

2019

# Accessible Science: The Natural History of the Connecticut River Valley

Fred Venne  
*Amherst College*

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## Science and Engineering Saturday Seminar Spring 2019

Accessible Science: The Natural History of the Connecticut River Valley w/Fred Venne

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### **Objective for the day**

Today we explore a local treasure trove of information about dinosaur fossils, dinosaur science, and dinosaur history – all of it located in our Western Massachusetts valley home.

- Registration, Settling In and STEM Business
- Session I “The Digital Site” – A team deep dive in an interdisciplinary treasure
  - Break
- Session II “The Beneski Museum” – A team deep dive in the primary sources
  - Break
- Session III “The Real Impressions” – A guided visit to the some of the Dinosaur Tracks of the Connecticut River Valley
- Closing
  - Q & A
  - Session Evaluation & Other STEM Business



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### THE DIGITAL SITE

Our digital guide will be “Impressions from a Lost World,” a website from the Pocumtuck Valley Memorial Association (PVMA) and Memorial Hall Museum, Old Deerfield, Massachusetts:

<https://dinotracksdiscovery.org/>

From PVMA site “Overview,”

“Impressions from a Lost World’ explores the mid-19th-century discovery of 3-toed footprints, later understood as dinosaur tracks, in the Connecticut River Valley in Massachusetts and Connecticut. It is surprising to most people that it was in New England, not Europe or the American West, that the first thorough scientific examination of dinosaur footprints took place. The significance of this discovery extended far beyond the emerging scientific community, with implications for American science, religion, arts, and culture.

‘Impressions from a Lost World’ is presented through Stories, Theme essays, brief People page biographies, informative Backdrops for historical and scientific context, Artifacts & Documents to show primary source material, and Special Features to make information interactive. An interactive Map of the Connecticut River Valley shows where the events took place and provides another way to explore the content of the website. It includes a road map, in case you want to add a dinosaur footprint itinerary to your touring.”

Although “Impressions from a Lost World” is no substitute for visiting the many dinosaur-related museums, fossil sites, shops, and parks, it can be an excellent way to provide the background you need to make the most of any real-world visits or field trips you may make in the future.

### **SUPPLIES**

- Laptop, Tablet or Phone with WFI access

### **JIGSAW - ACTIVITY 1 :**

“Impressions from a Lost World” is a rich local resource that cannot be taken in in one sitting or in one lab unless we work as a team. The website consists of numerous science/history categories: stories; a map; special features; people; historical backdrops; artifacts and documents; and themes. Before we take a team deep dive into the website and begin answering the following questions, we will take a broad look at all the unique offerings “Impressions” provides. (Facilitate overview)

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## Now our “Team Deep Dive1”

- A. We will break into 7 groups of 4 people. Please select a presenter, keeper of the notes, website browser and a cheer**leader** for your group.
- B. Each group will be tasked with taking a “Team deep dive” into one of seven aspects of the website: Stories, Map, Special Features, People, Backdrops, Artifacts & Documents, and Themes. Each group will be assigned one of the following questions.
- Stories** - Select one story to read; summarize its content (do not copy-and-paste); and comment on its scientific, historical, and cultural content. Please type; 100 word total (summary and comment).
  - Map** - Select three locations that you would like to visit and explain why. If you have been to one of the sites already, please comment on your experience (do not copy-and-paste); Please type; 75 word total, all locations (description and comment)
  - Special Features** - There are 42 Special Features! Pick 1 Special Feature of each of the following: a video; a voice; a slide show. Summarize and comment on each (do not copy-and-paste). Please type; 100 word total (summaries and comments).
    - DO NOT USE “Hitchcock’s Trackbook” or “The Rift Valley”
  - People** - Select two people you found really interesting (Scan all the names, briefly review up to 4). Summarize and comment on your selected (2) people (do not copy-and-paste). Please type; 100 word total (summary and comment).
  - Backdrops** - Select two backdrops you found really interesting. Summarize and comment on your selected backdrops (do not copy-and-paste). Please type; 100 word total (summary and comment).
  - Artifacts & Documents** - Select two - three artifacts or documents you found really interesting. Summarize and comment on your selected artifacts or documents (do not copy-and-paste). Please type; 75 word total (summary and comment).
  - Themes** - Select one theme you found really interesting. Summarize and comment on your selected theme (do not copy-and-paste). Please type; 75 word total (summary and comment).
- C. You will have 30-45 minutes to review your selected aspect of the website and complete your summary.
- D. Each group will make a 3 minute presentation to the whole group using the website and their 75-100 word summary.

**TIME FOR A BREAK**

**Transition to Museum**



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### **THE BENSKI MUSEUM SITE**

Our site, The Beneski Museum of Natural History is one of New England's largest natural history museums, boasting three floors of exhibits with more than 1,700 specimens on display, and tens of thousands of specimens available for use by scholars and researchers from across campus and around the world.

Step inside the museum and you'll find:

- Dramatic displays of fossil skeletons, from fish to dinosaurs to Ice Age megafauna
- An extraordinary collection of dinosaur footprints
- Geological specimens and immersive exhibits that tell the history of the local landscape through geologic time, including when dinosaurs inhabited the area
- Dazzling mineral specimens from around the world and meteorites from beyond Earth

The museum is located on the Amherst College campus in the Beneski Earth Sciences building, often referred to as simply "Beneski," where students and faculty move seamlessly between state-of-the-art geology teaching labs and the museum.

- The museum is dedicated to:
  - Preserving and interpreting the physical evidence of the geological history of the Earth, the evolutionary history of its inhabitants, and the processes that have shaped both through time
  - Providing direct experience with the materials and former inhabitants of the Earth
  - Challenging visitors to consider problems of scientific interpretation
  - Stimulating the scientific curiosity and observational acuity of students and scholars, fostering in them a spirit of inquiry, stewardship and wonder toward the Earth

### **SUPPLIES**

- "The Geologic History of the Connecticut River Valley" Field Guide (Museum Supplement)
- <https://www.amherst.edu/system/files/media/the%20geologic%20history%20Ct.%2520River%2520valley-%2520Post.pdf>

### **JIGSAW - ACTIVITY 2 :**

The Beneski Museum exhibits do a nice job of combining primary source materials (Fossils etc) with well thought out interpretive displays. The focus of our time shall be those primary source materials and interpretive displays that help the visitor better understand the natural history of the Connecticut River Valley



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### Now our “Team Deep Dive 2”

- A. We will break into 5 groups of 5-6 people. Please select 2 presenters, 2-3 keepers of the notes, a **cheerleader** for your group.
- B. Each group will be tasked with taking a “Team deep dive” into one of 5 geologic phases that are part of “Unearthing a Portrait in Time from the Rock Record” display. The 5 phases include; Shallow Inland Seas, Mountain Building, Rifting, Glaciation and the Modern Valley. Each group will be assigned one section of the “The Geologic History of the Connecticut River Valley” field guide.
- Shallow Inland Seas** - What geologic processes are responsible for this fossil record? When was this???
  - Mountain Building** - What geologic processes are responsible for the mountains etc. When was this???
  - Rifting** – Where in the world is this happening today? When was this???
  - Glaciation** – Keep in mind that about 200 million years passed before the glaciation described in the display. What was going on? Also, when was this last glacial period?
  - Connecticut River Valley Today** – What was the most recent geologic event witnessed here? When was this???
- E. You will have 20-30 minutes to carefully examine your display, answer all questions in the lab related to your display and prepare a 3-5 minute overview.
- F. Each group will make a 3-5 minute presentation to the whole group using the displays and fossils as a backdrop.
- G. Following the presentations everyone will complete page 18 of the lab independently.

### **TIME FOR A BREAK**

**Meet back in lecture hall**



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### **DIGGING DEEPER AT THE BENESKI (ICHTHOLOGY)**

#### **SUPPLIES**

- Exploring Dinosaur Tracks at Amherst College Field Guide
- Projector, Computer and access to PVMA Impressions website special features “Hitchcock’s Trackbook” & “The Rift Valley”
  - <https://dinotracksdiscovery.org/>

Overview of the valley geology using website

- “Hitchcock’s Trackbook” with Fred
- “The Rift Valley” with John Brady – Smith College

#### **Ichnology Guided Visit**

- Station 1 Otozoum
- Station 2 Interference Ripples
- Station 3 Gimpy
- Station 4 Origins Part 1
- Station 5 Origins Part 2
- Station 6 Objects in Motion
- Station 7 Beach Bum
- Station 8 “Raindrops keep fallin’ on my Sediment”
- Station 9 Showing Off
- Station 10 Reptiles of a Feather

#### **Closing**

- Q & A
- Session Evaluation & Other STEM Business