

Nigeria – Colonial Geological Surveys 1947-1956

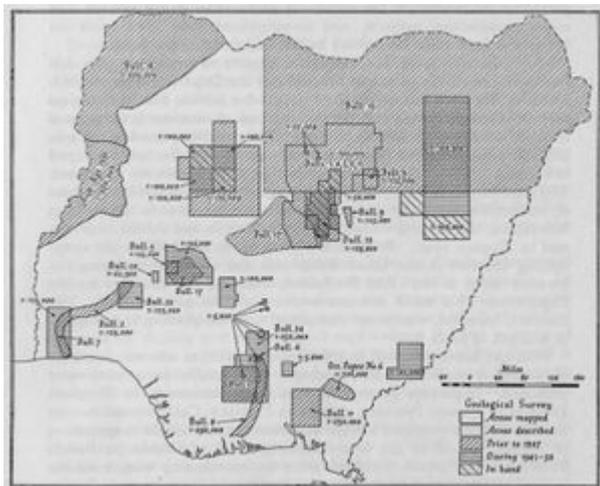
From Earthwise

[Jump to navigation](#) [Jump to search](#)

From Dixey, F. 1957. [Colonial Geological Surveys 1947-1956: a review of progress during the past ten years](#). Colonial geology and mineral resources. Bulletin supplement No. 2. London: HMSO.



Nigerian Geological Survey. Head Office building of the Geological Survey at Kaduna Junction. By courtesy Northern Regional Director of Information. Plate III.



Geological mapping by the Nigerian Geological Survey. The "Areas described" are those marked Bull. 15 and Bull. 17, delimited by a light line. Text-fig. 9.

Nigeria

The inauguration in 1903 and 1904 of the Mineral Surveys of Southern and Northern Nigeria by the Imperial Institute marked the beginning of official geological surveys in Nigeria. The results of this work were published between 1906 and 1914 in a series of pamphlets, "Colonial Reports—Miscellaneous". It was this early reconnaissance work that led to the discovery of the lignites in Benin Province, the coal in Onitsha Province, the iron ore of Lokoja, and the lead-zinc ores of Abakaliki. The Mineral Surveys came to an end before 1914 and it was not until 1919 that the Geological Survey of Nigeria was instituted. The new Survey's first tasks were the mapping of the

Plateau Tinfields, and the investigation of the country along the Eastern and Western Railways. In 1928, the Survey undertook the actual exploitation of ground water by wells and boreholes and when the engineering side of its work was transferred to the Public Works Department in 1947, it had already sunk 2,000 concrete-lined wells and drilled 11 boreholes. Concurrently with this, systematic examination was made of the gold-bearing rocks in Sokoto, Zaria and Niger Provinces. At the outbreak of war in 1939, the Department diverted its attention to strategic minerals, the most important of which were tin, wolfram and tantalite. In 1944, the development of water supplies was planned over a 10-year period, made possible by a large grant from the Colonial Development and Welfare fund.

The Department's establishment increased considerably during the review period 1947-56. In 1946 (when the establishment consisted of 13 scientific posts), and in 1947, provision had been made for a total of seven additional posts for the investigation of underground water and mineral deposits under a C.D. and W. Scheme. In 1949, a further expansion under this scheme came into effect which provided for eight additional scientific posts. Under the Economic Programme 1955-60, provision was made in 1956 for two geophysicists and an ore-dresser, bringing the scientific establishment to 31, and it is proposed to increase this to 35 in 1957. The following table shows the establishment of the Department in 1946 and 1956 and the corresponding increases in staff:

Table 4 Comparative establishments, 1946 and 1956

Year	Establishment	Scientific Posts Filled				Total
		Geologists	Mineralogist	Mining Geologist	Chemist	
1946	16	8	1	1	—	10
1956	31	26	1	—	1	28

The first Nigerian to occupy a post as geologist on the Survey assumed duties in 1954; several other Nigerians are taking degree courses at British and American universities.

The Department's buildings at Kaduna Junction were greatly improved and enlarged, and the laboratory was extended to provide facilities for the mineralogist and chemist. A new library, drawing office and map storage room were built in 1952. A new head office was completed in 1955 and a new museum is nearing completion. Plans are in hand for the construction of a larger drawing office and library, a store for rock specimens and drilling equipment, an ore-dressing laboratory, and a new office at Enugu. Branch offices have been opened at Jos, Enugu and Ibadan.

During the period under review the Department has undertaken many important investigations on economic mineral deposits. A survey was made, for instance, of the Lower Coal Measures along the Enugu escarpment during 1947-51 which led to the discovery of important coal deposits at Orukpa and Odokpono in Benue and Kabba Provinces respectively. Between 1948 and 1952, exploratory drilling was carried out at Enugu and Orukpa. In 1952, the Nigerian Government voted funds to enable the Department to explore the reserves of coal in those areas where outcrops of thick seams had been reported. Exploration of the Enugu and Orukpa coals was completed, and the seams at Ezimo in Onitsha Province and at Okaba and in the Ogboyoga-Odokpono area of Kabba Province were prospected by drilling. Topographic maps were made of all the areas investigated. Seventy-nine holes totalling 30,263 ft. drilled were completed and 240 million tons of coal were indicated. A reserve of 9 million tons was also indicated by mapping and drilling at Inyi in Onitsha Province in a seam of the Upper Coal Measures. North of Iva Mine, at Enugu, a new colliery is at present being opened to exploit 12 million tons of easily accessible coal proved by the drilling. A preliminary examination of the lignite occurrences west of Asaba in Benin Province was carried out in 1947-48. Work was resumed in 1951 and 80 million tons were indicated by drilling in seams from 7 to 18 ft.

thick.

Deposits of marble near Jakura in Kabba Province and Ukpilla in Benin Province were investigated in 1949-50. During 1951-52, the limestone deposits at Nkalagu, about 25 miles east of Enugu, were prospected by mapping and drilling, and, as a result of this work, a cement factory is now being erected on the site. Extensive deposits of limestone were also indicated by drilling at Igumale in Benue Province within 3 to 6 miles of the railway. Many other smaller limestone occurrences were examined. During 1952-54, the Geological Survey proved 40 million tons of ironstone on top of the escarpment west of Enugu with an average grade of just over 40 per cent. iron after screening off the sandy fraction. Over 30 million tons of ironstone averaging 50 per cent. iron were also proved by drilling at Agbaja in Kabba Province.

Between 1947 and 1956, the lead-zinc lodes in Ogoja, Benue and Adamawa Provinces were examined by several mining companies. In the Abakaliki area of Ogoja Province, the Department's geologists worked in close co-operation with the mining company which prospected the area by drilling and underground exploration. A large tonnage of lead and zinc was indicated in one lode and the mining of this deposit is now under consideration. Lead-zinc deposits at Arufu and Akwana in Benue Province and at Zurak and Wase in Adamawa Province were also examined.

During 1945-48, a large part of the Jos Plateau was re-surveyed in order to provide a reliable geological map on which to base further prospecting for tin and columbite. Subsequently, more detailed mapping of the separate intrusions was commenced and the relative importance of each of the granitic phases as a potential source of columbite was indicated. This led to the discovery of columbite in commercial quantity in the weathered zone above a particular type of biotite-granite, and it is now being actively mined in one place. In 1947, the Geological Survey discovered several small bodies of pyrochlore-granite in Kano and Plateau Provinces which contain appreciable amounts of uranium and niobium oxides. Several boreholes were drilled to obtain representative samples of the deposit at Liruein-Kano for mineralogical and metallurgical investigation.

The Department has worked in close collaboration with the Shell-BP Petroleum Development Company of Nigeria, which holds oil exploration licences in the southern part of the country. It is important to note that promising oil discoveries were made by the company at Akata and Oloibiri, but no commercial production of oil has yet been established.

Representatives of the Socony-Vacuum Oil Company visited the Department in 1955. A subsidiary company, Mobil Exploration Nigeria Limited, obtained a prospecting licence in the Northern Region and started work in 1956.

During 1949-50, a survey of clay deposits was carried out in the Western Region, and a similar survey was undertaken in 1955 in the Eastern Region. Deposits of sands suitable for glass manufacture were also investigated. Advice has been given on many occasions during the period under review on the suitability of foundations for bridges and major construction projects, and investigations have been made on deposits of hard stone for railway ballast and building purposes.

The investigation of the geological aspects of water supplies has remained one of the principal functions of the Department since 1947. Much of this work has consisted of day-to-day advice, but hydrological surveys of selected areas and the construction of water-table maps have received attention from time to time. The resistivity method of geophysical prospecting has been employed on a small scale, but it is hoped to increase this work considerably as soon as geophysicists are appointed. The most important water-supply surveys carried out in 1947 were those in connection with the proposed groundnut schemes in Bornu and Kontagora, and the water-table surveys in Hadejia and Gumel Emirates, and in Katsina town. Preparations were made in 1949 for the deep-

drilling contract in the Chad Basin with the object of exploring the pressure water in the Chad Formation, following the discovery by the Department of a small artesian source at Maiduguri in 1946. The contract, however, was never completed and the drilling was stopped at a depth of 3,425 ft.

With the increase in staff in 1950 it was possible to allocate a number of geologists under a senior geologist to specialise in ground-water problems. Important ground-water surveys were made in Shendam Division of Plateau Province, Adamawa Province, Calabar, and in connection with the proposed scheme to construct tanks for the conservation of surface run-off in the waterless area north of Gombe in Bauchi Province. The results obtained were so encouraging that a similar scheme will be started in an area examined by the Department in Bornu. A survey was made of the ground-water conditions in the Potiskum area, where a considerable rise of the water-table had occurred during the past 20 years. In 1955, a start was made with the systematic exploration of pressure water in the Chad Basin by means of drilling. The idea is to drill into existing well shafts so that the sub-artesian water may rise into the wells, thus making it accessible to the local consumers.

The Department have selected hundreds of well sites for the Public Works Departments of the various Regions. Almost 300 water-supply boreholes have been completed since 1946, and the bulk of the samples from these have been logged. Collection of data on the chemical composition of Nigerian ground waters has also been started, and over 100 water samples have been collected for analysis.

As indicated earlier in this review, a large part of the Department's staff has been engaged on the mapping of economic mineral deposits, with the consequence that basic mapping has not proceeded at full pace. However, a half-degree sheet on the Ilesha goldfield and four in Kabba Province were completed early in the period, and by 1948 it was possible to divert staff to sheet mapping of the Southern Cameroon in Bamenda Province where a half-degree sheet was completed. During 1949, mapping on the scale of 1 : 100,000 was started on the sediments in the Gongola and Benue valleys in north-eastern Nigeria. By the end of 1955, three degree sheets had been completed and work was in progress on a fourth. In 1954, sheet mapping was begun in the area north of Zungeru, comprising parts of Niger, Zaria and Sokoto Provinces. It is proposed to publish all maps originally on the 1 : 100,000 scale as 1 : 250,000 degree sheets. A start was made in 1955 with the mapping of the Abeokuta and Lagos sheets and a large area around the Niger-Benue confluence was surveyed. The mapping of nine quarter-degree 1 : 50,000 sheets on the Plateau Tinfields is in hand.

The post-War publications of the Department are as follows:

Bulletin No. 17 The Pegmatites of Central Nigeria, by R. R. E. Jacobson and J. S. Webb 1946.

Bulletin No. 18 The Sedimentary Rocks of Sokoto Province, by Brynmor Jones. 1948.

Bulletin No. 19 The Geology of the Plateau Tinfields—Resurvey 1945- 48 ", by R. A. Mackay, R. Greenwood and J. E. Rockingham, with an appendix on the Morphology of the Jos Plateau by F. Dixey. 1949.

Bulletin No. 20 The Geology of the Osi Area, Ilorin Province, by B. C. King and A. M. J. de Swardt. 1949.

Bulletin No. 21 Land Use and Soil Conservation in parts of Onitsha and Owerri Provinces, by A. T. Grove. 1951.

Bulletin No. 22 Land Use and Soil Conservation on the Jos Plateau, by A. T. Grove. 1952.

Bulletin No. 23 The Geology of the Country around Ilesha. An Explanation of Sheet North B.31/E.2 (Ilesha), with an appendix on the Soils of the Ilesha-Ikirun-Effon Alaiye Area, by H. Vine. 1953.

Bulletin No. 24 The Nigerian Coalfield. The Geology of Parts of Onitsha, Owerri and Benue Provinces, by A. Simpson. 1954.

Bulletin No. 25 The Cretaceous Ammonoidea of Southern Nigeria and the Southern Cameroon, by R. A. Reyment. 1955.

Occasional Paper No. 7 Geology of the Plateau Tinfields (Interim Report No. 1), by R. Greenwood. 1945.

Occasional Paper No. 8 Geology of the Plateau Tinfields (Interim Report No. 2), by R. Greenwood. 1946.

Occasional Paper No. 9 The Occurrence of Columbite in Nigeria, by R. R. E. Jacobson, A. Cawley and W. N. MacLeod. 1951.

Records of the Geological Survey. For 1954. Annual Reports. For 1946-1954/55.

Maps

Revised edition of 1 : 2,000,000. Geological Map of Nigeria. 1956.

The following publications are in the course of preparation, titles in some instances being provisional:

Bulletin No. 26 Lower Turonian Ammonites from north-eastern Nigeria, by W. Barber.

Bulletin No. 27 The Geology of the Minna-Birnin Gwari area, by W. Russ.

Bulletin No. 28 The Coal Resources of Nigeria, by A. M. J. de Swardt and O. P. Casey.

Bulletin No. 29 The Geology of the 1 : 250,000 Sheet No. 31, by R. N. Cope and J. F. Truswell.

Bulletin No. 30 The Geology of part of north-eastern Nigeria, by E. A. Tait, J. H. Thompson, W. Barber, J. D. Carter and G. P. Jones.

Records of the Geological Survey. For 1955 and 1956.

Annual Report. For 1955-56.

Mineral occurrences

Building materials

Cement and cement materials

Clay

Coal

Columbite

Glass sands

Gold

Iron and iron ores

Lead and lead ores

Lignite

Limestone

Oil

Pyrochlore

Radioactive minerals

Tantalite

Tin and tin ores

Tungsten and tungsten ores

Water supply

Zinc

Federation of Nigeria – Staff list

Geological Survey Department, Kaduna Junction

Director

R. R. E. Jacobson, M.Sc., Ph.D., F.G.S., A.M.I.M.M.

Deputy Director

Assistant Director

J. W. du Preez, D.Sc.

Principal Geologist

A. M. J. de Swardt, D.Sc.

Senior Geologists

W. N. MacLeod, M.Sc., A.R.A.C.I., F.G.S.

H. A. Jones, B.Sc., Ph.D., F.G.S.

R. C. Pargeter, D.F.C., B.Sc., A.R.S.M., F.G.S., A.M.I.M.M.

Geologists

D. G. Jones, B.Sc.

E. A. Tait, B.Sc., F.G.S.

M. P. Jones, B.Sc.

J. D. Carter, B.Sc., F.G.S.

J. R. T. Hazen, A.R.C.S., F.G.S.

G. C. McCallum, B.Sc.

O. P. Casey, B.Sc., F.G.S.

J. H. Thompson, B.Sc., F.G.S.

W. Barber, D.F.M., B.Sc.

R. Black, B.Sc., F.G.S.

R. D. Hockey, B.Sc., F.G.S.

M. S. Buchanan, B.Sc.

J. F. Truswell, M.Sc.

C. N. Okezie, B.Sc.

G. P. Jones, B.Sc.

R. N. Cope, B.Sc., Ph.D., F.G.S. Mineralogist

A. W. Giinthert, D.Phil.

Chemist-Assayer

G. Jefford, B.Sc., M.Sc.

Retrieved from

http://earthwise.bgs.ac.uk/index.php?title=Nigeria_-_Colonial_Geological_Surveys_1947-1956&oldid=42944

Category:

- [History of the British Geological Survey](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)

- [Request account](#)

Namespaces

- [Page](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

More

Search

Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 28 September 2019, at 21:05.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)



•



•

