A Brief History of the Upper Mississippi River
John Anfinson
National Park Service

Kent Kirkby
University of Minnesota

Sean Kirkby
Irondale High School

Minnesota Historical Society

Paul Morin
University of Minnesota

Penny Peterson and Charlene Roise
Hess, Roise and Company

Ed Silberman
St. Anthony Falls Laboratory

Thomas Waters
University of Minnesota

Herb Wright
University of Minnesota
Mississippi River Facts

• In terms of flow volume (discharge) largest in N.A.; 7th largest in world

• Drains all or parts of 31 states and 2 provinces

• Drainage basin = 1.25 million sq miles

• Source flow varies from sphagnum bogs to Rocky Mt. snows to Appalachian spring rains

• 2,350 miles long (660 in Minnesota)

• Was originally a braided river

Photo courtesy Michal Tal
Upper Mississippi really 3 rivers:

1. Prairie River upstream from St. Anthony Falls — river close to banks

2. Gorge

3. Floodplain River below St. Paul

“Upper Miss” can refer to:

1. above confluence w/Ohio river,

2. above confluence w/Minnesota, or

3. above Twin Cites
Geologic History

• Regional sedimentary rx, laid down in tropical Ordovician seas (488 million years b)

• Pleistocene glaciations (1 million years bp)

• River course below St. Paul already established

• Course above confluence w/Minnesota formed since glaciations

• 10-12,000 years bp, falls formed, humans began moving in

• Falls retreat rapidly, due to nature of Platteville limestone and St. Peter sandstone
Platteville Limestone, 454-455 Million Years Old

Glenwood Shale, 455 Million Years Old

St. Peter Sandstone, 455-458 Million Years Old

Courtesy: Anfinson
Preglacial River Courses

Wright, 1990
As glaciers retreated north, Lake Agassiz formed. Ice dam gave way. Glacial River Warren formed, carved MN River Valley.
Preglacial Valleys again—note dotted current river courses—glacial material filled old river valleys

Wright, 1990
N. H. Winchell's 1887 map of the recession of the falls
U. S. Army Corps of Engineers brochure
Retreat of falls from Fort Snelling to Minneapolis

Wright, 1990

Kirkby, 2005
• River Warren Falls: 175 ft high, spilled into filled preglacial valley 2,700 feet across hit another buried bedrock valley extending from Lake Calhoun and extinguished

• rate = about 4 feet per year (some controversy)

• St. Anthony Falls retreated 8 miles in 10,000 yrs (confluence to here)

• Split around island at Minnehaha, left creek hanging, 1000 ft more retreat there to present

• Gorge: 8.5 miles long; river drops 100’ in <15 miles through Twin Cities

• limestone at St. Anthony Falls is only 14 feet thick, compared to the usual 25-foot thickness of the bedrock downstream
Falls retreat as Dakota settle area (0 yrs BCE woodland culture established, much as first French explorers observed

Ojibwe pushing west (with the white explorers); conflict plays out along Mississippi

1679
Sieur Du Luth explores Lake Superior

1680
Father Hennepin adventures downriver, is kidnapped, christens Falls of St. Anthony of Padua
Records falls at about where Stone Arch bridge hits east bank (some controversy on this)

1683
Hennepin publishes a book about his travels in America that is widely read in Europe. His description of the beauty and wonder of the waterfall on the Mississippi River makes the site famous.
Painter: Douglas Volk (1856-1935)
Ojibwe and Dakota Names for River and Falls

- Ojibwe:
  - Mee-zee-see-pee “big river”
  - Kakabika “severed rock”

- Dakota:
  - Minnerara “water turbulent sound”
  - Hahatanka “turbulent sound big”

Indigenous people used clay from the falls to paint baskets and canoes; harvested maple sugar on Hennepin Island.

Since Father Hennepin, humans have increasingly altered the river physically and ecologically, ultimately permanently flooding Spirit Island by 1963.
A few Indians belonging to Good Road's band had their tepees up, and were temporarily living in them, in the oak-openings on the hill a little west of the landing of the old ferry. There was an eagle's nest in a tall cedar on Spirit Island . . . We started up a number of large timber wolves . . . The banks of the river above the falls were skirted with a few pines, some white birch, many hard maples, and several elms, with many native grape vines climbing over them, which formed fine bowers up to the first creek [Bassett's] above the Falls. The table land back from the Falls was covered with oak

There were some thickets of hazel and prickly ash. On the second bench, a little below the Falls [Bohemian Flats], from a quarter mile to a half mile back, there was a dense growth of poplar that had escaped the annual prairie fires . . . Here and there were fine rolling prairies of a few acres in extent, in the immediate neighborhood of the Falls, but toward Minnehaha the prairies were two or three miles long, and extended to Lake Calhoun and Lake Harriet. Near the Falls was a deep slough of two or three acres. It was seemingly bottomless. This and a few deep ravines and grassy ponds were the only things to mar the beauty of the scene around the Falls.

Written by John H. Stevens, considered the first non-Native “settler” of Minneapolis, in 1891
• Falls retreat 1 more mile in 200 yrs

• Hennepin estimates the falls' height to be 50 or 60 feet.

• Early 19th century explorers describe St. Anthony Falls as being in the range of 16 to 20 feet high.

• Illusion from distance of sets of rapids; may have created natural fish ladder

• Indians portaged around the rapids

• Different habitat due to rapids, islands, lots of blocks in river
• 1803
Napoleon sells Louisiana Territory, including lands west of Mississippi to US; thereafter search for the source

• 1805
Zebulon Pike negotiates with Dakota for Fort Snelling (confluence)
Pike eventually makes it to Cass Lake; declares that the source

• 1820
establishment of Fort Snelling at the confluence of Minnesota and Mississippi Rivers attracts tourists, writers and artists

• In 1823
first steamboat navigates the Mississippi River as far as Fort Snelling.
1804 map of "Louisiana", edged on the west by the Rocky Mountains
• 1832, Henry Rowe Schoolcraft finds “true source” (veritas caput) – (ver + put) = Itasca

• By 1851 St. Paul had established itself as the head of navigation on the river.

• Tourists disembark at St. Paul and hire carriages or wagons for sightseeing excursions to St. Anthony Falls, Minnehaha Falls, and nearby lakes.

• Minnesota considered very healthy—cold winters, “healing water” in springs at the falls

• Slave owners escape malaria and heat in summer; abolitionists protest
Chalybeate Springs near Pillsbury A Mill, Minneapolis, ~1860
Minneapolis and St. Anthony became meccas for tourists, drawing people to see the famous Falls of St. Anthony. Visitors came primarily from the South, lured by local promoters extolling the health benefits of the cool climate. Visitors came from the East as well, including Henry David Thoreau in 1861. To accommodate the tourists visiting the falls, the Winslow House on the east bank (St. Anthony) was erected in 1857.
The Civil War brought an end to the Winslow House’s business and it closed.
Putting the River to Work

- 1823
  Fort Snelling begins using the falls to mill flour and wood

- 1837
  treaty—Franklin Steele land grab

- 1849
  founding of St. Anthony

- 1850s
  First commercial saw and flour mills

- 1857
  Minneapolis incorporated

- 1872
  Minneapolis and St. Anthony merge
Timber

• 1855
  Logging begins (Ojibwe treaty)

• Dam construction along tributaries proliferates—hold back meltwater to float logs to Mississippi

• By 1890
  St. Anthony Falls world leader in lumber production

• 1905
  timber era over; logged over and/or railroads took over from river
Retreat Accelerates as River Does More Work

- 1852 Migration of St. Anthony Falls accelerates as much as 35.5 feet per year
- Between 1857 and 1868 waterfall recedes at an average of about 26 feet per year, and comes perilously close to the limits of the limestone cap
- Logs actually levering limestone blocks apart
- Along with saw and paper mills, **flour mills** develop
- By 1880s leading flour mills in US
1857

Sawmills on Hennepin Island, 1857
Minnesota Historical Society
First mills on Hennepin Island, 1860
Minnesota Historical Society
Working the River TOO Hard…

• Eastman and Merriam purchase Nicollet Island, with water rights; threaten to accuse existing mills of stealing water.

• Compromise allows Eastman to build mill on Nicollet Island and run tailrace to foot of falls (tunnel under Hennepin Island)

• Eastman Tunnel 6x6 and 2500’ long
October 5, 1869: 

Collapse!

Minnesota Historical Society
Man over Nature

• 1874
  USACE begins construction of the dike.

• First excavate a 75-foot-deep vertical shaft on Hennepin Island.

• Next dig horizontal tunnel 4 ft wide x 8 feet high just below limestone to remove water and excavated material.

• Then excavate for construction of concrete wall.

• Flooding and collapse plague project

• 1876
  dike completed
  40 feet deep and 1,850 feet long.
Shaft & Wall Excavation, Hennepin Island

Courtesy: Anfinson
Wall Construction, St. Anthony Falls

Courtesy: Anfinson
• 1876 to 1880
USACE completes apron below the falls
builds two low dams above the falls to maintain a safe water level over the limestone
constructs a sluiceway to carry logs over the falls

• 1870 to 1885
Federal Government spends $615,000 to save St. Anthony Falls.

• 1885
maintenance of the waterfall again becomes responsibility of water power companies and City of Minneapolis

• Present
dike is still in place under the limestone, preventing erosion of the falls.
Meanwhile...

- 1878
  4.5 ft nav channel authorized; dredge channel below SAF

- 1882
  first hydroelectric station (Minnesota Brush Electric Co.) on Upton Island

- 1884-1912
  dams built upriver to stabilize flow; reservoirs flood Ojibwe lands

- 1883
  James J. Hill’s Stone Arch Bridge
Stone Arch Bridge, built 1883, view 1937
Hennepin Island with Exposition Hall in the background, ca. 1890
William H. Jacoby, photographer
Minnesota Historical Society
1898

Hennepin Island, ca. 1898
Minnesota Historical Society
Postcard of falls area, ca. 1908
Minnesota Historical Society
As Milling Concludes, Conquering for Navigation

• by 1880s trains have taken away river commerce

• 1894
  Congress authorizes first Mississippi lock/dam

• 1906
  dam in progress gives way to Ford dam in 1917 (No. 1)
  around this time 9 ft channel authorized

• 1920s,
  USACE keeps trying wing dams to deepen channel; goal is to keep at least 9 ″ of navigable water (draw of a barge)

• 1930s
  Lock & dam 2—Hastings

• 1930-40
  locks 3-26 Mpls to St. Louis
Last Hurrah: Upper St. Anthony Falls Lock and Dam

- 1823 first steamboat to Fort Snelling,
- 1857, 1000 per year to St. Paul;
- But less than 50 make it to Minneapolis
- Minneapolis always fighting to be head of navigation on the river
1938
Congress authorizes SAF upper and lower dams but depression and war get in the way

1960
last water wheel turns

1949-63 Upper SAF lock built and opened
- Highest lift on the river
- Eliminates Spirit Island
- Removed two spans of Stone Arch Bridge to make WIDE enough for barges after lock built

1987
hydropower plant collapses into the river

Today
- *grain* terminals all on Minnesota River
- sand and gravel is all that goes through Upper SAF Lock;
- Minneapolis may close upper river terminals
- would put gravel trucks on the roads
Turning the river around

- Mills of all kinds dumped waste into river; sand bars 50% sawdust, filings, etc.
- River putrid with this, human waste and, below stockyards, carcasses.
- By 1854, newspaper article complaining of pollution and advocating community clean up “bee”
- Eventually realized flour dust could be used to make money—animal feed.
- 1920’s 1 gallon of sewage for every 5 gallons of water
- Eventually could smell at capital
- Some treatment began in 1930’s; most cleanup since 1972 Clean Air and Water Act
- City now embracing the river front
- Considering ecological restoration
And now for something completely different...

This section all courtesy Kent Kirkby, Paul Morin and MHS

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