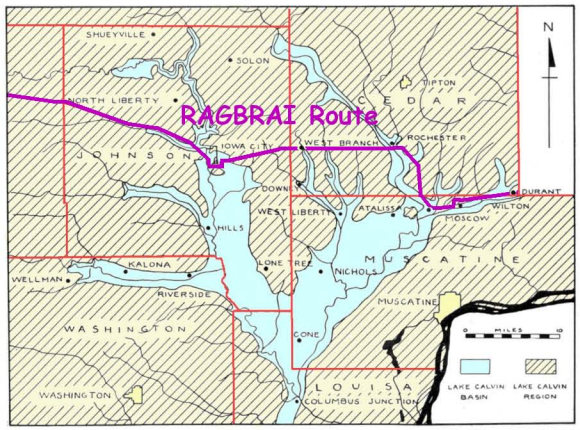
RAGBRAI Geo-pedia

Glacial Lake Calvin; the myth and the truth

The low relief landform that extends upstream along the Cedar and Iowa rivers from their confluence in northern Louisa County was thought for many years to be the remnants of a Pleistocene glacial lake, "Lake Calvin." "Lake Calvin" was described in detail in 1920 by W.H. Schoewe who described a scenario initiated by the advance from the east of the Illinoian glacial ice sheet across the valley of the Mississippi River into southeastern Iowa about 300,000 years ago. This advance blocked the channel of the Mississippi, diverting it to the west, carving the Goose Lake Channel in Clinton County then flowing into the lowlands of the preexisting Cleona channel. Since the glacial ice was also damming the southern end of the Cleona the water backed up forming a lake that extended about 25 miles up the drainages of the Iowa and Cedar rivers. As the lake level grew it over-topped its banks and created a new channel, the "Leverett Channel," around the nose of the ice sheet before returning to the previous Mississippi River valley south of Iowa. Although the Illinoian ice sheet would probably have retreated out of Iowa after a few thousand years or less, Schoewe believed that Lake Calvin existed for over 200,000 years.

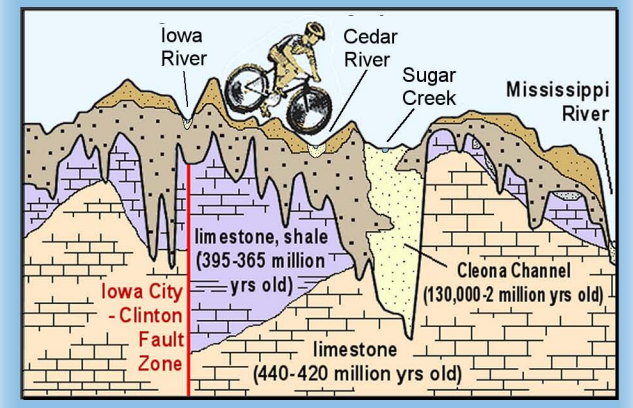


map from Schoewe, 1920

The idea of "Lake Calvin" persisted until about 1970 when work by R.V. Ruhe, S.Esling, and others demonstrated that the area was the product of a complex series of overlapping terraces created by high water flow in the Cedar and Iowa river systems during the melting of the three glacial ice sheets that advanced into Iowa during the Wisconsinan, from about 50,000 and 12,000 years ago.

COVER PHOTO: Rochester Cemetery near the town of Rochester is an excellent example of a tallgrass prairie savannah, displaying many plants native to Iowa

Day 7 Milestones



Start: **Coralville**

Iowa River: **mile 5**

Cedar River: **mile 26**

Sugar Creek (Cleona Channel): **mile 36**

Finish: **Davenport, mile 65**

For More Information...

On Devonian Fossil Gorge can be found at:
www.mvr.usace.army.mil/coralville/devonian_fossil_gorge.htm

Iowa Geo-books

Iowa's Geological Past

by Wayne Anderson, University of Iowa Press, 1998

"The only authoritative overview of Iowa's geologic record... [Wayne Anderson's] coverage is so current, comprehensive, and authoritative that professionals as well as rock and fossil enthusiasts will each need a copy."

Brian F. Glenister, A.K. Miller Professor of Geology Emeritus, University of Iowa

Landforms of Iowa

by Jean C. Prior, University of Iowa Press, 1991

"Jean Prior writes about the glacial geology of Iowa as if it's an old friend. She knows and cares about her subject and explains Iowa's geologic attractions with a sure hand."

Rex Buchanan, Kansas Geological Survey

RAGBRAI 2011

Learn about the Land

Saturday, July 30

Day 7

Iowa DNR -Geological and Water Survey
109 Trowbridge Hall
Iowa City, IA 52242
www.igsb.uiowa.edu

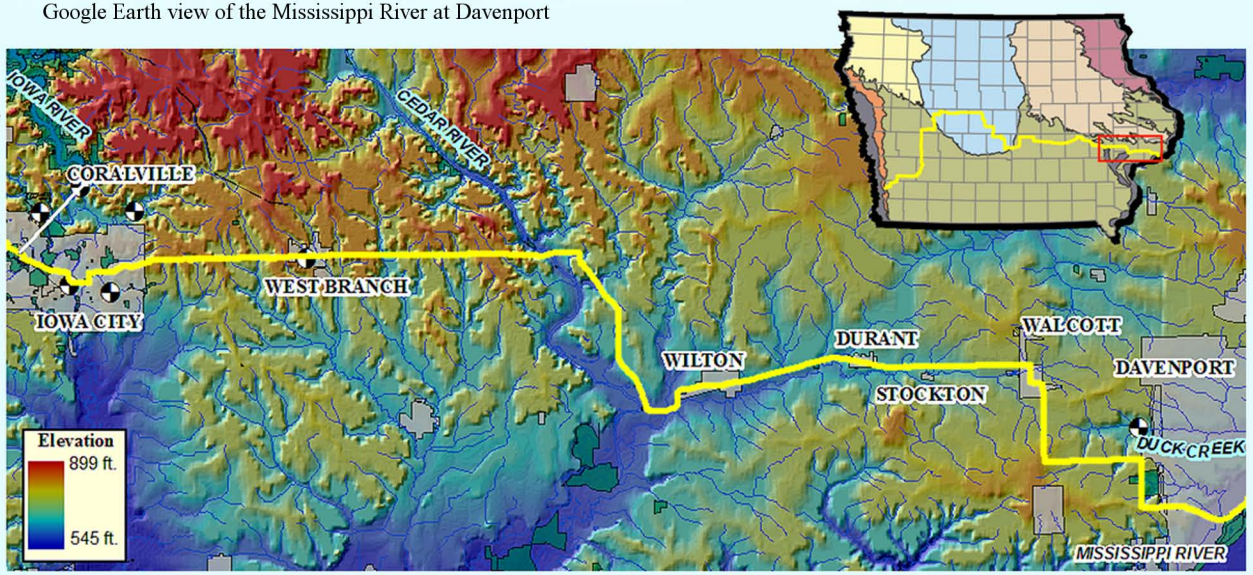
US Geological Survey - IA Water Science Center
400 S. Clinton St.
Iowa City, IA 52240
http://ia.water.usgs.gov

Iowa Limestone Producers Association
5907 Meredith Dr.
Des Moines, IA 50322
www.limestone.org

The Mississippi River

The Mississippi River is much more than a ribbon of water; it is a watershed that drains all or parts of 31 states (over 40% of the lower 48 states), an area where 27% of the nation's population resides. It serves as a drinking-water supply for 70 cities and towns along the reach of the river. Nearly 300 species of birds migrate through the river valley in spring and fall. The Mississippi Flyway is used by more than 40% of the migratory waterfowl traversing the U.S. The river also supports more than 127 species of fish and 30 species of freshwater mussels. There are 3 national refuges along the Upper Mississippi totaling over 285,000 acres. The states manage another 140,000 acres of refuge lands along the river. On the northern 670 miles of the river, navigation is made possible by a series of 29 locks and dams, most built in the 1930s which create a stairway of water.

Google Earth view of the Mississippi River at Davenport



USGS gaging station

Lafarge Davenport Cement Plant

Just south of Davenport, Lafarge North America, Inc., operates one of Iowa's three Portland cement plants. The Davenport Cement is positioned strategically between the Mississippi River, a major rail system, and America's most traveled interstate, I-80, providing it easy access to barge, rail, and bulk trucks. The plant is ideally located adjacent to a large deposit of limestone, one of the primary ingredients in the cement-making process. Other materials, such as alumina, silica, and iron are added to the pre-blend mix in rigorously controlled proportions. The mixture is ground to a fine powder and fed into a 195-foot long rotating kiln where it is heated to 2,700° Fahrenheit and transformed into small greyishblack nuggets called clinker. When cool, the clinker is mixed with gypsum and ground into the finished product, portland cement. The Davenport plant produces more than a million tons of cement a year.

Devonian Fossil Gorge

Devonian Fossil Gorge is a ¼ mile long exposure of flat-lying limestone strata of Devonian age (375 million years old) which lies in the emergency spillway of the Coralville Dam north of Iowa City. The gorge was originally created by the flood of 1993, during which the water level behind the dam rose to over 4.5 feet above the crest of the spillway and poured over in a torrent, tearing away vegetation, pavement, topsoil, sediment, and exposing the solid limestone festooned with a wide variety of fossils in incredible abundance. Interpretive exhibits line the entry plaza and open observation platform and 20 "discovery points" are marked by numbered hexagonal metal plates: maps and explanatory brochures are provided. Operated by the Corps of Engineers, the history and science of the dam and gorge are featured in a visitors' center located on the east end of the dam. The gorge is located 5 miles north of I-80 on Dubuque St (which features a paved bike trail) then east on West Overlook Road.

Rochester Cemetery Prairie

Rochester Cemetery is a beautiful tract of virgin prairie savannah located on Cemetery Road about 1/2 mile south of F44 southeast of Rochester. One of Iowa's best preserved tracts of native vegetation this 13.5-acre sliver of pre-settlement Iowa hosts more than 350 species of plants among over 300 graves, some dating to the early 1830s. The wildflower show in Rochester Cemetery begins in the spring with woodland wildflowers, some of which begin blooming in April and May. A blaze of shooting stars erupts later, typically peaking during the weeks before Memorial Day. Common daisies (a European import, but a pretty one) and prairie phlox dominate around Memorial Day, As the season develops, other wild flowers bloom, including pale purple coneflower, bergamot, and finally, as the growing season comes to an end, asters. With 99.9% of Iowa's original landscape lost, this tiny tract offers a small glimpse into the states past. If you visit this treasure, be very careful not to disturb the stones or plants