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## Laramide-age growth of the Wyoming craton by ocean plateau under-accretion

Wyoming is strange, presented in two parts.

Part 1. After setting near sea level for 100s of m.y., the Archean Wyoming craton elevated 1-2 km during and after the Laramide orogeny. How can a craton be made more buoyant? Xenoliths indicate that the lower ~40 km of the Wyoming craton were removed during the Laramide orogeny, and replaced with a ~100-km thick volume of cool, basalt-depleted mantle of Cretaceous age. Such profound changes to a craton, occurring far from any plate margin, seem difficult to explain. But just when it is needed, a large ocean plateau (20-30 km of basaltic crust and basalt-depleted mantle) subducted beneath southern California and took a path to Wyoming. This is the cool mantle now beneath Wyoming craton and adjacent areas.

Part 2. The crust of this ocean plateau subducted, but it now is missing. The history of anomalous vertical motions that follow the subducted ocean plateau suggest that the basaltic crust eclogized beneath NW Colorado and southern Wyoming, and then escaped into the Earth's interior. I'll suggest my best guess as to what happened. Growth of the Wyoming craton through under-accretion of an ocean plateau's mantle lithosphere (absent its crust) is similar to the slab-stacking model for the Archean construction of cratons.

