

Old Rocks Underfoot

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By Leslie Whitworth

On Friday, November 22, the Mason Historical Society hosted their annual meeting in the Stribling Room of the M. Beven Eckert Library. Brian Hunt, of the University of Texas Bureau of Economic Geology, was the guest speaker.

Hunt was quick to share his connection to the area with his audience. When he was nine, his mother bought property along the Llano. He spent many hours of his childhood exploring the riverbed and climbing boulders.

After studying geology at UT, he became a hydrologist, a specialist in mapping and groundwater.

His first project was in Mason County. Like many other universities in the state, he was assigned to this world-class site for studying geology due to the unique formations of igneous, sedimentary and metamorphic rocks that form the Llano Uplift. Hunt stressed that throughout his career he has been guided by those who created the path before him, he said, "I am standing on shoulders of local and other geologists who have studied this area; looking through mapping to make incremental improvements to past work."

The first geologic maps of Texas, one of which was in Mason County, were published in Ferdinand von Roemer's Texas in the 1840s to promote German immigration to Texas. Today, many maps of Texas exist, but only seven percent of the entire state has been depicted in a detailed geologic map.

Hunt's area of focus is central and west Texas. The UT Bureau of Economic Geology functions as the Texas Geologic Survey. So far he has done seven maps in Mason County. He plans to map Fly Gap next year and continue working until the entire county is mapped. A geologic map is a two-dimensional representation of rock types on the landscape including detailed description, age and a cross-sectional view. These are not just paper maps. They are GIS data bases that can be accessed online.

The Llano uplift is the geographic center of the geologic map of Texas. According to Hunt, over the course of a billion years, ancient rocks that were formed at great depth were pushed to the earth's surface and then forced back under by tectonic events.

The earth is estimated to be 4.6 billion-years-old. Mason rocks, some of the oldest in Texas, date back one billion years. Hunt cited two major mountain building events as

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fundamental to the formation of our terrain: first a collision of the plates and later two continents clashing to form a mountain chain.

Our rocks, including billion-year-old marble, quartzite and sandstone from deposition in streams, are the roots of an ancient mountain chain that has eroded away- much like a glacier that melts. Granite came later and intruded into metamorphic rock. Granite is relatively younger than surrounding metamorphic rocks

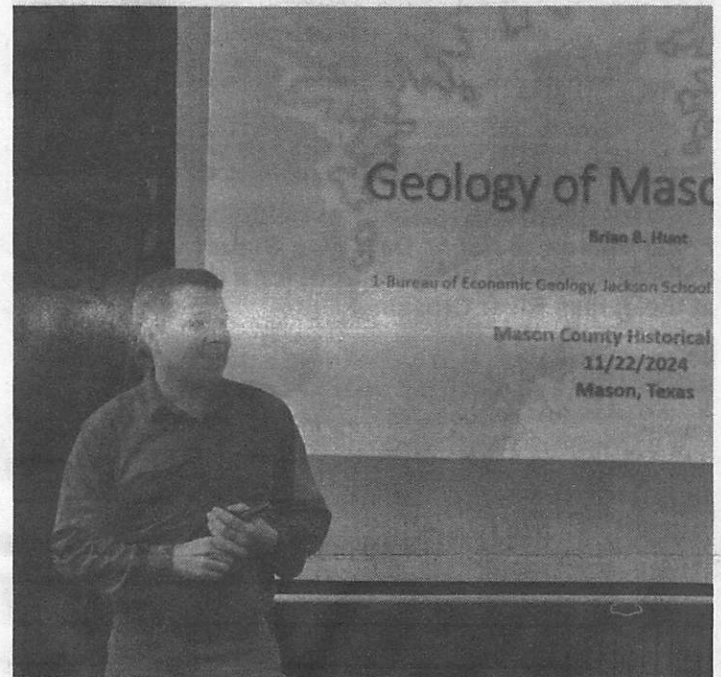
Hickory sandstone, also a key feature of the Grand Canyon, is a 500 million-year-old erosional surface layered on top of billion year old granite.

Mountains formed as a result of the collision of plates pre-dating the dinosaurs. Then they eroded to nothing and sediment collected on top, based on rise and fall of sea level.

A second mountain building event occurred about 250 million years ago when South America collided with North America, causing a flexure of the earth's crust. The flexure created a fault and the rocks dropped down inside it. From that point onward, the increased gradient from west Texas to the ocean, which promoted erosion, was the primary factor in forming the landscape we now see. Hunt said, "Mason has an inverted topography: Almost all of the hills in Mason are fault caused - they dropped down in the collision and then over time the area around them eroded so that they are now raised."

Hunt wrapped up his presentation with a brief look at how his modern mapping of this ancient story is relevant to Mason today. The geologic maps will provide fundamental baseline information for developing natural resources like roads, wells, landfills, even vineyards. Understanding the geometry of the rocks leads to a better view of the aquifers, access to water, which has obvious uses across many domains.

If you missed the live presentation of a look way back into Mason history, the Mason Historical Society has it posted on their Facebook page along with some photos.



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