

Floating Copper

I often get a startled expression from people when I mention drift copper or float copper. They think: "Copper is dense - how can it float or drift? What is it floating or drifting on?" Drift refers to glacial drift, which is any sediment deposited as a direct or indirect result of glaciation. Copper nuggets carried by glaciers and melt water rivers is drift copper. Float is a geological term used to denote any material that has been carried by erosion away from its spot of formation. A slab of rock slides down a hill. It is now float. A glacier carries a rock a hundred miles and drops it as it melts. That rock is now both drift and float, whose source is "up glacier" somewhere. Thus, in our area, "drift copper" and "float copper" refer to the same thing.

Floating minerals leave trails a good prospector can patiently trace back to their source. For example, gold panners will pan their way upstream to the "Mother Lode". Examination of float diamonds and other kimberlite minerals has spurred exploration recently in Michigan and Canada. The Native Americans used this technique to first find the source of the Midwest copper deposits.

It's no mystery today where most Midwest drift copper originates. Native copper is abundant in the Upper Peninsula of Michigan in basaltic lava and interlayered sediments formed approximately a billion years ago. Much smaller deposits are known where these same rocks extend into Wisconsin and Minnesota. Freed from the rock by weathering, this copper can survive long transport by glaciers and rivers because of its tenacity and relatively low chemical reactivity. Float copper is found all states that have received glacial drift from the Lake Superior region. It is easily recognized by its bright green to black alteration crust (consisting of malachite, cuprite and other minerals), high density, malleability and brilliant copper color on a fresh surface.

In 1895, a Wisconsin geologist, Roland Salisbury, made a detailed study of float copper in Wisconsin. He states "specimens of 40 to 50 lbs. weight are not uncommon". I've found that nuggets that size are that not common either. Here are a few of the more notable drift copper finds from Wisconsin, as reported by Salisbury and others.

ASHLAND COUNTY: Salisbury (1885) reports the find of a 100 lb copper boulder from Outer Island.

BAYFIELD COUNTY: The largest nugget of float copper reported from the

Wisconsin is a boulder weighing 1,700 lbs. found in the bed of the Sioux River about 6 miles south of Lake Superior (Salisbury, 1885).

DANE COUNTY: A 30 lb. nugget of drift copper was found in a 20 foot deep well in Madison (Salisbury, 1885).

DODGE COUNTY: A nugget of float copper weighing 487 lbs. was found near Hustiford (Irving, 1882).

PIERCE COUNTY: An 81 lb. nugget of native copper was found in a farm field near Spring Valley. (Ted Van Asse, 1997, personal communication).

ROCK COUNTY: A 114 lb. nugget of drift copper was found at Newark (Salisbury, 1885).

SHAWANO COUNTY: A 970 lb. mass of drift copper was found in a gravel pit 2 miles south of Pella (Wisconsin Geological Survey files).

- Dr. Bill Cordua, University of Wisconsin-River Falls

References:

Irving, R.D. 1882, "Minerals of Wisconsin" Chapter II in Chamberlain, T.C. Geology of Wisconsin Survey of 1873-1879, Vol. I, p. 309-339.
Salisbury, Rollin D., 1885, "Notes on the dispersion of drift copper", Wis. Acad. Sci. Arts and Letters, Vol. 6, p. 42-50.