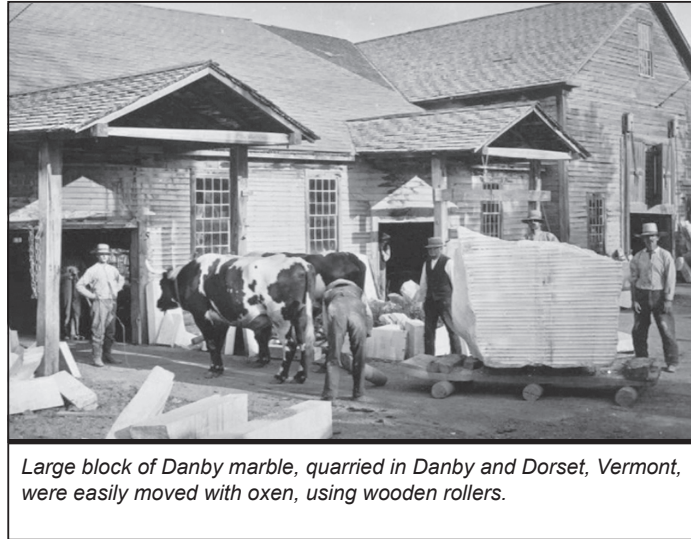


Marble

Background

Marble is found under the landscape along Vermont's western border. It is formed by the transformation of limestone under great heat and pressure. About 400 million years ago, a saltwater sea covered western Vermont. The shells and skeletons of sea animals lay down a layer of calcium carbonate that would be converted to the sedimentary rock known as limestone. Later the limestone was subjected to great heat and pressure by the folding of the Earth's crust. This heat and pressure recrystallized the limestone, transforming it into marble. Marble's color, workability, and durability make it popular for use in architecture and sculpture.



Large block of Danby marble, quarried in Danby and Dorset, Vermont, were easily moved with oxen, using wooden rollers.

Vermont Marble Museum

Marble has played a significant role in our state's economic, cultural, and political history. The first marble quarry in Vermont opened in Middlebury in 1804, but by the 1830s, Rutland was the center of Vermont's marble industry. In the years after the Civil War, Rutland County led the nation in marble production.

By the 1880s, Redfield Proctor had bought a number of smaller marble companies and controlled 55% of the nation's marble production. In 1890, the Vermont Marble Company employed 1800 workers. Proctor used his power and money to launch a career in politics. He served as Vermont governor (1878-1880) and as US secretary of war under President Benjamin Harrison. Proctor also represented Vermont in the United States Senate from 1891-1908. The town of Proctor, where marble is still quarried, bears his name.

Like Barre, Proctor depended upon the work of thousands of immigrants, including children, who worked in the quarries alongside adults. Labor relations in Proctor remained mostly peaceful—with one notable exception. In 1934, low wages and high charges for electricity, water, housing, and other necessities provided by Vermont Marble had caused quarry workers to establish unions. Vermont Marble had refused to recognize the unions, thus disobeying federal labor law, but this violation was not prosecuted. In November, 1935, the workers struck. Sheriff's deputies brought in by the Proctors provided security for strikebreakers, and they violently attacked strikers.

In May, 1936, Vermont Marble began evicting workers from company-owned homes. The workers agreed to return to work in July, after failing to gain union recognition and getting a 2.5 cent per hour wage that left their rate as much as 50 percent lower than that of granite workers in Barre.

In recent decades, the marble industry in Vermont has experienced a dramatic decline. Vermont Marble closed its operations in Proctor in the 1990s. Quarries there are still operated by Omya, which uses ground marble in the manufacturer of calcium carbonate, used in everything from papers and plastics to toothpaste.

Conflicts have arisen within the community regarding disposal of manufacturing waste by Omya. Proctor is also home to the Vermont Marble Museum.

About This Segment

In this segment, filmmakers Dina Janis & Sue Rees takes a closer look at the Vermont marble industry. Interviews with workers in Proctor, once the center of the industry, and with a geologist, explain how marble is made and how it is quarried. Commentary from an architect explains the reasons why marble is attractive to sculptors and builders. And a descendant of a Proctor marble worker discusses labor conditions and the role played by immigrants in the marble industry in Proctor.

Note to Teachers: In this segment, Red Stowkowski, who is of Polish descent, uses the word "Polak" to describe Polish immigrants who worked in Proctor's marble quarries. While in this case the use of the word "Polak" is relatively inoffensive, you may wish to discuss the use of such slurs, and the very negative and harmful effects they can have on people's lives. You may also wish to explain that, while use of such words was common in the past, it is less common today, and would be considered disrespectful. Today, Americans of Polish descent prefer to be referred to as "Polish Americans," "Americans," or simply "people."

Before Viewing

- What is marble, and how is it formed?
- For what uses do people quarry marble?
- Where in Vermont are marble deposits located?

Vocabulary

quarry: a place from which stone is extracted

company store: a store owned by a company at which the company's workers were forced to shop. Often, workers got credit at the company store, and had to pay it off with their labor. Since the prices at a company store were often higher than at stores not owned by the company, many workers found themselves constantly in debt to the store.

union: an organization of laborers that works for better pay and working conditions for its members

After Viewing

- How did the marble industry impact life in Vermont?
- Who were the Proctors? What did they contribute to Vermont life?
- How does the Vermont marble industry of today compare to that of 100 years ago?
- What role did immigrants play in the marble industry in Proctor?



A poster by artist Rockwell Kent protesting the eviction of marble workers and their families from company-owned housing during a 1935-36 strike in Proctor, VT. The caption, "In the Name of the Great Jehovah and the Continental Congress," is a quote from Ethan Allen, when his Green Mountain Boys evicted British troops from Fort Ticonderoga in 1775.

Grades 4-5

Art Gallery Some of the most famous sculptures and monuments in the world are made of marble. Do research to find photographs of some of these works. Arrange images of them, including your own drawings, to create a classroom marble gallery. For each work, include a description that names the artist or architect, the date the work was created, and the source of the marble from which it was made.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (3-4:1; 5-6:1); Design research (3-4:3; 5-6:3); Conduct research (3-4:4; 5-6:4); Communicate findings (3-4:7; 5-6:7)

Granite or Marble? Imagine you work as a stone carver. A client has asked you to create a sculpture that will be placed in an outdoor setting in Vermont. The client is unsure of whether to use marble or granite for the sculpture. Create a report for your client that shows the advantages and disadvantages of each stone. Your report should tell how much each stone would cost, how hard each is to carve, the different colors available for each stone, and how long each stone might last in an outdoor environment.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (3-4:1; 5-6:1); Develop a hypothesis (3-4:2; 5-6:2); Design research (3-4:3; 5-6:3); Conduct research (3-4:4; 5-6:4); Communicate findings (3-4:7; 5-6:7); Make economic decisions (3-4:20; 5-6:20)

Grades 6-8

Science The creation of marble is a two-step process. Calcium carbonate from animal shells and skeletons settles in layers on a seabed. Over time, the calcium carbonate forms limestone, a sedimentary rock. Pushed underground and subjected to pressure, the rock changes. It becomes marble. Do research to find out more about the marble and the natural forces that create it. Using clay or another modeling material, make a model that shows the process by which marble is formed. Show your model and give a short talk about it to your class.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (5-6:1; 7-8:1); Design research (5-6:3; 7-8:3); Conduct research (5-6:4; 7-8:4); Communicate findings (5-6:7; 7-8:7)

Ancient History The marble quarried in Proctor, Vermont took about 400 million years to form. This means it began to form during the Devonian Period. Do research to find out what was happening on Earth during this period. What animals provided the calcium that was used to create marble? What plants lived on Earth? How was Vermont's climate and geography then different from that of today? Show your findings in the form of an illustrated poster.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (5-6:1; 7-8:1); Design research (5-6:3; 7-8:3); Conduct research (5-6:4; 7-8:4); Communicate findings (5-6:7; 7-8:7)

Talk to a Sculptor Contact a sculptor who works with marble. Using a digital audio recorder, do a brief interview with the artist. Invite the artists to explain why marble makes a good choice for sculpting, how marble compares to working with other stones, and what the challenges of working with marble are. Ask him or her to talk a bit about the economics of being a sculptor, and the kind of economic decisions a sculptor has to make in order to pursue this type of work. Edit the interview into a podcast, and share the podcast online.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (5-6:1; 7-8:1); Design research (5-6:3; 5-6:3); Conduct research (5-6:4; 7-8:4); Communicate findings (5-6:7; 7-8:7); Interaction/interdependence between humans, environment, and economy (5-6:18; 7-8:18)

Grades 9-12

A Quarry Worker's Life What was life like for the immigrants in Proctor? The Vermont Marble Company provided many services for its workers, but pay was low and the company controlled many aspects of the workers lives, such as where they lived and where they could shop. Do research to find out about the benefits and services Vermont Marble provided for its workers, the hardships of working for a company that exercised a great deal of control over its employees lives, and how work for Vermont Marble compared to work for similar companies during this period. Be sure to include information about the children who worked in the quarries. Gather any supporting images you can. Share your findings in the form of a PowerPoint or slide show.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (9-10:1; 11-12:1); Design research (9-10:3; 11-12:3); Conduct research (9-10:4; 11-12:4); Develop reasonable explanations that support research (9-10:5; 11-12:5); Communicate findings (9-10:7; 11-12:7); Interaction/interdependence between humans, the environment, and the economy (9-10:18; 11-12:18)

Try Your Hand at Carving Sculptors use a number of different tools to carve, shape, and polish marble. Work with your art teacher to try out these tools. Start by obtaining a small piece of marble, and ask your art teacher to show you a few basic techniques for shaping marble. Use a simple design, and be sure to use all appropriate safety precautions. To make the most of your exploration, invite a classmate to make a video recording as you experiment with each type of tool. Edit and share your video online. In your video, be sure to explain the techniques as you work, and to share information about the challenges of working with marble.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (9-10:1; 11-12:1); Design research (9-10:3; 11-12:3); Conduct research (9-10:4; 11-12:4); Develop reasonable explanations that support research (9-10:5; 11-12:5); Communicate findings (9-10:7; 11-12:7); Interaction/interdependence between humans, the environment, and the economy (9-10:18; 11-12:18)

Marble Scavenger Hunt Explore the cemeteries and public buildings of your community to find examples of marble workers' creations. Try to find examples of marble work from different time periods. Use a digital still camera to document the different types of uses for marble, the intricacies of marble work, and the wear that works of marble show over time compared to other types of stone such as granite. Give your ideas about why marble was used in different instances, and present any support you can find for your assertions. Share your findings in the form of a classroom museum exhibit that shows uses of marble in your community.

Vermont History and Social Sciences Grade Expectations

Initiate an inquiry (9-10:1; 11-12:1); Design research (9-10:3; 11-12:3); Conduct research (9-10:4; 11-12:4); Develop reasonable explanations that support research (9-10:5; 11-12:5); Communicate findings (9-10:7; 11-12:7); Interaction interdependence between humans, the environment, and the economy (9-10:18; 11-12:18)

On the Road

The Vermont Marble Museum in Proctor, Vermont tells the story of marble from its creation deep below the earth to its extraction from Vermont's quarries and its work at the hand of skilled carvers. Visitors to the museum can take an in-depth exploration of the Earth's geology, visit the Sutherland Falls quarry, and watch as a resident sculptor demonstrates marble techniques. A new exhibit tells the story of the creation

of the Tomb of the Unknown Soldier in Washington, DC. To find out more, visit the museum's Web site at vermont-marble.com.

Career Corner: Documentary Writer

People think of documentary films as visual media, but behind the scenes of many documentary films, you'll find writers at work. Writers sometimes do research to provide necessary background information on film's topic. They also help write questions that can be used during interviews. Documentary writers also write any narration that is needed for a film. And they may be involved in other ways, too. Writers are often needed to write grant proposals that help secure film funding and publicity materials that appear in print and on a film's Web site. If you like writing and film, this could be a job for you.

RESOURCES

Links

Vermont Marble Museum: vermont-marble.com

Swedish American Heritage Online: swedesintexas.com/readingroom/rrVT.htm

Here you'll find the stories of Swedish workers who came to work in Vermont's marble quarries.