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ORIGINAL ARTICLE

Geoheritage of the Stone Pavilion, University of Connecticut at Storrs, U.S.A.

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Abstract
A tiny hexagonal building built of mortared stone and shaped like a euhedral quartz crystal occupies the summit of a cuestaform ridge of Paleozoic gneiss in Storrs, Connecticut, USA. Dedicated to a crowd of thousands in 1937, this architectural gem quickly fell into obscurity beginning with the Great New England hurricane of 1938. Reclaiming, naming, restoring, and sharing this building is the purpose of the Stone Pavilion Project, a scholarly engagement initiative within the Department of Earth Sciences at the University of Connecticut in Storrs. Within the pavilion is a nationally significant exhibit of specimen stones, one from each U.S. state. Following the International Commission on Geoheritage, it's an *ex situ* geocollection (museum) containing specimens of heritage stones (architecturally significant) collected from geosites (notable landforms). The building itself is a geocollection of stones from all 169 towns in Connecticut, giving it statewide significance. The ridge on which it's built is mantled with a concentration of glacially transported slabs up to ~ 5 m across making it a textbook example of extremely coarse meltout till, The Stone Pavilion meets the Geological Society of America's definition of an in situ geoheritage site, being: "scientifically and educationally significant" for its collections, "aesthetically significant" for its microcosmic beauty, and "culturally significant" for its symbolic role in university history.

Keywords Stone pavilion · Geoheritage · Geocollection · Heritage stone · Geosite

Introduction

The Stone Pavilion

The Stone Pavilion is a tiny, hexagonal, open-air building built and dedicated in 1937 on the historic flagship campus of the University of Connecticut in Storrs-Mansfield CT at GPS coordinates 48.8116 N, 72.2516 W (Fig. 1). Officially, it's Item 16 on the National Register of Historic Places designation for the historic district of the University of Connecticut (Stone 2025).[1]

Except for the cement mortar and a few details, the building consists entirely of natural stones. The exterior walls consist of stones from all 169 towns in the state, making it an *ex situ* mixture of glacially milled small boulders and jagged blocks from unspecified places and quarries.[2]

The interior wall segments to northwest, north, and northeast contain an *ex situ* exhibit of 50 beautiful specimen stones, one from each U.S. state.[3] Some of these specimen

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[1] The much deeper human history is that of the Indigenous peoples. Quoting the university's land acknowledgment: "the territory of the Eastern Pequot, Golden Hill Paugussett, Lenape, Mashantucket Pequot, Mohegan, Nipmuc, and Schaghticoke peoples who have stewarded this land throughout the generations."

[2] This and other claims from historical sources are in the process of being scientifically verified. Information currently in hand is a work in progress.

[3] Stones from all 48 states were included in 1937. Stones from Alaska and Hawaii (admitted as states in 1959) were added later, probably in the early 1960s.

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Fig. 1 Northeasterly view of the Stone Pavilion looking up the steep scarp face of a cuestaform ridge of Paleozoic gneiss. On the scarp is a glacially transported block of gneiss that later broke into slabs

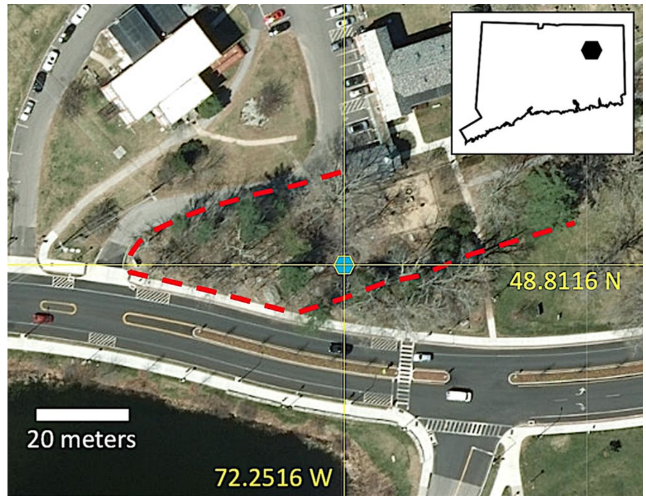

Fig. 2 Aerial photograph showing the outline of the Stone Pavilion as a hexagon (blue) on the University of Connecticut's main campus in Storrs, CT. Cuestaform bedrock ridge outlined by dashed line (red). Scatter of rock slabs (gray) are visible to left of pavilion. Trees grown since the 1937 dedication obscure the view most of the year. Lines (yellow) show GPS coordinates. Inset map shows location within state

stones are from nationally significant historic landmarks such as Petrified Forest National Park, Arizona, and Stone Mountain, Georgia, both unofficial geoheritage sites. Others are from nationally significant historic quarries such as the Rock of Ages Quarry in Barre, Vermont, or those producing Indiana Limestone, both unofficial heritage stones. Others are from famous geological formations important to the history of geology, for example the Navaho Sandstone, a Pangean Jurassic erg. The specimen from the Ogallala Formation signifies a world class aquifer.

The bulk of the interior walls and columns constitute a third collection. It's stones are from a combination of local New England fieldstone, quarry fragments, and a few notable anomalies such as a boulder-sized fragment of brain coral.

The building occupies the glacially beveled crest of a small ridge of Paleozoic gneiss known as the Hebron Formation (Rodgers 1985). On this ridge is a litter of rock slabs and blocks of local gneiss that show no evidence of having been displaced by humans. Collectively, this concentration is an in situ collection revealing the dramatic results of glaciogenic quarrying and proximal deposition (Fig. 2).

Though the Stone Pavilion is the university's smallest historic building, it's my candidate for its most symbolically important. It's specimen stones were collected before 1934 by Albert P. Marsh, a farmer from New Britain, Connecticut. He donated them to the Connecticut Stage Grange, a chapter of the National Grange, then a politically powerful advocacy association of farmers comparable in solidarity to that of a labor union (McCabe 2015). Using those stones, a local farmer-mason, Freidrich Steinmeyer, supervised the 1937 construction of the building as a gift from the state grange to the state college during the institution's most pivotal decade. Within seven years, its mission changed three times: from an agricultural college to state college in 1933 and from state college to flagship university in 1939. On Sunday May 16, 1937, the pavilion was publicly gifted by the master of the national grange to the college president, and dedicated to young people of the future in a ceremony witnessed by thousands, broadcast on radio, and accompanied by picnics, prayers, and concerts. This was front-page headline news for the state's major, capitol-city newspaper (Hartford Courant, 1937) (Fig. 3).

The 1937 dedication overlapped with a bill making its way through the Connecticut legislature that would have located a new "Connecticut State University" somewhere else to be built from scratch (Stave et al. 2006). The tabling of that bill following the pavilion dedication marked a turning point in institutional history. When reintroduced in 1939, that bill designated Storrs as the institutional location, with its name changed to "University of Connecticut" during committee hearings. Henceforth, Connecticut's land grant college would incrementally expand into an international university in the rural farm country of northeastern Connecticut, it's so-called Quiet Corner (Fig. 4).

Purposes & Goals

The purpose of the Stone Pavilion Project is to resurrect this site from obscurity, protect it as a geoheritage site, and broaden its contribution to society as an: (1) Earth-themed architectural destination for students, alumni, and tourists; (2) interactive exhibit of the Connecticut State Museum of Natural History, and as a (3) gem-shaped portal for Earth science education for all ages to help society understand the "subtle wisdom of

Fig. 3 View of portion of north segment of exhibit wall. Dark circles on stones are numbered bronze tags that correspond to a numbered list of states in alphabetical order. Seven tags are visible in this photo (6-Connecticut, 14-Kansas, 23-Missouri, 24-Montana, 33-Ohio, 34-Oklahoma,44-Virginia). The polished granite dimension stones at upper and lower left were quarried from Pikes Peak (5-Colorado) and Barre Vermont (43-Vermont), respectively

Fig. 4 Connecticut's stone from the national geocollection of 50 U.S. states. It's identified with a bronze tag marked 6, it being the sixth state alphabetically prior to Alaska statehood in 1959. The lithology is a cataclastic fault breccia in a Triassic red sandstone (Newark Supergroup) filled with igneous hydrothermal precipitates, mainly barite and quartz. Colored flecks (blue) are likely malachite from metal mineralization. This quarried specimen came from the Jinny Hill Mining District (Brick et al. 1998), New England's deepest and most extensive underground mines, worked throughout the late 19th century by immigrant Cornish from the United Kingdom. Photo credit Peter Morenus

rocks" (Bjornerud 2024), and appreciate why geodiversity is as important as biodiversity (Lima and Pereira 2023). The purpose of this article in the scholarly journal *Geoheritage* is to share the story of the pavilion with the outside world, and to claim its place as a significant geoheritage site. Publication will raise the public profile of the building, making it easier: to protect it from future damage and development; to obtain local, state, and national permits; and garner funding for restoration, conservation and maintenance. This is the project's debut publication (Fig. 5).

The project was launched during the spring of 2020 during the Covid-19 shutdown of in-person classes at the university. My first task was cut the padlock from the rusted iron grille, clear the litter, remove bird nests, and install a new padlock. After washing and wire-brushing away nine decades of grime and patina, University Photographer Peter Morenus, created a high-resolution digital archive of all 50 specimen stones. Concurrently, I began two subprojects. First, to do archival research on the building using university, grange, town, and historical society records. Disappointingly, we found no index or list of the specimen stones beyond the third-party names used anecdotally in the unsigned newspaper article in the *Hartford Courant*, some erroneous. We were also disappointed to find little historic documentation. My second subproject was to use the familiar, hand-specimen techniques we teach our students to identify the lithology and fossil content of each specimen stone as it appeared on the exhibit wall. Classification and description followed. Sampling was precluded because the building is protected from damage (though not neglect) by its National Register listing.

With full-scale and close-up photographs and descriptions based on observations, my next step was to have my preliminary identifications verified, expanded, and

Fig. 5 Example from state geocollection of all 169 towns and all eight counties in Connecticut. This is a glacially milled bounder of vein quartz with an unusual concentric coloration. We do not know the provenance town

improved by the staff of all fifty state geological surveys. We solicited their expertise through the help of Connecticut state geologist, Margaret Thomas and student Sydney Duda. Nearly all state surveys responded with additional information that we incorporated into a growing data base that included: correlations with known formations; definite or plausible collecting localities; fossil and mineral identifications; related maps and publications, and other information. After two rounds of state survey correspondence (>200 exchanges), and with the help of our department's webmaster, Clay Tabor, I shared the project outward in 2022 as an informational website for teaching and planning for the future.

Eventually, we expect that the Stone Pavilion will become: (1) A popular destination for incoming students, alumni, state residents and tourists based on its architectural appeal and importance in university history. (2) An in-person, interactive outdoor educational exhibit contributing to university courses, nearby K-12 school programs, and in-state adult education. And (3) an on-line resource for national geoscience education based on state-by-state links to the specimen stones.

Progress on restoring the physical pavilion has stalled. The site is too rough for wheelchair access and not in compliance with the American Disabilities Act of 1990. There is no paved path to the site, no patio surrounding it, no ramp to the interior, and no easy access to parking. The iron grill fronting the specimens is dangerously detaching from rust and the wooden bench has rotted. The lighting is terrible due to overgrown trees. There is no signage or security. Exhibit railings are needed to protect the specimens in lieu of a grille and to support touch-screen exhibits. University architectural services made a preliminary report and a cost-estimate that requires significant funding. The deans of the relevant colleges, university administrators, and archivists are supportive. The Connecticut State Museum of Natural History (CSMNH) anticipates that this will become an important outdoor exhibit.

Progress has been slow. Information about the site and its stones continues to trickle in. Sporadic archive research continues. Scientific work on the specimens, inside and out, has stalled. The website remains a work in progress. After nearly five years, the rusted grate, poor lighting, lack of signage, poor accessibility, and limited awareness by the broader community remain. What has worked are student and local community interest, supportive offices at the university, help from the state geological surveys, and interest by colleagues engaged in earth science education and geoheritage. Challenges involve the slow pace of gaining administrative attention, obtaining funding, architectural planning, future construction, and future official recognition within university, state, and federal programs. Publication of this article will provide momentum to move this project forward (Fig. 6).

Fig. 6 One of three archways in the southern half of the hexagon leading to a flagstone path. Facing east, this view shows the beveled crest of the ridge above stone stairs descending the scarp to the right

What Is Geoheritage?

As earthlings, we are all utterly dependent on Earth materials. Geodiversity celebrates how we value the lithosphere: economic, functional, scientific, educational, intrinsic, cultural, and aesthetic values (Brilha 2017). An essential part of the concept of geodiversity is geoheritage, defined by the Geological Society of America in Position Statement 20 as "sites or areas of geologic features with significant scientific, educational, cultural, and/or aesthetic value" (GSA 2022).

The International Commission on Geoheritage (ICG), a sub-unit of the International Union of Geological Sciences (IUGS), divides geoheritage into three related categories: *Heritage Sites*, which are in situ landscapes of significance that contributed to the development of geology, especially during its early history; *Heritage Stones* which are significant for historic architecture and monuments, and *Geo-collections*, which are ex situ museum collections important for their scientific, historical or educational relevance (IUGS 2025). The Stone Pavilion unofficially qualifies in all three categories, being a *Geo-collection* of specimen stones from all fifty US states containing *Heritage Stones* from globally famous quarries, and having specimens from *Heritage Sites* such as national historic landmarks.

The International Association for the Conservation of Geological Heritage (ProGeo 2017) is an affiliate of both the International Union of Geological Sciences (IUGS) and the International Union for Conservation of Nature (IUCN). It's objective is to help "inform the wider public of the importance of this heritage, and of its relevance to modern society." The Stone Pavilion Project supports the goals of ProGeo by focusing on "identification, characterization, quantification and management of geoheritage" the "pedagogical use of geological heritage: publications, teaching media, trails, centers, on-site museums," and "geotourism" (Geoheritage 2025). Designating the pavilion as geoheritage will contribute to goals number 4 and 13 of the United Nations 2030 Agenda for Sustainable Development to "increase the quality of education" and "understand climate change," respectively (ProGEO 2017). Based on ProGEO's definitions, the pavilion is an *ex situ* element built on the in situ elements of a glacially shaped cuestaform bedrock ridge mantled with glacially-transported slabs.

Geoheritage within the United States has been widely appreciated since the establishment of Yellowstone National Park in 1872, arguably the first explicitly designated geoheritage site in the world (National Academies 2021). Since its creation in 1916, the National Park Service (NPS) has fostered geoheritage, for its "great potential for scientific studies, use as outdoor classrooms, and enhancing public understanding and enjoyment" (NPS 2025). Currently, there are no sites listed in Connecticut on their unofficial National Register of Geoheritage Sites.

The Stone Pavilion meets the GSA's definition of a "culturally significant Geoheritage" site playing a "role in cultural or historical events," in this case the creation of the state's flagship university. The pavilion also contributes to the GSA's other two foci for geoheritage. It's a site with "textbook geological features," in this case the in situ litter of glacial slabs and the ex situ shapes of glacially milled bounders. And it's an "aesthetically significant geoheritage site," given its crystal-shaped pavilion as a "tourist destination."

The Stone Pavilion is already partially protected from alteration as Item #16 of the "historic central campus" of the 1989 listing on the National Register of Historic Places as (Registration 88003202) under the name "Grange Shelter Pavilion" (Skidmore et al. 2016). This designation does not specify its geoheritage value. Nor did it protect the building from neglect. In this sense, we are lucky it was so well built.

Stone Pavilion Geoheritage

Geo-collections

Following the preceding definitions, the Stone Pavilion holds an important national Geo-collection and a less important state collection.

National Collection

We assume that all specimen stones were collected by Albert P. Marsh during one or more national travel excursions in the years before he donated them in 1934, but cannot yet verify this assumption. They were mortared into the north half of the hexagonal building, in segments 60 degrees apart. Structurally, they are part of the wall segments, rather than being mortared to a finished wall. The three segments average 17 specimens each.

The placement order on the wall was alphabetical by state name and similar to a text being read, with Alabama in the upper left and Wyoming in the lower right. Originally, there were five rows; the top with eight stones (1-Alabama to 8-Florida), the second with nine (9-Georgia to 17-Maine), the third with ten (18-Maryland to 27-New Hampshire), the fourth with ten (28-New Jersey to 37-Rhode Island) and the fifth with eleven (38-South Carolina to 48-Wyoming). Two conspicuously smaller, un-tagged stones were mortared as a sixth row (49-Alaska to 50-Hawaii) into the corners between wall segments.

A brass plaque above all stones in the northwest segment was fastened to the wall by screws in drilled holes. Alphabetically, each state name is assigned a number from 1 to 48 corresponding to a numbered bronze tag pegged into a drill hole in each stone. Screwed to the base of the plaque is a strip label with "49. ALASKA 50. HAWAII". Screwed to the top is a strip label printed "ERECTED 1937". A vacant spot on the back (north) wall segment is identical in size to the existing brass plaque. Drill holes for its installation are identical in spacing to those of the existing plaque. This must have been for the second plaque described in the *Hartford Courant*, one later removed, possibly an act of vandalism. The absence of dedication signage contributed to the obscurity of building because it thereafter had no explanation. The bronze grille installed later to protect the stones was made of iron and has since rusted so badly that it is need of removal.

The main collection of 50 specimen stones holds a great variety of rock types, shapes, sizes, and objects from large slabs of polished granite, to a small cobble of friable sandstone (Fig. 3). This is congruent with the complex and heterogeneous geology of the United States (Geological Society of America 2005). Details for each state stone are on that state's webpage. Because our curation, identification, and sourcing is a work in progress, we do not include a master table with this article. Instead, we update a webpage for *Stone Classifications* under the link *Specimen Stones* (https://earthsciences.uconn.edu/stone_pavilion_learn_more-stone-classifications/). The remainder of this section provides a brief overview.

Lithology - Twenty-one of the fifty specimen stones are *sedimentary* rocks. Of these: twelve are terrigenous, ten being sandstones, eight of which are arenites. Twelve specimens are marine limestones consisting mainly of lime mud, sand, and shell fragments. Three of these are highly fossiliferous micrites, two are grainstones (sandstones composed of detrital calcite, often shell fragments), and one (13-IA) a block of an ancient reef. One specimen (2-AZ) is a fossil tree from what is now Petrified Forest national monument. Seventeen *igneous* stones constitute the second largest category. There are twelve plutonic rocks, all of which are granitic, seven of which are true granites and five related rocks. There are four volcanic rocks, all extrusive basalts, three of which are vesicular, the other being an olivine porphyry. Most unique is a serpentinite (18-MD) formed during the obduction of oceanic crust, a lithology associated with landform anomalies (Ferrando et al. 2024). Next in abundance at six specimens is a category we call *vein* rocks. Four are quartz veins, three being milky quartz and one rose quartz. The remaining two (33-SD, 22-MS) are pegmatites characterized by perthitic intergrowths of feldspar and quartz so similar to one another in composition, size, and shape that they could have come from the same outcrop. We have five *metamorphic* stones. Of these, three are *unfoliated*, with two of these being quartzites from a sandstone protolith. Our two *foliated* rocks are both granitic gneisses. Two of our specimens were challenges to classify. One is a metasomatically altered igneous(?) protolith (24-MT) likely collected as silver ore. The other is a breccia from Connecticut (6-CT) with an arkose sandstone protolith that was cataclastically broken and infilled by geothermal precipitates.

Given the broad range of lithologies, the specimen stones offer a great educational opportunity for developing interactive natural history exhibits. Provisionally, we envision five: (1) *The Grand Tour*, visiting the states stone by stone; (2) *Ancient Worlds*, examining the stones for evidence of fossils, mass extinctions, ancient climates, ancient environments, mountain building, active vulcanism; (3) *Iconic Landforms*, seeing the stones from nationally prominent landscapes; (4) *Time Machine*, viewing the collection as narrative the oldest (Archaean gneiss) to the youngest (Holocene lava flow); (5) *Natural Resources*, learning about the utility of stone for construction and groundwater storage.

Object - We also classified the specimen stones by the size, shape, and source of the stone. Twenty six of our specimen stones, slightly more than half, are irregularly shaped, jagged-edged blocks and slabs of broken rock with no rounded corners. These I called *Fragments*. Thirteen are rectangular shaped slabs and blocks, likely from quarries yielding *Dimension Stone*, ten of which were saw-cut into shape and thirteen merely split to the desired shape. Several cut faces were polished. Eight specimens are *Boulders*, defined as having a rounded edge and a measured or inferred diameter >256 mm. Four were mounted whole and four were split before mounting. Two specimens are *Cobbles*, similar to boulders but being smaller. One was mounted whole, and the other broken. Two specimens are whole *Fossils*, one a slab of petrified wood cut from a silicified tree trunk and another a block sampled from a Paleozoic reef.

Based on the frequencies above, we can interpret the collecting preferences of Albert P. Marsh. He visited quarries, preferring cut dimension stone if he could find it, yielding thirteen specimens ($n=13$) across all categories. Of these, he was particularly fond of granitic rocks, ($n=12$), and terrigenous sandstones ($n=10$). He also has a preference for milky colored vein rock ($n=5$). On three occasions ($n=3$), he sampled the rough top of a lava flow.

With the assistance of state geological surveys, we were able to link some specimen stones to historically famous bedrock quarry districts, unofficially qualifying them as ***geoheritage stones***. Below are three examples. *43 - Vermont*: This is a saw-cut and polished slab of isotropic gray granite almost certainly from the Rock of Ages Quarry in Barre Vermont, the deepest granite hole quarry in the United States, in continuous operation since 1885. This highly valued architectural stone is widely used around the nation and is the source for many of its gravestones. The quarry is part of the New Hampshire Plutonic Suite with a U/Pb zircon age of ~364 Ma. *12-Indiana*: This is a quarried block of massive, isotropic, cream-colored, clast-supported carbonate sand classified as a grainstone or calcarenite. It contains abundant, rounded ooids, microfossils, and detrital fragments of calcareous macrofossils. This is likely the "Salem Limestone" or a related formation from the Cincinnati Arch of the Mississippian Period (359−323 Ma). Sold under the trade name Indiana Limestone, this stone was widely used in architecture throughout the United States during the 19th and 20th century, including the Empire State Building and Grand Central Station in New York, the Pentagon in Washington DC, and in the historic district at the University of Connecticut. *40-Tennessee*: This saw-cut block of finely bedded sandstone is a quartz arenite with beautifully bedded rusty separations known as Liesegang bands. It's a nearshore marine sandstone from the back-barrier lagoon and tidal delta of a barrier island system of lower Pennsylvanian age (323−315 Ma). Named the Crab Orchard Sandstone after Crab Orchard Mountain in the Cumberland Plateau, it was widely used for building stone, especially in the early 20th century.

Also within the exhibit are eight stones sourced to well-known geological formations or famous landforms, unofficially qualifying them as being from ***geoheritage sites***. Below are three examples. *9-Georgia*: This saw-cut block of quartz monzonite is unequivocally from Stone

Mountain Georgia, based on its carved inscription and its corresponding lithology. This geological anomaly is an isolated exfoliation dome of "granite" from the Carboniferous Period (~300 Ma, rising high above the lowlands as a landform also known as a monadnock. This is a strong candidate as an officially named geoheritage site. Of contemporary interest is the cultural association as the largest high-relief sculpture in the world, a three-acre carving larger than Mount Rushmore as a Confederate Memorial with symbolic links to the Ku Klux Klan. *5-Colorado*: This cut and polished specimen is almost certainly from Pikes Peak, the highest summit in the "Mountain State," which stands in majestic relief above the Rocky Mountains. It's a potassic syenogranite batholith dating from the late Proterozoic (~1 Ga) that rose to its current elevation after Cenozoic delamination of the crust. *42-Utah*: This quarried block of hard, light-red eolian sandstone it "plausibly" the Navaho Sandstone, "probably from the Salt Lake area," according to staff from the Utah Geological Survey. This most most prominent "red rock" formation in the state is remarkably consistent over large area formerly covered by a Jurassic sand sea. This formation is world famous for the sweeping beauty of its cross-beds on canyon walls throughout the American Southwest, and provided a prime example of climate change.

State Collection

The Stone Pavilion is built entirely of stones with the pore spaces mortared by cement (Fig. 7). From hexagonal corner to corner, it has an exterior width of ~4 m (13 feet) and an interior width of ~3.5 m (11.5 feet). The walls average about 0.45 m (1.5 feet) thick.

Fig. 7 Exterior of portion of northeast hexagonal segment of the Stone Pavilion. Note the great range in stone lithology, size, and shape and their placement in crude courses

Based on *Journals of Proceedings of the State Grange* (Ives 1953, 129), on October 4, 1934, the stone collector Albert P. Marsh, proposed to the executive committee of the state grange that he would "furnish 1 stone from every state in the union to be built into a suitable memorial or monument." In January 1936, state grange Master Frank K. Peet announced that "plans have been negotiated this past year, where… a memorial will be built of stone collected from the 169 towns in the State." The April 17, 1937 *Hartford Courant* article reported that the stones came "from every town in Connecticut."

These three statements are consistent with our observations of the stones used to build the structure. Indeed, there is a great variety of stone lithologies in the exterior walls. All of the state's major terranes appear to be represented, and no exterior masonry stone appears exotic to Connecticut. The number of stones in the exterior walls far exceeds the number of towns in the state ($n=169$), meaning that identical stones need not indicate that a town is not represented.

Unfortunately, we can think of no way to verify with modern observations the claim that all 169 towns are represented. There are three main limitations: (1) Given the general west-northwesterly convergence direction for the Acadian continental collision creating the bulk of the state's bedrock, nearly identical bedrock units are repeated in an east-west direction due to ductile under-thrusting and synclinorium folding. (2) Some lithologies extend parallel to strike through multiple towns in a north-northeast to south-southwest along the tectonic grain in a direction perpendicular to convergence. (3) Connecticut was completely glaciated by the Laurentide Ice Sheet flowing south-southeasterly over generally rough subglacial topography. Most of the stones in the exterior walls were indeed glacially milled into a subrounded shape by basal shear in the lower layers of ice, meaning that they were moved and dispersed from a more northerly source. Stones collected from one of the state's southern towns could have been derived from any source town in a zone widening to the northeast to west-northwest.

Though individual stones cannot be traced to individual towns, the collection (Fig. 7) will lend itself well to statistical studies when that time comes. It would provide a state-integrated sample for any number of analytical studies.

The Site Itself

There are two in situ elements of the Stone Pavilion: the local bedrock ridge on which it was built, and the textbook scatter of glacially transported rock slabs on that ridge, especially to the west (Fig. 8). Of these two elements, the *ridge* is unremarkable in its geology, there are dozens like it within a few kilometers. The scatter of *slabs*, however, is

Fig. 8 Westerly view from the Stone Pavilion showing the dense concentration of glacially transported slabs on the bedrock ridge. The background view shows two brick buildings on opposite sides of North Eagleville Road. See Fig. 2 for orientation of view

remarkable, at least locally, thereby meeting he GSA's definition of an in situgeoheritage site as a textbook example of a geological phenomenon. During restoration, our plan is to designate a pathway through the concentration and have an educational kiosk explaining its significance.

The pavilion was built on the highest point of an east-trending, asymmetric, cuestaform bedrock ridge overlooking North Eagleville Road, which dates back to the early 18th century (Fig. 2). The road follows the base of the south-facing scarp slope exposing steeply dipping, coarse-grained and well foliated metamorphic gneiss. The north-facing, up-glacial dip slope is gentler, with bedrock covered by a north-thickening mantle of glacial deposits. The bedrock map unit, "SOh" indicates a Silurian-Ordovician protolith of pelitic and coarser clastic sediments deposited in the Iapetos Ocean, predecessor to the Atlantic. It's part of the Merrimack Terrane, a synclinorium thrust against the Central Maine Terrane during the Acadian Orogeny (~400−350 Ma).

The following sub-sections follows the Geological Society of America's breakdown of geoheritage sites into three categories: (1) scientific and educational with "textbook geological features," (2) "culturally significant sites," and (3) those that are "aesthetically significant."

Textbook Feature

This collection of glacially transported slabs on the ridge has not been carefully measured and studied. Eventually, we expect to have a detailed map of the cluster and statistics on their sizes, orientations, and compositions. Figure 8 illustrates its extreme coarseness as an unconsolidated scatter on the bedrock and thin till of the ridge. The largest block-shaped erratic is ~5 m across, comparable in size to the pavilion itself.

The glacial geology of Connecticut recognizes three genetic types of till: *End moraine* deposits associated with the ice-sheet terminus and recessional positions; *Lodgment* or hardpan that is pulverized rock debris pasted to the bed by moving ice; and *Meltout* till, which is released by stagnant ice during the final stage of melting (Stone et al. 2005). In the vicinity, there are no End moraine deposits mapped. The other two genetic types are mapped neither by texture or genesis, but by thickness, a dichotomy of thick vs. thin till with an arbitrary threshold at ~4.8 m (15 feet). The map unit "thick till is usually dominated by lodgment till of Marine Isotope Stage (MIS) 6. Thin till, in contrast, includes a variety of sediment types: lodgment till of MIS 2; the bedrock outcrops, patches of sand and gravel, fines, and, most often, coarse meltout till with abundant stones, the source for most of the region's famed stone walls (Thorson 2002), some of which are visible from the site.

The litter of glacial slabs at the pavilion represents the coarse end-member of the meltout till continuum: an elutriated, matrix-free deposit of locally derived rock slabs of the same lithology resting on patchy bedrock outcrops. It provides a textbook example of quarried glacial debris transported less than 100 m along the glacial flowline (from the most northerly outcrop) before being let down vertically during the last stage of melting. The slabs are most concentrated immediately south of the crest of the bedrock ridge, suggesting they were released as the change in longitudinal stress from up-glacial compression to down-glacial extension. These easily accessible observations make it an ideal field locality for students to learn about these geological relationships within a five minute walk of most classrooms at UConn.

Culturally Significant

This stone building is a culturally significant site. This qualifies it as a geoheritage site by association. Though largely forgotten today, the Grange was the most powerful influence behind the creation of the University of Connecticut, "literally taking this institution" from its 1881 roots as Storrs Agricultural School "as a foster child, worrying over is problems, fighting for its expansion and rights, jealously guarding its privileges, and urging better conditions."(Ives 1953) With their help it became Storrs Agricultural College in 1883, the state's Land-grant institution, and in 1899 Connecticut Agricultural College. In 1933, the name changed again to Connecticut State College built on the foundation of an agricultural school. By 1939 that state college had broadened into the University of Connecticut.

Looking back, the 1930 s was the most important decade in the institutional history, with three changes in mission and name within seven years. Within that pivotal decade, the most pivotal year was 1937, during which the state government decided that the future of its flagship university would be expansion in Storrs, rather than construction of a new one somewhere else. This future was symbolically gifted by the grange on April 16, 1937, qualifying the stone pavilion as geoheritage for its link to institutional history. It was a financial gift as well. The 1938 *Journal of Proceedings* of the state grange reported that the "Treasurer drew a check for $750 in payment of this memorial," an amount equivalent to >$17,000 U.S. dollars today. We are not aware of any other Land Grant University with such a clear symbol of the bond between grange agriculture and university applied science.

The pavilion also holds a link to national culture history. The gathering of the stones, their assembly into a building, and the celebration of this building as a symbol, was part of a larger cultural movement associated with the New Deal of President Franklin D. Roosevelt and his Works Progress Administration (WPA). Though best known for its conservation initiatives and outdoor infrastructure, the WPA also administered the Federal Writers Project. The 378 + books and pamphlets of its *American Guide Series*, wrote Lewis Mumford, were the nation's "first attempt, on a comprehensive scale, to make the country itself worthily known to Americans (Stott 1986)." Grace Overmyer noted that each of these was "a sort of road map for the cultural rediscovery of America from within.". Whether the protagonists of the pavilion story --farmers, collectors, stonemasons, grange officers, college presidents, journalists– knew it or not, they were participants in a national movement they were symbolizing.

Aesthetically Significant

The Stone Pavilion reflects a full palette of earth tones. The barn-red of hematite ochre, orange-browns of rust, blues of malachite, greens of epidote and olivine, pinks of granite and rose quartz, yellows of lime mud, pitch blacks of tholeiite basalt, and the milky white of vein quartz. The shapes of is stones range from perfect spheres to complex polygons. The building itself assumes the shape of a euhedral quartz crystal with six sides and six triangular facets meeting at the apex of its slate roof. Its three archways invite the visitor to walk inside and stand at the sweet spot below the apex.

Surrounding you are stones gathered from the state's landscape, a managed chaos. To the northwest, north, and northeast is a beautiful exhibit of fifty specimen stones of continental crust uniting the conterminous United States. These are arranged like lines of text to tell the deep time history of the United States. To the south is a windowless view of the still-beautiful historic district of an international university. In the distance is the sweep of its Great Lawn, a former pasture curving down the flank of a drumlinoid hill. In the foreground is the steep scarp slope of a bedrock ridge decorated by glacial slabs. When standing below the apex and turning around, your view integrates local, state, and national geology. When standing still with eyes closed and an uncluttered mind, you can feel the vibe of the Earth coming together in place and time.

Before leaving the pavilion, we hope that every visitor was able to feel the essence of stone and know that it matters greatly to their lives.

Conclusion

The Stone Pavilion site includes two *ex situ* ***Geo-collections***: a nationally significant collection of specimen stones from every U.S. state; and a statewide collection of local stone from all 169 of Connecticut's towns. Within the collection of specimen stones are examples of ***Heritage Stones*** such as that from the Rock of Ages quarry in Barre, Vermont, and rock from internationally famous geological places that qualify as ***Heritage Sites***, for example Petrified Forest, Arizona. The pavilion grounds also exhibit two in situ components: a cuestaform bedrock ridge; and an ***educationally significant*** textbook example of extremely coarse, locally derived glacial meltout till. As a bonus, the pavilion is also ***culturally significant*** as a symbol of institutional history, and ***aesthetically significant*** as an architectural gem.

These six features qualify the Stone Pavilion on UConn's flagship campus as a Geoheritage site apart from any governmental or bureaucratic judgments involved. Reclaiming, upgrading, and sharing it is the work of the Stone Pavilion Project, a work in progress that will proceed on two related fronts. First will be the physical modifications required to: bring the site into compliance with the American Disabilities Act of 1990 and create an accessible, aesthetic, enjoyable, and educational facility. This will require future collaborations and funding. Second will be the online resources to share this facility outward with the world. This will require continued research into the history and geology of the site well beyond the present status.

The overall goal of the project is free public education from pre-school to learning in retirement about how the Earth works, what its history has been, and how we can put that knowledge to good use.

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