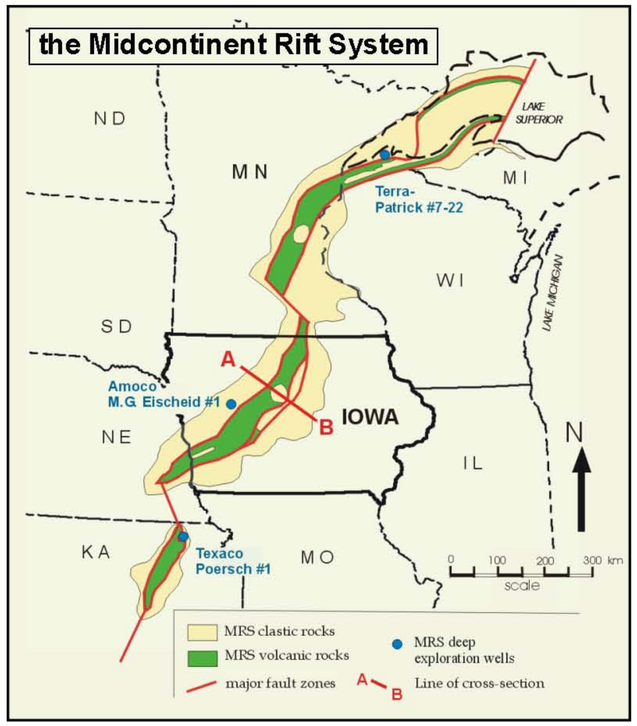
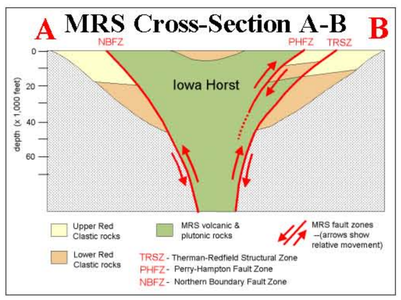
RAGBRAI Geo-pedia

The Midcontinent Rift System (MRS) and its Petroleum Potential in Iowa



The Midcontinent Rift System is the result of a failed attempt at ocean formation a billion years ago. It is characterized by an axial uplifted block of volcanic rocks flanked by deep basins filled with clastic rocks (sandstone, siltstone, and shale). These clastic rocks include a thick sequence of dark gray, organic-rich shales that have produced minor amounts of oil in Northern Michigan. Having been buried to depths in excess of 16,000 feet, this organic material must have matured, producing vast resources of oil and/or natural gas.

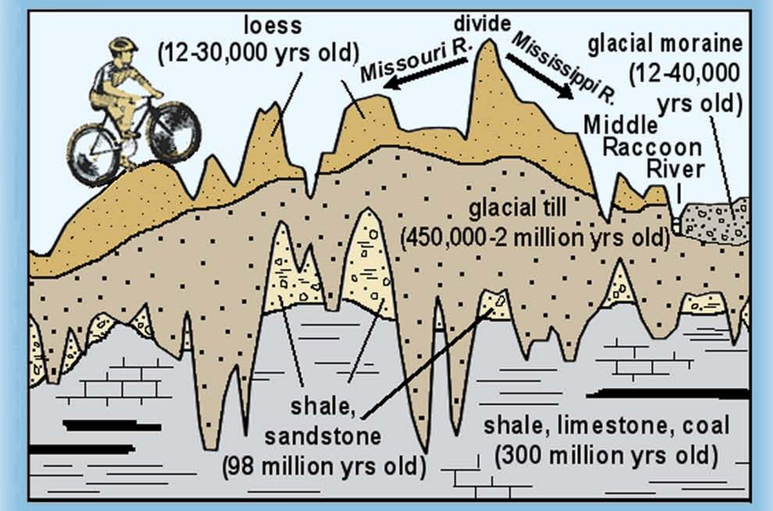


In the late 1980s several petroleum companies explored for petroleum in the MRS, drilling 3 deep wells including the Eischeid #1 in Iowa. A decline in the price of oil stopped the exploration shortly after it started, without any new oil.

Do some of the world's largest oil and gas reserves lie in the rocks below the MRS in Iowa? Only additional exploration and test drilling will tell, and one day the exploration companies will return to Iowa to find out.

COVER PHOTO: *The AMOCO Production Grace 14 rig drilling the M.G. Eischeid #1 deep petroleum test well near Halbur in 1987.*

Day 2 Milestones



Start: **Atlantic**

Missouri / Mississippi Divide: **mile 42**

Middle Raccoon River: **mile 65**

Des Moines Lobe: **mile 65**

Finish: **Carroll, mile 66**

Limestone is the most used mineral extracted from beneath Iowa's top soil !

Iowa Limestone Producers Association
5911 Meredith Drive, Suite A
Des Moines, IA 50322
www.limestone.org

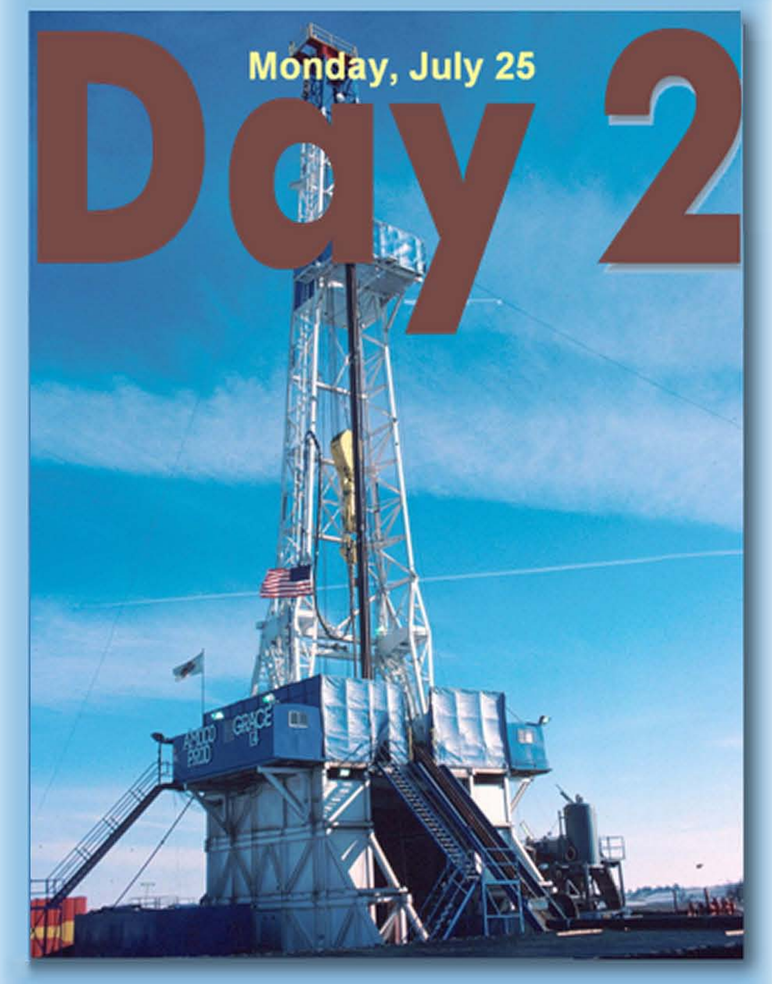
For More Information...

The Geological Society of Iowa (GSI) has published numerous guidebooks on Iowa's geologic, biologic, and cultural history. These guidebooks, as well as information on GSI membership and future GSI field trips, are available at:
www.iowageology.org

For more information on the AMOCO Eischeid deep petroleum exploration well and the potential for gas or oil in the Midcontinent Rift System (MRS) of Iowa, go to:
ftp://ftp.igsb.uiowa.edu/igspubs/pdf/SR-02.pdf
www.igsb.uiowa.edu/Browse/rift/mrs.htm
ftp://ftp.igsb.uiowa.edu/igspubs/pdf/RIFS-2006-2.pdf

RAGBRAI 2011

Learn about the Land



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
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Iowa Windmills

In Iowa, many farmers have used windmills for years to pump shallow groundwater for their livestock and homesteads. Throughout southern Iowa numerous old-fashioned windmills are still visible on farmsteads. Although most are no longer functional, their presence tells us something about the local geology. Generally speaking, the surface geology of the area consists of a loess mantled till plain. In many areas in southern Iowa, a shallow "perched" water table is present at the boundary between a relatively thin (10-15 feet) section of loess and the older, deeper till. Many farmers constructed simple wells and windmills to pump this shallow, accessible water for their livestock and homesteads.

Today's windmills - or wind turbines - have taken on a new purpose. Iowa is the second largest producer of wind energy in the U.S. The long linear ridges associated with the state's stream drainage patterns and past glacial history have created a topography that contributes to a friendly environment for wind energy.

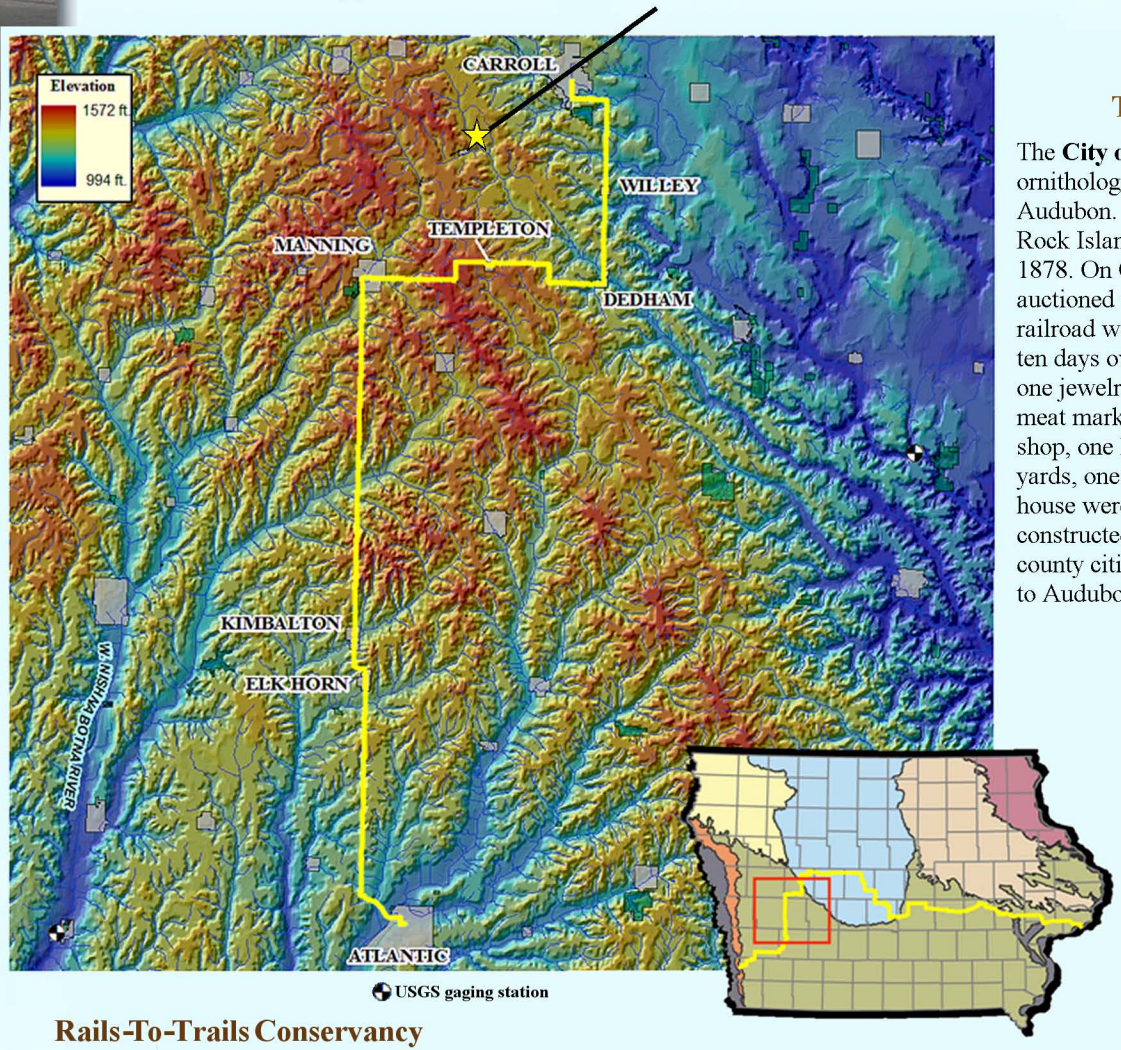
A Danish windmill once used to grind grain into flour stands today in Elk Horn. Constructed in Norre Snede, Denmark, in 1848 and moved to Elk Horn in 1976, this is the only authentic, working Danish windmill in America.

Divide

Today, between the towns of Templeton and Dedham, you will cross the drainage divide between the Missouri River to the west and the Mississippi River to the east.

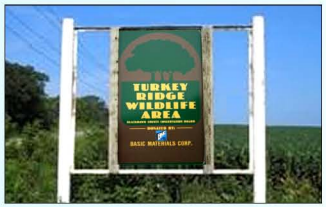
Iowa's Deepest Oil Well Near Halbur

AMOCO Production drilled Iowa's deepest well near Halbur, just southwest of Carroll in 1987. Called the **M.G. Eischied #1 deep petroleum test well**, it was drilled to explore for petroleum in the billion year-old rocks of the Midcontinent Rift System. The well reached a total depth of 17,851 feet. Although no oil was found, the well did encounter a thick package of possible reservoir rocks and organic shales that may have generated oil.



The Origin of Audubon

The **City of Audubon** was named for the famous ornithologist, artist, and painter John James Audubon. It was originally laid out by the Chicago, Rock Island and Pacific Railroad on September 23, 1878. On October 15, 1878, the town's lots were auctioned with a total sales value of $6,190. The railroad was completed on December 6, 1878, and in ten days over fifty houses, a bank, five general stores, one jewelry store, two hotels, one restaurant, three meat markets, three blacksmith shops, one harness shop, one livery stable, two coal yards, two lumber yards, one elevator, three grain dealers, and a school house were constructed. The next year the railroad constructed a county courthouse, and a vote of county citizens officially moved the county seat to Audubon.



Mines to Recreation

The involvement of the limestone producer doesn't end with extraction of usable materials. The careful planning and management of stone and aggregate resources also extends to the future reclamation and reuse of the land. Today, many of Iowa's public recreational areas are former aggregate mining operations.

Iowa Limestone Producers Association

Rails-To-Trails Conservancy

Rails-To-Trails is a program designed to create a nationwide network of trails from former rail lines. With more than 150,000 members and 19,000 miles of trails throughout the country, this organization is currently working to convert an additional 9,000 miles of rails to trails. When Rails-to-Trails was first organized in 1986, there were less than 200 rail-trails, today there are over 1,600 trails that have been preserved.

There are two rail trails right here in Carroll County. The Sauk Rail Trail is a 33-mile trail that runs northwest from Swan Lake State Park, just outside Carroll to Black Hawk Lake State Park. Along the newly paved trail you will see natural prairies, wetlands, farmland, and timber areas.

Beginning at the old Chicago Great Western depot in Lanesboro and heading southwest is the Russell White Nature Trail. At just under 4 miles, you will travel through areas of forest, pasturelands, and native prairie.

SAUK Rail Trail

rails-to-trails conservancy