

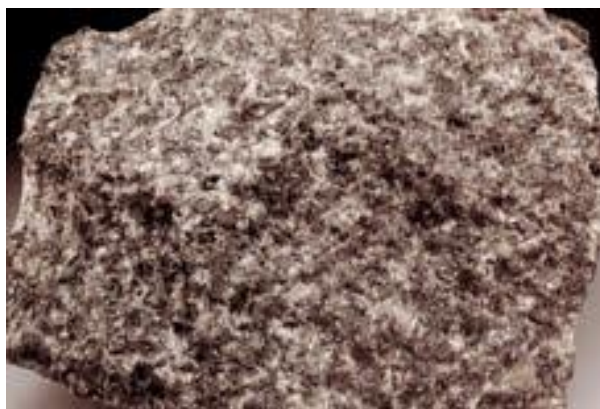


Arizona Rocks 5

Text and photos by Ray Grant

The next igneous rocks for Arizona will be diabase and gabbro. In Arizona Rocks 1, the rock was basalt. When the basalt magma does not reach the surface to form a volcanic rock, it is intrusive and cools slowly forming larger crystals (just as more silica rich magmas form granite as intrusive and felsite as volcanic rock). This coarser grained intrusive rock is diabase or gabbro. Diabase is a term mainly used in the United States, in other countries it is referred to as dolerite or microgabbro. Diabase is an intrusive rock forming dikes or sills at relatively shallow depths so it cools rather quickly, not as fast as basalt, so the crystals are small, but usually visible. Gabbro would form at a greater depth. The minerals present are the same as in basalt, mainly pyroxene and plagioclase.

In Arizona the diabase formed in the Precambrian about one billion years ago. The best place to see it is at Salt River Canyon or in the Grand Canyon. An interesting sidelight, where the diabase intruded limestone it formed the asbestos deposits we find in Arizona. Gabbro is not common in Arizona.



Diabase/gabbro with pyroxene (black) and plagioclase (white).



Map of areas where diabase is found in Arizona (in black).



Diabase sills (dark colored) at the Salt River Canyon.



Diabase sill (bottom by river) intruded into limestone (white), Salt River Canyon