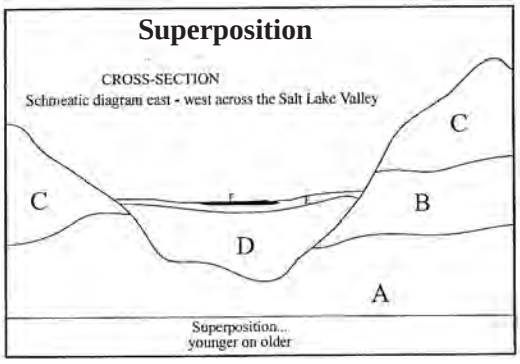
Session 1 – UofU Osher – Earth Science Outside - Handout (useful for all sessions!)

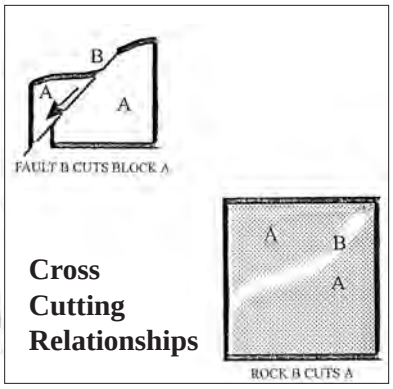
IMPORTANT: the course website is: www.earthscienceeducation.org

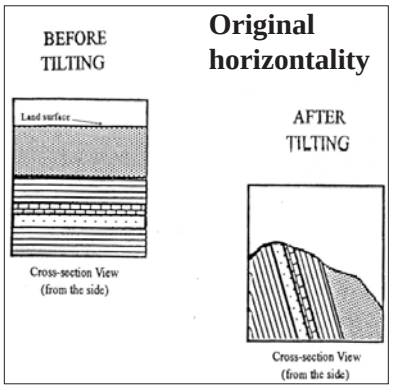
The Five Steps toward the JOY of landscape literacy.

Step one: Look around. Be mindful of patterns. Breathe deeply.
Step two: Look deliberately at patterns of ***shapes of landforms***.
Step three: Look deliberately at patterns of materials, specifically sediment versus bedrock.
Step four: Focus on patterns in bedrock. Be mindful of layering and patterns such as tilting or folding. Be mindful of crosscutting relationships, what cuts what, for example, does a stream channel cut the bedrock?
Think about what you see.

Relative age is... relative! (versus absolute).







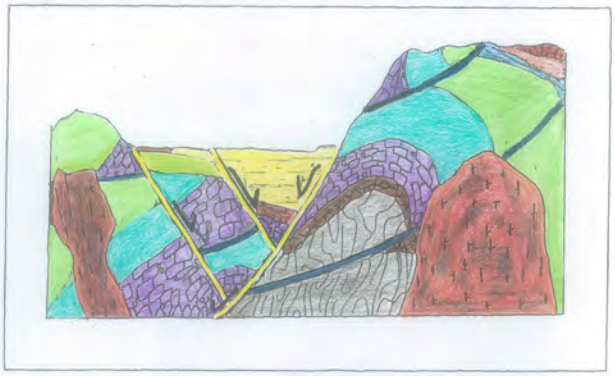
History can be told in many ways.

This handout presents the Geologic History of Salt Lake County as nine chapters, the "phases" of Lehi F. Hintze in his remarkable *Geologic History of Utah* (1988, updated 1993, and co-authored with Kowalis, 2009), and his *Utah's Spectacular Geology and how it came to be* (2005).

Other geologists tell the history using globally accepted geologic terms of eras and periods. Those breaks were initially based on fossil evidence. Of course, Dr Hintze could tell the history that way as well. After this class, you probably will not know those terms, but you should have a sense of the geologic history of Salt Lake County based on changes its landscapes in response to tectonic forces.

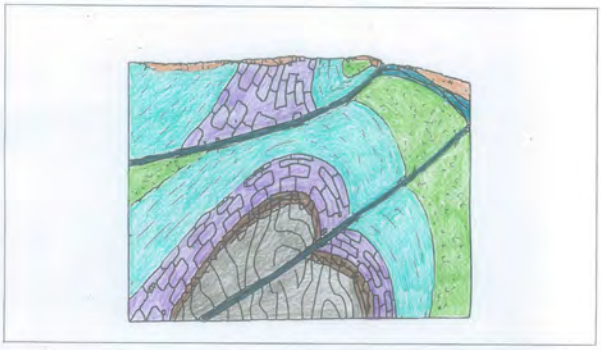
The following pages show east-west cross sections where each color represents rocks of a chapter. Please consider these almost as cartoons, relatively accurate but not precise. Over the next weeks we will see evidence of each of these chapters. Consider taking notes on these sheets as we figure out the relative age of bits and pieces of the county's landscape.

Chapter 9 - Now stretch!
From 17.5 million years ago to the present ...
Simplified geologic cross-section through Salt Lake County

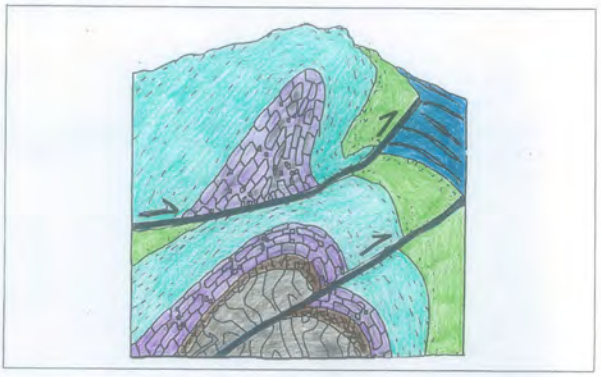


Chapter 8 - Voluminous volcanics
From 34 to 17.5 million years ago
Simplified cross-section through what-would-become
Salt Lake County

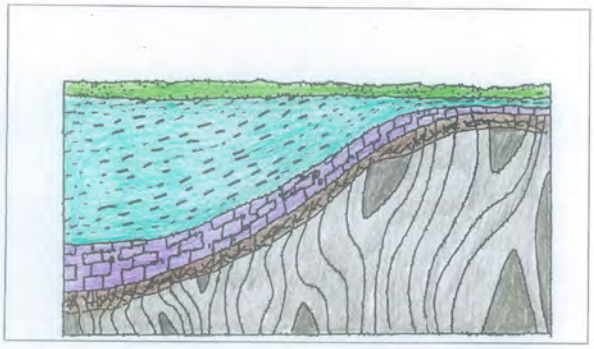
Chapter 7 - Uplifts and Uintas
From 65 to 34 million years ago
Simplified cross-section through what-would-become
Salt Lake County



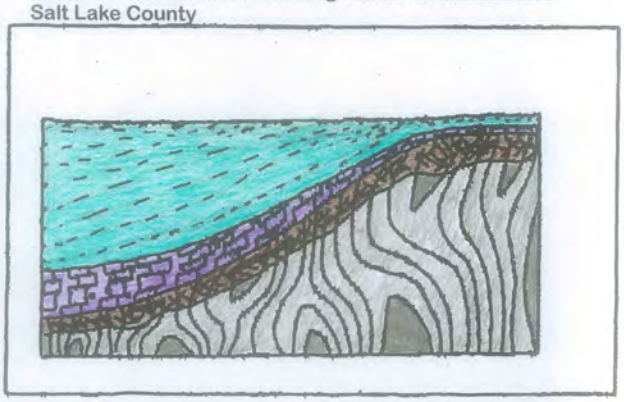
Chapter 6 - Scrunch and swamps
From 145 to 65 million years ago
Simplified cross-section through what-would-become
Salt Lake County



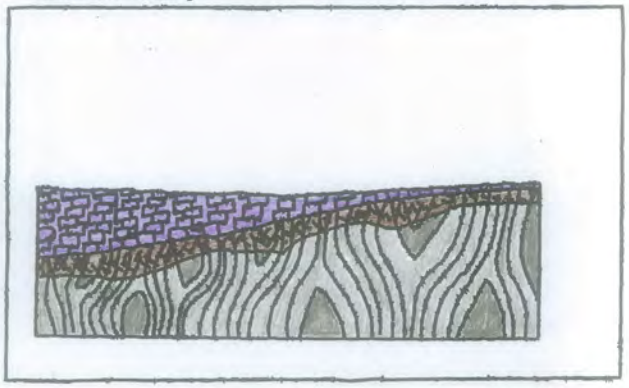
Chapter 5 - Land and lizards
From 251 to 145 million years ago
Simplified cross-section through what-would-become
Salt Lake County



Chapter 4 - Broad basins
From 359 to 251 million years ago
Simplified cross-section through what-would-become
Salt Lake County



Chapter 3 - Shallow seas
From 542 to 359 million years ago
Simplified cross-section through what-would become
Salt Lake County

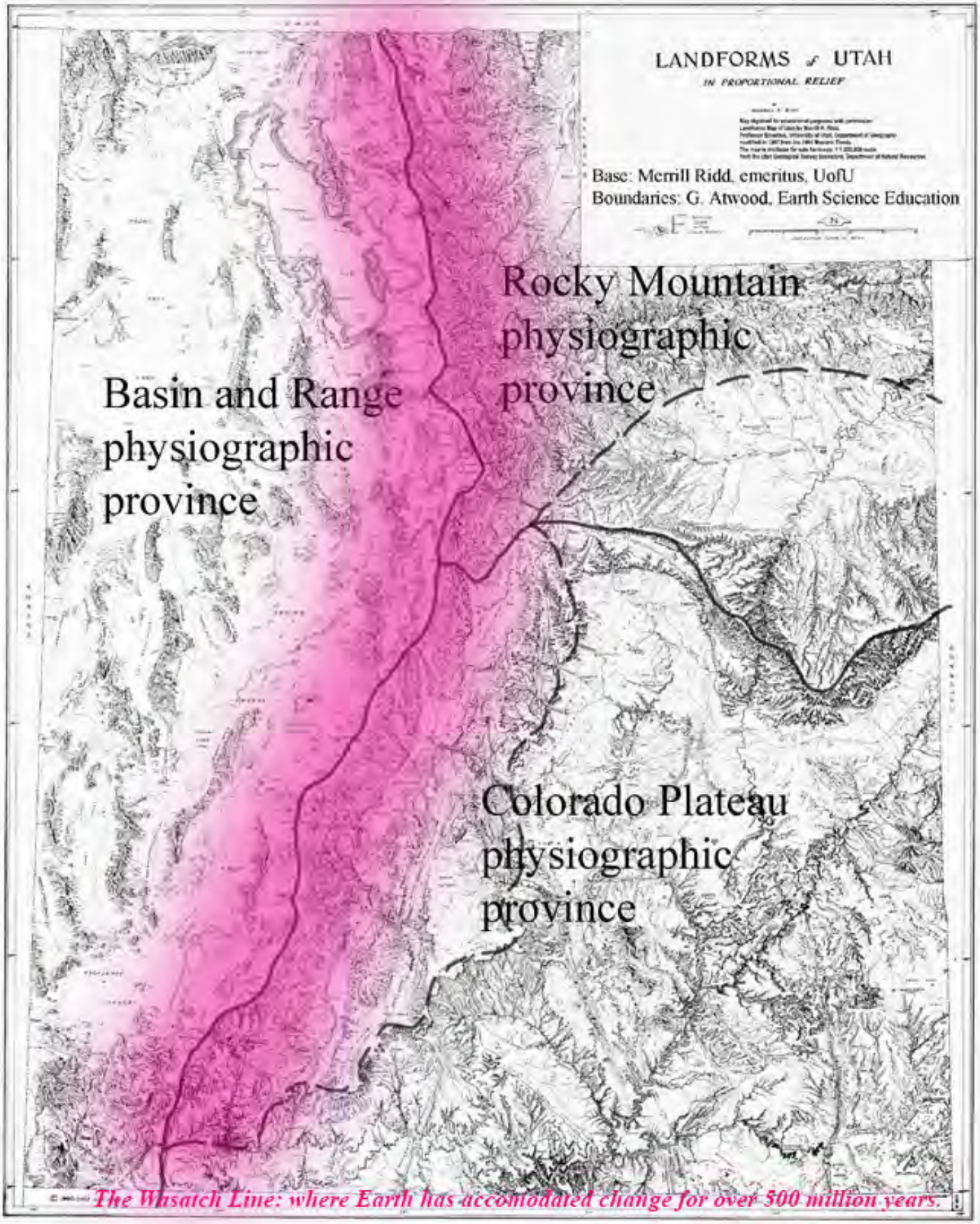


Chapter 2 - Metamorphism lite

From 1 billion to 542 million years ago
Simplified cross section through what-would become
Salt Lake County.

Chapter 1 - Metamorphic basement

From 2.7 to 1 billion years ago
Simplified cross-section through what-would-become
Salt Lake County


LANDFORMS of UTAH
IN PROPORTIONAL RELIEF
Base: Merrill Ridd, emeritus, UofU
Boundaries: G. Atwood, Earth Science Education
Basin and Range physiographic province
Rocky Mountain physiographic province
Colorado Plateau physiographic province
The Wasatch Line: where Earth has accomodated change for over 500 million years.

PATTERNS