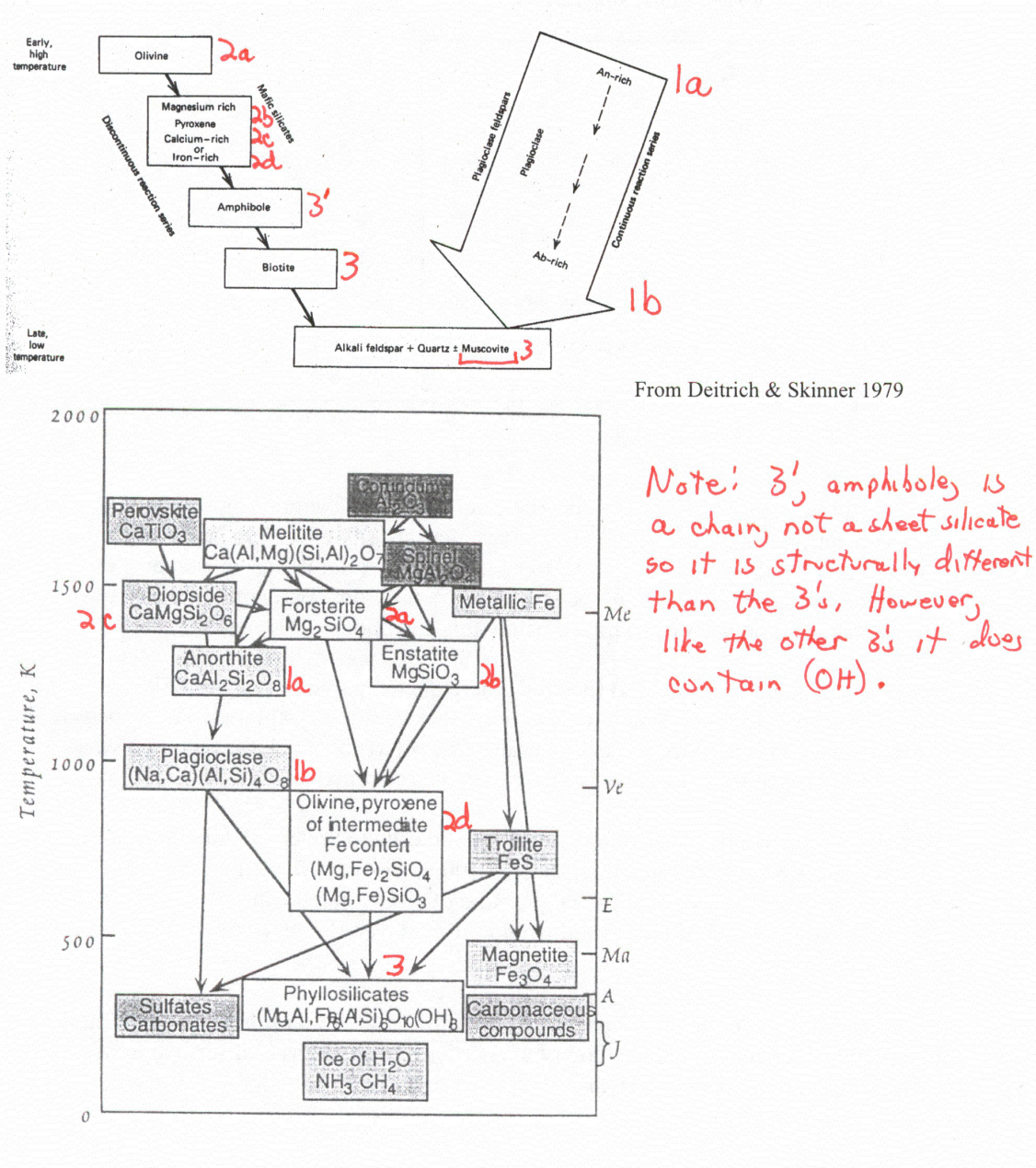


#1 (20 points) Using the following diagrams compare the Bowen reaction series and the Equilibrium Condensation model. Mark using numbers or some other code what identical or at least very similar solids occur in both diagrams. Beyond marking your diagrams, in at most 1/2 page of text describe in what ways the condensation sequences are similar and in what ways they are different.

ANSWER: See the similar solids/condensates marked on the diagrams, plus the text discussion on the next page.



Both diagrams have Anorthite (i.e. Ca) rich plagioclase forming relatively early, becoming more Albite (i.e. Na) rich as temperatures drop. Both also have Mg rich silicates forming relatively early and becoming more Fe rich as temperatures drop. Finally, both diagrams have sheet silicates appearing at relatively low temperatures.

There is a slight difference in the order of appearance of the mafic silicates (olivine and pyroxene). In the condensation diagram Ca containing pyroxene (diopside) appears before olivine. (This example follows the general condensation rule that Ca compounds condense early.)