Big River

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Indians, Mussel Shells and Very Old Islands

By Robert Boshardt

In April of 1884, Theodore Lewis took a break from surveying Indian mounds along the Upper Mississippi Valley near Lansing, Iowa, to write to his sponsor, Alfred J. Hill of St. Paul:

"I have discovered a new feature, that is shell heaps. The natural surface gives no indication of them, but where there is cuts on the R.R. and the river bank is working away, they are exposed... The shell beds here contain broken pottery, bones, and fish bones."

Lewis' brief note is our first record of pre-European archaeology in the floodplain of the Upper Mississippi River. Forty years later, Ellison Orr, a naturalist from Waukon Junction, Iowa, provided a second account of floodplain archaeology in his description of the High Banks site, above Prairie du Chien, Wis. Orr described pottery, stone tools and mussel shells exposed in a cut bank on a sharp river bend. He lamented the impending loss of the site from construction of the lock-and-dam system in the 1930s.

Despite these early reports and the well-known abundance of Native American mound and village sites on the bluffs and terraces of the Upper Mississippi Valley, professional archaeologists largely ignored the Mississippi's floodplain until the 1970s.

The re-discovery of floodplain shell heaps near Prairie du Chien launched new surveys and excavations along the entire Upper Mississippi River and revolutionized our understanding of its past cultures.

Perhaps they assumed that the islands shifted so rapidly from flooding that they could not be very old and therefore, could not contain prehistoric sites.

That assumption changed thanks to a "river rat" from Prairie du Chien, named Al Reed. Al spent most of his life roaming the floodplains near (Islands continued on page 2)

Take Me to the River

By David Syring

For years the Twin Cities riverfront has been an industrial corridor with few opportunities for public use. At one point, the river became so polluted that virtually no fish lived in the Mississippi from the Twin Cities to Hastings, Minn. That situation seems to be changing, as St. Paul mayor Nick Coleman observed when he recently described "the retreat of the industrial glacier from the riverfront."

According to John Kerr, editor of the neighborhood-based monthly, The (Conference continued on page 4)

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Prairie, and over the years had seen
many shell heaps eroding into the
sloughs. He also found broken pot-
ttery, and other prehistoric and historic
fur trade artifacts at these sites.

In 1978, when a crew from the Uni-
versity of Wisconsin-Madison came to
Prairie du Chien to excavate sites on
the mainland, Al shared his knowl-
dge. Though doubting Al’s claims of
island sites, the archaeologists accept-
ed his offer of a boat tour. Soon they
were enjoying that unique thrill of ar-
chaeological discovery. Here were
sites that had never been plowed that
might answer many, many questions
about past cultures.

**Back to the Floodplains**

The re-discovery of floodplain
shell heaps near Prairie du Chien
launched new surveys and excavations
along the entire Upper Missis-
sippi River and revolutionized our
understanding of its past cultures.
The vast majority of this research has
been sponsored by the Army Corps
of Engineers and the U.S. Fish and
Wildlife Service, the two main federal
agencies managing floodplain lands.

One major focus of research has
been on how and when the flood-
plain formed. Geomorphology stud-
ies have helped to reconstruct the de-
velopment of the floodplain. Nearly
10,000 years ago, torrential glacial
meltwater floods scoured and then
filled the valley with sand and gravel.
Annual flood deposits of silt gradu-
ally built islands, especially over the
past 4,000 years. This created optimal
conditions for burying and preserving
archaeological sites.

Analysis of early maps and dating
of buried site layers revealed that Na-
tive Americans inhabited floodplain
islands as early as 5,000 years ago,
though older sites probably lie be-
neath the modern water table. These
sites not only contain well preserved
artifacts and ecofacts (animal bones
and charred plant remains), but are
stratified, meaning the remains of
older cultures are buried beneath
those of younger ones. Archaeologists
can literally peel off one slice in time
after another and see changes in arti-
fact styles (such as, the shapes of
spear tips and pottery decoration),
technology (such as when the bow
and arrow was introduced), as well as
ecological shifts in the environment,
including the plants and animals that
were harvested or hunted.

For example, a 2,000-year-old shell
heap on one island contained a distinc-
tive style of pottery with cut lines deco-
rating its surface. That layer was
found nearly three
feet below the mod-
ern surface, and was
beneath another lay-
er of shell that dated
to 1,000 years ago,
which contained a
completely different
style of pottery — one usually found
in the camps of the Effigy Mound
Culture. The earlier shell heap also
had spear tips with pointed hafting
stems, while the upper one had only
small triangle-shaped arrowheads.
Charred seeds from these sites
demonstrated early domestication of
local plants such as sumpweed and
the introduction of corn about A.D.
900.

Early residents probably collected
mussels primarily for food, but they
apparently also valued river pearls,
which were sometimes buried in
graves along with other prized pos-
sessions.

(Because mussels are filter feeders,
they can concentrate pollutants. I
wouldn’t recommend eating mussels
from the river today.)

**Digging the Islands**

I’ve never itched and blistered as
much as after working on floodplain
sites. First you establish a grid for
mapping excavation squares in the
midst of thick floodplain forests
whose main underbrush is poison ivy
and stinging nettle. It’s hardly the
stuff of Indiana Jones adventures (al-
though there are snakes). You have to
work through roots, and skim and sift
fine silty soils through quarter-inch
screens. Often rain or a high water
table makes the dirt wet, heavy and
sticky. Oh yes, did I mention
mosquitoes?

Then you reach the layers of shells,
which are like pavement. In the Up-
per Mississippi River, shell layers are
usually about 20 feet across and a foot
thick. Often the buried shells are very
well preserved. In fact, the brown
outer skin or “endoderm” is often in-
tact, and some shells retain their
pearly luster on the inside. The best
way to remove the shells is to get un-
derneath and pry up. This way they
come out complete, and can be identi-
fied.

**The Shell Game**

While many archaeologists identify
pottery and stone tool types, very
few specialize in animal remains and
even fewer in mussels. One of the
best is Jim Theler, of the University of
Wisconsin-La Crosse, who wrote his
dissertation on shell heap sites in the
Prairie du Chien area.

Theler’s work at one site found
that the mussel species of the two lay-
ers were different, indicating an environmental shift between 2,000 and 1,000 years ago. The shells from the older, lower level contained a greater variety of species, including more three-ridges, which are found in mature, slow-current sloughs with a silty sand base. The upper layer, however, contained nearly all ebony shells and monkey faces, species that prefer much swifter channels with sand or gravel beds. Thus, in the 1,000 years between the two Native American mussel harvests on this island, the adjacent channel changed dramatically.

Notably, the ebony shell was the most common mussel harvested in the Prairie du Chien area in prehistoric times, yet none are found above Keokuk, Iowa, today. The reason for this is that ebony shells attach to skipjack herring during its larval stage, and migratory skipjack have been cut off from the Upper Mississippi since the 1913 construction of a hydroelectric dam at Keokuk.

Theler's dissertation concludes with the recognition of a "seasonal round" by pre-European Native Americans, who came to the Mississippi River floodplain in the summer to fish, plant gardens and harvest mussels and other abundant floodplain foods. In the winter these groups would head to upland valleys and rely primarily on deer hunting.

**Saving History**

As the federal agencies managing the Upper Mississippi River continue to inventory archaeological sites in the floodplain, they are also evaluating impacts of activities such as dredging, barge traffic, pleasure boat wakes and increased marina construction. While sites were eroding in the 1880s, when Lewis first observed shell heaps, the recent archaeological research has revealed long-term stability for most of the islands.

There is no doubt that the largest single factor affecting cultural as well as natural resources on the Upper Mississippi River is the lock-and-dam system. The pools and lakes immediately above each dam permanently inundated numerous islands that no doubt contain buried sites. Worse was the accelerated erosion of higher islands that remained above the water. Recent analysis of Pool 8 found that nearly 90 percent of the islands that remained above the new pool in the late 1930s have completely eroded. Researchers observed similar rates of erosion on known archaeological sites in Lake Onalaska, above Lock and Dam 7. The Army Corps and U.S. Fish and Wildlife Service are attempting to reduce shoreline erosion by creating artificial barrier islands and laying rip-rap along the shoreline of some natural islands.

It is not possible to save all of the archaeological sites in the Mississippi River floodplain, and agencies are currently trying to evaluate which ones are most significant (qualify for the National Register of Historic Places), while prioritizing those that face the most severe erosion. Floodplain islands contain examples of our heritage found nowhere else.

Archaeological sites are non-renewable, and it is illegal to take artifacts from federal property. The logic behind this is that these artifacts represent our national heritage, which belongs to all of us. The penalties for private artifact collecting on any federal land include fines, confiscation of boats, cars and tools and possible imprisonment.

Federally approved repositories, such as the Mississippi Valley Archaeology Center (MVAC) at the University of Wisconsin-La Crosse, house some public collections from the floodplain. Visitors are welcome to make arrangements to see these. Because of their fragile nature, however, site locations must be kept confidential.

If you find arrowheads or other artifacts on Mississippi River Islands, you should contact the local refuge manager, the nearest Corps of Engineers office or the MVAC. You may actually learn more about your discovery by sharing it.

Robert Boshardt is the Regional Archaeologist for western Wisconsin. He has worked with the Mississippi Valley Archaeology Center at the University of Wisconsin-La Crosse since 1982, following completion of his master's thesis on an archaeological survey of islands in pool 10 near Prairie du Chien.

He has since conducted survey and excavations in pools 3, 5A, 6, 7, 8, 9 and 10. He can be reached at (608) 785-8451.
Riverview Times, many officials have talked about riverfront development, but neighborhood groups have only been able to react against proposals, such as metal shredders. To rectify that situation and give neighborhood groups a voice in the river’s future, the West Side Citizen’s Organization (St. Paul), and the Mississippi Corridor Neighborhoods Coalition (Minneapolis) organized the “Take Me to the River” Conference on May 31 at St. Paul’s Harriet Island Pavilion.

“Everyone seems to realize changes are happening in the Twin Cities river corridor,” said Kerr, who coordinated the conference. “The question is what kind and how fast. Everyone’s looking for the right balance and the right key to manage the substantial changes that are happening.”

The conference brought together neighborhood leaders, environmental groups, industry representatives and city planners for an afternoon of panel discussions.

“We need to look at ways to protect and restore the Mississippi as a river system,” said keynote speaker Suzi Wilkins, executive director of the St. Louis-based Mississippi River Basin Alliance. Her four-year-old organization unites 90 environmental justice groups and conservationists along the entire length of the river, from Lake Itasca to the Gulf of Mexico. Wilkins observed that the Mississippi basin includes 5 million acres of forested wetlands, provides habitat for 40 percent of North America’s migratory birds and contributes 90 percent of the freshwater in the gulf.

“4.2 million people rely on the mainstem of the Mississippi for their water supply, and even more use it for waste distribution,” Wilkins said. “We all live downstream.”

“I think we lost touch with the river the day the term ‘working river’ was coined,” said Fran Gumina of the Mississippi Corridor Neighborhoods Coalition.

With the assistance of Scott Wende Architects, the coalition created a conceptual river corridor plan to repair the river’s ecosystem, connect communities to the river and increase people’s awareness of the river. The coalition is working to get city officials to adopt and fund the plan.

“The most important thing we can do is make the river accessible,” said Patrick Seeb, of the St. Paul Riverfront Corporation.

Speakers discussed local projects designed to provide ways to get to the river and to strengthen community connections with the Mississippi.

Jack Ray, of the Longfellow neighborhood, described the work of Urban Boatbuilders, a group that helps inner city kids build wooden boats, then teaches them how to use them.

“The only way to get kids in touch with the river is to get them out on the river,” he said.

Amy Middleton, of Citizens for a Better Environment (CBE), described the restoration of Phalen Creek, a 1,500-acre urban watershed on the east side of St. Paul.

In the 1950s, developers diverted much of Phalen Creek underground and filled a wetland known as Phalen Lake to build a shopping center. The city has since purchased the property, and plans to reroute several highways through the area. Included in the plan, and aided by the neighborhood work of CBE, the city plans to demolish the shopping center — which was no longer profitable — and recreate a wetland.

CBE works to raise community consciousness about the pollution caused by urban runoff, and has convinced some home owners in the Phalen Creek watershed to make "wetland gardens" in their back yards. This holds rainwater longer, helping the wetlands reduce runoff pollution. The project will use the restored Phalen Lake as a final "processor" before water flows into the Mississippi.

"We're working to make more people 'own' the river," said Middleton. "Not necessarily by taking them to the riverfront, but to get them to see they are part of the riverfront where they are now."

Panelists debated controversial issues, including streambank erosion caused by recreational boaters, the Army Corps of Engineers’ feasibility study for increasing towboat traffic and the effects of industry.

Coordinator Kerr noted that prospects for future dialogue look good.

“We’re still talking about these things together," he said. "We’re not shouting at a wall. Consciousness about the river has dramatically increased over the last several years. There’s been a real attraction to the Mississippi, to what it means historically and to what it can mean. We’re hoping this conference could be the beginning of an active voice for people who have lived beside the river for decades, and even centuries."

David Syring is associate editor of Big River.
Comparing the Floods of 1997, 1993 and 1965

High water levels and dates

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As in 1993, high water levels in 1997 did not break any of the records set by the flood of 1965. Above Lock & Dam 9, however, this year's spring flood was higher than in 1993.

The Army Corps of Engineers operates the dams to maintain the navigation channel for shipping. During flood conditions the dams are wide open and have little effect on water levels.

The St. Paul District of the Corps, which operates the dams from the Twin Cities down to Dam 10, adjusts water levels based on a gauge approximately midway between dams. The target water level is called the "project pool elevation."

The Rock Island District of the Corps, which operates dams 11 through 22, adjusts water levels based on a gauge at each dam. The target level is called the "flat pool elevation."

The information on this map was collected and compiled by the St. Paul District and the Rock Island District of the Army Corps of Engineers.

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July 1997
Pool 13 Drawdown
The Army Corps of Engineers, in conjunction with the U.S. Fish and Wildlife Service (FWS) and the Environmental Management Technical Center (EMTC) may lower the water level of Pool 13, between Clinton and Bellevue, Iowa, by about a foot for several weeks next year. This would be the first pool-wide lowering on the Upper Mississippi.

The plan would maintain a channel 400 feet wide and 10.5 feet deep, making the drawdown contingent on water flow. The Corps will lower Pool 13 between June 15 and August 15, 1998, if the flow at the dam is 50,000 to 110,000 cubic feet per second.

Drawdowns encourage plant growth by imitating the natural rise and fall of river levels that preceded the lock-and-dam system. Periods of low water allowed plants to sprout and muck to settle. When water levels rose, new plants provided food and shelter for wildlife.

Drawdowns in Pools 24, 25 and 26 showed it is possible to benefit wildlife without hurting shipping (see Big River, November 1996). According to the Corps, a one-foot drawdown in Pool 13 will not affect shipping or recreational boating but may rejuvenate 440 to 1,000 acres of wetlands.

Invasion Reports

- Certain beetles and weevils can control the alien invader purple loose-strife, according to research at the McGregor, Iowa, and Winona, Minn., districts of the Upper Mississippi Wildlife Refuge. The insects eat only loose-strife and reduce infestations within two or three years. (See Big River, June 1993.)

- Isolated wetlands may offer refuge for native species in the war against zebra mussels, according to S. Jerrine Nichols of the U.S. Geological Survey. Nichols found extensive beds of 21 species of native mussels in a 908-acre embayment at the western end of Lake Erie. The bay had been diked to lower water levels and reestablish native vegetation.

- Native mussels showed good reproduction and zebras infested less than 1 percent of the mussels. Nichols thinks natives survive there due to unique sediment characteristics and water temperatures, according to the Zebra Mussel Update (May 1997).

- The USFWS hosted a boat tour on June 18 to view the Chicago Waterway System, which provides a direct connection between the Great Lakes and the Mississippi via the Chicago River and the Chicago Ship and Sanitary Canal. Species such as zebra mussels have taken this route into the Mississippi. The tour highlighted efforts to prevent the spread of the round goby, a small, aggressive fish that has invaded the Great Lakes. The FWS proposes to contain the fish with electric barriers.

Paddlefish Squeeze
An application to export three metric tons of paddlefish eggs as caviar to Japan each year could hurt struggling populations of the fish, according to the Mississippi Interstate Cooperative Resource Association (MICRA).

Such a harvest would gather 1,000 female paddlefish, each providing 7 pounds of eggs sold for $70 a pound. It is not uncommon for commercial fishermen to kill four or five males for each female caught, reports MICRA’s River Crossings (May/June 1997).

MICRA has requested that the U.S. Fish and Wildlife Service, which will approve or reject the application, declare a moratorium on paddlefish egg harvesting until a sustainable level of harvest can be defined.

Turtle Season
Wisconsin — Turtles are active now, but the state turtle season does not begin until July 15 and runs through November 30. State officials changed the season (previously the season ran from June 16 to April 30) to protect nesting turtles.

Females cross highways to move from wetlands to good nesting sites. It is now illegal to gather turtles found on roads during this crucial time.

Grumpy Old Perch
The current yellow perch population in Lake Michigan consists almost exclusively of older males. Recent surveys by state and university researchers found a ratio of 1,746 males to 1 female or 0.06 percent females, according to the Milwaukee Journal Sentinel (6-8-97).

Researchers found virtually no
young perch, suggesting an even more bleak future for the species. Among the possible explanations is that: alewives, an introduced species, may be eating most perch larvae; eggs may be failing for lack of nutrients; developmental problems may be killing perch fry; contaminants may be damaging reproductive functions of perch; zebra mussels may be eating foods preferred by perch hatchlings.

While researchers look for causes, Wisconsin, Illinois, Indiana and Michigan have banned yellow perch commercial takes on Lake Michigan.

### Julia to Star

**La Crosse, Wis. — The *Julia Belle* Swain will appear in an IMAX feature about Mark Twain, being filmed this summer.**

The *Julia Belle* is one of only five authentic steamboats operating on America’s western rivers (see *Big River*, August 1997).

### Dredge Spoils Debate

**De Soto, Wis. — The Army Corps of Engineers backed off on a plan to establish a dredge spoil site on private land near Blackhawk Park, after hearing opposition at a public meeting attended by about 150 people.**

The Corps planned to dump dredge spoils near the entrance to the park. Landowners, area officials and business owners said the plan would remove property from the tax base and eliminate the community’s income from the 50 families that use the land for vacations and weekends.

The Corps favored the spot because the spoils could be used to raise the level of Blackhawk Park and improve public facilities there, according to the *La Crosse Tribune* (6-25-97).

### Sculpting Beaches

**Wisconsin — The Wisconsin Department of Natural Resources (DNR) put a bulldozer on a river cruise to work redesigning beaches in Pools 7, 9 and 10. Beaches on many small islands were reshaped to reduce face slopes, clear vegetation and create tent pads.**

The bulldozer, owned by the Brennan Company, had been used in an Environmental Management Project north of Guttenberg, Iowa, and the DNR hired it for the beach work while it went via barge to La Crosse.

### Troubled Crossings

**Stillwater, Minn., and La Crosse, Wis. — Debate over building a new bridge across the Lower St. Croix River took a new turn when the Minnesota-Wisconsin Boundary Area Commission (BAC) reconsidered its stance. The BAC had formerly opposed a new bridge. Citing new information about expected future traffic, the deterioration of the existing Stillwater bridge and support for the bridge from governors Arne Carlson and Tommy Thompson, the BAC resolved: “We now believe that an improved river crossing is needed.”**

The proposed bridge was nixed by the National Park Service, because of the Lower St. Croix’s designation as a National Scenic Riverway.

The National Trust for Historic Preservation recently placed the existing bridge, one of three pre-World War II vertical-lift highway bridges, on its list of the 11 most endangered historic places in the nation, according to the *Winona Daily News* (6-17-97).

In other list news, La Crosse’s proposed north-south corridor across the La Crosse River Marsh (see *Big River*, June 1997) earned a place alongside 36 other proposed projects in the “Road to Ruin.” The report, published by Taxpayers for Common Sense and Friends of the Earth, puts the spotlight on what they rate as the worst proposed highway projects in the nation, according to the *La Crosse Tribune* (6-20-97).

### Power Failure Kills Fish

**La Crosse, Wis. — A power failure and faulty alarm killed hundreds of rainbow trout and jeopardized several experiments at the Upper Mississippi Science Center laboratory on French Island. Temperature controls and aeration equipment stopped, destroying many hours of staff work.**

A dispute between the lab, the contractor who installed the alarm system, and the Denver office of the U.S. Fish and Wildlife Service, which granted the contract, brought the project to a halt and has left parts of the lab and equipment unusable, according to the *La Crosse Tribune* (6-25-97).

### Proposed Power Merger

**Prairie du Chien, Wis., and McGregor, Iowa — A proposed merger of three utility companies — Wisconsin Power & Light, Co., IES Industries of Cedar Rapids, Iowa, and Interstate Power Co. of Dubuque, Iowa — includes plans for a pair of power transmission lines across the Mississippi between Prairie du Chien, and McGregor.**

Lines would cross the Upper Mississippi River Wildlife Refuge, and could harm fish and mussels, according to the Wisconsin Public Service Commission’s environmental analyst, Kathy Zuleisdorff. The lines might interfere with bird migrations along the Mississippi flyway, used by 40 percent of North America’s migratory species, according to the *Wisconsin State Journal* (6-4-97).
**Special Events & Festivals**

**July**
- 1-6 Steamboat Days, Winona, Minn.
- 2-6 Riverfest, La Crosse, Wis.
- 3-4 Heritage Days, Bellevue, Iowa.
- 3-6 Riverboat Days, Clinton, Iowa.
- 4 Fireworks over St. Anthony Falls and Nicollet Island, Minneapolis.
- 4 Old Fashioned Fourth, Bettendorf, Iowa.
- 4 Polka Fest at the Silver Moon, Alma, Wis.
- 4 Fourth of July Celebration, Elk River, Minn., (612) 441-3110.
- 4 Rockin' on the River, Prescott, Wis.
- 4-6 Mississippi Valley Blues Fest, Le Claire Park, Davenport, Iowa, (319) 632-5837.
- 4-6 Fourth of July, under the bridge, Marquette, Iowa, 1-800-896-0910.
- 5 Mosquito Fest, Brainerd, Minn.
- 5 Stars & Stripes River Days, Guttenberg, Iowa.
- 5 Old Fashioned Independence Day, Cassville, Wis.
- 8 Paintings of the Mississippi River, 6 p.m. - 8:30 p.m., historical slides, Fridley, Minn., (612) 574-2850.
- 10-12 Red Wmg (Minn.) Pottery Convention, Nicollet Island, Minneapolis, (612) 441-3110.
- 10 Mississippi River Singing, folk concert with Charlie Maguire, 7 p.m. - 9 p.m., (612) 767-6493.
- 12 Bird walk, Effigy Mounds, Marquette, Iowa, (319) 873-3491.
- 12-13 Jamboxx, St. Feriole Island, Prairie du Chien, Wis., 1-800-896-0910.
- 13 Walk your dog when the moon is full, 8:30 p.m.
- 14 Minnesota-Wisconsin Boundary Area Commission, Wabasha, Minn., (612) 441-3110.
- 15 Fireworks over St. Anthony Falls and pedestrian/bicycle bridge with a spectacular view of the river. Free, (612) 559-9000.
- 19 Walk your dog when the moon is full, 8:30 p.m.
- 22-24 Fish Fly Days, De Soto, Wis.
- 22-24 Jamboree, St. Feriole Island, Prairie du Chien, Wis., 1-800-896-0910.
- 23 River Rats Day Camp, ages 8-12
- 24-27 Bix Beiderbecke Jazz Fest, Davenport.
- 25-26 Catfish Dinner, Genoa, Wis.
- 25-27 Kaw Riverfest Days, Wabasha, Minn.
- 26 Archaeology tours of Perrot Park, 10 a.m. - 3 p.m., Trempealeau, Wis., (608) 785-8454.
- 26-27 River Rendezvous, Harriet Island, St. Paul, Minn.
- 26 Mississippi River Singing, folk concert with Charlie Maguire, 7 p.m. - 9 p.m., Hastings, Minn., (612) 437-4127.
- 26 Canoe the Mississippi
- 27 Native turtles
- 1-3 Log Boom, La Crosse, Wis., (608) 791-1177.
- 2 River Rendezvous, Harriet Island, St. Paul, Minn.
- 3 Mississippi River Singing, folk concert with Charlie Maguire, 7 p.m. - 9 p.m., Hastings, Minn., (612) 437-4127.
- 8-10 Nelson (Wis.) Days.
- 8-10 Lansing (Iowa) Fish Days.
- 9 Bird Walk, Effigy Mounds, Marquette, Iowa, (319) 873-3491.
- 9-10 Camanche (Iowa) Days.
- 9-10 Catfish Festival, Potosi, Wis., (608) 763-2078.
- 16 Moonlight hike, Effigy Mounds, Marquette, Iowa, (319) 873-3491.
- 16 Grand opening, John Deere Commons, Moline, Ill.
- 22-24 Fish Fly Days, De Soto, Wis.

**Meetings & Hearings**

**July**
- 10 Lower Wisconsin State Riverway Board, 5 p.m., Blue River Community Building, 1-800-221-3792.

**Workshops & Conferences**

**July**
- 10-13 Mississippi River Basin Alliance, St. Louis, (314) 822-4114. Bus ride, $50, (612) 645-0159.
- 13 Muddin' in the Mississippi, teacher's workshop, Wabasha, Minn., limited reservations, (612) 345-3365.

**Almanac**

By Kenny Saltvog

The big river lies flat and calm. Algae blooms hook up with duckweed to form small floating islands that disintegrate with the touch of a hand. Fish feed topside now. The water's surface is broken by ripples, ripples and boils as they feed leisurely on various insect latches.

**July on the mighty Mississippi** — heat, bugs and humidity seem to be everywhere. If one rides slowly along in a boat with an arm stretched, soon beads of moisture form. The air is thick with the scent of algae blooms, and the smell of rain is everywhere. If you are dry, something cool to drink, a bite to eat and light clothing is all you need. The heat is easy. So is it with the critters as well. Their coats are light. The fish feel easily. Today is here. Tomorrow will come soon enough. Good and relaxing times are had by all who know the secret delight to be found during those hot, lazy days of summer along the big river.