

**GEOLOGICAL SERVICES
IN THE LESSER ANTILLES**

Historical review

No permanent geological service based in any of the Commonwealth Lesser Antilles, exists at present. The Seismic Research Unit of the University of the West Indies, with head office in Trinidad, is officially responsible for volcanic and earthquake monitoring, and has been called upon to provide numerous other services. Details will be given later.

by **John Tomblin**

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**Paper presented at the Commonwealth Geological Liaison
Office Seminar on Geological Services in the Caribbean.**

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Research Department), was established as an independent research institution supported by British Colonial Development and Welfare funds. There was close collaboration between G.R. Hobson of the Seismic Unit and P. Martin-Kaye until Martin-Kaye's departure from the Lesser Antilles in 1961. After this date, the Seismic Research Unit tacitly assumed responsibility for several of Martin-Kaye's former duties.

Kingston, Jamaica.

6-9 March 1978

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Present services provided by the Seismic Research Unit

The main geological responsibilities of the Seismic Research Unit in the Lesser Antilles consist of the mapping of younger volcanic deposits and reconstruction of recent volcanic histories, using petrological and geochemical analysis plus isotopic dating as an aid to understanding past activity and to form the basis for future prediction.

The Seismic Research Unit has also been involved in the assessment of pumice deposits of potential economic value, the making of steam flow and temperature measurements, and chemical analyses of steam condensates as the preliminary studies for geothermal exploration.

In seismology, the Unit has since 1952 progressively built up a regional network of earthquake monitoring installations in the Eastern Caribbean, from which it has routinely determined earthquake locations and magnitudes. The Unit has also investigated seven volcanic earthquake crises and three volcanic eruptions in the Lesser Antilles since 1952, and has advised local governments on the course of events and on emergency planning.

The Unit has also advised on:-

- a) Alternative source of building sand and aggregate;
- b) Slope stability;
- c) Heavy mineral deposits and composition for economic exploitation;
- d) Reported finds of precious stones, and possibilities for the local utilization of semi-precious stones.

Visits to the Lesser Antilles by foreign specialists

The islands of the Lesser Antilles have requested and received numerous visits from specialists belonging to international or foreign national geological institutions, typically from a few days to a few months in duration. In the writer's assessment, only a limited proportion of these visits have been worthwhile. For example, in one volcanic island, an oil specialist was sent by an international organization for 3 months to investigate reports of reported shows of petroleum on the windward coast. This specialist summarily dismissed the possibility of significant deposits of petroleum, as had already been done in earlier reports by Government Geologists which were based on chemical analyses (Earle, 1920; Martin-Kaye, 1959). The specialist then spent the greater part of his time examining heavy mineral and pumice prospects, for which he carried out no new investigations and was apparently unaware of some of the reports which had already existed.

Future requirements

In the writer's opinion, there are two main future requirements: firstly to collate all previous work, especially unpublished or out-of-print material, and publish it. It would probably be necessary to redistribute copies in the Lesser Antilles every 2-3 years, as experience has shown that local copies forming part of official archives are often lost or stolen within this time. The second requirement is to examine critically the most promising subjects for future research, and to ensure that requests for assistance from highly paid visiting experts are for studies which have not already been done.

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N.B. This refers only to those documents which represent the important examples of geological services performed in the Commonwealth Caribbean.

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