

ROCK AND MINERAL COLLECTING AREAS IN IOWA

Sedimentary rocks -

Conglomerate - Exposures of white and gray conglomerate belonging to the Pennsylvanian System of rocks extend northeastward through Pleasant Township, Lucas County and Dalls Township, Marion County in southern Iowa. A "peanut brittle" or "puddingstone" variety of iron-oxide cemented conglomerate occurs interbedded with sandstones of Cretaceous age in exposures between Red Oak and Coburg in Montgomery County and in the SW 1/4 sec. 9, T. 78 N., R. 31 W., and north central part of sec. 30, T. 79 N., R. 31 W., Guthrie County. A pebble conglomerate and coarse sandstone of Pennsylvanian age can be observed at the south entrance of Pine Lake State Park near Eldora. A basal conglomerate composed largely of limestone pebbles and cemented by iron underlies the Fort Dodge gypsum in Webster County in NW 1/4 sec. 7, T. 88 N., R. 28 W.

Sandstone - The St. Peter and Jordan Sandstone of Ordovician and Cambrian age exposed in the cliffs along the Mississippi River and its tributaries in Allamakee and Clayton Counties in northeastern Iowa provide excellent exposures for collecting. Sandstones may be found at many other places in Iowa such as in the area of Pennsylvanian rocks in southern and central parts of the state. Almost every Pennsylvanian exposure contains at least one or two sandstone beds. The bluffs of the Des Moines River consist of thick sandstone beds near Red Rock in Marion County, and near the abandoned town of Cliffland southeast of Ottumwa. In northwestern Iowa, the Dakota Sandstone of Cretaceous age crops out at Sergeant Bluff and Sioux City.

Siltstone - Very fine-grained sandstones or siltstones are rather common in the Pennsylvanian rocks of southern and central Iowa. A white or buff-colored siltstone of Mississippian age can be found along the English River in Washington County in the SE 1/4 SW 1/4 sec. 8, T. 77 N., R. 8 W., north of Wellman and in the SE 1/4 SW 1/4 sec. 17, T. 77 N., R. 7 W., south of Kalona. Just north of Burlington, Iowa, the Flint River bluff near Starrs Cave in the NW 1/4 SW 1/4 sec. 19, T. 70 N., R. 2 W., contains two siltstone beds. These strata are exposed in the North Hill section in Burlington.

Shale - This rock is very widespread in Iowa; for example, the shales of Pennsylvanian age cropping out across the southern parts of the state, the blue-green shale interbedded with limestones representing the Maquoketa Formation of Ordovician age exposed from Jackson County northwestward into Minnesota north of Winneshief County, Iowa, and the plastic shales of Devonian age mined in open pits near Mason City, Rockford, and Sheffield.

Limestone - One of the most common rocks in Iowa. Good examples are the Keokuk-Burlington limestones of Mississippian age quarried in Des Moines and Louisa Counties in southeastern Iowa, the Hampton Formation in the LeGrand quarries in Marshall County, and the Cedar Valley Limestone of Devonian age in exposures and quarries around the Coralville Dam Reservoir at Iowa City.

Oolitic limestone - Exposures of this unique appearing rock belonging to the Gilmore City Formation of Mississippian age can be found in western Humboldt County along the Des Moines River valley and in quarries near Gilmore City in Pocahontas County. The Hampton Formation at Alden in Hardin County and the Starrs Cave Limestone at Burlington in Des Moines County also contain oolitic beds.

Chalk - Soft limestone or chalk representing the Greenhorn Formation of Cretaceous age can be found interbedded with shales in the bluffs of the Big Sioux River between Sioux City and Hawarden and in abandoned quarries near Grant City in southeastern Sac County.

Dolomite - Numerous quarries and road cuts in east central and northeastern Iowa provide good collecting of gray and brown porous dolomite rock representing the Niagaran and Alexandrian Series of Silurian age and the Galena Formation of Ordovician age. The bluffs of the Mississippi River along Highway 52 at Bellevue are formed of typical Silurian dolomite.

Chert - Strikingly banded black and gray chert has been found in the St. Louis Formation in the Henry County quarry near Mt. Pleasant and in quarries and exposures near Humboldt. White and gray cherts are abundant in the Keokuk and Burlington Formations in southeastern Iowa and in the Silurian dolomite in Jones, Delaware, Dubuque, and Clayton Counties. Nodular black chert beautifully speckled with small white fusulinid fossils can be found in the Plattsmouth Limestone of Pennsylvanian age in quarries near Grant, Stennett, and north of Red Oak in Montgomery County in southwestern Iowa.

Coal - Iowa coal is concentrated in the southern and central parts of the state in strata of Pennsylvanian age. Most of it belongs in the bituminous or sub-bituminous rank. Several open strip mines suitable for collecting (with the owners' consent) are operated in Marion, Mahaska, Monroe, and Wapello Counties.

Metamorphic rocks -

Quartzite - Exposures of the pinkish Sioux Quartzite occur in places in the extreme northwestern corner of the state in Lyon County. Radioactivity dating indicates this rock to be more than a billion years old making it the oldest known rock exposed in Iowa. It belongs to the Precambrian System. Pebbles and boulders from this formation and other quartzites

are also found scattered through the glacial drift and in gravel pits. Some railroads have used the Sioux Quartzite as ballast for their roadbeds.

Gneiss and Schist - These banded metamorphic rocks occur only as pebbles or boulders in the glacial drift or on beaches and river beds and in gravel pits.

Igneous rocks -

Granite, gabbro, basalt - Granite and other types of igneous boulders and pebbles are scattered across Iowa in the glacial drift deposits in fields, in creek and river beds, and on lake shores. They are particularly abundant in the north-east and central parts of the state. Many farms have piles of these boulders along fence rows or in barnyards.

Minerals -

Limonite - One of the best exposures of limonite in Iowa occurs at Iron Hill about a mile north of Waukon on Highway 9 in Allamakee County. This deposit consists mainly of brown coarsely cellular limonite containing chert modules, clay concretions, and scattered limestone boulders. It is thought to be Cretaceous in age.

Pyrite - This mineral is common in dark shales and coal beds of Pennsylvanian age in southern Iowa and in zinc-lead bearing limestone strata in the Dubuque area. It is fairly common elsewhere in Iowa sedimentary rocks.

Marcasite - Found in the same localities and often confused with pyrite. Usually has a paler color than pyrite. Groups of marcasite crystals commonly occur in various stages of crystallization, e.g., radiated, cockscomb, and spear-head forms; may be distinguished from cubic and octahedron pyrite crystals.

Galena - Found in the Galena and Decorah-Platteville limestone and dolomite formations in the vicinity of Dubuque along the Catfish Creek and near Durango. (The U. S. Geological Survey Mineral Investigations Field Studies Maps MF33 and MF116 show numerous old digging sites and mine shafts for collecting galena and sphalerite and associated minerals. Copies of these maps may be obtained from the U. S. Geological Survey, Washington, D.C. 20242, at 50 cents each.)

Sphalerite - Dark brown-to-black crystals or cleavable masses of sphalerite having a submetallic and resinous luster are associated with galena in the Dubuque vicinity. Sphalerite also is found as small isolated crystals in the Cedar Valley Limestone.

Calcite - Irregular masses of transparent-to-white and gray-or brown-colored calcite that split with a rhombohedral cleavage are common in crevices or solution openings in limestones belonging to the Devonian and Mississippian Systems of rock in the eastern part of the state.

Gypsum - Massive and banded gray and white gypsum rock is strip-mined at Fort Dodge, Iowa. A deep shaft is producing massive gypsum from the Devonian rocks near Sperry in Des Moines County. Transparent selenite crystals can be found in places in shales of Pennsylvanian age in southern Iowa and in clay pits in the Devonian shales at Mason City.

Quartz - Small quartz crystals can be found in geodes in the Warsaw and Keokuk Formations of Mississippian age along the Mississippi River bluffs and its tributaries in Lee, Des Moines, and Henry Counties in southeastern Iowa. Most Iowa sandstones consist largely of cemented quartz grains. Chert, flint, chalcedony, jasper and agate are varieties of silica. They are so fine-grained, however, that the individual components cannot be seen with a magnifying glass. Careful search will uncover beautiful agates and jaspers in the Mississippi River gravels and of many other gravel pits scattered across Iowa.

These are just a few of the better known collecting areas for rocks and minerals in Iowa. The persistent and observant collector will seek out many other localities where natural exposures of rock can be found along banks and bluffs of rivers and in quarries and roadcuts and railcuts.