

Wisconsin's UNDERWATER HERITAGE

Vol. 14 No. 4

A publication of the Wisconsin Underwater Archeology Association

December 2004

Early Commercial Diving On The Great Lakes As Lived By Diver Pearl Purdy

by Dr. Richard Boyd



The commercial salvage and diving industry on the Great Lakes has been an important, but generally unsung sector of maritime history. In the late 19th and early 20th centuries, nautical accidents and waterfront mishaps were daily occurrences at one place or another around the lakes. This resulted in a steady demand for underwater repair and recovery services which were performed by early commercial divers. Nicknamed

“hard-hat divers,” these men (and a few women) used a copper metal helmet mated to a counterweighted canvas suit to descend to their workplace. Compressed breathing air was delivered by crude rotary hand pumps which operated progressively harder as the diver went deeper and usually kept several “pumpers” hoping to maintain the required gas supply. These subaquatic workmen operated in a dangerous environment using primitive equipment with only a fledgling knowledge of diving physics and medicine. As a result, some of these individuals met with an untimely watery demise or suffered crippling injuries which haunted them in later life.

The watertight diving dress and helmet had been perfected in England in 1837 by Augustus Siebe. By 1840, Siebe, Gorman and Company was selling their diving apparatus worldwide. In this same period, the A. J. Morse Company of Boston began manufacturing diving equipment and was marketing a complete helmet and suit system by the time of the Civil War. By the postwar era, several other American companies such as A. Schrader and Miller-Dunn were also fabricating and selling underwater breathing gear. Notably, most of this early paraphernalia remained

essentially unchanged for almost a century.¹ (Advertisements offering early diving services and equipment are reproduced in this article. These ads originally appeared in various Beeson's or Polk's Marine Directories.)

As elemental as his equipment was, even more rudimentary was the fledgling diver's understanding of the dangers in his work environment. In the closing decades of the 19th century, very little was known about the bone and tissue-crushing damage that could be inflicted by water pressure. Even less understood were the crippling effects of decompression sickness, commonly called the “bends,” which struck divers who went too deep or stayed too long at depth. Reliable decompression tables to mitigate this problem would not be available until well after 1910. The toxic, incapacitating effects of nitrogen narcosis in deep dives were largely a complete mystery and were simply referred to as “Diver's Blackout.” Thus the early commercial diver functioned mostly by “the seat of his pants,” depending on personal experience and “rules of thumb” developed by trial and lots of error!²

As a result of this paucity of

continued on page 4



WUAA Fall Meeting

The Fall Meeting of the Association was held on Saturday, October 9, 2004 in Winneconne WI.

The meeting was opened by President Russel Leitz at 10:07 a.m. Minutes of the April meeting were read by Secretary/Treasurer Paul J. Creviere and approved unanimously.

WHS Diving Operations

Several issues were raised concerning the new Wisconsin Historical Society Diving Guidelines. WUAA believes oxygen, first aid and cpr training is not needed for all volunteers on all dives. Many of the projects our members have volunteered on have been dives less than 30 feet deep. The expense to volunteer divers is a further problem.

After a review of the Wisconsin Historical Society Diving Operations Manual, it was decided that the WUAA executive committee should respectfully recommend that the WHS change the requirements for volunteer divers assisting with WHS projects.

Projects

Russ Leitz discussed the verification of the wreck of the *Fairfield*. He has to dive the centerboard trunk to accomplish that.

Russ Leitz had hoped to examine what is thought to be the wreck of the *Leathem D. Smith*. According to Jon VanHarpen, there is a wreck near the proposed new boat launch in Sturgeon Bay. Because nearby construction may damage the wreck, it was suggested that efforts be pushed forward. The wrecks of the *Advance* and the *Mary Ellen Cook* were also suggested for further investigation.

The old Army Corps of Engineering dredge in Superior has been moved away from its previous location near the *Meteor* Museum and a new building has been added. The *Meteor* staff has appreciated WUAA help in cleaning the ship. Russ suggested that WUAA members help clean in the spring of next year as opposed to the fall.



Maritime Trails sign at site of wreck of the Fleetwing in Door County.
photo by Tamara Thomsom

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

In addition to publishing this newsletter, the Association also holds semiannual meetings

and provides support to members' research and publication projects. Annual membership dues are \$15. For membership information write to the postal or email address below.

Mail correspondence to:
WUAA
PO Box 6081
Madison, WI 53716

email:
wuaa@mailbag.com
website:
www.wuaa.org

President:
Russel Leitz
Waupaca
Vice-President:
Hank Whipple
Madison

Secretary:
Steve Wagner
Appleton

Treasurer:
Danny Aerts
Middleton

Newsletter Editor:
Danny Aerts
Middleton

Website Manager:

Colin Zylka
Waukesha

Directors:
Richard Boyd
Delafield

Robert Korth
Gresham

Janet Defnet
Mukwonago

Spring Meeting

It was decided that we schedule the next meeting in the same location and time as the Ghost Ship Festival. Russ Leitz will organize the details. Check the association web site soon for details (www.wuaa.org).

Officers

Russ explained to the attendees that Paul Creviere, current Secretary/Treasurer was stepping down and that the position needed to be filled. Steve Wagner offered to take the position of Treasurer. Danny Aerts agreed to assume the position of Secretary. A motion was made by Paul Creviere and seconded by Janet Defnet to accept the new office holders.

Other Business

Russ asked for volunteers to update the WUAA brochure. Danny Aerts agreed to work on it if someone else would also work.

Russ also suggested that the bylaws be upgraded to include job descriptions.

Russ Leitz explained that there were some concerns about the liability for WUAA officers. He agreed to look into said liabilities and investigate the need for liability insurance.

Donation

It was moved by Danny Aerts that a donation of \$75 be made to the Winneconne Historical Society for the use of the meeting room. Steve Wagner seconded the proposal and it was passed unanimously.

Tour

Following the meeting we had a very interesting tour of a river steamboat cabin led by Dorothy Nimmer director of the Winneconne Historical Society. The cabin was moved to the historical park in Winneconne in 2001, although it has been on shore at other locations since 1922. Some modifications and



Keith Meverden, John VanHarpen and Russel Leitz work on the plans for the Reynold's Pier project in Jacksonport.

photo by Tamara Thomsom

additions have been made to the cabin, but it still retains its distinctive pocket windows and beveled glass, along with much of the original woodwork.

Search WUAA web site

A search feature has been added to the WUAA web site. In particular it can be used to search past issues of our newsletter, *Wisconsin's Underwater Heritage*. Try it out and send us your comments at wuaa@mailbag.com.

Diver on Reynold's Pier wrecks in Jacksonport.

photo by Tamara Thomsom



Early Commercial Diving ... By Diver Pearl Purdy

continued from page 1

fundamental information and equipment, early divers usually confined their work to less than 50 feet of water. Ventures that required dives to 100 feet were considered very hazardous, and greater depths were essentially treated as "No Man's Land." Divers frequently worked under marginal conditions where their air hoses and rope lifelines were their sole connection with the surface. Even in shallow water, these men commonly operated in zero-visibility where many jobs were done "by feel," frequently in close quarters or underneath objects. To complicate matters even further, many divers literally had to place their lives in the hands of their surface tenders, who might be inexperienced or untalented individuals.³

Depth limitations notwithstanding, there were always certain intrepid divers who "pushed the envelope." Their exploits occasionally resulted in spectacular salvage successes, but sometimes with serious consequences. For instance, in 1859 the schooner *J. H. Tiffany* and the propeller *Milwaukee* collided and sank near the Straits of Mackinac. The steamer plunged in 100 feet of water right along the shipping lane, while the damaged schooner sailed toward shore, but didn't make it. Years later the wrecks were located by diver Peter Falcon who had become famous by raising the schooner *Ocean Wave* in 1866 from 113 feet of water and the steamer *City of Boston* from 100 feet, both in Lake Michigan.

In 1874, Falcon salvaged the machinery and boiler from the *Milwaukee* using a number of ingenious "inflatable wooden casks," a system which he had invented and patented. This apparatus was essen-

tially a forerunner of the "salvage drum," familiar to many of today's sport divers. Falcon had previously found the *Tiffany* in 105 feet of water and salvaged its cargo of railroad iron. Unfortunately, these remarkable accomplishments cost the life of one of Falcon's divers, who perished after receiving a fatal hit of the bends.⁴

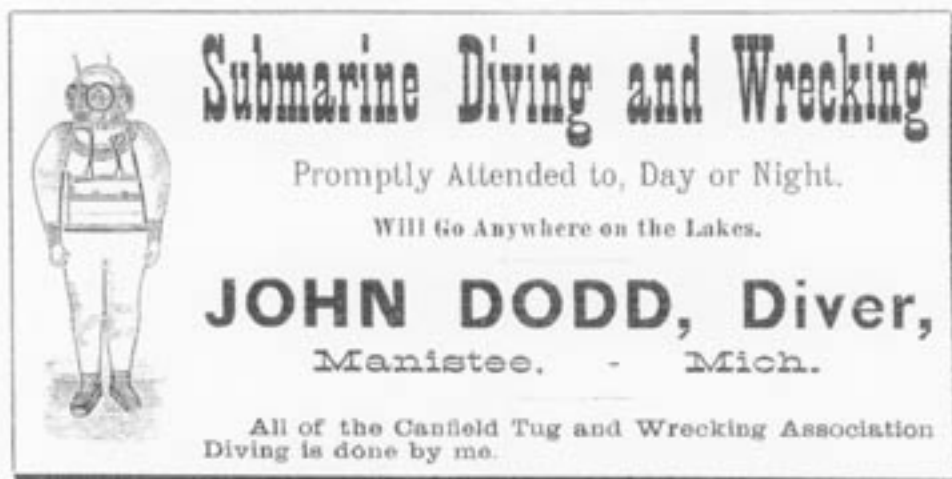
Some real underwater horror stories were recorded during the early days of commercial diving. Many of these were associated with shipwreck salvage efforts. For example, in 1865 the wooden freighter *Pewabic* sank off Thunder Bay in Lake Huron with a huge cargo of copper ingots and raw ore. Professional salvors quickly descended on the wreck, attracted by the valuable booty and hopeful of beneficial company publicity if a successful recovery could be concluded. Other individuals even used the site as a proving ground for experimental diving apparatus which they had invented!

However, the wreck rested in 180 feet of water, far beyond the range of safe diving in that era. The *Pewabic* was finally located after considerable searching and Billy Pike, one of the most famous div-

ers of the day, became the first man to descend onto the wreck. Pike, the senior diver from the renowned salvage tug *Magnet*, was on the bottom only a few minutes when he failed to respond to line signals. He was hauled to the surface in delirious condition from which he never recovered, dying several weeks later.

Many years later in 1891, the *Pewabic* claimed the life of a second diver, Oliver Pelkey. He successfully descended to the ship in an armored suit of his own design, but his lifeline probably fouled in the wreckage. After considerable difficulty, Pelkey was freed by his tenders and hauled quickly to the surface with a badly torn suit. He expired soon after surfacing. Other tragedies occurred in following years as the *Pewabic* claimed two more divers, finally earning it the infamous title of "Huron's Death Ship."⁵

In another celebrated underwater project in 1897, prominent Great Lakes salvager Tom Reid of Sarnia, Ontario, attempted to raise the sunken steamer *Cayuga*. This vessel had sunk off Beaver Island, MI, settling on its starboard side in 105 feet of water. Reid devised some giant pontoons which would be sunk, attached to the hull, and then



Submarine Diving and Wrecking

Promptly Attended to, Day or Night.

Will Go Anywhere on the Lakes.

JOHN DODD, Diver,

Manistee. - Mich.

All of the Canfield Tug and Wrecking Association
Diving is done by me.

refilled with air to right and lift the ship. This scheme looked great on paper, but turned out to be a disaster at sea.

Reid's attempts to raise the *Cayuga* went on for several years and were tainted by numerous underwater accidents. One diver, who apparently descended too quickly or fell to depth, was crushed so badly that the tenders had difficulty removing the helmet from his lifeless body. Several other divers were seriously afflicted with decompression sickness because of grossly extended times on the bottom. They worked there for over two hours and surfaced without taking any decompression, when well over two hours of off-gassing was actually required. Even Reid himself suffered a nasty case of the bends.

When the *Cayuga* was finally lifted, it broke free and sank, supposedly trapping and entombing a diver beneath a salvage barge which was dragged down with the steamer! This accident led to a diving legend: reportedly, the lost diver's torn air hose could be seen for many years trailing out from under the barge and was still visible when the wreck

was relocated by sport divers in the 1970's. No documented evidence has ever been found to validate this story, but it persists anyway.⁶ (This writer dove there in the 1970's, but never saw the hose, although considerable debris is scattered around and under the barge which lies some 50 feet off the wreck. Four of Reid's salvage pontoons are still affixed to the *Cayuga's* hull.)

Besides the danger factor, early divers worked for wages which today would seem pretty paltry, although they were considered good money in those days. For example, in 1901 at Detroit, a new Divers' Association was formed which established rates for work under the Great Lakes. Divers received \$10.00 per day; tenders got \$3.00; pumpers got \$5.00, and general helpers, about \$3.00.⁷

As maritime casualties increased after the Civil War, professional wrecking and recovery businesses began to flourish throughout the lakes, staffed by personnel specializing in vessel reclamation and rehabilitation. There was never a huge contingent of trained divers on the lakes at any given time,

but nearly every major port was home to a wrecking company and some underwater workmen. Surprisingly, even small ports such as Marquette, Cheboygan, St. Ignace, Grand Haven and Manistee boasted a local resident diver. The "divers' advertising section" of Beeson's Marine Directory for 1914 listed about 25 compa-

nies and individuals offering underwater services on the western lakes. As already mentioned, the deeds of some of these men such as Tom Reid of Sarnia and the Falcons of Chicago became legendary.

The life and times of a late 19th century diver were exemplified by the career of Wisconsin's own Percy E. Purdy. Known far and wide by his nickname "Pearl," Purdy worked for various Great Lakes wrecking and salvage companies, but also operated his own commercial diving service. He sought (and found) steady work around the lakes as shown by his yearly advertisement placed in Beeson's Marine Directory (see adjacent reproduction).⁸ A 20-year resident of Sturgeon Bay, WI, he was originally from the Detroit area where his three brothers and two sisters still resided. In 1907, he married May Donovan of Sturgeon Bay; they had two children.

Most of Purdy's jobs were typical of the sort of underwater engineering and maintenance duties performed by divers of that era. Many of these tasks were routine, if not mundane or unpleasant. They included the inspection and caulking of ship hulls, repair of vessel machinery, retrieval of lost items, harbor maintenance chores and body recovery. Purdy was always busy during the shipping season as typified by the summer of 1913. In April of that year, Pearl recovered the rudder of the big steamer *George F. Baker* which had been lost in the Manitowoc River. He extended his stay in Manitowoc into May to do some routine harbor maintenance at the shipyards. In early June, he raised the tug *Duncan City* which had sunk in a local waterway and also contracted to raise another small tug later that summer. This second vessel, the *Minnie Warren*,

PEARL E. PURDY DIVER

SUBMARINE WORK

Contractor for Submarine Work of all Kinds where a Diver is Required; Wrecking; Intake Pipe Work; Preparing Foundations, Abutments, Wharves, Dams, Etc., and the Recovering of sunken Property or the Locating of Anchors or Bodies. When in need of a Diver, wire, phone or write me.

STURGEON BAY, WIS.

Get me any time by Phone

Early Commercial Diving ... By Diver Pearl Purdy

continued from page 5

had sunk in a nearby shipyard. That summer also found Pearl inspecting the hull of the tug *John Hunsader* at Sturgeon Bay. Come September, he returned to Manitowoc to plug a leak on the steamer *Rend*.⁹ When not busy in Wisconsin waters that summer, Purdy's talents were in demand by various salvage and wrecking firms around the region, including such famous mariners as Captain John Roen of Sturgeon Bay.

Over the years Purdy inspected and repaired many prominent lake vessels, some which became Wisconsin shipwrecks. In 1915, he caulked the leaky hull of the steamer *City of Glasgow*, which eventually became a Wisconsin stone barge.¹⁰ The *Glasgow*, at 297 feet, was one of the giant wooden ships produced by the famous Davidson Shipyards in Michigan. Today it's a wreck resting

in Lilly Bay near the Sturgeon Bay Ship Canal and was recently studied by underwater archeologists from East Carolina University. The wooden steamer *Atlanta*, which burned and sank in 1906, was also explored by Purdy who determined that its porcelain cargo had been ruined and was not worth salvaging.¹¹ In modern times, this shipwreck near Port Washington has been a popular dive site.

Like most divers of that day, Purdy had some harrowing misadventures and close-calls. Perhaps his greatest escapade came during the salvage of the *John M. Nicol*, a wooden freighter which stranded and sank off Big Summer Island (MI) in December 1906. Its cargo was 2,500 tons of valuable coiled barbed wire which immediately became the target of salvors. The

portion of the *Nicol* remaining above water was rapidly stripped by thieves from the Garden Peninsula. Among these robbers was the infamous Captain Dan Seavey, the only mariner on Lake Michigan ever to be arrested for piracy!¹²

In late February 1907, as ice conditions on the lake abated, professional salvager Captain Coffey cruised to the wreck site to recover the barbed wire. His men installed a ladder from the surface of the ice into the hold of the *Nicol* and Diver Pearl Purdy descended into the vessel. While wrestling with the coils of wire, Pearl accidentally fell underneath the engine and boiler. The fall apparently injured and disoriented him and, while trying to find his way back to the ladder, he actually staggered around it twice. This maneuver thoroughly entangled his lifeline and air hose and eventually choked off the gas supply.

Purdy's tender, Frank Isabel, quickly realized that no signals were coming up the lifeline. Alarmed at this lack of response, the surface crew pulled Pearl feet-first to the surface, ladder and all. Isabel, at great personal risk, leaped into the icy water and cut the fouled lines so that Purdy could be hauled aboard the salvage tug. He was unconscious and bleeding profusely from his mouth, ears and nose. Isabel was suffering from hypothermia. Both men were rushed by boat to Manistique, MI for medical treatment. After a few days, they had recovered sufficiently to return to work.¹³ Two weeks later, Purdy and Captain Thomas Isabel, assisted by brother Frank, resumed the salvage work and recovered all the wire from the *Nicol*! This is quite amazing by modern standards ... today medical



Dom County Maritime Museum Archives

experts would probably disqualify a person from future diving after suffering a serious case of barotrauma (pressure damage) such as Purdy had obviously endured.

In many situations, divers of that time had to be a jacks-of-all-trades, and Pearl was no exception. They had to routinely perform a variety of mechanical repairs, often involving underwater metal cutting, rigging, lifting and dredging. Occasionally, they even had to employ specialized paraphernalia such as explosives. As previously suggested, the "fine points" of using such technical material often was not appreciated. In 1908, Purdy was working on the sunken tug *Kate Williams* in Jackson Harbor on Washington Island, WI (see adjacent photo). Dynamite was being utilized to shear the shaft and propeller from the derelict. As reported in the *Door County Advocate*, Purdy lost the thumb and index finger of his left hand due to the premature detonation of a blasting cap.¹⁴

As is often the case with old newspaper accounts, sometimes only part of the story is presented, and so it was with this Purdy incident. Raymond Mac Donald, Washington Island historian, recorded the "rest of the story" in 1985: It is well known to underwater blasters that the concussion from an explosion instantly kills any nearby fish, which promptly float to the surface. Moreover, the force of the blast literally filets the fish, allowing all the bones to be quickly and easily removed. Although an illegal act, explosives have occasionally been employed to facilitate a quick fish-fry! It seems that Purdy, preparing a blasting cap for this very purpose, was carelessly picking at it with a pocket knife when it suddenly went off!

Having lost two digits on his hand, Pearl was taken to the

MacDonald's residence; they, in turn, rushed him to the doctor's office, about seven miles away. It was very apparent that his finger stubs would have to be trimmed and stitched up, a most painful operation. Thus the crew stopped en route at Charlie Johnson's where some whiskey was procured to use as a surrogate anesthetic. By the time they arrived at the clinic, Purdy was "feeling no pain!"¹⁵

During the late fall and winter seasons when diving jobs were few, Pearl often worked on lake freighters as a cranesman. He had done this successively for about 16 years, and it was this part-time occupation that eventually cost him his life.¹⁶ In September 1924, he shipped out aboard the whaleback freighter *Clifton* which was transporting a load of limestone from Sturgeon Bay to Detroit. At this same time, Purdy's wife and two children were moving to Detroit where the family was planning to establish a new home.

As the *Clifton* headed into Lake Huron, a nasty storm rolled in from the southwest. Sometime on September 21, the vessel disappeared with its entire crew. The freighter was last seen by the tug *Favorite* slogging along near 40-Mile Point, and it is assumed that she foundered about 25 miles off Thunder Bay. Some bodies were recovered on the Canadian shore of Lake Huron, but Purdy was never found. The *Clifton* itself still remains one of the true ghost ships of the Great Lakes. Thus the lakes inducted 42-year old diver Pearl Purdy as a permanent resident of that watery kingdom where he had made his living for so many years. ■

Endnotes

1 J.A. Bauer and S. E. Bauer, "The Hard-Hat Diving Helmet," in Arthur J. Bachrach, Barbara Mowery Desiderati and Mary Margaret Matzen, eds., *A Pictorial*

History of Diving (San Pedro, CA: Best Publishing Company, 1988), 16-37.

- 2 Walter Penzias and M. W. Goodman, *Man Beneath the Sea: A Review of Underwater Ocean Engineering* (New York: Wiley-Interscience, 1973), 13-40.
- 3 Cleveland Moffett, "Careers of Danger and Daring: First Article - The Diver," *St. Nicholas* 28, no. 3 (1901): 200-213.
- 4 Charles E. Feltner and Jeri Baron Feltner, *Shipwrecks of the Straits of Mackinac* (Dearborn, MI: Seajay Publications, 1991), 155-159.
- 5 Gregory James Busch, *Lake Huron's Death Ship* (Ann Arbor, MI: Edwards Brothers, 1975), 35-58.
- 6 Feltner and Feltner, *Shipwrecks of Mackinac*, 82-88.
- 7 *Door County Advocate*, 27 April 1901.
- 8 Harvey C. Beeson, *Beeson's Marine Directory of the Northwestern Lakes* (Chicago, IL: Beeson Publishing, 1914), 282.
- 9 *Door County Advocate*, 24 April; 5 June; 12 June; 25 Sept. 1913.
- 10 *Ibid.*, 26 August 1915.
- 11 *Ibid.*, 27 August 1920.
- 12 Thomas Edward Jacques, "Garden," in *A History of the Garden Peninsula* (Iron Mountain, MI: Mid-Peninsula Library Cooperative, 1979), 43.
- 13 *Manistique Pioneer-Tribune*, 22 February 1907.
- 14 *Door County Advocate*, 17 September 1908.
- 15 Raymond E. McDonald, "Jackson Harbor," in *Four Islands: A History of Detroit, Rock, St. Martins', and Washington Islands* (Sturtevant, WI: Wolfson Publications, 1984), 59-60.
- 16 *Door County Advocate*, 3 October 1924.

Coming Events

- Jan. 12-16, 2005 **Our World Underwater, Rosemont, IL.** For information check their web site at www.ourworldunderwater.com.
- Feb. 18-19, 2005 **Ghost Ships Festival**, Four Points by Sheraton Milwaukee Airport. For information check their web site at www.ghost-ships.org.
- Feb. 19, 2005 **Spring Meeting of the Wisconsin Underwater Archeology Association.** In Milwaukee. For information contact Russ Leitz at 715-258-2935 or email wuaa@mailbag.com or check the web site at www.wuaa.org.
- Feb. 25, 2005 **Robert Ballard** receives Roy Chapman Andrews Society Distinguished Explorer Award at **Beloit College**. For information contact Dr. William Green at 608-363-2119 or check the Logan Museum page on the Beloit College web site at www.beloit.edu.

**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.*