SERPENTINIZED PERIDOTITES FROM MID-OCEAN RIDGES

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I consider two aspects of serpentinized peridotites from the Mid-Atlantic Ridge at 45°N., (1) A rather large amount of coarse grained ultramafic rocks have been dredged near the axes of mid-ocean ridges and at 45°N apparently far from any "transform" faults. Microscopic examination suggests sequential episodes of hydration, with increase in rock volume at relatively shallow depth. If isothermal surfaces are inclined, then ultramafic levels may *laterally* cross serpentinization zones (500°C and below). Consequently serpentinization will lead to "*oblique* diapirism", and offer an alternative explanation of the fact that alpino-type ophiolite complexes frequently display serpentinized seams "intruding" for example pillow-lavas in some places, while coarse peridotite masses are still associated with plutonic rocks elsewhere. (2) Microscopic examination of ultramafic rocks occasionally display "cumulate" structures. Some examples exhibit later deformation, and suggest (a) the existence at relatively shallow depth (few km), under Mid-Oceanic Ridges, of magmatic chambers where gravity differentiation operates. (b) the probable collapse of layered masses solidified at the bottom of those chambers, down to deeper and warmer zones. (c) the recycling of those masses in the process of partial melting.