

Maine Geologic Facts and Localities
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Granite Quarrying in Maine



Text by
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Introduction

The quarrying of granite in Maine has been a commercial undertaking since the early 1800's. Prior to the opening of commercial quarries, granite was used primarily for building foundations, road, bridge and pier construction. Although quarrying peaked in Maine around 1901, activity in Maine's granite quarries continues to this day. At the height of the industry, granite was used as a building stone in locations all over the eastern United States (see Lepage and others, 1991). Today, what remains of the business is mostly involved in the building trades, kitchen design, and landscaping.

The primary location of the granite industry along the Maine coast aided in the transportation of this bulky product. One hundred and seventy granite quarries were listed in *Maine Granite Quarries and Prospects* (Rand, 1958) and the quarries are located from Calais to Jay and Kennebunk. Cut granite from quarries in Hallowell was used between 1829 and 1831 in the construction of the original Maine State Capitol building, designed by Charles Bulfinch.



Granite

Oxen were used to haul the granite blocks on galamanders (Figure 1) from the Hallowell quarries to the Weston Hill site of the new Capital overlooking the Kennebec River. Notable buildings all over the United States were built with Maine granite from the mid-1800's to 1910 as Maine led the country in the mining of granite. Many public buildings such as libraries, churches, custom houses, post offices, and museums were built of Maine granite. One of the most famous is the Church of Saint John the Divine in New York City, with its huge sanctuary columns made from Vinalhaven granite.



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Figure 1. Granite hauling wagon called a galamander.



What is Granite?

Granite is a light-colored igneous rock made up of fine- and coarse-grained crystals of quartz and feldspar (Figure 2). Often dark crystals of mica or hornblende are mixed in the rock giving it a salt and pepper look. The color of granite, often important in its value as a building stone, is mostly determined by the color of the feldspar. Feldspar can be white, salmon, tan, or pink. The quartz crystals in granite are generally clear, milky or smoky in color (see Ludman and Coch, 1982).

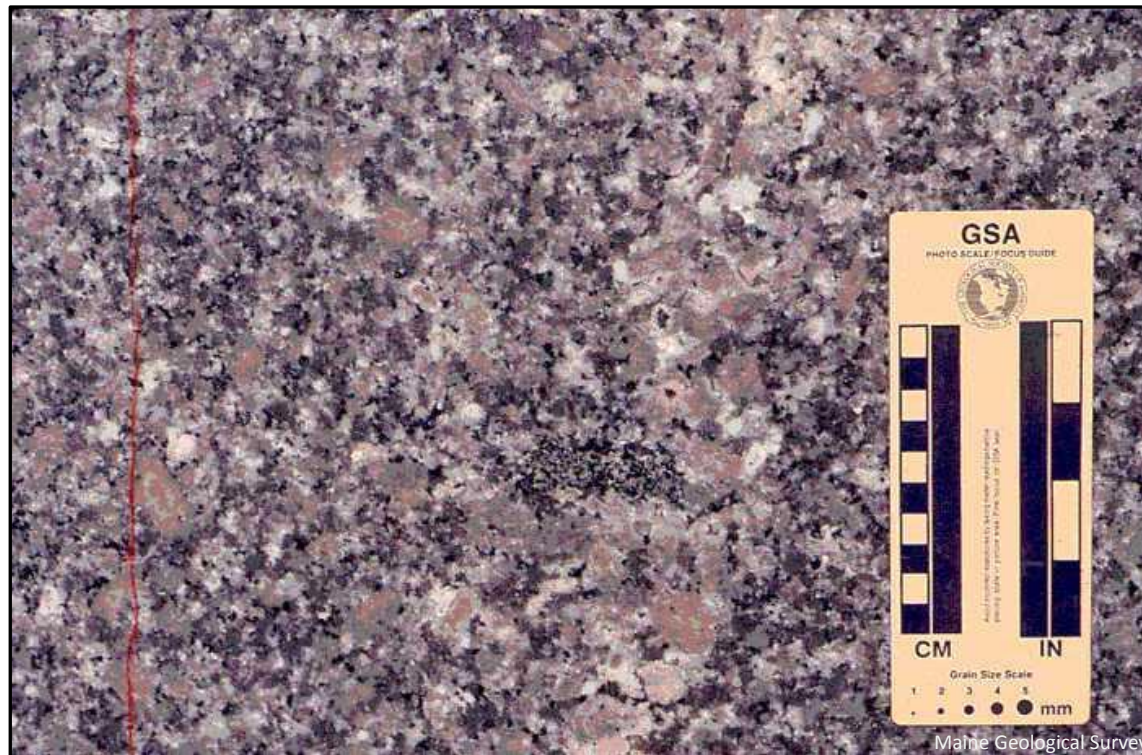


Photo by Robert Johnston

Figure 2. Close up of a granite.



Granite in Maine

Granite forms as molten rock (called magma) deep within the earth. When magma solidifies within the earth the resulting rocks are called intrusive or plutonic rocks. The grain size of the granite is determined by how fast or slow the molten rock solidifies. Fast-cooling magma forms small crystals, while slow-cooling magma forms large crystals. The erosion and uplift of the overlying rock exposes these plutonic rocks to the atmosphere.

The emplacement of many of the granite plutons in Maine took place hundreds of millions of years ago during the Silurian and Early Devonian time periods (440-390 million years ago) (see Osberg and others, 1985). Collisions of the plates that make up the crust of the Earth are ultimately responsible for generating the molten magma that cooled within the crust to form granite. Subsequent erosion exposed the granitic rocks at the surface of the earth.

C. T. Jackson published the first geologic survey of the state of Maine in 1837. He inventoried Maine's economic deposits, including some of Maine's granite quarries, and concluded that Maine would be able to support an active mining industry. The granite industry was already firmly established in the Penobscot Bay, eastern Washington County, Hallowell, Biddeford, and Blue Hill areas when Jackson published his report. By the late 1800's the industry was thriving along mid-coast Maine and on some of the offshore islands. Vinalhaven was a center of quarrying activity. Skilled laborers emigrated to the United States from Europe to work in the quarries.



Mining History

T. Nelson Dale of the U. S. Geological Survey published *The Granites of Maine* in 1907, inventorying most of the operating quarries and providing a detailed description of Maine's granite. The Tayntor Quarry in Hallowell (Figure 3) was studied and details are listed in the Dale report. The introduction of reinforced concrete spelled the doom of Maine's granite industry in the early 1900's. The introduction of union labor was also cited as one of the causes of the decline of the industry. Business costs could not keep up with locally quarried stone and the newly introduced reinforced concrete. Today only a handful of quarries operate in Maine. These mines mostly work to supply stone to the housing market for countertops and landscaping purposes. Maine granite is still used in the building trades for facade.

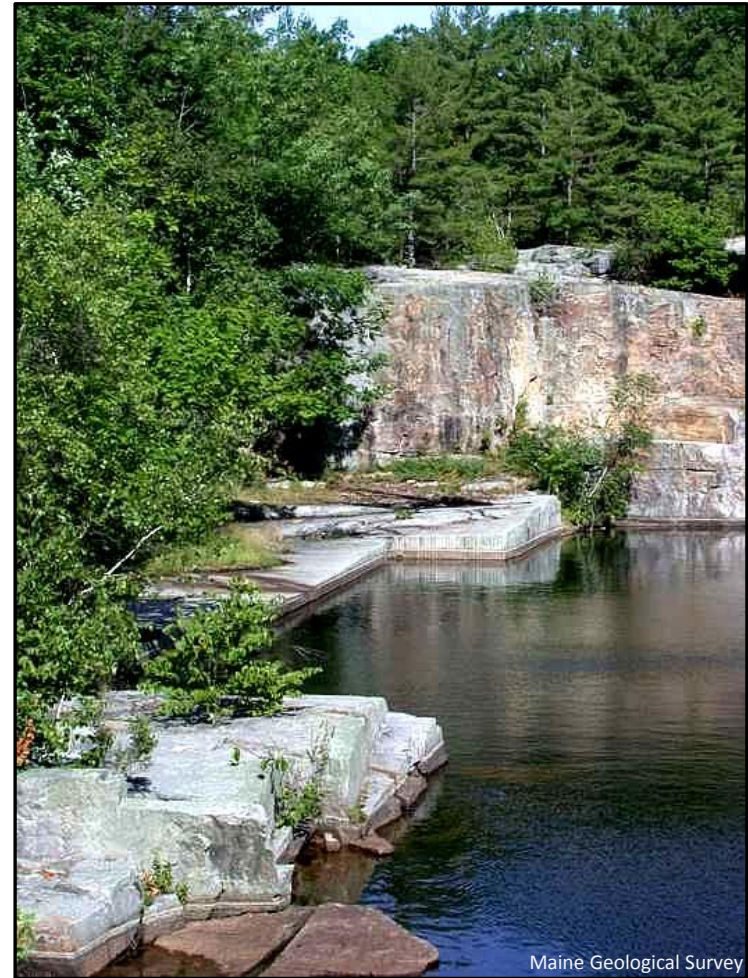


Figure 3. Tayntor Quarry, Hallowell, ME.



Quarry Methods

Granite was quarried using steam drills, wedges and hammers. Steam drills (modern quarries use jet drills) drilled holes along the hard edge of the granite, perpendicular to the grain of the rock (Figure 4).

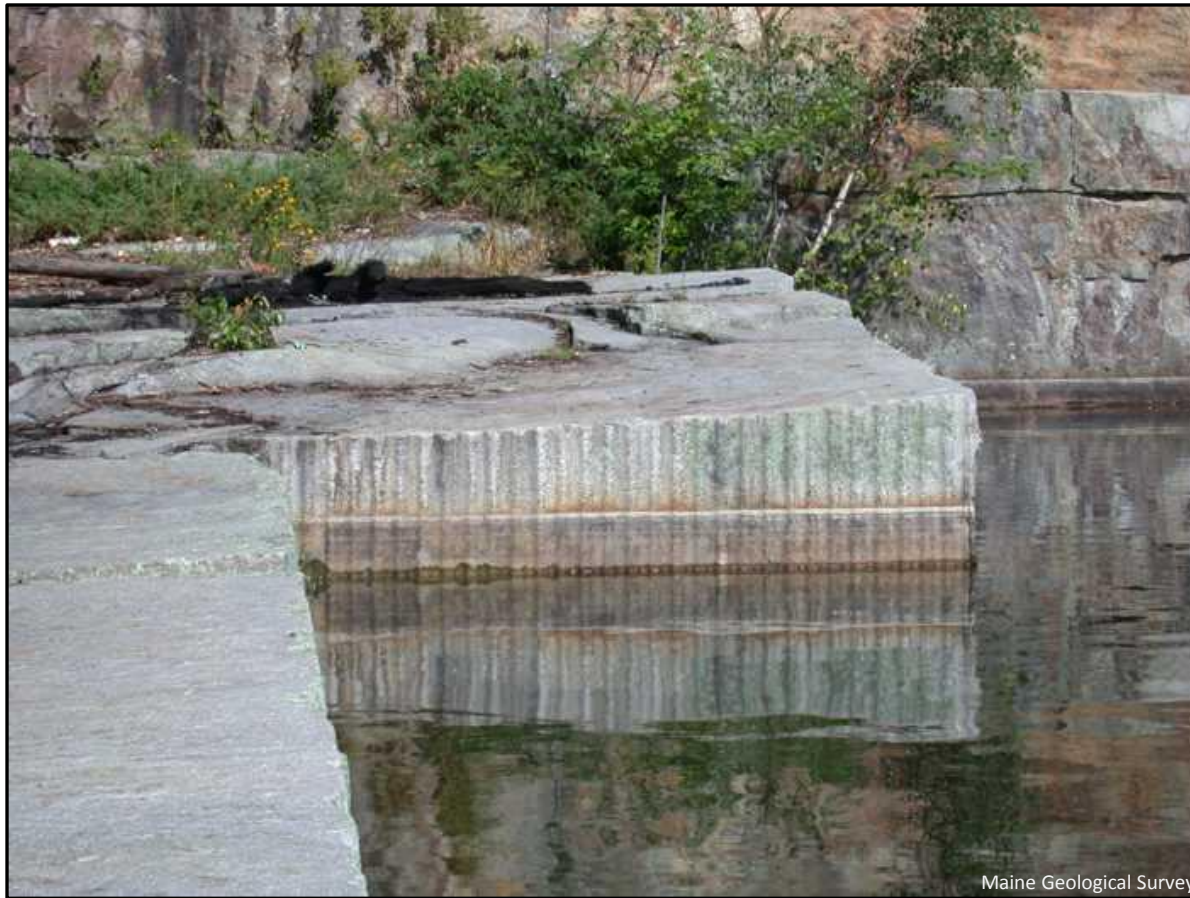


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Figure 4. Tayntor Quarry, Hallowell. Looking along grain at steam drill holes.



Quarry Methods

Along the grain of the rock (easy direction of splitting) wedges with feathers were used to easily break off the slabs (Figure 5).



Figure 5. Wedges and feathers in grain of granite from Tayntor Quarry, Hallowell.

Quarry Methods

Derricks (Figure 6) were used to move the blocks up out of the quarry onto horse drawn wagons called galamanders (Figure 1). Modern quarries use power equipment to handle many of the tasks.



Figure 6. Derrick, Edison Drive, Augusta, Maine.

References and Additional Information

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