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ON THE HISTORY OF GEOLOGICAL
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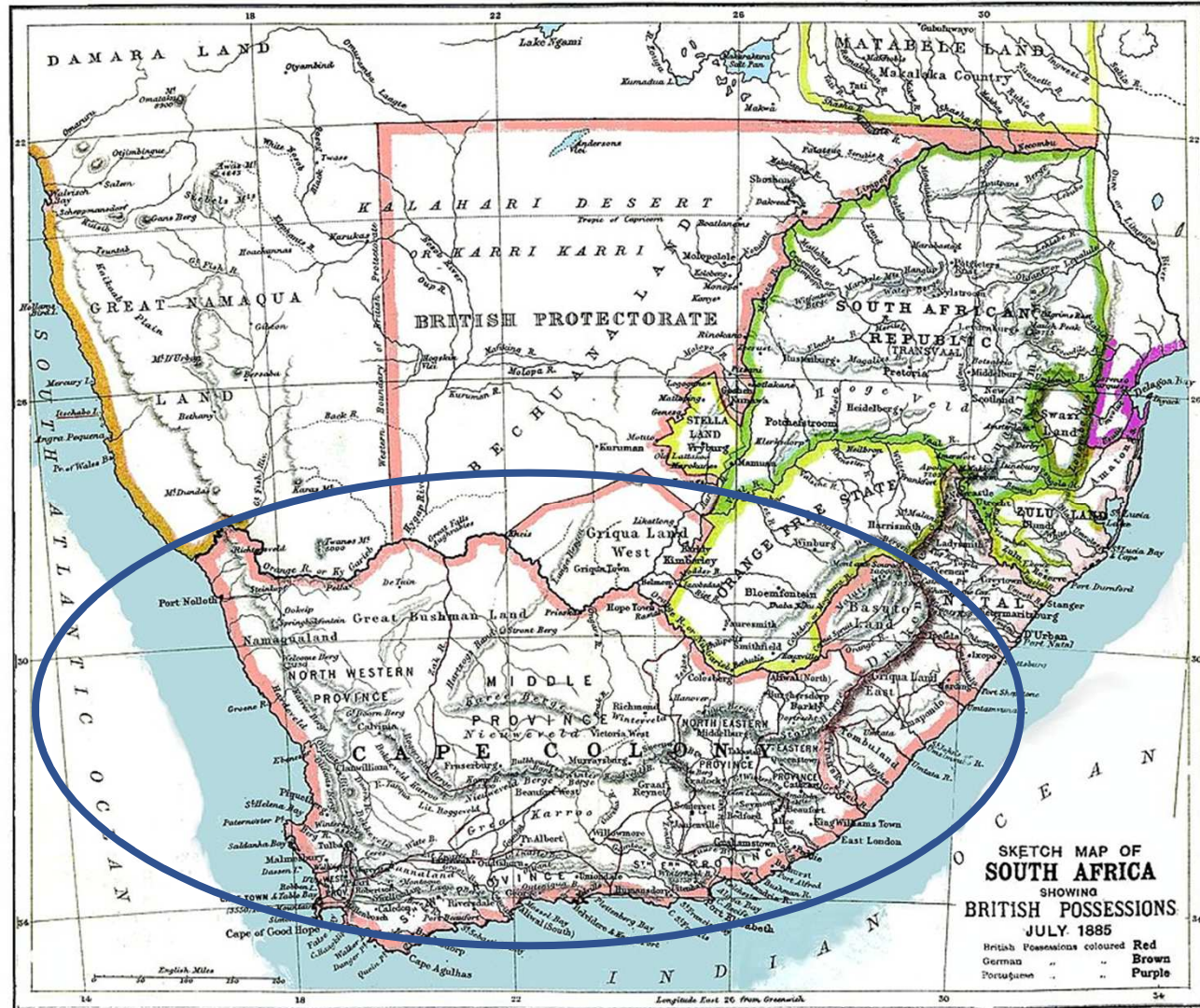
History of the Geological Commission of the Colony of Cape of Good Hope (1896-1912)

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The Colony of the Cape of Good Hope was a British colony in South Africa, since 1806, when it was taken over from the Dutch, who had originally established the Colony with the founding of Cape Town in 1652.

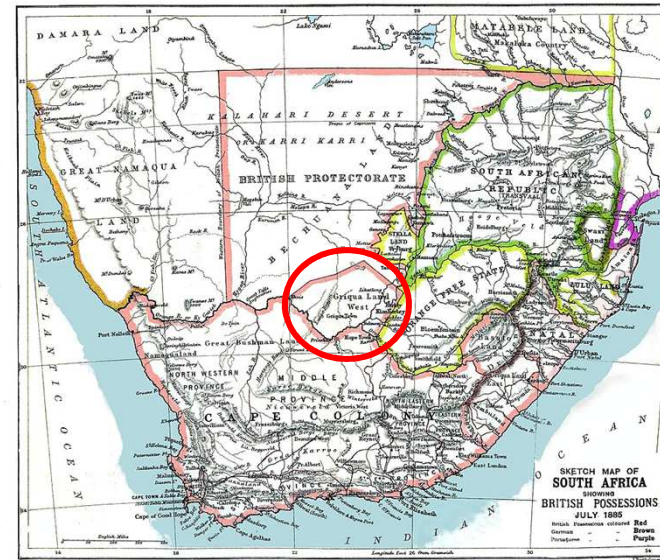




In the 19th Century, the Cape Government hired geologists such as **Edward J. Dunn**, **Charles D. Bell**, **Andrew Wyley** and **F. W. North** to report on the occurrences of copper, diamonds, gold and coal deposits.

Edward J. Dunn (1844-1937), a British-born Australian geologist. Wrote report on Stormberg coalfield for Cape government (1873).

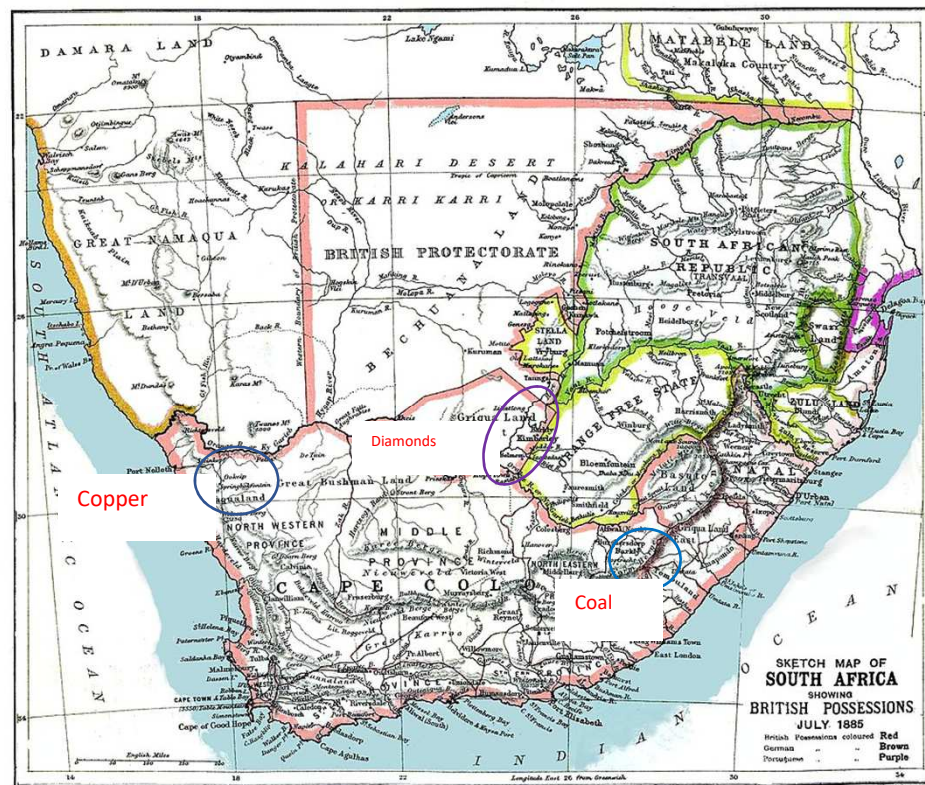
In 1871, Britain annexed the diamondiferous territory of Griqualand West, in the Northern Cape, and it was ruled as part of the Colony of Cape of Good Hope. A geologist, **George W. Stow**, was appointed to map Griqualand West.

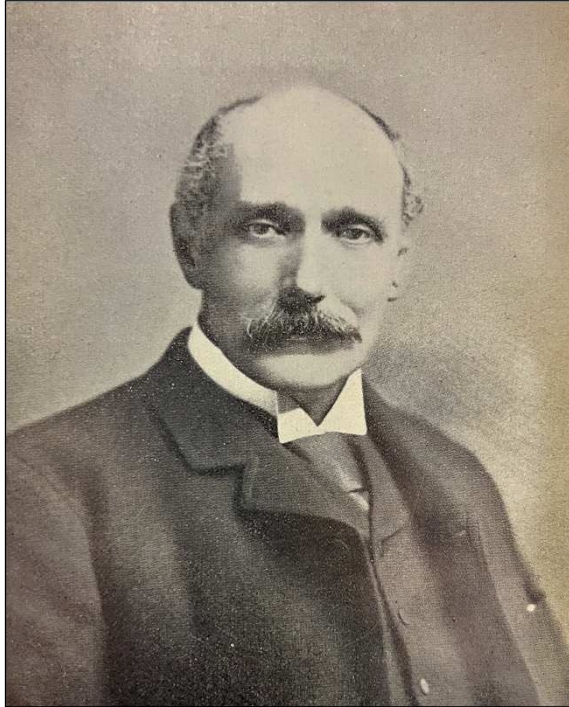


George Stow (1822-1882). Mapped Griqualand West on behalf of Cape government (1872)

In the 1890s the need was felt for a proper government department responsible for geological mapping of the Colony to be set up, and on 9 November 1895 the Geological Commission of the Colony of Cape of Good Hope (GCCCGH) was established, falling under the Department of Agriculture. Its geologists were **Prof. George Costorphine** (Director), **Arthur W. Rogers** and **Ernest H.L. Schwarz**, later joined in 1903 by **Alexander L. du Toit**. Costorphine left in 1902, and Schwartz resigned in 1905, leaving just Rogers and du Toit in the field, with Maria Wilman as Assistant at the SA Museum in Cape Town, where the Commission was based.

At the time the GCCCGH was established there was a lot of economic interest in the diamond deposits near Kimberley, and in newly established coal mines in the Eastern Cape, and copper mines in Namaqualand in the Northern Cape. It was felt that proper geological mapping would aid in the discovery of new mineral deposits.





One of the prime movers in the establishment of the GCCCGH was its Chairman, John Xavier Merriman, who was to be the last Prime Minister of the Colony of Cape of Good Hope, prior to the formation of the Union of South Africa in 1910.

Other founding members of the GCCCGH were:-

Thomas Muir FRS

(Superintendent of Education),

David Gill FRS (Her

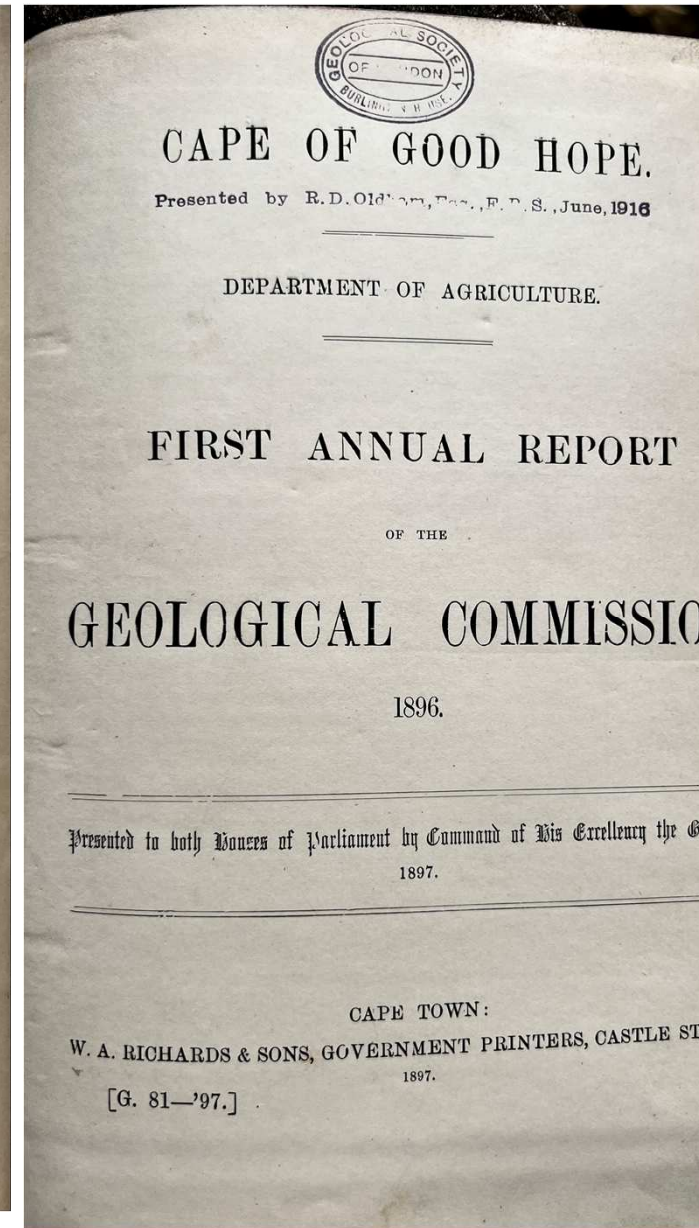
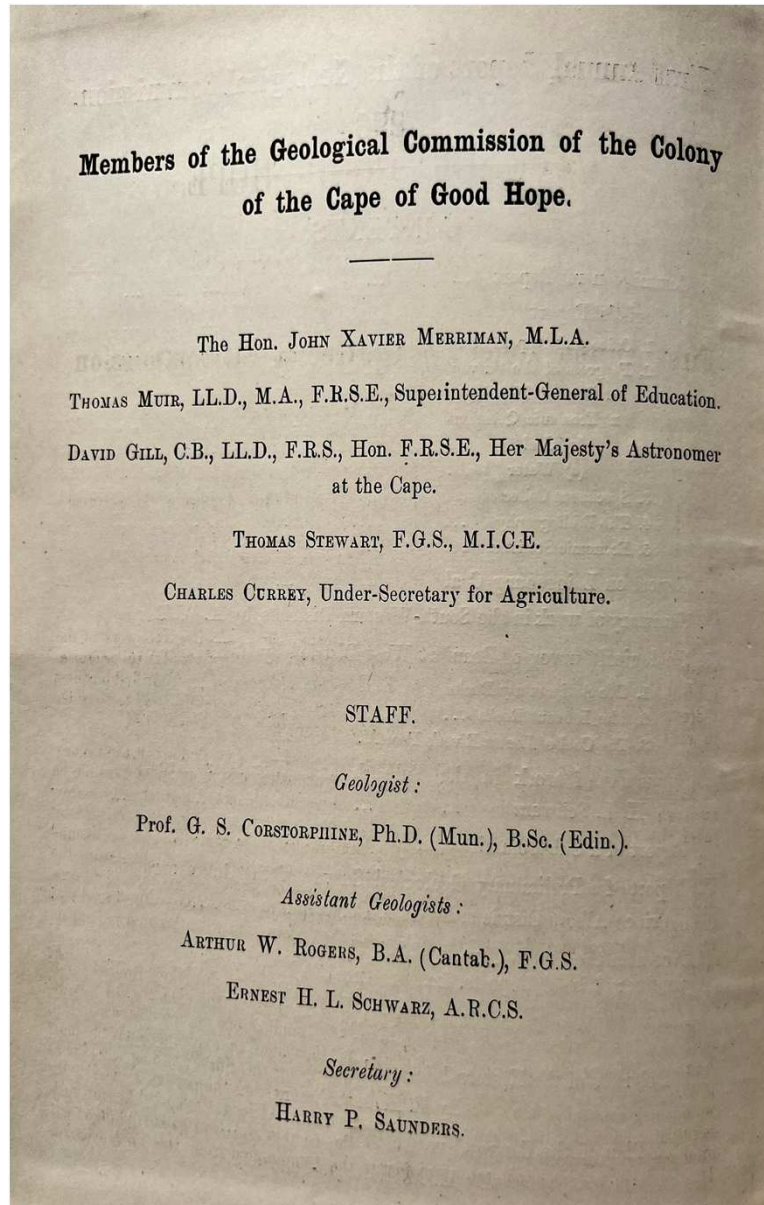
Majesty's Astronomer at the Cape),

Thomas Stewart FRS,

Charles Currey (Under Secretary for Agriculture),

Theodore McKenzie as

Secretary



The main activity of the Commission was geological mapping (Geological Map of Cape Colony) at a published scale of 3.8 miles to 1 inch (1:238,000). The GCCCGH existed for only 17 years, from 1895 to 1912 - but during this time the outstanding quality of its mapping was unequalled anywhere else in Africa.

All four of its geologists were Fellows of the Geological Society (of London); two of whom also became Fellows of the Royal Society (Arthur Rogers and Alex du Toit), while the other two (George Costorphine and Ernest Schwarz) were or became professors at local universities

Their work was achieved on foot and on horseback, often without pre-existing topographic base maps, which they had to produce as well. The Commission's tasks were affected by the Anglo-Boer War of 1899-1902.



Jagger Library, University of Cape Town

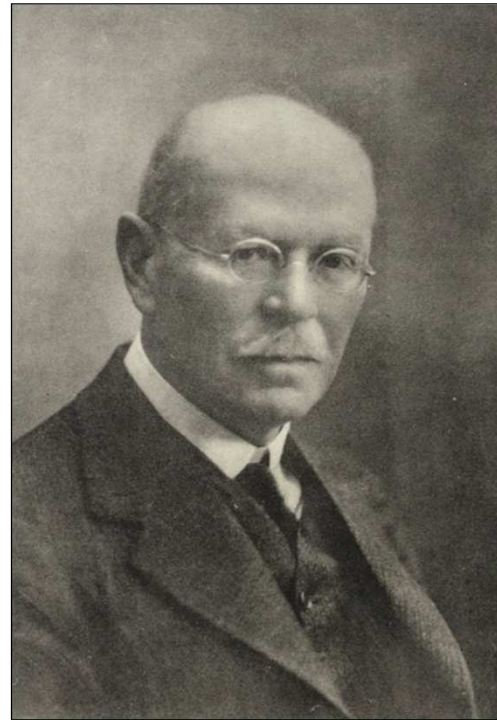
The four geologists who worked for the Geological Commission of the Colony of Cape of Good Hope



George Costorphine (1868-1919), one of first geologists at the GCCCGH (1895-1902). Was director (1901-1902). Professor at University of Cape Town.



Ernest H. L. Schwarz (1873-1928), one of the original geologists of the GCCCGH (1895-1903). Later became a professor at Rhodes University in Grahamstown, Eastern Cape



Arthur W. Rogers (1872-1946), one of the original geologists of the GCCCGH (1895-1912). Later 1st Director of the Geological Survey of South Africa in Pretoria. Honorary doctorates, FRS.



Alexander Logie du Toit (1878-1948), worked for the GCCCGH as geologist (1903-1912), and then for the Geological Survey of South Africa until 1920. Several honorary doctorates, FRS.



Annual reports
of the
*Geological
Commission of
the Colony of
Cape of Good
Hope (1896-
1912)*

CAPE OF GOOD HOPE.

DEPARTMENT OF AGRICULTURE.

Annual Report of the Geological Commission, 1896.

Printed by command of His Excellency the Governor.
1897.

Appointed Secretary for Agriculture.

I have the honour herewith to present our first report on the work of the survey of the Colony. When appointed we were instructed "to organize, direct the work of Geological Exploration and Survey," and our first business was to elect a Chairman of the Commission and a Secretary, and to consider the objects specified could be most advantageously accomplished.

It is imperative in the first instance that all previous work done in the Colony with Geology, whether privately or officially, should as far as possible be brought into a form suitable for reference; and as the Secretary had already undertaken the preparation of such a catalogue with the intention of having it published by the Geological Society, it was decided to aid him with a committee, and to assume the responsibility of publication. After considerable trouble and some misadventure the report was ready for the printer, and will doubtless be issued before this report sees the light. The thanks of the Commission are due to Mr. H. Saunders (the Secretary) for his assistance, and to the printer, Messrs. J. and J. Munn, for the excellent work done by them. The seal and industry he has displayed in connection with this first part of the

work is worthy of the highest praise. The Commission that as much of their limited funds should be devoted to the maintenance of work in the field. They accordingly met at their second meeting to call for applications in the Colony and in the Cape of Good Hope. At the same time it appeared the most desirable to appoint a fully paid Director of the Survey, whose whole time should be devoted to the work, but to utilize in this connection the partial services of the best Professor of Geology in the South African College. Accordingly, the Council of the College to the proposed arrangement, and the Secretary was appointed Geologist to the Commission from the 9th November,

1895. In due course the Field Geologist advertised for was selected and appointed, the Commission being greatly indebted to Professor James Geikie for the trouble which he took to secure a thoroughly capable and experienced man.

In agreement with the decision to publish a bibliography of the Geology of the Colony, it was also decided about the same time to make a record of all Geological Sections which had been prepared by various writers up to the time of the appointment of the Commission, and steps will in time be taken to have such sections indicated on a published sketch map.

Preparatory to deciding on the exact lines of field work to be first undertaken, it was thought desirable that Professor Constorphine should make a tour by Laingsburg, Oudtshoorn, Knysna, Graaff-Reinet and Port Elizabeth. One result of this was that on the arrival of Mr. A. W. Rogers, the Assistant Geologist above referred to, instructions were given him as to the districts which he was first to map. From that date, engaged in this way, his labour carrying him over a large area fully specified in the Geologist's report. Another result was a decision as to the course to be adopted on the economic question of the coal of the Western Province. It was resolved that the best course was to make an examination of the northern portion of the sandstone and shales near Beaufort West, and to trace the relation of these to what appeared to be a southern continuation of the same. With this object in view, the temporary services of Mr. E. H. L. Schwarz were secured in the month of March. His report on the subject will be found among the papers annexed. At a later date Mr. Schwarz was definitely appointed second Assistant Geologist to the Commission, and thereafter took part in the general work.

The Agricultural Department having sought the advice of the Commission with regard to the proper expenditure of a sum placed at its disposal for the purpose of attempting to strike underground water supplies by a deep bore, the Commission gladly took the matter up, and as a result of their deliberations, Dr. Constorphine and Mr. Rogers were sent to examine the limestone formation in the neighbourhood of the Cango Caves near Oudtshoorn. The result of the examination will be found in a special report on the subject. It is a matter for regret that the Commission did not feel warranted from the facts before them in taking a more sanguine view of the prospects of the enterprise.

The questions thus raised led also to inquiry regarding what had already been done by the Government in connection with boring for water, and it was decided that the Secretary should collect all the information available, and have the same tabulated and mapped. In the United States investigation of this kind is considered to belong to the department of the Geological Survey and is undertaken by it. The results obtained there under favourable conditions have been most valuable and encouraging, and have aided materially in increasing the area of cultivation by means of irrigation. There is little need for pointing out the necessity for systematized work of this kind in South Africa. In the absence of proper hydrographical and geological investigation, irrigation works must be undertaken in a more or less haphazard way, and if failure results there is small cause for wonder. Twenty years ago Mr. Gamble pointed out the absolute necessity of such work as a preliminary to irrigation on a large scale, and since that time experience has in more than one case shown the correctness of his opinion. Your Commission would venture to suggest that a commencement might be made by the thorough survey and mapping of some district forming a complete hydrographical area.

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The work thus rapidly sketched will of course only be duly appreciated after a careful examination of the reports annexed. These consist of (1) A general Report of the Geologist of the Commission; (2) A Report on the Laingsburg District; (3) A Summary of the work done by Mr. Rogers in the South Western District; (4) A Report with map by Mr. Schwarz on the survey of the Beaufort West District; (5) A Summary of work done in Tulbagh, Ceres and Worcester Districts; (6) A Report of a Sub-Committee on deep Artesian well-boring; (7) A Report by Dr. Constorphine on the selection of a site for a deep bore-hole in the Oudtshoorn District; (8) Sketch plan of the Cango Cave, by Mr. E. H. L. Johnson, and a few notes thereon by Dr. Constorphine.

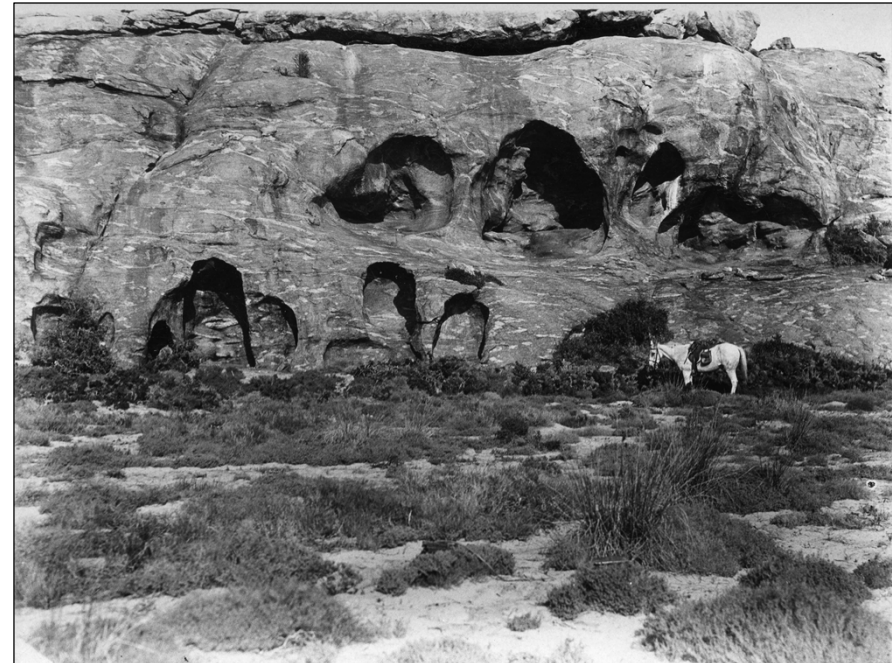
It will thus be seen that the main object of the Commission has been the systematic observation and study of the geology of the Colony with a view to eventually reproducing all the information thus obtained in the form of a reliable map. It will also be evident that whenever Government has directed its attention to matters of a more immediately economic import, the co-operation and assistance of the Commission have been at once forthcoming. The policy thus indicated by the Commission in its future work, a work which it is needless to say will not be a day in a day, and the fruits of which cannot be foretold with any certainty either in character or extent.

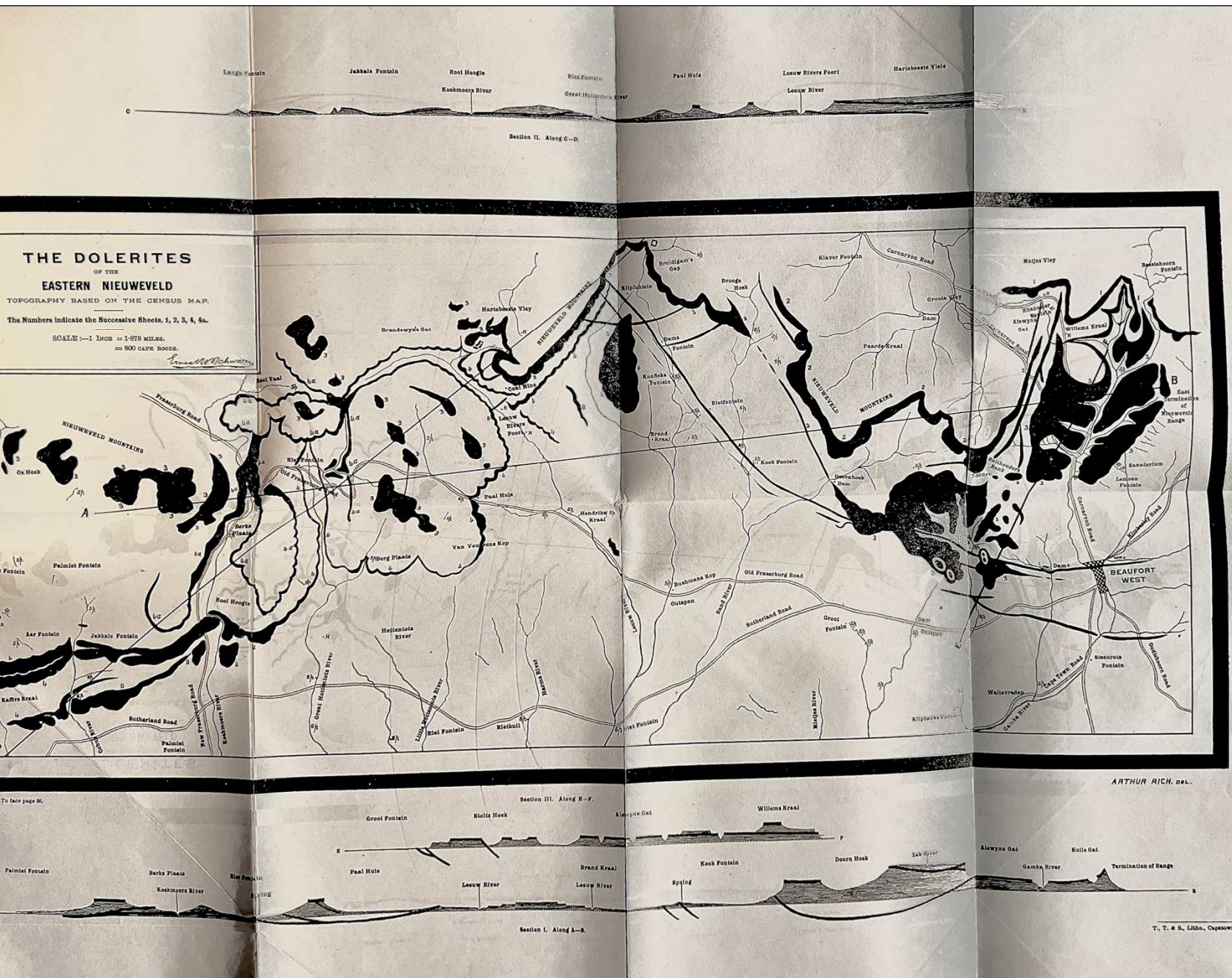
(Signed for the Commission),

J. X. MERRIMAN, Chairman.

Cape Town, March 1st, 1897.

The results of the Commission's work, which covered the geology of the Cape and Karoo basins, and part of their basement (an area of c. 300,000 km²), were published in its Annual reports (1896-1912), 22 map sheets, various papers, as well as in three books: a '*Bibliography of South African Geology*' by Saunders (1897), '*An Introduction to the Geology of Cape Colony*' (2nd Edition, 1909) by Rogers and du Toit; and '*The Geology of South Africa*' (1905, 1909) by Hatch and Costorphine. In 1912 the GCCCGH was incorporated into the Geological Survey of the Union of South Africa, which had its headquarters in Pretoria.





Map of dolerites of Eastern Nieuweveld

by Ernest H. L. Schwartz (1896)

1":1.87 miles scale

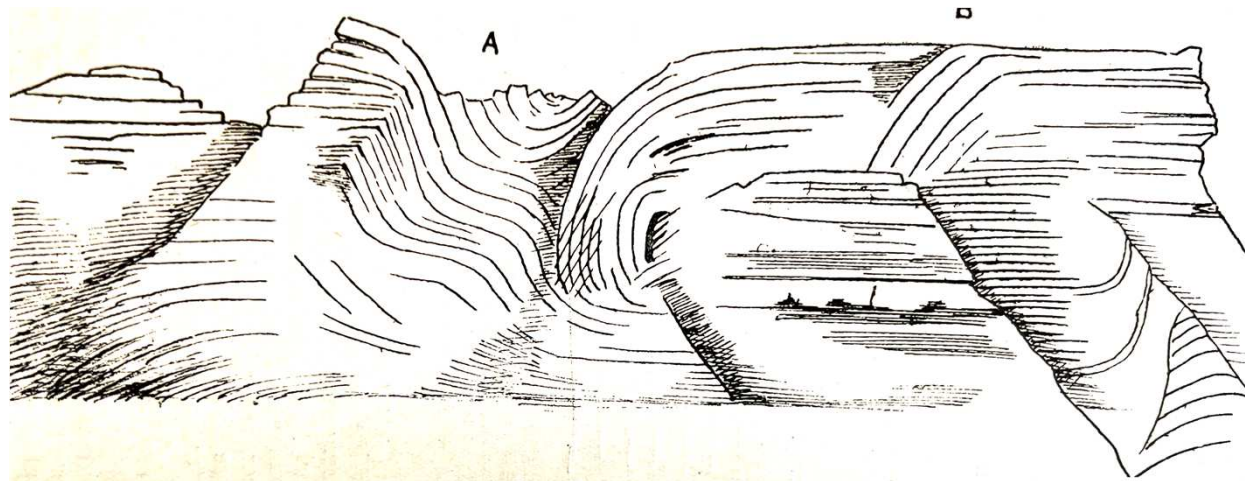


FIG. 14.—Two monoclinical folds, A and B, in Baviaan's Berg, looking from Het Drooge Zand. B goes through the kloof between Grass Ber and Het Drooge Zand's Berg, north of the Trigonometrical beacon. Below A there is a small farm house, with a spring issuing from the hillside. Water is very scarce in these hills.

Sketches of folding in the Cape Fold Bel
by E.H. L. Schwartz

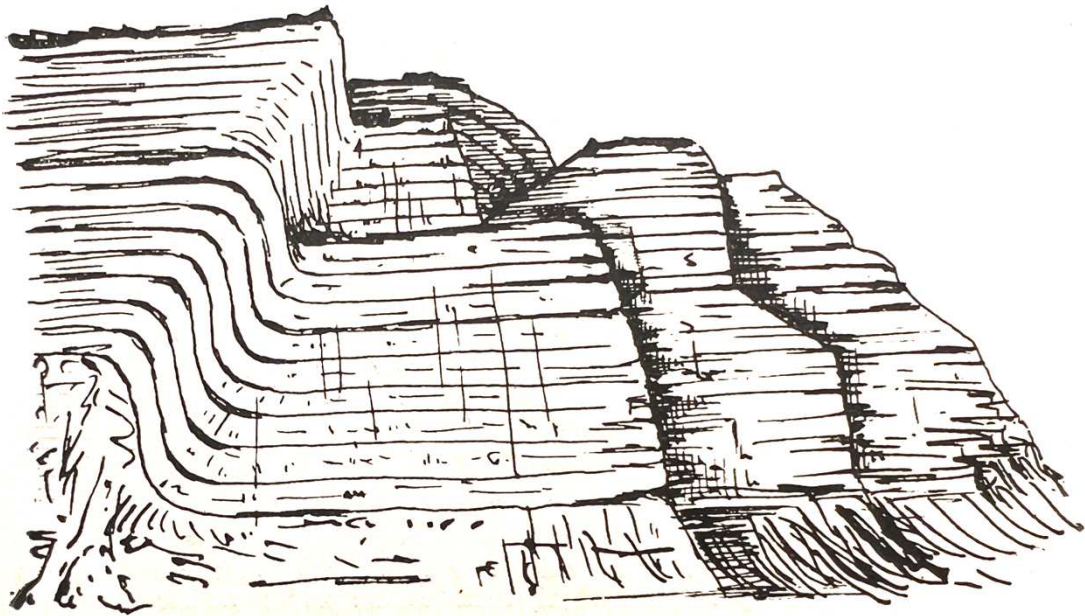
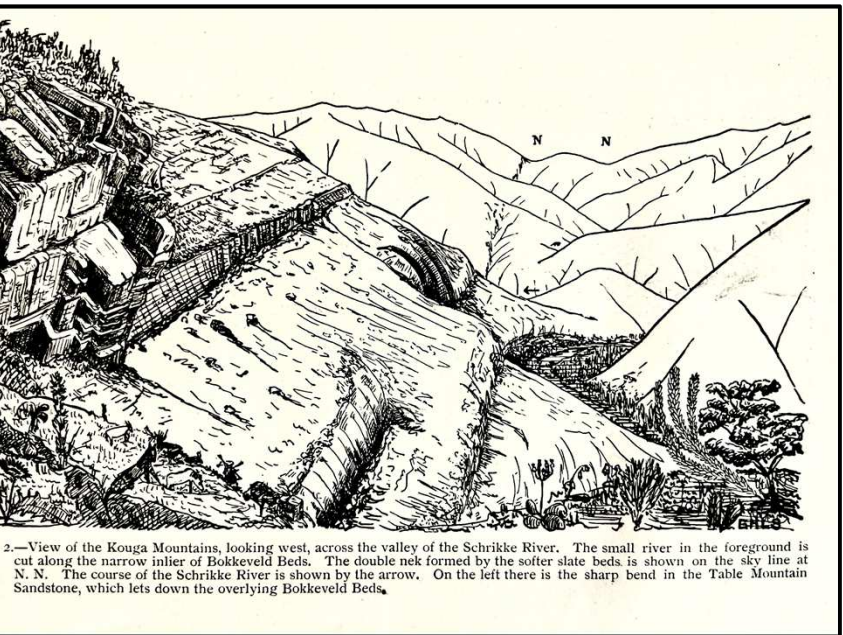
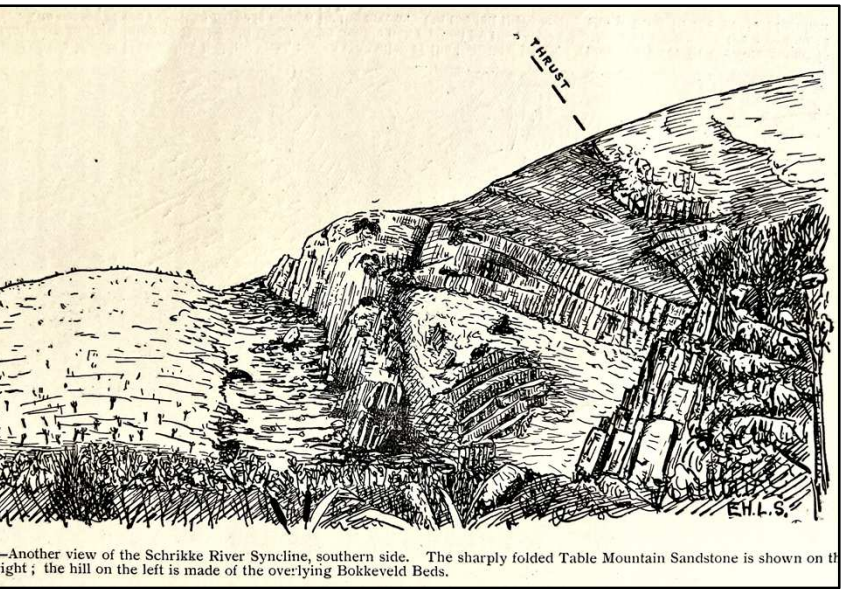


FIG. 13.—Monocline in the Witteberg hills, by Koekfontein, Gydow.



2.—View of the Kouga Mountains, looking west, across the valley of the Schrikke River. The small river in the foreground is cut along the narrow inlier of Bokkeveld Beds. The double neck formed by the softer slate beds is shown on the sky line at N. N. The course of the Schrikke River is shown by the arrow. On the left there is the sharp bend in the Table Mountain Sandstone, which lets down the overlying Bokkeveld Beds.



—Another view of the Schrikke River Syncline, southern side. The sharply folded Table Mountain Sandstone is shown on the right; the hill on the left is made of the overlying Bokkeveld Beds.

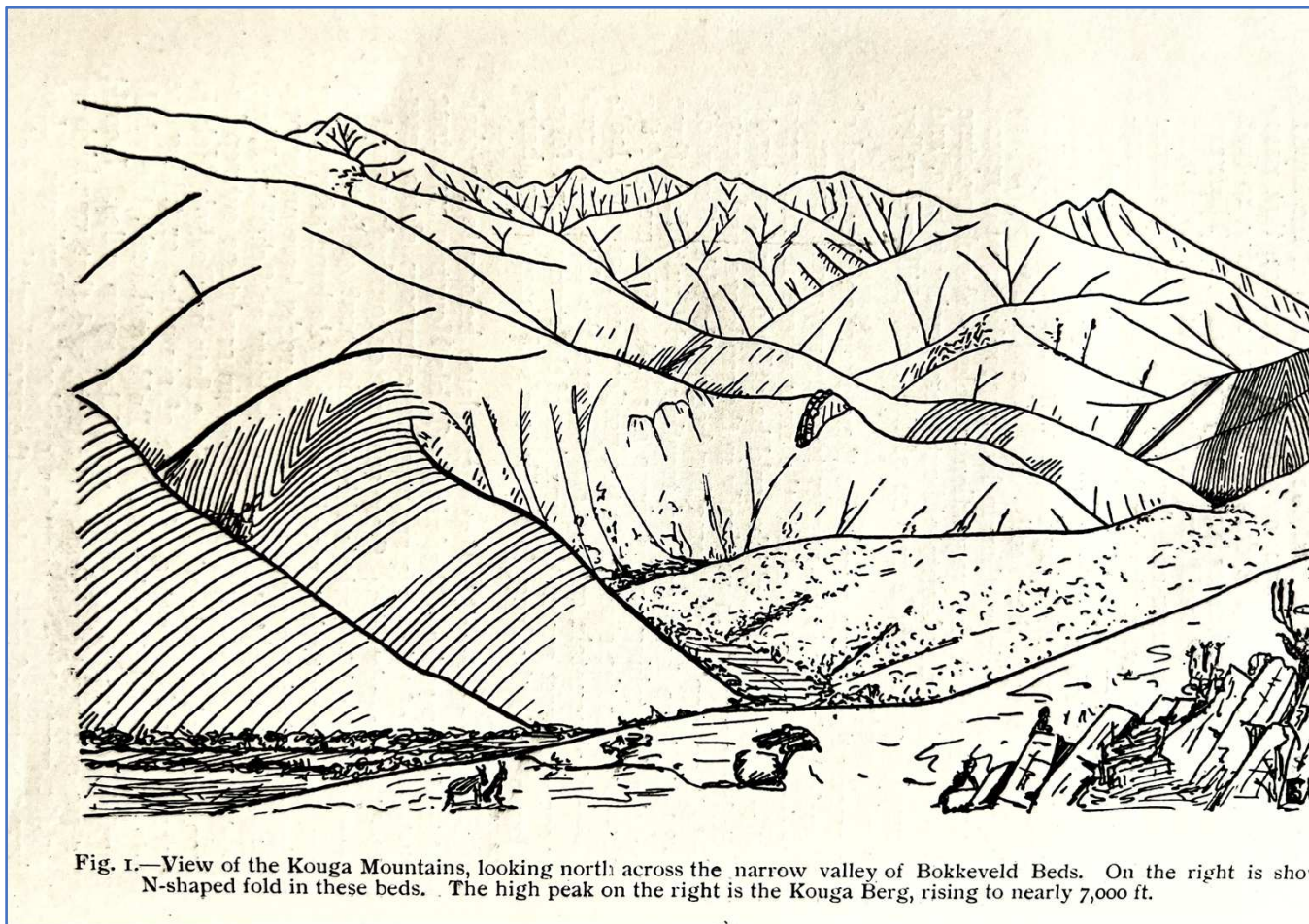
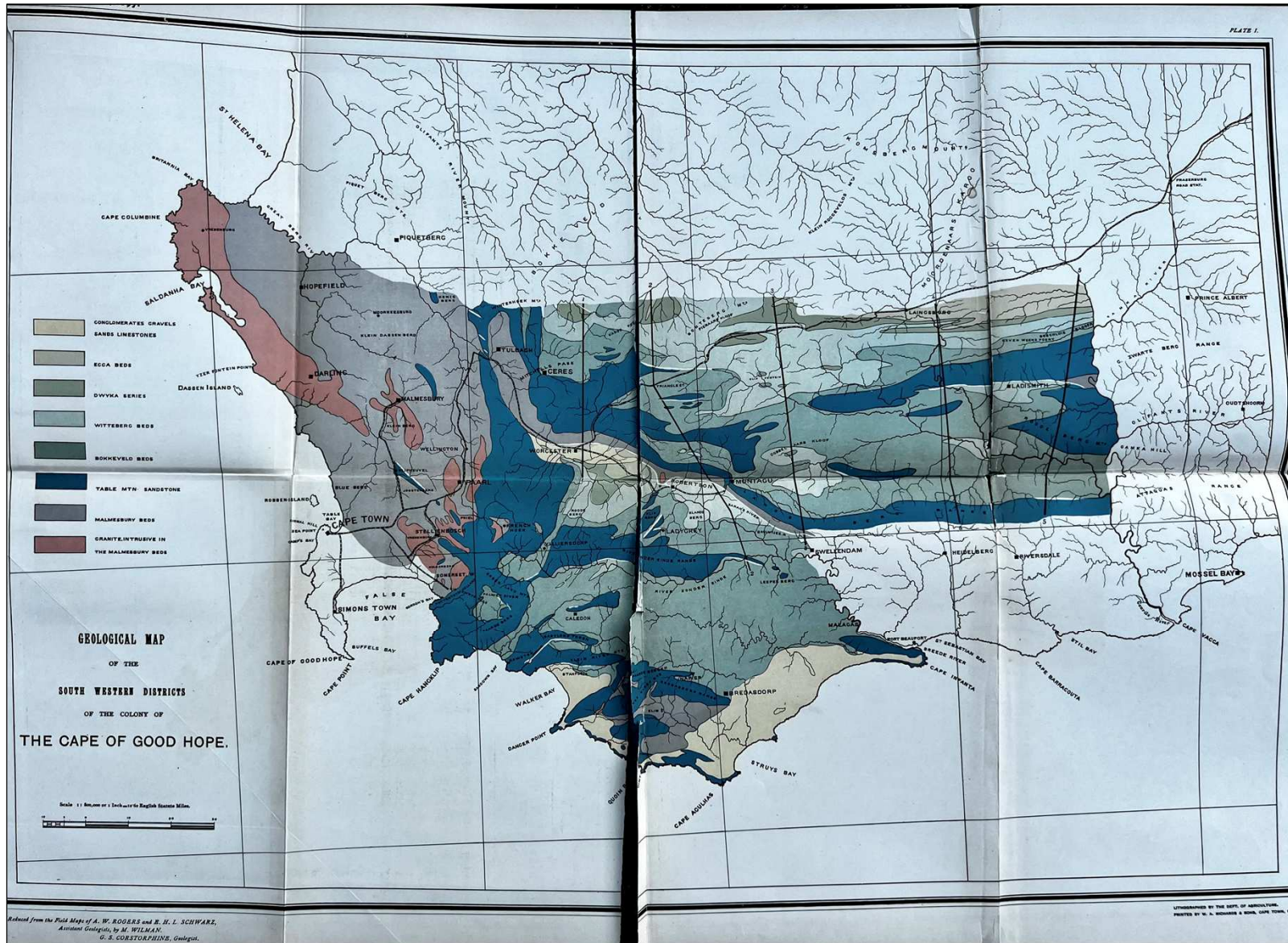


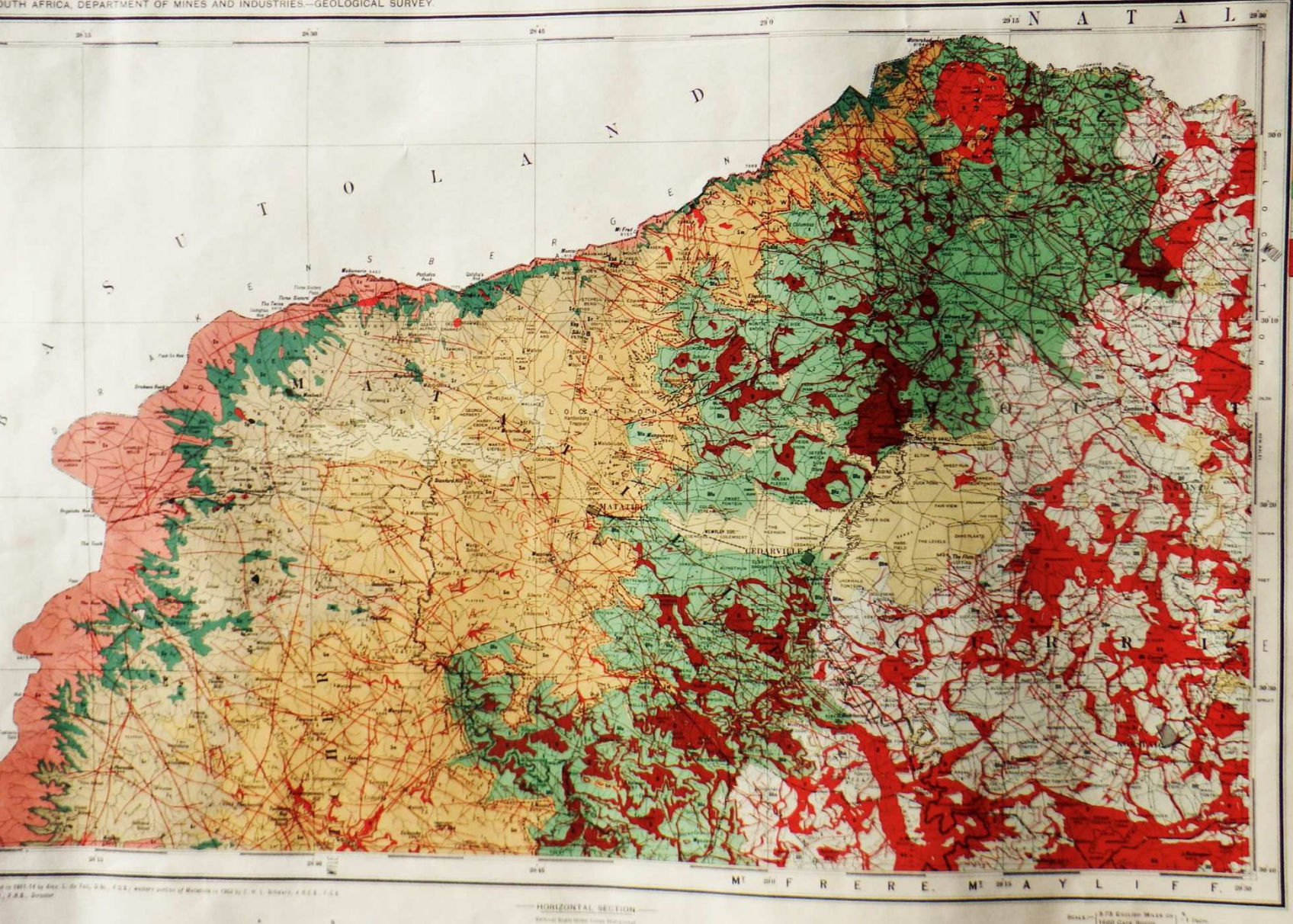
Fig. 1.—View of the Kouga Mountains, looking north across the narrow valley of Bokkeveld Beds. On the right is shown an N-shaped fold in these beds. The high peak on the right is the Kouga Berg, rising to nearly 7,000 ft.

Sketches of Bokkeveld Beds in Cape Fold Belt
by A.L. du Toit



Geological Map of the
Southwestern Districts
of the Cape of Good
Hope.

A. W. Rogers and
E.H.L. Schwartz



Geological Map Matatiele Distr

A.L. du Toit (1911-1914)

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Thank you!

Dziękuję!