



GEOFACTS No. 9

OHIO DEPARTMENT OF NATURAL RESOURCES • DIVISION OF GEOLOGICAL SURVEY

GOLD IN OHIO

There have probably been gold seekers in Ohio since the arrival of the first European settlers, but there is little documentation of their activities in regard to gold before the mid-1800's. Since that time and continuing to the present, there has been a continued low level of interest in the occurrence of gold in Ohio, interrupted by periods of frenzied activity.

Gold belongs to a chemical class of minerals known as native elements—those not in chemical combination with other elements, although it may be alloyed with other metals, particularly silver. Gold has a bright-yellow “gold” color and does not tarnish. It is a relatively soft metal and is malleable and ductile; that is, it can be beaten into thin sheets or drawn into fine wires. In addition to these distinguishing properties, gold is extremely heavy, having a specific gravity of 19.3 in a pure state—almost 2.5 times as heavy as an equal volume of iron.

The standard weight measurement of gold is the troy ounce, which is equal to 1.097 avoirdupois ounces. The purity of gold is expressed in terms of fineness, where 1,000 represents pure gold, or by the karat, where 24k represents pure gold. Gold is commonly confused with a variety of similarly colored minerals, most notably pyrite and marcasite (“fool’s gold”), chalcopyrite, and weathered mica flakes.

Gold originates in primary vein deposits that were formed in association with silica-rich igneous rocks. These veins are rich in quartz and sulfide minerals such as pyrite and were deposited by hot, mineral-bearing (hydrothermal) solutions that ascended from deep within crystalline rocks. Upon weathering and erosion, the chemically inert gold is washed into streams and is mechanically concentrated by flowing waters to form secondary or placer deposits.

All gold that has been found in Ohio is of the secondary or placer type. It is a long-accepted theory that the placer

gold in the state originated in the igneous rocks of Canada (Canadian Shield) and was transported to Ohio during one or more episodes of Pleistocene glaciation. This theory has support because Ohio gold is always found in association with glacial deposits formed by meltwater from the glaciers. In addition, gold-bearing areas of Canada lie north of Ohio, more or less in line with the projected paths of the southward flow of various ice sheets.

Gold can be found in small quantities throughout the glaciated two-thirds of Ohio. Most reported occurrences are in the zone of Illinoian and Wisconsinan end moraines—areas which commonly mark the farthest advance of these ice sheets. The highest concentrations of gold appear to be associated with Illinoian deposits. Almost all gold recovered is in the form of tiny, flattened flakes only a millimeter or so in diameter. Less common are pieces the size of a wheat grain, and rare are those the size of a pea. At most productive locations, several hours of panning will produce only a few flakes. No locality has been demonstrated to have concentrations sufficient for commercial exploitation, although many attempts were made in the 1800's and early 1900's to mine gold in the state. Most of these

ventures were in Clermont County, near Batavia, in southwestern Ohio and in Richland County, near Bellville, in north-central Ohio. All of them were financial failures.

WHERE TO FIND GOLD IN OHIO

Theoretically, any stream in the glaciated portion of the state has the potential to produce small amounts of gold. However, there has been little serious scientific study of gold occurrence and concentration throughout the state. Some studies have indicated that the most productive areas may be the result of several episodes of localized concentration by running water. In particular, there is some evidence that modern streams are locally eroding and concentrating gold that was originally concentrated in glacial meltwater channels.

The accompanying map identifies some areas that have been reported to produce gold in Ohio. The best known and most productive localities have been along Stonelick Creek and Brushy Fork, north of Owensville, Clermont County, and north of Bellville, Richland County. It is probable that there are many other equally productive localities in the glaciated portion of the state. Most areas in Ohio are on private property and permission should always be obtained from the landowner before making a search for gold.

HOW TO FIND GOLD IN OHIO

Gold is extremely heavy in comparison to other rocks of equal size and consequently is concentrated by stream waters, particularly during floods, in certain areas of the stream bed. Because of its high specific gravity, gold moves along the bed of the stream and will tend to drop into joints or other openings. These crevices can be searched in shallow water by using a

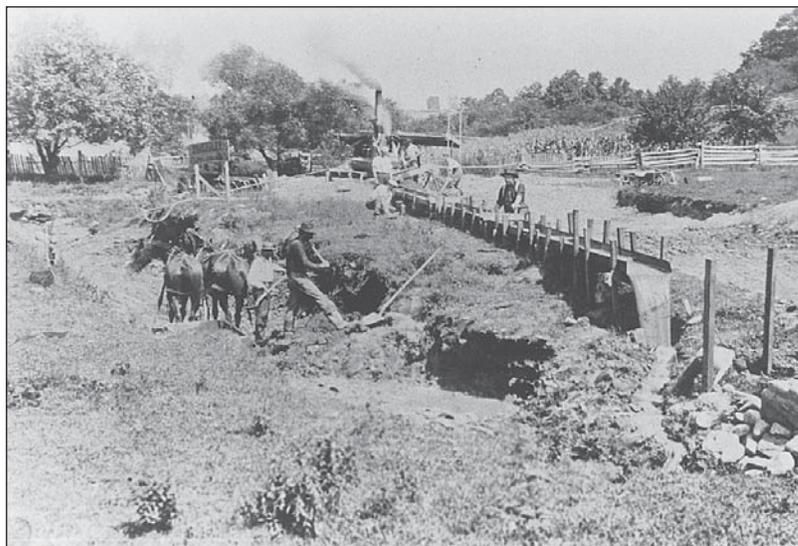
meat baster to suck the gold-bearing sand from the joint.

Gold also will concentrate at the upstream end of gravel bars, on the inside bend of meanders, or behind large boulders. There is a decrease in current velocity associated with these features and the heavy gold tends to drop out of the flowing water at these points. Coarse gravel associated with large boulders commonly produces gold flakes in favorable areas. Most successful gold panners attempt to sample this gravel as close as possible to its contact with underlying bedrock or clay.

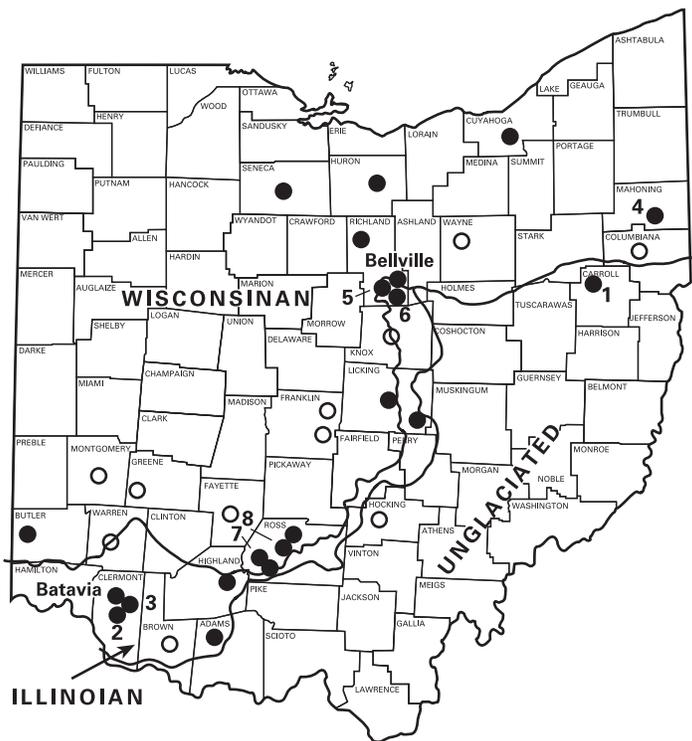
Plastic gold pans are light in weight and have ridges along the inside lip of the pan that prevent gold flakes from being sloshed out. These pans are available from many rock and mineral shops and from various suppliers of treasure-hunting equipment.

Other helpful items of equipment include a shovel or scoop to dig into gravel, a screen of hardware cloth to remove large pebbles and debris from the gravel before it is panned, and a small vial or pill bottle in which the gold flakes can be saved. This vial or “keeper” is most efficient when partially filled with water. A knife point, tweezers, an eyedropper, or an artist’s brush work well to remove flakes from the pan for transfer to the keeper.

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Sluice operation along Deadmans (Steltzs) Run, north of Bellville, Richland County, 1905. This operation was short lived.



Carroll County
1—Sandy Creek, no specific locations

Clermont County
2—Stonlick Creek, adjacent to Anstaett Road, north of Owensville
3—Brushy Fork, north of Owensville

Mahoning County
4—Middle Fork of Little Beaver Creek, about 1 mile east of Salem

Richland County
5—Deadmans Run, adjacent to Bellville Road, north of Bellville
6—Wildcat Hollow, 1 mile west of Butler

Ross County
7—Buckskin Creek, south of Humbolt
8—Paint Creek and its tributaries

Reported occurrences of gold in Ohio. Solid circles represent documented occurrences (may represent more than one locality); open circles represent unspecified locations.

Panning techniques vary widely and each experienced panner develops a special technique. All methods utilize two processes—sizing and gravity concentration. Fill the pan about half full of sand and gravel and then submerge it beneath the water. Knead the material with your fingers in order to break up lumps of clay that can then be washed out. This step is important because gold flakes will adhere to the clay and can be washed out of the pan with lighter material. With the pan still submerged, begin agitating it back and forth with a rotary motion. This technique will size the material, causing the coarsest gravel to rise to the top. Scrape off the upper layer of gravel and discard this material. Repeat this procedure several times.

The next step in the panning procedure uses gravity concentration and separates the heavy gold and other minerals from the much lighter fragments of quartz, feldspar, and rock fragments. Begin by agitating the pan with a rotary motion and with the lip of the pan



John Allen at the entrance to his gold mine along Cabin Run Creek, Clermont County, circa 1920. The mine was in Illinoian till and is not known to have ever produced gold.

tilted slightly forward. This can be done with water in the pan, but it need not be submerged. After a minute or two of this agitation, dip the lip of the pan below the water surface and, with a forward and upward motion, wash off the lighter weight, upper layer of sand. This procedure can be speeded up by scraping off some of this upper layer with the fingers.

After repeating this procedure a few times, all that will be left in the pan will be a small amount of light-colored quartz and a heavy concentration of dark sand (composed primarily of magnetite, ilmenite, and garnet). By placing a small amount of clear water in the pan and giving it a gentle swirl, the dark sand will tail out across the pan. If any gold flakes are present, they should sparkle amongst the black sand. The above technique is a general guideline and speed and efficiency improve with practice.

Increasingly popular with serious gold seekers are portable sluices and dredges. A sluice is an inclined trough that has a series of cross ridges or baffles that trap gold and other heavy minerals from a mixture of sand, gravel, and water flowing down the incline. Dredges are gasoline powered and use a long hose to suck sediment from the stream bottom.

The principal value of Ohio gold is recreational, and numerous individuals derive many pleasant hours of satisfying activity as weekend prospectors. Their rewards are monetarily low but high in the intangible commodity of enjoyment.

FURTHER READING

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