Finding Balance and Collaboration Across Departments at Multi-attraction Gardens

John Berryhill
Landscape Curator

the Botanic Garden of Smith College

History of the Botanic Garden of Smith College

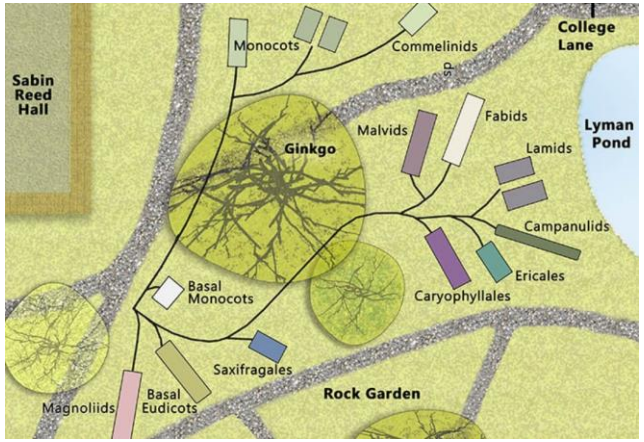
1890's ~ Smith College's first President, L. Seeyle, recruits the talents of Willaim F. Ganong and the landscape architecture firm of Olmsted and Elliot to implement his vision.

"combining the beautifying of the campus with the formation of a scientifically arranged Botanic Garden"

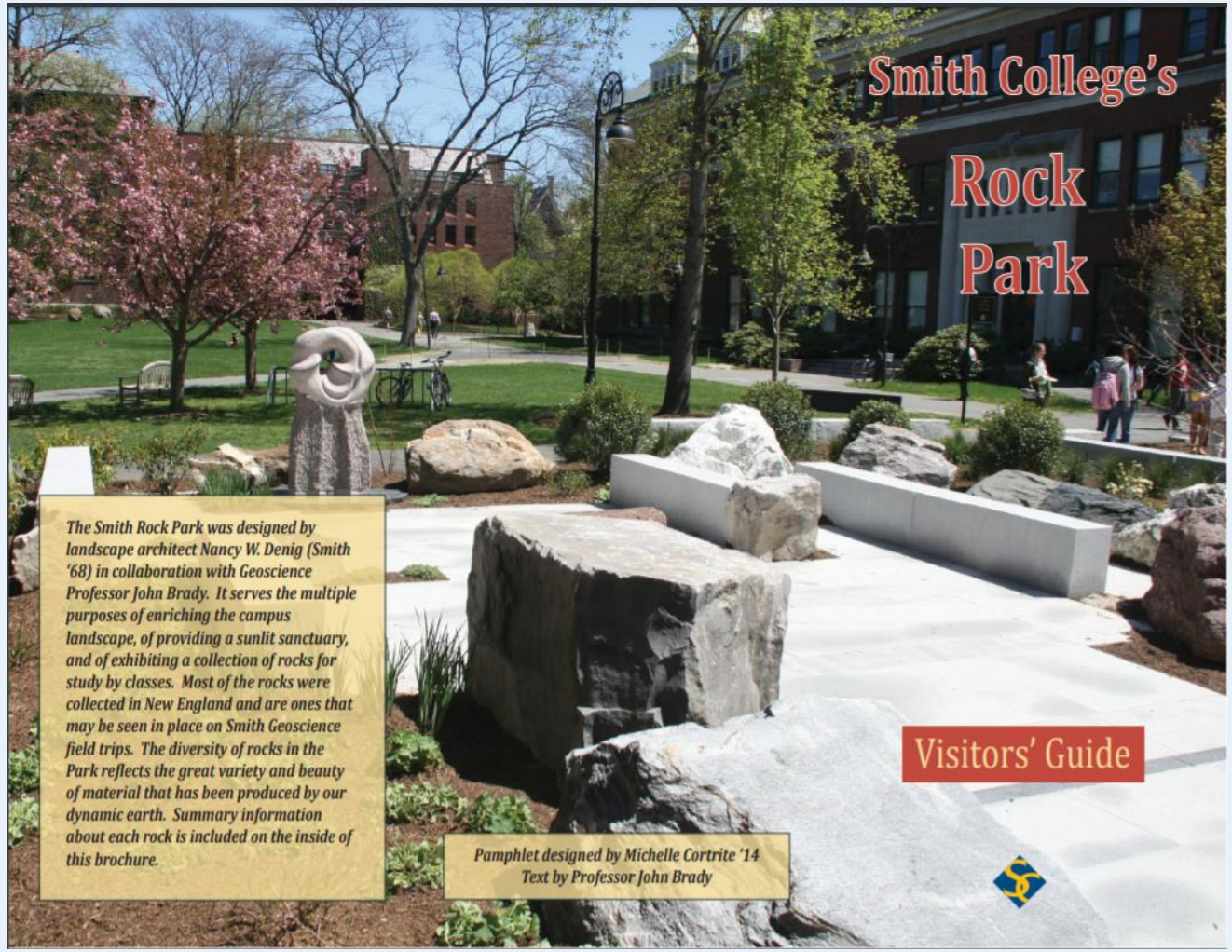
(~W. F. Ganong)

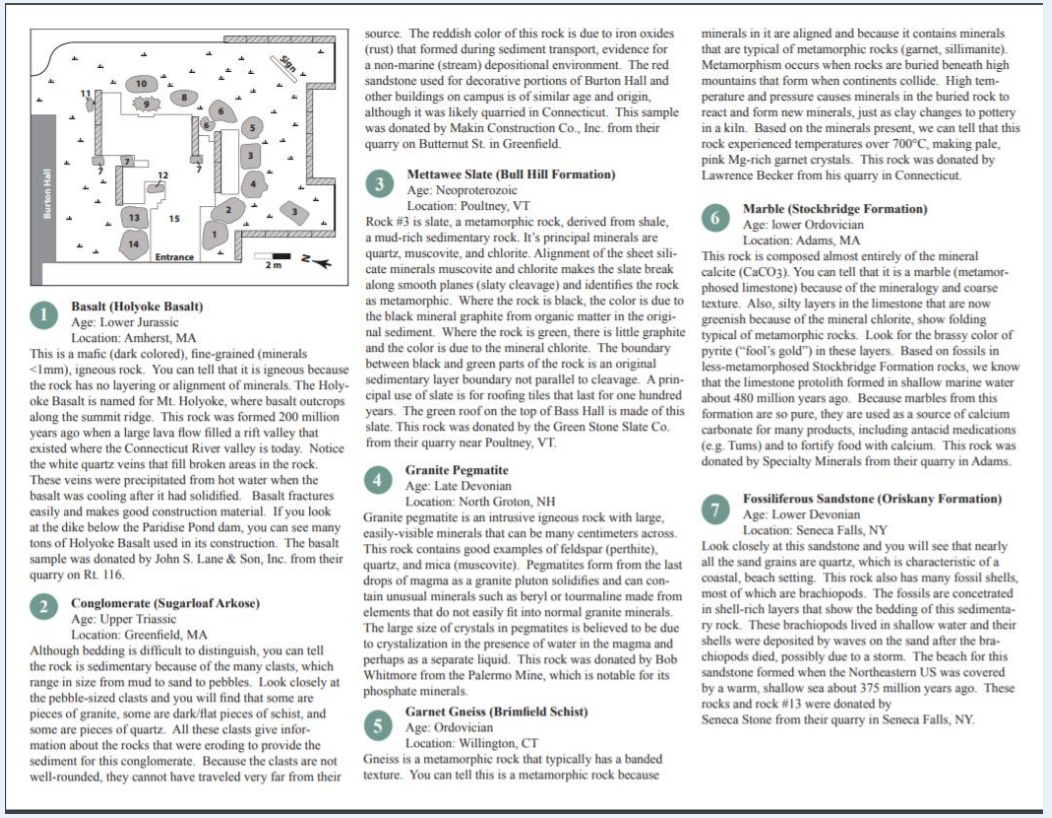
❖ Campus as classroom to support Botany

❖ Recent evolution to support the study of plants across a broader range of academic disciplines



The Rock Park





1 Basalt (Holyoke Basalt)
Age: Lower Jurassic
Location: Amherst, MA

This is a mafic (dark colored), fine-grained (minerals <1mm), igneous rock. You can tell that it is igneous because the rock has no layering or alignment of minerals. The Holyoke Basalt is named for Mt. Holyoke, where basalt outcrops along the summit ridge. This rock was formed 200 million years ago when a large lava flow filled a rift valley that existed where the Connecticut River valley is today. Notice the white quartz veins that fill broken areas in the rock. These veins were precipitated from hot water when the basalt was cooling after it had solidified. Basalt fractures easily and makes good construction material. If you look at the dike below the Paridise Pond dam, you can see many tons of Holyoke Basalt used in its construction. The basalt sample was donated by John S. Lane & Son, Inc. from their quarry on Rt. 116.

2 Conglomerate (Sugarloaf Arkose)
Age: Upper Triassic
Location: Greenfield, MA

Although bedding is difficult to distinguish, you can tell the rock is sedimentary because of the many clasts, which range in size from mud to sand to pebbles. Look closely at the pebble-sized clasts and you will find that some are pieces of granite, some are dark/flat pieces of schist, and some are pieces of quartz. All these clasts give information about the rocks that were eroding to provide the sediment for this conglomerate. Because the clasts are not well-rounded, they cannot have traveled very far from their source. The reddish color of this rock is due to iron oxides (rust) that formed during sediment transport, evidence for a non-marine (stream) depositional environment. The red sandstone used for decorative portions of Burton Hall and other buildings on campus is of similar age and origin, although it was likely quarried in Connecticut. This sample was donated by Makin Construction Co., Inc. from their quarry on Butternut St. in Greenfield.

3 Mettawee Slate (Bull Hill Formation)
Age: Neoproterozoic
Location: Poultney, VT

Rock #3 is slate, a metamorphic rock, derived from shale, a mud-rich sedimentary rock. It's principal minerals are quartz, muscovite, and chlorite. Alignment of the sheet silicate minerals muscovite and chlorite makes the slate break along smooth planes (slaty cleavage) and identifies the rock as metamorphic. Where the rock is black, the color is due to the black mineral graphite from organic matter in the original sediment. Where the rock is green, there is little graphite and the color is due to the mineral chlorite. The boundary between black and green parts of the rock is an original sedimentary layer boundary not parallel to cleavage. A principal use of slate is for roofing tiles that last for one hundred years. The green roof on the top of Bass Hall is made of this slate. This rock was donated by the Green Stone Slate Co. from their quarry near Poultney, VT.

4 Granite Pegmatite
Age: Late Devonian
Location: North Groton, NH

Granite pegmatite is an intrusive igneous rock with large, easily-visible minerals that can be many centimeters across. This rock contains good examples of feldspar (perthite), quartz, and mica (muscovite). Pegmatites form from the last drops of magma as a granite pluton solidifies and can contain unusual minerals such as beryl or tourmaline made from elements that do not easily fit into normal granite minerals. The large size of crystals in pegmatites is believed to be due to crystalization in the presence of water in the magma and perhaps as a separate liquid. This rock was donated by Bob Whitmore from the Palermo Mine, which is notable for its phosphate minerals.

5 Garnet Gneiss (Brimfield Schist)
Age: Ordovician
Location: Willington, CT

Gneiss is a metamorphic rock that typically has a banded texture. You can tell this is a metamorphic rock because minerals in it are aligned and because it contains minerals that are typical of metamorphic rocks (garnet, sillimanite). Metamorphism occurs when rocks are buried beneath high mountains that form when continents collide. High temperature and pressure causes minerals in the buried rock to react and form new minerals, just as clay changes to pottery in a kiln. Based on the minerals present, we can tell that this rock experienced temperatures over 700°C, making pale, pink Mg-rich garnet crystals. This rock was donated by Lawrence Becker from his quarry in Connecticut.

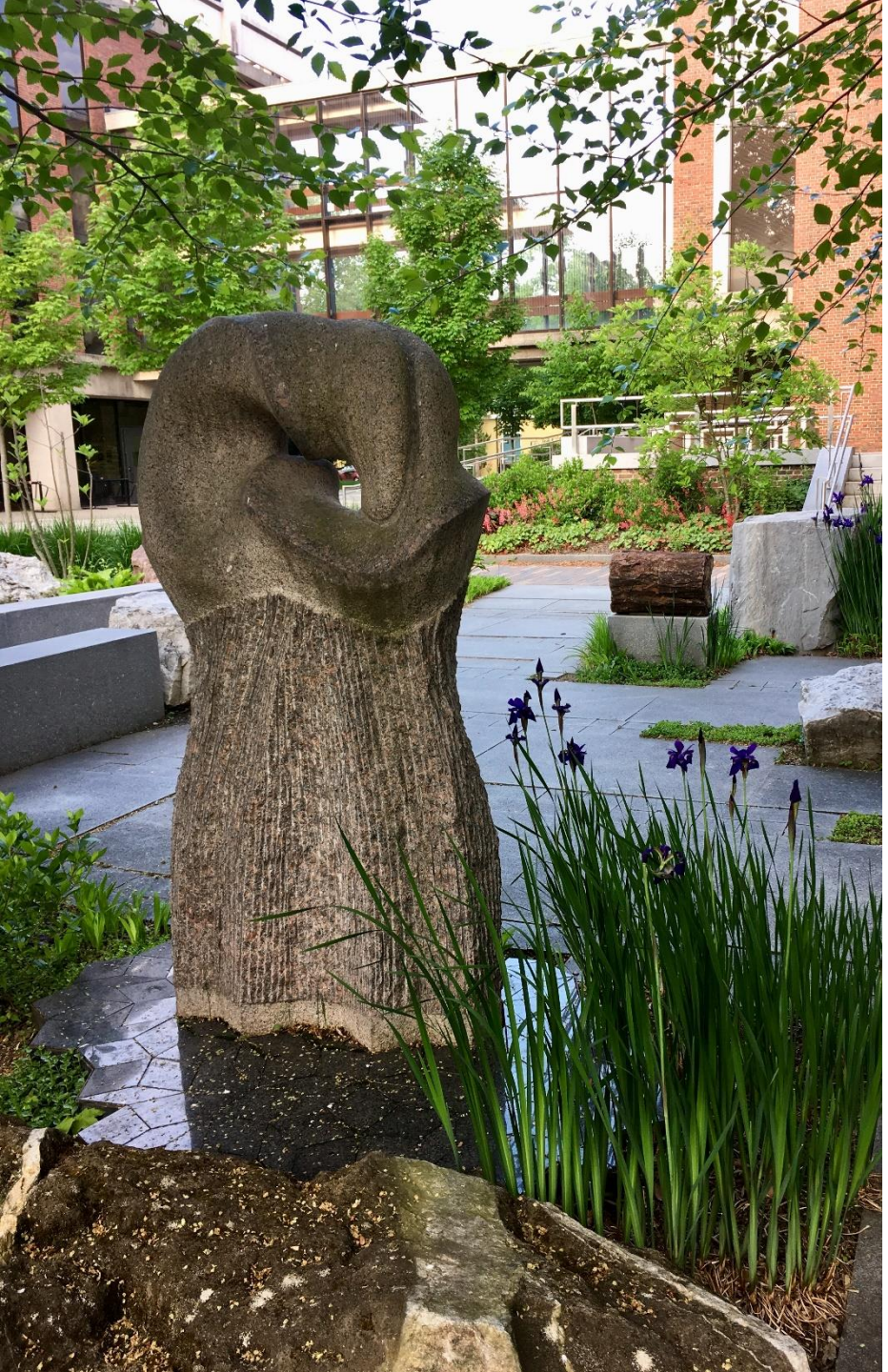
6 Marble (Stockbridge Formation)
Age: lower Ordovician
Location: Adams, MA

This rock is composed almost entirely of the mineral calcite ($CaCO_3$). You can tell that it is a marble (metamorphosed limestone) because of the mineralogy and coarse texture. Also, silty layers in the limestone that are now greenish because of the mineral chlorite, show folding typical of metamorphic rocks. Look for the brassy color of pyrite ("fool's gold") in these layers. Based on fossils in less-metamorphosed Stockbridge Formation rocks, we know that the limestone protolith formed in shallow marine water about 480 million years ago. Because marbles from this formation are so pure, they are used as a source of calcium carbonate for many products, including antacid medications (e.g. Tums) and to fortify food with calcium. This rock was donated by Specialty Minerals from their quarry in Adams.

7 Fossiliferous Sandstone (Oriskany Formation)
Age: Lower Devonian
Location: Seneca Falls, NY

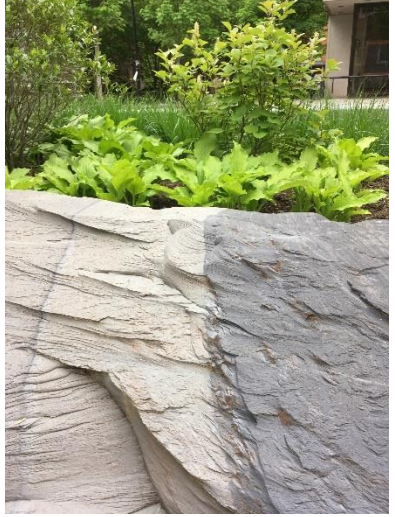
Look closely at this sandstone and you will see that nearly all the sand grains are quartz, which is characteristic of a coastal, beach setting. This rock also has many fossil shells, most of which are brachiopods. The fossils are concetrated in shell-rich layers that show the bedding of this sedimentary rock. These brachiopods lived in shallow water and their shells were deposited by waves on the sand after the brachiopods died, possibly due to a storm. The beach for this sandstone formed when the Northeastern US was covered by a warm, shallow sea about 375 million years ago. These rocks and rock #13 were donated by
Seneca Stone from their quarry in Seneca Falls, NY.

An elegant, integrated space for education and enjoyment.



- Geology, Botany, Ecology, Landscape Studies, Art, Math, health and well being, alumnae relations.

Garden Designer Nacy Denig (Smith ‘68) and Geology Prof. John Brady
Photo: Bob O’Conner


How it is working well:

- A natural pairing - stones and plants
- An extraordinary upgrade for an area that now supports a breadth of college priorities
- Patience allowed the idea to be incorporated into a needed capital project, elevating its potential
- “It invites us to be advocates for each other’s priorities.” ~ Dr. John Brady, Geology

Japanese Garden

Photo: Pamela Dods

- Conceived in 1984 by Prof. of Religion and East Asian Studies, Teitetsu Unno. Designed by David Slawson
- Intended to celebrate east Asian culture and garden design and offer a place of quiet contemplation and meditation.

Photo: Pamela Dods

Early 2000's ~ Departmental reorganization left the garden without the right caretaker.
As a result, the garden declined.

2016 ~ Religion, East Asian Studies, and Landscape Studies rally support for funding from President McCartney to restore and re-envision the garden.

Other Opportunities to thrive in a shared space

- Art
- Libraries
- Health and Wellness
- Inclusion and Diversity
- Sustainability
- Landscape Studies

Thank you

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