STRAT./SED. LAB #9: CEMENTS **3/20/06**

GOAL:
The purpose of this lab is to give you experience looking at cements in hand sample and in thin section. This lab assignment will show you some of the common types of cements and various pore types in siliciclastic and carbonates rocks.

ASSIGNMENT:
There are ten samples. One contains both a hand sample and a thin section; four contain only a hand sample; five contain only a thin section. Specific directions are given for each sample. For sketches, remember to include scales and labels. Make sure to look at thin sections under both plane light and polarized light.

Here are some things to consider when describing cement: mineral composition (quartz, calcite, etc.), pore type (intergranular pores, intragranular pores, molds, vugs, fractures, etc.), general cement type (overgrowths, isopachous cement, etc.), and cement crystal shape (blocky, bladed, etc.). In some rocks, especially the hand samples, you will not ement type in a pore, describbe able to describe all of these characteristics. Also, if you see more than one cement type in a pore, describe their order (ex., first came drusy quartz isopachous intergranular cement, then blocky calcite intergranular cement).

1) El Abra Formation, a Cretaceous limestone from eastern Mexico (2 hand samples)
This is a limestone. Everything in it (including cement) is calicte. DO NOT PUT ACID ON IT! The large fossils are rudists, a weird type of bivalve that lived only during the Cretaceous and built reefs. There are also many forams in this sample.

1a) Examine hand sample with naked eye (and hand lens, if you'd like).
1b) Sketch a portion of the hand sample where you can clearly see cement.
1c) Name this rock using Dunham's classification system (remember that?).
1d) Describe the cement that you can see.

2) M-81-8, a Tertiary conglomerate from Ruby Basin in Montana (2 small hand samples and 1 large thin section)

2a) Examine both the hand sample and the thin section.
2b) Sketch two thin section views that show cement.
2c) Describe the cement.

3) modern, Great Salt Lake (1 large thin section

3a) Examine the thin section.
3b) Sketch one view that shows the cement.
3c) Describe the cement.

4) Lower Ordovician Ogdensburg Formation (a dolostone), northern New York (1 hand sample)

4a) Examine the large cluster of white crystals.
4b) Are these cements? Explain briefly.
4c) Describe the white crystals.

5) N-8, a breccia from Montana (1 thin section)

5a) Examine the thin section.
5b) Sketch and describe the cement.

6) 16-2-M, a sample from the Lower Ordovician Ogdensburg Formation, Ontario (1 large thin section, broken into two triangles)

6a) Examine the thin section. The brown host rock is replacement dolostone.

6b) Make 2 sketches, one showing most or all of thin section and the other closer-up, showing individual cement crystals.

6c) Describe the cement.

7) Proterozoic Copper Harbor Conglomerate from the U.P. (1 hand sample); you MAY use HCl on this sample

7a) Examine the hand sample.

7b) Describe the cement.

8) 82-R17C, a Tertiary sandstone from Ruby Basin in Montana (1 thin section)

8a) Examine the thin section.

8b) Sketch one view that shows cement.

8c) Describe the cement.

9) Permian Yates Fm. (a dolostone), Texas (1 hand sample)

9a) Examine this hand sample.

9b) Describe the cement.

10) Pennsylvanian Ozawkie Limestone, Kansas (1 thin section)

10a) Examine the thin section.

10b) Sketch one view that shows the cement.

10c) Describe the cement type.

********** to be turned in to Kathy at beginning of next Monday's lab (3/27/05) **********