

**Wisconsin Underwater
Archeology Association
and State Historical Society of
Wisconsin 1997 Field Season
Schedule**

*For more info, contact Dave Cooper,
(608) 264-6493.*

May 27-June 6	Bayfield
June 20-22	Sturgeon Bay
Aug. 4-8	Sheboygan
Sept. 8-12	Bayfield

Upcoming Events

- Jun. 22 **Wisconsin Maritime Museum's 11th Annual Riverwalk Festival** Site: Manitowoc. For more info., contact WMM, 75 Maritime Dr., Manitowoc, WI 54220; (414)684-0218.
- Aug. 2-3 **7th Annual Classic Wooden Boat Show** sponsored by the Door County Maritime Museum. Site: Sturgeon Bay. For more info., contact DCMM, P.O. Box 246, Sturgeon Bay, WI 54235; (414)743-5958.
- Sep. 13-14 **Wisconsin Underwater Archeology Association Fall Meeting** Site: Bayfield. Meeting and optional recreational diving in Apostle Islands. For more info., contact Tom Villand, WUAA, P.O. Box 6081, Madison, WI 53716; (608)221-1996.
- Oct. 2-4 **Annual Meeting of the Association for Great Lakes Maritime History** Site: Toronto, Ontario. For more info., contact Bob O'Donnell, AGLMH, 1406 Prospect Ave., Wausau, WI 54403; (715)842-1762.
- Oct. 25-26 **SOS Forum '97** sponsored by the Windsor Chapter of Save Ontario Shipwrecks. Site: Leamington, ON. For more info., contact SOS, 2175 Sheppard Ave. East, Ste.310, Willowdale, ON M2J 1W8; (416)491-2373.

**Wisconsin Underwater Archeological Association
P.O. Box 6081
Madison, WI 53716**



*For those interested in the study and preservation of
Wisconsin's underwater history and cultural resources.*

Wisconsin's **UNDERWATER HERITAGE**

Vol. 7 No. 2

A publication of the Wisconsin Underwater Archeology Association

May 1997

Budget Cuts Threaten Underwater Archeology Program

As noted in a special mailing sent out last month to all WUAA members, potential budget cuts by the

State of Wisconsin may result in the loss of the Underwater Archeology Program at the State Historical Society of Wisconsin.

The Underwater Archeology Program has been very supportive of

WUAA. They have trained many of our members in research and underwater survey techniques, helped coordinate our field projects and provided many opportunities to volunteer for State Historical Society research projects. They have also been instrumental in preserving Wisconsin's underwater heritage, making scuba diving more enjoyable for all of us.

The joint finance committee recently voted on two motions concerning SHS funding. The first, motion #1015 would have restored 1.5 GPR positions in the Historical Society which were deleted by the Governor. The motion was defeated 8 to 7. Voting for were Burke, Decker, Jauch, Wineke, Shibilski, Linton and Coggs. Voting against were Cowles, Panzer, Jensen, Ourada, Harsdorf, Albers, Gard and Kaufert. George was absent.

The second motion, # 1507, would have provided \$101,000 to restore funding reductions for the Historical Society. The motion was defeated 8 to 7. Voting for were Burke, Decker, Jauch, Wineke, Shibilski, Linton and Coggs. Voting against were Cowles, Panzer, Jensen, Ourada, Harsdorf, Albers, Gard and Kaufert. George was absent.

If you are in a district represented by any of these legislators, please let those that voted against these motions know you don't agree with their position and thank those that supported these motions. The matter now moves to the general legislature.

The final budget will be approved by the end of June and then forwarded on to Governor Thompson. Since the underwater archeology program has been subject to line item vetoes by the Governor in the past, those supporting the program are also asked to contact his office to express their support for the program.

The association has made the governor and members of the state legislature aware of our support. Individual WUAA members are also encouraged to contact their representatives and the State Historical Society.

History of Wisconsin Diving: Development of Helium/Oxygen

Transcribed from Dick Boyd's talk at the WUAA 1997 spring meeting.

Starting our talk about stuff here in Wisconsin I'd like to tell just a little bit about the mixed gas diving in Milwaukee, how it started over there. In the 1930's in Milwaukee they were putting in some of the first sewer systems over there and the water table, of course, over by the lake was so high that all that work had to be done in caissons. The county had no decompression procedures at all to speak of for the sand hogs, that's what they called those guys that worked inside those caissons. And so, they would come out of there, if they decompressed at all it was inadequate, and they were forever getting these guys to the hospital with cases of the bends. It was becoming such a problem for Milwaukee that they hired a fellow named Dr. Edgar End at the ripe old age of, I think, 25 years old. From Harvard Medical School, End came in here to head up the Milwaukee County recompression center where, in fact, they put in the first chamber that ever existed here in the Midwest area. End, who was a brilliant young guy, was very interested in diving physiology and recompression in general and he was a heck of a mathematician. So he



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Wisconsin's**Underwater Heritage**

is published quarterly by the Wisconsin Underwater Archeology Association, a nonprofit association of individuals and organizations who are interested in studying and preserving the underwater cultural resources and historical sites of Wisconsin.

In addition to publishing this newsletter, the Association also holds meetings twice a year and provides financial support to members' research and publication projects. For membership information, contact the secretary or write to the address below. Annual membership dues are \$15.

President:

Tom Villand
Madison, 608-221-1996

Vice-President

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Wausau, 715-842-1762

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Send correspondence to:

Wisconsin Underwater
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WUAA Spring Meeting

The spring meeting of the Association was held in Madison on the weekend of April 26-27, 1997.

Association President Tom Villand called the meeting to order at 9:30 a.m. on Saturday. Tom noted that Association representatives had participated in two regional events since the fall meeting. Those events included the Gales of November program in Duluth last October and the Wisconsin Lakes Association Conference this spring.

Reports

Danny Aerts gave the treasurer's report which showed that during the period of April 1, 1996 through April 26, 1997, WUAA had revenues of \$1,585 and expenses of \$1,890. As a result, the Association now has a combined checking and savings accounts balance of \$1,718. It was noted that almost \$1,000 of the period's expenses were related to the publication of the Association's latest book: *Our Four Lakes: Their Legends, Sites and Secrets* (see page 5). Those expenditures were approved by the membership at prior meetings.

In Dave Neudek's absence, Tom Villand gave the secretary's report. It was noted that Association membership continues to grow and now stands at 70 members. A new brochure and traveling display have been created by Betsy True. Association members are encouraged to use the display for diving and historical events in their area. Specifically, the Association are looking for members who would volunteer to take the display to the Wisconsin Maritime Museum's Riverwalk celebration in Manitowoc on June 22 and the Door County Maritime Museum's Classic Wooden Boat Show on August 2-3.

Newsletter

Since last fall, there has been a number of changes in the publishing of *Wisconsin's Underwater Heritage*, the

Association's quarterly newsletter. Betsy True, Danny Aerts and Tom Villand now do the production and distribution work in Madison.

Bob O'Donnell continues to provide editorial material for the newsletter along with Dick Boyd and Dave Cooper. A regular publishing schedule has been established with issues planned for March 15, May 15, September 15 and November 15. Finally, it was noted that all Association members are encouraged to submit news and items of interest for the newsletter.

Training Dives

Dick Boyd and Dave Cooper again conducted an underwater archeology session at the Our World Underwater event in Chicago this spring. Over 20 people participated in the session which is becoming something of an event for former and current Wisconsin divers.

As a follow-up an in-water training program is planned for Pearl Lake on Sept. 20, 1997. Association members interested in helping should contact Tom Villand (608-221-1996). Work is also continuing on a self-paced training program at West Point Dive Park near Red Granite. For more info., contact Craig Fink (414-722-0051)

Research Committee

Russ Leitz reported for the Research Committee on his activities involving the Door County Advocate. Russ is documenting all ship references in the newspaper for the period 1862 thru 1933.

To date, he has reviewed 42 of the 72 years in that period and has compiled over 10,000 references including ship name and type along with the date and page of the reference. The information has already proved useful in trying to identify the wreck at Clafin Point which may prove to be the lumber hooker Mary.

The possibility of the Association publishing Russ' work and the databases of others, such as Dick Boyd and Walter Hirthe, as CD-ROM products was discussed. More will be discussed on CD-ROM publishing at the fall meeting.

Fall 1997 Meeting

The tentative plans for the fall WUAA meeting are to hold it in Bayfield on the weekend of September 13-14 in conjunction with the State Historical Society's second fieldwork trip to the area. A dive charter to some Apostle Islands wrecks is planned. Cost of the charter will be \$50/diver. Contact Tom Villand if you are interested in diving.

Speakers & Tours

Following the business meeting, Dick Boyd gave a program on the history of diving equipment which included several pieces of historic diving equipment along with a slide presentation of diving during the 1950s and 1960s.

After Dick's presentation, Dave Cooper and Bob O'Donnell gave a presentation on basic research techniques. Dave has developed a self-guide educational tour of ship construction-related sites in Wisconsin along with a guide to planning basic research projects. Bob gave a demonstration on on-line maritime heritage resources and databases on the Internet.

After the meeting some members enjoyed the nice spring day on the Memorial Union terrace, which was followed by an evening brat cookout and hot tub session hosted by Betsy True and Danny Aerts.

On Sunday, there was a tour of the Coyier Lab where the Historical Society does much of its artifact conservation work. There was also a tour of the Dyreson Fish Weir site along the Yahara River in Dane County's newest conservancy area.

Looking Ahead to the 1997 Field Season

by David J. Cooper, State Underwater Archeologist

Spring is the time that the state underwater archaeology program begins planning for its upcoming field season. This year is one of great uncertainty as we await deliberations on the state budget. As many of you know, state budget reductions threaten the underwater archaeology program with elimination, possibly as early as this July. This is very disheartening to all of us who have worked to develop this program and who are concerned about the preservation of our underwater heritage. Thanks to the many letters from sport divers, archeologists, Indian tribes, museums, and historic preservationists, we have made our voices heard in the budget debate. **If you have not yet written letters to your legislators, the governor, and the State Historical Society of Wisconsin director, we need your help more than ever, and the voice of every concerned citizen really counts!**

Despite the uncertainty, we are going ahead with plans for summer field work. From May 27 through June 6, the state underwater archaeology program will be at Bayfield, surveying sites in Lake Superior. The water promises to be cold, but this is a beautiful time to visit the area, before the summer crowds arrive.

From June 20-22, WUAA and the state underwater archaeology program will be in the field at Sturgeon Bay, investigating the wreck of the schooner-barge Adriatic, and with possible visits to the Clafin Point Wreck, and other wrecks at Sturgeon Bay and Fish Creek. The Sturgeon Bay and Bayfield diving will be shallow (less than thirty feet) so these projects are

ideal for beginning volunteers.

From August 4-8 we plan to be in Sheboygan, completing mapping work on the wreck of the steamer Selah Chamberlain. This is deeper diving (over eighty feet) and we can only use volunteers with advanced mapping and diving skills.

We have tentatively scheduled more fieldwork in Bayfield from September 8-12. Like the May work, this should be relatively shallow diving. We hope that this work will be able to coincide with the fall WUAA meeting.

There are still some openings for volunteers on these projects. Please contact me at 608/264-6493 or david.cooper@ccmail.adp.wisc.edu if you would like to volunteer and I will provide you with more details. Also, please contact me if you would like more information on the state budget situation, and how you can help.

For volunteers who have not yet had any training in underwater archaeological mapping techniques, or those wanting a refresher, don't forget that the State Historical Society, the WUAA, and Pearl Lake dive center are offering a one day PADI Research Diver-Underwater Archaeology training class on September 20. For information and registration contact Pearl Lake at 815-389-1479. Call soon, as the class tends to fill up quite quickly.

History of Wisconsin Diving: Development of Helium/Oxygen

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worked out an algorithm for the decompression from helium and proved that these tables worked in the chamber there in Milwaukee County. Then he published them in the American Journal of Physiology and nobody paid any attention to it.

Now, I was fortunate in that I got to know Dr. End while he was still alive, we were on a number of panels and things together and we often went out to dinner and stuff together and talked a lot. To hear some of the stories that he had were absolutely fabulous, some of the early research that they had done.

For example he tells the crazy story about how after they got helium working they thought hydrogen might be a better gas to dive on. Well of course you know that hydrogen is highly explosive. They were afraid to work around that in the Milwaukee County Hospital for fear that they might blow something up. So they would do their work on Sunday morning up on the fourth floor, which is a little spire, a single little room stuck up off the top of the hospital, figuring if something went wrong they would just blow that section of the building up and it wouldn't be too bad.

But they didn't know what percentage of hydrogen and oxygen would be acceptable, that a guy could breathe and not be explosive and too dangerous to handle. They were so afraid of it that they, in fact, were worried about clothing or anything that might generate static electricity. So they worked on this thing on Sunday morning, three or four guys would get together, go up in this lab, take all their clothing off and they would soak the floors down with

soap so that there was no chance of getting any kind of spark at all. End said they worried like heck that somebody might discover them one Sunday morning, three naked guys in a soapy locked room, as to what the heck they could possibly be doing in there. And to hear Ed tell the story you just rolled on the floor.

At any rate, he had absolutely no luck convincing the Navy that in fact he had solved the problem of helium decompression. So into the picture comes a guy that we know about, that we think maybe had a lot to do with the legends of the pyramids out in Rock Lake, and that was a fellow by the name of Max Gene Nohl. Nohl returned from MIT as a graduate where he, as part of his engineering degree, was working on a deep diving suit. So they decided, well hell's bells, if you can't get anyone interested in this paper that we've done the best way to perhaps solve the problem is just go out and break the world's depth record, which was at about 306 feet and had been held on some submarine salvage dives. The Navy had been proud of that, nobody had come close to breaking that record.

So on December 1st of 1937 End and Nohl went out in a fish boat, off Port Washington, into Lake Michigan. They got NBC radio to cover the thing live and they went out and did a 420 foot dive, just blew the world's record away. And the next morning the whole diving world was in Milwaukee wondering how in the world they had done it. And when you read the account of it, it sounds like it was a beautifully orchestrated, worked out dive. That's not what actually happened.

They only wanted to break the record by about 40 feet, but End describes Nohl as, frankly, a crazy bastard, and he was. This guy was a real P.T. Barnum when he got underwater. He had this self-contained diving suit

with the helium tanks and stuff on the back and it was actually quite a neat engineering device, but he was only supposed to go to 350. They got out there, it was a rocky, rolly kind of nasty day out at sea and Nohl goes all the way down to the bottom, 420 feet deep and they didn't have tables worked out that deep. End had them worked out for maybe an extra 10 feet or so, but not for 420. Unfortunately for End he didn't like to dive and he didn't like to go to sea because he suffered from something that Madison divers know as Betsy True syndrome, or also as perennial sea sickness. End said he was out there, barfing over the side of the boat, running back, trying to make calculations and eventually worked out something and of course Nohl came up without any problems at all. But, in fact, 75 feet of those tables were worked out right on the site of the dive.

New Informational Handouts

The state underwater archaeology program has developed three educational handouts for those interested in improving their archaeological and historical research skills. One handout is titled Historic Great Lakes Ship Construction: A Self-Guided Educational Tour, and includes seven suggested stops and activities around the state to learn more about our maritime heritage. Two additional handouts focus on research skills, and are titled Planning Your Own Research Project and Researching Your Lake History. To receive a free copy of these handouts, contact David Cooper at the state underwater archaeology program.

Publications

New Book Makes Waves

The Wisconsin Underwater Archeology Association has released an exciting new book titled, *Our Four Lakes: Their Legends, Sites, and Secrets*. This book is an exciting exploration of the rich cultural and historic heritage of Dane County's four major lakes, including discussions of lake biology, geology, early legends, and history.

Our Four Lakes: covers the early commerce supported by the lakes, including ice harvesting, steam boats and the legacy of the once thriving breweries of the Madison area. In addition, it also acts as a guide for modern age explorers, offering detailed information for more than 20 outstanding dive sites in Dane County.

The book is for sale at Madison area SCUBA shops and bookstores, or may be obtained directly from WUAA. Contact Tom Villand (608)221-1996 (\$8.50 + \$2 S&H).

Catalogs

Lighthouse Depot has published the latest issue of its catalog. For a free copy of the catalog or a list of the company's shipwreck books, contact Lighthouse Depot, P.O. Box 427, Wells, ME 04090; (800)758-1444.

Porphry Press offers several books on Great Lakes maritime history, particularly for the western portion of Lake Superior. For a listing, contact Porphry Press c/o Fireweed Crafts Inc., 182 Algoma St. South, Thunder Bay, ON P7B 3B9; (807)345-4686.

Freshwater Press has issued its 1997 catalog which includes the newly-published Volume 4 of John O. Greenwood's *The Fleet History Series*. For a copy of the catalog, contact Freshwater Press, 1700 E. 13th St., Ste. 3-R-E, Cleveland, OH 44114-3213; (216)241-0373.

The 1996-1997 catalog of the State

Historical Society of Wisconsin includes several publications on the work of the Society's underwater archeology unit. For a copy, contact SHSW, 816 State St., Madison, WI 53705; (608)264-6482.

Publications

The National Trust for Historic Preservation and the National Park Service have published *A Survey of State Statutes Protecting Archeological Resources* by Carol L. Carnett. The 86-page publication documents current state laws and relevant case law. Contact the National Park Service, P.O. Box 37127, Washington, DC 20013.

Several new books are now available at the Great Lakes Historical Society's, Inland Seas Museum Store including *Great Lakes Bulk Carriers 1869-1985* by John F. Devendorf (\$30 + \$7 S&H). Contact Museum Store, Inland Seas Museum, 480 Main St., Vermilion, OH 44089; (216)967-3467.

The 1996 edition of *Know Your Ship: Guide to Boatwatching* on the Great Lakes and St. Lawrence Seaway is available from Marine Publishing Co., Inc. The guide includes information on Great Lakes shipwrecks and maritime museums. (\$12.95 + \$1.30 P&H). Contact MPC, 317 S. Division St., Ste. 8, Ann Arbor, MI 48104; (313)668-4734.

The Riddle of the Naubinway Sands has been republished by the Association for Great Lakes Maritime History and now includes the results of the second archeological survey of the shipwreck site. (\$6.50). Contact: Liz Cutler 7730 Merrie Lane, Milwaukee, WI 53217; (414)352-6403.

The Marine Historical Society of Detroit has published a new book entitled *Ahoy & Farewell II*. The 250-page book details 440 vessels that have come on or left the Great Lakes in the last 25 years including a number of

famous shipwrecks. (\$25 + S&H). Contact MHSD, 606 Laurel Ave., Port Clinton, OH 43452.

A revised and enlarged edition of *Ships of the Great Lakes* by James P. Barry has been published. The 272-page book documents the region's vessels from early Indian canoes to present-day freighters. (\$24.75 + \$3.88 P&H). Contact Freshwater Press, 1700 E. 13th St., Ste. 3-R, Cleveland, OH 44114; (216)241-0373.

Guardian of the Great Lakes: the U.S. Paddle Frigate Michigan by Dr. Bradley Rodgers has been published by the University of Michigan Press. Contact Dr. Rodgers at 704 Sir Morris Ct., Greenville, NC 27858; (919)757-0759.

VIDEO

Three Whitefish Bay Shipwrecks is the newest video release from Southport Video. The video documents the wrecks of the steam barge *John M. Osborne*, wooden steamer *Vienna*, and freighter *John B. Cowle* (60 min., \$39.95 + \$4.95 S&H). Contact Southport Video, 4609 74th Place, Kenosha, WI 53142; (800)697-9731.

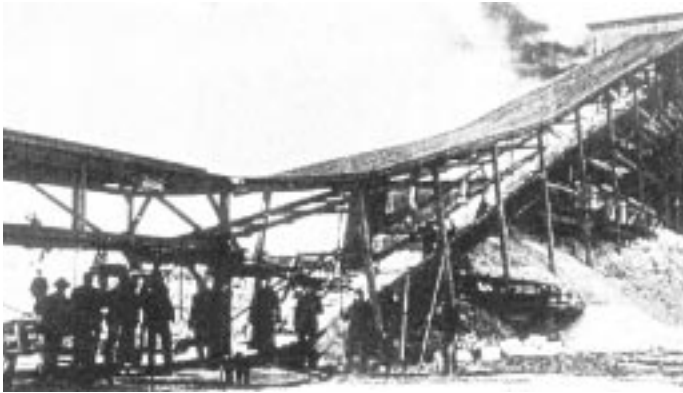
Mileposts Publishing has issued two new videos for 1996: *The Hulett Unloader: A Great Lakes Classic* and *The Lakers Video Album, Part II*. (30 min., \$30 + \$3.50 S&H, each). Contact Milepost Publishing, 3963 Dryden Dr., North Olmsted, OH 44070.

The Outagamie County Historical Society is offering a video about the history of one of the Great Lakes' major tributaries, the Fox River. Entitled *Riverboats of Wisconsin: The Paul L* the video documents the history and discovery of this sunken steamboat. (\$16.95 + P&H). Contact OCHS, 330 E. College Ave., Appleton, WI 54911; (414)735-9370.

Capturing the Winter: The Development of Wisconsin's Ice Harvest

by Jeff Gray

Wisconsin divers frequently encounter tools, docks and other remnants of nineteenth-century ice harvesting operations. However, most people today do not realize the historical importance of the ice harvesting industry. The study of the Claflin Point Wreck (see the March 1997 issue of Underwater Heritage) and the related operations of the A.S. Piper and Knickerbocker Ice Companies has led to additional historical research on the



ice harvesting industry. A very interesting story has emerged.

Essentially an American phenomenon, the ice industry originated in the late eighteenth century with small operations serving local needs. With the advancement of storage and harvesting techniques, the industry evolved. In 1807 the first commercial shipment of natural ice left Boston to the yellow fever infested West Indies and an industry was born. Soon after, new markets developed and the trade expanded along the southeastern coast and throughout the Caribbean. By the final quarter of the nineteenth century, giant companies annually employed thousands of workers to harvest, store, ship, and market millions of tons of natural ice. In Wisconsin workers extracted incredible amounts of ice, with the lion's share going to

Chicago's meat-packers and Milwaukee's brewers that both seemed to have an unquenchable thirst for the resource. The benefits of winter had been successfully (and profitably) captured and stored, and the ice harvest, often mistakenly overlooked as an obscure footnote of history, developed into a major industry.

Fostered by falling transportation costs and immense growth in the market, Chicago overtook Cincinnati as the meat-packing capital of the world in the 1860s and seized the title "Porkopolis". Early packing operations ran almost solely during the winter, with very limited operations conducted during the warmer months. As production increased, slaughter houses industrialized their operations;

a "disassembly line" of men and machines transformed a hog into a box of meat with amazing efficiency. This modernization had a cost, and in 1870 a pork-packing plant's capitalization quadrupled from the level it was a decade earlier. Slaughter houses could no longer afford to sit idle, in order to be financially successful, butchering needed to take place year round.

The application of harvested ice to refrigerate processing plants, storage facilities, and boxcars revolutionized meat-packing by removing seasonal limitations. Slaughtering became a year round activity, and beef-packing became profitable. Dominated by pork, Chicago's packing industry initially processed very little beef due to the demand of the American palate for fresh steaks. Western steers were gathered by distributors in the city and shipped live to eastern butchers.

Refrigerated boxcars allowed long-distance shipping of fresh meat, and Chicago became the final stop for an increasing number of cattle. By the mid 1880s, beef surpassed pork as the dominant meat of Chicago's packing industry.

Americans have always enjoyed a good drink, but after the Civil War their preference turned from heavier and more alcoholic malt liquors to the lighter, more effervescent beers. Producing just over two million barrels of beer in 1863, American breweries turned out over thirty-three million in 1893. With a large German population with considerable experience and knowledge of the craft and a hinterland of readily available resources, Milwaukee developed into one of the largest brewing towns in the world. By 1895 the city produced over two million barrels of beer annually.

Lagers require low temperatures during production and aging so with the absence of mechanical cooling, brewers required enormous amounts of ice. Also, unless pasteurized, these beers needed refrigeration during transit and storage, while even more natural ice was used to serve the beverage at the low temperatures popular with the American public. The Ice Trade Journal estimated that in the 1880s American breweries used one million tons of ice annually for production and storage (Milwaukee averaged 335,000 tons), while an additional two million tons were used to cool and serve the product.

With open sewers, city street runoff and waste from the stockyards and meat-packing plants, the Chicago River became one of the cities most infamous sites that was described as "polluted past all recognition, with a stench that visitors did not soon forget." Comparatively, a Milwaukee official described the city's river water as a "thick inky, putrid water...in a state of violent commotion, produced by the

fermentation existing at the bottom....[consisting of] grains, cow manure, and other filthy matter," while a later observer noted that "decayed animal matter commingles with the aroma from the marsh...could not be excelled in Chicago, the famed city of smells." Nineteenth century urban rivers contained just about everything foul that a city could produce, and, amazingly, they were the primary locations where commercial ice was harvested; health proponents dubbed the product "frozen sewage."

Authorities started questioning the use of "city" ice, based "on the feeling that what smelled intolerable in liquid form should not when frozen be added to drinks or brought into close contact with food in storage". Under pressure from public health officials, companies moved harvesting operations from the cities and into the hinterland. Initially Chicago companies relocated to area lakes around the city and northern Indiana, establishing huge operations capable of extracting and storing thousands of tons of natural ice. After two unseasonably warm, and disastrous, winters in the late 1870s, companies moved their interests to Wisconsin where the colder climate, higher water levels, and lack of pollution produced a higher quality (thick, solid, and clear) and healthier product, however one wonders how much hygiene factored into the decisions.

Similar to the stone, lumber, and grain industries, the large scale commercial harvesting of Wisconsin ice developed out of an urban center's inability to supply itself with the quantity or quality of a needed resource. Operations developed in Kenosha, Racine, Pewaukee, Madison, and other locations throughout the southern two-thirds of state that had direct rail connections to Chicago and Milwaukee.

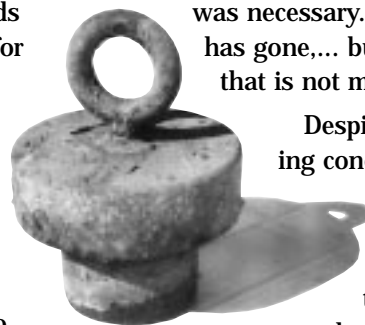
Like any other "crop" that is harvested, ice was not simply "picked when ripe"; throughout the "growing" season "farmers" spent long, hard, hours cultivating their "fields." Preparations started long before ice-over; by late fall workers had already submerged poles to mark fields and started removing weeds for clean, clear ice. When the ice became thick enough to work upon, horse drawn scrapers removed surface snow (which acted as an insulator and inhibited freezing) throughout the winter. When ice was thick enough to cut, a scribe dug shallow groves that divided the field into twenty-two inch squares or cakes. Ice floats were cut (and often planed) by running a blade over the grove, and workers poled these sections to shore through a channel that had been cleared.

Either stored in large ice-houses on shore, or loaded directly onto railroad cars for immediate shipment to Chicago or Milwaukee, the ice was packed in insulated facilities for use during the summer months.

Operations in the Green Bay and Sturgeon Bay areas differed slightly, where six different companies extracted ice. Instead of rail transportation, schooners carried ice to Chicago throughout the summer. Despite enormous quantities (one company harvest 300,000 tons annually) of high grade ice, this trade was hindered by the added costs of horse-drawn transportation from the city's harbor to the different ice-houses.

Many of the long-since-vanished employment opportunities of the nineteenth century (sailors, loggers, cowboys, etc.) are looked back upon as romantic and pure forms of labor ("I sure would have loved to of been a..."). This utopian vision of the past can often be dismissed and a realistic

depiction of the "desired" life revealed by a few simple words from a person who has lived the life. "Looking back," wrote a man describing his experiences working the ice fields, "I can not see any romantic side to the ice harvest. It was just cold, hard work, that was necessary.... The ice harvest... has gone,... but it is one industry that is not missed."



Despite the harsh working conditions, ice harvesting employed huge amounts of people, during a time of year when work was not easily

found: in 1887, a Pewaukee firm employed 1,500 men that cut a half-million tons of ice. During peak years, unemployment was nonexistent, and in many places, hundreds of workers migrated into town for the harvest.

Ice harvesting drastically changed the American diet; meat, produce, and other perishables could be collected, stored, and shipped year round. From ice cream production to brewing beer and from treating the sick to cooling a drink, natural ice had a variety of uses, and ice expenditures surpassed that of fuel in some communities. In 1880 over eight million tons of ice was consumed nationally, and refrigeration became part of the American culture. It was this craving that led to the downfall of ice harvesting; the market demanded further advancements in cooling technology and, ultimately, produced an efficient means of mechanical cooling. Although replaced by an artificial means of capturing winter, ice harvesting's social and economical significance is not diminished, because it greatly influenced the way we eat, drink, and live today.

(For further information on harvesting ice and operations in Madison see the WUAA publication *Our Four Lakes: Their Legends, Sites & Secrets.*)

