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# Wisconsin

## NATURAL RESOURCES

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# The stick that really walks

LELAND AND KATHLEEN HANSEN, Barnes

Unusual insect, remarkable mime, that's the walking stick. It's relatively common in Wisconsin but not frequently seen because it so closely resembles the environment in which it lives. Making the insect even more twig-like, Wisconsin's species (*daphneromera femorata*) is a wingless creature with a long, nearly cylindrical body and six legs like jointed stilts.

These insects are strictly plant-eaters, totally harmless to man. When present in great numbers, they may destroy forest foliage.

Sometimes, after several years of warm, dry weather, great congregations or "festoons" of walking sticks break out nearly overnight and last all summer. They can completely strip all vegetation over a large area, especially from oaks — the adult's favorite food. The largest and most recent such outbreak was in Marinette County in 1961, where walking sticks completely denuded a total of 36,000 acres. But an outbreak is usually only temporary; the next year the insects subside and the trees recover.

Walking sticks move excruciatingly slowly and remain quiet for incredibly long periods of time, relying on their "protective resemblance" (natural camouflage) to protect

them from predators. In addition to protective resemblance, some species eject a stinking, acrid fluid. Thankfully, the species found in this state has no such ability.

The female walking stick simply scatters her eggs on the ground under the trees on which she feeds, making no provision for their safety. Wisconsin's species drops its eggs in late summer, and they don't hatch until the following spring. Most eggs remain until the second spring before hatching, so outbreaks often occur every two years. When large numbers of these insects are present, the dropping eggs sound like gentle rain on a quiet day.

The eggs are less than a quarter-inch long, but the young walking sticks are already three-quarters of an inch in length when they unbend their gangly legs and extended body from within.

The largest species of walking stick lives in the South, a yellowish-brown creature as much as six inches long. Our common walking stick is smaller — about 2 1/4 inches not including antennae — and is found throughout Wisconsin and the eastern U.S. This summer, when hiking in the woods, keep your eyes open for the stick that really walks.

Photo by Ronald Giese

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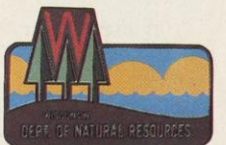
Front cover:

Indiscriminate dumping of hazardous waste is a thing of the past, but memories of its danger linger. In Wisconsin a system of control and management is evolving.

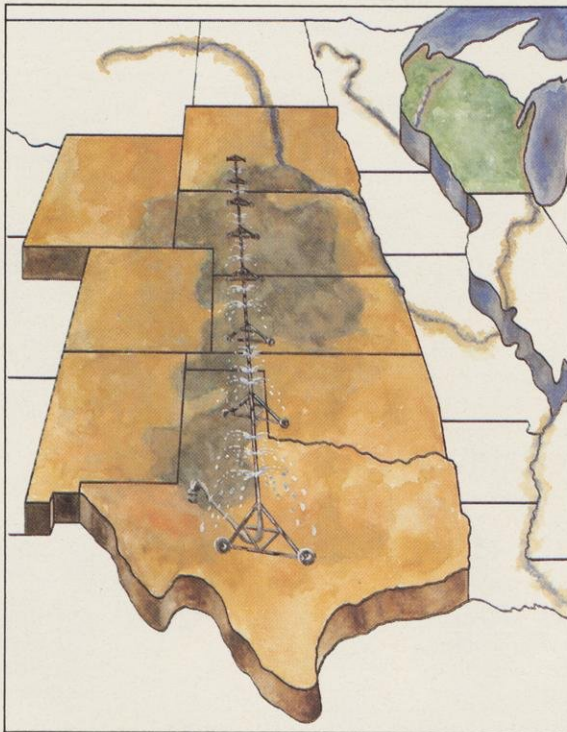
Illustration by Artist Tom Garbutt, 1119 Catalpa Circle, Madison, WI 53713.



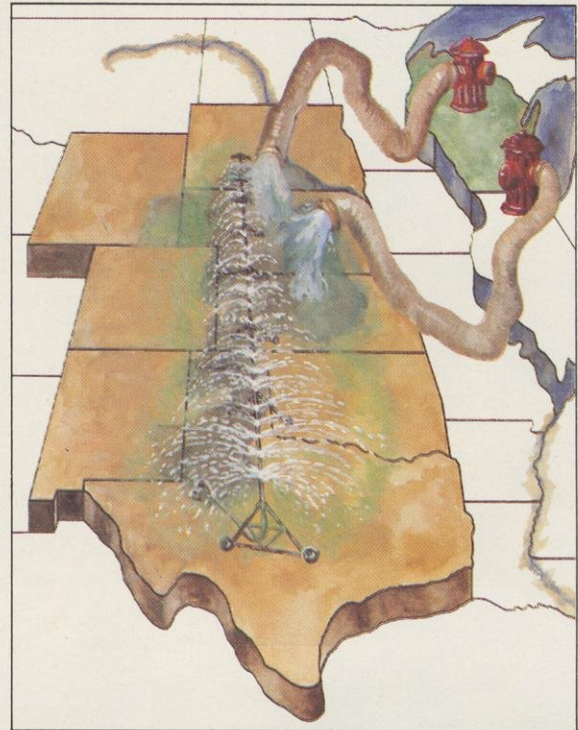
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Groundwater from the Ogalalla aquifer which nourishes a giant irrigation industry with international trade implications is being pumped dry.



Water from the Great Lakes could replenish it.  
Illustrations by Artist Tom Garbutt 1119 Catalpa Circle, Madison, WI 53713

The Age of Aquarius might reveal Wisconsin as Water Bearer to the nation. Scarcities point that way. Interbasin diversion is possible. Here are some speculations.

**JOHN E. ROSS, Professor of Environmental Studies, UW-Madison**

In late January of 1979 I drove with Usameh Jamali, a friend from Kuwait, across the back roads of Southern Wisconsin. It was a blue-sky day, temperature stuck at 10 below zero and the snow had drifted unusually high. We were headed for Usameh's first experi-



Ag-Journalism photo, UW-Madison

Because Wisconsin has water it grows great corn....





ence at cross-country skiing. For an Arab, who knows the flat desert from here to the horizon, and summer temperatures of 135 degrees, this would be a strange adventure.

I could not resist complaining about all the snow I had shoveled off my roof and out of my driveway the week before. He came back sharply, "Don't complain. When I look out the car window I see it as snow, but I also see it as water."

Good point. Kuwait is a little country at the top of the Arabian Gulf of roughly 8,000 square miles (5.1 million acres). But there is no fresh water. The Kuwaitis distill water from the sea, using natural gas to run the stills — all the water for drinking, for shower baths, for cooking, for industrial processes including the oil industry. In fact, fresh water for up to two million people must be desalinated.

Our conversation set me thinking — about two things.

First, about all the water in and around Wisconsin. We average nearly 36 inches a year precipitation. We get more precipitation in January than Kuwait does in a year. Within Wisconsin

there are 1,129,000 surface acres of water, almost four percent of our total surface. Even more striking, we are a coastline state in that we're bounded by major bodies on three sides — Lake Michigan on the East, Lake Superior on the North, and the Mississippi River on the West.

The five Great Lakes (Superior, Michigan, Huron, Erie and Ontario) store 22,800 cubic kilometers of fresh water, by far the largest surface reservoir of fluid water in the world. We are thus not landlocked, though the nearest ocean is over a thousand miles away. Then, under our feet are huge volumes of groundwater. Water is so plentiful in our "economy" that it is essentially free.

Then, I had a second string of thoughts.

In Wisconsin there are about 64,000 square miles and about 4.6 million people. That works out to a little more than nine acres per person. In Kuwait there are about 2 1/2 acres per person. Many of the residents are attracted to Kuwait by oil — and the country imports most of its food. There are many differences, but if Wisconsin had the same

population density as Kuwait, there would be upwards of 16 million people here in Wisconsin.

This seems a little far-fetched — 16 to 18 million people in Wisconsin! After all, there are only about 18 million now in the entire Great Lakes drainage basin. But then, what about China which supports a billion people with roughly the same amount of arable land as the US? There are areas in China, even rural areas, more densely populated than 2 1/2 acres per person.

I certainly don't expect to see such dense populations in Wisconsin soon. A hundred years from now might be different. But I kept thinking about all the water Wisconsin has and what's happening with water in other areas, how scarce it is, even in some places right here in the United States.

In that regard, another friend brought me up short recently. Phil Raup, a resource economist at the University of Minnesota, pointed out that the most phenomenal change in American agriculture in the past three decades is the increased acreage in irrigated land. From 1944 to 1974 the amount of irrigated land doubled. Some was in Wisconsin but over three-fourths of that increase came in the central and southern Great Plains — Nebraska, Kansas, Oklahoma and Texas. Irrigation in the high plains is mostly from wells, more specifically from the Ogallala groundwater reservoir. By 1974 a new industry appeared. Almost suddenly, 44% of all fed cattle marketed in the US came from there. It was a westward trek of meat animals, away from the Corn Belt. With the movement of the feeding industry onto the high plains, grain in the Corn Belt has been freed up for shipment overseas. Thus, a major force in our international balance of payments depends in part on groundwater supplies to the West.

Phil also pointed out that on the high plains the water has been regarded as a free good, because most of the cost was for cheap natural gas to run the pumps. But now there's concern. The water



If the northern Arizona desert had Wisconsin's water it could, too. Photo by Francis Hole, Department of Geography, UW-Madison





table has been steadily falling. In several Kansas counties it's been at rates exceeding five feet per year. Irrigated fields in the Texas panhandle are being abandoned. Natural gas prices have doubled and more increases lie ahead. Consider the impact of deregulating natural gas prices in this setting!

The future of irrigation in the region is entering a critical phase, so critical that the Governor of Kansas has proposed that the Arkansas River, which cuts across the southwestern third of Kansas, be diverted both north and south into the irrigated regions. There is also some discussion of tapping into the Missouri River to replace the declining groundwater.

Stretching west from the Great Plains, other interests have had their eyes on water — for coal mining, oil shale production, and for the recently discovered petroleum and gas wells in the geologic overthrust belt of the Rocky Mountains. The interest in Rocky Mountain fossil fuels grew for two basic reasons: concern about declining reserves of petroleum, and about the possibility that foreign supplies would be cut off in political action. For these new water needs, the rivers came first to mind — the Yampa, Green and Colorado, the Rio Grande, the Yellowstone, the Madison, Jefferson and Gallatin. At one point an energy corporation suggested the possibility of diverting the Missouri River. A monumental contest is shaping up for water. Arizona and Southern California, where the shortage is long-standing, haven't been eager to hear about these new demands. Southern California is again aggressively pursuing the idea of a diversion canal around the Sacramento River Delta.

There are, of course, options in the way the energy of the region will be developed and consumed. We could bring coal east and south in unit trains or slurry pipelines. We could convert it to liquid or gas, or even electricity, and ship that out of the region. Or we could let industry and populations gravitate to where the energy is, in which case urban

populations would increase rapidly in the region. But somewhere out there is a boundary, a limit created by the regional supply of water — unless water could be moved to the Great Plains or to the Rocky Mountains via inter-basin transfer on a large scale.

If inter-basin movement of water were feasible (technically, economically and politically) then the energy-related development in the Rockies would not be in such direct competition with the burgeoning Sunbelt, which now uses most of what's available.

Now, with this background, let's refocus on Wisconsin and what those water shortages might possibly portend.

Note first that Wisconsin does not have a reservoir of fossil fuels. This is in part because over much of the state the Cambrian, even pre-Cambrian granite shield is at or near the surface and there are no major sedimentary basins where coal or oil could have formed. We have tended to think of ourselves as energy poor, even at the mercy of the energy resource owners. Some economists recently predicted a devastating impact on Wisconsin's economy as the proportionate costs of energy climb higher. If inflation, driven by energy prices, is a rough ride for the nation, Wisconsin might get bucked off. To prevent this, it is conceivable that we could begin to

look at water much more seriously as an exportable resource. If water per se is a free good and the main cost is moving it, then we should not take this idea of inter-basin transfer lightly. After all, for decades the dominant cost of petroleum was transporting it.

Inter-basin transfer of water from the Great Lakes or from the Mississippi River boggles the mind, because of the political interrelationships and because of the engineering involved. But removing political obstacles for the moment, one could imagine a system that diverted the Missouri River west and replaced the downstream water through the Chicago canal, or out of Lake Superior through

the St. Croix and the Mississippi. One might also imagine diverting rivers that flow into Hudson's Bay into the Great Lakes to replace water out of the lakes taken to the west and south.

A politically more viable option might be to bring the coal, or the synfuels, in some form, to the Midwest where the energy would then be used industrially, in a greatly intensified agriculture, or for much larger consuming populations than now live here.

In 1978 the Great Lakes Basin Commission predicted at least a doubling of coal shipments on the Great Lakes by 1985. At that time about 70% of total energy consumption in the United States was in the form of petroleum and natural gas. This increase in coal shipments would reflect a trend away from petroleum toward coal as the basic fossil fuel. The prediction of barge traffic for the coal implied that water shipment would be cheaper than unit trains. Presumably such coal would arrive in Duluth-Superior and be consumed throughout the lakes basin. The shift to coal might be mediated by an increase in nuclear generation of electricity. Additional nuclear generators would likely be located close to abundant supplies of cooling water.

There continues today an involved argument about whether it is more advantageous for the US to mine Appalachian coal, prairie coal from Illinois and Iowa, or Western coal. The argument is in terms of Btu's, sulfur content, strip mining recovery costs, and not least, availability of water. It is likely, of course, that we will continue to mine from all three regions.

The projected daily demand of water at the end of the century, for the nation, has been put at around 900 billion gallons. If one assumed no major change in technology (that is, efficiency in water use); if one assumed a uniform supply from year to year; and if one assumed current rates of increase in per capita consumption, there would not be enough readily available water for the nation as a whole at the end of the

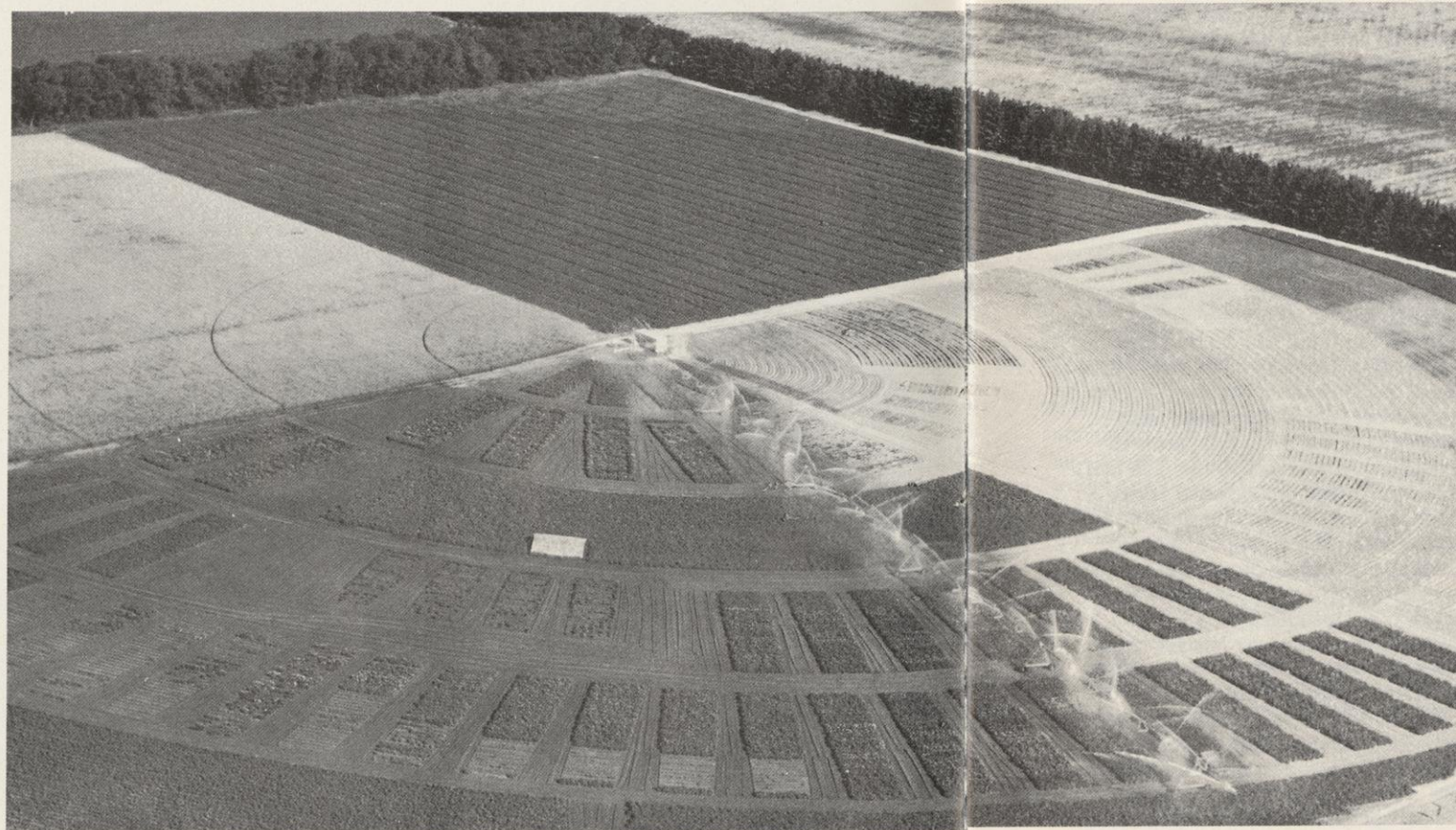
century.

This, of course, oversimplifies. There will be technological changes. One of the reasons economists have such difficulty putting a market value on water is that there can be quantum changes in the efficiency of water use. And it is thus not easy to predict when the price of water might respond as a function of demand and/or scarcity. Annual rainfall varies. Even water-wealthy regions like the Northeast, including Wisconsin, experience periodic droughts.

The regional distribution is also very important. From time to time we have heard states rich in fossil fuel deposits say about the Upper Midwest — "let them freeze in the dark." We could respond, parochially, "let them parch in the sun."

But let's be more reasonable. Wisconsin has water. We are approaching the time when water will be scarce in some regions of the country, even limiting in terms of development. Water will seep its way more and more into the market place. It will be valued. The combination of water and rich, arable land could well refocus the next major round of US economic development into the Upper Midwest. Water within the Great Lakes in the future will still be used as a transport channel, and to dilute our wastes. But we should expect it also to be considered a first-order resource, that is, a renewable, consumable resource or even a depletable resource.

We have time to consider that in a reasoned way, but not extra time.



One of the immense circle irrigation systems in the High Plains. The beef produced here frees Grain Belt

products for export.



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# Groundswell for groundwater

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Nobody should be able to pollute groundwater under someone else's property nor be allowed to make it undrinkable. Public support for this idea is overwhelming. But . . .

**LAURIE MANN, DNR Water Quality Planning, Madison**

Let's dispel a myth. Geese may come to Wisconsin all the way from Canada, but groundwater — our vast, under-the-ground water supply — definitely does not. And though a certain beer company claims the spring water they use is "naturally pure," people are beginning to worry that Wisconsin's groundwater users — in "God's country" or elsewhere — may eventually face the kind of pollution nightmare that's fast becoming a scary reality in New York, Florida and other states.

From a recent *New York Times* . . .

"In the last three years, more than 600 groundwater wells have been closed in the New York metropolitan area because of contamination by chemicals, and public health and environmental officials fear that thousands more may be jeopardized in coming years."

We don't need to be alarmists in Wisconsin. Expert opinion is that most Wisconsin groundwater is still in excellent shape. But what about tomorrow? Can a New York nightmare happen here?

The answer is . . . it depends. It depends on what we do now to keep groundwater clean. If you think the issue doesn't concern you, think again. Two out of three people drink water from underground sources every day: two-thirds of Wisconsin citizens draw their water from a well. In other states, where surface water is the primary source, groundwater protection may be a less important topic. But in Wisconsin, the prospect of contaminated groundwater is deadly serious business.

"We had nitrates [in our well] for six years, and we lost about 150 head of cattle. It cost me in cash about \$567,000. It's hard to come back and start farming again after something like that. And it's hard to blame anybody because this is a new thing. I was the

first one in Portage County to have a problem."

The speaker is James Treder, venting his frustration at a recent public information hearing on new groundwater protection rules. He was not alone in expressing deep emotional concern for groundwater. All told, well over 400 people turned out for the hearings. Not all supported every detail of every DNR proposal. But overall, Wisconsin citizens gave a clear message: groundwater quality is extremely important and it should be very carefully guarded.

Such is the basic philosophy at the foundation of new rules to protect Wisconsin's groundwater. It seems a simple philosophy — until you start asking what you have to do to keep groundwater clean — or clean it once it's polluted. Or start looking at the dozens of things people do that can pollute groundwater, and how changing these things runs smack up against powerful interest groups and taken-for-granted life styles.

Before we get at some of these complexities, let's first make sure we understand exactly what groundwater is, where it is and how it gets there. Groundwater is not an underground river. It is water in the pores of rock and soil beneath the entire land surface of Wisconsin. Groundwater supplies are recharged when rain seeps through, down to an area permeated with water — the "zone of saturation." The top of this zone is called the water table. Now, under the best of conditions, soil can filter out most any contaminants rainwater may carry with it. But if not, pollutants wind up in groundwater. How does this happen? Let's look at a few possibilities:

A heavy rain falls steadily on a community landfill. Chemicals like chlorides, heavy metals and phenols are "leached" out of the landfill and into the rainwater. If the landfill isn't sealed, or if the soil is unsuitable, contaminated rainwater moves into the groundwater. The end result is a polluted water supply.

The same rainstorm floods a farm field heavily spread with fertilizers — more fertilizer than the plants can use and more than the soil can absorb. Again, chemical compounds dissolve in the rainwater and the groundwater becomes polluted.

Rain falls on a 20-year-old septic system, built on sandy soil over a high water table. Rainwater flows down

through the drainfield, carrying away dissolved nitrates as it goes. The drainfield is below plant roots, which otherwise would take up the nutrients, so nitrates continue on a downward path to groundwater.

In similar ways, groundwater can also fall victim to leaking municipal sewer lines, mine tailing ponds, industrial waste lagoons, road de-icing, abandoned wells, accidental oil spills — the list is almost endless.

As you can see, the ways we can injure groundwater are many and varied. But from a technical viewpoint, the ways we can offset the damage are conversely narrow. For all practical purposes, most experts believe there is but one way to maintain high quality groundwater: prevent its contamination in the first place.

Groundwater is not like surface water or air. If you dump pollutants into a stream, you can expect the stream to eventually purify itself to a more or less predictable degree. This concept of "assimilation capacity" is what "wasteload allocation" on the Fox and Wisconsin rivers is all about. Paper industries and cities are allowed to put a certain amount of waste into those rivers because complex mathematical models predict that a certain amount won't jeopardize the rivers' health. Rivers are able to cleanse themselves.

Groundwater, though, is a poor self-cleaner. The characteristics that allow air and surface water to diffuse or eliminate pollutants don't apply to groundwater.

Groundwater moves very slowly, for example. Pollutants spread out in "plumes" from the source, and the rate of spreading (diluting) is as slow as the rate of groundwater movement — only a few feet per year. Groundwater also lacks oxygen and living organisms to biologically remove pollutants. The fact is, once polluted, groundwater takes decades if not centuries to return to a purified state. Our tolerance, then, for activities that pollute groundwater must be much lower than for activities that pollute other resources.

Just how much lower has yet to be finally determined. But it's an issue that has stirred a hornet's nest.

Predictably, mining, dairy product and other industries that grapple with chemicals and wastes press for "reasonable" rules. They'd like DNR to develop a list of contaminants and set a safe level for each one in groundwater. This is



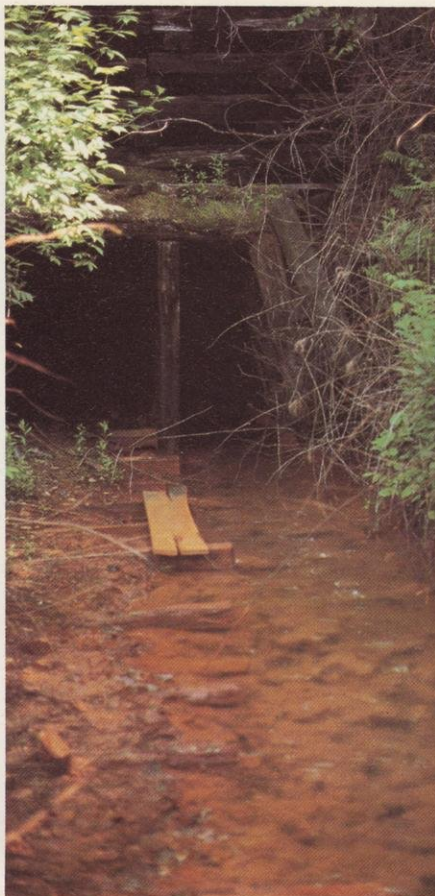
essentially the system that the US Environmental Protection Agency uses to administer the Safe Drinking Water Act. Under this law, EPA sets limits for about 20 substances. As long as drinking water doesn't violate the limit for any of these substances, all is considered okay. Industry is comfortable with these "drinking water standards" because they are concrete, measurable, predictable and keep waste treatment costs in check.

So what's wrong with it? Ask the woman in Goodman, Wisconsin, whose well is mysteriously contaminated with gasoline. There is no limit set for gasoline. Says Mrs. Ray Millette, "I'm tired of waiting for something to be done. We cannot drink the water or cook with it. Our sewer is backed up because all the bacteria [in our septic tank] are dead from the gasoline."

You may ask, "Well, why doesn't somebody set a limit for gasoline? There's really nothing wrong with the drinking water standards scheme. You just haven't put a limit on enough substances."

That's the problem. There are quite literally thousands of substances that could find their way into groundwater. Identifying them is hard enough. Thinking we can figure out a safe level for each one absurdly overestimates state-of-the-art technology in public health medicine.

That means we have a dilemma in Wisconsin. On the one hand, we know



Polluted groundwater emerging from a mine. Mining interests want drinking water standards for groundwater which means that some contamination would be allowed. Ag-Journalism Photo, UW-Madison

that our farms, homes and industries will inevitably change groundwater to some degree. To expect literally no change is not realistic. It's also probably unnecessary since there are acceptable limits for some substances found naturally in groundwater. On the other hand, we have an abundant, high-quality resource that cannot be cleansed once it's messed up. And we are not technically sophisticated enough (and may never be) to know precisely just how much contamination qualifies as "messing up" groundwater.

So DNR came up with a philosophy for protecting groundwater. The bottom line of that philosophy is simple. No one should be allowed to change the quality of groundwater beneath someone else's property. Landowners also should not be able to contaminate groundwater under their own property to the point that it will violate drinking water standards or lead to surface water pollution. To carry out that philosophy, DNR wrote up a set of proposed rules for protecting groundwater.

Standard operating procedure for coming up with and adopting new regulations can be a rigid, rather formal affair. It usually means holding public hearings around the state, letting anyone interested have his say, then revising the regulations to reflect public comments. Such hearings are sometimes dominated by a few very vocal spokesmen, usually representing some special interest. The little guy very often isn't heard from.

So in a second-look decision, DNR felt groundwater was too fragile a

Farmers want groundwater protection to prevent nitrates from causing abortion and other problems in cattle.





resource and too important to risk not hearing from everyone concerned. Rather than standard, formal public hearings, where people are asked to approve or disapprove of already-written rules, DNR asked those attending state-wide hearings what *they* thought should be done about groundwater pollution.

The response was amazing. A surprising number of people attended the hearings — 110 in Madison, 135 in Stevens Point, 50 in Chippewa Falls and Ladysmith, 40 in Crandon, 65 in Waukesha and Green Bay. At some of those cities, the participants broke up into small groups of a half-dozen or more, lead by a facilitator to keep the discussion on track. The idea was to make everyone feel comfortable enough to share their opinion without having to get up and make a speech in front of a roomful of people.

Here are some of the most frequently heard opinions:

- Dairy farmers are extremely concerned that their cattle may be jeopardized by nitrates in well-water. They want DNR to do whatever it can — and fast.

- Rural well users want adequate guidelines on pesticides and fertilizers.

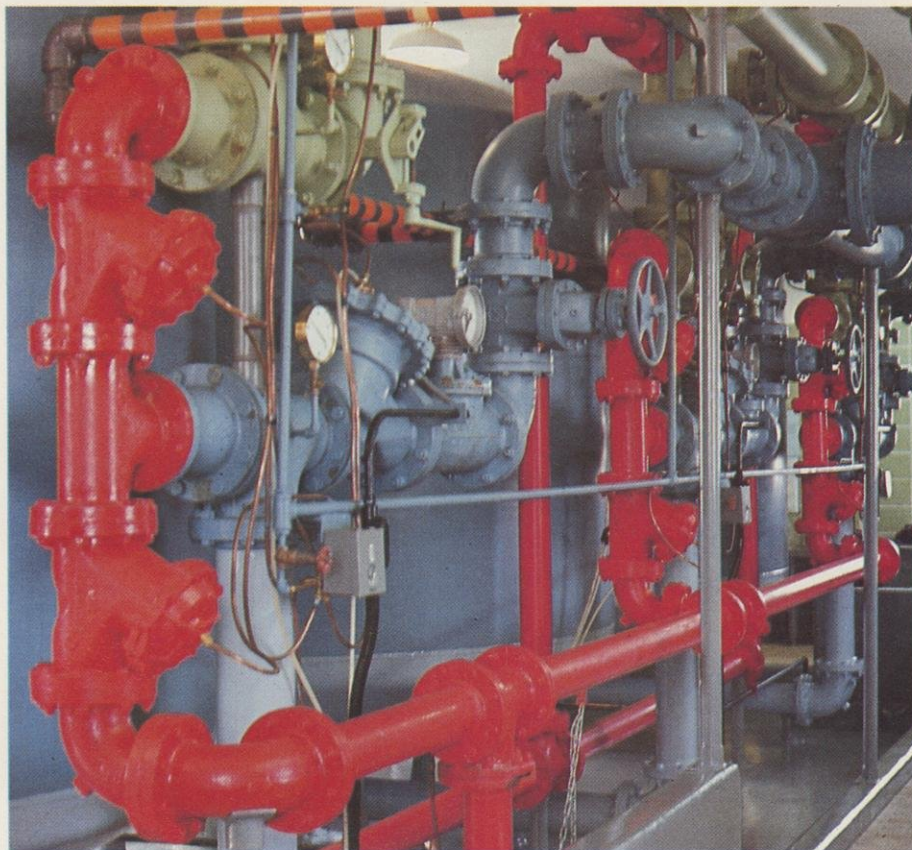
- Landowners should not be able to contaminate groundwater under their own property. Polluted groundwater eventually moves to his neighbors' wells.

- Knowing what's in groundwater in order to keep it the same is extremely difficult. Monitoring is very costly and chemical make-up changes naturally from season to season.

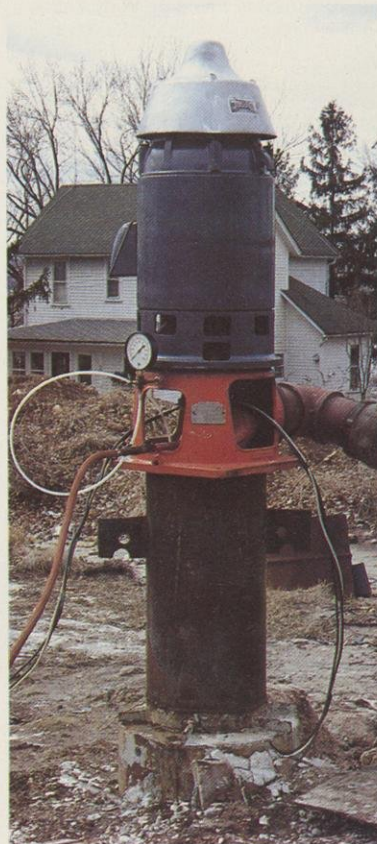
- No technology available today for burying solid wastes is going to totally prevent groundwater from changing in some way. To expect absolutely no change is to eliminate on-land waste disposal entirely.

These concerns are well-founded, and although the public hearings strengthened the commitment to protect groundwater, they also showed that more work was needed to adequately accommodate all interests. Hydrologic, economic and social realities make groundwater protection a uniquely complex issue.

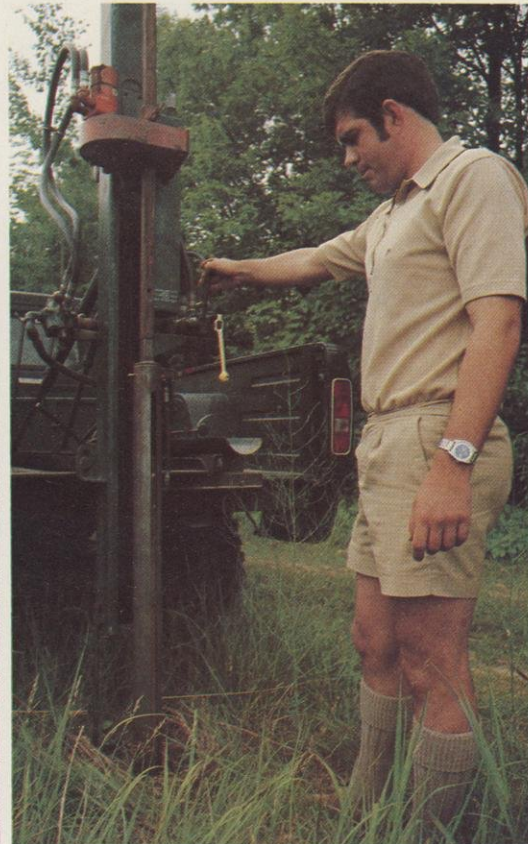
The work will go on. Any new regulations will likely undergo close public scrutiny, so if you missed the first round of information hearings on groundwater, you'll get a second chance to be heard — and maybe more. Don't think it's not worth the effort. As a 71-year-old retired well driller warned at one of the hearings: "I won't be around much longer, but I don't want my kid's kids to have to say, 'Where the hell was grandpa?'"



The water treatment plant at Portage. About two-thirds of Wisconsin's citizens drink groundwater every day. Keeping quality high is a DNR priority. Photo by Robert Baumeister



Test pump. After a well is drilled, water quality and quantity are tested. Close to 100% of all wells sunk in Wisconsin come in with potable water.



About 300 non-community water systems in Wisconsin contain nitrates. Serious health effects for babies and pregnant women can result. One solution is to deepen the well and tap another aquifer. Another is to sink a new one. There is no technology for cleaning up groundwater. Ag-Journalism photo, UW-Madison





# Dam those beavers

Painting by Artist Richard Timm, courtesy of Nature House, Inc., Griggsville, IL 62340

Mother Nature's engineers are reproducing shamelessly and wrecking Wisconsin trout habitat. But everyone loves beaver. Even a few trout anglers think they're okay. Fish managers would be happy with a "manageable level."

**THOMAS F. THUENGLER,**  
*DNR Waters Inventory, Marinette*

Beaver in Wisconsin are at an all time high. At first blush, this sounds good. But fish managers say "no." Beaver can ruin high quality trout streams. They are Wisconsin's number one trout management problem.

The state has only 9,500 miles of trout streams, far below Michigan's 13,000, New York's 17,000 and California's 18,000 miles, but every year angling pressure increases. Preserving these streams and managing them intensively are absolutely critical to the future of quality trout fishing in Wisconsin. Beaver might kill it.

How come? Haven't beaver and trout coexisted for thousands of years? If beaver are so damaging to trout streams, why haven't trout populations dropped long before now? Well, let's look at the history:

There were only 500 beaver in the entire state at the turn of the century and most lived north and east of a line between Marinette and Superior. In 1908 they were so scarce the season was closed completely. It stayed that way for 26 years until 1934, when limited trapping was again allowed in a few northern counties. This coincided with regrowth of northern forests which had been cutover at the turn of the century. Aspen comes early in tree succession and its abundance created a ready food source for beaver.

Natural predators like the timber wolf and mountain lion were gone. Populations exploded. Man was left as the only

effective control. Although trapping reopened in the mid-thirties, low pelt prices held down harvest and beaver numbers rose steadily through the 1950's.

By the late 40's, fish managers and anglers were demanding a policy on removal of beaver from trout streams. Special trapping seasons were set on selected waters in an effort to reduce the problem. The effect was never determined because in 1952 a "tularemia-like" disease clobbered populations before the liberal seasons could be evaluated. Since then, beaver are up to all time highs. In 1980 the statewide population approached 100,000. The reason trout haven't declined before now is simply that beaver have never before been so high.

What's actually happening on trout streams? Recent aerial surveys in north-eastern Wisconsin show an average of

one beaver dam for every mile of stream. Half the dams harbor active colonies while the remainder are abandoned or inactive. In central and southern Wisconsin there are fewer beaver but this doesn't help much because more than two-thirds of the state's trout streams are in the north.

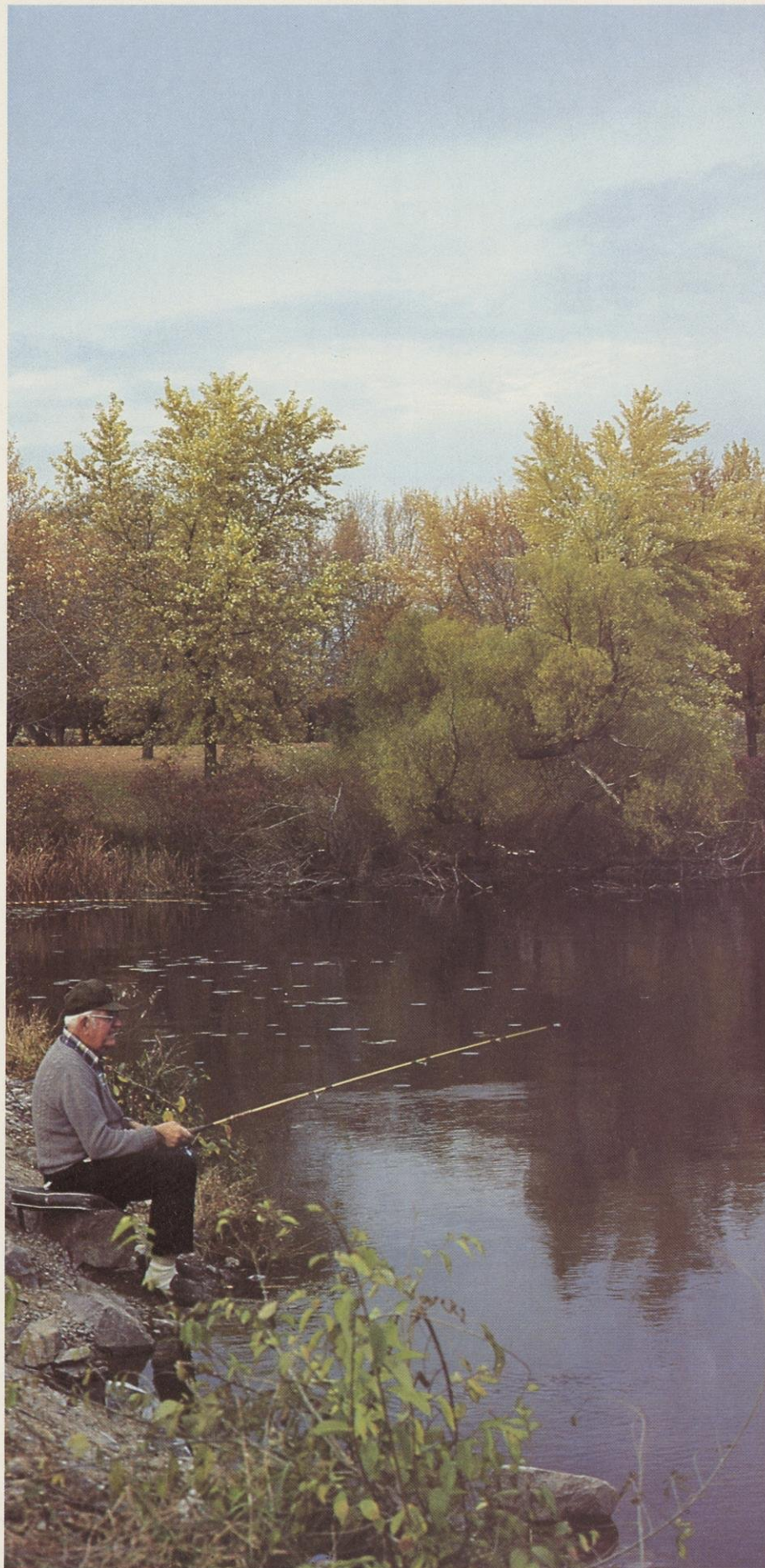
Beaver ponds can be deceiving. Many anglers seek them out because during the first few years a new pond furnishes fine brook trout fishing. Conditions in young ponds are just right for brook trout growth and survival. But, sad to say, within a few years habitat changes, trout move out and anglers start looking for new ponds. By this time, irreversible damage has been done, and it will be many years before the stream recovers.

One of the first effects of a dam is to change water temperatures. To survive, trout need cold water of high quality.

Blowing a beaver dam. Even after removal, trout stream recovery is a long-term proposition.







They get it from springs that bubble out of the ground at a constant year-round temperature of 40 to 45 degrees in northern Wisconsin. Springs keep streams cool in summer and warm in winter. A beaver dam slows stream velocity, backs up or impounds water and eventually kills bank vegetation — all changes that allow more solar heating. A single dam on a trout stream can raise summer water temperatures an average of five degrees. The combined effect of many dams in a system of streams can make sections uninhabitable by trout.

Equally damaging is the cooling effect in winter. Both brook and brown trout are fall spawners. Eggs incubate in nests or redds during winter before hatching in late February or March. It is imperative that a constant temperature be maintained over the redds. Beaver dams, by slowing stream velocity and impounding it, cool the water and cause egg mortality.

Beaver dams also increase siltation. As water velocities slow down, the normal silt load settles out in the stream bed. In many instances accumulations are four or five feet deep immediately behind a dam. Silt settles over spawning areas and suffocates eggs. It covers the gravel riffles where food is produced.

A further effect is the barrier dams pose to upstream movement. In many cases, to find suitable spawning areas trout need to move up into the stream's headwaters or smaller tributaries. When upstream movement is blocked, repro-

◀ For a while, beaver ponds make good fishing spots. But not long. Photo by Anne Short



duction can be lowered or cut off entirely.

Water quality in beaver ponds sometimes degrades to such an extent that trout can no longer live. Oxygen levels drop and winterkill occurs.

Even after dams are removed and ponds drained, problems still exist. The original narrow, deep stream with undercut banks and instream cover has become wide and shallow and trout are hard pressed to find cover. Once bank vegetation has been flooded and killed, recovery is a long term proposition. Natural plant succession can be set back for decades because of chemical changes in the soil of beaver impoundments.

In addition to harming trout water, beaver also hurt forests. Many thousands of acres flood and are lost to production. In the long term, natural succession is set back and flooded areas remain sedge meadows for many decades before trees again start to invade.

Although beaver ponds hurt high quality trout streams and forests, they help many kinds of wildlife. Ducks

▼ Beaver lodge. Photo by Don Bragg



Beaver dams warm water, flood forests, create meadows, increase siltation and eventually destroy trout water. Photo by author.

produce broods on them and they're a stopover point in spring and fall migration. Game birds, specifically ruffed grouse and woodcock, like the ponds and associated upland clearings. Other furbearers, such as otter, mink, muskrat, and raccoon, often coexist with beaver. Even after the dam is gone, the edge effect and forest opening created by the relic pond is an asset to many types of wildlife.

A beaver pond definitely has aesthetic, educational and recreational value and can be a beneficial part of the overall ecological community. Unfortunately, today's high populations have made beaver a threat rather than a benefit to both trout and timber. With this in mind, a Natural Resources Board policy protects Class I trout streams. It calls for low populations wherever beaver activity is clearly deleterious to water quality or trout habitat. To accomplish this, DNR uses liberalized trapping seasons and methods, dam removal, contract trapping, permits that allow landowners to control beaver and certain types of habitat management. No single method can reduce populations to acceptable levels, but a combination can be effective.

DNR doesn't want beaver back at the precarious 1900 levels, but it does want

to reduce today's exploding population. If we can keep beaver at manageable levels, wildlife, trout, forests and the public will all benefit. Doing so means saving the trout streams. It's that simple.





# La Salle at Milwaukee



PETER H. TOEPFER  
Milwaukee historian

In late September of 1679, LaSalle with fourteen men disembarked from his ship, the "Griffin," at the Potawatomi village of Mechingan. This major village of the Potawatomi is believed to have been on Michigan's Summer Island, off the Garden Peninsula at the entrance to Green Bay. The "Griffin" was loaded with furs, and departed for Niagara Falls. It was never seen again.

LaSalle and his men, in four canoes, set out for the southern end of Lake Michigan. It was a harrowing trip. The storm that sank the "Griffin" marooned these explorers for days as they passed down the Door Peninsula. Food supplies were used up, and they faced starvation.

Francis Parkman, the great historian, continues his description of this trip:

"As they approached the head of the lake, game grew abundant, and with the aid of the Mohegan, there was no lack of bear's meat and venison. They found wild grapes, too, in the woods, and gathered them by cutting down the trees to which the vines clung.

While thus employed, they were startled by a sight often so fearful in the waste and the wilderness, the print of a human foot. A strict watch was kept, not, as it proved, without cause; for that night, while the sentry thought of little but screening himself and his gun from the floods of rain, a party of Outagamis (Fox) crept under the bank, where they lurked for some time before he discovered them. Being challenged, they came forward, professing great friendship, and pretending to have mistaken the French for Iroquois. In the morning, however, there was an outcry from LaSalle's servant, who declared that the visitors had stolen his coat from under the inverted canoe where he had placed it; while some of the carpenters also complained of being robbed. LaSalle well knew that, if the thefts were left unpunished, worse would come of it. First he posted his men at the woody point of a peninsula, whose sandy neck was interposed between them and the main forest. Then he went forth, pistol in hand, met a young Outagamie, seized him and led him prisoner to his camp. This done, he again set out, and soon found an Outagamie chief — for the wigwags were not far distant — to

◀ The Griffin

Engravings courtesy of the State Historical Society of Wisconsin



## THE FATE OF LASALLE AND THE GRIFFIN

LaSalle had a grand dream — to do what no one in his time had ever done — sail through the Great Lakes, and down the Mississippi to the Gulf of Mexico. He planned to conquer the new land for France and set up a rich trade route to the West Indies for himself.

LaSalle sailed a small boat across Lake Ontario until the yawning cataract of Niagara Falls blocked his progress. His idea was to build the Griffin on the other side of the falls, then sail to the future site of Chicago. From there he would trek inland to the Illinois River and build a second ship that would sail to the Mississippi and the Gulf.

The plan went awry almost from the beginning. As soon as LaSalle finished the Griffin, he sailed to Green Bay on Lake Michigan, loaded it up with Indian-traded furs, and sent the ship back to pacify his clamoring creditors. He remained behind, but on the return trip



The murder of LaSalle

the Griffin disappeared and to this day the fate of the first full rigged sailing ship on the Great Lakes remains a mystery. Some say it went down in a storm and lies submerged somewhere off the coast of Wisconsin ... of Michigan ... of the Upper Peninsula ... of Canada. Others say she was boarded and burned by Ottawas ... by Potawatomies ... by enemy Jesuit Priests ... by LaSalle's own crew. Over the years, the wreck of the Griffin has been discovered a score of times by at least as many hopeful historians, but the search continues.

LaSalle, undaunted, proceeded by canoe down the Illinois and the Mississippi to the Gulf. Eventually, he claimed the entire river valley for France, naming it Louisiana in honor of King Louis XIV. But in the end, LaSalle's grand dream ended when he tried to establish a colony in Texas and was murdered by some of his own followers.

whom he told what he had done, adding that, unless the stolen goods were restored, the prisoner should be killed. The Indians were in perplexity, for they had cut the coat to pieces and divided it. In this dilemma, they resolved, being



Robert Cavalier, Sieur De La Salle

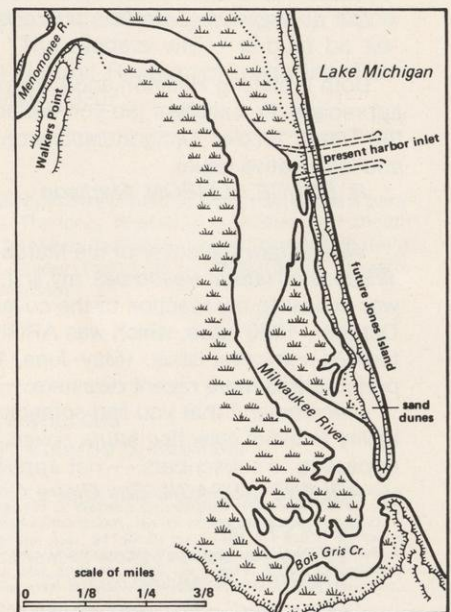
strong in numbers, to rescue their comrade by force. Accordingly, they came down to the edge of the forest, or posted themselves behind fallen trees on the banks, while LaSalle's men in their stronghold braced their nerves for the fight. Here, three Flemish friars with their rosaries, and eleven Frenchmen with their guns, confronted a hundred and twenty screeching Outagamis. Hennepin, who had seen service, and

who had always an exhortation at his tongue's end, busied himself to inspire the rest with a courage equal to his own. Neither party, however, had an appetite for the fray. A parley ensued: full compensation was made for the stolen goods, and the aggrieved Frenchmen were further propitiated with a gift of beaver skins."

Where did this confrontation take place? We are given some clues. LaSalle's camp was stated to have been on a wooded peninsula, connected to the mainland by a sandy neck. No such place, past or present, comes to mind on Lake Michigan's straight western shore.

But wait; one place alone fits this description perfectly. A wooded sandspit a mile long originally extended between the mouth of the Milwaukee River and Lake Michigan. The sandspit was narrow at its midpoint, and here could have been the place where the confrontation was made.

When Milwaukee's harbor was built soon after the city's founding, a channel was dredged through the sandspit at its narrow neck, and the half-mile end of the peninsula became Jones Island. Jones Island, then connected to the southern shore, would seem to have been the location of LaSalle's camp.



Site of Milwaukee Harbor — 1836

LaSalle may have landed on the peninsula where the Milwaukee River flows into Lake Michigan.



# The readers write!

I was suprised and delighted when I received my copy of the March-April issue to find the picture of my kids on the front cover. I wasn't so pleased to find that the cutline gave credit for my photograph to someone else. What happened?

**DON ALBRECHT, Bayfield**

*A mixup! We collected photos for the Great Lakes Supplement from you, the Sigurd Olson Institute for whom you work and the Park Service, among others. Your kids got in the wrong folder. Not only that, but two terrific black and white photographs were without credit lines of any sort.*

*By the time we discovered the oversight, the magazine was on press. One was a snowy owl and the other a bog dotted with gossamer spiderwebs. Both were taken by the same photographer, B.A. "Tony" King who took the pictures for that beautiful Sierra Club coffee table book "Faces of the Great Lakes" by Jonathan Ela.*

*Our apologies to both Don Albrecht and Tony King.*

Both Wolfgang Hoffman and I are very impressed and appreciate the excellent job you did presenting the "Stalking Big Trees" article. Congratulations on another sparkling and informative issue!

**R. BRUCE ALLISON, Madison**

When I saw the cover of the March-April issue of *Wisconsin Natural Resources*, my first thought was YECH! It was similar to my reaction to the cover of the September-October, 1980 issue, which was ARGH! Then there was the famous non-cover issue, (May-June, 1980) which may be preferable to more recent disasters.

I recommend that you find someone with some artistic ability to aid in selecting future covers. They should be appealing to subscribers — not appalling.

**ARLENE LISSACK, Eau Claire**

*Editor's Note:*

*"YECH!" = Kids in yellow slickers.*

*"ARGH!" = "Dancing Bears."*

*"Non-cover" = Fish and wildlife wrap-around questionnaire, with Owen Gromme loon painting on cover beneath.*

*Comments, readers?*

I've received your publication from the days when it was the old *Conservation Bulletin*, and have been a paid subscriber since you went to your present format.

I read with interest those critical letters written by persons who, for some reason, feel they have not benefited from your change. Wisconsin is so bountiful in nature it seems only fitting that your magazine provide us with every pertinent natural subject from A to Z. To limit your range of topics would be a great disservice to your readers.

I'll throw my hat into the ring of compliments you've received. *Wisconsin Natural Resources* is a most informative, most interesting and extremely attractive publication — well worth the \$6.97 subscription price. I look forward to every issue.

**GARY A. NELSON, Editor, Burnett County Sentinel, Grantsburg**

I'm very concerned about an increasingly serious problem. Will someone please do something to stop the practice of innertubing on the Brule River? It is something that I feel has no place on this beautiful stream.

Several times a year, my wife and I drive more than 250 miles, round trip, to trout fish, camp and just enjoy the beauty of this stream. We have been doing this for years, but recently, we've noticed an increasing number of tubers. We don't mind the canoes, nor the kayaks so much — but when you're out in the stream, maneuvering to catch a wily old trout, and a noisy bunch of littering tubers invade the serenity of this favorite, secluded spot. . . well, it just spoils the whole trip.

I have no war with tubers in their place, such as the Apple River at Somerset. But please put a halt to this commercially sponsored, polluting practice on one of the most beautiful and famous trout streams in America. Something must be done before it is too late.

By the way, you're doing an excellent job on the magazine. It seems to improve right along. We look forward to receiving it.

**HOWARD JORGENSEN, Luck**

In response to recent negative remarks from readers about *Wisconsin Natural Resources* magazine:

I realize and understand that the magazine is not the same as the old, black-and-white *Conservation Bulletin*. Some things change. . .

I also realize and understand that many brochures, pamphlets and magazines cost money today when yesterday they were free. Some things change. . .

Most importantly I understand that more people write to complain than they do to compliment. Such energy could be better directed at some environmental problem. Pick one. . . we have plenty to chose from.

To disgruntled readers: I suggest you look back over past issues of *Wisconsin Natural Resources*. . . you'll find many of the things you've said are missing are actually to be found there. I realize a lot of things haven't yet been covered in the magazine, but have some patience. They have a lot of people to please.

**RANDY SMITH, West Allis**

*Editor's Note:*

*The following letter came across our desk recently. We think it provides the final footnote to recent correspondence about who's seen what wildlife where in Wisconsin.*

In Waukesha County, where I live, you might be interested to know that at one time people said they saw kangeroos. But I think they are deformed rabbits or deer.

Randy Takacs, Waukesha



# Catch-all

## DNR Budget: bonds for land, sewage treatment, pheasants; subject to change

Kris Visser  
DNR Legislative Liaison

**Madison**—Wisconsin's Legislative Joint Finance Committee has approved a state budget proposal that includes DNR's financial package for 1981-83. When *Catch-all* went to press the entire state budget was before the full legislature for debate and amendment in both houses and changes will probably occur. As reported out of the Joint Finance Committee, however, the DNR budget at present includes these highlights:

**1. A 10-year, \$60-million bonding program to continue buying recreational land under the Outdoor Recreation Action Program (ORAP-2000).** Started in the late 1960's, the overall goal of ORAP is public ownership of 1½-million acres of land by the year 2000. It is 78% complete. The Joint Finance Committee

removed two items from ORAP — development of water access sites and harbors for recreational boating, and financial aids to local communities for purchase and development of parks.

**2. Continuation of the Wisconsin Fund, authorizing up to \$156-million in bonds for sewage treatment facility grants to local government.** Funding for continuing the non-point pollution program was also approved.

**3. A \$1-million bonding program to renovate pheasant rearing facilities at the Poynette Game Farm.** Money

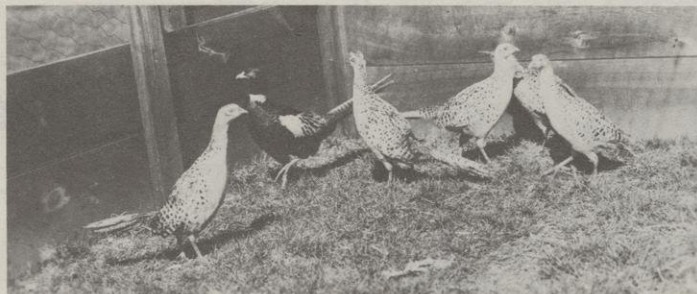
to pay for the renovation must come from hunters. DNR has developed a financing plan based on income from the sale of small game hunting licenses.

**4. A free automobile emission inspection and maintenance program for the southeastern portion of the state.** The purpose is to improve air quality. The Department of Transportation will administer the program. As the budget now stands, persons whose cars are

inspected will pay no fees for the service.

Major legislative concern this year is not directly related to DNR, but to the general financial situation — how to overcome a projected \$600-million deficit and deal with a possible \$200-million cut in federal aids. The Joint Finance Committee agreed to deal with the projected deficit by cutting general government operations by 8% and raising selected taxes, notably on cigarettes, liquor and wine. The Committee did not decide how to deal with the federal cuts, preferring to wait until this fall after final Congressional action.

All the provisions of the budget are still subject to change. Not only must they withstand possible amendment in either the Assembly or Senate, they must also withstand gubernatorial scrutiny and possible veto.



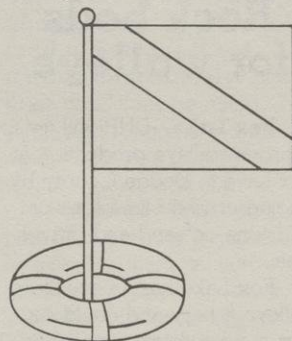
## Devil's divers and climbers

**Devil's Lake**—Warning rock climbers about the risk of injury and resolving conflict between divers and anglers are among top problems for managers of Devil's Lake State Park this season.

The quartzite bluffs here are known throughout the Midwest for the technical challenge they present to climbers. Several mountaineering clubs and other organizations bring novices here for instruction.

While part of the excitement and thrill of climbing is a certain element of risk, consequences of mistakes are severe. **Last year 18 accidents were reported including one fatality. Those hurt in falls suffered broken bones, massive internal injuries and severe abrasions.** All required special rescue efforts by park personnel. In 1979 only six climbing

injuries occurred. Park managers are working with climbers and their organizations to reduce these grim statistics.



**They're also working with scuba and skin divers to reduce conflict with anglers. The need for change was pointed up in a study of the problem by W. David Meyer, Assistant Park Superintendent here. The**

**study showed that on a busy summer weekend more than 300 divers may be "in" the water.** Several private organizations teach diving at the lake and many instructors bring students to complete check-out dives for certification. Tempers sometimes flair when divers disturb fishing lines or when anglers cruise too close to diving flags.

Rules allow a range of 50 feet around a flag, but divers often tow the flags while swimming under water or looking down. In this posture, they fail to see anglers and the two tangle. Conflict is heightened by the fact that the best fishing spots are also best for diving.

It's hoped an educational campaign will relieve the problem. Divers are being asked to "look up" more often to help keep track of where they are in relation to anglers. They're also

being asked not to enter the lake at boat launching sites.

In addition to climbing, diving and fishing, 7,200-acre Devil's Lake State Park offers an active interpretive program conducted by two naturalists. Guided hikes on geology and nature study are given every day except Sunday. A variety of other nature hikes includes one on edible plants. Evening programs on Thursday and Saturday nights feature illustrated talks. The nature center is open from 1 to 5 p.m. Monday through Saturday.

There are 14 miles of hiking trails, three beaches, 459 campsites, indoor and outdoor group camps and 25 acres of picnic area. **For an illustrated story on Devil's Lake State Park history see page 28.**



## Small woodlots vital

**Madison—More than 8-million acres of Wisconsin forest land is held by small, non-industrial private owners. This represents almost 60% of all forest acres in the state. There are 160,000 small woodland owners, each with an average of 54 acres.**

Some 58% or more than 7-billion cubic feet of the state's commercial timber grows on these lands including 18-billion board feet of commercial sawtimber.

**DNR services available to small owners include help with management plans that**

**can enhance natural beauty, recreation, watershed protection, forage and wildlife.**

DNR county foresters can also recommend timber stand improvement (TSI) such as weeding, thinning, pruning and removal of deformed or otherwise undesirable trees. TSI may also involve cutting mature hardwoods to give smaller trees a chance to grow.

DNR foresters will mark trees that are ready for harvest and suggest various selective cutting techniques to insure forest continuity and improve wildlife habitat for deer, grouse and squirrels.

## Latest on loons 2,500 in Wisconsin



Fifteen foot fiberglass loon at Mercer.

Inga Brynildson  
DNR Office of Endangered & Nongame Species

**Ashland—After last year's *Natural Resources* magazine article (May-June 1980) "Leave the Loon Alone" so many people reported finding birds that the adult population estimate for Wisconsin had to be raised by 1,000 from 1,500 to 2,500 loons.**

This year, as a result of the Sigurd Olson Institute's Project Loonwatch, more than 400 Wisconsin residents have volunteered to be summer "loon-watchers." They'll observe and report.

As part of the campaign to encourage lake-users to leave

loons and other wildlife alone, DNR's Office of Endangered and Nongame Species is distributing 250,000 red and black "Loon Alert" placemats to northwoods restaurants.

In another development, last year's loon awareness program prompted the Chamber of Commerce in Mercer to proclaim their community "Loon Capital of the World." **Mercer's main drag now features a 15-foot fiberglass loon in recognition of the fact that nongame wildlife enthusiasts bring money to local businesses just like hunters and fishermen do.**

## Boat-motor excise tax

**Washington, D.C.**—Wisconsin recreational water users will benefit if pending federal legislation to broaden the base of the Dingell-Johnson (D-J) Act is passed.

Companion bills in the House (HR 2250) and Senate (S546) call for expanding the current D-J tax on sport fishing tackle to include boats and motors. The tax would be a 3% levy on the manufacturer's cost for boats under 25 feet and on outboard motors. The present D-J tax on fishing tackle is 10%. There is none on boats and motors.

Money from the current tax is apportioned to states on the basis of fishing license sales and land area. **For Wisconsin, the expansion would amount to an additional \$2-to-\$3-million a year. Wisconsin's share from D-J last year was \$1,134,000.**

Projects funded from D-J monies include such things as recreational waters access and a

variety of fish management programs. The change would mean that all who use waters for boating, skiing, fishing, and related activities could share in the costs of providing these recreational opportunities.

A nationwide campaign is underway to encourage Congress to act favorably on the D-J expansion legislation. Richard Harris, Oshkosh, has been appointed Wisconsin chairman. Harris is spear-heading a letter-writing campaign to encourage Wisconsin's representatives in Congress to support the legislation.

The Reagan administration has indicated it supports the proposal since D-J is financed through user taxes, not from general revenue taxes.

**The proposal has been endorsed by the Izaak Walton League, National Wildlife Federation, Bass Anglers Sportsman Society, Trout Unlimited, and Salmon Unlimited.**

## Where are migratory birds losing ground?

**Madison**—Populations of many long-distance migrant birds that breed in North America but winter in the tropics are dropping.

**Once ornithologists thought the decline in warblers, fly-catchers, vireos, tanagers and grosbeaks was**

**due to loss of summer habitat in North America. But now they suspect something else along the migratory route.**

According to Stanley A. Temple, avian ecologist at UW-Madison, loss of food sources during migration or destruction of tropical forests are possible causes. Many of the birds return each year to specific sites in tropical forests. When the trees are cleared, migrants lose their homes.

Temple feels it is still too early to put all the blame on tropical deforestation. "We need to know much more about where songbirds migrate and what routes they take before we can pinpoint the problem," he says.

Migratory predators such as the peregrine falcon and the bald eagle must confront a further hazard in the tropics—pesticides. **Certain pesticides, including DDT, remain in common use in many tropical nations, despite the fact that they have long been banned in North America.**

## Rock beds for walleye

**Fox Lake**—DNR will try to improve walleye production at Fox Lake in Dodge County by placing crushed limestone or fieldstone on sand and gravel reefs.

Fox Lake has an excellent walleye fishery and could support more if there were more spawning sites and a higher quality bottom. The crushed rock will furnish these improvements.

**Cost of the project is \$20,000 to be paid by the Dodge County Conservation Aids Program and the Fox Lake Property Owners Association.**



# Catch-all

## Tularemia in central Wisconsin beaver



**Babcock**—Tularemia has been confirmed in the Central Wisconsin beaver population, according to Joe Haug, superintendent of DNR's Sandhill Wildlife Demonstration Area.

A tissue culture test on one of the numerous carcasses found at both Sandhill and the Necedah Refuge was found to be positive. The National Wildlife Disease Laboratory at Madison made the initial analysis which was confirmed at the US Fish and Wildlife Laboratory in Georgia.

"Tularemia is a plague-like disease of rodents, rabbits, birds and a number of other mammals, including man," Haug said. **It is a bacterial infection and the contaminating organism, *Francisella tularensis*, can be transmitted by a variety of biting and bloodsucking parasites like ticks and fleas.**

The disease usually occurs when animal populations are too dense. Right now there are tremendous numbers of beaver throughout central Wisconsin. **Tularemia is said to be pretty much uncontrollable in populations like rodents and rabbits.**

**"We haven't found anything in the rabbits yet, but we'll have to keep an awfully close watch because cottontails are the most common source of human infection by tularemia,"** Haug said.

To prevent spread of the disease, DNR personnel are burying beaver carcasses they find to keep coyotes, birds and other carrion-feeding animals from coming into contact with them.

**Anglers are cautioned against drinking water from streams during trout season because flies and midges can spread the disease.**

Vertebrates, including man, can contract the disease by inhaling feces-contaminated dust, touching infected carcasses, eating infected meat that is insufficiently cooked, or drinking contaminated water.

**Symptoms of tularemia include irregular or high temperatures, and aching and swelling of the lymph glands. The disease can be fatal to humans if not treated immediately.** Should these conditions be noted, a doctor should be contacted and advised that the person has had contact with a wild animal.

Private and DNR-contract beaver trappers are urged to exercise extreme caution when dressing or skinning beaver. Trappers with open cuts or sores on their hands should avoid handling the carcasses.

"Ticks are the greatest vectors for spreading tularemia," Haug said. "Due to the high statewide beaver populations, it's possible this disease could reach other beaver colonies in different regions of the state." For a related story see page 11.

## Need phosphorous removal at Lake Tichigan

**Racine**—A DNR study shows that a reduction in Lake Tichigan's phosphorous load is needed before any significant improvement in water quality can occur.

The lake is one of the most eutrophic in southeast Wisconsin. Turbid water and frequent algae blooms discourage recreation and the fish population is dominated by carp whose bottom feeding habits increase nutrient cycling.

**According to the study 60% of the lake's phosphorus originates from the Fox River. Agricultural and urban runoff contribute 20% and private septic systems 10%.**

To improve things, DNR inland lake renewal experts suggest several alternatives including aeration, plant harvesting, chemical treatment, deepening the lake and various methods of nutrient reduction. **Closing the connection with the Fox River is a key proposal.**

Oliver Williams, director of DNR's Inland Lake Renewal program says the next move belongs to lake district officials who now have the opportunity to develop a lake rehabilitation plan which may qualify for state grant funds.

## Environmental mediation handbook

**Madison**—A new handbook on environmental mediation in solid and hazardous waste disputes is now available from the Wisconsin Center for Public Policy. Entitled "Using Mediation When Siting Hazardous Waste Management Facilities—A Handbook for Citizens, Developers and States," the publication may be obtained free of charge from the Center, at 1605 Monroe Street, Madison, WI 53711.

The environmental mediation process has been around for several years, but has not seen widespread use. A major stumbling block has been lack of policies and procedures for use in cases involving government agencies.

**In Wisconsin, an Ad Hoc Committee on Solid and Hazardous Wastes is looking at a draft of a bill that would create a negotiation/arbitration process for establishing solid and hazardous waste facilities.**

**The bill would allow participants in siting decisions, including state agencies, to make use of environmental mediation in the negotiation process.**

The federal Environmental Protection Agency and the State of California are also considering possible uses of mediation.

## Ice Age Trail book

**Milwaukee**—Wisconsin glacier buffs, bikers and hikers will be interested in a new publication, "On the Trail of the Ice Age," by Congressman Henry S. Reuss of Milwaukee. Reuss tells how the Great Wisconsin Glacier affected our history and determined the route of the 1,000-mile hiking and biking trail.

The publication is filled with full-color photos, up-to-date maps and sections on trail history, wildlife and flowers plus a route guide. **Proceeds from sales go to improve the trail.**

Hardcover \$15.50; softcover \$11.50. Send check or money order including 4% Wisconsin sales tax and \$1.00 postage to Ice Age Trail, 2834 West Kilbourn, Milwaukee, WI 53208.





## Wisconsin hosts national whitewater championships

**Wausau**—The National Slalom Whitewater Championships for kayakers and decked canoes will be held here August 21 to 23. Site will be the East Branch of the Wisconsin River below the dam, a stretch of river with powerful cross-currents and fast-moving eddies. **A special advantage is that texture of the course can be changed by varying the amount of water released.**

The first day, competition will feature racers in the Junior class (age 16 and under), the Masters class (age 40 and over), and ladies' decked canoes for both one and two paddlers. The

next two days the 16-39 age group competes in all categories.

**Both midwestern and national contestants, including participants from the World Championships in Wales this July, will compete for trophy prizes.**

In a slalom race, a paddler's score is determined by the total number of seconds needed to go through the course, plus penalty points for hitting gate poles, missing a gate or failing to pass through the gate in the current direction. Some gates must be passed going backwards or upstream. The paddler with the lowest score wins.

## DNR pays \$855,000 in lieu

**Madison**—DNR recently paid 753 local governments \$855,000 in lieu of taxes on one million acres of publicly-owned lands within their boundaries.

Payments were made from the following funds: Fish Management - \$86,668; Wildlife Management - \$295,151; Forestry - \$309,968; and Parks - \$163,191.

Two categories are included. The first is 50 cents per acre for land acquired prior to July 1, 1969. The second is on all lands that were acquired after that time, computed on a formula based on the local assessment multiplied by the county, local and school tax rate. After a first-year payment of 100%, the amount is decreased by 10% per year, but will never be less than 50 cents per acre.

## Hotlines

**Madison**—How do I make campsite reservations in Wisconsin? Whom do I call to report illegal disposal of hazardous waste? Where do I find out about alternative energy?

For answers call one of these environmental hotline phone numbers:

**(608) 267-7507** to report Endangered Species Observations;

**(800) 362-3020** to report Fish and Game Law Violations;

**(608) 266-3232** to report Hazardous Waste Spills and Violations;

**(608) 266-0341** to find out about current bills in the legislature.

And **(608) 262-1658**—the Environmental Answer Line, a UW-Extension service that handles questions on everything from microwave ovens to nuclear power plants.

## Poacher fined \$1,759

**La Crosse**—A man believed to have poached between 200 and 300 deer in La Crosse County finally got caught. During a jury trial this spring, a Westby man pleaded guilty to possessing an untagged deer. He was fined \$1,759. His hunting licenses were revoked for two years.

Residents in the Coon Valley area had complained for years about him, claiming he hunted during closed season and shined deer at night.

Nabbed last November when DNR wardens found an unlocked tag on a deer the man had shot, he man claimed the tag would not lock. However, wardens discovered the lock had

been tripped with a thin piece of metal.

**He was prosecuted under a new law which carries a minimum fine of \$1,000 for possessing an untagged deer. The old law set a maximum of \$200, but farmers and conservation groups pushed for stiffer fines.**

Thomas C. Solin, La Crosse County DNR warden, reported that people called in with information that eventually helped win the case. Public input is essential in enforcing poaching laws, Solin said.

DNR wardens think the conviction will act as a deterrent to other potential poachers.

## Paper mill discharges down

**Madison**—Although paper production in Wisconsin has increased by about 10% over the last several years, pollution of state rivers is down 15%.

**Present permits allow paper mills a total average discharge of 174,000 pounds of oxygen consuming wastes, or biochemical oxygen demand (BOD) per day. But the average discharge during 1980 was only 77,000 pounds!**

Permits on the Fox River allowed a daily average of 78,700 pounds, but the amount discharged averaged only 33,773 and permits for the Wisconsin allowed 70,500 pounds as compared to an actual daily average of 26,099.

**Future permits under new wasteload allocations for the Fox and Wisconsin will be even tighter in an attempt to keep oxygen**

**levels in the water at 5 parts per million.**

Continued improvement is anticipated.

## Dutch Elm project cut

**Greg Matthews**  
Public Information, Madison

**Madison**—Communities participating in Wisconsin's cooperative Dutch Elm Disease Control Demonstration Program, which began showing marked success in 1980, will have to make do with less this year.

**Federal assistance has been cut from \$450,000 in 1980 to \$83,000 in 1981.** This means elimination of all municipal grants which helped fund disease control and tree utilization.

## Coming attractions

\*\*\*A special 24-page full-color supplement on the Master Plan for the Upper Mississippi River. The pros, cons and effects on the river of increased barge traffic will be discussed. Wildlife, recreation, energy, economics, railroads and much more will change if a second lock is built at Alton, Illinois.

\*\*\*The life and times of Wisconsin's Sandhill Cranes.  
\*\*\*A long-ago grouse hunt by well-known UW-Madison Wildlife Professor Dr. Robert A. McCabe.  
\*\*\*A funny story about a wild goose chase.  
\*\*\*Also, the Mead Wildlife area and Jellyfish in Wisconsin.  
**All coming in the September-October issue.**



I've just gotten around to reading your supplement on the Upper Mississippi River Basin Commission and it is aptly titled: A Hit!

You've done an excellent job describing in a dozen or so pages the water resource issues and opportunities in Wisconsin and the promise inherent in the Upper Miss Commission. Your positive, upbeat approach to the potential of these strange partnerships we call river basin commissions was most refreshing. They can be as effective and meaningful as the members want and will permit . . . and perhaps like Disney's Dumbo, they can fly if they believe they can.

My warmest congratulations to you on this successful effort. I only wish I had a similar piece for the other 49 states.

**GERALD D. SEINWILL, Acting Director, United States Water Resources Council, Washington, DC**

I am a Senior in Engineering at UW-Stout. As a member of the TV generation, the only thing that gets me away from the tube is my studies. . . and my wife, of course.

But your publication has actually caused me, on occasion, to get up and turn off the TV. I enjoy reading it. . . keep up the good work.

**WYNN OWEN JONES, II, Menomonie**

Several years ago my husband and I had occasion to be in the Superior-Duluth area during late August. While fishing and walking the shoreline there we found that the driftwood and shore debris were covered with lady bugs. They appeared to be crawling up from the water's edge. By later in the day they had disappeared. So far I've found no one who can explain this phenomenon. It seems that they could be harvested and put to use in agricultural areas.

**MRS. GERALDINE ROUSE, Lodi**

UW-Madison Entomologist Phillip Pellitteri says such congregations of ladybugs are indeed unusual, but not that uncommon. For some reason, in the fall, a number of different species of ladybugs literally congregate into balls and can be picked up by the handful. In fact, people do just that in the mountains of California. Most ladybugs advertised in gardening magazines come from there, gathered during just such a congregation. The ladybugs return year after year to the same areas, so chances are if you spot this phenomenon once, you'll find it again in succeeding years.

The reason for this ladybug gathering-of-the-clans is unclear, Pellitteri says, but it appears to be just a safety-in-numbers method of overwintering. As the weather grows cooler in the fall, they return to the same staging areas to cluster. If the weather warms again, they disperse.

By the way, if you're tempted to return to Superior for a ladybug harvest this fall, Pellitteri says ladybugs may not be the garden cure-all they're cracked up to be. Ladybugs eat only certain insect pests, primarily aphids. If your garden is infested with aphids, chances are ladybugs will move in from elsewhere to take advantage of the easy pickin's anyway. If not, releasing them into the area won't do much good — they'll just head out for where living. . . and aphids. . . are easier.

Just a note to say that many of my patients and I take great interest in your magazine. The pictures and articles are excellent and help make me more aware of many interesting things in Wisconsin. Who needs to travel out of the country — or even out of the state — when we have so much right here?

**DR. KEVEN C. BERG, Marshfield**

I thoroughly enjoy your magazine, *Wisconsin Natural Resources*. I've given subscriptions to many of my friends.

**ROBERT KROPFL, Madeline Island**

Readers are invited to express opinions on published articles. Letters will be edited for clarity and conciseness and published at the discretion of the magazine. Please include name and address. Excerpts may be used in some instances. Letters to "The readers write" should be addressed to Wisconsin Natural Resources magazine, Box 7921, Madison, Wisconsin 53707.

#### Back cover:

This striking four-inch *megarhyssa* wasp lives in Wisconsin and is a parasite of wood boring insects. The long, threadlike ovipositor and sheath at the rear probe trees for beetle and wasp larvae and lay eggs on them. When hatched, the young devour their host. "*Megarhyssa*" means "giant wrinkles." Photo by Greg Scott

## Wisconsin Natural Resources July-August 1981 • Volume 5, Number 4

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# Another good oak

The oak or the pine — which must go? Before making use of the “quick yellow axe,” the author consults the ghosts of his antecedents in philosophy. Either way, today’s tree rings tell bitter tales.

*JUSTIN ISHERWOOD, Farmer  
Rt. 1, Plover*

**T**he situation is not unusual, indeed it’s typical for farmers who would in their ways be foresters. Another farmer, of the weekend variety, is reported to have confronted the same dilemma some years ago in a sand county farther down river.

The problem is succinct. An oak and a pine are using the same space in which to unleash their lives. The dispute between them is a contest of inheritance. Should the homestead of photons belong to the oak or to the pine? It is the same as having one child and two claimants — someone is going to get cut off. The jurisdiction is Solomon’s.

This oak and pine had been quarreling for some time. The argument is natural enough, being a young woods. A born-again woods, having once given battle to a twisted kind of cloud and lost. The late woodlot, despite a telling wound, took away the breath of that funneled tempestuousness. Then it handily resuscitated itself while the

tornado, coughing dust, laundry and tree limbs, has not been seen since. For awhile the whole neighborhood took to gnawing the woodlot’s bones for the good maple firewood, toppled northeasterly, ripe for cross-cut saws.



Aldo Leopold (1886-1948)

A young woods is full of arguments; the bickering, squabbles and infighting make it a regular household. Blackberry brambles and red elderberry won the early rounds. I have wondered how any living thing can find courage sufficient to do battle with ill-tempered blackberry and the sharp green teeth they grin in egocentric display of superiority. Perhaps it was squirrel, who not believing blackberry’s “No Trespassing” sign planted the oak just for malice. The pine owed its location to the breezes which carried the gossamer seed and dropped it there.

Old woods outgrow the arguments of

new woods. The disputes all settled, old woods seem genteel. It is the ambition of farmers and foresters to own old woods. Own? I have my doubts about the word “own.”

But concerning trees, I admit to bias. The sugar shack, the buckets, the boiling pan are mine so I favor maple over popple, advance it over birch, exalt it over wild cherry and hawthorn. Still, to be fair, jackpine own an east edge of the woods and popple have a north edge for the sake of grouse. Juneberry has the sunside for reasons other than perfect justice. They taste like blueberries in sour-dough pancakes and in supper muffins. Thus Juneberries have no fear in this woods; the muffin is as great as the potato. But the problem of this Sunday morning remains. Will it be the oak or the pine that goes?

Such decisions drive a man to a shade tree, and the shadows of words in thick cool books. Pondering their pages, I decided to consult the ghosts. Not just any old sheets that might, in the mien of ghosts, drift across this township, but those who know. One must pick his ghosts with the care one picks his gods.

So who will be the doctors of consultation? The first round draft choice for this team of woodlot physicians is Aldo Leopold. Reason: he is a fellow Wisconer and so speaks the native tongue.



Illustrations by Jim McEvoy



Another, John (the Scot) Muir. Reason: he is Scot and Wisconer so would be economical. He is also dear with words, the excess of which is the major ailment of committees. Mr. Muir also shares a certain parental type, a farmer father, far too sworn to the pure creed of work. In addition the burr in his tongue will soothe the process, being an intoxicating wiggle. And to be honest, I love the way he pronounces township, "tuneship," rhymed with moonship. He will be permitted his walking stick which is requisite for Scots if only to keep the verbal observations regarding kilts to a minimum.



John Muir (1838-1914)

H. D. Thoreau. I expect problems out of jail-bird Henry. Henry is not a team type, nor a Wisconer. I have some doubt that H. D. ever knew Wisconsin existed. He probably thought it was a synonym for over-soul in some simian language. H. D.'s dossier is otherwise complete. He has been to the woods, spent a winter there, the cabin costing him a total of \$28.12 1/2 which will be appreciated by the Scot. Cheapness is a virtue. Henry has been in a birchbark canoe propelled by a genuine Indian; he even caused, by personal deed, a forest fire which should have helped his humility, though I doubt it.

Last but not least, John Burroughs. Bebeused John is chosen for balance. John Burroughs would flush at the sight of marsh marigolds, wonder at the magnanimity of thunderclouds, ponder the glory of trees but still accept a ride with Henry Ford and Tom Edison if for no other reason than it was fiscally expedient. He never once accused Ford or Edison of despoiling the natural landscape, perhaps because he didn't think to, or because autos and highlines and their relatives hadn't gotten around to the general despoliation yet.

We then have our team of consulting physicians: Leopold, Muir, Thoreau, Burroughs, and myself. Myself because it is my woods and because only the living have the power to invoke ghosts in the first place and being alive is my only claim. At death I promise to fade like the snowflake of a May storm.

The precise method of invoking the on-site presence of ghosts is a township secret. These particular shades have been invited to dozens of universities, miscellaneous churches and a couple pup tents. But no invitations had heretofore been accepted. The woods, though, is their habitat and they would come. At first Mr. Muir said he had his doubts due to the proximity of certain potato fields. Fields, he said, gave him bad dreams of clearing brush for a dour father who thought the day should begin on the nether side of sunup. But H. D. pointed out that Muir no longer had to worry about his father's ambitions. The man had been pretty well worked into the ground and death is the certain end for those who invest too heavily into fields. The spirit requires wild vegetation.

"Henry, are you going to preach your damn wilderness again?" It was J. Burroughs talking.

"What do you mean by that, Johnny B.?"

"Well, you're always talking wilderness; wilderness, wilderness, wilderness. I think you've got a mania for wilderness."

"John, you old fool, I know I have a mania for wilderness. Fact is you wouldn't be here if you didn't, too." Burroughs laughed and nodded.

All the while Aldo had been quietly smoking his pipe, just looking at the trees. "You've got a nest of blue jays in that hawthorn, and over there a couple orioles in the process. Nice place." He asked about the potatoes, if the crops were rotated and how far away the Buena Vista Creek was.

"Waldo is always asking how far some creek is. Heaven is so gawd-awful crowded with trout fishermen that the angels have to hover."

"My name is Aldo, Mr. Thoreau, thank you."

"Aldo, he just calls you that to get your goat. Henry has a thing about college professors." It was Muir.

"Excuse me gentlemen. The reason I've called you here is to enter into a classic debate, whether this oak tree (here petted) shall continue or whether we shall grant the property to this white pine."

"Foresters refer to the process as releasing," said Leopold.

"Apt phrase," said Muir.

"Sounds like a preacher's word, if you ask me," added H. D.

"I suppose what we need to do," said Burroughs, "is arrange ourselves into counsels for the defense and the prosecution. How about Mr. Thoreau and I will defend the oak and John and Aldo will take the case of the white pine. Since they're both Wisconers they should make a fair pair."

"It seems to me," I said, "you guys have done this before."

I do not think the four of us have been together before, though we have heard of each other. Did you think there weren't any books in the celestial regions? Indeed the catalogued muse there pales the Congressional Library. We have the original Bible. Yours, I might add, has been considerably weakened by the editors. Damn, when will they realize writing is for writers and editing is something you do to fish scales? Also we have the original Koran, the unexpurgated Torah, and all the books of faith, reason and hope, of which there is a bunch.

"Truth is we don't get called out very often. People, your regular living people, have more important things to do than talk to ghosts," said Muir. "After all, we don't know everything. We know a lot but not everything. That's a problem for most people. They think angels know everything and can do everything. Plainly they can't."

"Down to business, folks. After all, we're here on a lend-lease and we've a question to answer before the alarm rings."

"What alarm?" I asked.

"Never mind about that," said H. D. "It's of no consequence."



Henry David Thoreau (1817-1862)

"The question is which tree goes, the oak or the pine. Your intent, Isherwood, is to cut the oak," said Leopold.

"Yup."

"There is precedence for the cutting of the oak rather than the pine but what is your reason?"

"Gentlemen, as you can see, this part of the woods already has its share of oak, mainly black, some burr, but white pine is in the minority. In part it's a matter of lumber. White pine yields suave and

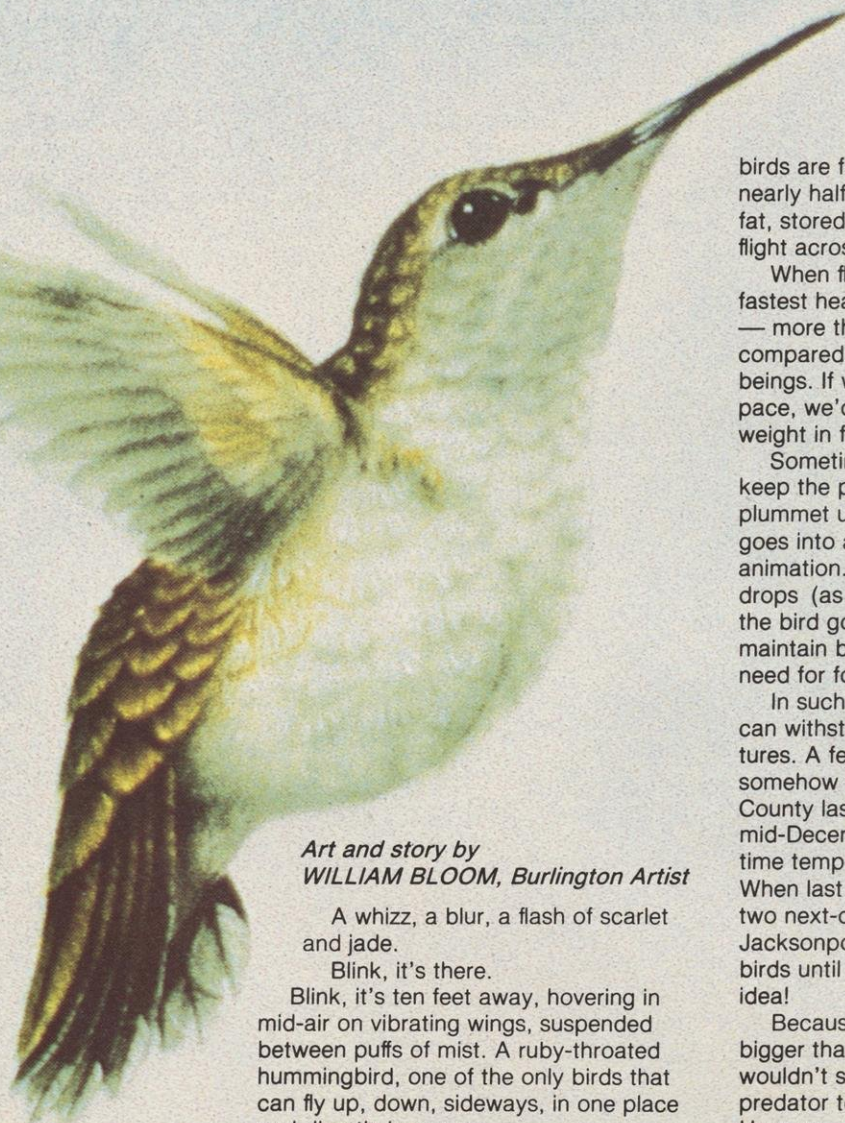








# Wisconsin's winged jewels



*Art and story by  
WILLIAM BLOOM, Burlington Artist*

A whizz, a blur, a flash of scarlet and jade.

Blink, it's there.

Blink, it's ten feet away, hovering in mid-air on vibrating wings, suspended between puffs of mist. A ruby-throated hummingbird, one of the only birds that can fly up, down, sideways, in one place and directly in reverse.

The tiny hummingbird is the smallest bird alive, indeed, probably the smallest any bird can be and still function as a bird. Fully grown adults weigh only four and one-half grams, less than one-sixth of an ounce. But what hummers lack in size, they make up in vigor and determination. They have the fastest wingbeat in the avian world — slow-motion photography reveals more than 75 beats per second.

For a bird so small, their migration route is long — as far as Panama, Nicaragua and San Salvador in southern Central America. By the time humming-

birds are fully geared for fall migration nearly half their miniscule body weight is fat, stored up for the non-stop, 500-mile flight across the Gulf of Mexico.

When flying, the hummingbird has the fastest heartbeat ever recorded in a bird — more than 1,200 beats per minute, compared to about 100 in human beings. If we lived at the hummingbird's pace, we'd consume twice our body weight in food every day.

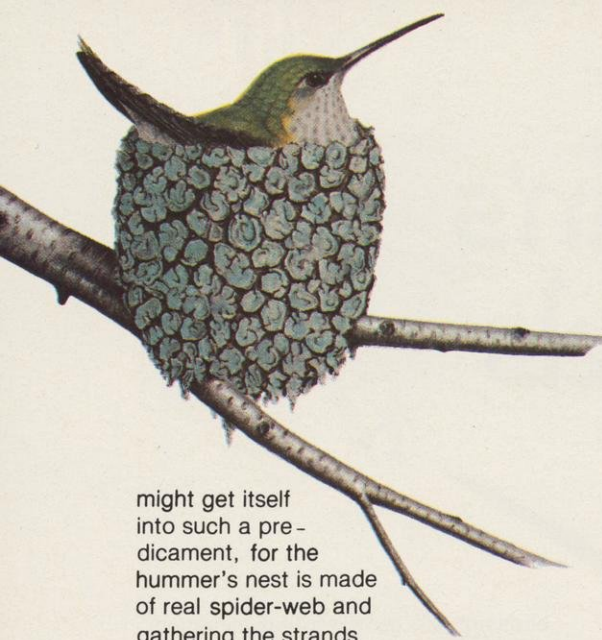
Sometimes, even hummingbirds can't keep the pace. When temperatures plummet unexpectedly, the hummingbird goes into a state of near suspended animation. Breathing slows, heartbeat drops (as low as 36 per minute,) and the bird goes into a state of torpor to maintain body warmth and reduce the need for food.

In such a condition, hummingbirds can withstand amazingly low temperatures. A female ruby-throat that somehow failed to migrate from Door County last winter survived at least two mid-December snowstorms and nighttime temperatures as low as 11 degrees. When last seen, she was being fed by two next-door neighbors in the Jacksonport area. Feeding hummingbirds until late in the year is not a good idea!

Because hummingbirds are scarcely bigger than a good-sized moth, it wouldn't seem worthwhile for a big predator to go after so small a meal. However, hummingbirds do sometimes get gobbled up by predators that are normally insect-eaters — leopard frogs, large fish, an occasional sparrow hawk (kestrel), and sometimes even by dragonflies. There are tales told of hummingbirds tangled in the spiny bristles of Canadian thistles. One hummingbird-lover tells of one suspended in a spider's web, while the web's owner — "a big yellow and brown, pot-bellied, blood-thirsty rascal" — turned its victim over and over, winding the web about it. With great delicacy, the man freed the hummer and carefully unwound the web.

It's easy to see how a hummingbird





might get itself into such a predicament, for the hummer's nest is made of real spider-web and gathering the strands might be hazardous. It measures scarcely an inch wide and an inch deep. Carefully camouflaged with tiny bits of transplanted lichens outside, it's padded with thistle-down for comfort and warmth within.

Almost exclusively, it's the female

who builds the nest, warms the eggs and rears the young. The male is a polygamous sort whose part in the procedure is limited to staking out the territory and defending against other hummingbird intruders. One male may perform his free-lance services for several females and, mating accomplished, desert them all.

Hummingbird courtships are spectacular. Once a male selects a female the performance begins. Rising eight or ten feet into the air above her, and five or six feet to one side, the male suddenly goes into a power dive and swoops down within inches of the female. With an explosive pop of his tail, his iridescent red throat and vivid green plumage ablaze, he swings past her to an equal height on the other side, tracing an arc like a bird on the end of a string. Often, he keeps this up for a minute or more while the female continues feeding on a flower, ignoring him. But once attracted, the female joins the male in aerial display, swinging high when he is low, low when he is high in poetic, symmetric

juxtaposition, like a pair of counter-balanced pendulums.

True to form, in the world of hummingbirds even rearing young proceeds at break-neck pace. Within three or four days of mating, the female lays two pea-sized white eggs in her lilliputian nest, often before it is quite completed. In less than two weeks, two naked, helpless, bits of life — slate gray and predictably homely — hatch from the eggs. In some locations it takes as little as 10 or 12 days for the young to feather out enough to take to the air and leave the nest. In others, it may take more than three weeks.

When a mother hummingbird feeds her nestling young, she sits on the edge of her nest, tail propped against it for support, and repeatedly shoves the full length of her stiletto-like bill down into the young bird's gullet. To an observer she looks as though she's about to disembowel the bumblebee-sized youngster from the inside out. Actually, she's just squirting regurgitated, partially digested nectar and tiny insects directly





into the chick's stomach. So expert is she at this task, she can do it on the wing.

For years, ornithologists argued about whether hummingbirds visited flowers for their nectar or for the insects. Nowadays, it's accepted that they're probing mostly for the sweet nectar, but are opportunists enough to feed on the insects, too.



## TAKE A HUMMINGBIRD TO LUNCH

It's easy to capitalize on the hummingbird's sweet tooth by putting out simple feeders filled with syrup made from sugar or honey and water. You can purchase commercially made types with a drip-tube like a hamster feeder, or simply wire a glass test tube or cigar-holder to the nearest bush. Hummingbirds are particularly fond of red, so they'll find a red natural or artificial flower taped to the feeder especially enticing. Or use a drop of red dye in the syrup.

Hummers are quite trusting and easy to tame. They'll quickly become accustomed to your presence and learn that you're the sugar daddy. They'll follow you around the yard and even complain when the feeder is empty by raising a racket at the kitchen window. They can be taught to feed from a flower held between your teeth or to perch on an outstretched finger.

There are drawbacks to feeding hummers, however. The little birds quickly come to depend on your hand-outs. If you leave home for summer vacation, they could quickly use up the available syrup supply and starve. And, the glucose in sugar syrup provides the birds with lots of energy, but not much in the way of complete nutrition. If the feeder is not meticulously clean, the syrup may spoil or ferment and poison the miniature birds. And you have to stop feeding them around migration time in the fall, or they might not head south, like the hummingbird in Door County last winter.

A better idea than relying strictly on feeders to attract them is to combine feeding with backyard plantings of trumpet-shaped flowers that make up their natural food supply.

### "HUMMINGBIRD FLOWERS"

Beebalm	Impatiens
Bleeding hearts	Jewel weed
Buddleia	Lilies
Butterfly weed	Morning glories
Cannas	Nasturtium
Cardinal flower	Petunia
Cherry tree	Phlox
Columbine	Scarlet sage
Coral bells	Salvia
Fuchsia	Snapdragon
Gladiola	Tiger lily
Hibiscus	Trumpet vine
Hollyhock	Verbena
Honeysuckle	Weigela





# Devil's Lake State Park: a history



Devil's Lake today. Photo by Dean Tvedt

**KENNETH I. LANGE, *Naturalist, Devil's Lake State Park.***

Once, according to Winnebago Indian legend, the thunderbirds waged a great battle against the water spirits. Fighting continued for days. The thunderbirds threw down eggs and water spirits retaliated by hurling rocks and water spouts. When battle ended, it left the cracked and tumbled bluffs and rock walls of what we today know as Devil's Lake.

Native Americans knew Devil's Lake for more than 500 generations — 10 to 20 thousand years before the coming of Europeans. The Winnebago name was *Ta-wa-cun-chuk-dah*, translated as "Sacred Lake" or "Holy Lake," . . . some would say "Spirit Lake." Another name — *Minniwaukan* — is thought to be Sioux. It is said to mean "Bad Spirit Lake," but "Mystery Lake" is probably just as accurate a translation.

Material for this story was taken from the book *A Lake Where Spirits Live* by Kenneth I. Lange and Ralph T. Tuttle. It is available from the Taylor Bookstore, 512 Oak St., Baraboo, Wisconsin. Price \$3.00, including postage.

The lake didn't assume the name "Devil's" until whites began to glamorize the area. Early maps referred to it as "Lake of the Hills" or "Spirit Lake," but within a few years the name Devil's Lake began to stick. Some didn't like it. An 1858 editorial in the *Baraboo Republic* expressed preference for "Spirit Lake," believing it to be the more accurate translation of the Indian and not approving of the irreligious connotations associated with the word "Devil's." In 1871, the *Kilbourn Mirror* suggested "Juanita Lake" instead (wherever that came from). But by 1866, even the *Baraboo Republic* admitted defeat. It gave up on "gentler names" in favor of the "uncouth . . . title by which it was best known — Devil's Lake." Another newspaper of the day perhaps put it best: "Had the lake been christened by any other name, it would not have attracted so many people . . . Had it been called "Paradise Pond" fewer would have cared to visit it."

And visit it they did. The first recorded visit by a non-Indian was in

1832, during the Blackhawk War. The man's name was John T. de La Ronde and, appropriately, he was going fishing. He caught one, too, he recorded in later years — a 20-pound pike.

Increase A. Lapham, an early Wisconsin naturalist, scientist and geographer, visited the area in 1849, and three local men erected the first building on the lake sometime in the 1850's — a bathhouse. One of the first permanent settlers along the shore was an expatriate Englishman named Louis J. Claude. In a way, Claude was responsible for much of what Devil's Lake later became, because in addition to erecting a magnificent house, a barn, a work house and a hired-hand's quarters, Claude built and rented two cottages on his property. This was the beginning of Devil's Lake as a vacation mecca.

At first there was an elegant hotel called the Minniwaukan. In 1866, renamed the Cliff House, it expanded to provide room for more than 200 guests. Other hotels followed and by the height



A leisurely cruise on the paddlewheel steamer *Capitola* was a pleasant summertime diversion for Cliff House patrons in the early 1870's. The hotel bought the steamer in Madison — hence the name. The craft was moved to the lake on two wagons, one for the boat and another for the boiler and engine. It held up to 100 passengers "comfortably" and circuted the lake in about an hour. In 1874, the *Capitola* was replaced by an even larger woodburner, the *Minniwauchen*, which burned on the beach in 1900.

of the "Hotel Era" two railroad tracks passed through Devil's Lake and up to 10 trains a day delivered passengers from Madison, Milwaukee, Chicago and points beyond. In its heyday, Devil's Lake rivaled the fashionable resorts of the Adirondacks.

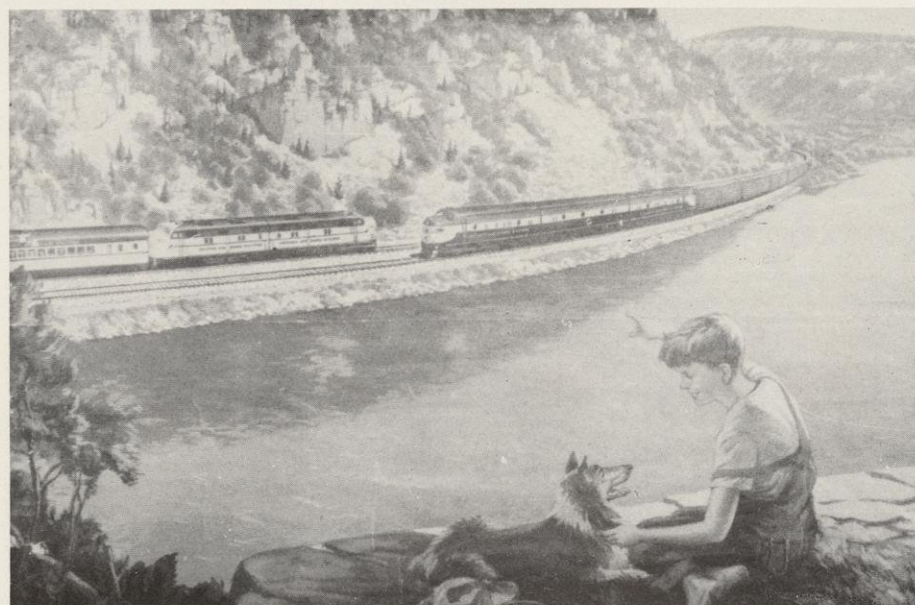
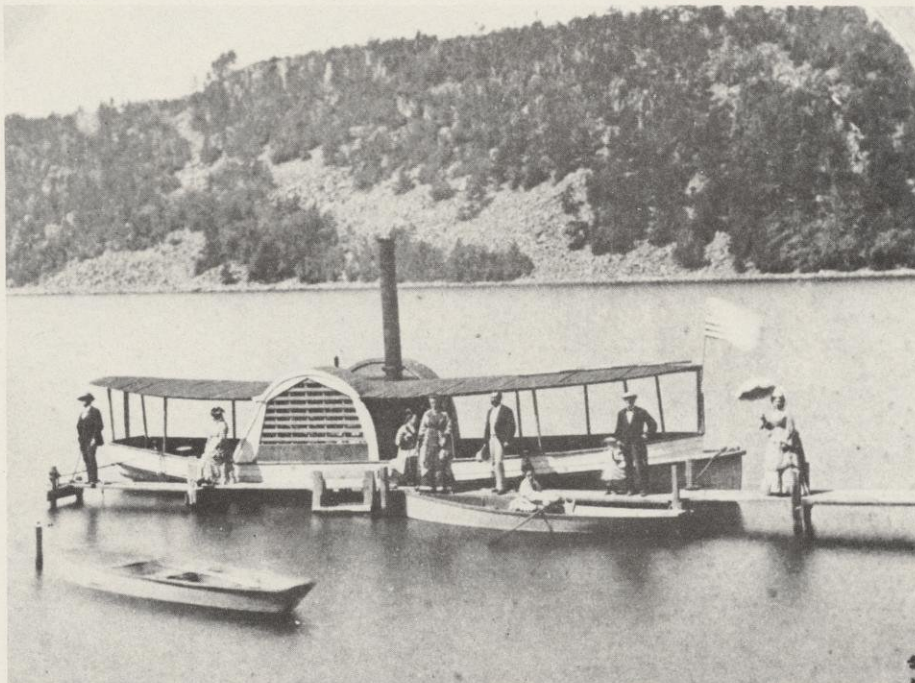
However, not everybody who got off the trains stayed at the expensive hotels. Many came just to picnic, swim, or climb the bluffs — which didn't generate much business. As the Cliff House manager put it, "There is no money in feeding excursionists."

Eventually, at rates of \$14 per week, the fancy hotels couldn't make it. Conflicts arose over public use of the shoreline. There were charges of elitism. In 1906 a committee of eight local citizens got together to try and create a state park at Devil's Lake that would be available to everyone. They won support gradually. The legislature defeated their first attempt in 1907 but the second try won 69 to 9 and in 1911 Devil's Lake became Wisconsin's third state park. (Interstate and St. Croix had been established earlier.) When it opened, Devil's Lake State Park consisted of 1,100 acres. Today, there are 6,000 acres. At first, to ease the turnover from private to public land, owners were given lifetime or long-term leases. The last resort to go was the Kirk Hotel in 1946. The last private cottages were sold at public auction in 1968.

This year Devil's Lake Park marks its 70th anniversary on July 4th. More than a million visitors will stop to look, enjoy the beaches, or climb on the bluffs. It has changed from a spot sacred to Indians to an exclusive resort for a privileged few to a public park available to everyone. But through it all it has remained an enchanted place, a place of mystery, a place where spirits still dwell.

The 1951 Northwestern Railroad calendar — passenger service to the lake ended in 1963 and one of the two sets of tracks was removed a year later. Today, only freight trains still whistle through Devil's Lake, the only gap in the Baraboo Range.

There were dances, sings, theatrical productions, poetry readings, story telling, music and masquerade balls like this one in the early 1920's. That's a monkey on the fellow's lap in center front.



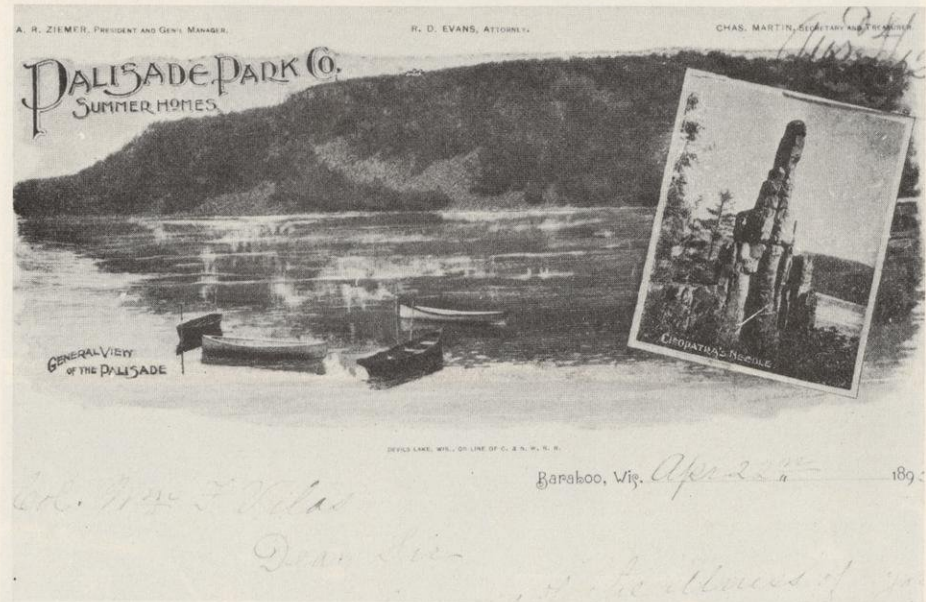




▲ The Claude House at Eagle Crag was an architectural masterpiece, a timeless landmark with an air of European elegance. Built in 1857, it was constructed of pegged pine beams with foot-wide boards for siding. The rich interior decorations included an elaborately carved butternut mantelpiece.

Louis J. Claude, an English civil engineer, designed and built the home himself. It was removed in 1953, before anyone thought much about historic preservation. The park's amphitheater now occupies the site.

Claude also redesigned and enlarged an early hotel into the elegant Cliff House, using the original building as a wing.



▲ Real-estate entrepreneur Arthur R. Ziemer had grand dreams of a 90-acre summer resort city on the bluffs overlooking the lake in the 1890's. He saw it as rivaling New York's Catskill Mountains, "a counterpart of the Palisades on the Hudson River."

Ziemer's "Palisade Park" generated quite a flurry of activity beginning in the summer of 1894. Ziemer platted the area into 88 lots, parks and a hotel site. He built a graveled road, a large reservoir, several cottages, and an 85-foot tall observatory tower, complete with telescope.

The bubble burst in October, 1895, when Ziemer died of typhoid fever, presumably from drinking contaminated water from the Palisade Park spring. Word quickly got around and "the most prominent summer resort in the Northwest" became a ghost city, avoided like the "plague" that destroyed it.



▲ A drive around the lake could be a harrowing experience; autoists in the 1920's sometimes carried pick and shovel to remove stones "that stick out of the road to the injury of automobile tires."

This south shore road was only a path until circusman Henry Ringling built a bungalow along it in 1915. The story goes that he used circus elephants and draft horses to improve the road. In truth he probably just borrowed circus roustabouts and wagons.



◀ A grand crewing regatta was held at Devil's Lake in June, 1877, under the auspices of the National Association of Amateur Oarsmen. Thousands lined the beach behind the Cliff House (background) to watch the event. Sometimes swimmers also vied for the fastest time from the Cliff House to Kirkland, at the opposite end of the lake. Often, there were horse races in a nearby farmer's meadow, on a country road or village street. This stopped in 1868 when Baraboo built its own track. Photo courtesy State Historical Society of Wisconsin.

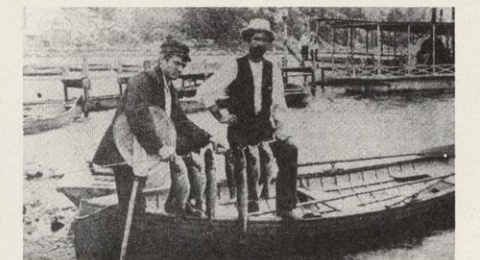
**THE ENCHANTED SUMMER LAND**

LAKE VIEW HOTEL, FARM AND COTTAGES,  
DEVILS LAKE, WIS., ON C. & N.W. RY.

THE most beautiful and healthful resort in the West, just the place where tired brain workers may rest and get strong. Plenty of fresh milk and vegetables furnished by the farm. First-class accommodations at moderate prices. The Lake is elevated above Chicago about six hundred feet; splendid bathing beach, fishing, boating, etc.

HOTEL RATES:  
Per day \$2.00, Per week \$8.00 to \$12.00.

For particulars, write or telegraph to the owner, E. T. HOPKINS, BARABOO, WIS.



▲ The fish were biting, even in 1888. The moustachioed fellow on the right is Ben Shrew, who in later years ran a refreshment stand at the lake and had dreams of installing a lift to carry people up to Prospect Point, the name he gave his bluff-top property.

The steamboat in the background is the *Minniwaiken*.



◀ Cliff House, the first hotel on the lake, opened in February, 1866, just 16 years after Wisconsin statehood. Formerly the Minniwaiken House, the resort was remodeled and expanded several times to eventually boast an incredible 63 rooms. An even more elegant structure, the Annex, was added in 1884, with another 30 rooms. Together, the two buildings could lodge up to 400 people.

All the "best" people stayed there . . . at various times former President Ulysses S. Grant, Mary Todd Lincoln (Abe's widow), Civil War General William Tecumseh Sherman (as in "Sherman's March to the Sea"), poet and novelist Ella Wheeler Wilcox (author of *Poems of Passion, An Erring Woman's Love* and other light classics) and Carter Harrison (several-term mayor of Chicago).





# Dance of the land ethic

J. WOLFRED TAYLOR

Photos by Dean Tvedt  
and Jean Meyer

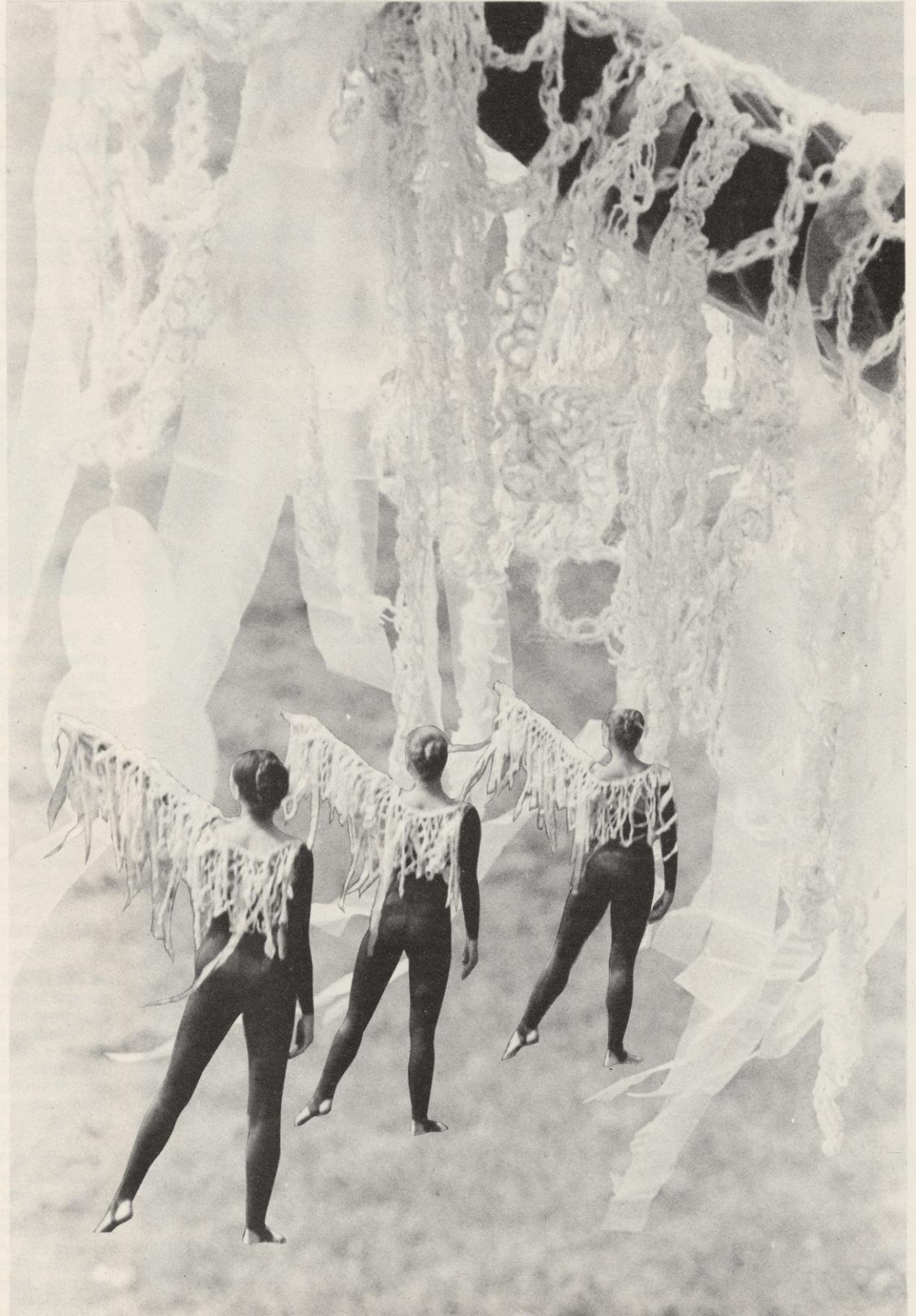
*A Sand County Almanac as modern dance? The seasonal rhythms of earth and the land ethic transferred to the motion of choreography and music?*

To keepers of the Aldo Leopold flame, the idea comes as an inspired surprise. Dancecircus, a Milwaukee-based modern dance group has brought it off. Sensitively choreographed by Betty Salamun, who is also a gifted performer, the six-part program makes the trail of light left by Leopold glow in a new way. Each segment is introduced by a seasonal excerpt from the famous essays. The words are spoken by Peter J. Salamun, Betty's father, who is a professor of botany at UW-Milwaukee and a former student of Leopold's. Music ranges from folk guitar to Debussy with two pieces by Madison composer Royce Dembo and another by Wisconsin folksinger Dick Pinney.

This summer, through a grant from the National Endowment for the Arts, Dancecircus will give 10 performances at nature centers, parks and similar sites throughout the midwest. Purpose will be to bring Leopold's ideas plus concert level modern dance to audiences in geographically removed natural areas.

Dancecircus will perform A Sand County Almanac this summer at the Wisconsin State Fair in the Department of Natural Resources Center on Wildlife Day, August 13.

Pictures shown here were taken at Mitchell Park in Milwaukee.





*The performance opens with David Drake's folk guitar to set the mood. Passages are read from the book:*

"There are some who can live without wild things and some who cannot. These essays are the delights and dilemmas of one who cannot.

We abuse land because we regard it as a community belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.

That land is a community, is the basic concept of ecology, but that land is to be loved and respected, is an extension of ethics. That land yields a cultural harvest is a fact long known, but latterly often forgotten. Our ability to perceive quality in nature begins, as in art, with the pretty. It expands through successive stages of the beautiful to values as yet uncaptured by language.

Perhaps such a shift of values can be achieved by reappraising things unnatural, tame, and confined, in terms of things natural, wild, and free."

## 'PINES ABOVE THE SNOW

*The pines are stately, swaying to the whisper of wind as the thaw comes. Frosted white costumes tinkle like the crackling of ice as the dancers move.*

"It is in midwinter that I sometimes glean from my pines something more important than woodlot politics, and the news of the wind and the weather. This is especially likely to happen on some gloomy evening when the snow has buried all irrelevant detail, and the hush of elemental sadness lies heavy upon every living thing. Nevertheless, my pines, each with his burden of snow, are standing ramrod-straight, rank upon rank, and in the dusk beyond I sense the presence of hundreds more. At such times I feel a curious transfusion of courage."

## ALDER FORK

### A fishing idyl

*The dancers are trout. They play, turn, dive, glide through the water.*

"In the fresh of the morning, when a hundred whitethroats had forgotten it would ever again be anything but sweet and cool, I climbed down the dewy bank, and stepped into the Alder Fork. A trout was rising just upstream. How like fish we are: ready, nay eager, to seize upon whatever new things some wind of circumstance shakes down upon the river of time! And how we rue our haste, finding the gilded morsel to contain a hook. Even so, I think there is some virtue in eagerness, whether its object proves true or false. How utterly dull would be a wholly prudent man, or trout, or world!"



The group (from left) Betty Salamun, Cate Deicher, David Drake, Katherine Zavada and Kathryn Potter.







## ▲ THE GEESE RETURN

*Medieval music ushers back the geese. The gestures are flexed hands and necks.*

"One swallow does not make a summer, but one skein of geese, cleaving the murk of a March thaw, is the spring. A migrating goose, staking two hundred miles of black night on the chance of finding a hole in the lake, has no easy chance for retreat. His arrival carries the conviction of a prophet who has burned the bridges.

March geese wind the oxbows of the river, cutting low over the now gunless points and islands, gabbling to each sandbar as to a long-lost friend. Finally, after a few pro-forma circlings of our marsh, they set swing and glide silently to the pond, black landing-gear lowered and rumps white against the far hill. Once touching water, our newly arrived guests set

up a honking and splashing that shakes the last thought of winter out of the brittle cattails. Our geese are home again!"

## SMOKY GOLD ▶

*In this solo Betty Salamun is the tamarack as it turns to gold in the October sun. Her long, flowing hair and the quick, twisting turns of the dance portray the image.*

"The tamaracks change from green to yellow when the first frosts have brought woodcock, fox sparrows and juncos out of the north.

I regard a phalanx of young tamaracks, their golden lances thrusting skyward. Under each, the needles of yesterday fall to earth building a blanket of smoky gold; at the tip of each the bud of tomorrow, pre-formed, poised, awaits another spring."

## IF I WERE THE WIND

*This is wind in the corn and wind among the geese to the music of a French collage. It blows and buffets the dancers.*

"The wind that makes music in November corn is in a hurry. The stalks hum, the loose husks wisk skyward in half-playful swirls, and the wind hurries on.

In the marsh, long windy waves surge across the grassy slough, beat against the far willows. A tree tries to argue, bare limbs waving, but there is no detaining the wind. . .

The flock of geese emerges from the low clouds, a tattered banner of birds dipping and rising, blown up and blown down, blown together and blown apart, but advancing, the wind wrestling lovingly with each winnowing wing. When the flock is a blur in the far sky I hear the last honk, sounding taps for summer.

It is warm behind the drift wood now, for the wind has gone with the geese. So would I — if I were the wind.

The Lord giveth, and the Lord taketh away, but He is no longer the only one to do so. When some remote

ancestor of ours invented the shovel, he became a giver: he could plant a tree, and when the axe was invented, he became a taker: he could chop it down. Whoever owns land has thus assumed, whether he knows it or not, the divine functions of creating and destroying plants.

I find it disconcerting to analyze, ex post facto, the reasons behind my own axe-in-hand decisions. Where a white pine and red birch are crowding each other, I have an a "priori" bias; I always cut the birch to favor the pine. Why? Well, first of all, I planted the pine with my shovel, whereas the birch crawled in under the fence and planted itself. The birch is an abundant tree in my township and becoming more so, whereas pine is scarce and becoming scarcer; perhaps my bias is for the underdog. The pine will live for a century, the birch for half that; do I fear that my signature will fade? Does the pine stimulate my imagination and my hopes more deeply than the birch does? The only conclusion I have ever reached is that I love all trees, but I am in love with pines." ▶







## DRABA

*This is the finale, a joyous, weaving dance by the whole company while David Drake and guitar perform with The Garden Song, "Inch by inch, row by row, gonna make this garden grow . . ."*

"Within a few weeks now, Draba, the smallest flower that grows, will sprinkle every sandy place with small blooms. Draba asks, and gets, but scant allowance of warmth and comfort; it subsists on the leavings of unwanted time and space. Sand too poor and sun too weak for bigger, better blooms are good enough for Draba. Altogether it is of no importance — just a small creature that does a small job quickly and well. After all it is no spring flower, but only a postscript to a hope."





