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Cooperative Research Centre for
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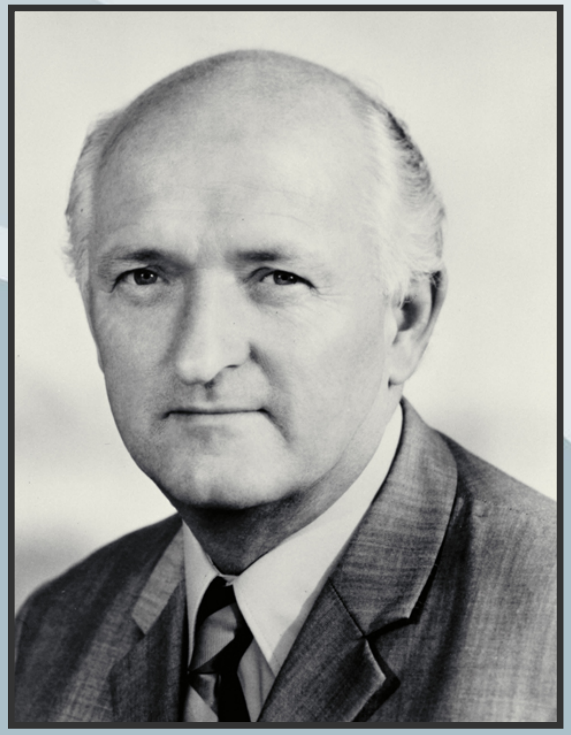
and Mineral Exploration

Government of South Australia
Primary Industries and Resources SA



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Dr Reginald Sprigg

Contributions to Geology – Insights into Landscape Evolution

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Brief History – Reg Sprigg

- 1919 – born in Stansbury
- 1936 – elected Member Royal Society of SA
- 1941 – M.Sc. Adelaide University
- 1942 – CSIR Soils
- 1944 – 1954 – SA Mines Department
- 1954 – Geosurveys of Australia Pty Ltd
- 1962 – founded Beach Petroleum
- 1968 – purchased Arkaroola Pastoral Lease

1940 – central Flinders Ranges

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First Meeting of APEA -1961

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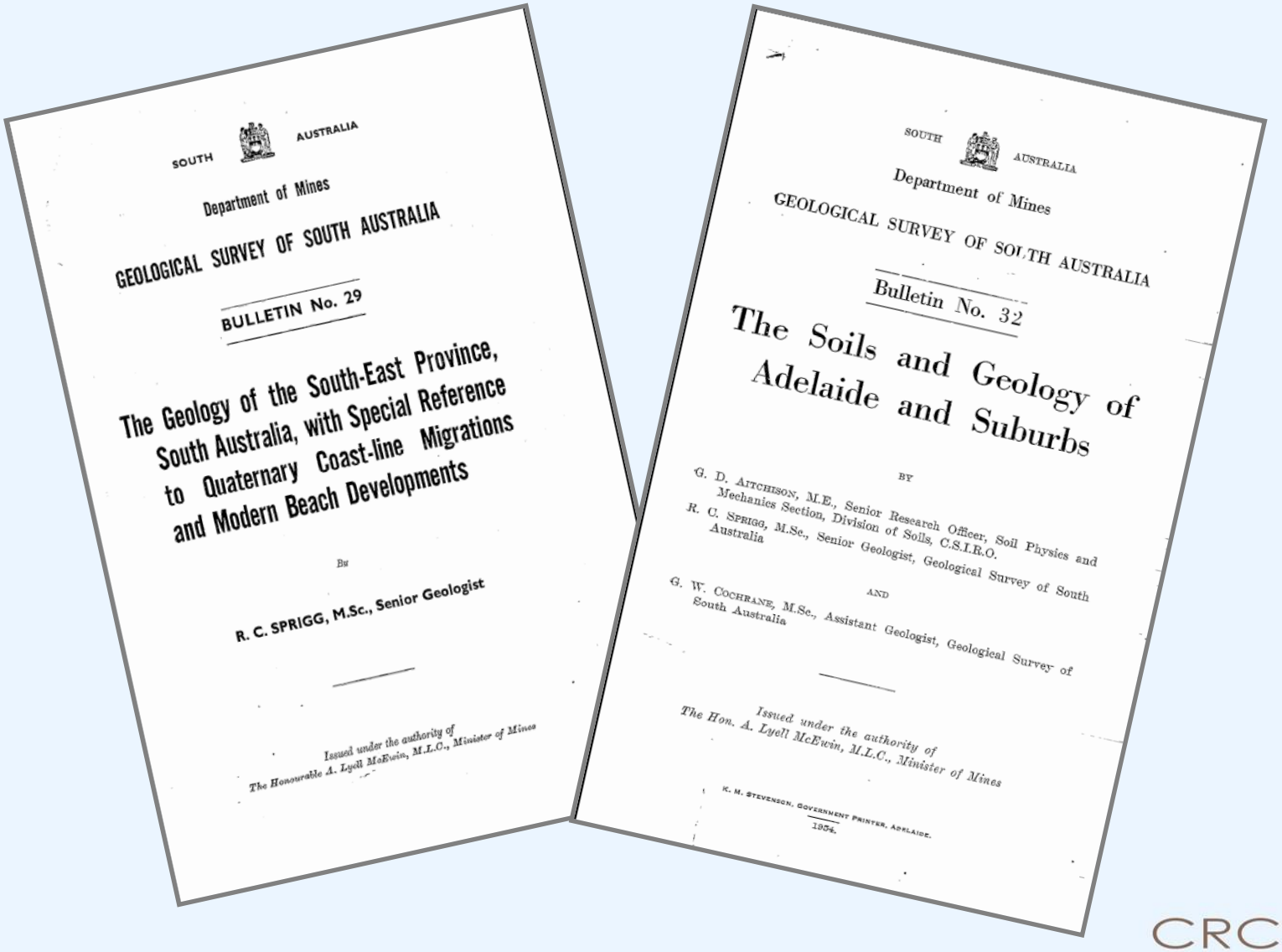
Selected Geological Contributions

- Discovery of Precambrian fossils at Ediacara in 1946
- Discovery of deep submarine canyons on the edge of the continental shelf south of Kangaroo Island in 1947 – rediscovered 15 years later
- Promoting the link between “youthful” domed sediments in south-west GAB and petroleum potential in deep anticlinal traps

Regolith and Landscape



SOUTH AUSTRALIA

Department of Mines

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA

BULLETIN No. 29

The Geology of the South-East Province, South Australia, with Special Reference to Quaternary Coast-line Migrations and Modern Beach Developments

By

R. C. SPRIGG, M.Sc., Senior Geologist

Issued under the authority of
The Honourable A. Lyell McEwin, M.L.C., Minister of Mines

SOUTH AUSTRALIA

Department of Mines

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA

Bulletin No. 32

The Soils and Geology of Adelaide and Suburbs

BY

G. D. Aitchison, M.E., Senior Research Officer, Soil Physics and Mechanics Section, Division of Soils, C.S.I.R.O.

R. C. Sprigg, M.Sc., Senior Geologist, Geological Survey of South Australia

AND

G. W. Cochrane, M.Sc., Assistant Geologist, Geological Survey of South Australia

Issued under the authority of
The Hon. A. Lyell McEwin, M.L.C., Minister of Mines

K. M. Stevenson, Government Printer, Adelaide.
1954.

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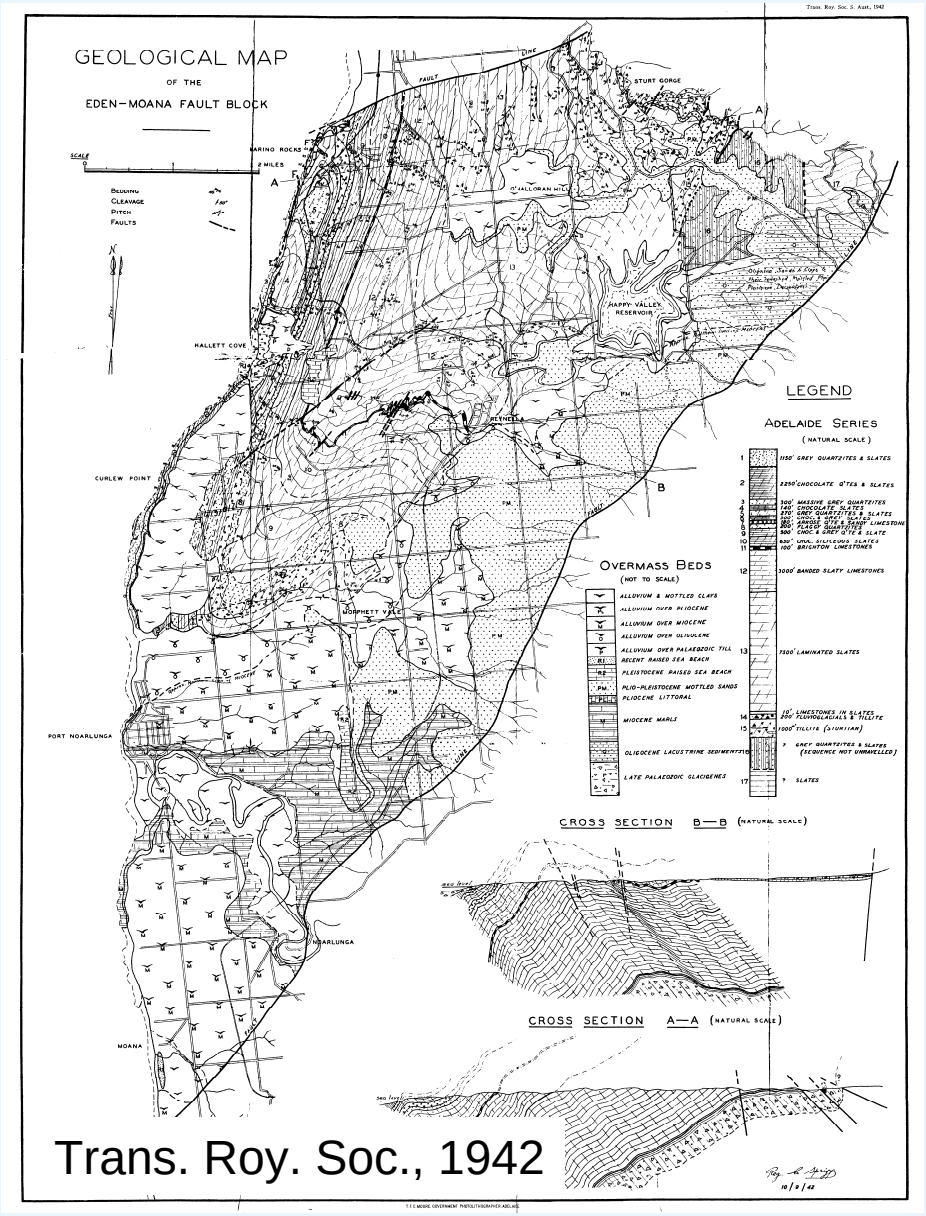
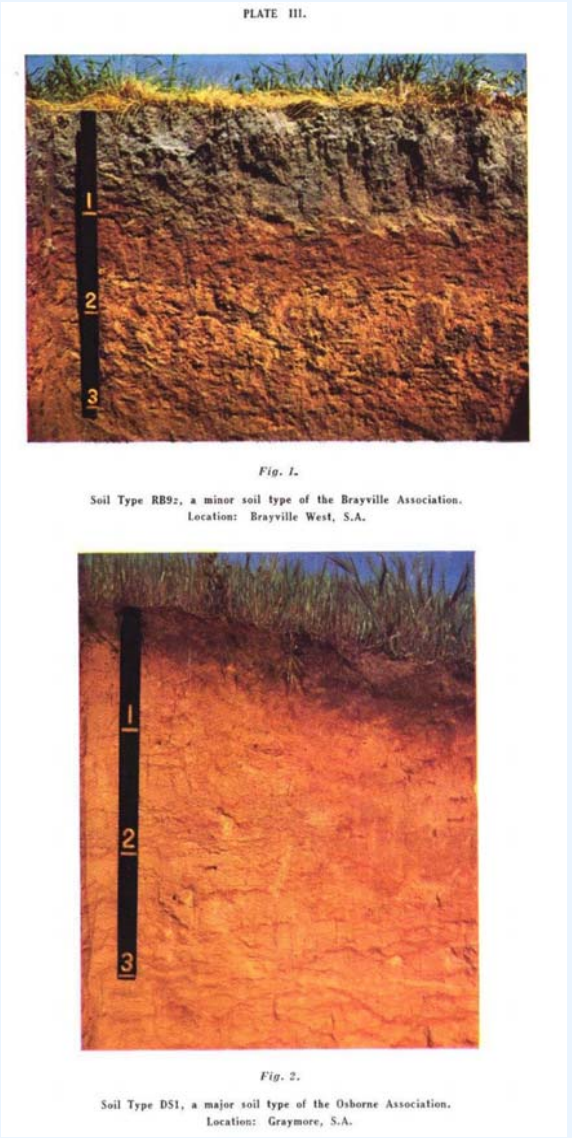
Geology and Soils – Adelaide area



Trans. Roy. Soc., 1942



Geological Survey Bulletin 32

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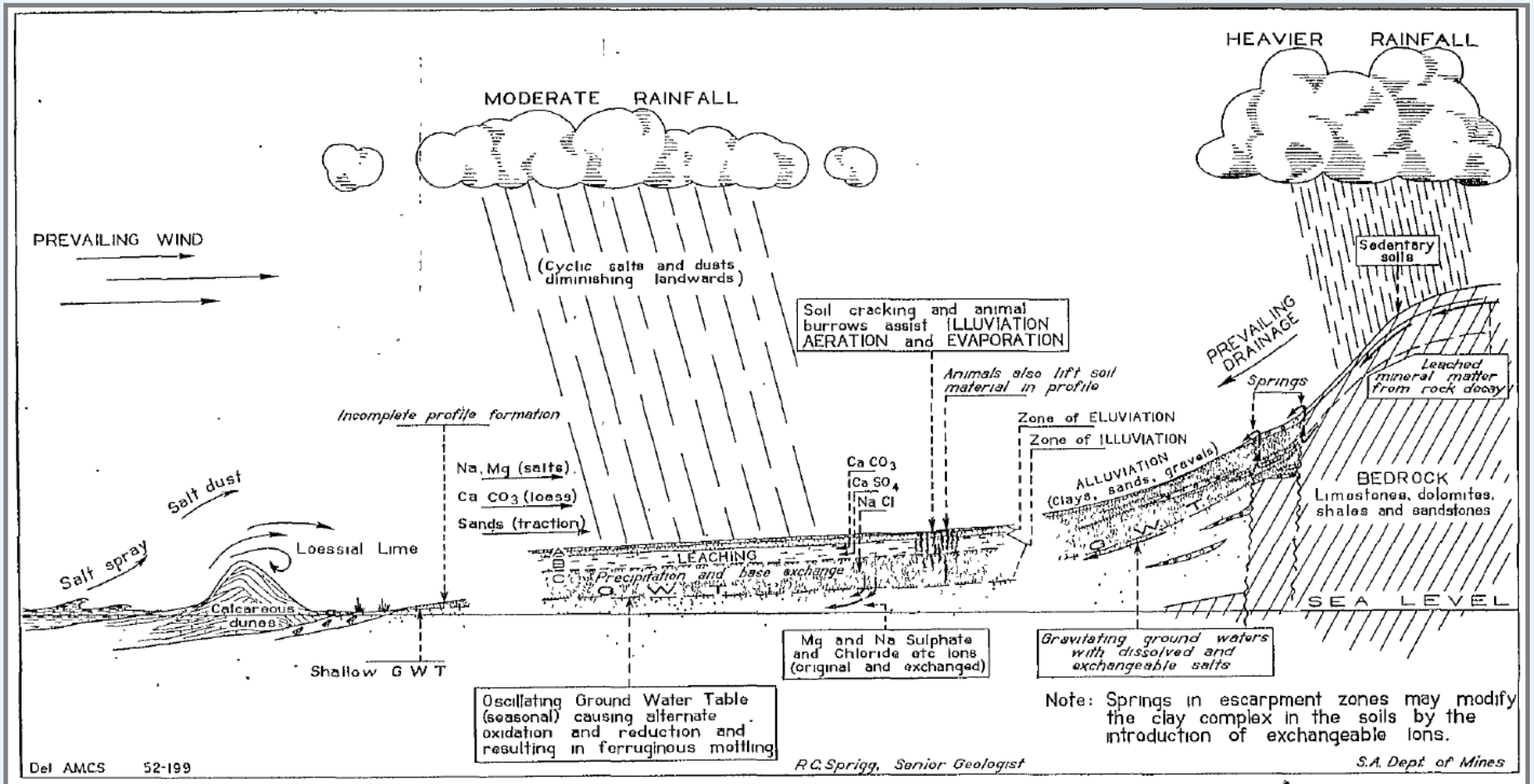
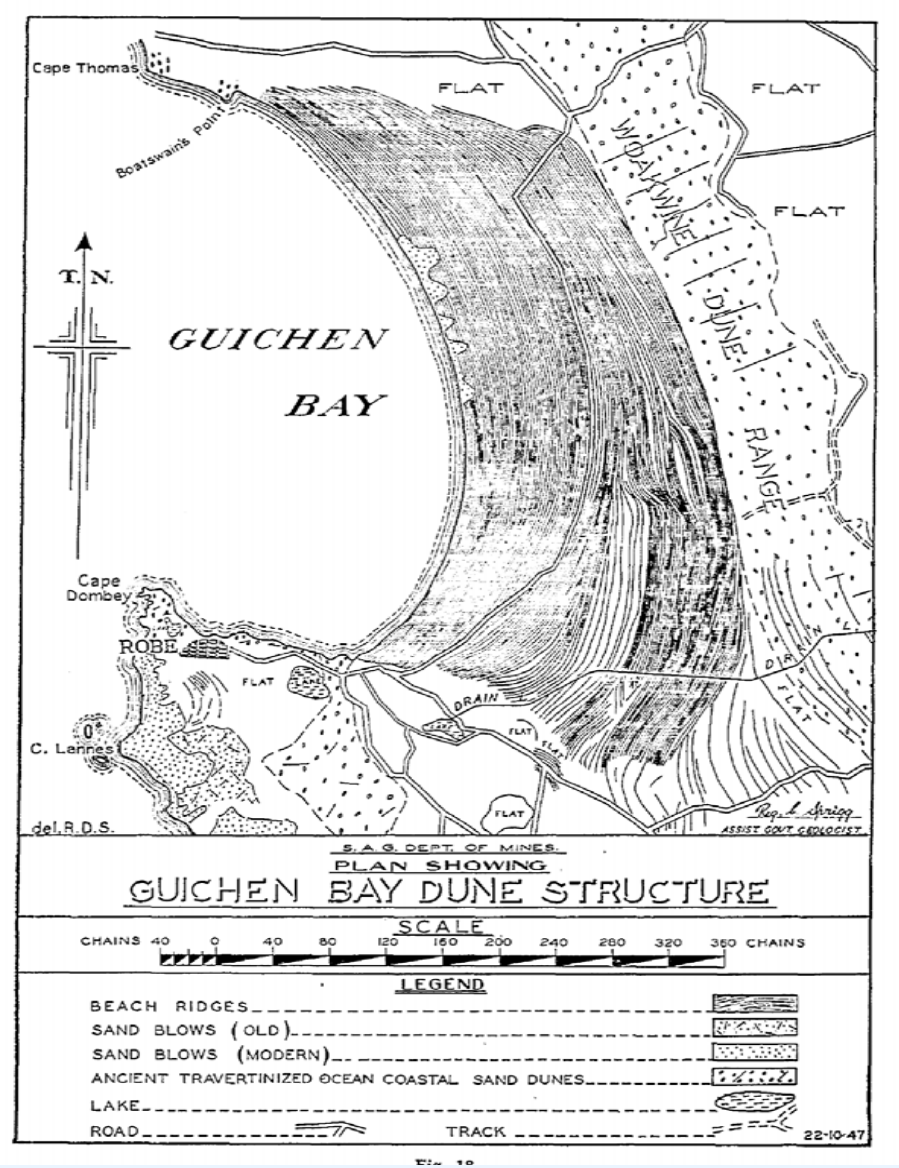


Fig. 13—IDEALIZED SECTION THROUGH THE ADELAIDE PLAINS
Illustrating the major geological processes active in soil formation

Soils of the alluvial outwash area are continuously "growing" vertically, mostly by additions from the escarpment zone, but also from the coastal zone. Downward migration of groundwaters temporarily concentrates the more insoluble materials (alumina, iron oxides, calcium carbonate, calcium sulphate, etc.) in the "B" soil horizon, but as the soil continues to upgrade, all but the most insoluble of these are reduced extensively in quantity by further downward leaching to produce a "C" horizon of more even composition.

Geological Survey SA, Bulletin 32

South East –Landscape Evolution



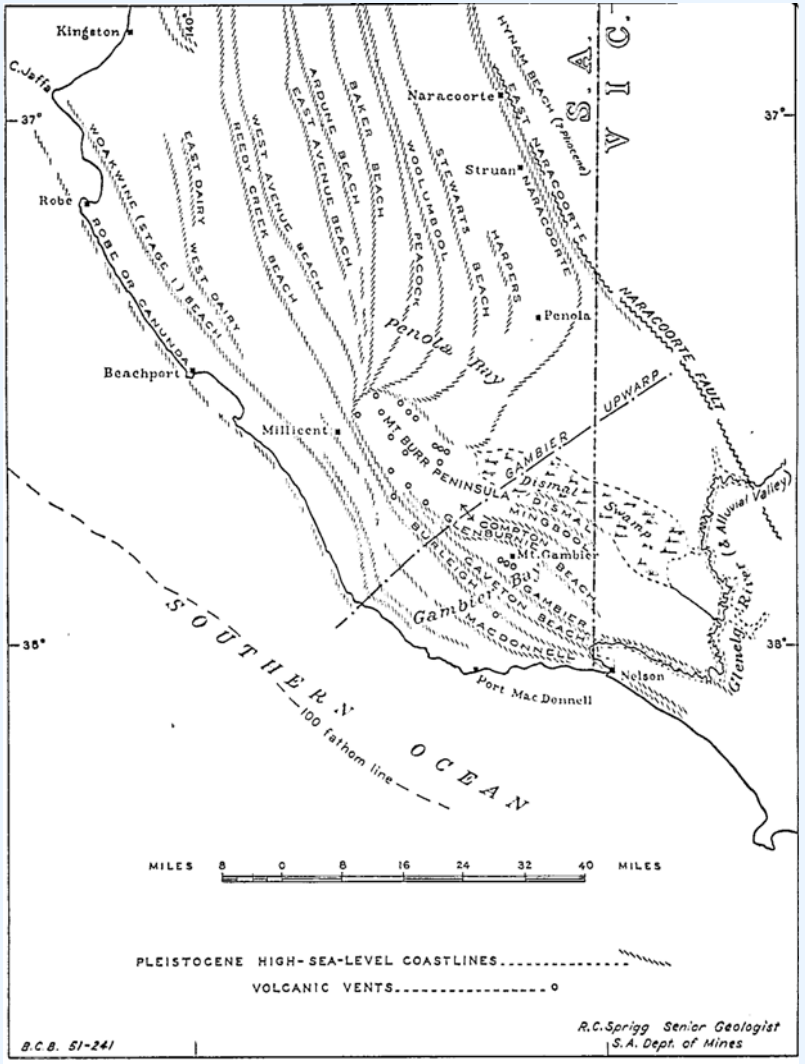


Fig. 17a—Pleistocene coast-lines and Gambier upwarp—Counties MacDonnell, Robe, and Grey

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Drowned calcarenite beach dune – South East Coast

Milankovitch Orbital-Climatic Theory

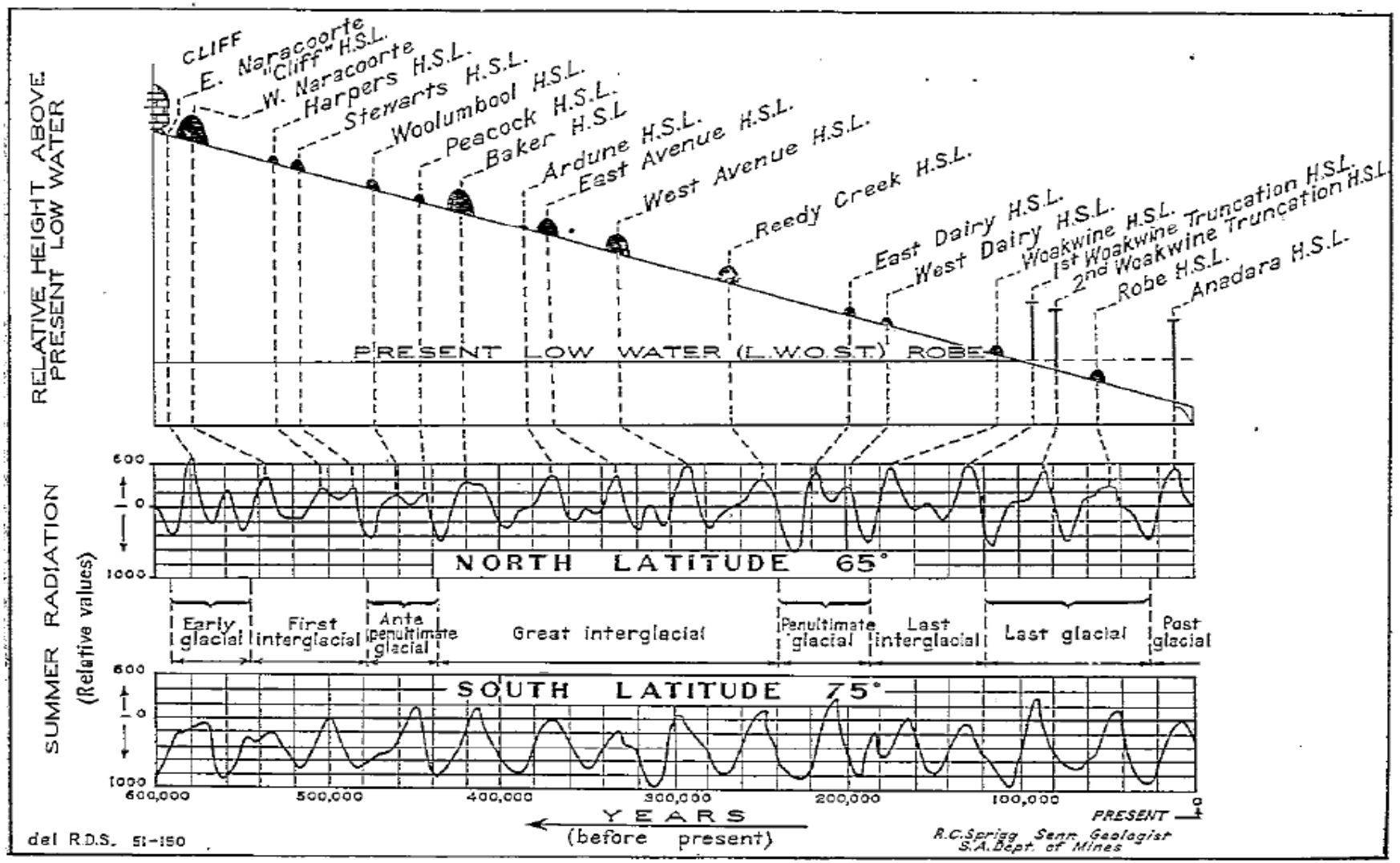

Fig. 42—High sea-level correlation diagram for the Quaternary period

Geological Survey SA, Bulletin 29 **18th IGC London 1948**

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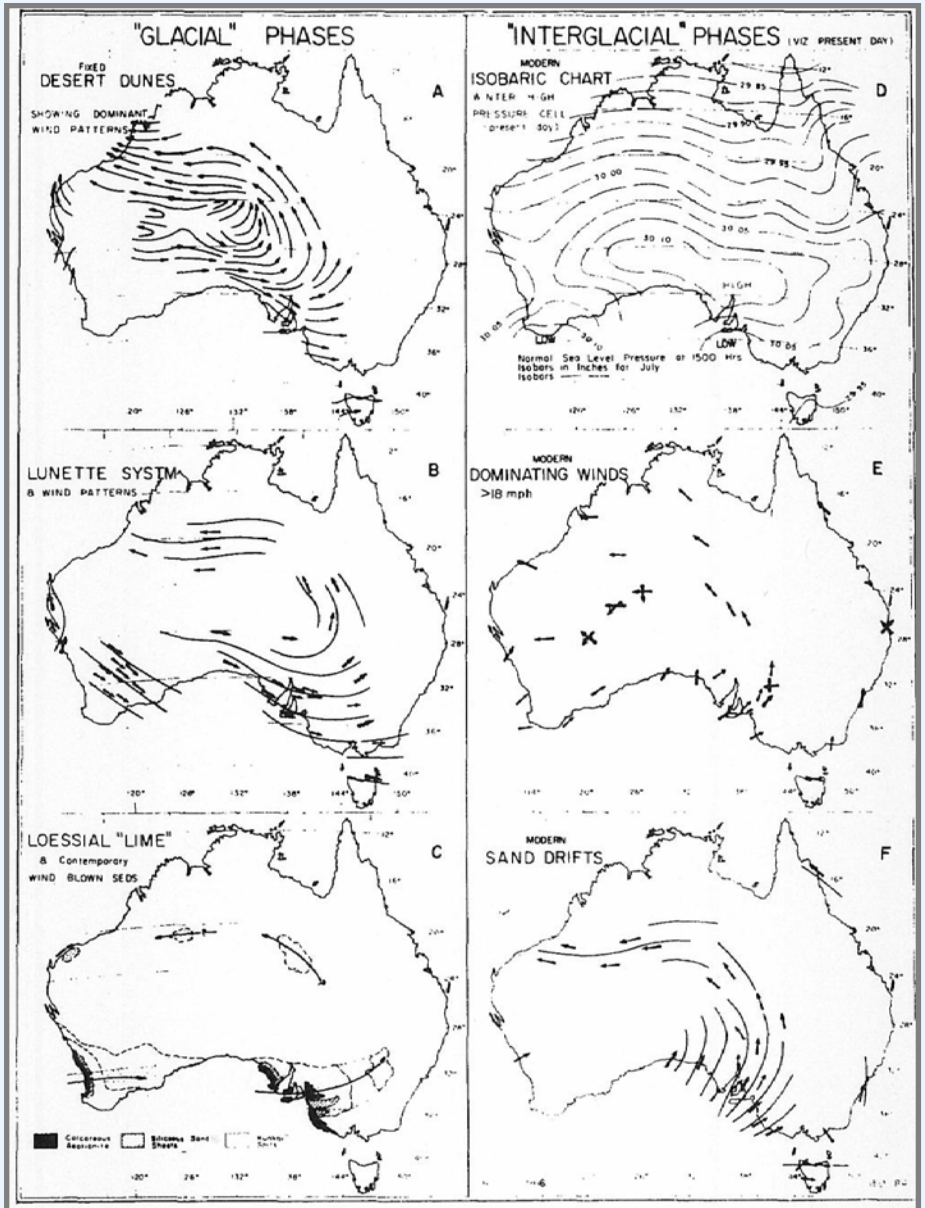
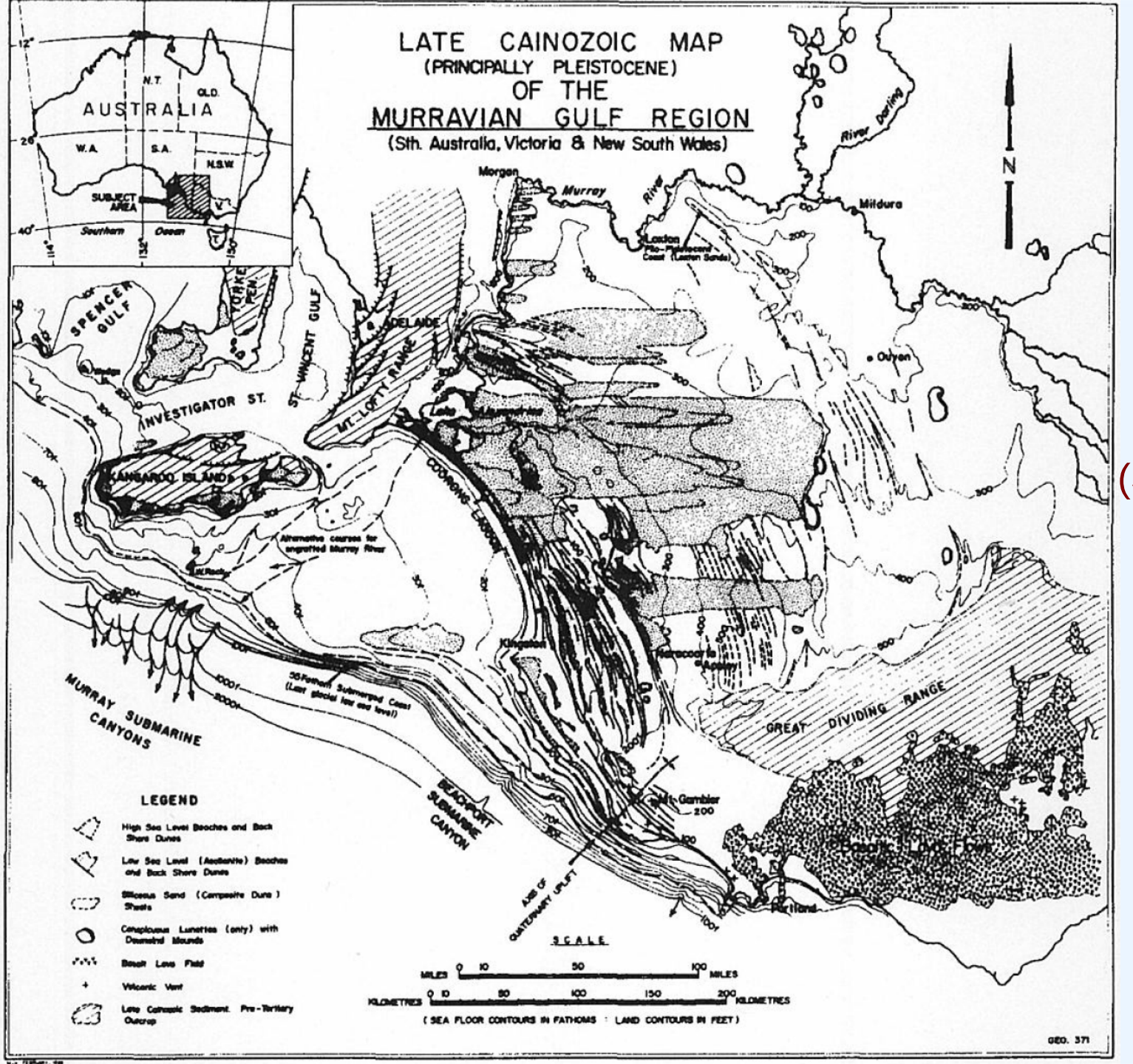


Fig. 17. Fossil and modern Quaternary wind systems reveal significant directional deviations only in the southerly 'prevailing westerly' streams. Longitudinal dune systems, lunettes and 'loessial' soil lime distributions all conform to a 'periglacial' wind system. Modern winds and sand drift directions are discordant to these, only in the south.

Dune building in response to climatic changes during 'glacial' and 'interglacial' phases

Sprigg - Sedimentary Geology, 1978



Sprigg

(Sedimentary Geology 1978)

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- *Spriggina* originally described as an annelid (segmented worm), now appears to be related to the arthropods - although *Spriggina* had no hard parts, and it is unclear exactly what kind of appendages it had
- By nearly any measure, the most successful animals on the planet are the arthropods

(after University of California, Museum of Palaeontology, Berkeley, 2007)

Spriggina floundersi