

The Flynt Quarry “Star Holes”



The Flynt Quarry in Monson, Massachusetts has the largest known collection of unusual quarry drill marks known today as “star holes.” The five pointed version of the “star hole” is sometimes called a “pentagonal hole.” A number of examples may be found on the smooth white bedrock floor of the southeastern most section of the quarry. These may be examined safely without any rock climbing.

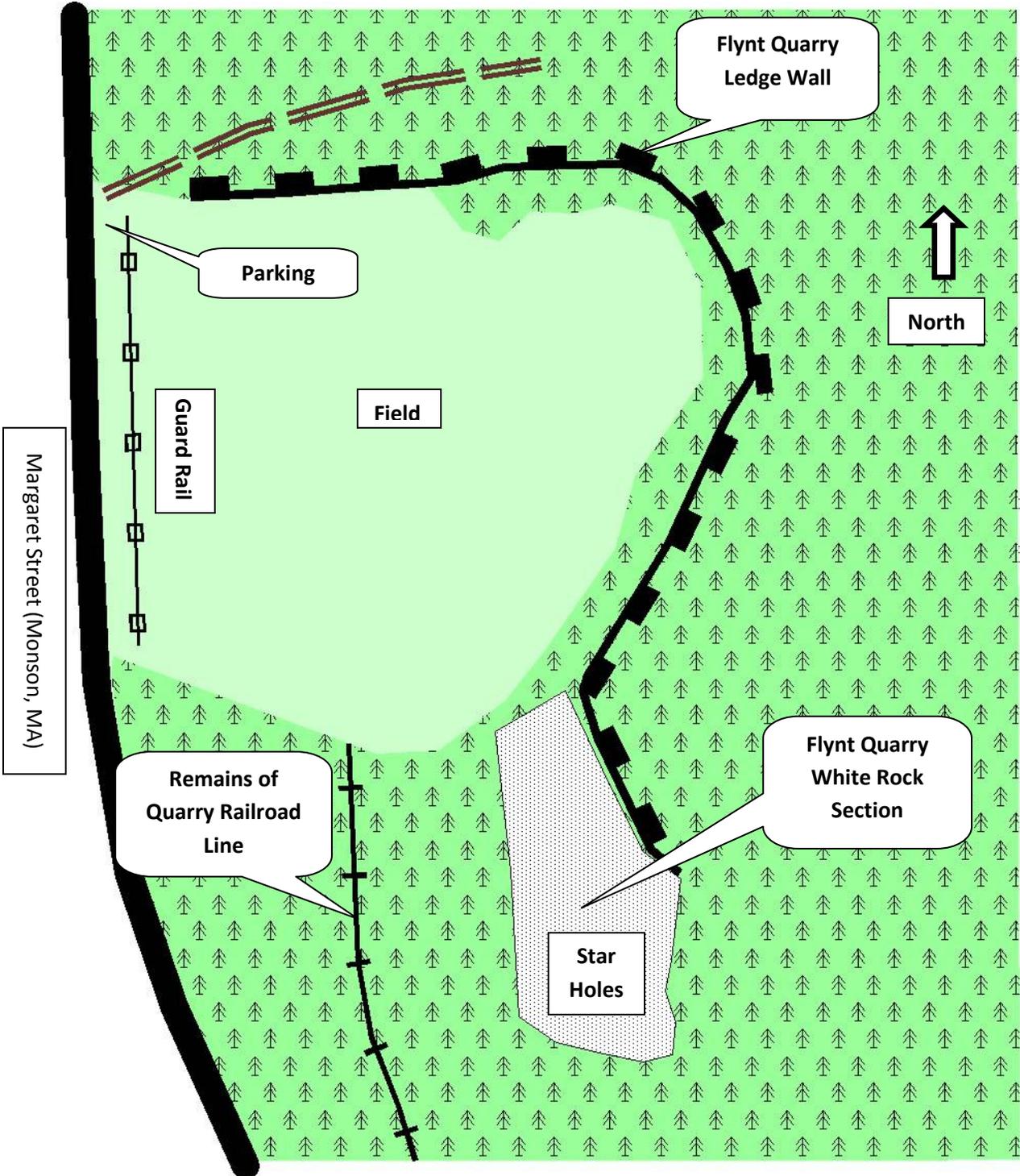
Star holes, are holes drilled in rock that when viewed from the top (i.e. cross-section) look like a five or six pointed star ★★*. The “points” of the star holes can be either rounded lobes or V-shaped points with rounded tips. The rounded points are actually longitudinal grooves inside the drilled hole. The grooves spiral inside the hole giving the hole the appearance of being the inside of a rifle barrel. These grooves can be seen in some of the long vertical drilled holes found on the walls of quarry. They may safely be observed by walking along the base of the quarry walls. These holes were used to separate large blocks of rock from the bedrock by blasting.

What caused this rifling effect? In 1916, two engineers investigated the effect and developed a hypothesis to explain it. The rifling was the result of harmonic waves (similar to an ocean wave) being transmitted down the drilling rod resulting in the drill bit swaying back and forth with the crests and troughs of the wave. The back and forth motion of the bit forces the cutting edges to cut half circular gouges in the wall of the hole. Or in



less technical terms, the rifled star holes are the result of the drill bit chattering in the hole. The chattering was most likely the result of several factors including the vibrations caused by the drilling machine, a dulling bit, metal fatigue in the drill rod, and the rotational speed of drill.

*This is an abridged edition of a longer article available at
<http://www.stonestructures.org/html/star-holes.html>*



Flynt Quarry Ledge Wall

Parking

North

Guard Rail

Field

Margaret Street (Monson, MA)

Remains of Quarry Railroad Line

Flynt Quarry White Rock Section

Star Holes