Sedimentary Rocks and Stratigraphy 303
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Project 1 Book Cliffs
Exercise 1 Drawing a Measured Section

Due Date:

Instructions:

You can do this either on the computer using a graphics program (Canvas), or draw by hand, then scan as a background for a Canvas document. This assignment should be included in your portfolio.

- On graph paper or on the computer, draw a measured section using the data below at a scale of 1 inch = 5 meters. Scan the sketch if you have drawn it by hand, and open it in *Canvas*.
- Incorporate a grain-size scale "weathering" profile appropriate for the grain sizes present in the strata. Put weathering profile to the right. Create a cumulative thickness scale on the left, with increments of 15 meters.
- Make a legend explaining symbols that you use in your measured section. Commonly used symbols are found in Tucker, 2003. Devise an appropriate heading for your project *(see a reference for what to include in a title)*
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Resources other than textbooks:

Most data derived from

Cole & Friberg, 1989, Stratigraphy and Sedimentation of the Book Cliffs, Utah, *in* Sedimentation and basin analysis in siliciclastic rock sequences, Vol. 1, Cretaceous shelf sandstones and shelf depositional sequences, Western Interior Basin, Utah, Colorado and New Mexico

Useful website for trace fossils: http://www.envs.emory.edu/ichnology/index.html

Use the following color scheme:

Conglomerate	orange	Organic-rich shale	dark grey
Sandstone	yellow	Coal	black
Regular shale	light grey		

Cretaceous Blackhawk Formation
exposed in Gilson Gulch, SW/4, Section 8, T13S, R9E, Carbon County, UT

in meters

7.5 Sandstone, cg with some gravels; high-angle crossbeds, pebble lag deposits in concave-up troughs; irregular basal contact cuts into coal

4.25 Coal

2.4 Sandstone, fg-mg; v. thickly bedded, parallel-laminations with root traces developed from unit top

3 Sandstone, fg-mg; high-angle cross-bedding in ss w/ curved basal contacts;

7 Sandstone, vfg; thin (2 mm) mudstone partings between four ss units, v. thickly bedded, all parallel-laminated w/ low-angle truncations; burrowing (*Ophiomorpha*) from ss unit tops

3.6 Sandstone and siltstone, interbedded; vfg ss, parallel laminations in thin-bedded sandstones; bioturbation (*Terebellina, Cylindrichnus*)

4.6 Sandstone, vfg; 3 amalgamated thickly bedded ss; all parallel laminations w/ low-angle truncations; some gutter casts along the basal sharp contact

10 Siltstone and sandstone, thin bedded ss interbedded w silt/shale; ss are vfg-fg, poorly sorted; some bioturbation

12.8 Sandstone, vfg-fg; parallel-laminated to low-angle cross-bedded; local convolute bedding with laminae distorted upward; thin- to medium-bedded, extensively burrowed at top of unit (*Asterosoma, Ophiomorpha*)

12.2 Sandstone, mudstone and coal, discontinuously interbedded; ss are fg and silty, laterally discontinuous; some ss are high-angle cross-bedded; asymmetrical ripples with clay and carbonaceous drapes, commonly located in cross-bedded ss units w/ curved bases and flat tops; a few bidirectional ripples with clay drapes; occasional oyster valves, concave up

3.7 Coal and carbonaceous shale

1.8 Sandstone, mg; parallel laminations; root traces from upper contact down

3 Sandstone, fg-mg; thick-bedded, high-angle crossbedding

2.1 Sandstone, vfg; parallel laminations w/ low-angle truncations; burrowing (*Asterosoma, Cylindrichnus, Ophiomorpha*); asymmetrical ripples on top of bed

2.5 Sandstone, vfg-fg; parallel laminations w/ low-angle truncations; burrowing; symmetrical ripples on top of bed

3.7 Sandstone, vfg; parallel laminations w/ low-angle truncations; burrowing; asymmetrical ripples on top of bed

9.1 Sandstone and siltstone, thin-bedded ss w/ silt/shale; carbonaceous, some ss w/ parallel laminated vfg; some bioturbation

6.7 Sandstone, vfg, parallel laminations w/ low-angle truncations; local soft-sediment deformation (dewatering structures?)

3.7 Sandstone, vfg-fg, parallel laminations w/ low-angle truncations, burrowed

10 Siltstone and sandstone, interbedded; thinly laminated and burrowed

4 Sandstone, vfg-fg, parallel laminations w/ low-angle truncations; gutter casts along sharp basal contact; locally burrowed (*Asterosoma, Cylindrichnus, Ophiomorpha*)

8.2 sandstone and siltstone, interbedded – thin-bedded ss and shale; ss-vfg, locally burrowed (plural curving tubes, chevron burrows – *Cylindrichnus*)

3 bioturbated siltstone (*Cylindrichnus, Chondrites, Thalassinoides*)