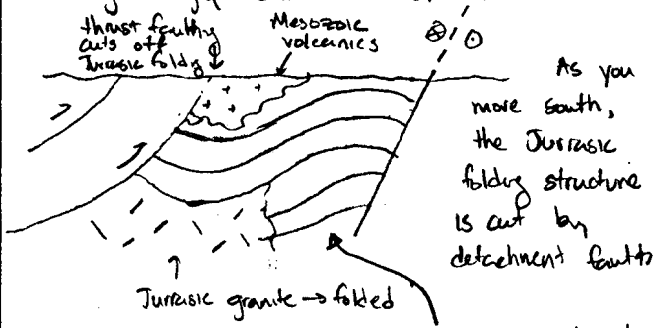


* The geology near LAS VEGAS is that of a classic fold : thrust belt, but as you move south, the geology changes



As you move south, the Jurassic folding structure is cut by detachment faults

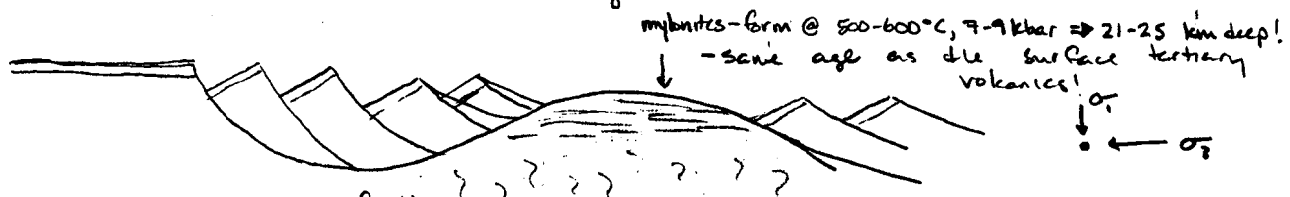
WHAT CAUSES THE DOMING/DETACHMENT?

- upper mantle flow directly beneath extensional zone (Miller, et al. 1983)
- upper mantle flow @ base of detachment (Nemicko, 1983)
- * - lower crustal flow @ base of ductile zone

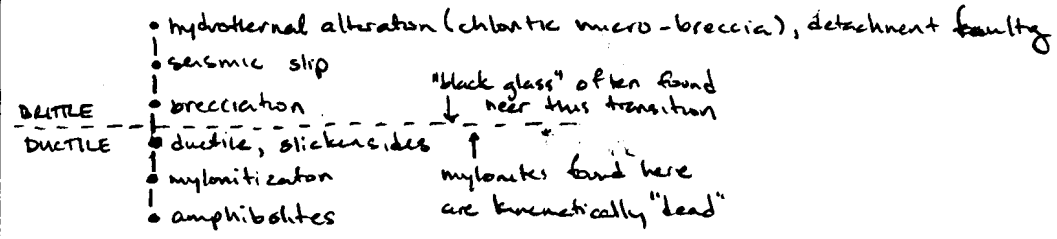
- nappes form when incision : extension occurs along a detachment fault. These are the blocks of the foot or hanging wall which are separated by the new detachment fault.

CORE COMPLEXES

this area subject to folding after Mesozoic volcanics but before thrusting

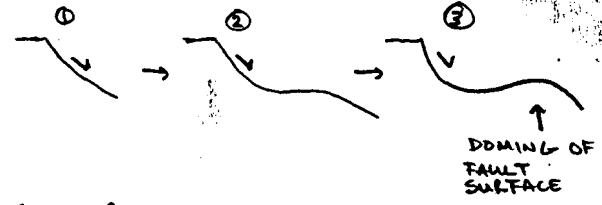


- the motion along these faults occurs very rapidly! Only ~2 myr needed to accomplish the motion.
- the sense of shear in these mylonites is unidirectional => can use a pure shear model of deformation.
- the type of rocks found depends on where they were located (brittle, ductile, or brittle/ductile transition zone)



INCISED VS. EXCISED

- as the fault surface domes, it goes from dipping to horizontal, to dipping the other direction. Motion can no longer occur along this fault surface easily (σ_1 : σ_2 have not changed orientation), so a new fault forms to accommodate for motion.



- if new faults form in the hanging wall, they are termed EXCISED
- if new faults form in the foot wall, they are termed INCISED
- both incised : excised faults can form along the same detachment fault.
- since new faults form along the original detachment, it is difficult to restore a cross section or determine absolute displacement along the fault.

