



VIRTUAL GUIDED NATURE WALK

SETTLEMENT QUARRY



A short walk, about a quarter mile, from the parking area up the gentle slope, takes you up the old quarry road to the head of the quarry where a striking view of Isle au Haut and the

panorama of the archipelago of islands off Stonington awaits. There are several wooded loop trails as additional options.



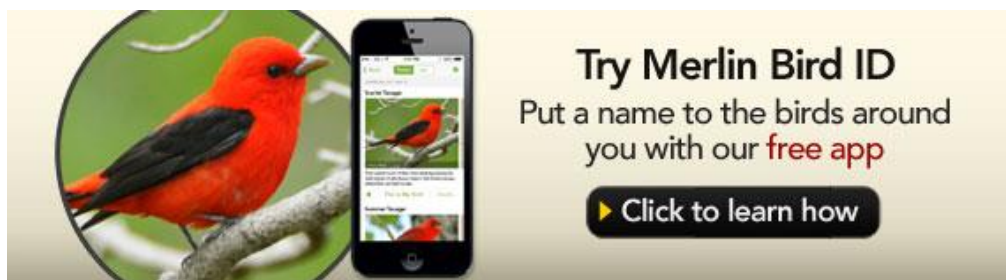
- **The Quarry can be dangerous if you or your children are careless.**
- **Granite surfaces include crevices and sharp drop-offs, and can be very slippery when wet and even when dry.**
- **The huge waste rock piles (“grout”) are unstable and unsafe for climbing.**
- **It is impractical to put “Danger” signs at every possible danger spot. You must stay alert; please be careful, and supervise your children at all times.**

An interesting discussion may be stimulated by this trip: what do we mean by plate tectonics? Did you know that it was once a very controversial theory? The history of how the theory arose and the various stages of accepting the theory are worth following up. Maybe it will encourage you to explore the history of science, the story of scientific advances in general and how we decide what new findings mean to us.

Before you start up the quarry truck road, you might want to know that the Oceanville Road along here is probably the outstanding place on the Island for the **Salamander Big Night** which happens every year on the first warm rainy night in late March or early April.



While Settlement Quarry first brings geology to mind, this area is rich in plant and animal life. In early spring, you may hear the first Song Sparrows and Slate-colored Juncos, and perhaps you will smell a fox on this sheltered walk. Just as the poplars and white birches begin to leaf out, the wave of warblers returning from the American tropics will be heard. You might want to use your web browser to call up the Cornell Laboratory of Ornithology site if you do not have a good bird app. See www.birds.cornell.edu.



Come summer you will likely meet butterflies and dragonflies on this road. Both White Admiral butterflies and Ten-spot dragonflies buzz overhead and are in fact defending territories here.



When the base of a heavy sheet of glacial ice partially melts and refreezes, loose rocks and sediment are incorporated. Like sandpaper, this scours the surface underneath the glacier resulting in polish and in the striations, *striae*, that you see here.



The view from the quarry head is both lovely and instructive. The asymmetric shape of the quarry hill with its gently sloping north side up which you walked and steeper south side now quarried away is characteristic of a glaciated landscape. As the ice sheet moved south, the north slope was worn by abrasion. In the southern rock face, water pressure variations result in cracking of the rock, and fragments are plucked out as the glacier moves. As the rock is eventually carried off piece by piece, it leaves a steeper, ragged slope. This plucking has endowed the quarry with a natural deep-water access for shipping granite to the coastal cities.

EXPLORING THE QUARRY YOU TURN LEFT:

Follow the old road quarry roads down successive levels. You will see remnants of huge rusted cables and other signs of the quarrying operations.

The blue paint blazes mark the Grout Pile Trail which skirts the left edge of the quarry. On both sides of the trail lie jumbled piles of irregular granite pieces—the **grout piles**. Grout is the term that refers to the ground up paste used to cement tiles in place. At the time, these granite fragments were deemed nearly useless. Do not be misled by the modern use of the term - we are not talking small grains to fill in around tiles. Think big! And do not be tempted to climb on the unstable rock piles.



Look around at the spruce trees. This area is one of the best places to see the difference between our two common species of spruce trees, *Picea glauca*, the **white spruce** with its pale twigs and bark, and bluish needles, and *Picea rubens*, the **red spruce**, with its reddish bark and twigs, and greener needles. Please be a considerate visitor and do not take the trail down to the Old Quarry Ocean Adventures private grounds.



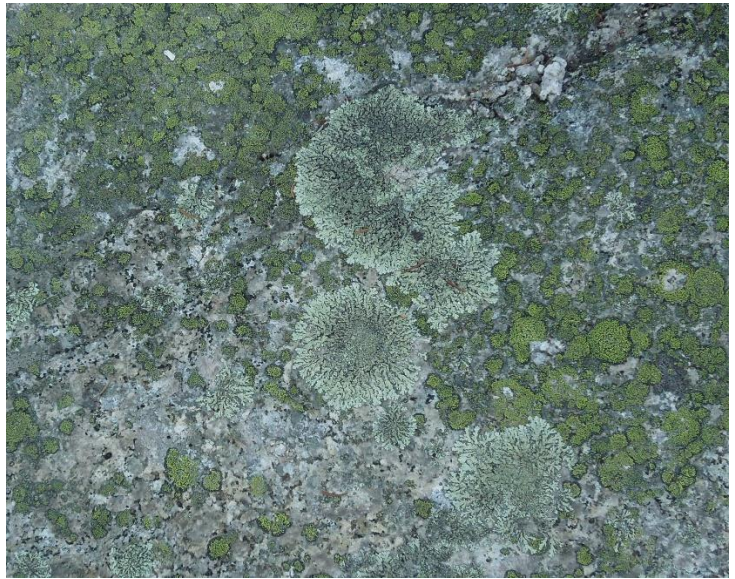
Abandoned at the foot of a jumbled pile of granite lies the old pole head with remnants of wire ropes still attached. Once affixed at the top of a rotating mast, the pole head, derrick, and boom system could lift and manipulate the weighty blocks of granite.

A narrow preserve trail winds along the foot of the quarrying operation to dead end in a modest Webb Cove overlook. You can see where blocks of granite are being off-loaded today from Crotch Island. Fishing boats are moored in the cove.



In winter the drive along Old Quarry Road to the dock is a choice spot for finding Buffleheads, Goldeneyes and other species of ducks wintering here from the Arctic.

Now make your way back up toward the main part of the quarry. Meandering around the quarry levels is a photographer's paradise. You may have visited the box cut on your way down. Where the quarry floor is no longer marked with blue paint, you may enjoy the interesting lichens, drill holes and geological formations even more.



The box cut and the aplite dike are two features you will not want to miss.

The **box cut (below)**, with its sides showing the marks of the granite burner is well-named.



The aplite dike (below) in the wall here is very distinctive. Once you have learned to recognize this feature, you will recognize it in various places around the southern, Stonington, end of Deer Isle and even as fragments in beach stones.



By color you can sort out the ingredients of our granite. **Microcline**, a pink feldspar, **plagioclase**, a white feldspar, and **quartz** make up 95 % of the rock, with shiny flakes of **biotite**, **black mica**, added in.



The magma that crystallized to form the Deer Isle granite was intruded about 371,000,000 years ago beneath a string of islands, like Japan, that were then colliding with, and becoming cemented to, our North American continent.

Picture the magma chamber in which our granites were cooked. Near the middle and top of the chamber swirled the fine grained granites with relatively more white feldspar in their makeup. The more salmon pink, more orange-colored granite found on the eastern edge of Deer Isle at Oak Point is thought to have accumulated at the bottom of the magma chamber. Thus, the granite body (called a pluton) has been tilted by mountain-building processes.

Where the granite cooled and cracks formed, the still-molten fine-grained aplite filled the gaps. You see these dykes at various places on the quarry wall. Our mass of granites is thought to have intruded into the Castine Volcanics and Ellsworth Schists that make up much of Deer Isle. The granites from across the Reach in Sedgwick have none of the pinks; they are all black, white and grays.



Make your way by way of the road at the right back up to top of the quarry, where you came in.

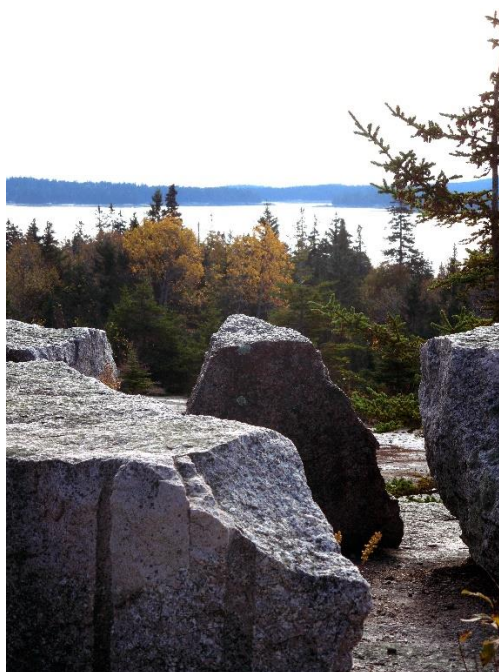
BACK AT THE QUARRY HEAD: WHEN YOU TURN RIGHT

Returning to the quarry head, a short walk west along the orange blazes takes you past the ruins of the dynamite shed on your right.



The dynamite shed, set well back from the other quarry operations, is a symbol of how dangerous work at the quarry was. In addition to the obvious hazards, inhaled granite dust gave silicosis to all too many of the workers.

In nearby granite faces and blocks you see vertical cores which remain from early quarrying operations. These **bore holes** were drilled and filled with **wedges** and explosives to shear off granite blocks.



Nestled in the rock you will find an alcove lined with wooden benches. In the center sits a large granite block with a stripe running across its center and down the side. This is fine-grained **aplite**, as is the bright pink stripe in the rock at the end of the bench. Throughout the quarry you will find these pink stripes - some the width of a finger, some the size of your arm, and some even larger - where younger phases of magma were injected along fractures in the granite which had already solidified.



In winter the granite surfaces of this alcove act like a reflector oven, providing a cozy spot from which to contemplate the main mass of Stonington Granite which was formed at least 360 million years ago. Fox tracks in the snow might show you where the animal came to see if picnickers left any crumbs. Feeding animals in the preserves is definitely not encouraged,

however. Not only is much of human food not nutritious, it changes their behavior. It is a short step from an animal being a beggar to becoming a nuisance.



For an interesting alternate route back to the parking lot from here, you might enjoy the Glacial Erratic Trail which begins at the lower right edge of the clearing. Three large round worked granite benches will catch your eye on your way to the trail. But you will also be rewarded if you slow down and examine the tiny plants on your way to begin the trail through the woods. Orange paint blazes on the rocks will guide you so that you do not crush the plants as you go.



Because they can withstand the stressful environment, many coastal plants are also found in tundra or on mountain tops. The small three-toothed cinquefoil with three reddish leaflets - superb fall color! - that you see growing among the rocks here is also found on the tableland of Mt. Katahdin and as far north as Greenland.

In 1922 McGuire brothers purchased Crotch Island and later this quarry. Three large granite benches commemorate the three brothers of the **McGuire family** who ran the quarrying operations here, Francis, (known as Nick), Robert, and Thomas. Their sister Mary was a much respected figure in the community, living more than a hundred years. Look for granite from Stonington in the Manhattan Bridge piers, Triboro bridge, George Washington Bridge and “Deer Isle Pink” in Grand Central Terminal and the Rockefeller Center skating rink, as well as the Museum of Fine Arts in Boston and Bancroft Hall at the US Naval Academy. Some granite from here and Crotch Island is incorporated in the Arlington National Cemetery grave of John F. Kennedy.



Follow orange blazes of the **Glacial Erratic** Trail looping from the alcove and granite McGuire benches back to the parking area. Vistas of the Camden Hills, a huge boulder left by the retreating glaciers, and in the appropriate season, the sight of **ospreys** fishing in Webb Cove will be your reward.

Where you catch glimpses of the Camden hills profile, you can read the shaping by the glaciers on a landscape scale. Just as the asymmetric shape of this quarry hill with its gently sloping north side and steeper south side is characteristic of a glaciated landscape, so too the profile of the Camden hills has been shaped by glacier ice. As the thick ice sheet moved south, north

slopes were worn by abrasion. On the southern rock faces rock fragments were plucked or quarried out and carried away as the glacier moved on, leaving a steeper slope.

These ice sheets carried large boulders such as this for miles from where they originated. When the ice melted, these glacial erratics were left stranded as interesting features of the landscape.

According to Bruce Bourque of the Maine State Museum, until about 18,000 years ago, Deer Isle was covered with a mile of ice. At the ice retreated, the land was colonized by species of lichens, mosses, grasses and sedges which comprise the arctic tundra today. By 11,000 years ago the vegetation consisted of a mosaic of tundra, shrubby areas of willow and alder, and a woodland of birch, poplar, and spruce. This post-glacial environment was also home to large mammals such as the mammoth, mastodon, musk-ox, bison, and caribou, all of which for a variety reasons are now gone. Not the least of the causes was the hand of man.

Fox scat and red squirrel middens are signs left by the small mammal occupants of our era. In fact, what we point out as a glacial erratic, the red squirrel evidently considers a fine place to dine with a good view all around.



Plant species that had been relegated to the southern boundaries of the ice sheets gradually made their way back north as the ice melted. The climate change of today may once again change the range of our plants and animals.

Along this trail you may find woodland wildflowers such as Mountain cranberry, below. *Dryopteris* ferns and all the common mosses that you will recognize if you have already made your way to Crockett Cove Woods and Barred Island. See the *Species Almanac* for these six:

Haircap, Shreber's Red Feather, Pincushion, Broom, *Dicranella*, Sphagnum, and the liverwort, Three-toothed *Bazannia*.



Again and again around our Island preserves, you will have met both White Spruce and Red as well as Balsam Fir. Here on this hillside the mature White Spruces show the pattern of branches all around that indicate that they grew up in full sun. Closer to the old quarry truck road by which you walked to the quarry, the trees are mostly young Red spruce. Just before the Glacial Erratic Trail rejoins the old quarry truck road is a fine place to learn to recognize the characteristic of the bark of these three species.

Balsam fir trunks are characterized by a rather smooth and blistered appearance:



The bark of mature White Spruces tends to have a very shaggy look:



The bark of Red Spruce, which seems more common on the interior of the Island, looks rather less shaggy, with bark flakes that are somewhat smaller and flatter:



Obviously you cannot judge a spruce bark by its color; not only can White spruce look more reddish than Red spruce, and both species can be very colored by lichen growths etc.

Learning to read the face of the natural landscape certainly enriches the experience of an outing. The term “natural history” is most appropriate when we can combine knowledge of the local flora and fauna with precious information from gems like our local historical society. This old photograph (below) both shows that land was cleared then and helps you understand better how the pole heads guyed atop their masts with slanting booms were set up.



In the winter of 1917-18 Settlement Quarry workers walked home to their Stonington lodgings across the ice of Webb's Cove. Note on the right the masts of the vessel waiting to be loaded with granite.

We hope you have enjoyed your outing. Maps for all IHT preserves are available at the Island Heritage Trust Office in Heritage House in Sunset.

If you want the story of the Deer Isle granite in finer grain, see a full report, *Local Geology* by Henry N. Berry IV, Maine Geological Survey, Augusta, Maine, 1997. For a selection of geology books and pamphlets including R. LeB. Hooke's Deer Isle Geology booklet, visit the Island Heritage Trust headquarters in Sunset.



ISLAND HERITAGE TRUST

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