

Structural Geology

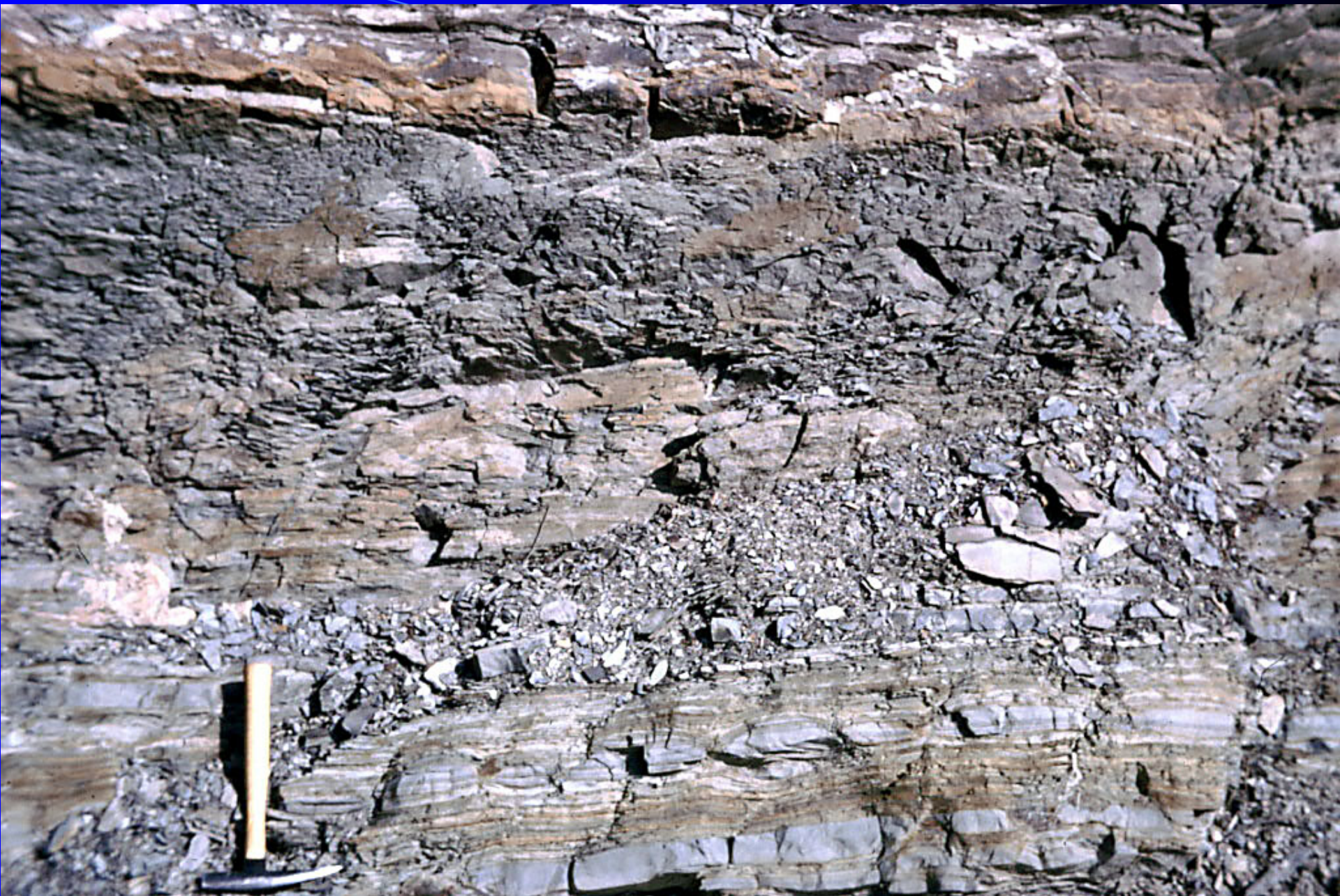
- A geologic structure is a geometric configuration of rocks, and structural geology deals with the geometry, distribution and formation of structures. (Fossen, p. 2)
- Tectonics is connected with external and often regional processes that generate a characteristic set of structures in an area or a region. (Fossen , p. 2)
- As is almost universally the case in geology, we know the outcome of the experiment, we don't know the details of the experiment.
- We begin with the observation of the experimental results and then through experiment and modeling (plus intuitive thinking) attempt to understand the experiment.
- The experiments themselves involve the applications of stress and the rocks respond by deformation – brittle, plastic, or a combination – which is evidenced by strain. What follows are examples of the experimental results.

Joints

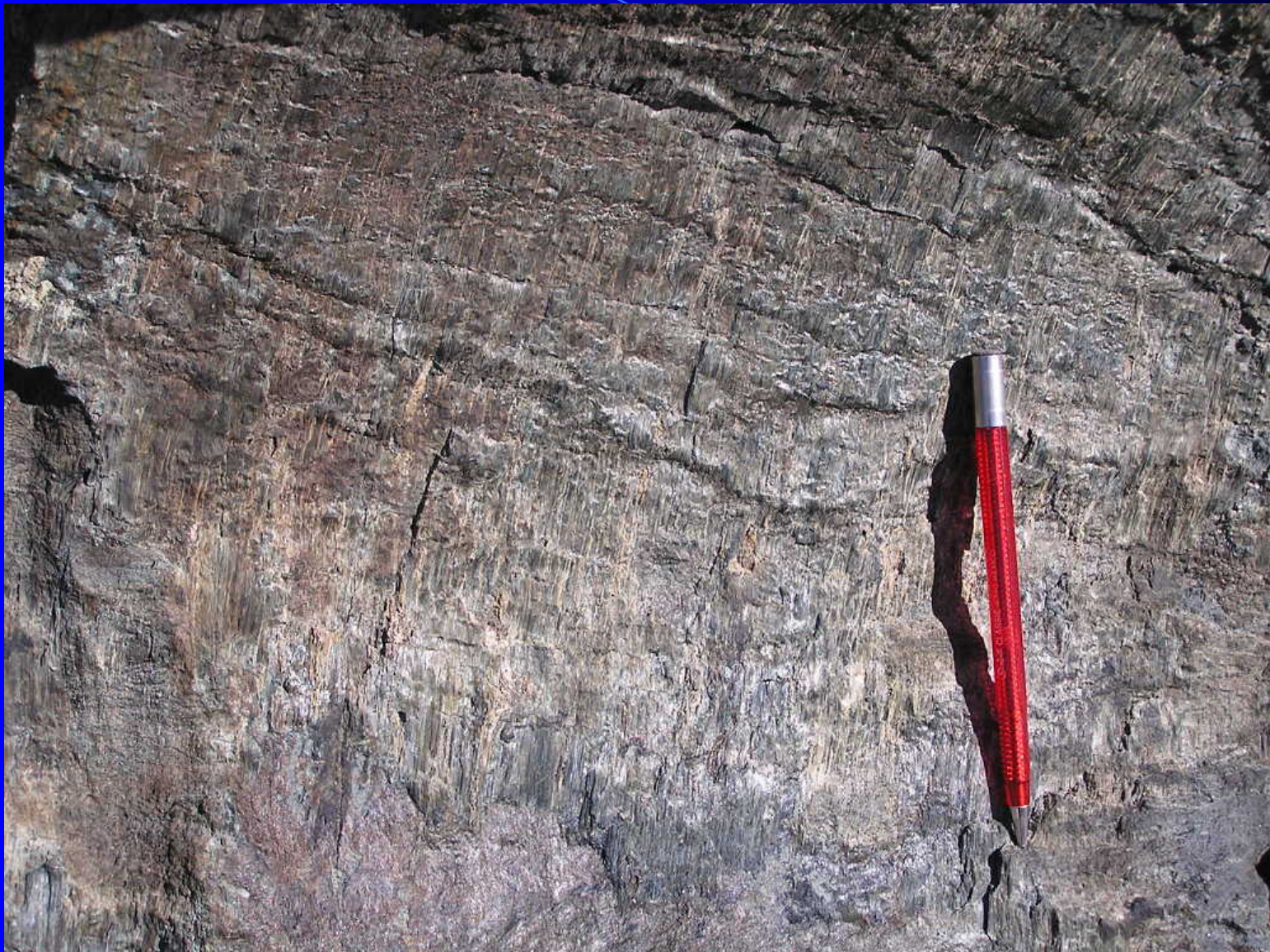


**Brittle -
ductile
behavior**





Slickensides and Faults







Cleavage





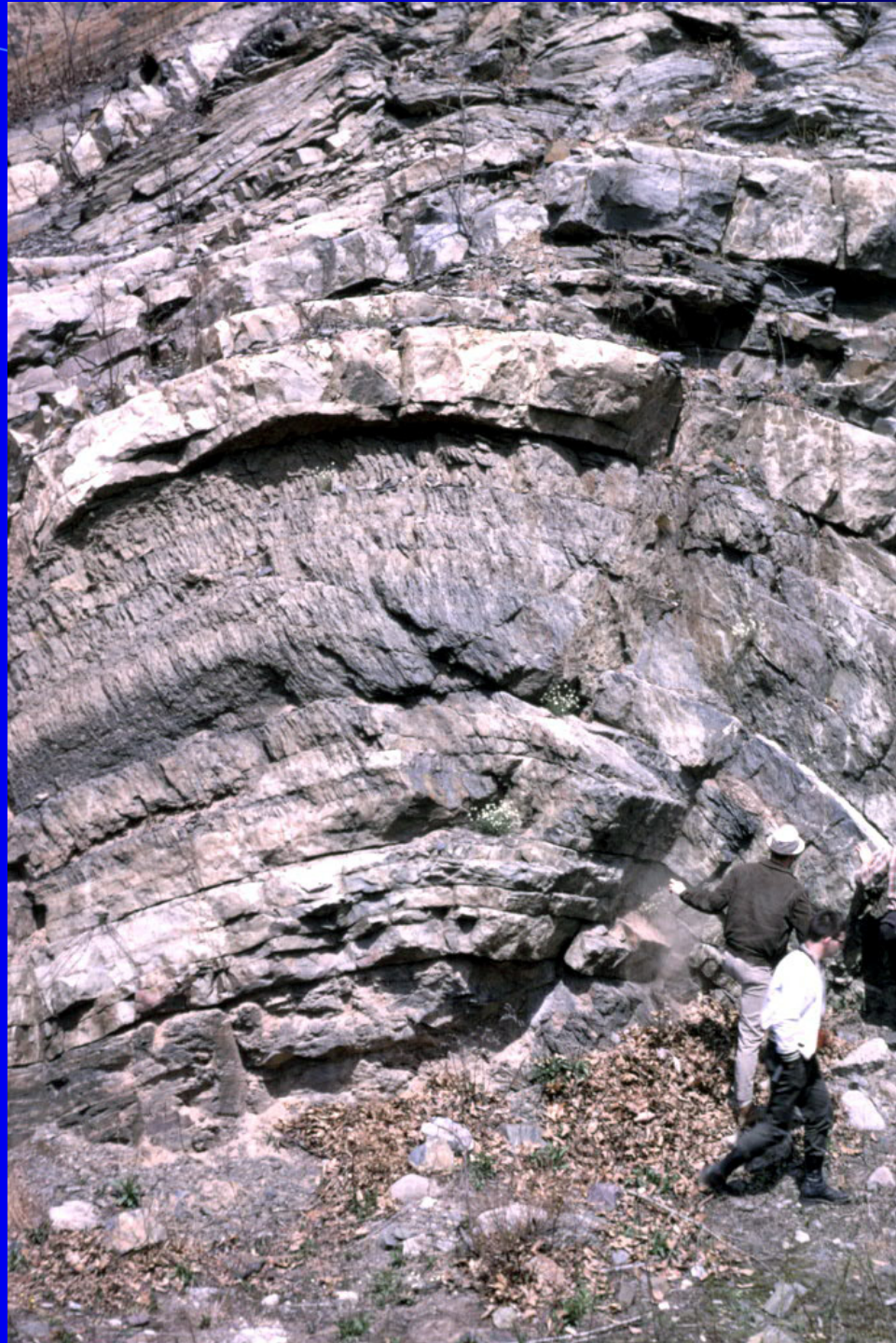






Folding

















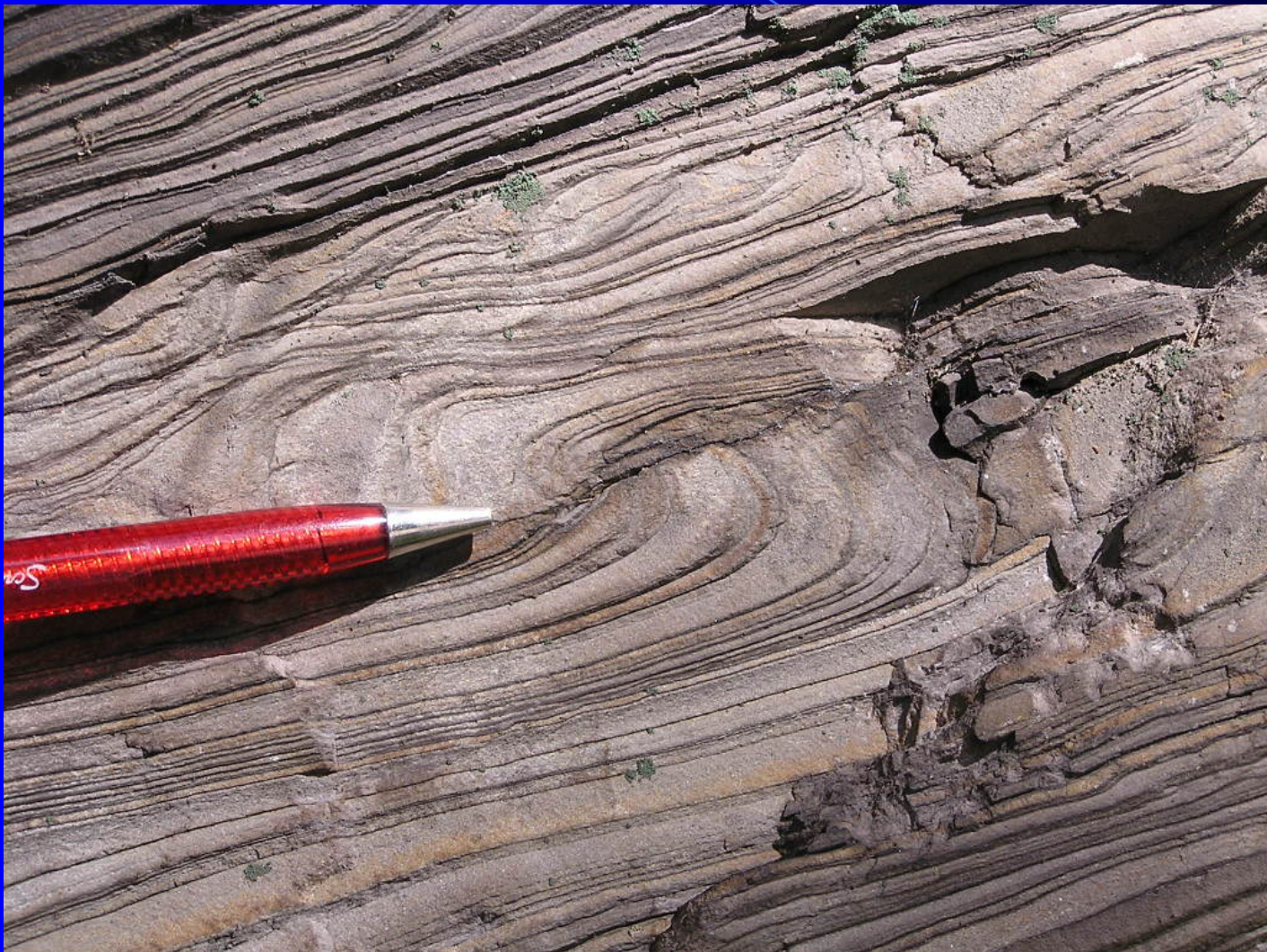




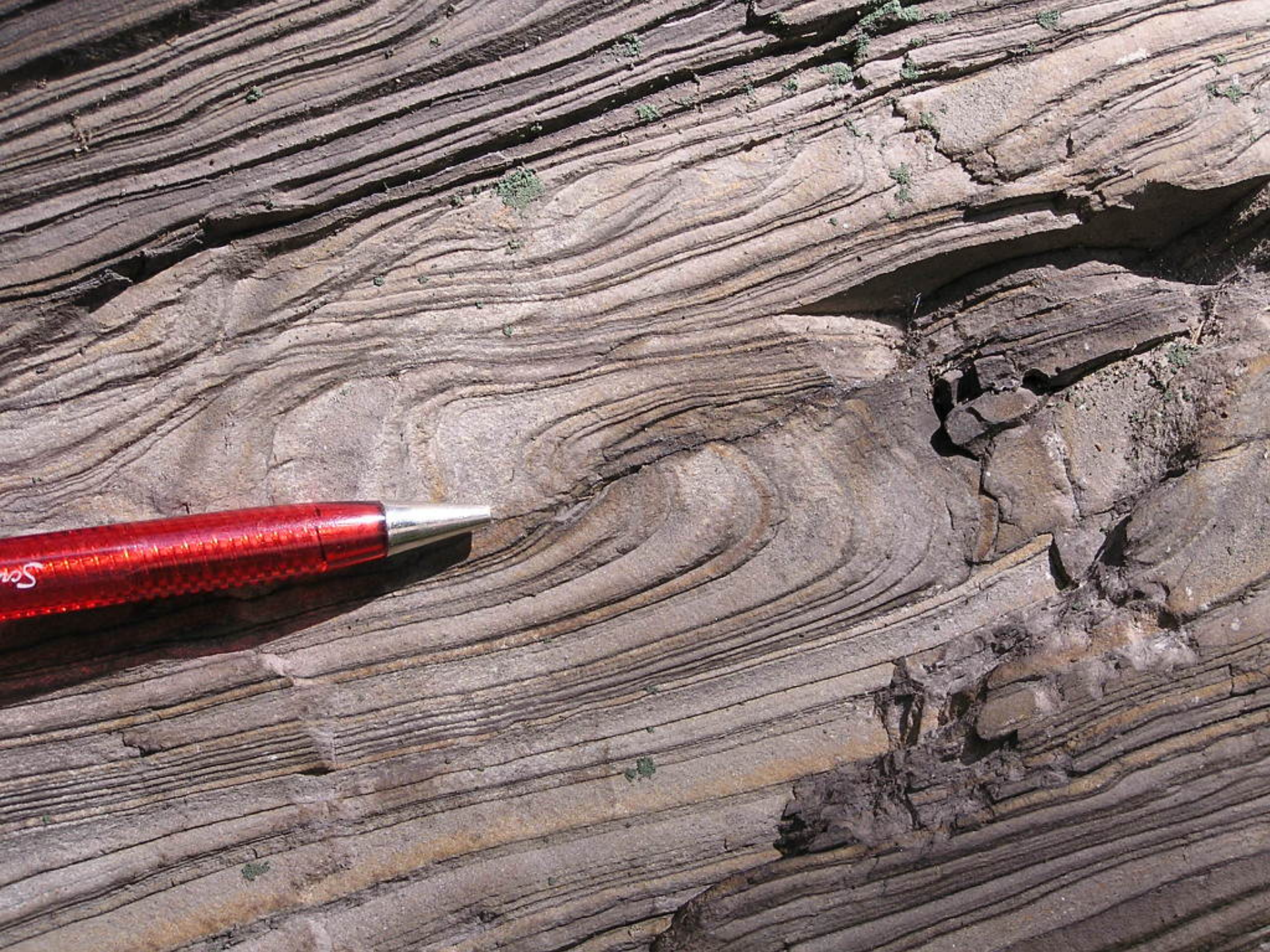




Soft Sediment Deformation Folds and Faults







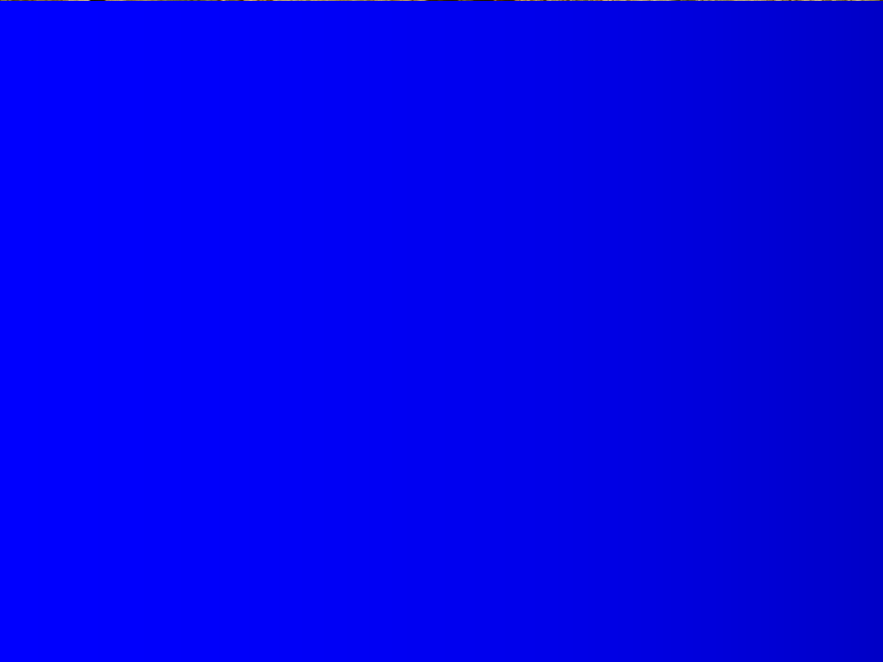
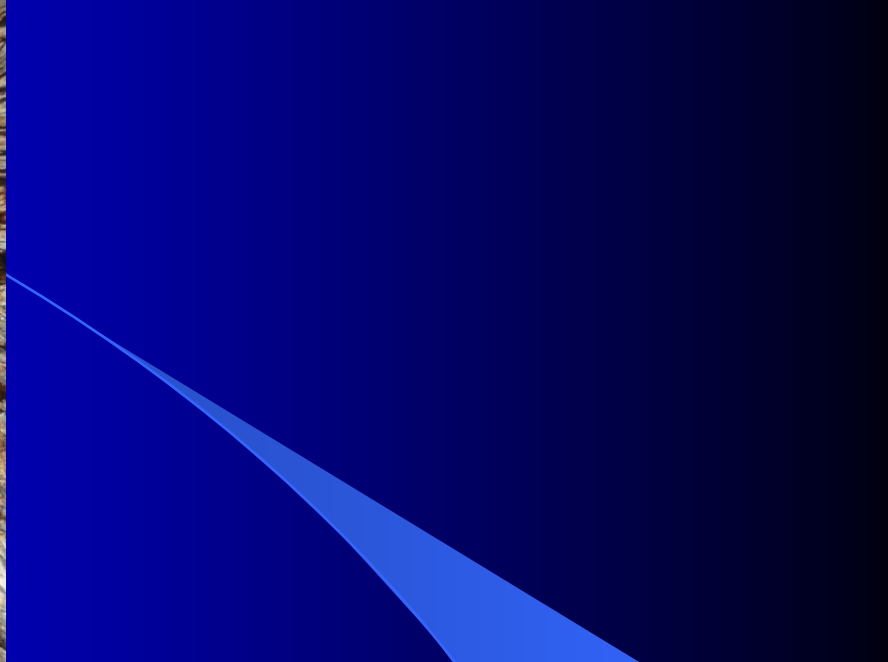
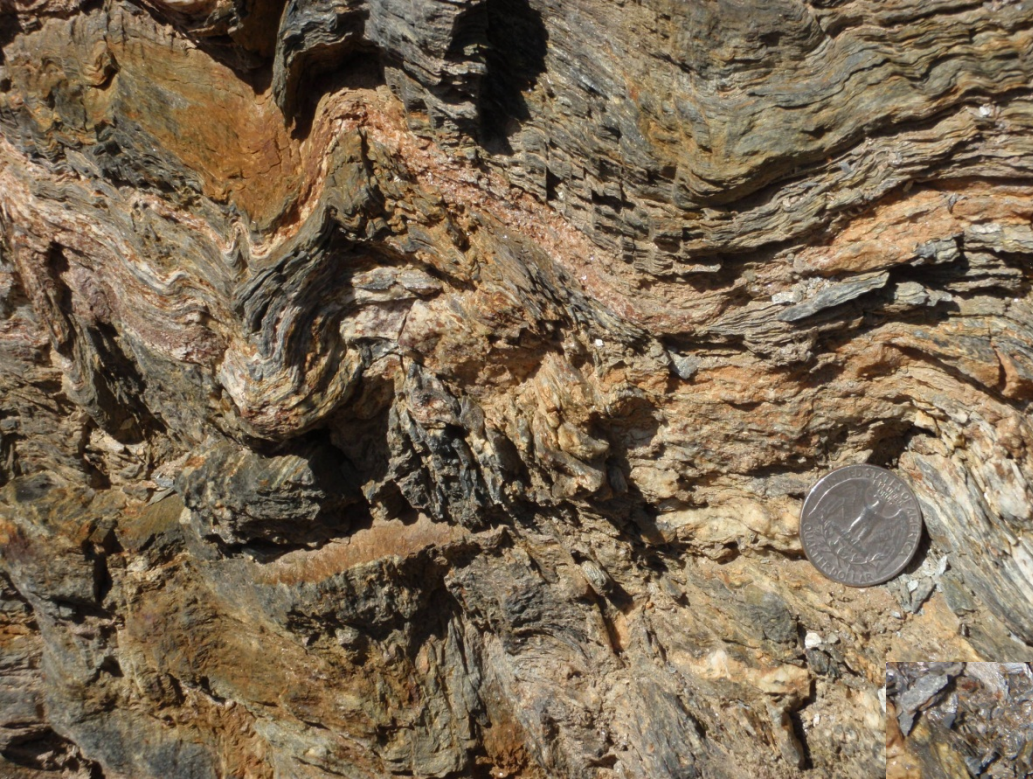




Structures in the Mount Greylock Schist







Course Goals

- Describe and measure structural features
- Infer the process of formation
- Relate the features to the regional geology – tectonics
- Develop the observational skills and physical principles required to explain the features and the processes of formation.