

Jamaica – Colonial Geological Surveys 1947-1956

From Earthwise

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

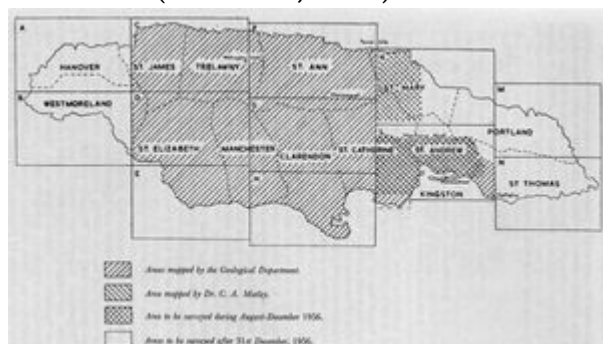
From Dixey, F. 1957. [Colonial Geological Surveys 1947-1956: a review of progress during the past ten years](#). Colonial geology and mineral resources. Bulletin supplement No. 2. London: HMSO.



Jamaican Geological Survey. Geological Survey Booth, Denbigh Agricultural Show, July 31st and August 1st, 1956. Plate XXII.



Jamaican Geological Survey. Geological Survey Camp at Pennants, Northern Clarendon (Sheet "G", 1956). Plate XXII.



Geological mapping in Jamaica since October 1949. Text-fig. 15.

Jamaica

The Geological Survey of Jamaica was established in October, 1949, by a free grant under Colonial Development and Welfare Scheme D984. Over 25 years had elapsed between this Survey and the

previous one, and a new department had to be built up. Mr. V. A. Zans, senior geologist, now director, arrived on the island on the 18th October, 1949, and was followed by Mr. H. R. Versey, geologist, on the 31st December of the same year. In January, 1950, Dr. L. J. Chubb, on sabbatical leave from his post as senior lecturer in geology at University College, London, was appointed geologist on the 1st October, 1950. The present professional staff consists of 1 director and 3 geologists, and it is expected that an additional geologist will arrive towards the end of 1956. The geophysicist of the Industrial Development Corporation has been performing part-time duties for the Department during the past three years. There is a vacancy for a geochemist.

Work began in 1949, the first six months being devoted to the establishment of the Geological Survey, the necessary preliminary field reconnaissance work, and the drawing up of a 7-year programme. In April, 1950, a systematic survey of Sheet L (Kingston, St. Andrew, and parts of St. Thomas and St. Catherine) was begun, but the programme was later revised in order to give priority to areas where geological information was urgently needed for underground water supplies. Accordingly, field work was transferred to Sheet C (Trelawny and St. James) and Sheet F (mainly St. Ann). By the end of the first half of 1956, the general geological mapping and field-work, including underground water investigation, was completed as below :

	Square miles
Sheet C — St. James and Trelawny	460
Sheet F — St. Ann	426
Sheet G — Upper Clarendon	588
Sheet H — South Clarendon	331
Sheet D — Northern St. Elizabeth and part of Manchester	581
Sheet L — Kingston, St. Andrew, and parts of St. Thomas and St. Catherine	236
Sheet E — Southern St. Elizabeth	235
Unsurveyed portion	1,554
Total Area of Jamaica	4,411

It is hoped that at the end of 1956 part of Sheet K, amounting to 200 sq. miles, will also have been completed. As a result of this mapping and also of reconnaissance surveys in other parts of the island, a large scale hand-coloured provisional geological map of Jamaica on a scale 1 : 50,000 has been prepared. A relief model of Jamaica, of horizontal scale 1 : 100,000 and vertical scale 1 : 23,000, has also been prepared by a London firm. During the course of geological mapping it became evident that, owing to the complexity of the structures encountered, as, for example, in the Blue Mountain area and in the Central Inlier, the time originally thought necessary to complete the detailed survey had been underestimated. Moreover, the establishment of a stratigraphic succession demanded much more specialised palaeontological research than had been anticipated, and this has retarded the final publication of the Sheets completed so far.

Much attention has been paid to the exploration of the mineral resources and water-supply potentialities of Jamaica. Several minerals of economic value not previously known to occur have been discovered in the course of the basic geological survey, among which may be mentioned the high-grade iron ore in eastern St. Andrew and Portland; dolomite in St. Catherine, the Clarendon-St. Ann border and elsewhere; and the considerable deposits of quartz sand, of quality suitable for glass manufacture, in St. Elizabeth. The publication in 1951 of Bulletin No. 1, on the " Economic Geology and Mineral Resources of Jamaica ", stimulated widespread interest among prospecting and mining companies. In co-operation with U.S. Gypsum, who had acquired mining rights, the Department mapped the extensive gypsum deposits of East St. Andrew and estimated most of the workable reserves. Iron deposits of Glade Orchard and Dublin Castle in St. Andrew, Mt. Elba Gully, Coffee

Piece and Mulberry Hill in Portland, were located and surveyed, and their size and extent determined so far as possible by surface methods, and in some instances by geophysical methods. Attention has also been paid to bauxite deposits, although most of the more valuable deposits had already been acquired by the three bauxite mining companies operating in the island. Much survey work has been done and advice given to various mining companies interested in prospecting for copper, lead and zinc, manganese and other minerals.

In 1952, the first Oil Exploration Licence in the island was granted to Base Metals Mining Corporation of Toronto, Canada, and the Department was called upon to prepare a general structural and geological map to assist in the interpretation of an airborne radiation survey carried out by Lundberg Explorations Limited of Toronto, Canada, on the company's behalf. This map, with a corresponding report by the Department and a conference attended by Mr. Zans in New York in January, 1955, were helpful in supporting the decision to drill the first test hole, to 6,314 ft., at the western end of the island. Although it did not strike oil, it gave useful information. The Base Metals Exclusive Licence has since been taken over by Jamaican Stanolind Oil Company, a subsidiary of Standard Oil of Indiana, U.S.A., which has now embarked on an extensive geological and geophysical programme with a view to further test drilling.

The Government has recently approved an Underground Water Investigation Scheme to run concurrently with the basic geological survey with the object of determining the underground water resources, particularly in the drought-stricken areas of the island. A hydrogeologist, Mr. Glenn C. Prescott of the U.S. Geological Surveys Groundwater Branch, provided under the auspices of the United Nations Technical Assistance Administration, has been seconded to the Department to undertake the following programme for a period of six months in the first instance: (1) A survey of the underground water resources in certain areas of the island; (2) Advise and instruct the local geological staff on up-to-date methods of conducting hydrological investigations; (3) Advise on the organisation of a permanent hydrological service. Districts which will receive prior attention are: the Parishes of Trelawny and Eastern St. James (directly related to the main karst area, the Cockpit Country) ; the Parish of St. Ann; parts of the Parishes of Clarendon and Western St. Catherine; and the southern part of St. Elizabeth. A detailed study of the ground-water conditions of the Clarendon Plains will also be made so as to provide a basis for all ground-water surveys.

The newly inaugurated Ground Water Resources Branch commenced field work in June, 1956, on the Clarendon Plains. This area was selected as a training ground by Mr. T. E. Eakin, Ground Water Expert of the U.S. Geological Survey—who visited the island to formulate a scheme in 1953—since a large amount of geologic and hydrologic data were available there, and the techniques and methods of ground-water investigations could accordingly be best demonstrated. The West Indies Sugar Company Monymusk Factory, Water Well and Engineering Construction Company Limited, the Citrus Company Limited, and New Yarmouth Limited were visited in order to investigate water conditions and to hold discussions. Thereafter a total of 122 wells was investigated. The data collected and recorded on well schedules consisted of the following: location of each well by a departmental grid system, the type of topography in which the well was drilled, the type and depth of well including details of its casing, the chief water-bearing strata, the water levels as determined and related to the ground surface, pumping equipment, yield in gallons per minute, uses, quality (including conductivity) and temperature of the water produced. Arrangements have also been made to have the water from each well analysed by the laboratory technician using the most modern methods. A Stevens type of Water Level Recorder, loaned by the U.S. Geological Surveys, was installed at Raymonds No. 6 well on West Indies Sugar Company Estates on Friday the 15th June by kind permission of the company. The instrument records an 8-day periodic measurement, and the charts are examined and changed weekly. It is hoped that the Ground Water Investigations of the Clarendon Plains will be completed at the end of 1956 and the information then available will be a

considerable contribution to the economic development of that area.

The Geological Survey has carried out a wide range of investigations connected with engineering problems. Among the more important are the investigating and reporting on the fissuring and subsiding of a small plateau forming the crest of Woodford Hill, St. Andrew, which had caused considerable damage to the village school located on it; the locating of a dam site at Harkers Hall, St. Catherine, to impound the waters of the Rio Pedro with a view to controlling the flood waters of the Rio Cobre which inundate the plains of St. Jago in the rainy seasons; a report on the geological conditions of the line of a proposed tunnel half a mile in length to be driven through a limestone hill on the lower Rio Bueno Valley, Trelawny, for the Jamaica Public Service Company for hydro-electric purposes; consultations on the geological conditions of the Palisadoes Airport, St. Andrew; on the causes of certain rock falls in St. Mary; on the prevention of flooding at Brown's Town, St. Ann, by draining the flood water into boreholes; and the siting of many boreholes for the Irrigation and Drainage Branch of the Public Works Department, and for sugar estates, mining companies and many private property owners for water-supply purposes.

The use of a diamond drill, made available through a British Caribbean Drilling Scheme, has so far resulted in 15 holes being drilled to a footage totalling 3,250; by the end of 1956, it is expected that 5,500 ft. will have been drilled. Much useful information in respect of stratigraphy and mineral resources has been obtained. The more important boreholes include three in the gypsum deposits on Bellrock properties, which enabled the Department to calculate the mode, extent and volume of the workable deposits there, and six at Coffee Piece, Swift River, Portland, which led to the estimation of approximately one million tons of iron ore.

Geophysical surveys, with the aid of an Earth Megger belonging to the Industrial Development Corporation and one on loan for a limited period by kind permission of the Government of the Leeward Islands, were carried out with some success in estimating the extent of iron deposits at " Glade Orchard ", Mavis Bank, St. Andrew, and in the locating of strata favourable for water-supply exploitation.

A fairly well equipped library of over 2,000 volumes has been built up by purchase and exchange, and to date 26 publications on stratigraphy, palaeontology, mineral resources and water supply have been issued. There are at present 9 more in the press. Numerous reports in manuscript on all these subjects have also been prepared.

In 1954, the Director paid official visits to Cuba, Haiti and the Dominican Republic, and afterwards to Antigua, Trinidad and Tobago. The main purpose was to obtain information on oil geology and to study the stratigraphy of those islands for correlation with that of Jamaica. Much useful experience and information were gained. Also in 1954, Dr. Chubb visited the American Museum of Natural History, New York, the United States National Museum, Washington, and the British Museum (Natural History), London, to study the numerous type specimens of Jamaican fossils preserved in those institutions. The Director and Dr. Chubb were official delegates to the First British Caribbean Geological Conference held in Antigua in December, 1955, and presented six papers, three by the Director, two by Dr. Chubb and one by Mr. Versey. They were also selected to represent the Jamaica Government at the XXth International Geological Congress in Mexico during September, 1956, where they also presented papers. After the Congress, Dr. Chubb remained for about a month in the Chiapas area of Mexico, studying the rocks and fossils there for comparison with those in the Jamaican formations.

The two senior draughtsmen of the Department were awarded scholarships to undergo training under the West Indies Training Scheme D1108 during the years 1952/53 and 1955/56 and pursued a nine-month course of study in topographical and mine surveying, elementary geology, levelling and

mineralogy at the Imperial College of Science and Technology in the United Kingdom. The 1955/56 course was extended to include elementary training in electrical resistivity and photography.

The importance with which the Jamaican public regard a Geological Survey was amply demonstrated on the occasion of the Tercentenary Diamond Jubilee Agricultural Show at Denbigh, Clarendon, in June, 1956, when thousands thronged the geological exhibits on display. A Jamaican Group of the Geologists Association has recently been founded, and it now includes more than 90 members.

During the period under review the following works were issued:

CHUBB, L. J. 1951. Some Problems of Jamaican Geology. *Nat. Hist. Notes, Nat. Hist. Soc. Jamaica*, Vol. 5, No. 50, pp. 29-37. Publ. No. 3.

CHUBB, L. J. 1952. The Geological Survey and the Farmer. *Fmrs Handb., Jamaica agric. Soc.*, pp. 212-213. Publ. No. 7.

CHUBB, L. J. 1952. A Subsidence in the Mountains of Jamaica. *Colon. Geol. min. Resour.*, Vol. 3, No. 2, pp. 127-132. Publ. No. 9.

CHUBB, L. J. 1954. The Lazaretto Section, Jamaica. *Ibid.*, Vol. 4, No. 3, pp. 233-247. Publ. No. 17.

CHUBB, L. J. 1955. A Revision of Whitfield's Type Specimens of the Rudist Mollusks from the Cretaceous of Jamaica, British West Indies. *Am. Mus. Novitates*, No. 1713. Publ. No. 19.

CHUBB, L. J. 1955. The Geology of Green Bay and the Port Henderson Hills. *Nat. Hist. Notes, Nat. Hist. Soc. Jamaica*, Vol. 6, No. 71, pp. 210-215. Publ. No. 20.

CHUBB, L. J. 1955. The Cretaceous Succession in Jamaica. *Geol. Mag.*, Vol. 92, No. 3, May-June, 1955. Publ. No. 22.

CHUBB, L. J. 1955. The Geologists Association in Jamaica. *Proc. 1st Brit. Caribb. geol. Conf., Antigua*, 1955.

CHUBB, L. J. 1956. Some Rarer Rudists from Jamaica, B.W.I. *Palaeontographica Americana*, Vol. 4, No. 26. Publ. No. 24.

CHUBB, L. J. 1956. *Thyrastylon*, a new Rudist Genus from the Upper Cretaceous of Guatemala, the Antilles and Persia, with a Discussion of the Functions of Rudist Oscules and Pillars. *Palaeontographica Americana*, Vol. 4, No. 27, pp. 31-48. Publ. No. 27.

CHUBB, L. J. 1956. Rudist Assemblages in the Antillean Upper Cretaceous. *Bull. Amer. Palaeontology*, Vol. 36, No. 161.

CHUBB, L. J. 1956. The Correlation of the Jamaican Cretaceous. An Historical Review. *20th int. geol. Congr. Mexico*, 1956.

COLE, W. S. 1956. Jamaican Larger Foraminifera. *Bull. Amer. Palaeontology*, Vol. 36, No. 158. Publ. No. 25.

HOSE, H. R. 1951. The Geology and Mineral Resources of Jamaica. *Colon. Geol. min. Resour.*, 1950, Vol. 1, No. 1, pp. 11-36. Publ. No. 1.

HOSE, H. R. and VERSEY, H. R. 1956. Palaeontological and Lithological Divisions of the Lower Tertiary Limestones of Jamaica. *Ibid.*, Vol. 6, No. 1, pp. 19-39. Publ. No. 26.

- MATLEY, C. A. 1951. Geology and Physiography of the Kingston District, Jamaica. Publ. No. 2.
- SWEETING, M. M. 1956. Hydrogeological Observations in Parts of the White Limestone Areas in Jamaica, B.W.I., July-September, 1955, with an Appendix by S. A. G. Taylor.
- VERSEY, H. R. 1955. The Duanvale Fault System and its' Bearing on the Tertiary Palaeogeography of Jamaica. *Proc. 1st Brit. Caribb. geol. Conf. Antigua*, 1955.
- VINCENZ, S. A. 1955. Magnetic Prospecting for Iron Ores in Jamaica. *Geophysics*, 1955, Vol. 20, No. 3. Publ. No. 23.
- ZANS, V. A. 1951. Economic Geology and Mineral Resources of Jamaica. *Bull. No. 1, geol. Surv. Jamaica*. Publ. No. 4.
- ZANS, V. A. On Karst Hydrology in Jamaica. *Un. geod. geophys. int. hydrol. sci., Ass. gen. Bruxelles*, 1951, Tome 2, pp. 267-279. Publ. No. 5.
- ZANS, V. A. 1952. Ground-water Supplies by Borehole Wells in Jamaica. *Fmrs Handb., Jamaica agric. Soc.*, pp. 207-211. Publ. No. 6.
- ZANS, V. A. 1952. Manganese Deposits of Marshall's Hall, Jamaica. *Colon. Geol. min. Resour.*, Vol. 3, No. 2, pp. 117-126. Publ. No. 8.
- ZANS, V. A. 1953. The Geology of the Mosley Hall Cave, Jamaica. *Nat. Hist. Notes, Nat. Hist. Soc. Jamaica*, Vol. 5, No. 58, pp. 156-163. Publ. No. 10.
- ZANS, V. A. 1953. Inauguration of Jamaican Bauxite Industry. *Colon. Geol. min. Resour.*, Vol. 3, No. 3, pp. 231-232. Publ. No. 11.
- ZANS, V. A. 1953. Bauxite Resources of Jamaica and their Development. *Ibid.*, Vol. 3, No. 4, pp. 307-333. Publ. No. 12.
- ZANS, V. A. 1953. Geology and Mineral Deposits of Jamaica. A Brief Synopsis with generalised map. Publ. No. 14.
- ZANS, V. A. 1954. Mining in Jamaica. *World Mining Catalogue Issue April 15, 1954*, pp. 71-72. Publ. No. 15.
- ZANS, V. A. 1954. The St. Clair Cove in St. Catherine. *Nat. Hist. Notes, Nat. Hist. Soc. Jamaica*, Vol. 6, No. 68, pp. 137-147. Publ. No. 18.
- ZANS V. A. 1955. Major Structural Features of Jamaica. *Proc. 1st Brit. Caribb. geol. Conf., Antigua*, 1955.
- ZANS V. A. 1955. Geology and Mining in Jamaica. . *Proc. 1st Brit. Caribb. geol. Conf., Antigua*, 1955.
- ZANS V. A. 1955. Water Supply Problems in the Karst Lands of Jamaica. . *Proc. 1st Brit. Caribb. geol. Conf., Antigua*, 1955.
- ZANS V. A. 1956. The Origin of the Bauxite Deposits of Jamaica. *20th int. geol. Congr. Mexico*, 1956.

Annual Reports:

1951/52. Publ. No. 13.

1952/53. Publ. No. 16.

1953/54. Publ. No. 21.

1954/55. Publ. No. 27.

Mineral occurrences

Bauxite

Copper and copper ores

Dolomite

Glass sands

Gypsum

Iron and iron ores

Lead and lead ores

Manganese

Oil

Water supply

Zinc

Jamaica – Staff list

Geological Survey Department, Kingston

Director

V. A. Zans, Mag.Rer.Nat., Habil., F.G.S.

Geologists

L. J. Chubb, M.Sc., Ph.D., F.G.S.

H. R. Versey, M.Sc., F.G.S.

J. B. E. Williams, B.Sc., F.G.S.

E. Robinson, B.Sc.

Retrieved from

http://earthwise.bgs.ac.uk/index.php?title=Jamaica_-_Colonial_Geological_Surveys_1947-1956&oldid=42969

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 29 September 2019, at 10:05.

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

