COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

RECORDS 1958/117

SUMMARY OF ACTIVITIES - 1958

RESIDENT GEOLOGISTS - PAPUA AND NEW GUINEA

by

J.E. Thompson

SUMMARY OF ACTIVITIES - 1958

RESIDENT GEOLOGISTS - PAPUA AND NEW GUINEA.

By J.E. THOMPSON

RECORDS 1958/117

GENERAL.

The Resident Geological Section is seconded to the Administration of Papua and New Guinea to provide geological services to the Administration, to the Commonwealth Department of Works in Papua and New Guinea and to the public. The Geological Section is attached to the Department of Lands, Surveys and Mines.

This Section comprises:-

(a) a headquarters office at Port Moresby, staffed by a Senior Geologist (J.E. Thompson) and a Geologist Grade I (H.L. Davies);

(b) an office at Wau, the mining centre of New Guinea, staffed by a Geologist Grade III (D. Dow) and a Geologist Grade I (G. Siedner);

(c) a vulcanological service operating from the Rabaul Observatory which is staffed by a Geologist Grade III (G.A. Taylor) and a Geologist Grade II (J. Barrie who during the year replaced J.E. Johnson).

ACTIVITIES.

1. GEOLOGICAL.

A major objective during the year has been a reconnaissance appraisal of the potential of the Papuan Ultrabasic Belt as a possible host of lateritic-type nickel deposits. A peridotite-pyroxenite zone extends along the south-western fault margin of the Belt. Nickel in a soluble form is concentrated in the lower part of residual soils developed over peridotite areas within this zone. In general the current erosion cycle has been too severe to permit advanced lateritization and consequent downward nickel enrichment to produce ore-grade zones.

In some high rainfall areas of moderate relief nickel values in the lower part of soil profiles over peridotites often exceed 1%. Unfortunately peridotite and pyroxenite are usually intimately associated and large areas of peridotite without pyroxenite are uncommon. Thus, as the nickel is derived almost exclusively from the olivine (fosterite) of the peridotites, marked lateral variation of the nickel values of the soils is common. The soils of some small and difficultly accessible remnants of a former, more mature topography developed over peridotites and pyroxenites and preserved at approximately 3500 ft. on the south-western flank of the Ajura Kujara Range could not be conclusively tested because a lateritic hard pan within the soil profile could not be penetrated with the equipment available. Nickel enrichments below this hard pan may be of economic grade but the difficult access to the area would probably preclude exploitation. The Papuan Ultrabasic Belt was examined at its north-western and south-eastern extremities and in the Kokoda area.

There has been sustained gold prospecting interest in an area approximately 10 miles south-east of Kainantu, in the Eastern Highlands District. The two principal prospects at Mt. Victor and Mt. Ubanks have been mapped and sampled. Development of these two prospects will continue to be closely followed.

An administration diamond drilling project to test garnetiferous gold lodes at Aifunka, about five miles south-west of Kainantu was completed. The results, although not conclusive, were disappointing, indicating a general distribution of low gold values throughout several garnetiferous horizons.

Some exposures of lead-zinc sulphide mineralization at Efontera, 2½ miles north-west of Kainantu, were investigated by surface mapping and diamond drilling which indicated that the exposures represented mineralization of insignificant dimensions.

In the Wau area, progress of underground mining by New Guinea Goldfields Ltd. in the Upper Ridges area was

periodically mapped. The main development was on No. 8 and No. 10 levels. A new 1100 ft. adit on No. 10 level was commenced in May, to facilitate removal of ore from the higher levels. This adit had reached 918 ft. on 10th December, having traversed schist to 895 ft. where a fault contact with volcanic breccia was crossed. Within the breccia at 897' and 918' manganiferous calcite lodes were encountered. On No. 8 level a cross-cut from the foot-wall of the main lode disclosed a new calcite lode of favourable grade and thickness.

Throughout the year, the geological staff have assisted the Administration Mines Division with their programme of percussion drilling undertaken under the Encouragement of Mining Development Ordinance (1955) for New Guinea Goldfields Ltd. and Koranga Gold Sluicing Ltd. The object of this drilling has been to extend reserves of auriferous gravels in the Koranga and Burke Creek areas.

Progress by Enterprise of New Guinea Gold and Petroleum Development N.L. in the development of their Merri Creek Mine in the Upper Edie Creek area has been periodically mapped.

Detailed geological mapping in the Koranga-Edie Creek area continued throughout the year.

A report of a magentic anomaly near Fortification Point, Morobe District, was investigated. The reported anomaly could not be confirmed and some reconnaissance mapping in the vicinity was accomplished.

Beach sands near Salamaua were investigated and sampled as a possible source of materials for the manufacture of glass. The sands appear unsatisfactory for this purpose.

Mapping of a regional nature in the Snake River-Bulowat area continued as other duties permitted, in an endeavour to relate Cretaceous greywackes outcropping in the Snake River with the metamorphics of the Wau area. Although this relationship is not yet clear it appears that the Cretaceous beds are the age equivalents of the metamorphics, but are in

a much less advanced stage of regional metamorphism.

Reconnaissance investigations were carried out on Misima Island in conjunction with investigations by a representative of Oceanic Minerals Ltd. who have an exclusive prospecting title covering most of the areas with any history of gold production. Sudest and lesser islands of the Louisiade Archipelago were also reconnoitred.

The Sewa Bay area, Normanby Island was visited following a report of ultrabasic rocks in the area. The presence of peridotites and pyroxenites was confirmed but they have no lateritic soil cover and consequently no nickel potential.

Minor investigations were also carried out in the Kemp Welch River, the Kumusi River and in the vicinity of Samarai. Field work and supervision of drilling in connection with the locating of underground water in the Port Moresby area was undertaken during the dry season.

2. VULCANOLOGICAL.

Seismic, tilt and thermal recordings were maintained throughout the year from the Rabaul Observatory. Almost continuous trouble with fragile galvanometers for the Benioff seismographs precluded complete recording on all three components. In October the Rapindik instrument station was closed down because of deterioration of the building. Alternative siting for the Omori seismograph is now being sought. Volcanic conditions in the Blanche Bay area were fairly static throughout the year. Water jets from an area between the Beehives and Vulcan were reported on several occasions during the year. The cause of this phenomenon has not been confirmed, but it may be due to intermittent gas emission from a vent on the sea floor in this area.

The Manam Island vents were active throughout the year. This activity was considered a threat to the native population and they were evacuated to the mainland in January and returned to the island in October. For most of the year

two observation posts on the island were manned and equipped for seismic and tilt recording.

During March and April, Bam Island showed signs of increased activity and a temporary observation post was established there. With a decline in activity this observer was withdrawn in July.

Willmore seismographs were temporarily established for varying periods at Madang, Manam Island, Boisa Island, Lihir Island, Talasea and Langila.

Reports of rumbling earthquakes in the D'Entrecasteaux Islands, particularly off the north and east coasts of Normanby Island were investigated. Thermal areas and volcanoes on Fergusson and Normanby Islands were inspected.

Mild explosive activity at Langila at the western end of New Britain in May and June was investigated. Ritter Island was visited and thermal areas on Lihir Island were inspected.