

Diabase Intrusion at Monocacy Hill

The Jurassic age York Haven Type Diabase is what forms the Monocacy Hill intrusion. This rock's name (Diabase) is defined by its medium grained size crystals. It is equivalent in composition to the coarse grained intrusive rock Gabbro and to the fine grained extrusive rock Basalt..

Greater than 95% of Diabase is composed of 2 minerals. A calcic Plagioclase (feldspar) and a clinopyroxene (Augite). Other minor minerals in diabase are olivine, biotite, magnetite apatite, orthopyroxene and quartz, mostly in trace amounts.

During the early Jurassic, about 200 million years before the present, this hot (2000 F) almost totally liquid magma intruded the Triassic age sediments that had filled the rift basin now known as the Newark Basin.

These sediments are mostly red mudstones, argillites, sandstones with minor amounts of fresh water limestones and conglomerates.

At Monocacy Hill there is a unique occurrence of xenoliths of these rocks deep inside of the diabase.

For a description of the xenoliths see my abstract.

“Xenoliths of the Triassic Passaic Formation in the Monocacy Hill Diabase Intrusion, Amity Township, Berks County, Pennsylvania”

The heat of the intrusion also contact metamorphosed the sedimentary rocks adjacent to the diabase. These sedimentary rocks have been converted to the metamorphic rock known as hornfels. These rocks did not experience the extreme metamorphism of the xenoliths. They are very fine grained and represent the low temperature Albite-Epidote Hornfels Facies (purple, brown color) and the medium to high temperature Hornblende Hornfels Facies. (black, grey, green color). Cordierite is found in the hornfels close to the contact with the Monocacy Hill diabase.

For a mapping of Pennsylvania's geologic regions showing the location of Monocacy Hill, **CLICK HERE**

For a map showing the overall location of diabase on Monocacy Hill, **CLICK HERE**

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