

Note for Third Week, Geology 1122 Walker Fall 2008

Last week (Sept. 1,3 &5), we started relative age dating. We then practiced with actual rock outcrops (in slide) where unconformities in the rock record were shown. We started with the most famous unconformity, where it all started: Hutton's Siccar Point in Scotland. One of the perceptual challenges was to distinguish a weathered outcrop from the actual strata. Now, don't be discouraged by this, as geologists have to deal with weathered surfaces all the time, and it takes a while to learn the ropes. By far, you are doing great at determining contacts (unconformities) between rock layers that represent different periods of time. Remember, you can always ask me if something is not clear; this is your education! It takes time to develop a new way of seeing, so don't get discouraged. That is why we practice in class, and I ask you questions. I learn from you, by the questions you ask.

The most important concept to keep in mind is that an unconformity means a loss of time; how much time is missing? Geologists try to determine the amount of time lost by correlation and/or absolute age dating of the strata above and below the unconformity and by comparison to other strata. We haven't discussed correlation or absolute age dating yet, so don't worry. We will. Geologists have to use a variety of data: local, region and global strata to determine what is happening in the rock record and what could be missing in terms of time.

Thus far, we've learned Steno's Three Principles, and how he developed these principles by hiking in the Tuscan mountains and up the River Arno. Now, you don't have to remember the Tuscan Mountains nor the River Arno. The most important thing to remember is Steno's Three Principles that you can use yourself to determine relative age of rocks. Next, we started discussing James Hutton, and the unconformities that he discovered. He figured out that the rock record is very old and vast, but it is incomplete because of unconformities. We then started to discuss the three kinds of unconformities with field examples: angular, disconformity, and nonconformities. I left you with a puzzle to solve, and I have put them up as "GeoCube1", "GeoCube2", and "GeoCube3" on this web page. Hope you can interpret my handwriting (!!).

As we go into Week 4 (Sept. 8 and 10), we'll finish up Hutton's Principles, discuss Charles Lyell a bit, introduce you to William "Strata" Smith and his principle, and Johannes Walther's "Walther's Law", and then close out relative age dating. **After this lecture, you should be able to go out in the real world and tell relative time!!!** We'll then talk about absolute age dating with radioactive decay. Readings are the same as last week.

Monday, Sept. 8 continue Principles of Geology

Wednesday, Sept. 10, continue Sept. 8 information that we couldn't finish; then, at the half way point of class, we'll review for Exam 1.

Friday, Sept. 12, Exam 1. Please bring a number 2 pencil. Thanks!

Refer to your syllabus for the format of all exams!