

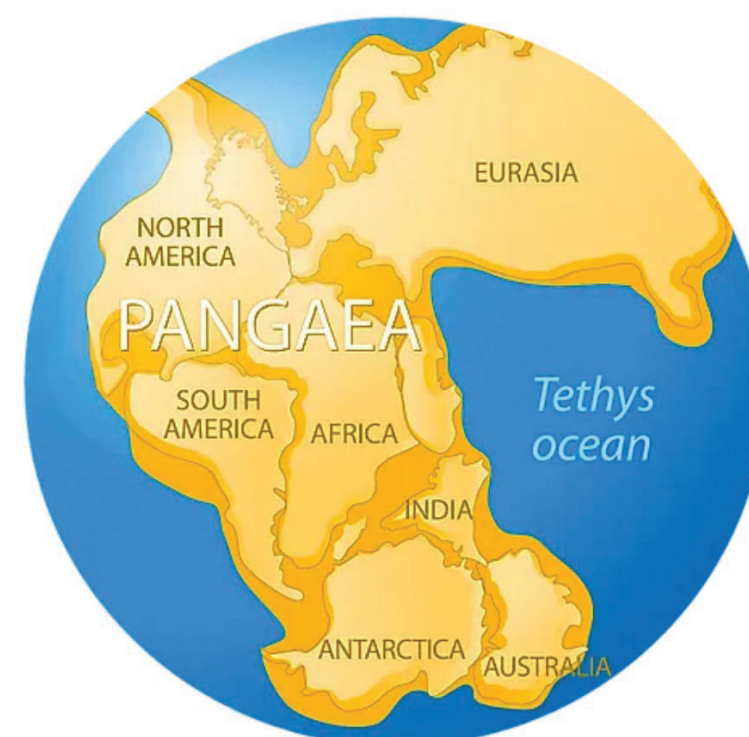
Rocks and Minerals

Did you know that Paterson is one of the richest mineralized basalt areas in the world?

Paterson is surrounded by the Watchung Mountains. These ridges were formed about 250 million years ago, with the breakup of the supercontinent Pangea. As the land masses moved and shifted, magma rose to the surface and formed walls of basalt, like those seen at the Great Falls and Garret Mountain.



The Paterson Great Falls flow over basalt. Basalt is an igneous rock, formed from cooling lava. *Paterson Museum Collection.*



BEFORE



AFTER

The supercontinent Pangea would eventually split off to form the seven continents we know today. *Image courtesy of Geology In, www.geologyin.com*

The basalt and the sandstone deposits found throughout Paterson were very important resources for the developing city. While the sandstone was used for building, the basalt was ground to gravel (also known as traprock) and used to create roads. At one time, there were several stone quarries in Paterson, including one at the Valley of the Rocks, right next to the Great Falls. The last quarry within the city limits was the Lower New Street Quarry, which closed in 1936.

Over 45 varieties of minerals are found in and around Paterson.

While the basalt may not be that pretty to look at, hidden within it are hundreds of mineral deposits. Among the most commonly found in Paterson are prehnite, stilbite, and amethyst.

Since its formation in 1925, the Paterson Museum's collection has grown to include an extensive collection of minerals. Many of the specimens were found locally and help to highlight the city's uniquely rich and diverse mineral deposits.



In its former home on Summer Street, the entire second floor of the Paterson Museum was dedicated to showcasing the mineral specimens. Until 1989, most of the Museum's curators and directors had backgrounds in geology, rather than history. *Paterson Museum Collection.*

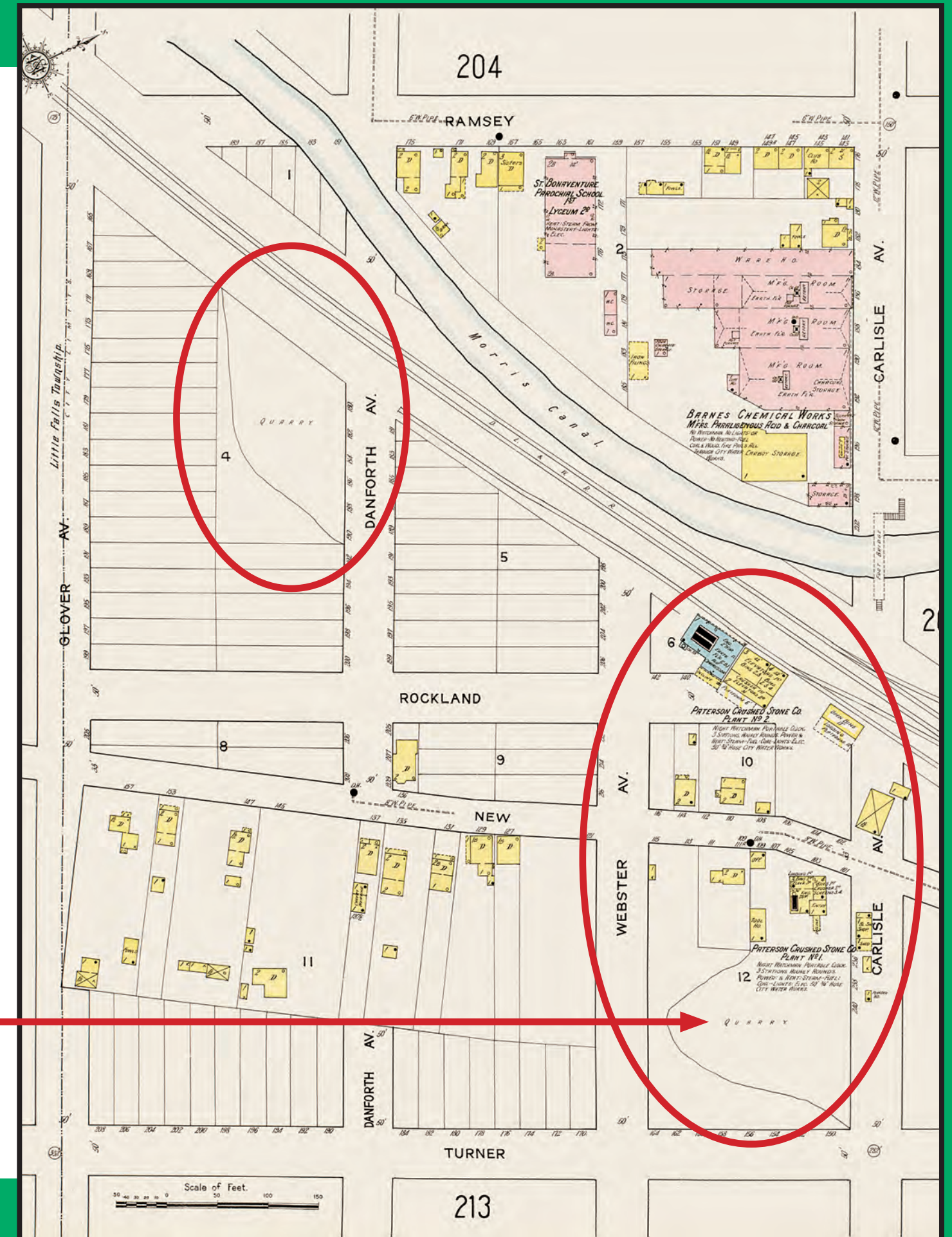
Members of the New York Mineral Club at Lower New Street Quarry, 1917. The quarries provided a great opportunity for mineral collecting and many people would visit them after hours.

Image published in The Mineralogical Record, May-June 1978.



The Lower New Street Quarry in 1915. In the early twentieth century, there were several quarries within the city limits.

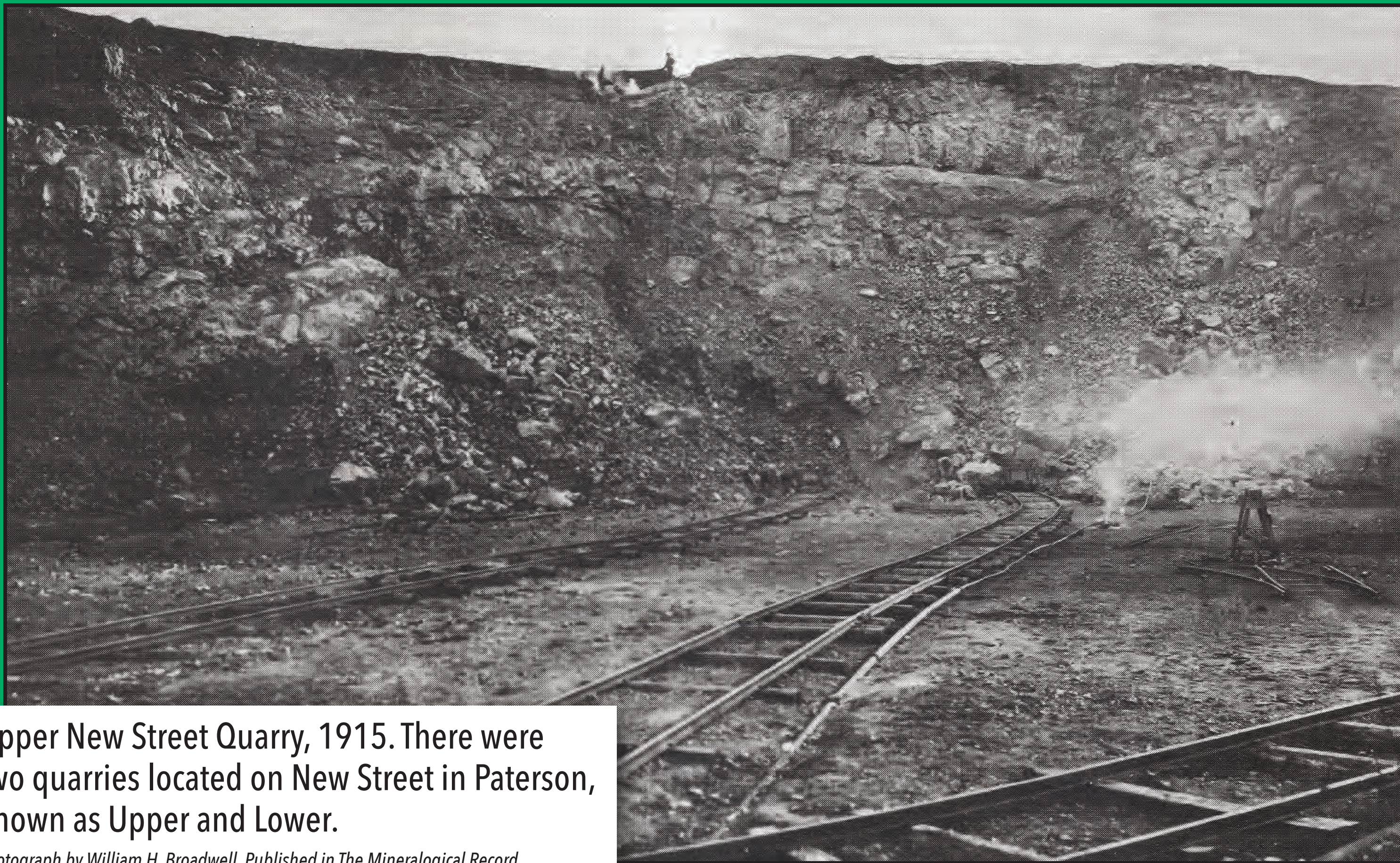
Map from Sanborn Company Atlas, 1915.





Samuel (Simon) Braen
and his team at
Valley of the Rocks,
1908.

Courtesy of Braen Stone.



Upper New Street Quarry, 1915. There were two quarries located on New Street in Paterson, known as Upper and Lower.

Photograph by William H. Broadwell. Published in The Mineralogical Record, May-June 1978.

Warren Brothers Quarry in Prospect Park, 1968.
Many quarries in the townships surrounding
the city remained open decades after those
within Paterson had closed.

*Photograph by Lubov Drashevskaya. Published in The Mineralogical Record,
May-June 1978.*





Looking at the quarry
at Valley of the Rocks
from the opposite bank.
The roller coaster at
Passaic Falls Amusement
Park can be seen in the
background, 1912.

Courtesy of Braen Stone.

JUNE 22 1912



Along the Quarries, Paterson, N. J.

Thursday, Feb 8th 1906, C

* Post Card *

PLACE
POSTAGE
STAMP HERE.
—
DOMESTIC,
ONE CENT.
FOREIGN,
TWO CENTS.

A postcard view of the quarries located in the area surrounding the Great Falls. The basalt along the river was a great source of gravel. As the city expanded, more roads were needed and the demand for gravel grew.

Courtesy of Braen Stone.



Paterson, N. J.

Monument Belights

POST CARD

Place
Stamp Here
Domestic
One cent
Foreign
Two cents

A postcard view, looking
at the quarry activity at
Valley of the Rocks.

Leavy Collection, Paterson Museum.

11003 Tynan's, Paterson, N. J. (Germany).



McKiernan & Bergin Quarry, 1915. This quarry processed both traprock (gravel) and sandstone.

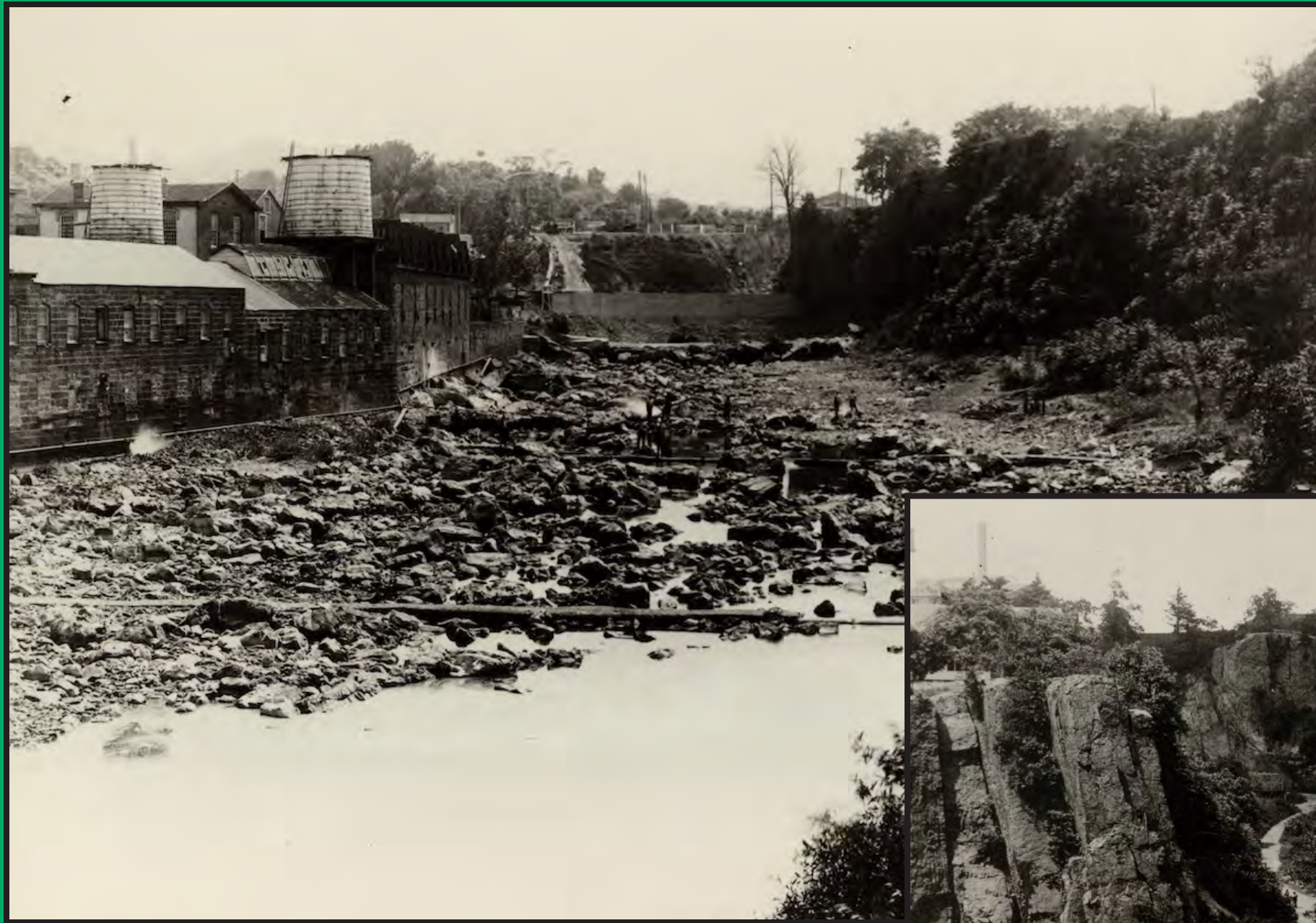
Photograph by William H. Broadwell.

Published in The Mineralogical Record, May-June 1978.



Looking downstream at the riverbed of the Passaic. This picture reveals the extent of the quarrying activity that occurred at Mount Morris, directly across the river from the Great Falls (today's Overlook Park.)

Paterson Museum Collection.



Looking upstream toward
Spruce Street, July 31, 1911.

Paterson Museum Collection.

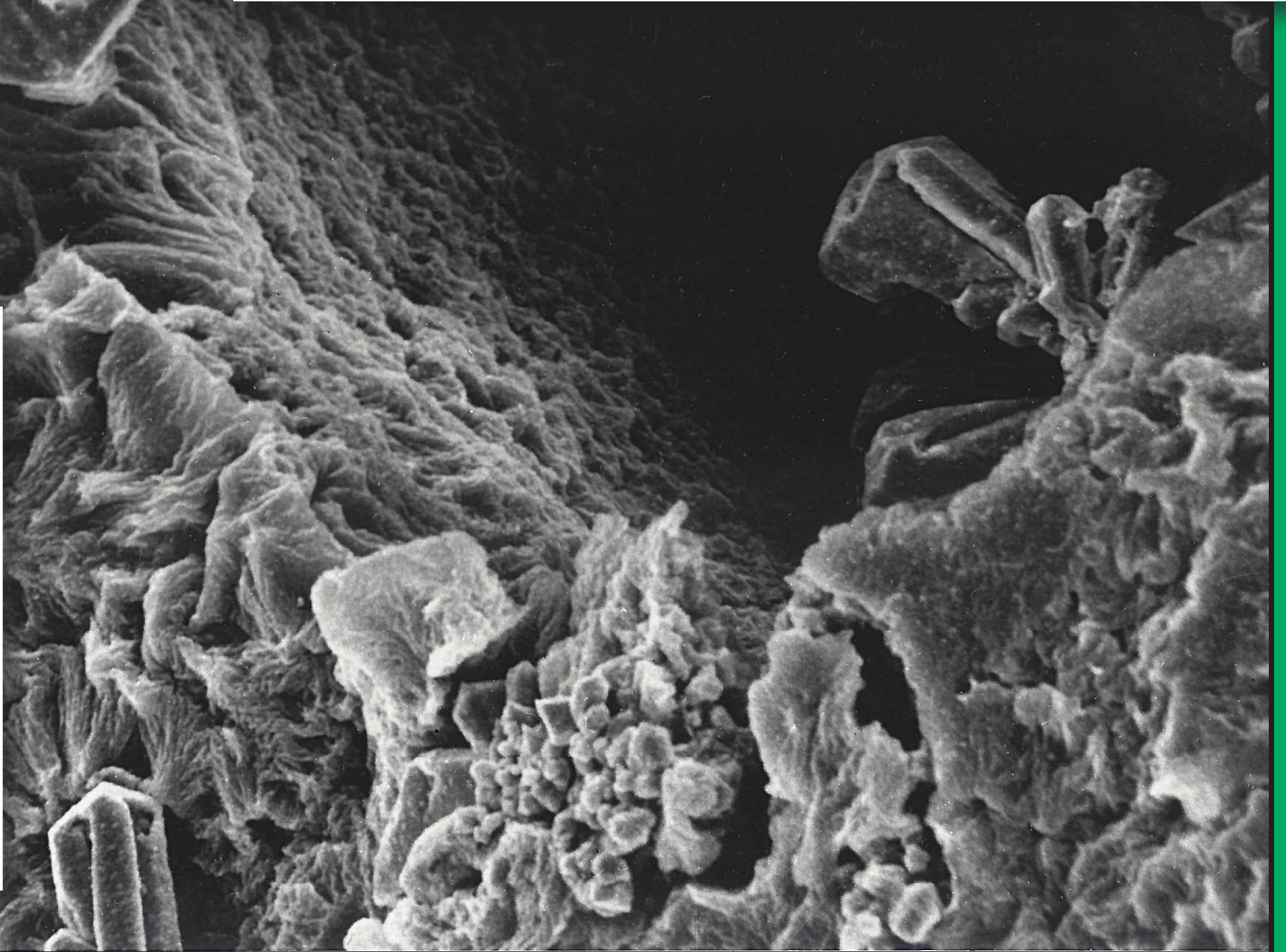
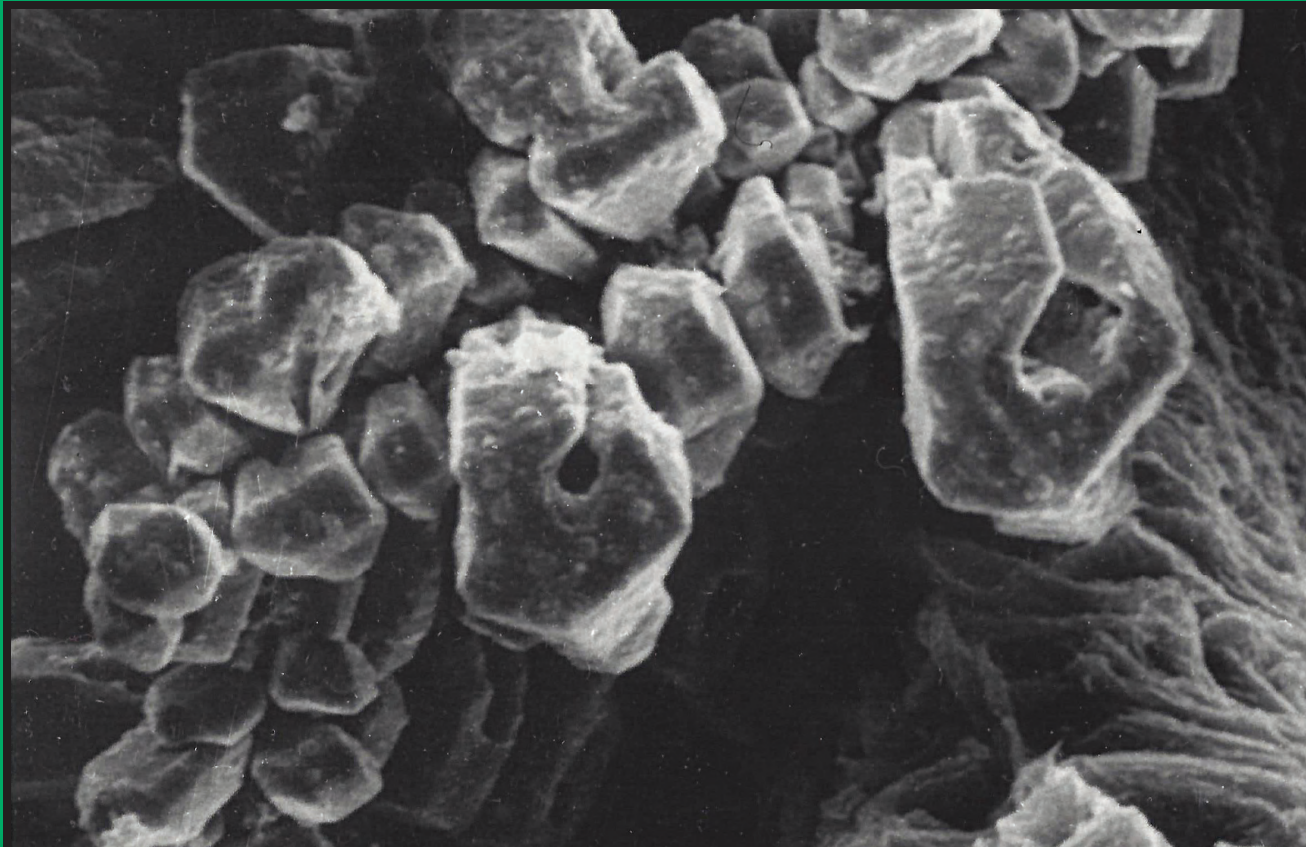


Looking downstream from the Great Falls
(just out of view on the left), July 31, 1911.
The quarry road at the Valley of the Rocks
is very clear in this photograph.

Paterson Museum Collection.

Close-up view of a mineral, using a scanning electron microscope (SEM). This method of viewing mineralogical specimens not only provides high-resolution images, it also allows for a deeper study of the minerals scanned.

Paterson Museum Collection.



Student using an SEM at Bowling Green State University. Courtesy of www.bgsu.edu



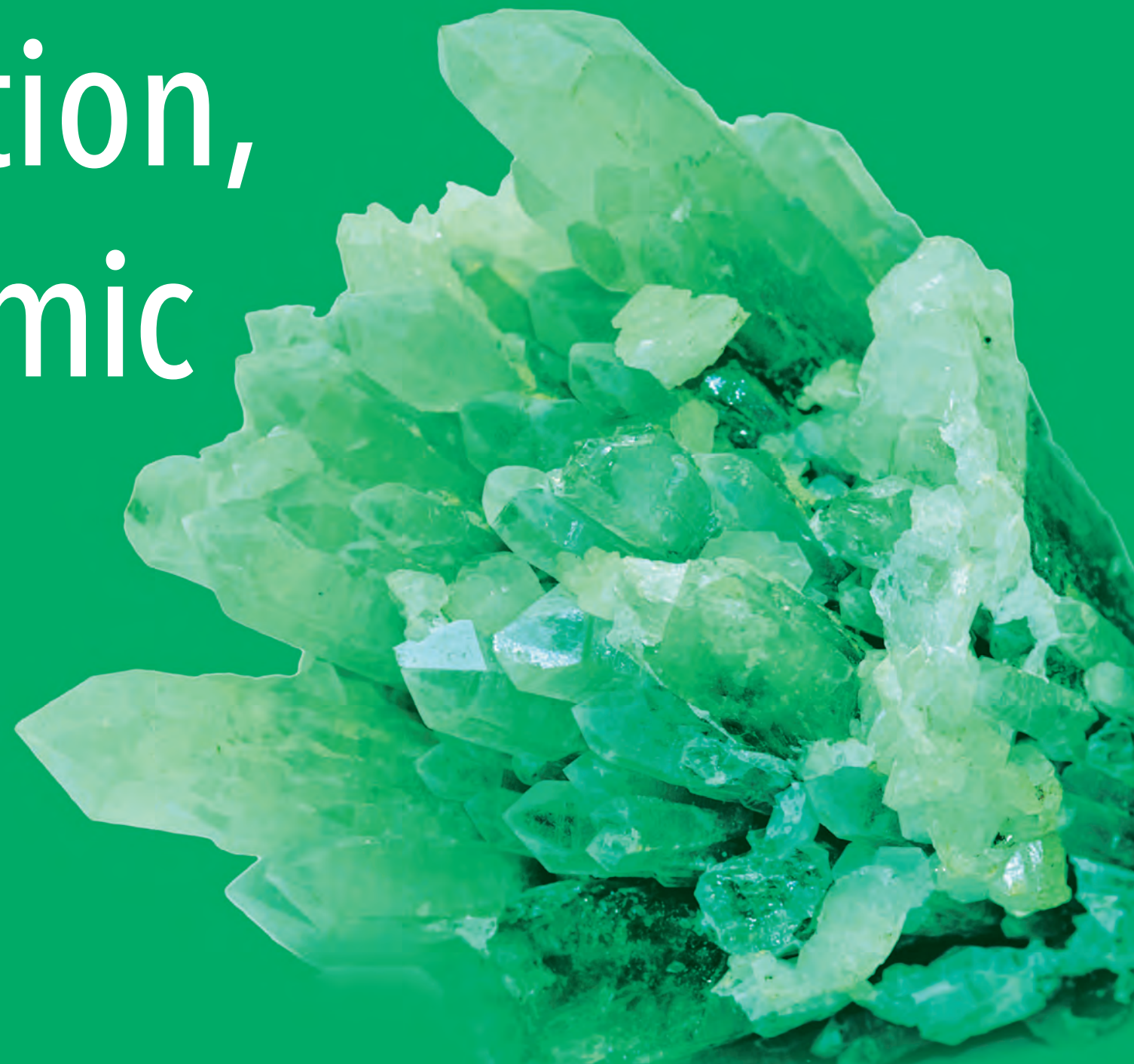
Pune (formerly Poona) in the Maharashtra state of India is Paterson's geological sister city. The basalt in this region produces many of the same minerals found here in Paterson. However, Paterson's minerals are older, having formed a hundred million years before those found in Pune's quarries.

Map courtesy of Geology.com.

Image of Vetal Hill quarries in Pune, courtesy of punetourism.co.in



MINERAL – a naturally occurring inorganic solid, with a definite chemical composition, and an ordered atomic arrangement.

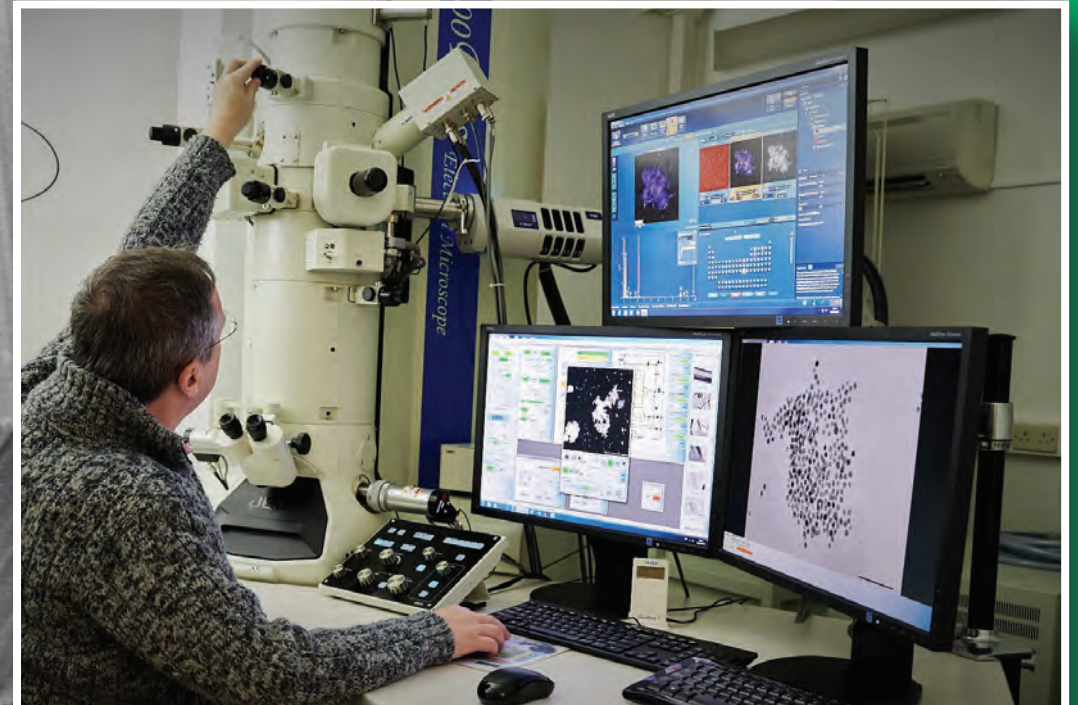
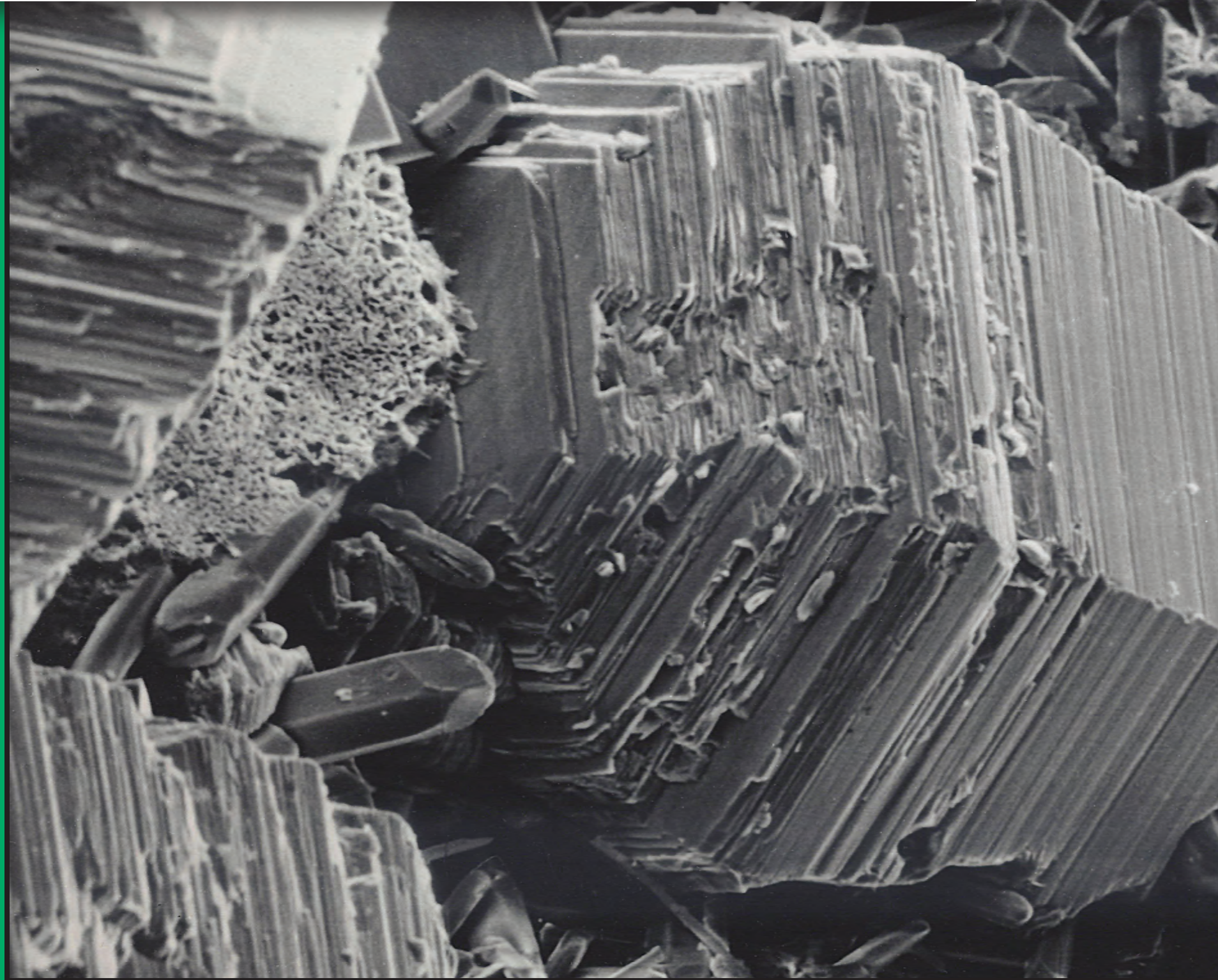


ROCK – a natural substance composed of solid crystals of different minerals that have been fused together into a solid lump.



Close-up view of a mineral, using a scanning electron microscope (SEM). These microscopes allow us to study a surface by scanning it with a beam of electrons.

Paterson Museum Collection.



Scientist making adjustments to an SEM at the University of Bath. Courtesy of www.bath.ac.uk

FOSSIL – the preserved remains of life that existed long ago. Bones, wood, shells, footprints and even poop can become a fossil.



MICROMOUNT – a crystal or crystals that need to be magnified to be viewed. Many micromount specimens are more perfectly formed than larger crystals.

