EARTHQUAKE
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Arizona Rocks 15

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A reminder: naming rocks can range from relatively simple to complex. This was especially true in igneous rocks where a chemical analysis would yield information for a special rock name. For sedimentary rocks there is less variety of possible minerals and compositions, but a detailed study might yield a special name. The names used in this column are generally the names a geologist would use when working in the field without any special studies on the rock.

Like breccia (Arizona Rocks 12) conglomerate is a clastic sedimentary rock with particles greater than 2 millimeters (1/12 of an inch) in size. Particles this size are called gravel (2mm is rather an arbitrary size, but it is the one on which geologists have agreed). The difference is that the pieces in a breccia are angular while those in conglomerate are round. The gravel has been abraded so that the sharp edges and corners have been worn down. Normally this would be caused by transportation over a distance as this tumbles and rounds the pieces. The most common way for the gravel to be moved is by running water in a stream or river. Conglomerates can also be found forming from beach gravel, rounded by the waves, or from glacial gravel moved by ice, although the glacial material may not be as rounded.

Most river deposits will have sand and possibly clay mixed with the gravel, so the question is how much of the material must be gravel size to call the rock conglomerate, 20%, 30%, or more than 50%? There does not seem to be a consensus on this and a small amount of gravel stands out in the rock so the name conglomerate is commonly used even for relatively small amounts of gravel.

In Arizona there are a number of conglomerates, but they are too thin to be a formation (see Arizona Rocks 13). In the young Precambrian rocks around the Salt River Canyon and on the Apache Trail are the Scanlan and Barnes Conglomerate members of other formations. The Cambrian Tapeats Sandstone has some conglomerate layers around Payson and in the Grand Canyon. These are too thin to even be classified as a member. The Triassic age Shinarump Conglomerate is a member of the Chinle Formation and is under the Petrified Forest rocks. In the Basin and Range of southern Arizona, there is lots of conglomerate or sand and gravel deposits from the rivers carrying material from the ranges and filling the basins.

Shinarump Conglomerate (Triassic age) in exhibit at the Wupatki National Monument Visitors Center

Basin fill conglomerate and present day stream at Boyce Thompson Arboretum.