"If we may judge by the thickness, lateral extent and degree of welding, the Tertiary eruptions of the Great Basin would compare with those of modern times as the explosion of a hydrogen bomb with the bursting of a firecracker."

Despite this very valid argument, however, studies of the field occurrences and distribution of the deposits as well as microscopic studies of the rocks themselves are convincing proof that ignimbrites truly represent the deposits of a *nuée ardente* type eruption and that neither the conventional lava flows nor ash showers played a part in their origin.

January, 1961 Harold E. Enlows

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STRUCTURE OF THE CONTINENTAL MARGIN OF NORTHEASTERN NORTH AMERICA

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Many geophysical measurements, including seismic refraction, seismic reflection, gravity, total field magnetics, bottom and sub-bottom soundings, have been made along the continental margin of eastern North America during the last twenty years. Through these measurements and associated geological investigations the structure of the margin has been determined in some detail.

The seismic measurements have revealed the presence of two sedimentary troughs paralleling the coast. The inner one, under the continental shelf, contains sediments

up to 20,000 feet in thickness and is bounded near the edge of the shelf by a basement ridge which rises to within 5,000 feet of the surface in places. The outer trough, under the continental slope and rise, contains a greater thickness of sediment, up to 30,000 feet off the Grand Banks of Newfoundland. The sedimentary column decreases in thickness towards the ocean basin, reaching an average thickness of about 3,000 feet.

Beneath the sedimentary rocks are two crustal layers; the basement rocks under the continent, and an oceanic crustal layer under the ocean. Both are found in the vicinity of the continental margin but the basement rocks pinch out as the ocean basin is approached. Both layers may continue under the continent but the boundary between them may be gradational rather than sharp. The boundary between the crust and the mantle becomes obscure in the margin area and the Mohorovicic Discontinuity may not be a sharp interface in this region. Gravity measurements indicate that the change from continental to oceanic crustal properties takes place in a narrow region near the edge of the shelf.

The configuration of the depositional system off northeastern North America compares very favorably with that of the Appalachian system as reconstructed prior to the Taconic Revolution. The shelf is similar to the early Paleozoic Appalachian miogeosyncline with sediments of shallow water origin derived from the continent and an abundance of fauna. The basement ridge resembles the Pre-Cambrian ridge (Green Mountains, Reading Prong, etc.) which separates the two depositional troughs of the Appalachians. The sediments of the outer trough are similar to the eugeosynclinal sediments of the Appalachian and other alpine-type mountain systems and resemble the graywackes of Pettijohn's classification. They are marked by an absence of shallow water features and a dearth of fauna. Bucher has interpreted the scarcity of fauna in eugeosynclinal sediments as due to original scarcity rather than to destruction during metamorphism, an hypothesis which supports a deep water origin for these sediments.

Comparison of the continental margin of northeastern North America with others reveals similarities in some instances and differences in others. Among the other areas studied are the southeastern and Gulf coasts of the United States, some parts of Africa, and South America, especially the Argentine coast between Buenos Aires and Tierra del Fuego.

RENEWED ACTIVITY OF ANAK KRAKATAU

DR. ROBERT W. DECKER

On June 8, 1959, the Indonesian Airforce (A.U.R.I.) kindly supplied the Institute Technology Bandung a Dakota aircraft piloted by Captain Soekardi. The purpose of the flight was to acquaint the Geology students with several of the volcanoes in West Java. Reconnaissance was made of Papandajan, Gede and Krakatau and the many inactive volcanoes along the same route.

We were surprised to find Anak Krakatau in a phase of moderate eruption, for there had been no reports of activitiy since September 20-23, 1953, when "violent eruptive activity took place" (Neve, G.A. de, 1956).

The aircraft arrived at Krakatau at 10:20 a.m. and made several circles of the island group during the next thirty minutes. Four cycles of Vulcanian type eruption took place during this interval, each nearly identical in nature. All the activity came from a small cinder cone approximately 200 meters in diameter and 25 meters