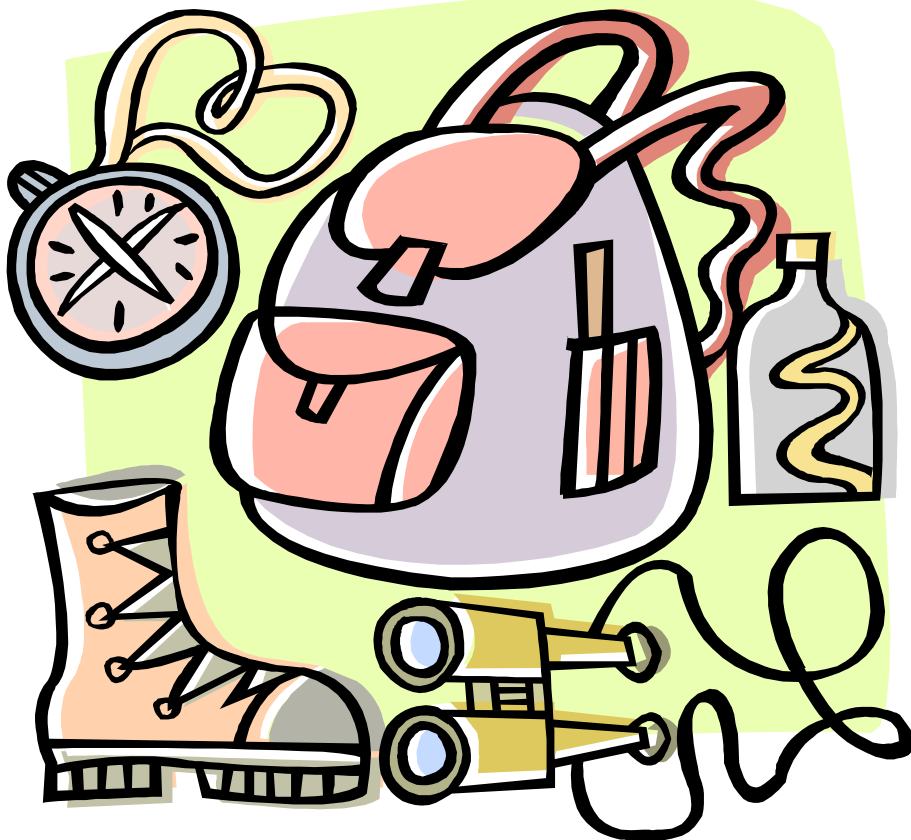


# FELLS ADVENTURER KIT



## *ADVENTURE #1: CLARENCE HAY, FIELD JOURNALS*

Follow the historic footprints of Clarence Hay of the Fells to determine what is in your very own backyard. You will discover ways to identify, document, and protect nature's organisms. Clarence Hay left behind a very special collection at the Fells — his wondrous gardens! Clarence's passion for nature and forestry led him to keep detailed field notes of the plant species that existed in his garden. How creative can your field notes be?



Picture of Clarence's Rock Garden/ Lily Pond at the Fells Estate

# Field Journals

## **What is a field journal or scientific journal?**

A scientific journal, also called a field journal, is something scientists and researchers use to stay organized and take notes on their projects! Any type of scientist can use a field journal, and these journals can be used in multiple different ways.

Some scientists use their journals to take note of what they see and record their observations while in the field. Other scientists use their journals to record data in a lab or keep track of their results. Journals are personalized by scientists and help them stay organized while conducting experiments and research.

## **What Goes in a Field Journal?**

Scientific journals help scientists and researchers stay organized and keep track of their data. Most scientists include in their journals the date, time of day, location, and temperature for each observation.

The pages of your journal can be filled with all types of information! You could write down numbers, sentences of observations, pictures of your experiments, maps of your locations, and so much more! Your journal should be organized in a way that helps you understand your thoughts. There is no wrong way to record the world around you!

Things to remember when using your field journal: It is important to remember that you can never have too much information or too many observations. The more you record, draw, write down, or document, the better you will be able to use your notes. Observe the beautiful world around you and share with others!

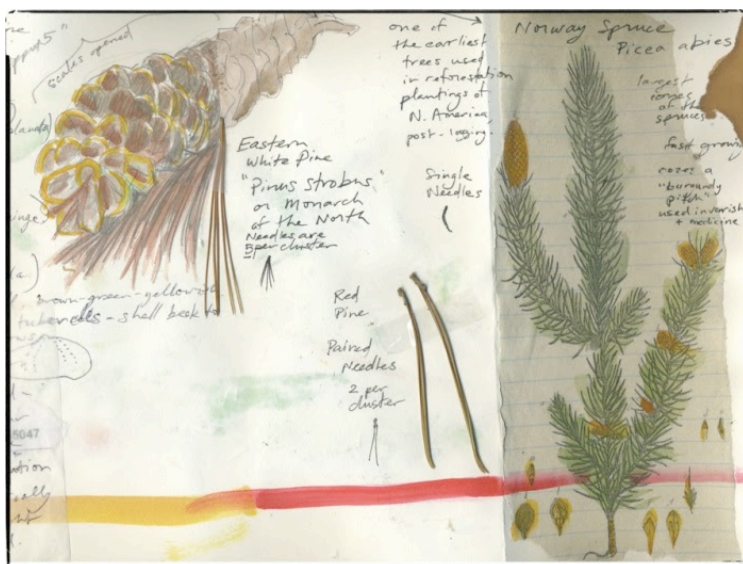
This journal is completely personalized, which means you decide what goes inside! If you learn best with pictures, then draw as much as you can. If you learn best with words and descriptive

sentences, then write down as much as you can. You can even take samples from nature, like leaves or flowers, and tape them to the inside of your journal. Use your journal in a way that suits you best.

Scientific and field journals are a fun way to share what you learn with friends and family. After a long day as a scientist, take your journal and show others what you have learned! Have fun exploring the world around you and help to inspire others to join.

### How do you make a field journal?

Decide what you will use for your field journal. A binder or notebook to which you can add pages will probably work best. Or, if you have the materials at home, grab some supplies and make your own field journal! You can use paper, cardboard, note cards, or any other writing material for the cover and main pages, and staples, glue, string, or other adhesive to bind the pages together. You can decorate the cover any way you would like, and make sure to put your name somewhere!



Example of a field journal page

## Scavenger Hunt

Around your home or during a visit to the Fells, find and identify a species for as many of the following as you can. Once you find these organisms, you can document your observations in your ***field journal!*** Record the date, time, and location of your observation, species' names, and any other fun information.

- Reptile
- Amphibian
- Flying insect
- Non-flying insect
- Spider
- Flowering plant
- Non-flowering plant
- Bush or shrub
- Tree
- Mammal (if possible, from a safe distance)

### **If you have access to an iPhone or Android:**

Seek is a free application available for both iPhone and Android users that allows participants to identify plant and animal species. Once you have opened the application, and agreed to remain safe and smart in nature, you can click on the camera option and begin identifying things! Hold the camera over a plant or animal and the application will tell you the species. If you take a picture of your observed plant or animal, the application will provide facts such as where the species is native, related species, and where other people have spotted the same plant or animal. You can also collect badges on the application when you have observed different types of plants and animals.

There are challenges provided by Seek that encourage you to find different categories of species. Once you have completed these challenges, you earn badges! You can follow these challenges or make your own and explore areas around you. The application is a wonderful way to participate in a Science Scavenger Hunt.

If you chose to do more than one scavenger hunt, you can compare your written notes and find patterns in your data collection!

Remember to be safe and responsible when handling nature and observing its organisms!

## Adventure #2: Clarence Hay, the Archaeologist

On this adventure, you will learn about archaeology, as well as the methods that archaeologists used to plan, map, preserve, and document their excavations. You will then go on a journey to the Yucatan in Mexico, just like Clarence Hay did in the 1910s and 1920s. Clarence was on a team of archaeologists that made an important discovery of an ancient Maya site called Rio Bec. Lastly, you will be guided to conduct your own mock-excavation in your backyard.



Map of the Yucatan, showing Rio Bec



## What is Archaeology?

When you hear the term, "archeology" what do you think of? Indiana Jones? He is a fictional movie character, a professor of archaeology who is utterly afraid of snakes. Or how about digging up dinosaur fossils? That is actually part of the science of "paleontology." If you thought of these things when you hear "archaeology" you wouldn't be alone. Popular culture has a way of shaping how we see and think about the world, including the topic of archaeology.

Let's start by defining **archaeology** (aar·kee·aa·luh·jee). According to National Geographic, "Archaeology is the study of the human past using material remains. These remains can be any objects that people created, modified, or used."<sup>[1]</sup>

Another word for these "material remains" that archaeologists study is **artifacts**. Artifacts include pottery, tools, clothing, carved or polished bones, fishing lures, and even the pyramids. Artifacts are any objects from the past that show evidence of humans creating, modifying, or using them.

**Clarence Hay**, who lived at the Fells in Newbury, NH mostly during the summer months from 1891-1969, studied archaeology at Harvard University. He completed significant archaeological work in Mexico and Central America. You will be learning more about him soon; but for now, you can watch the video below to learn more about archaeology.

[1]Source: <https://www.nationalgeographic.com/history/archaeology>

Video link: <https://www.youtube.com/watch?v=pc2sWomcmDk>

Follow these next steps to help guide your Archaeology adventure:

1. Read the Background on Clarence Hay, of The Fells (attachment #1 on page 12 below) and answer the following review questions:
  - In what year did Clarence go to the Yucatan?
  - At which other great archaeological site did Clarence take part in excavations?
  - Did Clarence work at the American Museum of Natural History in New York City or Washington, DC?
2. Where in the World was Clarence's Temple B Excavation?
  - a. Using a Map of the World or Google Earth, locate the Yucatan Peninsula, and then answer the following map questions:
    - What country is the Yucatan located in today?
    - What body of water lies to its east?
3. The "Mysterious Mayas"
  - b. Type in or click on the following address:  
<http://mayas.mrdonn.org/index.html>
  - c. Be able to answer the following reading questions:
    - Describe how the Mayas enhanced their building without metal tools.
    - What characteristics did Mayan cities share?
    - Why are the Mayas sometimes referred to as "the mysterious Mayas"?
4. Google National Geographic, Archaeology. Type in or click on the following address:  
<https://www.nationalgeographic.com/history/archaeology>

Read the entry and complete the writing activity:

### You are the Archaeologist

- Imagine that you are an archaeologist. It's your first excavation of a Maya temple ruin. Write out the methods you will use to plan, map, preserve, and document the site.



## 5. Links to Videos Explaining the Excavation Process

On Youtube:

A. "Cooper's Ferry, Setting up the Site"

<https://www.youtube.com/watch?v=8VTSDBy9M9A>

B. "Cooper's Ferry, The Excavation Process: Excavating a Site"

<https://www.youtube.com/watch?v=wr6g0JdgqME>

C. Cooper's Ferry, The Excavation Process: The Tools"

<https://www.youtube.com/watch?v=x9pGbpIPU-Y>

D. Cooper's Ferry, The Excavation Process: How We Excavate"

<https://www.youtube.com/watch?v=PcT1vGyJzyg>

## 6. Conduct your own Excavation

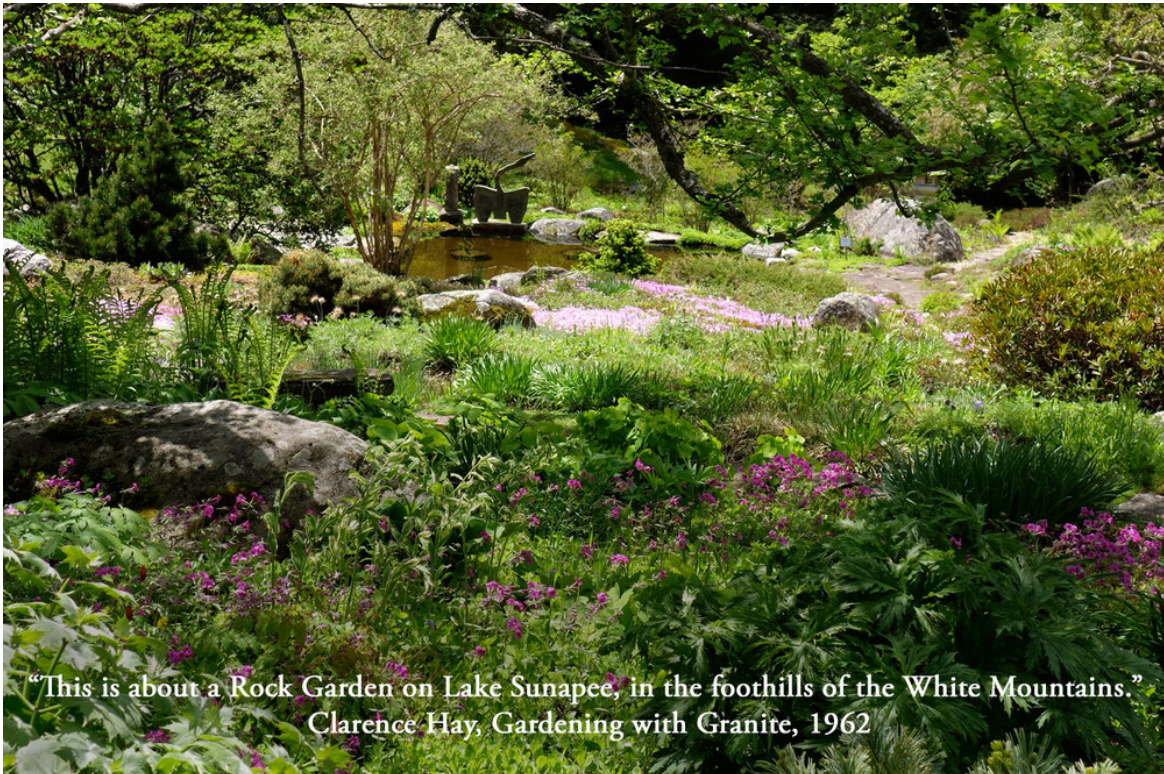
Follow these steps to prepare your own mock-excavation:

1. You first need to create a collection of materials and items.
2. You next need to set the objects. You'll need to decide to set them outside, either in a sandbox or garden bed works best; or you can freeze them in a mold (directions for this are available online).
3. For the digging phase, try to have on hand these archaeology tools: A trowel to break up the surface (or shovel), gloves, a bucket, a tape measure, a camera to photograph the excavation, brushes, and a sieve or screen.
4. In real-life excavation, artifacts are placed in a bag and labeled.
5. Bagged artifacts are then examined very carefully. Archaeologists write detailed notes of their observations in their field journal.
6. Capitalize on your learning: draw or write a description of your experience and the key aspects you observed.
7. Submit your final project for display in the John Hay Ecology Room at the Fells.

Credit: <https://ancientexplorer.com.au/how-to-set-up-an-archaeological-dig-in-your-own-backyard/>

## Adventure #3: Clarence Hay, Master Gardener

Clarence Hay, the son of John Milton Hay, spent many years renovating and caring for the Fells Estate. He had a passion for landscaping and gardening and helped to design many of the beautiful gardens at The Fells. He was also a member of the Horticultural Society of New York and played a considerable role in the American Rock Garden Society.<sup>1</sup>



---

<sup>1</sup> Hay, Clarence L. "Gardening with Granite in the North." *The Garden Journal*. January-February, 1962.

## Clarence's Plant Book

Clarence kept a detailed list of the plants and herbs in his gardens to document the best way take care of them. "Noteworthy Plants of the Fells" include the following:

*Ramonda myconi* - The only unusual alpine plant in the Rock Garden that is still planted in the same place that Clarence planted it.

*Lobelia cardinalis* (Cardinal Flower) - This native, moisture-loving perennial with upright red flower stalks was original collected by Clarence from a bog in Bradford.

*Acer saccharinum* (Silver Maple) - Planted after the hurricane of 1938 as a fast growing tree, probably because so many of the other existing large trees had been blown down. It forms the westernmost end of the landscape axis that passes easterly through the house, and ends with the grapevine behind the Hebe statue, tying the landscape to the house in a designed fashion.

Rhododendron grove - Planted in the first quarter of the 20<sup>th</sup> century, they are some of the largest rhododendrons in central New Hampshire. A mix of native *Rhododendron maximum* (Rosebay Rhododendron), *R. 'Boule de Neige'* (Snowball Rhododendron), and *R. catawbiense* hybrids (Catawba Rhododendron).

You can add to Clarence's Plant book! Use your field journal to document the plants and herbs in your local area. If you cannot identify a plant, use the Seek application to help! Once you have a list of plants and herbs, you can research more about them and how to take care of them! If possible, you can help take care of those plants. Share what you have learned with family and friends!

If you are inspired by adding to Clarence's Plant Book, ask an adult or fellow friend about starting a garden. You can use your new knowledge of plant care to take care of it!

Credit: McKenna Gray, Dartmouth College, 2020 (Education Intern)

## ***ATTACHMENT #1: BACKGROUND ON CLARENCE HAY***

Clarence Hay lived at the Fells in Newbury, NH from 1905-1969. He was a well-respected archeologist who discovered and excavated many important finds. His most prominent trip was to Yucatan in 1912 with Raymond E. Merwin.<sup>1</sup> While in Yucatan, the pair discovered a Mayan temple ruin called Temple B standing 55 feet high, the largest discovery of a Mayan temple at the time. Hay and Merwin documented the area well. The temple was 'lost' for a few years due to rapid regrowth of the surrounding areas and was rediscovered in 1972 by French explorers.<sup>2</sup>

Clarence was also a part of earlier expeditions, such as the excavation of the great Inca Ruins at Machu Picchu, the restorations of the temples at Teotihuacan, field work in Mexico and Yucatan in 1926, 1927, and 1932,<sup>1</sup> and the investigations of sites at Quintana Roo and Monte Alban.<sup>2</sup> His vast experience and expertise in the archeological field gained Clarence the respect of many other archeologists. Clarence dedicated a large portion of his time comparing artifacts from differing regions and assessing how one location's culture could influence the next. His love for discovery and constant curiosity led to impactful discoveries and archeological finds.

During the 1920s, Clarence was a volunteer research associate in the Department of Anthropology at the American Museum of Natural History in New York City. In 1924, he became a trustee and was elected honorary trustee on October 25 of the same year, and served as secretary for the board at the museum from 1931 until 1954. On May 7, 1934, he was elected as an Associate Founder of the American Museum.<sup>1</sup> Clarence dedicated a large sum of his time working on the planning and development for the Hall of Mexican Peoples, now called the Hall of Mexico and Central America, where some of his work has been displayed.<sup>2</sup>

---

<sup>1</sup> The Papers of Clarence Leonard Hay, 1884-1969, American Museum of Natural History, Division of Anthropology Archives.

<sup>2</sup> Reminiscence of John Hay Regarding his father, Clarence Hay, on August 12, 1994. From the Hay Family Collection.