

EXOTIC TERRANES, LATE PALEOZOIC TO EARLY MESOZOIC FOSSILS AND CIRCUM-PACIFIC EVENTS

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In addition to the breakup of Pangea, other major events occurring in the ancient Pacific during late Paleozoic and early Mesozoic time were the development and dispersal of exotic terranes which now characterize large portions of the eastern and western Pacific margins. While the terrane concept made sense out of the geologic crazy quiltwork pattern of these regions, considerable uncertainties still exist concerning terrane origins and their paleogeographic histories. Did terranes of the eastern and western Pacific merely border Pangea or did they once exist within far-flung reaches of the ancient Pacific Ocean? Paleontology is now exploring and seeking answers to such issues based on benthic invertebrate fossils.

Like examples in the western Pacific rim of Asia, the American Cordillera contains volcanic terranes with fossil content and history quite different from coeval rocks of the adjacent craton. Some terranes may have developed close to ancient North America, but others show evidence of having existed in settings far-removed from the craton. Over time, some terranes could have experienced considerable geographic displacement via tectonic processes (faulting, rift volcanism, seafloor spreading).

Many terranes experienced protracted volcanic episodes of oceanic history during Permian and Triassic time. Terrane amalgamations occurred during Triassic and Jurassic time, and later in the Mesozoic were followed by accretion to the North American Craton. Some terranes such as Quesnellia, Cache Creek, Stikine, Wallowa, Eastern Klamath, and Wrangellia yield excellent benthic marine fossils--many of tropical Tethyan derivation, but other fossil assemblages are of mixed paleogeographic affiliations. Two island arc terranes, Stikinia and Wallowa, contribute to evolutionary and biogeographic issues with Triassic and Jurassic, tropical to temperate marine fossils. These include calcareous algae, sponges and corals occurring in reef sequences which can be related to better known examples from Asia and the former Tethys region. Continuing paleontological investigations into fossils from exotic terranes of the Cordilleran region, offer promise in the resolution of late Paleozoic and early Mesozoic circum-Pacific events and in the attainment of unified views of global paleogeography.