

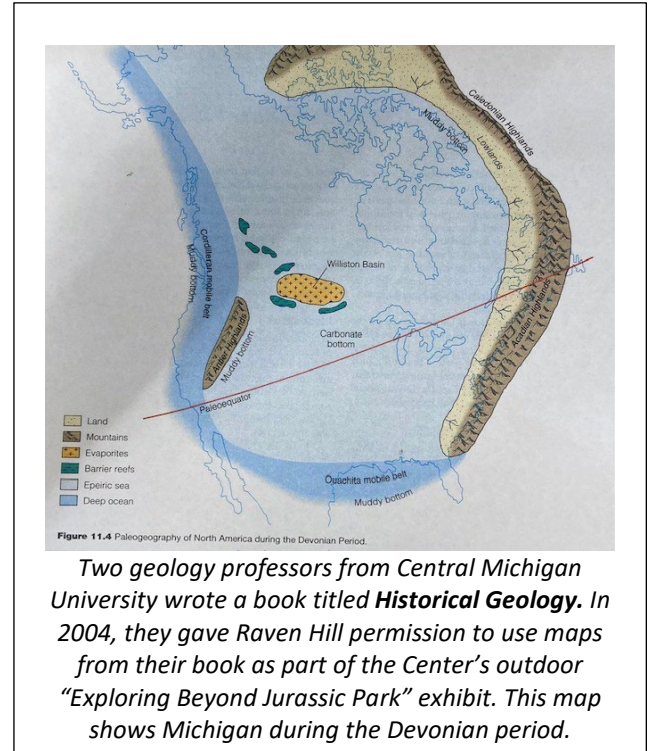
WHERE **SCIENCE****HISTORY****AND****ART** CONNECT

To: Friends of Raven Hill  
From: Cheri  
Date: July 29, 2023  
Re: *Comparatively speaking*

Sometimes it is hard to differentiate between the inside and outdoor exhibits at Raven Hill, especially, when it comes to the earth's geologic history. The chronology of changes in our earth over the past 4.5 billion years can be found everywhere. We have replicas of extinct species and artistic interpretations to be compared with modern varieties of plants and animals.

Changes over time in the earth itself, especially Michigan, are evident in displays both indoors and outside. Michigan has a colorful history. Michigan was flooded with oceans four times and this area was a shallow coral reef. When the land rose and cut Michigan off from the Atlantic Ocean, the sea dried up, but left many fossils of corals and other animals that had lived under the sea. Many of those animals or their relatives still live today in other oceans. At various times in the past, Michigan has been tropical with the equator running through the Upper Peninsula. Michigan was a desert at least once. More recently, Michigan was covered with four or five major glaciers forming the Great Lakes and depositing lots of sand, gravel and rocks.

In their book, **Historical Geology**, authors Reed Wicander and James S. Monroe "examine the internal and external forces that that have interacted to result in Earth's present day features." They illustrate how physical changes have affected changes in living things. Thanks to these two professors, who gave Raven Hill permission to use their maps of North America, you can see the changes that Michigan has undergone over the millennia. Being surrounded by the Great Lakes makes Michigan easy to identify on a map. These **Historical Geology** maps can be found along Raven Hill's "Exploring Beyond Jurassic Park" outdoor walkway. At each of the different geologic time periods, the maps allow visitors to see whether Michigan was under a shallow salty sea or was dry land, as well as its position in relation to the equator. Signage acquaints visitors with the plants and animals as they first appeared at different geologic time periods. Next time you visit the Center, take time to read the signage and look at the maps as you walk through the Earth's geologic history, all the way from the time the solar system formed to the appearance of modern man.





*Eohippus (dawn horse) and mesohippus are among the first horses that appeared on Earth. With no replica of an eohippus skull to display, a mesohippus skull is shown on the left. Though larger than the dawn horse, the mesohippus skull compared to a modern horse skull (right) is still quite dramatic and illustrates how much horses have increased in size over geologic time.*

dawn horse that was about 12” tall and had toes. Each toe was its own tiny hoof. As these “first horses” moved out of the woods and onto the plains, they grew taller to see over the grasses and their individual toes fused into one hoof, allowing them to outrun predators. By comparison, bear skulls have become smaller. The huge cave bear roamed Eurasia along with early man. This Pleistocene animal was larger and stronger than both modern grizzly and black bears.



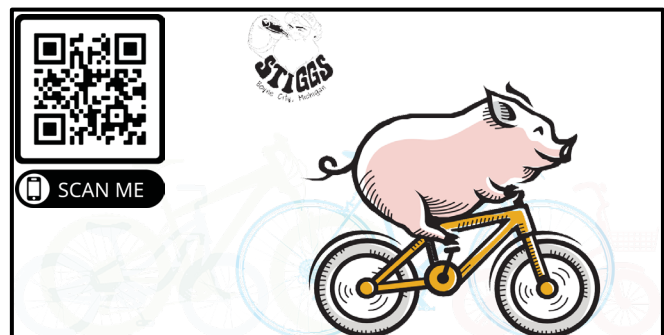
*Over time, bear skulls have decreased in size. Skulls pictured from left to right are an extinct cave bear from 24,000 years ago, as well as a modern grizzly bear and modern black bear.*

Whether you are a hunter of fossils, a collector of rocks or delight in the array of plants and animals found here on earth, there is always something to learn and appreciate here at Raven Hill. We encourage you to visit soon and explore Earth’s geologic history for yourself. Check out these special skulls for yourself or take a slow walk through “Exploring Beyond Jurassic Park” on your next visit.

Meanwhile, make sure you have marked your calendar for the **Pedal Pig & Pint Community Bike Tour** event, which will be held next Sunday, August 6. Registration starts at 8:00am or you can register online registration at [Bikereg.com/ppp](http://Bikereg.com/ppp)



*For each of the geologic time periods, a cluster of signs give an overview of the major “happenings” during that period of time, an illustration done by local high school students and a map of North America. On the maps, Michigan is easily identified because of the Great Lakes. The red line on the maps is the equator, which actually ran through Michigan at times.*



Raven Hill is excited to announce several special guest demonstrators at our Smithsonian’s national traveling exhibit, **Spark! Places of Innovation Kick-Off Event** on August 26. The event will last from noon to 4pm here at Raven Hill Discovery Center and include:

- \* 3D Printer demonstrations -- powered by solar energy
- \* Ham radio demonstration
- \* Tours of the Evolving Technology Building timelines
- \* Stories of female innovators and inventors
- \* Working blacksmith
- \* And more!

The Smithsonian traveling exhibit will be here for 6 weeks and is free to everyone. Visitors can enjoy the rest of Raven Hill Discovery Center with the regular \$10 entrance fee, which includes a special viewing of the newest exploratory section on “Innovations or Inventions?” Get inspiration for bringing your invention to life by learning about what goes on inside a patent office.

Please share our Facebook event page with your network: <https://www.facebook.com/events/1059701305208943/>



Just as a reminder, during the summer, Raven Hill is open weekdays from 10am to 4pm, as well as being open year-round from noon to 4pm on Saturdays and 2pm to 4pm on Sundays. Call 231.536.3369 or email [info@miravenhill.org](mailto:info@miravenhill.org) to make appointments for other times, including major holidays.

Have a great weekend and come visit soon,

Cheri



*This dawn horse (Eohippus) sculpture is one of many artistic interpretations to be found along the “Exploring Beyond Jurassic Park” pathway at Raven Hill. Made of copper wire, it stands 14” tall—Artist unknown*