

Boston rocks

A history of the earth in 13 landmarks

A CITY'S BUILDINGS tell more than the story of its people — they are the story of the earth itself. Over Boston's 350-year history, its streets have become home to a collection of stone equal to any museum, from elegant marble to gaudy granite to humble brownstone. What follows is a tour of the earth's history, as inscribed in the blocks and panels that make up buildings around Boston.

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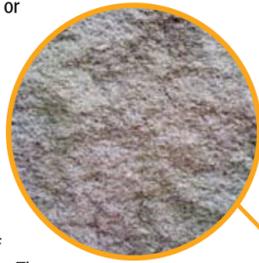
1 100 Cambridge St., Government Center

When you see the walls here clad in swirly pink and black, a stone that looks as if it is motion, you're looking almost impossibly far back in time. This is the Morton Gneiss, 3.5 billion years old, the oldest commonly used building stone in the world. We wouldn't recognize the Earth it came from — a planet home to only the simplest of life forms, little or no water, and an inhospitable atmosphere.



3 Trinity Church, Copley Square

The church's dramatic two-colored exterior comes from the contrast of two stones used throughout the city. The lighter is a 610-million-year-old granite from Dedham — it also makes up Plymouth Rock — that formed the core of a volcanic arc that once collided with North America. The dark brown sandstone comes from quarries in Longmeadow; its color comes from iron that has oxidized, or rusted in the rock.



4 "New" Old South Church, Copley Square

Nothing exemplifies Boston's geology better than puddingstone, also known as the Roxbury conglomerate. Found only in and around the Hub, puddingstone formed around 550 million years ago by streams washing pebbles and cobbles into a matrix of sand and silt. Other good sites to see the blue-gray stone include Roxbury, Brighton, and the Boston College campus.



6 Morse Auditorium, Boston University

The ivy cloaking this Byzantine-inspired structure — originally built in 1907 as Temple Israel — hides off-white marble quarried in Dorset, Vt. A half-billion years ago, this was a limestone, but was transformed under immense pressure and temperature when an island arc, much like Japan, collided with North America.



8 Massachusetts General Hospital

The 19th-century Bulfinch Building at the heart of the MGH complex is one of the earlier Boston buildings made primarily of granite. Its massive stones were shipped down the Middlesex Canal from Chelmsford, and chiseled into blocks by convicts at the Charlestown prison. Bulfinch also used Chelmsford granite for Harvard's University Hall. One of the younger granites of New England, the Chelmsford is only 390 million years old.



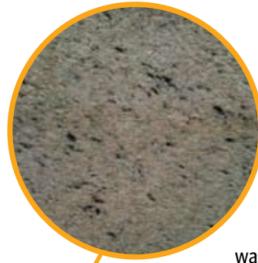
10 Townhouses, Beacon Hill

The brown stone that gives these buildings their names was quarried at Portland, Conn. Popular as a building stone in the Northeast from the 1860s to the 1890s, brownstone was easy to transport, relatively cheap, and masked the soot produced by gas and coal. The stone was deposited 200 million years ago by streams into a valley formed during the breakup of the supercontinent Pangaea. Dinosaurs roamed the same valley and left tracks, many of which can be seen — frozen in brownstone — at the Amherst College Museum of Natural History.



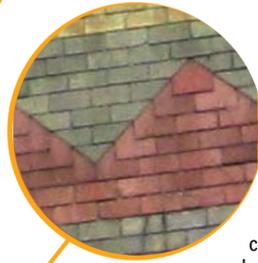
12 Cathedral Church of St. Paul, Downtown

In 1820, this became the first local building to extensively use nonlocal rock. The simple structure's sandstone columns came from Aquia Creek in Virginia, out of the same quarries that provided stone for the US Capitol. The Aquia sands began as a delta deposit about 100 million years ago. Unfortunately the stone has many flaws and weathers poorly.



2 Boston Public Library, Copley Square

Both the original and modern buildings of the Main Library are covered in Milford granite, a 610-million-year-old stone that looks like Ben & Jerry's Chunky Monkey ice cream. During its heyday as a building stone a century ago, it was used widely in Washington, D.C. Look at the back of a \$10 bill; the columns on the US Treasury building are made from the stone dubbed Milford pink.



5 Memorial Hall, Harvard University

The three different roof slates have similar origins but different life stories. They formed between 550 and 400 million years ago in the quiet water of an ocean off the east coast of the North American continent. An oxygen-rich environment produced the red slate; an oxygen-poor environment produced slate colored green — or, if there was abundant organic material, black.



7 King's Chapel, Downtown

This is Boston's oldest extant granite church, completed in 1754. The stone's dark color resulted from a dry magma that solidified at a high temperature when it formed 450 million years ago. The granite here wasn't quarried — it was gathered from boulders scattered on the ground in Braintree, a mile or so south of what later became the famous Quincy quarries. Masons split the stone by building a fire on top of boulders, which weakened the rock; the men then dropped iron balls, called beetles, to crack the boulders into rough blocks.



9 Algonquin Club, Back Bay

These white building blocks are Salem Limestone, the most commonly used building stone in America. Numerous invertebrate fossils, mostly broken but some recognizable, make up the stone. Despite the name, it comes from quarries around Bloomington, Ind., and formed 330 million years ago when a shallow sea covered most of what we now call the Midwest.



11 Hauser Hall, Harvard University

Built in 1994, the brick and stone Harvard structure is clad in a 175-million-year old German limestone loaded with fossils. The most spectacular are ammonites, extinct relatives of squid and chambered nautilus that look like a cross-section of a cinnamon roll. The biggest, on the north side of the building, is about a foot in diameter.



13 Keystone Building, Financial District

These slabs of oatmeal-colored stone are the youngest building stone in Boston. Known as travertine, the stone precipitates from calcite-rich water, often associated with caves or springs. These panels come from Italian quarries first used more than 2,000 years ago for buildings such as the Colosseum; the stone formed outside Rome less than 200,000 years ago.

