Occurrence
3520		Nickel	Occurrence
3521		Nickel	Occurrence
3522	Woitape Prospect	Copper	Prospect
PORT	MORESBY SC/55-7		
3601	Laloki Mine	Copper, gold, (silver, zinc, lead)	Minor deposit
3602	Dubuna Mine	Copper, (gold, silver, zinc)	Minor deposit
3603	Sapphire-Moresby King Mine	Gold, copper, (zinc)	Minor deposit
3604	Astrolabe (Dubuna North) Mine	Copper	Occurrence
3605	Elvina Mine	Copper, (zinc, lead)	Minor deposit
3606	Federal Flag Mine	Copper, (gold, silver)	Minor deposit
	Hector Mine	Copper	Minor deposit
	Lulu Mine	Copper	Occurrence
3609	Merrie England Mine	Copper	Occurrence
	Mount Cook Mine	Copper	Occurrence
3610	Mount Diamond Mine	Copper, (zinc, gold,	Minor deposit
3610 3611	Mount Diamond Mine	silver)	
3611	Mount Louis Mine	silver)	Occurrence
			-

Index No.	x Name	Commodities	Category
3615	Sapphire King Mine	Copper, gold, (silver)	Minor deposit
3616	Ventura Prospect	· Copper	Occurrence
3617	Victoria Hampton Prospect	Copper	Occurrence
3618	Iawarere Gold Prospect	Gold, (lead)	Occurrence
3619	Little Mount Lawes Prospect	Copper	Occurrence
3620	Buckleys Graphite Prospect	Graphite	Occurrence
3621	Pandora Mine	Manganese	Minor deposit
3622	Doavagi Prospect	Manganese	Occurrence
3623	Walburn Prospect	Manganese	Occurrence
3624	Skull Prospect	Manganese	Occurrence
3625	Girabu Prospect	Manganese	Occurrence
3626	Girabu Trospect	Manganese	Occurrence
3627		Manganese	Occurrence
		<del>-</del>	Occurrence
3628	•	Manganese Gold	* *
3629		Gold	Occurrence
	SC/55-8	_	_
3901	-	Coal	Occurrence
3902		Copper, gold	Occurrence
3903		Manganese	Occurrence
3904	Wowo Gap Nickel Prospect	Nickel	Prospect
3905	Keveri Goldfield	Gold	Minor deposits
3906	Doriri Creek Nickel Prospect	Nickel, (copper)	Prospect
3907	Kukuia No. 1, 2, & 3 Wells	, , 11	New field wildcat—dry
3908	• •	Gold, copper	Occurrence
3909		Chromium	Occurrence
3910		Gold	Occurrences
ABAU	J SC/55-12		
4001		Phosphate	Occurrence
FERG	SUSSON ISLAND SC/56-5		
4201		Gold	Occurrence
4202		Gold	Occurrence
4203		Sulphur	Minor deposits
4204		Gold	Occurrence
4205		Copper	Occurrence
4206		Chromium	Occurrence
4207	·	Pumice	Minor deposit
4208		Pumice	Minor deposit
SAMA	ARAI SC/56-9		
4301	RAH Be/30-9	Copper	Occurrence
4302		Copper, (silver)	Occurrence
4303		Gold, (platinum)	Minor deposit
4304	Louise Mine	Gold, (copper)	Occurrence
	Louise Wille		Occurrence
4305		Manganese	
4306		Platinum	Occurrence Minor deposit
4307		Gold, (platinum)	Minor deposit
4308 4309		Copper Nickel	Occurrence Occurrence
	EL 80/56 15		
	EL SC/56-15 Griffin Point mining area	Gold (abromina)	Minor donosits
4701	Griffin Point mining area	Gold, (chromium)	Minor deposits
4702	0 ' 16'	Gold	Occurrence
4703	Cornucopia Mine	Gold	Occurrence
4704	~	Gold	Occurrence
4705	Caledonian Mine	Gold, (silver)	Occurrence
4706	Mount Adelaide Mine	Gold	Occurrence .

Index No.	Name	Commodities	Category
4707		Gold	Occurrence
4708		Gold	Occurrence
4709		Gold	Occurrence
4710		Gold	Occurrence
4711		Gold	Occurrence
4712		Gold	Occurrence
4713		Phosphate	Occurrence
ΤΔΙΔ	SEA SB/56-5	•	
	Kulu River Prospect	Conner (molyhdanum)	Drocport
	Kulu Kivel Flospect	Copper, (molybdenum) Coal	Prospect
5102			Occurrence
5103		Sulphur	Occurrence
5104 5105	Pelapuna Prospect Plesyumi (Metelen) Prospect	Copper, (molybdenum) Copper, (zinc, lead, molybdenum, silver, gold)	Prospect Prospect
5106			Oggyrranga
5106		Sulphur	Occurrence Minor deposit
5107		Sulphur	Minor deposit
5108		Sulphur	Occurrence
5109		Sulphur	Occurrence
GAZE	LLE PENINSULA SB/56-2		
5301		Iron, (copper, lead, zinc)	Occurrence
5302		Coal	Occurrence
5303		Coal	Occurrence
5304	Talele Provisional Goldfield	Gold, (silver, copper, lead, zinc)	Occurrence
5305		Gold	Occurrence
5306		Copper, (molybdenum, lead, zinc)	Occurrence
5307		Pumice, (sulphur)	Minor deposit
5308		Sulphur	Occurrence
5309		Copper, molybdenum	Occurrence
5310		Copper	Occurrence
5311		Copper	Occurrence
5312		Copper, lead, zinc	Occurrence
5313		Pumice	Minor deposit
woo	DLARK ISLAND SC/56-6		
4401	Kulumadau Mine	Gold, (lead, zinc)	Medium deposit
4402	Murua United, Federation, Vulcan Mines	Gold, (lead, zinc)	Minor deposits
4403	Little McKenzie Bine	Gold	Minor deposit
4404		Gold	Minor deposit
4405		Gold	Occurrence?
4406		Copper, iron, (gold)	Occurrence
4407		Iron, copper	Occurrence
4408	McKenzies Creek Mine	Gold	Minor deposit
4409	Okiduse Mine	Gold	Occurrence?
4410	=	Iron, copper	Occurrence
4411		Manganese	Occurrence
4412	Woodlark King Mine	Gold	
	Woodian King Wille		Minor deposit
4413		Phosphate	Minor deposit
4414		Gold	Minor deposit
4415		Gold	Occurrence
4416		Gold	Occurrence
		Gold	Occurrence
4417 4418	Colemans Creek Gold Workings	Gold	Minor deposit

Index No.	Name	Commodities	Category
4419 4420	Sinkurai River Gold Workings Reillys Creek Gold Workings	Gold Gold	Minor deposit Minor deposit
DEBO	YNE SC/56-10		
4501 4502	Mount Sisa Mine Umuna Mine	Gold, silver Gold, (silver, lead, zinc, copper)	Minor deposit Medium deposit
4503	Quartz Mountain Mine	Gold, (lead, zinc, copper)	Occurrence
4504 4505 4506	Scottish Queen/Mararoa Mines Kulumalia mining area Double Chance Mine	Gold Gold, (lead, zinc,	Minor deposit Occurrence Occurrence
4507		copper) Gold	Minor deposit
4508 4509 4510 4511 4512 4513		Gold Gold Gold Gold Gold Copper	Minor deposits Minor deposits Minor deposits Minor deposits Minor deposits Occurrence
POMI0 5401	O SB/56-6	Copper	Occurrence
<b>KAVII</b> 5601	ENG SA/56-9	Phosphate	Minor deposit
	JA SA/56-10 Tugi Tugi Provisional Goldfield	Gold, silver	Minor deposit
NAMA	ATANAI SA/56-14		
5801 5802 5803 5804 5805	Legusulum Prospect Kaluan Prospect Sinelu River Prospect	Coal Aluminium Aluminium Copper Copper Copper	Occurrence Occurrences Occurrences Prospect Prospect Prospect
SAMO	SA/56-15		
5901		Copper, gold	Occurrence
CAPE	SΤ GEORGE SB/56-3		
6001 6002 6003		Coal Coal Gold	Occurrences Occurrence Occurrence
BOUG.	AINVILLE ISLAND NORTH SB	/56-8	
6101 6102 6103 6104		Iron Iron Iron Iron	Occurrence Occurrence Occurrence Occurrence
BOUG	AINVILLE ISLAND SOUTH SB	/56-12	
6201 6202 6203	Panguna Mine	Iron Iron Copper, gold, (silver, molybdenum, zinc, lead)	Occurrences Occurrence Major deposit

Index No.	Name	Commodities	Category
6204	Kupei Mine	Gold, silver, (copper, lead, zinc)	Minor deposit
6205	Moroni Mine	Gold, (copper, zinc)	Occurrence
6206		Iron	Occurrence
6207		Gold, zinc, copper	Occurrence
6208		Iron	Occurrence
6209		Iron	Occurrence
6210		Iron	Occurrence
6211		Gold	Occurrence
6212		Copper	Occurrence
6213		Gold	Occurrence
6214		Gold	Occurrence
6215		Gold	Occurrence
6216		Gold	Occurrence
6217		Iron	Occurrence
6218		Iron	Occurrence
6219		Iron	Occurrence
6220		Iron	Occurrence
6221		Iron	Occurrence
GUL	F SC/55-1		
7001 7002 7003 7004 7005 7006	Orokolo No. 1 Well Borabi No. 1 Well Pasca No. 1 Well Pasca A No. 2 Well Pasca C No. 1 Well Pasca C No. 2 Well	Gas condensate Gas condensate	New field wildcat—dry New field wildcat—dry New field discovery New pool discovery New field wildcat—dry New field wildcat—dry

