of Weaver (1912), the Twin River formation of Arnold and Hannibal (1913), and the upper part of the Lincoln formation of Weaver (1912) in Washington. Further collecting and study of these vertebrate remains may aid in determining the position of the Oligocene-Miocene boundary on the Pacific coast of North America.

C. E. KIRSCHNER, Standard Oil Company of California, Seattle, Washington
Reconnaissance Observations on Geology of Trinity Islands, Alaska

The Trinity Islands, Tugidak on the west and Sitkinak on the east, form the southwesterly extent of the Kodiak Islands group. Each island is approximately 5 miles wide by 20 miles long. The surface of Tugidak Island is a series of low wave-cut terraces maximum elevation 200 feet. Sitkinak Island comprises a group of hills on the east and west, maximum elevation 1,640 feet, separated by a valley enclosing Sitkinak tidal lagoon.

The bedrock of East Sitkinak Island is Cretaceous (?) marine epineritic bedded graywacke and siltstone complexly folded and faulted. West Sitkinak Island is Cretaceous (?) marine infraneritic thin-bedded siltstone and fine graywacke isoclinally folded and faulted. The thickness of these units is unknown; structural trends are northwest.

Sitkinak lagoon and valley lie in a northwest-trending graben in which about 4,000 feet of Eocene (?) continental to brackish marine conglomerate, sand, silt, and coal crop out.

The bedrock of Tugidak Island consists of Plio-Pleistocene soft mudstone and thick-bedded gray sands, which strike N. 45° E. and dip 5° NW.

The Cretaceous sediments were deposited in a northeast-trending mobile, extra-continental, geosyncline and were probably derived from a volcanic landmass on the southeast. Late Cretaceous or Laramide diastrophism brought to a close the Cretaceous sedimentation cycle. The Tertiary sediments were deposited in a similar less well developed geosyncline but had a northwesterly source. Intermittent orogenic uplift near the close of this cycle caused non-deposition or erosion of mid-Tertiary sediments. Late Tertiary diastrophism that closed the Tertiary cycle of sedimentation has continued to Recent time and includes differential orogenic movements, in part along major northeast-trending faults.

J. G. VEDDER, U. S. Geological Survey, Pomona College, Claremont, California
Geology of San Nicolas Island, Ventura County, California

San Nicolas Island is the outermost of a group of eight islands off southern California. Point Mugu is the nearest point on the mainland, about 63 miles north; Los Angeles City Hall is approximately 90 miles northeast.

A geologic study of San Nicolas Island was begun by personnel of the U. S. Geological Survey in March, 1955, at the request of the director of Naval Petroleum Reserves.

About 3,550 feet of alternating sandstone, siltstone, and conglomerate constitute the exposed Tertiary section on the island. Foraminiferal studies indicate that these rocks are of late Eocene age. Several small igneous dikes that may be Miocene cut the sedimentary rocks in the southeastern part of the island. Quaternary dune sand and marine terrace deposits cover much of the central and western parts of the island.

Structurally, San Nicolas Island is a broad complexly faulted anticline with a southeast plunge. The axis roughly parallels the long dimension of the island and lies near the southwest shoreline. Two sets of intersecting faults which trend approximately north-south and east-west appear to have formed almost simultaneously. Most of these faults are high-angle normal faults, the largest having maximum apparent vertical displacement of about 400 feet.

Geologic diving operations were conducted off the west end of the island in an attempt to trace the seaward extent of the anticline mapped on shore. Self-contained underwater breathing apparatus was used by the divers in the study of approximately 5 square miles of sea floor at depths ranging from 30 to 120 feet.

ROY HAROLD WAITE, Shell Oil Company, Ely, Nevada
Silurian of Great Basin

The Silurian rocks in the Great Basin can be assigned to two distinct facies: an eastern carbonate facies and a western shale facies. The line separating the two facies, actually a narrow transition zone, trends northeast from Independence, California, through Beatty, Eureka, and Elko in Nevada.

The rocks in the eastern carbonate facies are composed almost entirely of dolomite. The dolomite is heterogeneous, varying from fine- to coarse-grained, black to white, and from almost pure dolomite to very silty dolomite.

The dolomite facies is one of the poorest systems for paleontological studies in the Great Basin. Fossils are scarce and where present are usually poorly preserved. A few localities yield silicified fossils that can be etched and studied in detail. Both Middle and Upper Silurian fossils are present in the dolomite. The faunas seem to be most closely allied to those of Australia and the Orient, and have little similarity to the Silurian forms in eastern North America. No Lower Silurian fossils have been