

How to make the Gulf of California-Thought experiment-

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A possible mechanism for the ocean-floor spreading in the Gulf of California was constructed by thought experiment concerning an active-ridge-subduction beneath a continental plate. Let us suppose an oceanic plate A and oceanic plate B, which are moving to the opposite direction. The oceanic plate B is assumed to be moving eastward and subducts beneath a fixed continental plate C. If the speed of both plate A and B are same, a spreading ridge between them would be stable. When the speed of plate B is faster than that of plate A, the ridge should be migrated toward the continental plate C, because a ridge locates at the center of diverging plates. The easterly moving ridge will finally arrive at the trench, and the oceanic plate A will contact with continental plate C. Then the converging plate boundary (trench) between plate A and B would be converted to the diverging plate boundary between plate A and fixed plate C, that is a spreading ridge. Since then, this newly originated ridge will move westerly, and an oceanic lithosphere will be added to the moving oceanic plate A and also to the fixed continental plate C. Thus, the simplest plate kinetics suggests that an active continental margin (Pacific Type) would become a passive continental margin (Atlantic Type), even if the velocity of each plate does not change throughout the case.

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