

BOOK REVIEW

THE GEOLOGY OF THE SPRINGBOK AREA by J.A.H. Marais, A.L.D. Agenbacht, M. Prinsloo and W.A. Basson, Council for Geoscience, 280, Pretoria Street, Silverton, Pretoria, South Africa (2001), 103p.

The publication is an excellent treatise of the geology of the Springbok area covered by sheet No.2916 between latitudes 29° and 30° S and from 18° E longitude towards the Atlantic coast line, spread over 11,000 km² in the western South Africa. The area encompasses large portions of the districts of Springbok and Port Nolloth, and the reserves of Concordia, Komaggas, Steinkopf and Richtersveld. The terrain consists of an assemblage of low to high grade metasedimentary rocks, unmetamorphosed platform sediments and an array of granitic, basic and ultrabasic intrusive rocks varying in age from early Mokolian (Kheisian) to Namibian. The coastal area is characterised by extensive Cenozoic deposits.

The lithostratigraphy involves five main groups of rocks, viz.:

- a) Mokolian metasediments for which no depositional base has been recognised in the field.
- b) Proterozoic granitic to granodioritic igneous rocks which intrude the Mokolian metasediments.
- c) Early Namibian sediments of the Gariep Supergroup resting unconformably on the older metasedimentaries and igneous rocks.
- d) Weakly metamorphosed and slightly deformed strata of the Nama Group (600-700 Ma) which also rest unconformably on the Mokolian sediments and granites.
- e) Cretaceous to Pleistocene deposits of both terrestrial and coastal marine derivation.

In the absence of reliable isotopically determined ages, the workers have leaned heavily on the contact relations as observed in the field and thereby have done a commendable job in describing the stratigraphic relationships without ambiguity. Characteristics of each constituent formation are explicitly detailed. The intrusive relationships between the different granitic phases are similarly well documented. Excellent photographs of the outcrop features are reproduced in the book which make the study interesting. The comparison of geological features with our own Dharwar craton is inescapable.

The Springbok map area has been of great economic significance for many decades, primarily because of the copper mineralisation in the noritoid bodies of the Okiep Copper District, and the alluvial diamond deposits along the coast and the Buffels River. Other minerals that have been mined include wolframite, scheelite and corundum as well as pegmatite related minerals such as feldspar, mica, beryl, bismuth, tantalite-columbite, and lithium bearing minerals. Uranium mineralisation is associated with bodies of leucogranite in Nootgedacht. Large reserves of ground water occur in the sand filled basin of the Buffels River below the escarpment, known as the Spectakel aquifer. A substantial reserve of water is also present in the Gembokvlei basin, east of Port Nolloth.

Especially exciting is the report on the discovery of diamonds, which are concentrated and deposited in the river gravels originally derived from igneous rocks located in the drainage area of the Orange River and its tributaries: "During 1926 a Mr. Alberts was contracted to build a school at Grootmis, near the present-day town of Kleinsee. While visiting a cirque-like depression, locally known as 'The Crater', in search of limestone required for white-washing purposes, he happened to unearth a diamond; by the end of October that year some 600 carats had been recovered from the surrounding area. In November 1927 a pothole containing 30,000 carats of diamonds was discovered by the South East Exploration Company". Drawing parallels of the geological milieu there is perhaps an urgent need for a meticulous search for diamonds in the ancient and present day river gravels in our own land.

The Council for Geoscience, (The Geological Survey of South Africa) deserves appreciation for bringing out such an excellent publication, which is error-free and printed on glossy paper containing attractive photographs. Perhaps, our own national organisations could pick a leaf from them in quality-documentation of our own geological reports.

*AMSE Wing
Geological Survey of India
Bangalore*

S.P. VENKATA DASU