

Commemorating Two Revolutions in Lebanon, CT.

Joshua's Trust Annual Earth Day Walk
2:00-4:00 Wednesday, April 22, 2026
Professor Robert (Thor) Thorson

Joshua's Trust's Seventh Annual Earth Day Walk will take place at two sites near each other in Lebanon, Connecticut. As always, segments of the walk will alternate with brief readings followed by sharing and discussion. As always, we will honor the birth of Earth System Science with a reading from Sir James Hutton's *Theory of the Earth*, published in 1795. This great intellectual revolution coincided with end of the American Revolution and the Presidency of George Washington.

Stop #1 - War Office, Lebanon, Town Green. First, we will briefly commemorate the **first revolution**, the 250th anniversary of the American Revolution at the War Office near the southwest corner of the Town Green. Parking is on the road right in front or in the library parking lot immediately to the south. Half an hour at most. The Reading here will be the text of the sign out front, followed by sharing and discussion. The key message is that armies don't march on an empty stomach, and that CT was critical to the war effort, earning the nickname "The Provision State." Following the message in our essay "Why Concord?" in *The Atlantic's* special issue on the American Revolution from November 2025, , we will ask "Why Lebanon?" The answer derives from two quotes in that article:

"For all our extraordinary human achievements, we remain earthlings. Rocks and minerals give rise to ecosystems, upon which human cultures are dependent. That's the direction of human history in deep time: up from the ground."

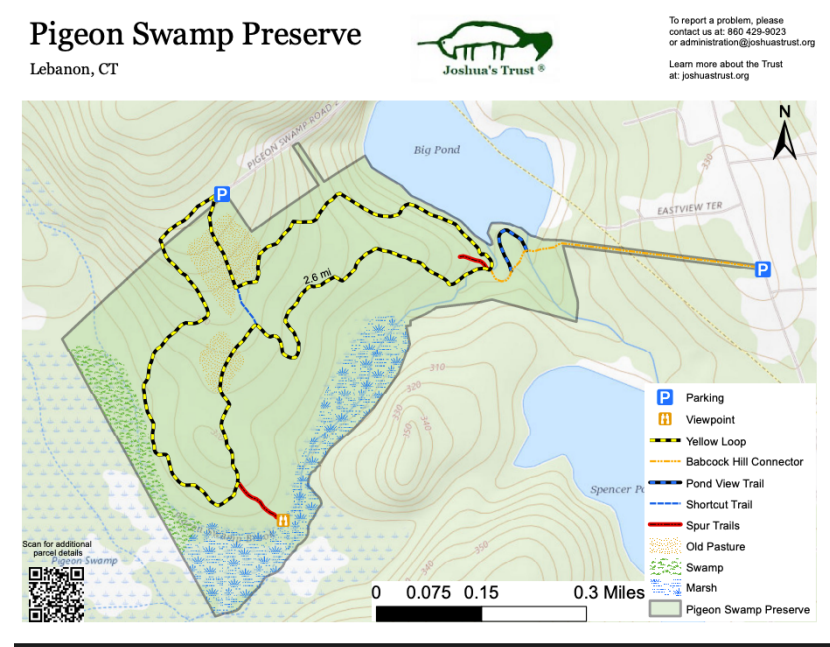
"Every place is unique because every place is the contingent outcome of its own inescapable cascade of events—from rock to ecosystem to culture."

In the case of Lebanon, the location was generally good for travel routes. More importantly, the upland setting gave rise to a thick smear of what the colonists called "hardpan," and what geologists call lodgment till. This is the same stuff below Horsebarn Hill in Storrs. It holds surface moisture very well, its pulverized glacial grit is highly fertile, and it's firm enough for construction and transport. It's perfect for grass, which includes cereal crops, hay, and pasture. Settled by English colonists in the 1690s, they were driving cattle to Boston by 1711, and by the end of the Revolution, they had 13,700 acres of cattle pasture. The terrain also provided excellent opportunities for siting mills. It holds moisture so well that the land of the town green was, during original settlement, a massive cedar swamp, hence its biblically derived name for the famed cedars of Lebanon in the old world.

Revisiting and localizing the quote above, that cascade is polymineralic crystalline rock (mainly gneiss) crushed in the ice sheet shear zone and lodged to the land surface to create ideal conditions for the growth of grass, which led to successful farms with a surplus of product, which led to provisioning the continental army and other armies, which led to New Republic called the United States.

Stop 2 - Pigeon Swamp Preserve. See map below. We will caravan to the parking on Pigeon Swamp Road. <https://joshustrust.org/pigeon-swamp-preserve-2/>
The town of Lebanon has its own site: [Lebanon CT, Pigeon swamp](#)

Directions: From the north (Willimantic), take Route 32 south to the intersection of Route 203, turn right, go straight up the hill onto Machine Shop Hill Road, to the first left, Pigeon Swamp Road, just beyond the firehouse. Follow the road to the end, where there is room for several cars to park. You will see the sign for the entrance to the Preserve



Pigeon Swamp is the enormous swamp mainly to the west and south of the preserve, which provides an overlook only at a trail we will not visit but is in the present map. Instead, we will take the shortened loop trail north easterly down to Big Pond then southeasterly toward the site of an old mill with its dam, and a spectacular cellar hole overlooking the lake (pond). This mill was the highest (?) of perhaps a dozen on the brook draining eastward toward South Windham that was tapped for hydropower. A grist mill was there as early as 1777. My source is *History of Windham County, Connecticut* by Richard M. Bayles (New York: W.W. Preston, 1889) via a website for CT Genealogy of Windham County

https://connecticutgenealogy.com/windham/history_of_south_windham.htm

"The Little Pigeon Swamp brook, which sometimes ran dry during the summer, was made permanently effective by the construction of reservoirs covering the former swamp. A prosperous village has grown up around this establishment, and other industries have been added. [Many machine shops and carpentry works and grist mill] The works are run by water power supplied-by the Pigeon Swamp brook.

This we will adopt as the **second revolution**. The so-called industrial revolution, which is perhaps a misnomer because it was really revolution in the use of fire to burn fossil fuels, chiefly English coal. This entire village complex was abandoned when hydropower was abandoned all over New England. The JT property Gurleyville Grist Mill is an excellent example of the earlier technology. More than anything else, fossil fuels killed the village economy that was new England before the arrival of coal and later liquid fuels.

For a **third revolution**, we can imagine a local version of the *Sixth Extinction* taking place during the machine-shop era. The namesake for pigeon swamp is not the cedars of Lebanon but the American passenger pigeon (*Ectopistes migratorius*), which was wantonly rendered extinct during the slaughter of the Sixth Extinction in the 19th century. At Pigeon Swamp Preserve we will enjoy a trail walk to an overlook at Big Pond. At an old mill-dam and sluiceway, we will reflect on the energy transition from hydropower to fossil fuels. At an overlook, we will commemorate the wanton extinction of the passenger pigeon as an exemplar for the ongoing Sixth Extinction. Quoting my latest book in press: these

"were iridescently beautiful, like gray-blue doves, but much larger, up to a pound in weight and over a foot long. Reliable 19th century reports describe enormous flocks flying sixty miles per hour casting shadows for hundreds of miles and creating a roar like a storm. John James Audubon reported one flock traveling like a wide river lasting three days straight. Dan Flores, in *Wild New World*, describes "the largest nesting site ever reported, near Sparta, Wisconsin in 1871, spread across 850 square miles" and many trees "contained 400 nests per tree." A single flock was estimated to contain 3.7 billion birds. Such populations were likely a consequence of ecological release from land clearing and pioneering succession of a previously stable Holocene landscape."

Stop #3 - Cellar Hole Stone Walls. The cellar hole near the mill site is spectacular. There we will get our best view of stone on the whole trip, and let that stone inspire us to celebrate the **fourth revolution**, the intellectual revolution leading to the birth of geology and ultimately to Darwin's Origin, I will read at least one passage from John Playfair's 1802 *Illustrations of the Huttonian Theory of the Earth* (NY, Dover, 1964), which clarified and translated the turgid and virtually unreadable prose of James Hutton's 1795 - *Theory of the Earth with Proofs and Illustrations: In Four Parts*, Royal Society of Edinburgh. Volume 1. I read this each year on my JT Earth Day Walks to celebrate the birth of Earth System Science.

"We have been long accustomed to admire that beautiful contrivance in nature, by which the water of the ocean, drawn up in vapour by the atmosphere, imparts, in its descent, fertility to the earth, and becomes the great cause of vegetation and of life; but now we find that this vapour not only fertilizes, but creates the soil; prepares it from the solid rock, and, after employing it in the great operations of the surface, carries it back into the regions where all its mineral characters are renewed. Thus, the circulation of moisture through the air, is a prime mover, not only in the annual succession of the seasons, but in the great geological cycle, by which the waste and reproduction of entire continents is circumscribed."

"How often these vicissitudes of decay and renovation have been repeated, is not for us to determine: they constitute a series, of which, as the author of this theory has remarked, we

neither see the beginning nor the end The Author of nature has not given laws to the universe, which, like the institutions of men, carry in themselves the elements of their own destruction"



Earth Day 1 APRIL 22, 1970. New York, Fifth Avenue, >100,000. 56 years ago. What happened since then?

Hutton's link to Stone walls comes from his biography, captured by the late Norton Editor Jack Repcheck in his wonderful book *The Man Who Found Time: James Hutton and the Discovery of Earth's Antiquity* (Cambridge, MA, Perseus, 2003), 115. He refers to Slighouses, a farm where he lived from 1754-1767 located in a part of Scotland known as the Borders (between England and Scotland changing hands). It gently sloping land with the fields and farm riding to the north to give a long southerly view. "One of the first things that Hutton did at Slighouses was to enclose his fields with low stone walls... Because he worked on the land day after day, there would have been no other time during which he handled rocks so intensively. At the same time, he was gathering and stacking sandstone blocks, he would have been noticing his soil leeching away and ending up in the numerous streams on his property."

Closure. The steady flow of time is an illusion. Four kinds are nested within each other. The *arrow time* of the ticking clock is made up of the *cycle time* of individual ticks created by the *all time* of physical constants, for example the hardness of metals within the clockwork and the speed of sound in the medium of air. The final kind of time is *one time*, otherwise known as singularities, the event-moments that cleave arrow time into before and after. Nothing is the same after one-time events. These are the "revolutions" we are investigating this morning. #1-The American Revolution, #2-The invention of fossil fuels ending the age of hydropower, #3-The Anthropocene extinction of passenger pigeons (gone forever), and #4-Hutton's intellectual revolution.