



Figure 39.--Geologic cross-sections speculating, in the context of plate tectonics, on the Mesozoic history between Puget Sound and the Purcell Trench.

A.--Before the Mesozoic orogeny. Illustrates the nondisruptive join between continental and oceanic crusts. Western limits of stratigraphic units are interpretations without direct support. Arrows shown here and in cross-sections B and C indicate direction of heat flow.

B.--Disruption of the bond between continental and oceanic crust and subduction of the oceanic plate. Postulated heat cell is divided and flow reoriented, heat under edge of continent is increased. As oceanic plate descends, North American plate moves westward negating the advance of the oceanic plate. Sedimentary overload on continent side of subduction is detached by a fault from the underlying plate and it crumples as the underlying part of the North American plate moves westward.

C.--Final stage of the compressional history of the orogeny. Increased heat flow causes partial melting of the lower siliceous crust with production of anatectic granites and a zone of flow upon which the overlying crust "floats." There can be no complete separation of the events and processes shown in B and C: those beginning in B continue into C and those shown in C began in B. Sedimentation is continuous. For simplicity the diagrams omit unconformities and facies changes and neglect the significance of a trench and volcanic arcs.