



THE NEWSLETTER OF THE **CORTLAND RURAL CEMETERY**

SPRING 2019

A look at the CRC's geology... Rock of Ages!

The most prominent feature of any cemetery is its headstones, yet few among us — except professional geologists or students of that science — are well-acquainted with the geological aspects of our cemeteries, including the types of rock most commonly used to memorialize our deceased loved ones. Originally written for, and included on, the CRC's interpretive trail signs, here is an introduction to the geological characteristics of our grounds. Special thanks to researcher Sophie Louise Jackson (SUNY Cortland, '15), her advisor/SUNY Cortland Geology Lecturer Timothy Conner, and editor/CRC Trustee John Hoeschele.

Marble

While marble's crystalline structure makes it resistant to physical weather, its calcium carbonate composition makes it highly susceptible to acidic agents such as chlorides, nitrates, and sulfates. Over time, this chemical weathering (made worse by acid rain and pollution) causes the deterioration or "melting" appearance seen on many marble cemetery markers.

When marble is white in color, it is composed of mostly limestone. Impurities such as clay, or iron oxides can cause colored marbles. In our cemetery, most of the marble is white, though there are some gray, dark gray and pink marble tombstones.

Marble became a popular grave stone material after 1780 because of its color, its ability to be cut into elegant statues, and its suggestion of wealth and status. Marble also appealed to Americans during this "Neoclassic" period because it was a material often used in ancient Greek and Roman architecture. Much of the marble used in 19th and 20th century cemetery markers throughout the Northeast came from Vermont.

Granite

Granite is a highly durable igneous rock resistant to both chemical and physical weathering. Composed mostly of potassium and plagioclase feldspar, quartz, biotite, and amphibole, granite can be easily recognized by its visibly granular texture. To wit, in this cemetery, most of the granite markers are gray or pink with a "salt and pepper" look stemming from the presence of individual crystals.



GRANITE SLABS CUT AND READY TO BE PROCESSED INTO HEADSTONES

Granite's minerals weather differently. The quartz is very resistant to weathering; potassium feldspar, biotite, and amphibole, undergo hydrolysis where exposure to the environment causes them to degrade into clay and salt water; and biotite and amphibole have a high content of iron that will oxidize or rust. As a result of all this varied mineral content, granite's colors vary widely also. In this cemetery, dark gray, pink, and light grey granite are the most common, with the light gray variety most likely originating from Barre, Vermont.

Granite is most often quarried as a "dimension stone." This means it is a natural rock that has been cut into blocks or slabs of specific length, width, and thickness. Around 1860, it became more popular for gravestones because it outlasted previously popular stones such as marble or sandstone. It was, and still is fairly expensive: The slanted stone shown in a 1880s Sears, Roebuck advertisement cost \$8.80; today, it would cost \$1,400!

Gneisss

Gneiss ("nice") is a rock of great variety with large mineral grains arranged in colorful bands. It is formed by regional metamorphism. During metamorphism, sedimentary, igneous, or other metamorphic rocks are deeply buried and subjected to high temperatures and pressures. In this cemetery, most of the gneiss markers were originally granite and are weathering similarly.

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Newsletter layout courtesy of Jerome Natoli



Please consider making a tax deductible gift to the Cortland Rural Cemetery and returning it using the enclosed envelope. Thank you for your support!

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With a little extra help from our friends... KeyBank Pitches In!



We were excited and very thankful to receive extra help on May 15th from the employees of Keybank's Main Street branch, as part of the bank's Neighbors Make a Difference Day. According to the bank's annual volunteer day was

established way back in 1991 — and, today, "more than 8,000 KeyBank employees across the country contribute their time and talents to local nonprofit organizations." This year, the CRC was selected as the beneficiary of the initiative, which was A-OK with us — as the extra team-mates enabled us to tidy up (and steam-clean the carpets in!) our historic Gibson Memorial Chapel!

Rock of Ages continued...

Sandstone

A popular early American gravestone, sandstone is a sedimentary rock composed of sand-sized minerals, rock, or organic material. It is formed by the build-up and layering of sediments deposited by wind, gravity, ice, or water. The distinct layers of some sandstone make it prone to infiltration by water and, thus, damage due to our freezing and thawing cycle.

Sandstone comes in many colors; however, sandstone that is brown, red, purple, or pink is commonly called "brownstone." Not unlike the renowned "brownstones" in New York City, brownstone markers in this cemetery (especially evident in many of the obelisks in the lower sections) most likely came from Portland, CT. They are homogenous, rich with quartz, and absent of distinct layers, making them resistant to both physical and chemical weathering. In older Cortland County graveyards, a less durable, local gray sandstone was used.

Limestone

Onondaga limestone — which is used in several of the cemetery's private mausoleums and is also used as the base for other stones throughout the cemetery — originated in the Middle Devonian period over a third of a billion years ago. This limestone was most likely quarried in Syracuse, NY.

During the Devonian Period, Onondaga Limestone was being formed in Syracuse. At that time, the Syracuse area was a warm, shallow crystal-clear sea, teeming with life and resembling today's Great Barrier Reef. During this time, calcareous sediments were deposited, forming the lime-stone; indeed, if you look closely at this rock you can often see fossil corals, crinoids, and mollusks.

Other interesting geological tidbits Rock Quarries

BLOCKS OF CUT GRANITE

Unlike early American stone quarries, where blocks of stone were guided using elaborate rope and sled systems, today's quarries move stone with a backhoe or excavator, and then lift onto nearby transports using a crane. Before the advent of the Erie Canal, stone for Cortland's earliest headstones was transported almost entirely by wagon or sled from local quarries, slightly more distant New York quarries, or from as far away as Vermont and Connecticut. With the construction of the canal (1825), stone could be transported mainly by freight boats that could carry up to 30 tons of cargo!

7th Annual Cemetery Sweep-out Day Recap!

Just under two dozen committed and community-minded volunteers visited the CRC on Saturday, May 4th to help us with our 7th annual Cemetery Sweep-out Day! Energized by plenty of fresh coffee, donuts, cookies, and water — the team spent the Spring morning raking, removing windfall branches, maintaining flower beds, and removing

trash. Joined by — and much appreciated by staff — these generous volunteers made significant headway in preparing the grounds for this season's mowing, burials, and memorial services. Many thanks to all who participated!





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PRESENT

CONTINUED FROM PAGE 2 Rock of Ages continued...

During the late 19th century, stone transportation moved from the canal system to America's extensive network of railroads. By the 1920s, the mode of transport began to shift yet again with the introduction of the automobile and commercial trucking c which all but entirely supplanted rail transport of stone by the mid-1960s due to lower costs and trucks' ability to deliver to the doors of local monument companies.

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The Danby, VT Quarry is the world's largest underground quarry, spanning 25 acres. In order to quarry rocks at the Danby Quarry today, a "room and pillar" technique is employed, wherein 30 x 4 ft. 'rooms' are created by removing blocks. (Each block can weigh as much as 93 tons!) Between the rooms, marble pillars are left intact to hold up the roof of the mine.

What are the causes of headstone weathering?

There are three main types of weathering that can cause deterioration of cemetery headstones. Physical: for example, freeze/thaw action. Chemical: for instance, acid rain. And Biological: for example, when lichens grow on, or nearby tree roots grow into, the stone. The type of stone, climate, and environment determine the degree and speed of the weathering.

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EXAMPLES OF SEVERE HEADSTONE WEATHERING



Sure, during the burial season, our grounds team is charged with mowing our 44 acres the equivalent of 2-3 times a month. But did you know the 4-5 grounds crew staffers also:

- String-trim around approximately 19,000 gravestones and countless trees
- Pour and install 20-30 custom foundations
- Do excavations for 30-60 cremation-sized and/or full-body interments
- Remove overgrown, unsightly, and often unsafe plantings
- Remove trash, fallen branches, and fallen trees
- Turnkey graveside memorial services (e.g. tent, casket lowering, etc.)
- Back-fill woodchuck holes
- Maintain our equipment
- Maintain our facilities
- Among many other duties

It's a gargantuan responsibility in which our crew takes a great deal of pride, despite modest pay.

PS: You can really help them out by maintaining the graves of your own loved ones, including sweeping off grass our mowers/trimmers may have left behind and keeping your plantings and keepsakes to a minimum.

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Rock of Ages continued...

Terrain of our cemetery!

The hillside on which the Cortland Rural Cemetery and SUNY Cortland campus are situated is an eroded bedrock hill covered by glacial till. The bedrock was deposited in a warm shallow sea in the Devonian Period over a third of a billion years ago. The sedimentary rocks produced in this sea later lifted and became land, with unsorted deposits of glacial till left by a glacier just 24,000 years ago.

> LIMESTONE SAMPLE ►

> > ✓ A POPULAR EARLY AMERICAN GRAVESTONE, SANDSTONE IS A SEDIMENTARY ROCK COMPOSED OF SAND-SIZED MINERALS, ROCK, OR ORGANIC MATERIAL. IT IS FORMED BY THE BUILD-UP AND LAYERING OF SEDIMENTS DEPOSITED BY WIND, GRAVITY, ICE, OR WATER.

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Cortland Rural Cemetery Post Office Box 288 Cortland, NY 13045-0288 Web: www.cortland-rural-cemetery.com

CHANGE SERVICE REQUESTED



Learn how your donation or legacy gift can make a difference at the Cortland Rural Cemetery. Contact us to schedule a private consultation and learn about becoming a member of our Angel Society. www.cortland-rural-cemetery.com



ILLUSTRATION OF A SHALLOW SEA DURING THE DEVONIAN PERIOD >