

Study Questions from Ch3, Nichols, p.25-36

1. Carbonate rocks are the second most common sedimentary rock type in the geological record. What is the primary origin of most carbonate sediment?
2. What are the most common skeletal fragment types that comprise carbonate allochemical grains?
3. What are the most common primary carbonate minerals? Why?
4. What are the other carbonate allochemical grain types, in addition to skeletal grains? What general environmental conditions are indicated by these other carbonate grains?
5. What is the conceptual basis, and explicit criteria for the Dunham classification scheme?
6. What is the significance of lime mud in a carbonate sedimentary rock? Of sparry interparticle cement? Of textures (particles oriented in geometries that defy gravity, for example) indicating organic binding during deposition?
7. How does the assemblage of biogenic particles aid in the interpretation of depositional environment in carbonate dominated sedimentary successions?
8. Why is it important to recognize a component of primary volcanogenic material in a sedimentary success? What are the most likely places (in a plate tectonic context) to find such a component?
9. Discriminate the main mineral components of mafic volcanic assemblages. The main mineral components of higher silica content assemblages?
10. Describe the general type of eruptive processes common in primitive/basaltic eruptions versus recycled/intermediate-silicic eruptions.
11. Compare and contrast “volcanogenic” and “pyroclastic”
12. What are the textural terms used to distinguish volcanic eruptive fragmental material?
13. We did not talk much about the composition of normal marine waters. Explain why halite might form very rapidly and in large volume under highly evaporative conditions in a highly restricted marine basin.
14. Compare and contrast the origin and occurrence of diagenetic versus primary, biogenic chert.
15. Ancient organic-rich sediment occurs in two fundamental modes: indigenous and migrated. Describe the origin and mechanisms responsible for each of these two modes of occurrence of ancient, organic rich sediment.