

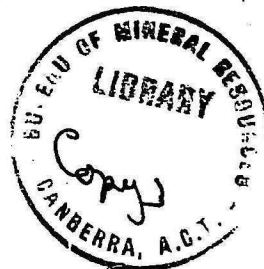
Planned
1977/12
Page 012

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

1958/120



SUMMARY OF ACTIVITIES 1958

MISCELLANEOUS INVESTIGATIONS AND MAP COMPILATION GROUP

SUMMARY OF ACTIVITIES 1958

MISCELLANEOUS INVESTIGATIONS AND MAP COMPILATION GROUP

RECORDS 1958/120

STAFF

D. E. Gardner (Senior Geologist) was in charge of the engineering geology sub-group throughout the year; J. E. Foweraker assisted until his resignation in April, 1958. J. Barrie, Geologist Grade I, worked with the sub-group from April to July.

W. J. Perry (Senior Geologist) was in charge of the map compilation sub-group assisted by G. M. Burton and E. G. Wilson (from March, 1958). To provide some component on active geological work, specific projects from the Miscellaneous Investigation sub-group were given to map compilation staff; W. J. Perry carried out investigations on building stones, and Burton and Wilson were in charge of investigations of underground water supply in the A.C.T. and environs.

Three stratigraphic indexers, Misses E. M. Smith, J. Clay and S. Irving carried out compilation of stratigraphical lexicons of Australian states for most of the year; J. Clay and S. Irving resigned towards the end of the period.

ENGINEERING GEOLOGY, INVESTIGATION OF DAM SITES AND BRIDGES, ETC.

Investigations were grouped as follows:

The Upper Cotter Dam Site
Canberra Lake Scheme
Miscellaneous Investigations in the Canberra Area
Hydro-electric Project in New Guinea

The Upper Cotter Dam Site

Detailed geological investigations combined with diamond drilling were finished and a full report for tenderers was completed in April. A second report for tenderers included all data collected on potential sources of aggregate and sand in the vicinity of the dam. Except for the regular logging of water levels in drilling holes and an investigation of a bridge site, no additional work was required in 1958; tenders have been called and the successful contractors should begin construction early in 1959.

Canberra Lake Scheme

To provide basic information for the Department of Works and for the National Capital Development Commission, a number of investigations were carried out on the proposed lake scheme. These were the investigation and drilling of two alternative weir sites - Acton and Yarralumla - an investigation of the storage area of the lakes, and a review of the siltation problem. Reports on these aspects were submitted to the Works Department in November.

Miscellaneous Investigations in the Canberra Area

Numerous minor investigations of foundation conditions for proposed buildings and of drainage problems were carried out during the year. It has now become an established practice for the Works Department to request examinations of foundation and drainage conditions in all major works.

More comprehensive investigations included completion of the report on sand resources in the Canberra area and on supplies of road metal to replace the existing Southwell's Quarry which will be closed down.

Hydro-electric Project in New Guinea

In November and December, L. C. Noakes and D. E. Gardner made a reconnaissance of proposed hydro-electric schemes on the Laloki River, Port Moresby, on the Sankwep River near Lae and on the Upper Ramu in the Central Highlands, to advise the Commonwealth Department of Works on engineering geology problems.

Four dam sites, a pipe line and a power station site were examined in the Laloki scheme and preliminary diamond drilling programmes were laid down. A general reconnaissance was made on the Sankwep and the Upper Ramu schemes which are alternative projects to provide power for Lae. Reports on these investigations are in hand.

MISCELLANEOUS INVESTIGATIONS

Investigations of underground water resources in the A.C.T. and environs were carried out mainly by G. M. Burton and E. G. Wilson; this work was combined with the extension of detailed geological mapping for the Canberra area.

During the year, requests for bore sites from graziers continued; thirteen sites were located, of which ten were drilled. The only unsuccessful bore was one in which the rock proved too hard for the drilling plant to make sufficient depth.

Underground water supply became more important with the growth of the idea that bores could be used to supplement rainfall in small scale irrigation projects for the growing of pasture crops. Emphasis has been placed on siting bores for maximum supplies and detailed geological mapping is essential.

During the year a small programme of research into aspects of underground water supply from crystalline rocks began. Pumping equipment to enable yields to be properly determined for graziers as well as for research was purchased and built into a mobile plant. Experimentation with types of electric probes for water levels determination was carried out. It is hoped that experience gathered in the A.C.T. with pumping and other equipment will be useful in investigations in the Northern Territory.

D. E. Gardner completed his investigation on beach sand heavy minerals near Bunbury, W.A., early in 1958.

SEARCH FOR PHOSPHATE DEPOSITS IN WESTERN PACIFIC

O. N. Warin and R. Jensen, with two field assistants, left on 19th April on the charter vessel M. V. KOKODA for the commencement of the phosphate survey. Following a rapid survey of the Loughlin and Marshall Bennet Islands off the east coast of Papua, the party went direct to Bellona in the British Solomon Islands Protectorate to make a thorough investigation of the known deposit on that island. Some 600 test holes were bored, the deepest being to 35 feet, and approximately $5\frac{1}{2}$ million tons of available phosphate material was proved. Of this 1 million tons is good grade material averaging 33% P_2O_5 , the remainder being of low grade (22% P_2O_5) and containing an appreciable amount of iron and alumina.

A reconnaissance of the more promising of the outlying islands in the Solomons was carried out before the vessel re-entered New Guinea waters early in June, to investigate islands in the St. Matthias group, the Admiralty Islands and the Western Admiralty Islands. A small deposit of approximately 300,000 tons partly of high grade calcium phosphate and partly low grade aluminous material similar to Bellona was discovered on Nauna in the Admiralty Islands. Reported deposits on the Purdy Islands and on Sae, Wuvulu, Aua and Manu in the Western Admiralty Islands were tested by boring and found to be, without exception, small and mainly fairly low grade.

The party returned to Port Moresby on September 10th.

MAP COMPILATION

Work in this sub-group consisted mainly of map editing; a streamlined procedure, whereby four-mile and one-mile geological maps are properly edited before delivery to the drafting group has been instituted and will save considerable time and effort for both geological and drafting staff.

During the year, twelve four-mile maps, five one-mile maps and two special maps were edited; four four-mile maps and three one-mile maps were delivered to the printer; eight four-mile and three one-mile maps were published during the year.

The compilation of an engineering geology map of the Canberra district was begun and almost completed during the year. Assistance was also given in the compilation of the tectonic map of the Northern Territory in which a number of geologists participated as the Bureau's contribution to the tectonic map of Australia. This map is being compiled under the auspices of the Geological Society of Australia; the Bureau has taken a prominent part in planning and compilation.

Revisions were made to the new geological map of Australia, compiled for the Atlas of Australian Resources and for the Australian portion of the regional geologic map of Australia and Oceania (Geological Map of the World). A new compilation of the geology of New Guinea was also completed on a scale of 1:4,000,000 for the same regional map.

STRATIGRAPHIC INDEXING

The main task of the stratigraphic indexers in 1958 was the compilation of stratigraphic lexicons for publication

by the Commission for Stratigraphy, International Geological Congress. Lexicons for Queensland and South Australia had already been compiled and published in 1957; lexicons for New South Wales and Tasmania were completed and despatched to France in 1958. A lexicon of the Northern Territory was also completed and is now in the checking stage; compilation of the lexicons of Victoria and Western Australia is proceeding.

In addition, a review of the nomenclature of sedimentary basins in Australia, and indexes of published geological maps throughout Australia were compiled.

RECORDS COMPLETED IN 1958

- 1958/5 Diamond drilling at the site of Weetangera Reservoir, A.C.T. - D. E. Gardner.
- 1958/11 The drainage problem at Torres Street, Red Hill - L. C. Noakes.
- 1958/16 Geological report Dam Site C, Upper Cotter River, A.C.T. - J. C. Foweraker.
- 1958/20 Preliminary geological report on Yarralumla Weir Site with recommendations for Testing - D. E. Gardner.
- 1958/63 Beach sand heavy minerals near Bunbury, W.A. - D. E. Gardner.
- 1958/64 Annual Conference of Institute of Engineers, Newcastle, February 1958 - D. E. Gardner.
- 1958/69 The Canberra Lakes Scheme - A Review of the Siltation Problem - L. C. Noakes.
- 1958/72 Sources of Sand in and near Canberra City District, A.C.T. - Investigations Completed before July 1958 - D. E. Gardner.
- 1958/75 Engineering Geology of the Proposed Canberra Lakes - L. C. Noakes and D. E. Gardner.
- 1958/88 Supply of Road Aggregate , Kowen Road, A.C.T. - D. E. Gardner.
- 1958/91 Geological Investigations of Weir Sites at Acton and Yarralumla Canberra A.C.T. - D. E. Gardner.

An edition of the Explanatory Notes to accompany the Canberra 4-mile sheet was completed by L. C. Noakes.