THE VERNACULAR WATERCRAFT OF ISLE ROYALE:
A WESTERN LAKE SUPERIOR BOATBUILDING TRADITION

A Thesis
by
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Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of
MASTER OF ARTS

August 1992

Major Subject: Anthropology
THE VERNACULAR WATERCRAFT OF ISLE ROYALE:
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August 1992
ABSTRACT

The Vernacular Watercraft of Isle Royale:
A Western Lake Superior Boatbuilding Tradition.

(August 1992)

Hawk Tolson, B.Sc., The Ohio State University
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The fishing and resort communities that arose on the archipelago of Isle Royale, Michigan required small watercraft to meet their needs for transportation, cargo hauling, and commercial fishing. Those that ultimately developed were the result of a complex interaction of cultural and environmental factors, and were produced by both master craftsmen and amateur builders. These boatwrights worked primarily from mental templates as opposed to written lines and plans. The collapse of the American Lake Superior fishing industry, the transition of Isle Royale to a national park, and the lack of young apprentices to carry on the boatbuilding trade have combined to reduce this once-large fleet to a few scattered remnants. Most of these have been abandoned on and around Isle Royale, and their hulls represent the only record of the design and building process operating in the region from the 1880s to the 1960s. Archaeological field methods
are a means by which these designs can be preserved, and
the collection of oral history interviews with surviving
boatbuilders and commercial fishermen assists in the
interpretation of details of evolution and use that would
otherwise remain obscure.
ACKNOWLEDGEMENTS

No project of this nature is ever completed through the efforts of one or two people. The Isle Royale Vernacular Boat Study would have "died-a-borning" without the tireless efforts of Dr. Timothy Cochrane who fought, scraped, and scrambled to make it a reality. Andy Ketterson of the Midwest Regional Office of the National Park Service, Mark Lynott of the Midwest Archeological Center, and H. David Dalquist, a private individual, all saw enough merit in the study to make funds available for its implementation in a time of tight money and budget cuts.

Despite its natural and historic beauty, working at the archipelago of Isle Royale National Park was a logistical nightmare, made manageable by the loan of a boat from the Midwest Archeological Center and by the Isle Royale park staff and management, which furnished housing, office space and supplies, and gasoline. At Mott Island, Lynda Booze assisted me with some of the transcription of taped interviews. At the Windigo end of the Island, rangers generously gave of their time to ferry mail, supplies, and me back and forth during extended field sessions on Washington Island. Other park personnel were
kind enough to allow me to hitch rides on their boats
during their scheduled work runs around the Island.

In Washington Harbor, Stanley Sivertson allowed me the
use of one of his cabins for the month and a half that I
was there, and patiently endured my crawling over, under,
around, and through his gas boat SIVIE. The Barnum, Strom,
Martin, and Johns families made me welcome in their
cottages, sharing friendship and hot meals even in the face
of unceasing queries about their boats and family histories
on the Island. The Gale family of Tobin Harbor allowed me
access to their launch HMS, the last working gas boat on
the Island, and provided me with one of the best
experiences of the project by allowing me to run her from
Mott Island down to their cottage. The Merritt and Mattson
families, also of Tobin Harbor, allowed me access to their
family boats, giving of their time, memories, and
hospitality. Bylo Farmer of Rock Harbor and her family
shared a turkey dinner and Island memories with me. Howard
Sivertson, the park's commercial fishing interpreter,
shared what little free time he had, enduring extended
questioning about his father's adventures in fishing and
boatbuilding, and loaning photos from his family's
collection.

On the North Shore, Reuben Hill, Hokan Lind, Marcus
Lind, and Roy Oberg welcomed me and my twenty pounds of
tape recording equipment into their homes and educated me on the boats, boatbuilding, and early life on and around western Lake Superior. As the one who made the tapes and transcriptions of those conversations, if there have been any errors of content, interpretation, or spelling, they are completely and totally mine.

In my search for contemporary photographs of Lake Superior watercraft I was assisted by Pat Maus, Curator of Manuscripts at the Northeast Minnesota Historical Center; Kay Masters and Theresa Spence, Archivists at the Michigan Technological University Archives; Penelope Krosch, Director of the University of Minnesota Archives Department; Jeff McMorrow, Administrator of the Lighthouse Point and Harbor Museum; and Bud Gazelka, Archival Assistant at the Iron Range Research Center.

C. Patrick Labadie and Thom Holden of the Canal Park Museum freely shared their knowledge of Isle Royale and Lake Superior small craft. Mr. Labadie also developed the survey forms that facilitated data recording during the survey phase of the project. Daniel J. Lenihan and Larry Murphy of the National Park Service's Submerged Cultural Resources Unit (SCRU) loaned me some of their files from the Unit's five-year study of the submerged cultural resources of Isle Royale National Park. Special thanks go to Toni Carrell, Ken Vrana, and Larry Nordby, whose section
on vernacular watercraft in SCRU's final report served as the starting point for my own research. David Dillion, BANA, taught me how to record small boats and spent several days with me on the Island, turning an analytical yet friendly eye on the boats and the project methodology. He also loaned me a draft copy of the Museum Small Craft Association's Boats: A Field Manual for Their Documentation, which made it possible for me to conduct detailed recordings of hull shapes. The Princesses of Darkness, Sharon Frakes and Jeanine Kurtz, endured many sunless hours processing and printing my film.

Finally, and most importantly, I am grateful to my parents, Peter and Sally Tolson, who never lost faith in my efforts and sustained both me and my work when assistance, financial and otherwise, from other sources was not forthcoming.

To these, and all the many others I met in person or over the phone, on the Island and the mainland, who offered encouragement, a photograph, or a memory, please accept my grateful thanks. I couldn't have done it without you.

Hawk Tolson
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CHAPTER I

INTRODUCTION

...They were fishing then on McCormick's. That's near where Sam Rude is. And a lot of them went down there, including Stanley Sivertson...and all them guys, they had nets over there because it was an ideal spot during spawning season or just prior to spawning. And they had the gangs pretty close together. Well, they were down and this day it came up with a pretty good southwester. And so, they started for home, most of them. And Carl, he says, "I think we better to head back."

"Oh," Einar says, "there's quite a few fish on. Let's lift another gang." So they did, and by that time she was really coming. So they headed back and they got to Long Point. And they headed in there. But there, it gets rough in there too. So, well, "We'll go," but he says, "we're going to have to bail." They had the spray hood up, you know, but breakers would come anyway. Anyway, they began to worry about them at Washington Harbor. And the WOODRUSH [the Coast Guard vessel] was laying there...So Stanley went over and asked them, "Will you go out and see if you can help them at all?"

"Ah, it's pretty rough out there," the mate said. "I don't know."

"Oh yeah," the captain said, "we'll go. We can go." But he says, "We'll have to tie everything down." So they blew the whistle and they started tying their stuff down. They happened to look out there through Grace Harbor—they saw something come up on one of the big waves.

Stanley says, "By golly, I think that's them." Yeah. So he went home and waited, and sure enough, here they come.

And, of course, they were soaking wet, you know, but they came in....and tied up to the dock and they smiled. And the first thing that

Journal used for style and format was Historical Archaeology.
Carl said: "Tell Hokie he made a hell of a good boat." And I got the message, too (Lind 1990c:13).

In the initial phone contact with boatbuilder Hokan Lind at the beginning of this study he stated that "a good boat talks for itself," meaning that a vessel's owners and users would quickly notice and appreciate its seaworthiness and comfort (Lind 1990a). In a following interview, he elaborated, "That's right, it does speak for itself. That's why we were always in demand" (Lind 1990c:15). A boat's performance speaking for itself is clearly illustrated in the preceding tale, which Mr. Lind related to the author at one of their interview sessions. The former Isle Royale historian Dr. Timothy Cochrane has lived and worked with Island families for 10 years, preserving in documentary form their unique culture. Commenting on Mr. Lind's story, he writes:

Hokie Lind's story of the Eckmarks, saved by his sturdy and reliable gas boat, makes clear a fundamental irony of Island life: extraordinarily self-reliant fishermen whose lives were absolutely dependent on boat builders who made their watercraft. The bonds between boatwright and fisherman were absolute. The relationship between builder and fishermen was direct and intimate. Stories were swapped. Boat builders knew each fisherman and his design preferences. Builder and fishermen shared family ties, ethnicity, and mutual respect. The intimacy of the relationship between boat builder and user, whether it was a fisherman or an Island summer resident, typified life on Isle Royale and its connections to the North Shore (the Minnesota

The thesis presented here is an outgrowth of research conducted for Isle Royale National Park under the Isle Royale Vernacular Boat Study. After two years of effort, a final report was drafted and submitted by the principal investigator (PI) of the project, who is also the author of this document, and the park's Cultural Resources Management Specialist (CRMS), Dr. Timothy Cochrane. The PI was responsible for some two-thirds of that report, entitled "A Good Boat Talks for Itself." Because a master's thesis must represent individual research, this document contains both more and less than what was presented to the administrators at Isle Royale. Much additional material, unavailable at that time, has been included and some lengthy material composed solely by Dr. Cochrane has been eliminated. However, some of his sections are vital to an accurate presentation of the picture revealed by the project research, owing to his unique insight and relationships to many of the people who "lived the fishing" at Isle Royale. They have thus been included here as extended quotes.
THE SETTING

The archipelago of Isle Royale or the "Island," as it is known to past and current residents, is a national park, some 40 miles off the coast of Michigan's Upper Peninsula (Figure 1). Forty-eight miles in length, its irregular coastline is cut by dozens of bays and inlets and ringed by many smaller islands. Located in western Lake Superior, its land, its people, and its watercraft have been profoundly shaped by the "Big Lake".

One who had a keen perception of Superior was Grace Lee Nute, Professor of History at Hamline University. Known principally as a fur trade and regional historian, she was the primary historian with the Minnesota Historical Society for a number of years. In 1944, she wrote that

The word "superior" suggests something a little remote, a trifle chilly, decidedly unusual and unique. Lake Superior has all of these characteristics. It is the largest body of fresh water in the world. Its geological origin has distinction and even the allure of mystery. The great basin in which it lies is unique in geological history and grand in scenic effect. The other lakes of the quintet are large and impressive; Lake Superior is awe-inspiring...One can become intimate with the other Great Lakes. He is a venturesome person indeed who braves the chill of Lake Superior's waters of about forty degrees' average temperature. It is a tradition that the body of a drowned person never rises to the surface of the lake, because the constant low temperature prevents decay (Nute 1944:9).

In 1941, The WPA Guide to the Minnesota Arrowhead Country proclaimed
FIGURE 1. Isle Royale National Park.
Lake Superior is truly magnificent. It is the largest body of fresh water in the world...Its area is 32,000 square miles, its maximum tide 3 inches. The Chippewa knew it as Kitchi Gummi (great water), and poets have immortalized it in verse and song. Its waters vary in temperature only a few degrees throughout the year; thus it has a decided effect on climate, shortening the spring, cooling the summer, tempering and prolonging the fall, and moderating the winter (Work Projects Administration 1988[1941]:29).

Examination from a more modern perspective has not diminished the applicability of superlatives to Lake Superior (Figure 2). At "160 miles wide, 350 miles long, and 1333 feet at its deepest point" Lake Superior holds approximately 10% of the fresh water on the globe (Volunteer 1978:3) and covers an area equivalent to that encompassed by the states of New Hampshire, Vermont, Rhode Island, Connecticut, and Massachusetts (Superior Advisory 1985:1). As a result of its vast size, the lake makes its own weather. Thick spring fogs are frequent as warm, moist air moves over the cold waters and is chilled, causing the water vapor in it to condense (Superior Advisory 1985:2). With fall come the "northeasters," gales resulting from low pressure systems moving across the lake, which bring high winds and driving rain (Superior Advisory 1985:2). Waves 31 feet in height have been documented on the Big Lake (Wolff 1978:45). In particular, Superior produces waves whose length is shorter than on salt water, with the result that the great bulk carriers that ply its waters can find
FIGURE 2. Lake Superior and the surrounding region.
themselves perched on multiple wave crests in a storm, resulting in differential support caused by the relatively short distance between the crests. For one or two men in a small gas boat, the increased wave action greatly multiplied the chances of broaching in a heavy sea.

Sailing in the vicinity of Isle Royale is particularly treacherous. The waters surrounding the Island are filled with reefs that are the result of the "ridge-and-trough" geology of the bedrock. They extend far beyond the visible points of land, reach perilously close to the surface between what appear to the uninitiated as unconnected islands, and rear up without warning from waters hundreds of feet deep.

As a result of its location, Isle Royale has been the scene of considerable maritime activity before, during, and since its establishment as a national park in 1941. This largely took the form of commercial fisheries, vacation resorts, and private summer homes, all of which, owing to the isolated nature of life on the Island, had their own specific requirements for watercraft. It was the long-standing recreational and commercial fishing of Isle Royale's plentiful fish populations which helped to stimulate the rich maritime traditions that ultimately sprang up on the Island.
THE PEOPLE

Dr. Timothy Cochrane's own research efforts as a folklorist have enabled him to gain a unique insight into the people of Isle Royale, and some of his observations as written for the Isle Royale Vernacular Boat Study report are worth quoting in their entirety.

Two groups of Island people shared many maritime traditions and temporary Island residences, yet had very different values, expectations, and socio-economic positions. Fishermen (the term on the Island is used to include women, children, and men) and summer people often lived in close proximity, gathered together to meet for mail and supply boats, frequently helped each other, and socially interacted to a degree, yet were easily distinguishable. For the purpose of this study, "summer people" includes both the owners of summer cottages, resort operators, and long time resort guests.

For summer people, life on Isle Royale was a voluntary endeavor whose principle pursuit was recreation. Primarily white urban midwesterners, they escaped the summer heat, hay fever inducing pollen, and hub-bub of city life by coming to the Island for a week, a month, or perhaps even longer. Beginning circa 1900, summer people began purchasing Island property, where they erected cottages and boat houses. Growing steadily in the 1920s, the number of summer people peaked during the Great Depression years. Living in nuclei of "cottages" in Rock, Tobin, Belle, and Washington Harbors, many summer people were fond of trolling for trout and boat outings. Many cottages were also located near resorts--and the services they could provide or attract--in each particular harbor. A further attraction was a momentary return to material simplicity and the enjoyment of archipelago vistas. Quite often upper middle class professional people, they had enough disposable income to purchase a second home on Isle Royale or take extended vacations.
Island fishermen, in contrast, typically had no disposable income; in fact, they labored hard to make ends meet. Ever since the large influx of Scandinavians to the Upper Midwest that began in the 1880s, Norwegian and Swedish immigrants have dominated the fishing ranks on Isle Royale. Living in both isolated fisheries and enclaves such as those at Washington and Rock Harbors, fishermen came to the Island to work, not play. Their homes and boats reflect this; they lived in a functional landscape in which boats were the centerpiece. Over 100 fishermen and hundreds more of their dependents lived upon the Island during the peak of the fishing era, between 1910-1920 (Karamanski et al. 1991). Through the years, long work hours, modest incomes, and other job prospects weeded out those not committed to fishing. Coming to the Island in early spring time and leaving after the spawning runs of trout, whitefish, and herring (in November or December), fishermen spent six or seven months on the Island. Their lives were defined by the occupation and the seasonal move to and from the Island. Few fishermen purchased the lands upon they lived, a practice which eventually complicated their lives when Island lands were purchased by the U.S. Government to create Isle Royale National Park (Tolson and Cochrane 1992).

As Isle Royale began the transition to a national park, the inholdings of residents and businesses were sold, condemned, or simply abandoned. The former occupants departed, and many of their boats were simply left behind, unclaimed at the sites where they had served so long and so well. These derelict craft spanned a range between hulls abandoned at the end of their useful lives and working craft that had been in operation up until the exodus of their owners. Many individuals and their families were permitted to remain on the Island for a limited period
following the establishment of the park. This was, at best, a limited reprieve, and knowing that they would ultimately have to leave forever, they were less likely to invest in new and more expensive boats and equipment. Instead, old vessels were patched and reinforced to squeeze out a few more seasons of operation. Dr. Cochrane writes:

Boats were a pervasive element of Island life, the glue that made the Island inhabitable and enjoyed by many. Handmade wooden boats served as tools, a means of communication and transportation, a source of pride, an emblem of occupational identity, and a way to display skills such as captainship and fishing success. Boats were the most basic fabric of Island life.

For Island visitors, and to some degree residents, the necessity of boat travel illustrated how life on Isle Royale was qualitatively different from that on the mainland. With no roads or cars, boats become an emblem of a different way of life. And the freedom and exhilaration of running a boat under blue or leaden skies through foamy seas impressed the visitors. For many fishermen, boats were viewed more functionally, as Jim Anderson stated: "My dad once said, 'a boat is a platform on the water off which you work.'" (Anderson 1990a, Vernacular Boat Archive [VBA]). In the water or on shore, boats were part of a fisherman's functional landscape. Perhaps the most critical remark was based on function, whether they were "wet" or "dry." But fishermen also appreciated the look of one boat or another and were quick to select favorites.

As pervasive and important as boats were to Island residents, they were only one facet of a once-flourishing maritime culture. Islanders had many common perspectives: the experience of traveling on the lake, longing for their homes and friends, and a shared history on the Lake Superior archipelago. When visitation to the Island was low, the simple fact of making it "out" to the Island made visitors friends with residents tucked in isolated bays. Sharing
knowledge of the geography of the Island, its reefs, place-names, and legends of the past gave visitors a mutual sense of the Island with its residents. Islanders also shared customs such as planked fish and boat days, foods such as fish cakes and berry jams, beliefs (the Island makes its own weather), music, dances, and much more. Fishermen shared a wealth of knowledge about the lake: its currents, bottom topography, fish, and sea conditions (Tolson and Cochrane 1992).

Fortunately for the study effort, Island culture emphasized, or spot-lighted, two important elements: storytelling and boats (Cochrane 1982). Such "spot-lighting" is discussed by folklorist Henry Glassie:

As cultures shape their distinct styles, they often come to emphasize certain media, as pottery has been emphasized Acoma. Particular forms and performances fill with power. They attract the society's most gifted individuals, and then, absorbing talent and spirit, they spiral out of the commonplace, gathering significance, whirling with energy and beauty...It is important for us to recognize them so that we can engage with cultures on their own terms, entering them appropriately (Glassie 1989).

It was not unusual for the interest in boats and storytelling to merge, as in the following account related by Isle Royale fisherman Stanley Sivertson:

In the midst of a 4th of July celebration, [fisherman John] Miller was out in his boat [the HILDA] and standing on the back seat. He was alone at the time. He slipped off the back and because the boat had a steel rudder, rather than a wooden one, he could get his feet on the skeg and pull himself up. If the boat had a wooden rudder, with no skeg, Miller probably would have drowned.

Later, during the same 4th of July I was planking fish and John Miller and [fisherman] Bert Nicoliasen were relaxing nearby. Miller and
Nicoliasen had been drinking and were half in the bag. At one point Miller, talking to no one in particular, complained, "A man can hardly drown anymore." And added something to the effect that, "You go down and there's all these bubbles and then you come up again." Trying to get a reply, he repeated himself again, "A man can hardly drown anymore." To which, Nicoliasen absent-mindedly said, "Yeah, but you should keep trying" (Sivertson 1990).

Dr. Cochrane observes that:

Through stories such as this, Islanders expressed their distinctive values, such as surreptitiously discussing fears about drowning, or good-naturedly ribbing a neighbor/competitor. Similarly, through cultural achievements such as boats, Islanders expressed many of their distinctive values and aesthetics.

Interest in boats can not be simply explained as a knee-jerk response to environmental givens. The nature and severity of the lake environment did and does determine what functions well. However, within these conditions, much creativity was apparent. Other forces were working on boats as well, such as economics of scale, the need for maneuverability by one or two man crews, versatility for multiple tasks, and what users found pleasing to the eye and wallet. The particular shape and structure of the boat were as much a product of cultural choice as a Pavlovian-like response to Lake Superior (Tolson and Cochrane 1992).

THE STUDY PURPOSE AND METHODS

With the exception of a general park-wide study of submerged cultural resources by a special unit of the National Park Service (Lenihan 1987), the small wooden boats that made all aspects of Island life possible have been largely ignored by most scholars. Nautical
archaeology at Isle Royale has always concentrated on those large vessels that have sunk or run aground there, with the result that the watercraft which symbolized Island culture for generations—a string of successes—were neglected in favor of what Dr. Cochrane has described as an emphasis "...on 'bigness'—large ships and big mistakes." In response to this bias, he wanted to see research conducted "on the small wooden boats which were the workhorses of Island life." More specifically, he writes:

To provide a counterweight to the bias on "bigness," the study focused on the "vernacular" watercraft of Isle Royale. The term vernacular was chosen deliberately, because it best describes the wooden boats used by Islanders for many years until superseded by mass produced aluminum and fiberglass boats. By vernacular boats, we mean wooden boats which were hand-made and utilized by persons who interacted directly or immediately with the builder. Further, most of these interactions were participatory, rather than formal or between two unequal parties. On rare occasions, the contract between builder and buyer was literally participatory, as in the case when Art and Stanley Sivertson worked with Hokie Lind on both the design and construction of the hull of the SIVIE (Lind 1990a; Howard Sivertson pers. comm., November 1, 1991). Boatbuilders held myriad skills and knowledge; craft specialization was minimal. Boatbuilders, with only a little assistance, designed and built vernacular boats by themselves. There is also a sense of localness to vernacular which implies a limited geographic extent and "nativeness." Island vernacular boats used predominantly native materials, or materials fashioned in final shape nearby, and were built to meet distinctive local or native circumstances—environmental, social, regulatory, and economic. Island vernacular boats reflect local conditions and influences in contrast to the large freighters which reflect
national influences and technological breakthroughs.

Vernacular boats are designed and made to satisfy a collective, community-based aesthetic. For example, a "gas boat" might be judged on how it compares with an agreed upon, exemplary gas boat of the past. Or, son Reuben Hill's boats would be compared to those built by his father, Charlie Hill. A communal and thus traditional aesthetic guides construction, maintenance and appreciation. For example, the hulls of most gas boats were painted white, a decision which does not appear to be based on function, but was rather a customary aesthetic. However, well established design traditions were also changing, responding to technological innovations, buyers' desires, and regulatory limitations. For keen observers, studying a builder's careful 'negotiation' between tradition and innovation takes the outsider into the heart of vernacular boat building (Tolson and Cochrane 1992).

Another Stanley Sivertson story illustrates that upgrading equipment could sometimes be easier than upgrading the knowledge of its operator.

One Englishman, Teddy Gill, he never went out of the harbor. [He] fished in the bay, worked as a miner, and as a fish packer...he was kind of afraid [of the Big Lake] and we always thought...And he always ran at half speed, you know. And they were only one cylinder and he was always going along with this boat that was as fast as one rowed.

And one time his son Aaron Gill got a hold of a boat for him with a model T Ford [motor] in it and gosh that had some speed to it. It would go 10-12 miles an hour. And this is kind of modern running a model T. And so he got the boat going around between Booth Island and...his dock and he couldn't get it slowed down enough. I guess the accelerator was stuck on the carburetor and he wasn't familiar with it yet.

And his son had shown him how to run it and left him with the boat. And so there's a fellow on Booth Dock named, by the name of Nels Wick. And this Ted Gill came running so close to the
dock that Nels Wick could jump in and stop it (Sivertson 1980a).

Dr. Cochrane reports that such stories, describing the attempts of "old-time" fishermen attempting to make the often-vexing transition to new technology, are rather common. There was a definite tendency to hold onto the "tried and true ways of fishing and boat operation" (Tolson and Cochrane 1992). However, he writes,

...spoofs on the misunderstandings of the first generation of immigrants draw attention to each generation's interest and ability to adapt to new circumstances. Technological innovations, increased competition, desires for economic advancement, and acculturation led younger men to experiment with new types of nets, boat design, engines, net lifters, and the like (Tolson and Cochrane 1992).

In explaining the importance of boats to Isle Royale fishermen, Dr. Cochrane has stated:

[That] fishermen identified with their boats [is attested to] by their affinity to speak of their boat's history, maker, and of adversities overcome while in their boats. Among the first...information a newcomer on Isle Royale learns is the biography of a boat from fishermen and most other Island residents. Tracing back the ownership of a boat is generally quite easy since such knowledge is highly valued...Fishermen not only identified with their boats, but they also could be identified by them....and boats reflected upon their past and present owners (Cochrane 1982:55-62).

Unfortunately, this sense of importance has not always been shared by researchers and managers.

Relatively small handmade wooden watercraft were the pinnacle of Isle Royale maritime traditions,
yet they are largely unstudied, leaving a gap in the historical understanding of the archipelago's past. Further, we do not have the baseline documentary information on these watercraft necessary for management decisions and visitor interpretation (Tolson and Cochrane 1992).

As stated above, this little fleet had received little or no attention until relatively recently. The first official notice of the wealth of history present in the form of vernacular watercraft on Isle Royale came in the 1980's with a five-year study of the Island's submerged cultural resources by the Submerged Cultural Resources Unit of the National Park Service. A portion of their extensive survey report was devoted to vernacular watercraft, and concluded that:

The vernacular craft around Isle Royale are part of the submerged cultural resources base of the island and their history and place in the maritime development of the region will contribute to the story of the park. The history of the development of these craft has been mainly handed down from generation to generation by word of mouth; the ability to create and maintain these vessels was continued through apprenticeship. However, the people whose lives were most directly affected by either the use, construction, or repair of these boats, are in their 60s, 70s, and 80s, and apprentices are few in number (Lenihan 1987:472).

Indeed, each passing year sees fewer of those who built and used the vernacular watercraft of Isle Royale, and those who do remain find their recollections growing less vivid. Even the boats, which represent the only tangible record of the design and building process, are
rapidly deteriorating in the harsh environment of the Lake Superior shore. Only the archaeological recording of the hulls to develop lines and plans, combined with detailed interviews with those who built and used them, will preserve them.

The simple preservation and recording of this unique maritime resource has value in its own right, but such investigation, observes Dr. Cochrane, also has important theoretical implications.

A study of the boat types of western Lake Superior—including Isle Royale and the Minnesota North Shore—will assist in the identification of the distinctive "traits" of a region. The adaptation of material culture, like boats, to local conditions such as economic, environmental, regulatory, and social influences is what makes each region unique. The study of Island vernacular boats becomes a de facto study of adaptation to local conditions. This "localness" is often under-emphasized in a national park known for its naturalness, or wildness. The majority of park planners and managers, and general public rarely associate "local culture" with big natural area parks. While Island watercraft clearly belong to a regional type, the nature and extent of this regionalization is dependent upon a comparative perspective. Unfortunately, it is impossible to compare vernacular watercraft from western Lake Superior with nearby areas, since detailed data from other areas is not available.

The study of boats from the Island and the Minnesota shoreline also begs further theoretical questions. Chronicling the physical and social dimensions of these watercraft inherently leads to the questions, 'where did they come from?' and 'what building traditions contributed to the making and maintenance of these watercraft?' Hence, the study of these watercraft seeks to
answer the question of diffusion of ideas across space in the tangible form of boats.

The study of Island fishing craft could also profitably pursue the question of 'were these watercraft appropriate technology?' In other words, were the boats of the right size or scale and how did they contribute to the harvesting, or overharvesting, of fish. For example, how would the catch effort from a relatively small gas boat, typically 24 feet long, compare with the fish tugs from the south shore of Lake Superior? The tugs with gas powered net lifters, more impervious to "dirty weather," and able to catch more fish by using more nets had a more lasting effect on the fishery resource than the gas boats of western Lake Superior (Karamanski et al. 1991). A detailed study looking at catch records and boat use would yield interesting insights into the net effect of gas boat fishing and how much fishing effort (manpower, gas, investment) went into fish harvests. This perspective of studying boat use from the viewpoint of a distant observer reviewing "fact" contrasts sharply with an "insider's" perspective, which is also needed. For a full accounting, the facts must be interpreted in light of what the Islanders' maritime culture found significant and compelling (Tolson and Cochrane 1992).

The importance of such a methodology was recognized by members of the Submerged Cultural Resources Unit in their final report:

...the vernacular watercraft are best documented in those terms used by the people who were involved with them on a daily basis. The model used in...[the section of the Submerged Cultural Resources Unit report] on vernacular watercraft is basically an ethnographic approach. Isle Royale, along with the other western Lake Superior National Parks, may be in a unique position to continue this study of vernacular craft using the same model simply because there are still a few individuals alive who possess knowledge of these vessels. It is, after all, the vernacular watercraft that played a major part in the lives of the people on Isle Royale
and that occupy a special place in the maritime history of Isle Royale and the Lake Superior region (Lenihan 1987:473).

So it was that the 1990-1991 study applied an ethnographic perspective, as Dr. Cochrane explains:

...that is, trying to understand what these boats meant to someone from the maritime culture of western Lake Superior. And, we hope to pass along as much of that insider's feelings and thoughts for boats by quoting the users and builders directly. This commitment to understanding boats from the perspective of an insider, what anthropologists call an emic perspective, is not some academic slight of hand. Rather, this perspective is necessary because boats, like storytelling, were a significant focus of the people themselves. Islanders were concerned with boats, much more than say, with Island residences or structures. The importance of a good boat is best illustrated in the oral testimony of a fisherman. In speaking about Milford Johnson, Senior's esteem for his gas boat, SEAGULL, Bud Tormundson said, "He liked the boat about as much as his own family." (Bud Tormundson pers. comm., December 7, 1990).

Because of this concentrated interest in boats, their study takes you directly into the concerns of most Islanders. Further, since the indigenous maritime culture of Isle Royale is waning, as fishermen and summer residents are dying out, boats have become reminders of another time when these folk dominated Island life. Ironically, this may be the final "adaptation" of Island vernacular watercraft: from sturdy, reliable boats to beacons of a past way of life (Tolson and Cochrane 1992).

THE SHAPING OF THE STUDY

The Isle Royale Vernacular Boat Study was a long time coming, and the fact that it came to be at all is due mostly to the efforts of former Cultural Resources
Management Specialist Dr. Timothy Cochrane. He described the genesis of the research effort:

The idea of a vernacular boat study grew out of Cultural Resources Management Specialist [CRMS] Tim Cochrane's dissatisfaction with what is documented and known about Island small watercraft. Charged with documenting the use of Isle Royale by people, the CRMS was chagrined by the direction of past studies. Boats were clearly important, but were neglected. Also neglected was an ethnographic study perspective on Islanders' lifeways. The need for the study was clear, but in what form, scope, and by whom? After a number of phone calls—in which the CRMS appeared hopelessly naive—he made contact with members of the Museum of the Small Craft and the Maritime Initiative Office of the National Park Service. Through discussion with these professionals a study design was crafted.

The intent of the study was to document and interpret material and symbolic dimensions of Isle Royale vernacular watercraft, clarifying and explaining many of the ideas that went into the building and use of these sturdy vessels. The study objective was to fully describe representative boat types and their uses, and what they meant to their owners. Using the material dimensions of the derelict boats as a starting point, the study sought to collect information about the builders' and users' aesthetics, ingenuity, environmental knowledge, ethnicity and identity, craftsmanship, and livelihood and pastimes.

Devising the study was one thing, peddling its merits was another. Strapped for funds, Isle Royale National Park had no monies to contribute, but eventually a barrage of phone calls convinced others to generously provide donations. Letters of support from the Maritime Initiative, History Division of the National Park Service Washington Office and a strong endorsement of the need for the study by a recent historical study of the Island provided welcome "spiritual" support (Karamanski 1988). Eventually a mix of public and private interests were convinced the study was important and timely. The Cultural Resource Division of the Midwest Regional Office, NPS; the
Midwest Archeological Center, NPS; and Mr. H. David Dalquist of Minneapolis contributed funds to hire a project director, buy supplies, and sustain the study. Isle Royale provided in-kind support by providing housing, gas, office space, and transportation to and from the Island, while the Midwest Archeological Center donated the use of its boat, the BLACKDUCK. With funds and study design in hand, all that was left was to hire a project director committed to the study and who was somewhat knowledgeable about Isle Royale. After some searching, the decision was made to hire as principal investigator (PI) Hawk Tolson, a graduate student in nautical archaeology at Texas A&M University and an Isle Royale veteran. The study was optimistically designed to last one extended summer season, but continued into a second season (Tolson and Cochrane 1992).

The following study objectives were established:

1) pre-fieldwork research in park archives and through informant questionnaires and interviews for specific information on Island boats, in particular, the names and types of boats known to have been used at Isle Royale and their present whereabouts;

2) ground-truth all boat reports, field-checking available information to determine the number of existing Isle Royale vernacular watercraft and their location, both on the Island and the mainland;

3) survey physical dimensions and take gross measurements of vernacular watercraft along with photodocumentation, sketching unique elements of individual watercraft;
4) identify vernacular watercraft types and select a representative example of each for more detailed documentation at a future date, including linestaking and scale drawings;

5) ethnographic documentation in the form of taped interviews with builders and users (Island residents and commercial fishermen) of Isle Royale vernacular watercraft;

6) development of a vernacular boat photo archive by locating, duplicating, and collecting photos and negatives from the Isle Royale archives, archives off-island, and private photo collections, and examination and organization of this material;

7) development of a systematic and precise archive of information on Isle Royale vernacular watercraft, containing all archival material from Isle Royale, documentation obtained during the field research, and informant interviews and questionnaires (including the photo archive), the whole to be organized in such a way as to be accessible to interested researchers;

8) a report on the project results, illustrating the varied roles vernacular watercraft have played for residents and visitors and detailing how Isle Royale vernacular watercraft have developed and changed through time and in response to what forces
(environmental conditions, acculturation, efficacy, safety, mechanical innovations, etc.).
boatbuilders. Among other things, the questionnaire requested the current location of Island boats known to the respondents. Seventy-eight packets of questionnaires were mailed. Unfortunately, only a small percentage of the forms sent out were returned, although those who responded frequently did so in great detail, revealing knowledge of a large number of boats. Comments on the survey forms such as: "...ugliest hull I ever saw..." and "...used until it got rivet sick..." reveal in-group aesthetic and technological judgements (Survey Forms, Vernacular Boat Archive [VBA]).

A second source of information came from a variety of park employees and researchers who, through personal experience and effort had first-hand or second-hand knowledge of the locations of Island boats.

A third source of information was the Submerged Cultural Resources Study of Isle Royale National Park, conducted by the Submerged Cultural Resources Unit at the park over a period of five years. The report contains a section on vernacular watercraft and gives general locations for a number of boats on Isle Royale.

Finally, a number of taped interviews, personal accounts, and personal communications provided additional information on small boats known or suspected to be on or near Isle Royale. The diversity and wealth of this form of
information became increasingly important, but was
difficult to systematically use and assess.

All of these accounts were carefully examined, the
information combined, and the results tabulated to form a
boat list giving the following headings: Name of Boat (if
known), Owner or Owners (if known), Type, Where Used (or
where based), Date (could be date built, dates used, dates
known, or date lost; information was not always specific),
Present Location (if known), and Comments (usually
dimensions, builder, notes on use or loss, or
significance). This resulted in a fairly large list, with
some 94 named entries and 94 unnamed entries.

The next step was to reduce the preliminary list to a
more manageable size. There was some overlap between the
named and unnamed entries, which was eliminated where it
was reasonably certain. Boats known to have been destroyed
or no longer on or near the Island were deleted from the
final list. Larger commercial vessels judged to be outside
the definition of "vernacular watercraft" were eliminated.
Finally, some boats whose locations were too vague to be
located during this survey were also dropped from the list.
What ultimately remained was a tabulation of 100 entries
representing 115 boats, which were plotted in their general
locations on a map of Isle Royale, scale 1:62500.
Ultimately, the PI decided to concentrate on small vessels used on or around Isle Royale, presently hauled out on shore and in need of documentation because of continuing deterioration or imminent removal from the Island. Ironically, many of the best preserved "Island boats" have been removed to the mainland where a handful of devoted owners struggles to keep up with the ever-increasing need for maintenance and restoration. As the number of boats present and the amount of work required to record them became known, it became the opinion of the PI that the most important goal of the project should be a baseline survey, the recording of all the small craft present on the Island so that at the very least the resource base could be defined for cultural resource management purposes. Not all the boats on the list could be located, while a number of boats not on the list were found. Ultimately, a complete survey of the Island to locate all boats was not possible in the time available.
CHAPTER III

DOCUMENTATION TECHNIQUES

MEASUREMENTS--FIELD DOCUMENTATION

The first step in conducting a general survey of the Isle Royale vernacular watercraft was the development of a recording format, some sort of standard for taking information and recording it in a coherent, consistent form. The PI considered developing a boat recording form for the general survey of Isle Royale small craft to standardize data recovery, but this proved to be unnecessary. The park files contained copies of a form designed in 1982 by C. Patrick Labadie of the Canal Park Marine Museum. He had put a great deal of work into its development with the hope that it would become a standard for use throughout the entire Superior region, but it had never really been used (C. Patrick Labadie pers. comm., 1990). It proved to be perfect for the purposes of this study. The form was designed to be used in conjunction with photographic documentation, using sketches to record gross dimensions and photographs to document shapes and details (see Appendix 2). The form included a set of instructions, including a list of photographic details to be recorded and illustrative sketches showing these details on a hypothetical boat.
The forms themselves were used unchanged for the Isle Royale survey, although additional details not specified on the forms were often recorded.

PHOTOGRAPHIC DOCUMENTATION

Photographic documentation was conducted on two levels. The first was conducted in the field, in which boat remains were recorded on-site in their present condition.

The second level was historic documentation. For this, photographs of boats used at and around Isle Royale were obtained from the park archives, archives in mainland Michigan and Minnesota, and from private individuals who either donated personal collections and albums or allowed them to be copied. Such materials were actively solicited from informants with great success by the CRMS. Both of these levels benefitted from the considerable assistance of a photo intern over the two seasons of investigation, which took the form of processing, printing, and copystand work.

PERSONAL CONTACTS

The nature of Isle Royale is such that many of those who have played a part in and know its history continue to maintain close ties to the Island, either as visitors, part-time residents, concessionaires, or even employees.
So it was that on any given day the researchers might encounter someone with personal knowledge of the location or use of a boat. One such visitor was able to point out that an Isle Royale boat accessioned as a part of a National Register property had been so placed under the wrong name, an obscure bit of knowledge that had escaped notice for many seasons.

ARCHIVAL AND FIELD RESEARCH

Approximately two weeks were spent in the Mott Island archives on initial research to locate probable boat sites, as described above. Then, over a period of five weeks, the PI examined and recorded boats in Tobin Harbor, Rock Harbor, and Washington Harbor using the Canal Park Museum forms. Concentrations of boats in each harbor made this an efficient field recording method. Not all of the boats present in each cluster were documented, as some were more modern craft, abandoned relatively recently, or were nearly identical examples of types recorded elsewhere. Time constraints often made it necessary to be selective.

Ultimately, a total of 27 boats were documented using the Canal Park Museum forms. This included 1 birch bark canoe; 1 badly-deteriorated wooden lapstrake sailboat; 7 herring skiffs; 1 rowboat/rowing skiff; 11 "gas boats"
(open wooden fishing craft with inboard motors); 1 launch; and 5 rowboat/outboard boats.

Dimensioned sketches were made of each of these boats, with special attention given to unique or unusual features. After the completion of the drawings, each boat was photographed in detail according to the recommendations accompanying the Canal Park Museum forms and those offered by consultant David Dillion.

Additionally, an attempt was made to take the lines from the launch HMS, formerly in storage at the Mott Island boat yard. Time constraints and bad weather prevented the completion of this task.

The main goals for interviews during the 1990 field season were to speak with Reuben Hill of Two Harbors, Minnesota, probably the best-known builder of boats for Isle Royale and the North Shore; with Hokan Lind, a part-time boatbuilder who also provided small craft for those areas; and with Roy Oberg, the boat captain who for many years and with numerous vessels provided transportation between Isle Royale and the North Shore. Both Reuben Hill and Roy Oberg are well-known in the western Lake Superior region, and have been interviewed numerous times by a variety of researchers. The PI conducted two sessions with Mr. Hill and one with Mr. Oberg. In addition, Mr. Hill
allowed the principal investigator to take three of his personal photo albums back to the park for copying.

Mr. Lind, in contrast, had never been interviewed, and in two sessions was able to provide an interesting alternative view of the craft of boatbuilding. Additionally, he put the PI in contact with his brother Marcus, who still owns the house and property where the Lind family homesteaded when they immigrated to the United States. Never having been interviewed either, he was surprised to find that what he had to say was of any interest to anyone. During a single interview, he was able to provide a fascinating history of his family and their life on the North Shore.

The Isle Royale Cultural Resources Office has an extensive library of nearly 100 taped oral histories. The PI transcribed the 1990 sessions with Mr. Hill, Mr. Oberg, and the Linds, but only portions of a few of the rest of the collection have been transcribed, although most have been thoroughly indexed. During the 1990 field season, the CRMS and a cultural resources intern examined all the available indexes and compiled a list of all references relating to vernacular watercraft, an accomplishment which will greatly assist in narrowing the scope of investigation for future researchers.
In addition to conducting the interviews described above, while on the North Shore the PI sought out photographs showing western Lake Superior small craft from a variety of sources, including the collections at the J. Robert Van Pelt Library at Michigan Technological University in Houghton, Michigan; the Northeast Minnesota Historical Center at the University of Minnesota, Duluth; and the Lake County Historical Society in Two Harbors, Minnesota. In all three places, arrangements were made to duplicate relevant photographs and add them to the Isle Royale collection.

While a variety of methodologies have been developed for the recording of large ships and sunken wrecks, until relatively recently there has been no information available on how to record the shapes and construction details of small craft such as those present on Isle Royale. Indeed, to quote B.A.G. Fuller, formerly Curator of the Mystic Seaport Museum, "More importantly, more boats survive than there are experienced personnel available to make documentation decisions about them. A frequent telephone call that maritime museum personnel get, from both professionals and amateurs is: 'I have a boat, what do I do?' (Fuller 1990:2). As a way of alleviating this problem, the Museum Small Craft Association has been preparing Boats: A Field Manual for their Documentation.
In the spring of 1990, the Association's Mr. David Dillion began teaching a series of workshops on methods for documenting small craft, using a draft copy of the Manual as the text. The PI attended the first session of the workshop at Mystic Seaport Museum, Connecticut, in May of that year, where he spoke to Mr. Dillion at length about the Isle Royale Vernacular Boat Study. Mr. Dillion also expressed an interest in coming out to the Island to examine the small craft there and to observe the study.

Because of the relatively unique nature of the boat study, it was decided that the project would benefit from the observation and criticism of a professional such as Mr. Dillion. In July, both the Isle Royale CRMS and the PI attended another of the boat recording workshops, this time at the Manitowoc Marine Museum in Wisconsin. At the end of this three-day session, Mr. Dillion travelled back to Isle Royale with them, where he stayed for three days. During that time, he was shown a variety of the small craft present on the Island so he could get an idea of the resource base. With each of these boats, he offered suggestions on what aspects were the most important and which measurements would provide the most information for comparative studies.

One of his most significant contributions was the observation and defining of what has come to be called the
"Hill Signature," a combination of distinct construction features that thus far has proven unique to gas boats built by the Hill family, allowing their work to be recognized in boats whose history is uncertain (Dave Dillion pers. comm., Summer 1990). In addition, he provided detailed instruction to the PI and CRMS concerning the actual taking of lines from the Island boats. The result was a more intensive learning session than had been possible at the workshops. Critical to the study was his discovery of construction details in the gas boats that strongly supported the theory that they had developed from the older Mackinaw sailboats. Finally, he offered suggestions for what should be included in the final archive, and critiqued the forms being used for the recording and the manner in which they were being filled out.

He felt that more photographic documentation was required than was called for on the forms and drew a set of diagrams instructing where and how such additional photographs should be taken (see Appendix 3). These were added to the instructions accompanying the recording forms as a supplement, and photography conducted after his visit followed them.
THE VERNACULAR BOAT ARCHIVE

Each boat recorded on the Canal Park Museum forms was given its own file folder, which contains the recording form, two 5x7 black-and-white photographs (usually 3/4 bow and 3/4 stern views) of the boat in its present condition, contemporary photos of the boat (if available), the Cochrane survey form (if any) relating to the boat, and any written, printed, or transcribed information concerning the boat. This supplementary information remains in a state of flux, as new scraps of information are continually becoming available as researchers uncover additional details, informants and former Island residents offer their personal recollections, and contemporary photographs become available.

In addition to the recorded boats, information has been obtained on other vessels that were not examined by the PI. This includes vessels that have been lost, destroyed, or moved off-island. Select examples are the STANLEY, a sunken fish tug documented by the Submerged Cultural Resources Unit; the NORTHERN BELLE, a sunken two-masted schooner which over the years has been extensively researched by a number of individuals, and whose remains may have been located during the 1991 season; the SEA WREN, formerly belonging to Island fisherman Pete Edisen, which has been acquired by the Blue Water Boat Guild of Bayfield,
Wisconsin; the motorized wooden vessel SCOUT, currently in private hands on the mainland; the steam yacht LADY RUFFLES, whose remains are scattered about Washington Harbor; the WINDSOR, both a private and resort launch; the DAGMAR, a 46-foot freight boat built of scrap lumber, which sank somewhere off Chippewa Harbor with "a little alcohol involved" (Johnson 1990), and a number of others whose locations are known but could not be examined, as well as boats whose locations are unknown or could not be verified, but were mentioned by informants or in other source materials. Each of these has also been given its own file, and as additional information on them becomes available, it will be added.

This archive has been the ultimate goal of the project, but it is not perceived as something that will ever reach a state of completion. Ideally, it will be continually revised, updated, and expanded as research reveals additional details.

ARCHIVAL PHOTOGRAPHS

The Isle Royale National Park archives contain a large quantity of photographic materials in a variety of forms: documentation photographs taken as a part of park operations; collections and individual shots donated by visitors, current and former Island residents, and
employees from the various operations present within the park throughout the Island's history; and copystand work duplicating various collections loaned to the park over the years. Some of these items are in the form of organized and mounted collections while others are simply loose groups of individual pictures. Unfortunately, much of this material was unorganized and scattered among a variety of places, with no single catalogue of just what was present.

The last four weeks of the 1990 field season were devoted to compiling a vernacular boat photo archive which would contain its own set of prints duplicated from materials taken from within the park collections and materials outside the park. An attempt to locate all the photographic materials present within the park's own archives and comb it for relevant materials was largely successful, although it could not be completed in the time available.

All available photographs were examined, and those judged to be relevant to the vernacular boat study, that is, those showing small wooden boats or details of small wooden boats, were noted. The next step was to determine the original source of each and whether a negative, either original or copy, was on file for the chosen prints. In this way it was hoped to eventually obtain prints for the boat archive that were copied as close to the first
generation photos as possible rather than shooting a series of possibly redundant copy negatives.

Where subjects, sources, and current location of negatives could be identified and duplicates made "in-house", the information was copied and the items returned to their respective collections. All loose photographs were filed in the appropriate categories in existing general collections. Where photos were known to have come from other curatorial facilities, inquiries were directed to those institutions requesting copies. The sources of a number of photographs could not be identified, so they were set aside for duplication on the copy stand.

Efforts at creating a vernacular boat photo archive were not completely successful, but they did at least make such photos more readily accessible within the Isle Royale National Park Archives. In addition, the new archive contains the negatives and contact sheets which are the result of the PI's extensive photodocumentation of 27 of the vernacular boats remaining on the Island. These show general views as well as specific construction details that can be used for comparative study. Not all the requests for copies sent to other museums and archives could be followed up due to insufficient time, and this effort must be completed. In addition, it remains critical that a long-term full-time photo technician be recruited to impose
some sort of order on the morass that is the total photo collection there. Only when the great mass of photographic material there has been properly accessioned, catalogued, sorted, and indexed can it be of any real use to researchers, and a truly comprehensive vernacular boat photo archive constructed.

WHAT REMAINS TO BE DONE

Ideally, Isle Royale National Park requires a baseline definition of this particular resource before any coherent management strategy can be formulated. While it is reasonable to assume that all or most of the locations of small craft abandoned on shore are known or can be readily checked out, private individuals and park personnel continue to locate the submerged remains of vernacular watercraft. During the 1991 field season, visitors located a lifeboat from the vessel KAMLOOPS, long rumored to be in a bay on the north shore of the Island, and park divers have found sunken hulls which may be the remains of the former lifeboat SLIM and the elusive schooner NORTHERN BELLE. The remaining sites on the list compiled at the start of the project must be ground truthed, and boats known to exist in addition to those reported on that list must be examined as well (more sites have been located since its compilation). All the small craft thus located
must be recorded on the project survey forms and photodocumented in detail, and those sunken small craft which continue to be discovered must receive at least some sort of minimal documentation. The latter can most likely be conducted as exercises for the members of the park dive team.

The records resulting from photos and the project survey forms are useful for defining areas for further research and for illustrating the resource base, but serious comparative work requires the development of lines and construction plans for representative examples of each boat type—ideally, one example of each boat type from each builder.

Linetaking is the ultimate method of recording a boat. The complex curves that comprise a boat's hull can only be accurately represented in a scaled model of the hull or in a special three-view drawing called a lines drawing. Where a modern naval architect produces such a drawing from which a boat is built, the nautical archaeologist works in reverse, with painstaking measurements taken in the field from an existing boat hull that allow the replication of these curves on paper so as to accurately preserve the shape and design in a form that will outlast the hull itself.
The importance of such work cannot be overstated, for unlike their more modern counterparts, the designers and builders who created the vernacular watercraft of Isle Royale were one in the same, working with few, if any plans at all, by feel or from a half model. There is no record of their work other than the boats themselves.

With such baseline data, additional examples of a builder's work can be sufficiently defined with the project survey forms and sketches and photographs illustrating significant differences. This was listed within the original scope of work, but proved impossible to accomplish within the time available.

Once the data on the Isle Royale boats has been collected in the form of lines and construction plans--what amounts to a standard form the world over--then they can be compared and contrasted with small craft across the country and around the world, making the data infinitely more useful to researchers.

The issue of Old World links to North American small craft is becoming of increasing interest to the nautical archaeological community. Dr. Carl Olof Cederlund, professor of marine archaeology at the Swedish National Maritime Museum and the University of Stockholm has said:

When the European immigrants landed in North America in the centuries preceding ours many brought boatbuilding skills with them. As their
new areas of settlement were very often reached by water, their skills were soon put to use. As time passed new waves of immigrants from different areas of the Old World spread over the new continent, also carrying with them and using shipwright craftsmanship. These different building traditions intertwined with each other and with indigenous Native American boatbuilding.

After discussing this "scenario" with several American and European colleagues during the 1980's, I understand that there exists a very big task in the mapping and interpretation of the distribution and of local craft in North America, and in the study of the mechanisms of transference of boatbuilding traditions from the European countries over the Atlantic. Some of the first tasks would be a survey and bibliography of what work has already been done in both Europe and North America....

It seems worthwhile to initiate cooperation among researchers in Europe and North America to encourage and develop research projects addressing these topics (Cederlund 1991:5-6).

REPORT LIMITATIONS

This document can realistically be regarded only as an interim report concerning the vernacular watercraft of Isle Royale National Park. It is an adequate summation of the research strategy and methodologies employed, examining a cross-section of the many small craft on the Island. More importantly, it does so in the contexts where they were built and used, filling a critical gap in the park's historical studies. It is not, however, a definitive report. That must await the completion of an exhaustive survey.
CHAPTER IV

THE ECOLOGY AND TECHNOLOGY OF FISHING

INTRODUCTION

It is not possible to fully understand and appreciate the vernacular watercraft of Isle Royale without at least a limited examination of the environment and industry in which they were designed to function—specifically, the commercial fishing industry. Three major factors worked in combination to shape the development of vernacular watercraft in the western Lake Superior region. The first was geography. Commercial fishermen ventured out from three areas: Isle Royale, the North Shore (the Minnesota coast of Lake Superior), and the South Shore (the Michigan and Wisconsin coasts of Lake Superior). Each area had its own physical environment, both above and below the water. The underwater terrain determined feeding and spawning grounds, and therefore where fish stocks might be located. The shorelines determined harbor and docking availability, and thus what types of watercraft would be feasible. The second factor was fishing seasonality. Three different types of fish were prized by the lakemen: lake trout, whitefish, and lake herring (Rakestraw 1968:3-5). These were prevalent in certain areas at specific times during the fishing season (although unknown and unexpected
environmental conditions could radically alter the standard patterns). The seasonal sea and weather conditions worked strongly to determine the type of boat most effective for hunting and harvesting the fish at particular times of the season. The third factor was fishing technology. The business of fishing began with the techniques most familiar to the Scandinavian immigrants who settled in this area. As their experience and knowledge of the local conditions and local fauna grew, they adjusted their fishing methods accordingly. And these fishing methods were more appropriately applied from certain boat types than from others. These three factors—geography, seasonality, and technology—worked in conjunction to shape boat development. A more detailed discussion of each is warranted before proceeding into a description of the boat types themselves.

GEOGRAPHY

An examination of maps of the western Lake Superior region reveals something of the geography of the area. The North Shore, as the Minnesota coast of the lake is known, is a relatively featureless stretch of shoreline extending some 150 miles on a southwest-northeast line from the mouth of the St. Louis River at the city of Duluth, Minnesota to the mouth of the Pigeon River at the Canadian border.
(Figure 3). In this region, it was the herring fishery that predominated (Karamanski et al. 1991:88). Boatbuilder Hokan Lind recalls the scarcity of safe harbors along this stretch:

You start out from Duluth. Knife River was nothing but a logging town and a dock. You couldn't tie up a big boat there. You could when the weather was good, yeah. Two Harbors, you could, sure. But then you went from there—the closest one would be Little Two Harbors, where the Split Rock Light is. The next one would be Beaver Bay, and then there wouldn't be one for a big boat until you got to Grand Marais. And then Grand Portage. Hovland, um-um. If you were in there, it came up with a northeaster, get out right now (Lind 1990c:17-18).

This lack of harbors dictated the kind of boats from which the commercial fishermen had to ply their trade. According to long-time boat captain Roy Oberg, "...mostly the North Shore fishermen, biggest share of them were just skiff fishermen. They had to land them because they didn't have harbors to pull them up. Or they had to make a slide" (Oberg 1990:21). Hokan Lind also recalls the skiff being the vessel of choice on the North Shore.

The shelters, where the men operated from, were such that they couldn't use a round bottom boat. You had to have a harbor to anchor them or a dock to tie them to. And you know, if you tied your boat to a dock down on the North Shore, come up with one northeaster and you'd find your boat way out there someplace. So they had to use a skiff. And what we call the slide...(Lind 1990b:27).

The slide, or ramp, which was the answer to this lack of good harbors, is described by Roy Oberg as a "bunch of
FIGURE 3. The Minnesota North Shore and the Wisconsin South Shore of Lake Superior.
poles." (Oberg 1990:21). It was, in fact, composed of a series of logs or poles laid perpendicular to the shoreline, with a second set of shorter members spiked across them at right angles. A boat was launched simply by being slid down the ramp into the water, while a combination of winch and muscle power was used to drag an incoming boat up it to safety (Marcus Lind 1990:5; Sivertson 1990c:22). Such an arrangement was all but impervious to the fury of Lake Superior, since "The sea, when it gets a big storm...just washes...between the poles, see?" (Oberg 1990:21).

Once a boat had been thus hauled up and out, all that was necessary was to "...bail your herring out and there you have it. Oh, they had to use skiffs there. That's why they were in such demand" (Lind 1990b:27). "So, that's where the skiff--I'm right at home. Push them out and do your work and get back" (Lind 1990c:18).

The skiff became the workhorse of the North Shore commercial fishermen, although

...a few of them...had big gas boats, but they'd have to winch them out of the water because of very few places where you could leave the boat in the water....In fact, my dad and them, they had certain spots, like Little Two Harbors, and East Beaver Bay, and inside Encampment Island, east...In fact, the old charts used to have "anchorage" marked on them where there'd be a place where you could go in and anchor to get out of the storms if [a] storm came up. They did that. But there was only a few places...along
the shore. Otherwise, you had to tough it out (Oberg 1990:21-22).

Boatbuilder Reuben Hill designed and built one of these exceptions for a customer at Knife River, Minnesota, who wanted a vessel for the dual purposes of pleasure boating and taking tourists out trolling. She was 35 feet in length, with a high bow and a deck that "was open so that people could sit and ride and look where we were going when the rest were trolling" (Hill 1990b:13,14). An interesting aspect of her design came as a result of the owner's desire

...to have [it] so he could, he had [a] skid that he'd pull it up every night, because it was the open lake there otherwise, see. And...so, the bottom of it's flat. It's a two-inch oak bottom. And then it's covered with three-sixteenths steel bottom. So it won't hurt the boat, pulling it up, you see. It didn't hurt the operation of the boat in any way, the fact that it wasn't totally round...like you cut...off a rounded cigar, the bottom of it off, see, so it had a nice, nice flat bottom, yet it didn't affect...the working of the boat whatsoever (Hill 1990b:15).

Reuben and his family are a part of a boatbuilding tradition that encompasses Isle Royale and the North Shore. When he was asked if there was any difference between boats that he built for the North Shore area and boats that he built for Isle Royale, he stated that there was no difference between the two, at least in terms of quality and methods of construction (Hill 1990a).
It's [the] very same thing. Very same thing. They had to be strong, regardless. To take the beating. Well, of course, on the North Shore, they didn't—not too many harbors. So they had to pull them up on skids. So they took a beating, you know, see. Whereas Isle Royale, they were all in harbors, you know. They never had to pull them up. Except in the fall of the year. The weather never affected those, so. They were still made the very same way, anyway, so it didn't make any difference. They were in the water, had to take a beating (Hill 1990c:19-20).

Reuben repeatedly stressed the need for strength in construction, regardless of where the boat was to be used. He did, however, comment on the lack of harbors on the Minnesota coastline, and point out that the larger-sized boats and the numbers of closed-in fish tugs built and used on the North Shore were not duplicated on Isle Royale; rather, Island boats were smaller and generally open, as in the case of the gas boat (Hill 1990a).

The South Shore, as the Wisconsin and Michigan coasts of the lake are known, extends eastward along the lake from the mouth of the St. Louis River at the city of Superior, Wisconsin 120 miles to the mouth of the Montreal River at the Michigan border (Figure 3). About midway, a large peninsula thrusts out into the lake, beyond which are the Apostle Islands and east of which is the shelter of Chequamegon Bay. From the mouth of the Montreal River, the Michigan shoreline runs northeastward nearly 100 miles to the tip of the Keweenaw Peninsula, back 40 miles to the
southwest to form Keweenaw Bay, and from there undulates eastward another 170 miles to the tip of Whitefish Point (Figure 4, Figure 5). From there it circles south and east along the margin of Whitefish Bay some 55 miles to the city of Sault Ste. Marie, Michigan (Figure 5). From a mariner's point of view, the South Shore is a somewhat friendlier place. An additional and important difference between North and South Shore geography was the nature of the lake bottom in both areas. Hokie Lind recalls: "...their fishing grounds,[on the South Shore,] there it's all sand and gravel, where the North Shore it's rock. Ledges. Ideal spawning grounds for trout. So, that's the difference" (Lind 1990c:18). There, whitefish were the principal catch (Karamanski et al. 1991:88).

Concerning available harbors, Mr. Lind stated, "On the South Shore you've got so many shelters there, like Cornucopia and Port Wing, and--where you can come in with a big boat and tie up. You haven't got that on the North Shore....So on the South Shore, they can have bigger boats" (Lind 1990c:17,18).

Additionally, according to Roy Oberg:

Most of them there, the only places they fished, usually...[on the] South Shore, was where there's harbors...none that I knew of fished on the straight shoreline, because there was no--well, it's shallow water and the waves break so far out that they couldn't even get out when it was just a medium-size storm. They're usually in harbors
or mouths of the rivers, see? Wherever there's mouths of the rivers along there. Then, then later years engineers built breakwaters on a lot of them. But originally, they just had to go out over the delta themselves, you know. So, a lot of times, then, they couldn't get out. But that's why they used bigger boats, like on the Bayfield area and all along where they had big harbors. Then they had big boats.

They even had steam tugs that they fished with out of Bayfield. Booth Fisheries had that. In fact, that HIAWATHA that Sivertson's bought, that they used for here hauling passengers, now they use it for trawling in Duluth. That was Apostle Islands. The Booth Fisheries owned that in the first place. And they used to have a fish route around the islands. There was fishermen on each place around the Island, wherever there was a little harbor or beach. Then these fishermen then shipped their fish to Booth's fishery and they picked them up like we used to do around Isle Royale. That was big business them days (Oberg 1990:24-25).

And Reuben Hill, when asked whether there was a difference between boats built for the North Shore and South Shore, replied that the same care and construction techniques went into vessel produced for both places: "...they're pretty much sturdy. Made the same way. Practically the very same way...They were all heavy, heavy planked, good sturdy material" (Hill 1990c:20-21).

The archipelago of Isle Royale is located off the Minnesota shore, some 18 miles east of the city of Grand Portage and 40 miles from Michigan's Keweenaw Peninsula. The geology of the Lake Superior basin has resulted in its distinctive ridge and valley topography, along with the formation of a large number of protected coves, bays, and
fjord-like harbors, which allowed fishermen there to use boats larger than the skiffs that were the standard among the North Shore fishermen. Still, commercial fisherman Stanley Sivertson recalls that, despite the abundance of harbors on Isle Royale, a number of fishermen used slides. His own family had docks for their larger vessels, but in addition built slides for the skiffs (Sivertson 1990c:33). Others constructed slides as a matter of necessity.

...it was kind of interesting to think about people when they fished on Isle Royale. And all of them, almost, went into harbors. But one time the harbors got a little crowded. So there was a fellow by the name of Stone, and I think some of them are living yet. And they fished right out on Houghton Point. And that's all they had was that slide, there (Sivertson 1990c:34).

In addition to safe harbors, Isle Royale also provided "the combination of reefs and deep water favored as a habitat, by the commercial fish," (Rakestraw 1968:19) particularly lake trout, which was "king" as far as the Island fisheries were concerned (Karamanski et al. 1991:88).

FISHING SEASONALITY

In the spring of 1933, a young Stanley Sivertson made his first trip to fish at Isle Royale with his older brother Art. The two anticipated a large catch because the
unusual ice-free conditions were allowing them to get their hook lines in the water very early.

...we got down Isle Royale about 17th of March, and we thought, "Oh boy, are we going to catch a lot of fish this year on the hook line," because there wasn't any ice in the lake, see? And these floating hooks, of course, we set them out, and if we got there too early, the ice might come up from the Soo, you know, and the bay...Whitefish Bay. And sometimes that'll come all the way up here and take the hook line, you know. Even after we had had open water for a long time. So, this year there wasn't any ice. And boy, we looked forward to getting to Isle Royale real early....the weather in the winter of '32 and '33...was so mild then. But the lake was all open...so we got down to Isle Royale about the 17th of March (Sivertson 1990c:12-13).

Well, then, so we thought we were going to make all this money this year because the lake was wide open. We could set the hook lines without worrying about losing them in ice, you know. And my gosh, I think the biggest lift we had was a hundred and eighty-five pounds (Sivertson 1990c:13).

And I think it had something to do with the thermal activation of the water, or the coolness, or the food, or the plankton and herring, and the whole works. But...when there wasn't the ice on the lake, something different happened [to]...the lake, and the fish were different. That fall, again, then we started getting fish again. Then there was pretty good fishing. But just think: that year, the biggest lift I had was hundred and eighty-five pounds. 1936, Bert Nicoliasen was fishing with me and we had a size 1600 pounds... And one day we had 1300 pound, another day 1200. And many days we had a thousand pounds on the same 480 hooks that we had lifted...[before] (Sivertson 1990c:14-15).

Isle Royale's fishermen left their homes in such North Shore communities as Hovland, Grand Marais, Two Harbors,
Knife River, and Duluth in early spring as soon as conditions permitted, generally arriving on the Island by the 15th of April (Rakestraw 1968:19; Karamanski et al. 1991:92). The open water that allowed passage across from Minnesota did not always extend to the Island, however, and the harbors and coastal areas where the fishermen needed to land might remain icebound. At such times, they would disembark from the ferry boat, load their supplies into skiffs, and haul them like sledges across the ice to their fisheries. One of the first tasks would be to cut a sufficient supply of that same lake ice to keep the catch fresh over the course of the summer (Karamanski et al. 1991:92). Boats and other equipment were readied, and the crews would set out for the first of the season's fishing.

This was hook line fishing for lake trout, and ran until mid-summer. In July or August these rigs were exchanged for gill nets, which were set for lake trout off the reefs or in the harbors. Gill nets then continued in use throughout the peak fishing season, which ran from August through November and targeted the spawning runs of the lake trout, whitefish, and herring. The majority of fishermen would then depart for the North Shore by the 15th of November. Some, particularly the Scandinavians, laid in supplies and overwintered on the Island "to avoid the
inevitable and costly splurges on the mainland" (Rakestraw 1968:19; Karamanski et al. 1991:86,93).

During the season, each day was filled with backbreaking labor. Rakestraw wrote:

Fishing was a dawn to dusk occupation. Fishermen went out at four or five o'clock in the morning, making their runs to the fishing grounds. There they tended their nets [or hook lines, according to the season], and by late morning or afternoon returned home with their catches. The fish were cleaned and processed—packed in ice or, in the case of herring, salted and packed in kegs. There was always an abundance of work to be done around the station, cleaning or repairing nets, maintaining boats and machinery or preparing to move nets to new fishing grounds (Rakestraw 1968:21).

Stanley Sivertson recalled that on a typical day of hook line fishing it was necessary

...to pick herring in the morning, go to bait nets and come back, and then you run all this miles out to [the] hook line and bait all those hooks and try to get done before the weather got bad and then go home again, dress the fish and ice it, and then, beside that, you go up and wash the bait nets. They'd get dirty in the daytime, you know, when they were put in the water... (Sivertson 1990c:17).

Roy Oberg recalled the movement of groups of fishermen around the Island to the various fishing grounds throughout the season:

Like on the north side, there, they...would go out there early in the spring and fish...in Little Todd [Harbor]. Many years. In fact, my grandfather did because it was pretty good fishing. There's a bank out there...Oh, they fish for 40, 45, 50 fathoms of water where they get trout in the spring of the year. But they'd
just stay there for probably two, three weeks, or maybe a month. And then they move on, see? Most of these fishermen on Isle Royale all did that. Like in the spring of the year...biggest share of them would be in Rock Harbor. There was a few in Washington Harbor because they could fish herring up in Windigo, see? Up in Washington Harbor... and then Belle Isle, there was a bunch in there. That fish herring. And a lot of them used to flock into that...Pickerel Cove, there by Belle Isle. They used to be 25, 30 fishermen in there. They said the nets was just solid in there....the thing would be all full of herring and they'd put net after net to block the entrance to that thing...(Oberg 1990:5-6).

For a time, there was a good market for frozen herring in the developing West. Marcus Lind, a long-time North Shore resident, recalls that end of the business:

Well, you see, they started freezing--it depended on the weather, but around the first of December. And you could start then. But usually, you know, they just take them herring--it was all herring--they never cleaned them, you know--laid them off on the rocks. And you couldn't just dump them, you have to lay them quite straight, you know. And then the next morning you'd have a gunny sack and one guy [would] hold the sack and you'd throw them in there so they were pretty much one direction, straight, you know...about a hundred pounds for the sack. They weighed them and then sewed them together with...a couple of ears on them...[using a] sack needle and seaming twine. Then they were easy to load them, they had to lower them in the skiff and then row them out to the boat (Marcus Lind 1990:10).

But, you know, in them days you'd get what you'd call a January thaw. And if you had fish anywhere frozen--I know we used to stock them down there...[in] the shade down along the fish house there and cover them over, you know. But that's why we built that building. That building was built about in 1924. Insulated it and then if the herring were frozen, you know, and you put them in there, and you probably have eight, ten
ton of herring in there. Well, you know, they'd keep then...because usually that weather would, well, you'd probably get a few days, you know, it would get pretty, pretty warm. Well, that's why we built that building.

And then, of course, about then, oh, first of February, middle of February, then that business would die off....And then sometimes you get that warm weather, there was a lot of fish that got spoiled on the shore, you know, and then there was some of them guys from the highway come through in '24. They started mink farming, you know, and boy, did they have mink farms...[They] bought that herring, you know...you couldn't sell it for fresh fish. You maybe could thaw it out. But they had freezers where they could freeze them again, see? And then, of course, we hauled a lot of that stuff up on our field and plowed it down, used it as fertilizer. And did we get a crop (Marcus Lind 1990:11-12).

FISHING TECHNOLOGY

The technique of hook line fishing for lake trout was introduced by immigrant Scandinavian fishermen (Karamanski and Cochrane 1991:86). The hook line had the dual advantages of being both a "cheap rig" (Lind 1990b:13), and a very successful, if labor-intensive, method of catching fish (Karamanski et al. 1991:86). Its use was a two-stage operation. In the first part, fishermen would set and haul small-meshed gill nets, typically from skiffs, to obtain bait fish, usually herring. These were brought back to shore and prepared, and in the second stage, taken out to the sets in deep water, where they were used as bait on the hook line rig itself (Karamanski et al. 1991:93).
Stanley Sivertson fished hook lines for many years, both with his father Sam and his older brother Arthur. Stanley described one of his own hook line rigs (Figure 6). The main line or horizontal line was the heart of the rig, and was made of size 72 metre line, approximately 1/8 inch thick. Each main line carried 30 hooks spaced 10 fathoms or 60 feet apart, which were attached to lines called "snells." The snells hung from the main line and were of various lengths, ranging from 8 fathoms to 30 fathoms. Typically, there was a 3-fathom difference in the lengths of adjacent snells, the lengths being staggered so the hooks would catch the attention of the fish, which would swim curiously around the rig. At the bottom of the snell were a lead and the hook (Sivertson 1990c:17; Stanley Sivertson pers. comm., April 15, 1992).

Floats held the main line at a particular depth in the water. Each float was made up of three cedar bobbers and was attached to a "float string" of size 36 metre line, which was in turn attached to the main line. Each float string was 5 1/2 fathoms long, and there was one for each snell, the floats also serving to bob the hook and hopefully attract a trout to the moving piece of herring bait (Stanley Sivertson pers. comm., April 15, 1992).

The main line extended 15 fathoms beyond the first and last hooks, and was anchored and marked at each end. A
FIGURE 6. A section of hook line rig.
cedar buoy on the surface served as the marker. Anchors were first made from big rocks of appropriate shape which were obtained from shore. These were notched with a rock chisel so a strap could be fastened around them. At approximately 150 pounds each, they could hurt both man and boat if not handled carefully. Later on, sacks of gravel of the same weight were used instead. The anchor line was of size 72 metre line, the same as the main line, and attached these weights to the main line. Stanley originally fished using 10 of the rigs described above. (Stanley Sivertson pers. comm., April 15, 1992).

In going out to harvest the catch and rebait the hook lines

...most of the boats were rowed and sailed, and first they were sailed and rowed and then finally they were rowed and motors. Motors would run them out to the hook line, but they'd use the oars at the hook lines. And then when this Earl Eckel came with me, he couldn't row, so he—we started pulling the main line. He'd stand up in the bow and pull the main line, and then he'd throw the snell back to me and I'd catch it there, and see?...I'd kid him because he had to pull 10 fathoms to get to the next hook...[and] snell. And float....but you had to pull that boat, you know....But anyway, one day I kidded him, I says, "How come," you know, "you can--I can pull up this 30-fathom snell, and change the bait on it, and get it out before you can get me over to that next hook, there?" you know. Because we were always trying to do it as fast as we could, because, you know, you only had so much time....I kind of half-kidded him when I said, "How come you can't get to that next float there, next hook, by the time I get this snells, even if they're 25, 30 fathom long?"...
"Well, Stan," he said, "the RUTH is no herring, is it?" This was very true. He was pulling this whole boat and all I was pulling up was maybe a trout or the empty bait or what we changed (Sivertson 1990c:16-18).

Stanley believed that the fish could learn from experience, so that "As the fish got more educated, you know, and then we had to get more educated, too...when the fish did get more educated, why, they weren't fooled by the bait as easy. [Instead, they would]...go and catch another live herring that was swimming around" (Sivertson 1990c:23-24). As a result, the techniques of fishing were never static. There was a need for constant experimentation with hook line technology and methodology--in Stanley's words, "...there was a kind of a scientific fishery" (Sivertson 1990c:25).

He gave one example using the difference of opinion on how taut a hook line rig should be stretched: "So at first when people fished...maybe when the fish weren't educated so well, and maybe there was more fish, too--they could set these lines tight...So you could row and just let this line run on the pin [the running pin, set in an oarlock to guide the hook line into the boat]...And they wouldn't tangle up" (Sivertson 1990c:24). In later years it was discovered that a hook line rig would fish more effectively if it was set with a certain amount of slack in the line.
...you try to set the lines so that the current would hit it right at a 90 degree angle. You know, so that it'd bow the lines like that. They fished better that way. But, when the current was shifting, which always happens, sometimes... it would...take that slack then in around the anchor line. Because the anchor lines didn't move, you know. The anchors didn't move. So... some of the fishermen that didn't have the patience, they'd cut that slack out. Well, that made their line tighter, and they could row over, or they could use the motor, and the line would run on the pin. But then they'd stop getting like as much fish. Because then the line was too stiff, and when a small wave would come along, or even a bigger wave, the float would have a chance to sink, and wouldn't pull the line up and bob that bait down there as much....I tried telling some of them, you got to have the line slack, but when you had them slack, you might [have] to [stay]...by the buoy, there, for 15, 20 minutes sometimes, or half-an-hour, clearing up all these hooks. And then the fish would go and swim around the anchor line, and boy, you'd have to try and get that up, and if there was hard current, it was awful, you know...pretty awful. But, if you cut it out, then your lines didn't fish as well, see? Because you were depending on that little float up there to bob the hook. And if you put on too big a float, it would pull the bait off, see? (Sivertson 1990c:24-25).

Fishermen also experimented with different colored snells, finding that more fish might be caught on a snell of one color than another (Sivertson 1990c:25).

Stanley recalled that hook lines continued in use up until the onslaught of the parasitic sea lamprey without having diminished significantly in popularity. In addition, he stated that the floating gill nets which superseded them came into being at about the same time the lamprey first appeared. The appearance of these parasites,
which preferred to stay near the bottom, seems to have been responsible for an adaptive change in behavior by the trout, which Stanley noted were suddenly at the "surface" (Sivertson 1992b).

Regarding the gill nets,

[They]...were the...[main] type of net used on Isle Royale, and Lake Superior. Adaptable...[to] shallow or deep water[,] gill nets were efficient fish catching technology. Gill nets function[ed] as underwater fences, [and] fish swimming unwittingly into the mesh were caught as their girth...[prevented] them from swimming through the mesh and their gills stopped them from escaping backwards. The more "invisible" the net, the better...[it] perform[ed] as fish...[did] not see and avoid...[it]. The size of the gill net mesh...[determined] the size fish caught. Mesh size, location, and depth of the net...[determined], in great part, the type of fish caught (Karamanski et al. 1991:83).

Karamanski et. al., report the length of a typical gill net as being 200-300 feet (Karamanski et al. 1991:93), while Rakestraw claims 350-400 feet (Rakestraw 1968:19). In any case, the nets were approximately 12 feet wide (Oberg 1990:14) and "...were set at a given depth, weighted by stones and marked by floating buoys. Each fisherman had several 'gangs' of such nets" (Rakestraw 1968:19). "Two or three gill nets composed a box. Island fishermen typically worked two men to a boat, handling 10,000 feet of nets a day in favorable weather" (Karamanski et al. 1991:93).
Roy Oberg recalls that during the spring herring run, there could be as many as 30 or 40 fishermen setting gill nets in Rock Harbor:

Most of the fishing was right there by the entrance. Some places you could almost walk on the buoys, they were so close together. They just, almost get their nets tangled together. And still everybody got fish. Some of them would put a little deeper or lower, you know, because the nets was only, well, about 12 feet wide... And then another thing, on each end...they have bridles that was 12 fathoms long. And on the end of this net there's 12 fathom and the end of that net is 12 fathom. Well if you set your net this way, then, [to overlap the bridles on another net] you'd catch the ones that come through where these long bridles were. So they, they overlap that way, but each one didn't get tangled in the other one (Oberg 1990:14).

VERNACULAR BOATS AND COMMERCIAL FISHING

The different types of boats which developed on Isle Royale and in the western Lake Superior region formed a complex and interconnecting web that hung on the environmental and technological framework described above. On the North Shore, herring fishing predominated and the lakemen fished them "on the slides," that is, set gill nets from beach-launched herring skiffs. Some used the larger gas boats for setting hook lines and gill nets, or even the all-enclosed fish tugs which were used to set and haul nets during the winter months (Sivertson 1990c:16,19). However,
the lack of good harbors meant that most boats had to be
small enough to be hauled out of the water when not in use.

On the South Shore, where the catching of whitefish
predominated, the presence of more sheltered harbors led to
the use of fishing tugs (Oberg 1990:25; Karamanski et al.
1991:82-83,88). Such vessels had a greater range, an
important advantage in reaching distant fishing grounds.

On Isle Royale, where lake trout was the mainstay of
the fishing industry, the abundance of good harbors allowed
the use of larger boats, but there that meant the
dependable gas boat, which could maneuver more readily in
the reef-strewn waters (Karamanski et al. 1991:83). They
were used for setting hook lines and gill nets on the
offshore fishing grounds. Herring skiffs were also used,
but for gill netting in inshore areas. According to Roy
Oberg, "...the guys that fished trout used gas boats, and
the smaller skiffs and stuff were used in the inshore. But
when they started to go out into the lake further, then
they used up to 20-foot, 25-foot [boats]" (Oberg 1990:12).

A few tugs were present, but in nowhere near the
numbers used on the North and South Shores. Stanley
Sivertson explained:

...those big boats were all closed in for winter
fishing. We didn't fish at Isle Royale in the
winter. So, that was one thing. And the smaller
boats, you could fish gill nets and hook lines
both. When you were fishing hook lines, you
couldn't have any top on the boat the way we fished these floaters...we were throwing lines over, and float's over, and snells over. Then Tommy--Tommy Eckel now, he's the only one I know that did get a boat with a little shelter on the bow. And he used that after they got motors, but when we were pulling these boats or rowing these boats, you had to set up in the bow and row them, you know. So you didn't want a big expansive cabin out there to row on the windy side of the boat, you know (Sivertson 1990c:16).

These Island tugs were useful for hauling supplies, as well as bringing fishermen and their families to and from Isle Royale at the fishing season's beginning and end. For example, the Johnson brothers, Milford and Arnold, used their tug JEFFERY to haul gear and food out to the Island in the spring and for moving off at season's end in the fall. Other Island families rode out on the JEFFERY as well (Stanley Sivertson 1991).

The fisheries on the Island and the mainland were tied into the sales and distribution end of the industry by the large, fish company steamers which made runs out to the Island and along the shore to drop off supplies and pick up the catches. Roy Oberg recalls how the fishermen were at the mercy of the captains of such vessels:

And then there used to be two or three big steamboats that hauled fish, see....the big boats had like Grand Marais, Tofte, Lockport...and Two Harbors, and Knife River, and wherever there was a big dock, see, where the big boats would stop. Otherwise they didn't stop on all these little places...a fisherman would have to haul his fish over to there, see, to get it shipped. That's why there was nobody along the north side of Isle
Royale fishing, because there's no harbors, and wherever harbors were, the boats used to run at night. Like the guys at Amygdaloid, the guys at Amygdaloid used to have to get up four o'clock in the morning to meet the boat. To ship their fish. They'd have to get up four o'clock in the morning, and like in the fall of the year, four o'clock is so dark. Same thing in the spring of the year. Four o'clock in the morning's dark yet. So they used to have a light there....

Andrew and them, they used to walk out on that point on Amygdaloid Island....I call it the Pig Point. That's what I nicknamed it. And up on there, in the tree, they had a little bracket like the boats' lights, and they'd light a light in the morning and go up and put it in there. So they could see when they came, you know, when it was clear weather. Then they used to have one of them fog horns that you pump on. And they'd go out and meet the boat when it was time. They'd hear him whistling out there, you know. They go out and meet the boats there. That's why they were the first ones along the north side where there was fishermen. Otherwise you had to get up at night. Milford and Arnold fished out of Little Todd one year....They had to haul their fish to Washington Harbor during the day, then, because the boat come around from the other side, see. [It)...circled the Island in the morning until evening. And afternoon, then, about four o'clock--most of the time, four--three, four o'clock in the afternoon it'd come around by Washington Harbor. And then, that was their last stop until they got over on the North Shore (Oberg 1990:26-28).

Eventually, two factors worked to lessen the monopoly held by those who shipped the catches. First of all, those fishermen not fortunate enough to be located at or near one of the regular steamer stops were aided by an unusual confederation of small, independent operators: the Mosquito Fleet. This was a group of a dozen or so small boats that belonged to "small-time independent fish
companies on the North Shore" (Ingeborg Holte pers. comm., August 5, 1980) and hauled fish from there and Isle Royale (Oberg 1990; Holte 1977:9). They were so named because they were pests to the big steamboats that did the same thing, stopping in at all the fisheries where the big boats couldn't or wouldn't go (Oberg 1990). Roy Oberg's father ran one such small enterprise.

...we lived in Duluth...in the winter time, but he'd go out to Isle Royale and fish...And he'd fish out there, and then he'd haul fish back and forth, and he used to haul fish up along the shore....he picked up fish along the shore...from Pigeon Point to Grand Marais and then he'd haul it in here [to Grand Marais] and unload it. And then he put it on a big boat that would haul it to Duluth, see? So he just done the picking up at all the different little stops along the way. And just like they--big boats couldn't stop at every little place along the shore, it'd take them too much time, see? Where these smaller boats could do that. And then they could wait for the fishermen to bring the fish out and stuff like that (Oberg 1990:2).

The second factor was the construction of roads to the north of the city of Duluth in 1924. Prior to that time, all transportation along the North Shore was by water (Karamanski et al. 1991:91), an advantage the steamer captains did not hesitate to exploit. Roy Oberg remembers one of the first times the alternative route became available:

...when Christiansen run the WINYAH along the shore, there was a few places that he would get fish from fishermen where there was no road and no trucks could get in. But every time he had
one of these places, he'd just work the guys almost to death to get their fish on board and get going again to save time. I laugh, because one of my uncles... had a fishing place...oh, between Chicago Bay and Brule River... And he worked like heck there, for a couple of years, trying to get a road so he could drive in there. And finally, he had an old wrecker. He had a garage, too, up on the upper road. And he finally got this old wrecker in there. And he always laughed about this, because the first time he got this wrecker down there, he drove it right down on the bank by the fish house. The next time the WINYAH come along to pick up his fish, boy, he had lots of time then. He wasn't no hurry at all, when he finally see that they got in there with a car (Oberg 1990:2-3).

CAPTAIN ROY OBERG AND THE ART OF NAVIGATION

Isle Royale boats had to function in a wide variety of meteorological extremes, from punching through the night ice of early April (Howard Sivertson 1991:8) to withstanding the battering of the fall gales. They spent the winter months hauled up on shore and at the start of the season in April were slid into the water with not much more than a new coat of paint. Captain Roy Oberg operated a series of five freight and ferry boats that served the residents and visitors on Isle Royale throughout a career that spanned 50 years until he retired at the age of 75 (Oberg, n.d.; Oberg 1990:28). These were the WOOD SHED, a gas-powered 26-footer (1936-1942); the RITA MARIE, a gas-powered 35-footer (1942-1944); the DISTURBANCE, a twin-screw gas-powered 38-footer (1945-1954); the COPPER QUEEN,
renamed the VOYAGEUR, a single-screw diesel-powered 48-foot (1954-1971); and the VOYAGEUR II, a diesel-powered twin-screw 63-foot (1972 until his retirement in 1986) (Oberg n.d.). He has seen Superior in all its many moods, and experienced all the quirks and perils of small craft operation at Isle Royale, including both natural and man-made hazards. It is worth quoting some of his recollections to gain a perspective on just what the operators of Isle Royale small craft had to face as a matter of every day "commuting."

Roy got his start as a boat operator at a very young age.

...I went on the lake with my dad when I was real small, and he got cramps in his stomach....[The two had gone out to tend a hook line.] But he went out there, and he got real bad cramps in his stomach. [Their boat had an]...old one cylinder engine, and he got it started, and he asked me if I knew which way was home. We were out of Tobin's Harbor probably 4 or 5 miles out in the lake someplace. I pointed. He said, "All right, you steer that way, then," and he lay down on his stomach in the bottom of the boat until we got close to shore. And I didn't even remember it...Later years, then I heard him tell that, and I didn't even remember it, I was so little...I would have been about five, six years old (Oberg 1990:3-4).

He began the actual work of hauling supplies to the Isle Royale fishermen in 1936.

Most of the time I started hauling ice down to Wright's Island for Sam Johnson's fisheries, because they used to ship fish out of Duluth on the WINYAH, and every time they shipped the ice
out on the WINYAH, they didn't even cover it. They just set it up on the steel deck, and by the time they got there most of it was all melted. Ed Holte always used to say, when he come here to the dock, all he did was pump it out onto the dock because they didn't get anything left. So I used to haul down then, oh, probably once a week, or maybe every 10 days or so, about a ton, ton-and-a-half. I'd take about a ton-and-a-half in that 26-foot boat (Oberg 1990:4).

It took some time for Roy to learn the ins and outs of circumnavigating Isle Royale.

...when I first started there, then each fisherman would tell me how to get to the next guy's place, and whenever I got into a strange place, I'd just throw out a trolling hook and troll until I was sure where I was going, till I found out where all the reefs and stuff were. Them days all we had was a compass and a watch, you know. We didn't have all these modern gadgets that they got now. Nothing to it now. It's just like shooting fish in a barrel, as long as the machinery works. Someday somebody's going to get caught out there, and they're going to have a breakdown and they'll have some fun with it (Oberg 1990:5).

He, himself, had "Just a compass, and then each fisherman would tell me how to get to the next guy's place. And it was only 4 or 5 miles between each one, except like on the north side. The north side was the longest stretch, and it still is. Where there was no people living..." (Oberg 1990:5). Weaving in amongst the many rocks and reefs of Isle Royale is something of an art. In the zero visibility of the Island's dense and frequent fogs, it approaches magic to the uninitiated. It was reported that Captain "Indian" Smith of the famous
steamship AMERICA could navigate by smell, presumably using his knowledge of the location of certain patches of local vegetation, and used the echoes of his horn blasts as a type of primitive sonar (Sivertson 1990a). Captain Oberg's own methods were somewhat more rudimentary:

Well, you use a run time. You just run so long, so many minutes this way, and so many minutes that way, and you have it marked down. After a while I got so I could remember most of it. Except one time on the south side....I was running on the old BRIDGET and I knew what time I was supposed to turn. I was going down past Long Point, and I looked at my watch and--quarter after four. I run another ten, fifteen, twenty minutes, I don't know, and I looked at it again--quarter after four. Wasn't yet. About four-thirty I was supposed to turn, and I looked at it the third time, and I [said]..."Jesus, that's what it was the last time I looked at it." My watch had stopped. I had one of these winding pocket watches hanging on the wall. And it had stopped on me. So then I shut the engine off and listened, to see if I could hear Rock of Ages lighthouse, and boy oh boy, I could barely hear it...So I think I run back 45 minutes before I got back into Rainbow Cove. So, some funny things like that happen (Oberg 1990:7).

He described another one.

The closest one I really had was...right west of Long Point, when I come up there along the south side, and I cut my time five minutes short. I figured wrong and all of a sudden, I looked up in the fog and there was tree tops right...in front of me. I was so close that I didn't even have time to slow the engine down. I just grabbed the reverse throttles and pulled them into reverse and the engines died, and I pressed the starter button and started them in reverse. And I stopped before I hit the beach, but it was close that time. That's about the closest disaster I ever had.
No, I had one other one, too...down by Locke Point one time. I was coming around from the south side of the Island, going into Belle Isle. And that rock over there. That's... when we first had that old COPPER QUEEN, they called it. We made it the VOYAGEUR after...Sivertsons bought it in '54....So I was going west then, and all of a sudden, I looked up and here was that rock that is just there outside of Locke Point, that outer one. And I looked at the thing, and I was just going to swing her over when I thought, "No, I'm inside of that thing." I looked at the compass and glanced where I was, and I was inside. And there's a long reef there, about, oh a quarter of a mile long. Here I was on the inside of that reef, and by the time I got the boat stopped, the water was breaking alongside of the boat there, about 50 feet from where I was. If I'd have turned over--naturally, that's your instinct, to turn for deep water, you know--But then I took another look at that compass and I realized then that I was inside of the reef. Yeah. Them were about two closest ones. They were almost disasters (Oberg 1990:7-9).

There were man-made hazards as well as natural ones:

I know, the spring of the year, one time, I pretty near run into a net right outside of Cemetery Island, there, in the evening. I was going up slow, and there was some drift ice. And this drift ice used to come along and catch the floats and pull the nets up. And the net was full of fish. And there it was laying, right in the drift ice. And I was just going slow, and looking...at chunks and stuff, and all of a sudden I see a line come in the water like that. And I knew there was something wrong, so I took her out of gear and just waited, and sure enough, there was a net there, floating. It was full of fish. I looked on the side, there's a fish. If I'd have kept going, I'd have wound all that stuff in my propeller and got stuck with it. So, I had to wait, then. There was a little...west wind, and I waited until it drifted back. Till the boat drifted back. I didn't dare even back up till I got clear of the net...So that had pulled, and the guys had been ice[d] that morning, they couldn't get them nets up. That's
why they were there, yet. They hadn't got the fish out of them, even (Oberg 1990:14-15).

Roy viewed such encounters philosophically:

I always said that my idea is that, like my grandfather, he lived to 90, and I think that that was because every time you get into one of these close calls your old blood starts a-pumping, and I says it's just like giving you a transfusion or a purge of some kind. I think that that helps you in the long run (Oberg 1990:15).

In 1986, Roy Oberg retired, after captaining a series of five different boats (Oberg 1990:28). He has learned from those who went before him: "...Old Andrew, the old fisherman at Amygdaloíd had told me lots of things. He give me lots of tips on the lake, because he was an old timer from Norway, and had, you know, grewed up on the ocean, even" (Oberg 1990:29). In addition, he has built upon that with 50 years of his own experience. These days, such men are not easily found.
CHAPTER V

ISLE ROYALE BOATS AND THEIR USES

DESCRIPTION AND DEFINITION: TYPOLOGY

Critical to any discussion of Isle Royale and North Shore vernacular watercraft is some sort of typology by which they can be classified and defined. This project was fortunate to have been able to take advantage of the ground-breaking work of Toni Carrell, Ken Vrana, and Larry Nordby in the Submerged Cultural Resources Study of Isle Royale National Park. They reported:

One of the problems faced by anyone attempting to describe or discuss vernacular craft is terminology. Like most of the country, small craft types on the Great Lakes have not been well studied and nomenclature varies from area to area. It also varies from person to person depending upon age, ethnic background, and even occupation. "They pretty much called them whatever they wanted to call them" (Marjorie McPherrren personal communication, February 1987). Fishermen and boat captains not only viewed their vessels differently than vacationers and pleasure craft owners, the two groups referred to similar vessels using different terminology. To further complicate matters, the same generic term, such as skiff, was used to describe entirely different vessel construction....

It will be quickly recognized that much of the vessel terminology is both functional and descriptive....This is not intended to be a thorough examination of the wide variety of craft either present or used around the island. Rather it is a brief overview.

With the above caveat in mind, the general categories of vessels, often referred to as boats regardless of their size or function, include: sailboat, skiff, rowboat, gas boat, launch, fish
tug, work tug, passenger boat, steamboat or steamer, and yacht. These can further be broken down into inferred categories of use: commercial, recreational, or private (not for hire) (Lenihan 1987:457-458).

Only some of these types were encountered during the Isle Royale Vernacular Boat Study, which documented examples of the following: birch bark canoe, sailboat, herring/fishing skiff, rowboat/rowing skiff, gas boat, launch, and rowboat/outboard boat. The canoe will not be discussed, as it is not directly relevant to the commercial fishing and resort industries that were the main impetus for boat development during the study period.

OLD WORLD CONNECTIONS

It is generally agreed by the American descendants of the Scandinavian immigrants who came to Isle Royale and the North Shore of Lake Superior that their parents and grandparents brought with them their knowledge and abilities and even tools, as far as boats and boatbuilding are concerned. Once in the Great Lakes region, and faced with a need for boats, they designed and built what was familiar to them. This much is agreed upon by those interviewed for the study, but unfortunately, none could recall specific techniques, tools, or even terms brought from Old World boatbuilding. Certainly the construction of such boats as the popular gas boat reflects the
Scandinavian tradition of "shell first" construction, in which the plank hull is built first, with thin, flexible frames laid in afterwards (Hasslof 1957:49,51).

According to boatbuilder Reuben Hill, the immigrants did indeed bring their methods and tools with them to America. "...There was a few here on the North Shore that made small boats. Not too many, but I mean so they did know something about boat work, that came from the Old Country" (Hill 1990c:10). He stated that many of those living on the North Shore were Scandinavian immigrants. "And of course, their means of livelihood was fishing. And of course, they had to make them, that's all...They couldn't walk on the water. So...many of those that did work on boats, you know, built them from scratch" (Hill 1990c:9).

This is exactly what was done by Sam and Mike Johnson upon their arrival in the area from the Baltic Sea coast of Sweden, as Sam's son, Edwin Johnson, described to interviewer Barbara Sommers:

Johnson: Oh yes. The first boat that they had--my dad and my uncle went up in the woods and cut the logs and sawed the planking. All by hand.

Sommers: What kind of wood?

Johnson: Cedar. They ripped it all up and built the boat--a big sail boat.

Sommers: What kind of plans did they use? How did they know how to build it?
Johnson: Oh, they knew. They'd seen others around.
Sommers: Was the boat like they had seen in Sweden?
Johnson: Yes, they used that quite a bit, I guess. (Johnson 1977).

And even those who couldn't build boats themselves had at least seen them where they came from and so knew something about what they wanted for themselves (Hill 1990c:10).

That material connections did exist between the Old Country and America is evidenced in other examples of material culture as well. Dr. Cochrane explains:

For example, Mike and Sam Johnson built a log cabin at Wright Island using patently Scandinavian construction techniques such as interlocking "fang" or "cat" log notches and shallow pitched roof (Cochrane 1990; Erixon 1937). Clearly, Mike and Sam Johnson were building their residence using ideas and folk technology imported from the Old Country. This same importation of Old World ideas, technology, and even aesthetics likely influenced western Lake Superior boat building traditions.

Perhaps as important as the material connections with the Old Country--either Norway, Sweden, or less commonly Finland--is the perceived connections. Here, boat builders and users are merely reflecting a regional attitude of pride towards their Scandinavian roots (Tolson and Cochrane 1992).

Such feelings were expressed by fisherwoman Ingeborg Holte, who had pride in her "viking" ancestry (her family members were fisher folk back in Sweden). She also verbalized the widely-held belief that immigrants liked
Isle Royale and the North Shore "...because it was like the Old Country" (Holte 1980b).

Reuben Hill's own father occasionally said words to the effect of "This is how we built them back in the Old Country," but according to Reuben, "...the thing he stressed particularly, he said, 'If you're not going to do a good job, leave it alone. Don't mess with it. Because you're just in trouble, that's all!'" (Hill 1990c:17).

When boatbuilder Hokie Lind was asked if his father ever offered comparisons along the lines of "This is the way we used to do it in Norway," he responded: "Yes, well. Yeah. That was a kind of a password, you might say. In Norwegian, 'That's the way we done it over there,' in Norway. And I don't remember distinctly anything that you could compare, but they had the courage. They didn't back up for anything" (Lind 1990c:12).

Dr. Cochrane observed that:

For Hokie, there is a continuity between the Old Country and the new, defined by pride and courage. Island fisherman Gene Skadberg mentioned that the frequently heard statement, "...like made in the Old Country" meant the object was made well (Skadberg 1990). This pride in the Old Country was not always so widely held. Children of Island fisher families, the Johnsons and Skadbergs for example, were ostracized by mainland students for speaking the old language in school. And for some families this link between Isle Royale and Old Country ways was particularly authentic; for some the Island served as an ethnic reservoir which buffered
adults and children from the forces of immediate acculturization.

The most dramatic expression of this perceived link and association of quality with the Old Country are the unusual events surrounding the dedication of a boat built by Reuben Hill, the CRUSADER II. The boat was purchased by Carl Erickson who had the boat christened by Crown Prince Olaf of Norway in 1939, and who Erickson knew from childhood in Norway. Later, the Lake County Historical Society acquired the CRUSADER II as a "centerpiece attraction" to their museum. Finally, in 1991, the boat was rechristened by an emeritus member of the Council for Norway when unveiled at the Lake County museum (Setterlund 1982; Lake Country News-Chronicle 1991:5). Ironically, the CRUSADER was purchased by Erickson, a Norwegian-American, but made by Mr. Hill a "Swede-Finn." While the boat's "ethnicity" is a bit mixed, the message is not: it represents the best of the Old and New building tradition. Like the CRUSADER, the tradition of Island boats is clearly perceived as linked to Old World traditions (Tolson and Cochrane 1992).

SELECT BOATS

Mackinaws on Isle Royale

Sailboat is a general term, referring to any vessel propelled by sails, size notwithstanding (Lenihan 1987:458). A description of some of the earliest use of sailboats on Isle Royale comes from Mike Johnson, a founder of one of the oldest and best-known Isle Royale fishing families. A sailmaker by trade in his native Sweden, he came to the Island in 1892 to join his brother Sam, who had arrived the previous year. The two began fishing in
Amygdaloid Channel, but moved to Rock Harbor to avoid other fishermen there. He recalled all the fishermen using sailboats at that time for setting nets, and in fact, the brothers abandoned fishing in the Rock Harbor area because headwinds alternating with a lack of wind made it necessary for them to enter the harbor with oar power rather than under sail. They moved their operation to Chippewa Harbor simply because of the better sailing conditions there (Johnson 1942).

The type of sailboat most often associated with Isle Royale and the North Shore is the Mackinaw boat.

Well, my dad had two sailboats, and I guess they called them both Mackinaw boats. And one was a sharp stern, that was a...26-foot vessel, and then there's one, parts of it are still kind of buried behind our house there, but that one was only about 20 feet long...that had a square stern, but it was still called a Mackinaw boat, but it was actually kind of a catboat.

But, I can remember him telling me one time that they came from Fisherman's Home, and it was blowing hard southeast wind. And when he told me the time they made it from Fisherman's Home to what we called "the bell" [a distance of some 20 miles]. That's where the bell that they used to ring for the steamer AMERICA when they came in on the northeast point of Washington Island. He said it was 2 hours and 10 minutes. And the only boat of ours that would beat that record with engines in it is the VOYAGEUR II [the twin-engined ferry boat that serves Isle Royale from the North Shore]. The WINONA couldn't make it, the fish boats we had later with the engines in them, they never were that fast. But they had a strong wind. And I guess the vessel was a pretty good sailboat because they made it in 2 hours and 10 minutes (Sivertson 1987).
In fact, this is probably the best-known type of vernacular watercraft on Lake Superior, although it appears to have ranged much farther than that. Evan S. Connell records that

During the fall of 1863 a Mackinaw boat...en route from the Montana gold fields to civilization stopped at Fort Berthold. Aboard were seventeen men, one woman, and two children. Fred Gerard was shown that the boat had a false bottom, and concealed in this space were sacks of gold estimated to be worth $100,000 (Connell 1984:239-240).

She was a long way from home.

Probably the standard source of information regarding the Mackinaw--certainly the one most often quoted--is Howard I. Chapelle's *American Small Sailing Craft.* Recently, however, some of Chapelle's conclusions regarding the Mackinaw have been called into question in an exhaustively-researched report by boatbuilder Rodger Swanson in *WoodenBoat* magazine. After an examination of a hull, half models, lines, journals, oral histories, and other accounts, Swanson reached some interesting conclusions of his own.

...I found that the term "Mackinaw boat" originally referred to any small sailing craft in use in the area of the Straits of Mackinac. The earliest references to small craft of European introduction are the bateaux brought in by the French, who had established themselves throughout the Upper Lakes and were using craft of their own making well before 1700. Flat-bottomed double-enders, bateaux were customarily rowed, paddled,
or poled. Some, however, were fitted with sails for use when a favorable wind presented itself.

Some time after 1790, "Mackinaw boat" as a defining term was restricted to doubleenders; most often flat-bottomed boats modeled after the bateaux. By 1830, the term was further restricted by some to round-bottomed doubleenders.

Indications are that bateaux were in use by 1700. While most often mentioned by historians in connection with the fur trade, it is doubtful that this was the only use to which they were put. It would be surprising if fishing wasn't one of them....I suspect, then, that Mackinaw boats as a type were strongly inspired by the pre-existing bateaux and that any continental influence in their early evolution emanated from France and not from England or the colonies in the East (Swanson 1982:106).

Swanson created a composite definition of the Mackinaw boat from what he considered the three most frequently consulted sources of information of the subject, the books Ships of the Great Lakes and Georgian Bay: The Sixth Great Lake by James P. Barry, and the previously-mentioned work by Chapelle. It goes as follows:

A double ender of 18-30' plus in length, plumb stemmed, marked rake to the sternpost, half decked, two masted (usually gaff ketch), round bottomed, fitted with a centerboard, and sporting a jib set on a hogged bowsprit. Planked, either lapstrake or carvel. Original waters of use--the Upper Great Lakes. Often associated with the Straits of Mackinac. Certain specific variations associated with time and place (Swanson 1982:100).

Does this accurately describe the type? Following his investigations, he concluded:

In reviewing all the examples I came across, it appears that Chapelle's mention of half decks as
a characteristic of Mackinaws would be accurate in most instances....

As to vessels having two masts, that generally holds as accurate except in smaller craft...As for larger craft, 26' to 28' in length, one reference mentioned that the faering types from the northwestern Lake Michigan area were often sloop rigged.

In length the estimated size range, 18' to over 30', is consistent with few exceptions.... Twenty-six feet in length seems to have been average.

In his general description, Chapelle mentions that for Mackinaws, a plank keel was standard. I found it so. This preference may have been based on structural and usage considerations. All sailing models were equipped with centerboards--a plank keel provided for the cutting of the slot and fitting of the case on a single surface, which made for a stronger unit. The keels were customarily fitted with sacrificial shoes, saving the hull's wear when the boats were beached (Swanson 1982:106).

By their very nature, small craft develop regional characteristics as styles and methods of construction are combined in particular ways to suit unique circumstances of economics and geography; it is thus that "Small boats became true folk or vernacular artifacts" (Fuller 1990:2). Eventually, such boats move from one area to another, as does the knowledge of their builders.

Builders' knowledge also moved with builders. Moving into boat poor areas, they brought designs and methods learned in their apprenticeships. In some cases, such as the Chesapeake, where the need for boats outstripped available boat builders, settlers adopted native craft: the dugout canoe, enlarging it by applying new tools and joining methods to the form (Fuller 1990:3).
This is certainly what happened throughout the development of the Mackinaw boat, which did, indeed, exist in a number of variants. Chapelle describes three: the Collingwood skiff or Lake Huron Mackinaw boat; the western lakes Mackinaw boat; and a clench-built/lapstrake version with "very raking bows" and "very hollow garboards" (Chapelle 1951:180-182). Swanson examined the plans he believed Chapelle had referred to in describing this last type, a vessel reportedly designed by Christian Skaugh of Stonington, Michigan in 1887. Another boatbuilder who examined these plans observed that the vessel depicted strongly resembled the Norwegian craft known as a faering. The plans and a half model made from them were shown to a boatbuilder who himself constructed faerings, and had served an apprenticeship in Norway. He, too, commented on the similarity between the two (Swanson 1982:103).

According to Chapelle, the variant used on Lake Michigan and Lake Superior (the western lakes Mackinaw) was "...unquestionably the finest of the Lake types, for they were not only fast but were also very fine seaboats" (Chapelle 1951:182). Ingeborg Holte, in her turn, commented that "Nothing was more excitingly beautiful than watching Papa's return from the nets. His two-masted Mackinaw sailboat would come into sight around a rocky
point. Sometimes with sails unfurled and billowing in the wind" (Holte 1984:33).

Those who actually had to sail in them viewed them from a slightly different perspective, however.

I heard the stories through my dad telling about them, and they were kind of--oh, let's see--treacherous...in the summertime when you got a sudden squall--you know it, you've seen it--they couldn't get the sails down in time in the early period there, why, there were a few fishermen drowned because those boats capsized before they got the sails down (Sivertson 1987).

Chapelle stated that the Lake Superior Mackinaws possessed

...a very strong sheer and a high, bold bow; almost plumb stem; marked rake to the post; and much drag to the keel. The beam is carried well forward and the run is long and fine. The midsection of these boats varied somewhat from boat to boat. The models inspected and various descriptions show that some boats were built with straight, rising floors, while others had some hollow at the garboards. The construction was conventional; bent or sawn frames were used, and a plank keel was standard. The rig was that of a schooner or ketch--with the masts the same height in some boats--and a jib seems to have always been used. The bowsprit was much hogged downward (Chapelle 1951:182).

According to Chapelle, the most popular rig for this type consisted of a lug foresail and a gaff-rigged mainsail, with a single jib. He adds that a boomed sail occasionally replaced the lug foresail (Chapelle 1951:182,183).
Several Mackinaw boats have been reported as being lost in various places around Isle Royale (Lenihan 1987:460). Lawrence Rakestraw has described two double-ended lapstrake wooden hulls which rest upside-down on the shore at the ruins of the fishery at Long Point. He describes them as "sailboat hulls...both of which are overturned up in the grass far behind the high-water mark and in such a manner as would tend to lead one to believe that whoever moved them there intended to use them again at a future date" (Rakestraw 1965:4). The hulls are heavily overgrown and both have collapsed inward, so few details about their construction could be determined other than that both had straight, almost plumb stem and sternposts (Figure 7, Figure 8). At the time of Rakestraw's examination, however, he was able to describe them as appearing

...well-constructed and heavily-used, - the latter observation especially borne out by the large amount of tin patching found on the hull nearest the south side of the point. Other characteristics of both include the presence of an off-center slot along the keel for a retractable centerboard, "double-bow" construction, and sturdy ribbing on the inside. Measurement taken on one of the hulls (nearest the south side of the point) give the following dimensions: [16-foot length and five-foot beam]....

Both hulls are of similar dimensions but differ in that one (on which the above measurements were taken) has an excessive amount of tin patchwork on it and is in relatively good condition, as compared to the other, with respect
FIGURE 7. Mackinaw boat hull on the east side of Long Point (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 8. Mackinaw boat hull on the west side of Long Point (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
to the degree of rotting (Rakestraw 1965:4-5). While these hulls fall outside Swanson's length range of "18 feet to over 30 feet," he mentions having seen references to Mackinaw rowboats of 12 feet and 13-plus feet (Swanson 1982:106). Therefore, the Long Point vessels could indeed represent small Mackinaw variants.

The Isle Royale Vernacular Boat Study did locate and examine a fragmented hull known to be the remains of the Mackinaw sailboat used by Sam Sivertson and reportedly constructed by boatbuilder Ole Danielson (Sivertson 1992b). This boat is on shore at the Sivertson fishery on Washington Island (Figure 9), and was described by Stanley: "...there's one, parts of it are still kind of buried behind our house there, but that one was only about 20 feet long, but that had a square stern, but it was still called a Mackinaw boat, but it was actually kind of a catboat" (Sivertson 1987).

According to Stanley, his father last used the boat in 1908 (Sivertson 1980c), although Tom Eckel Jr., another Isle Royale fisherman, was reported to have used it for some time after that (Howard Sivertson pers. comm., August 1991). On the remnants of the coaming is attached an old metal State of Michigan fishing tag dated 1911 (Tolson 1990b, Vernacular Boat Archive [VBA]).

Only about one-half of the boat remains, the entire
after portion having collapsed and been buried beneath thick vegetation. Of the 9 feet or so that remain, only the forward 5 feet have any integrity at all. What is still visible is of lapstrake construction, extensively refastened. A large, circular hole in the foredeck suggests that her mast was stepped as far forward as possible, in keeping with Stanley Sivertson's description of her being "actually kind of a catboat" (Tolson 1990b, VBA). In addition, Stanley reported: "...I never seen that boat in the water, but as I recall that...I thought they had cut the stern off and had a square stern on it...you know...cut part of the fantail off..." (Sivertson 1990c:27).

He went on to indicate that rot in the after portion was one reason a boat owner might cut off the sharp stern of a Mackinaw. In addition, some were prompted to cut the sharp sterns off their Mackinaw boats even before the shift to motorization, because although the double-ended design was a superior sea boat, the design of the rudder mounting made it difficult to pull up on a slide and the sharp stern meant insufficient work space in the aft end to work a hook line or pull nets (Sivertson 1990c:27,28).

So some of them did cut them off, I think, before they even started using motors, you know. And of course, those boats [double-enders] were very unhandy to pull up on the shore, for one thing. And...there wasn't room in the stern to work when
you wanted to work with your hook line. Like John Miller's boat, there. It was a better sea boat. They were sure lot better in a sea boat than those big wide stern boats. And they know that, but space was a commodity, too, so it was-- People widened the sterns on them...(Sivertson 1990c:27).

Skaugh is credited with having designed his Mackinaw in 1887, and Scandinavian immigrants were coming to the North Shore of Lake Superior in the 1880's, long after the Mackinaw had become established. Photographs taken of Isle Royale in 1896 show examples of Chapelle's classic Mackinaws moored at fisheries in both Washington Harbor and Chippewa Harbor. In the wreckage of Sam Sivertson's boat it is still possible to see her straight, nearly plumb stem and lapstrake construction. The Sivertson roots are in Norway, and the fact that Sam's boat has lapstrake planking makes a detailed examination of her remains for comparison with Skaugh's plans desirable, although not all her features are in keeping with his variant as described. At the very least, additional investigation of her hull remains will yield some additional construction details.

Thus far there has been no proven link between the faering and the Mackinaw boat (C. Patrick Labadie pers. comm., August 21, 1991), as tempting as it might be to seek one out. Regardless, what can be safely assumed is that the Scandinavian craftsmen who arrived at western Lake Superior, like boat building immigrants everywhere,
continued to add their own design and construction innovations to the ubiquitous Mackinaws. These little sailboats continued to be used extensively until the turn of the century, when the gasoline engine was introduced and made available (Lenihan 1987:460). This innovation would elevate the Mackinaws to the apex of their development in what became "the most revered type of fishing craft around Isle Royale": the gas boats (Cochrane 1982:55).

The Herring Skiff

The term skiff referred to a small, rowed boat with a flat bottom and high sides (20 to 24 inches) (Lenihan 1987:461). According to boatbuilder Reuben Hill, "They were generally a 16 or 17-footer with a flat bottom and side...that's the way they were made. What we call a chine job....A piece of oak runs the length of it at the break from the bottom to the side" (Hill 1987 in Lenihan 1987:460). The fishing skiff or herring skiff was a work boat, used primarily for fishing in shallow bays and coves (Lenihan 1987:460), and, as the latter name implies, for gill-netting herring. Herring were fished for bait for spring hook line fishing and as a marketable catch. The sturdy little boats were rowed out to the nets, which were then hauled in over the bow so that the "herring choker," as the person picking the net was called, could twist the
fish out of the mesh. It was this activity that wore the deep grooves into the bow rails that so distinctively mark working craft of this type.

At the turn of the century, the fishing skiff was double-ended (Lenihan 1987:461). On the North Shore, and to a lesser extent on Isle Royale, a lack of safe harbors made it necessary to launch such vessels from steep slides, and a sharp stern made broaching in the waves less likely (Lenihan 1987:461; Lind 1990b:28; Lind 1990c:18). Furthermore, Norwegian immigrants had primarily used sharp- sterned, one-man dories before coming to America (Lind 1990b:9) and the building of double-ended boats must have, to a point, reflected Scandinavian origins. Boatbuilder Hokie Lind stated that, "...they used mostly dories there, see. More or less like our skiff. And there again, they were narrower, but they were a one-man boat, see. The dory. Sharp at both ends. We like to have a little square stern on them so that you could hook the motor on, you know" (Lind 1990b:9).

Commercial fisherman Stanley Sivertson recalled his father, Sam Sivertson, talking about the dories used back in Norway. They were usually one-or-two-man craft, with a flat bottom and a "V"-shaped bow, frequently carrying a mast that could be stepped in the forward part of the boat. These little vessels were nested together aboard a larger
ship which carried them out to the fishing grounds, where they were lowered to set their hook line rigs for cod. Such rigs were not as long or as complex as those used by the Isle Royale fishermen. According to Stanley, Sam claimed these dories sailed better when loaded, stating that in rough weather they were more easily handled when filled to the gun'ls with fish. Otherwise, the wind tended to "lift it right out of the water" (Sivertson 1992c).

The dory did not provide a stable work platform for the North Shore fisherman. The outward angle of its sides meant that anyone standing near them while in the boat to haul in a net would find the boat tipping beneath him; in a fishing skiff the angle was less extreme, reducing the instability (Howard Sivertson pers. comm., June 11, 1990).

Roy Oberg has seen the gradual evolution of the herring skiff:

They was all--biggest share of the boats that originally was small ones that they could row, see? Because when they didn't have motors, and [there]...was no wind...(a lot of them had sails, small sails, you know...a little spar on them). But most of the time they rowed. A lot of the old timers told about how they rowed all day long to get out to their nets and get back. Sometimes they get back way late at night because they didn't have no wind to sail with. And then they finally got outboards. We used to have skiffs that were pointed on both ends when they did the rowing deal. And--well, they were rowed better, and they're a better sea boat when they're pointed on both ends. And then they finally start[ed] cutting off a little bit off of these sharp-stered boats. They'd saw them off about a
foot. Most of them were about 16 feet. They'd saw them off about a foot and make a little square stern where you could hang on these little outboard motors. And they started in with—well, the old-style outboards were different anyhow. They had a different horsepower rating. They'd get about 3 or 4 or 5 horsepower outboard, and there was quite a few different companies that made them....But they were very reliable, these old timers, and they didn't turn up very fast. You only went probably twice as fast as you could row, or three times, maybe. But...they changed from that (Oberg 1990:9-10).

Stanley Sivertson also remembers the transition from sharp-stered to transom-stered skiffs, both to accommodate the evolving outboard engine and to provide more on-board work space.

...and then of course the skiffs, all the North Shore skiffs, I think...before they started putting motors on them, were double-enders...But when they hang a motor on, a lot of them just cut the stern down that wide, you know, so they could hang the motor on. So for many years that's the kind of boat you seen...Then gradually, they made them wider yet because they found out it allotted more room to work with. If you wanted to set some nets off the stern, for instance...So all those things were born from necessity... (Sivertson 1990c:27).

Still, the change involved a trade-off, because "...I don't think you can get a better sea boat than a sharp- stern boat..." (Sivertson 1990c:27).

Marcus Lind described the last skiff his family built, which was for a customer at Hollow Rock, Minnesota: "There was a fellow there by the name of Lloyd Hendricks. We built him the last one. It was about a 20-footer, and he
had it quite wide. He wanted two outboard motors on it.

And he had a net lifter..." (Marcus Lind 1990:19-20).

As to length,

Most of the skiffs were 16 feet, that the fishermen used. Then later years they started making them wider and wider...like...Tormundson over there...He had a boat that was almost 8 feet wide and only about 14 feet long. And I asked him, "How come you make them--Boy, they look terrible. They look almost like a box, you know." And he says, "Well," he says, "the landing on the slide, if you got a long boat--the swells are only so far apart. And if you got a long boat, then [the waves may]...break over it. But with this shorter one," he says, "you'll get it up quicker, and they don't, water don't get into it, see?" (Oberg 1990:23-24).

Swamping a fully laden skiff in trying to get it up on the slide was a very real hazard that could cost a fisherman part or all of a hard-won catch. Roy Oberg remembered one such incident:

Well...when we fished at Hollow Rock, my uncle swamped the boat one time. It was so funny, because when the fish are dead in the boat, then they washed out into the water, and they had air in them enough so they were floating. And about that time the truck driver came...And my uncle was out there, then, with one of these scoops that we used when we washed the fish in a box to salt them, you had to wash them. Then you had a scoop...and you used that, then, to bail them up on the table before you salted them...And my uncle was out there, scooping all our fish off the lake like that. When this truck driver come, my uncle hollers to the truck driver, he says "Don't you wish you had a place like this?" Here he was just recovering the fish that he had lost (Oberg 1990:24).
Stanley Sivertson, too, recalled the near-swamping of a skiff being worked by him and Earl Eckel one winter when they were fishing herring "on the slides" at Lutsen, Minnesota.

But anyway, then we were fishing in a skiff and there wasn't no shelter there at all...a hundred miles from Duluth or more. And, so anyway, you get southwest wind or northeast wind. The only thing was northwest there was shelter, but then you got to be careful...because you might drift across the lake if you, your motor didn't run or if you couldn't row. So we had--always carried two pair of oars in the skiff. And one day we laid out there. We got quite a bit of herring, and we laid out longer than we really should have. It was a kind of north wind, that had built up a big sea along the shore. And what you do in that kind of a case, when you'd come in, you try to circle, because there was this general saying amongst fishermen that there's three big waves and then...there isn't so many.

Well anyway, when we came in, then we had to circle quite a few time like that, but we were using oars. We had two pair of oars. And I was standing in the stern. The one in the stern would push this way, you know, and the other one was sitting on the seat and would pull this way. And so, we circled around there and laid there a little bit, and I think we also had a motor at the time, but we stopped the motor because we knew we could handle the boat better with the oars, especially with two pair of oars. And so then, we thought we saw a place where, you know, the waves weren't so big. And we start going, rowing as fast as we could for the slide. Then my uncle Chris was there at the time, too, so he was up at the winch. He seen that it was a pretty big sea.

But anyway, just when we come riding along like this, like we should have been going, if you know, to hit the slide, why, a big wave caught us in the stern, and boy, it gave us a boost. It started breaking and bang, we hit the slide stick [with the bow]...You know, these are cross pieces, and laying on stringers...And then it hit
it up so far on the bow where it didn't--it wasn't down on the keel. So the boat jumped back, flew back just like shooting an arrow, almost, you know. But, he [Earl]--when he hit, he flew up. And on those boats we have a little deck....But he flew off the seat. And he got just jammed up, twisted his feet this way, and then this way too. But he finally extricated himself just about the time the boat had bounced out...And before I could holler at him, he crawled on the railing. And you know, he--he's thinking we've hit the slide... (Sivertson 1990c:20-22).

When Earl got out of the boat, thinking it was already up on the slide, he found himself chest-deep in water.

But don't you think he was lucky enough, at the same time another big sea came. And he started running, and he had a hold of the railing. Like this. He started running. And by golly, he got the boat up on the hook--slide there. And then my uncle was there with the hook, the cable, you know, and the winch, you know, you tighten these kind of winches like this. And so, we only lost one-half the herring. The sea broke into the boat, of course...(Sivertson 1990c:22).

Although not a fishing craft as such, a boat hauled out on Johns Island, Washington Harbor may represent one of the early transitional forms from double-ended to flat-transomed among the hard-chined boats of the time (Figure 10, Figure 11). This deteriorating skiff has a step for a small mast and is almost double-ended, with only a very narrow transom (Tolson 1990b, VBA). This particular boat was never used for commercial fishing, having been brought to Isle Royale in the early 1900s by two men who rowed and sailed it around the Island, sport fishing in the many bays
FIGURE 10. Narrow-transom skiff on Johns Island, port bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 11. Narrow-transom skiff on Johns Island, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
and creeks before ultimately selling it to the Johns family (Robert Johns pers. comm., July 1991).

Ultimately, the fishing skiff did become square-sterned (Lenihan 1987:461), probably to allow both more work room and carrying capacity and to provide a place to hook on an outboard motor. The beam on a skiff was slightly less than one-third the length to make rowing easier (Hill 1987 in Lenihan 1987:461), although a skiff narrower than 42 inches would be "cranky," that is, unstable (Lind 1990b:25).

The herring/fishing skiff was in use at the same time as the Mackinaw boat, the former operating in sheltered areas while the latter worked the open waters (Lenihan 1987:461), and like the Mackinaw, it was rendered almost obsolete by the development of the gas boat, whereupon it was used as a recreational craft and only occasionally for work (Lenihan 1987:465). A few continue to be used even today.

The Isle Royale Vernacular Boat Study located and examined seven boats which follow the pattern of these hard-chined work boats. Not all of them were actual work boats, but all did follow the herring skiff construction pattern. In addition to the narrow-transomed vessel described above, a second example is also on shore at Johns Island. It follows the classic herring skiff design but is
much larger than any other in the park (Figure 12, Figure 13). The PI learned that it was used exclusively for collecting pulp sticks and other driftwood for firewood by A.C. Andrews and later by the Johns family (Robert Johns pers. comm., July 1991).

The best-preserved example of one of these craft on Isle Royale is a solidly-built vessel presently on shore at the former Holte Fishery on Wright Island (Figure 14, Figure 15). Seventeen feet long, she has a maximum beam of 4 feet, 10 inches, with sides 25 inches high (27 inches at the bow), and eight sets of ribs and floors spaced at 23-inch intervals (Tolson 1990b, VBA). Of particular interest is the fact that this boat tapers inward toward the stern to a greater degree than is seen in other examples, and so may represent yet another transitional design along the path from double-ended to square-sterned.

The Rowboat/Rowing Skiff

Another type of rowed boat, used for recreation by resorts and vacationers, was popular in the period from the 1890s to the 1940s (Lenihan 1987:461). "Construction was either lap-strake or smooth seam, but always round-bottomed" (Hill 1987 in Lenihan 1987:461) and with a fantail (Lenihan 1987:461) or "Y" stern, as it was described by some Isle Royale fishermen (Milford Johnson
FIGURE 12. Herring skiff type on Johns Island, port quarter (Courtesy of Isle Royale National Park, Vernacular Boat Photo Archive). Compare transom with that of adjacent skiff from Figure 11.

FIGURE 13. Herring skiff type on Johns Island, interior (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 14. Herring skiff on Wright Island, profile, port side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 15. Herring skiff on Wright Island, interior from forward (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
Jr. 1987 in Lenihan 1987:461). These boats were generally 12, 14, or 16 feet in length, with a beam of somewhat less than one-third the length (Hill 1987 in Lenihan:461) and a 14 to 16 inch depth (Lenihan 1987:461). With the gradual elimination of the resorts, many of these small boats found their way into the hands of fishing families and life lessees, who kept them for their children's use or their own visits to local acquaintances (Tim Cochrane pers. comm., August 19, 1991).


A number of examples of this type are known to be on the Island. In particular, those manufactured by the Wayzata Boat Building Company of Wayzata, Minnesota are represented both on the Island and the Michigan mainland (Hakala 1989; Anderson 1990c, Vernacular Boat Archive [VBA]; Tolson 1990b, VBA), although only one was examined and measured during the 1990 survey. This vessel, the BLUE BIRDIE, is presently at the Edisen Fishery in Rock Harbor (Figure 16, Figure 17). She is of lapstrake construction with steam-bent frames, and is 15 feet, 4 inches in length with a maximum beam of about 4 feet, 2 inches (Tolson
FIGURE 16. Rowboat/rowing skiff BLUE BIRDIE, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 17. Rowboat/rowing skiff BLUE BIRDIE, interior from forward (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
1990b, VBA). The BLUE BIRDIE is particularly important because she is one of only two historic boats in the possession of Isle Royale National Park which retain sufficient hull integrity to be actually used on the water as interpretive aids. In addition, she is the best-preserved example known to the researchers of the Wayzata Boat Building Company's work.

The Gas Boat

Origins and development. The gas boat was the ultimate Isle Royale fishing craft, evolving to meet the needs of the lake trout, whitefish, and siskiwit fisheries operating on Isle Royale and the North Shore, where it supplanted the Mackinaw sailboat. Used for both gill netting and hook line fishing, they began as double-enders when early engines were placed in Mackinaw hulls (Lenihan 1987:461,465).

Earlier transitional versions would retain auxiliary masts until engines became more reliable (Tolson 1991). One known sailboat conversion is the ISLE, presently hauled out at Johns Island, Isle Royale (Figure 22, Figure 23). Built in 1912 by Paul Le Plante, the single-masted 18-foot sailboat was converted to power by Edgar Johns (Johns 1989, Vernacular Boat Archive [VBA]). Edgar raised the sides of the little vessel (Robert Johns pers. comm., July 1991) and
equipped her with a Detroit Marine Waterman Engine of 4 horsepower (Johns 1989, VBA). The engine was very reliable (Robert Johns pers. comm., July 1991), but Edgar kept the mast step and collar intact in the bow of the little boat (Tolson 1990b, VBA).

Aside from such conversions, new gas boats continued for a time to be built with provision for carrying a sailing rig. On the north end of Johnson Island are the decaying remains of the gas boat used by Herman Johnson and John Anderson at the Fish Island fishery. This craft was built by the Thompson Boat Works in 1905, and had both an engine and "provision for a sailing mast behind the bow coaming." This gas boat "could be sailed like a catboat, feathering the prop" (Anderson 1990b, Vernacular Boat Archive [VBA]).

Changing needs and improving technology altered the form and style of the gas boat over the years, but most of the characteristics that marked it as a descendant of the Mackinaw continued to be visible: a high bow, almost plumb stem, strong sheer, and raked stern (Lenihan 1987:464; Tolson 1991). Of course, the fishermen themselves had personal preferences as to what did or did not make a good boat. According to Howard Sivertson:

...a lot of...the conversation around the dress bench and when fishermen got together was the design of boats. They really appreciated...what
they thought was a well-designed boat, and they had kind of an instinct for it: the kind of boat that would be dry, the kind of boat that would run well into the seas, the kind of boat that would run well with the seas. And they each had their own opinion, but they agreed on a great deal of the basic designs of gas boats, and what they should look like (Howard Sivertson 1991:6).

Most carried two-man crews. The effective operation of the vessels sometimes needed a division of tasks between them, especially when the sea conditions required a more "sensitive" hand. At such times, one man would steer while the other manned the throttle (Sivertson 1992a). However, a few were operated by a single person, a method which would become more common as economic conditions prevented the fishermen from being able to hire assistants (Howard Sivertson 1991:4; Sivertson 1992a).

The double-ended configuration. According to the Submerged Cultural Resources Report, gas boats were built double-ended at the turn of the century as the Mackinaw hull was adapted to motorization (Lenihan 1987:461). That document adds that the double-ended gas boat ceased being built shortly after that time (Lenihan 1987:462), reporting Ingeborg Holte as having said that the double-ended gas boat SKIPPER SAM, derelict and ashore at Wright Island, Isle Royale, was built for her father Sam Johnson in the 1930s at his special request (Lenihan 1987:463) (Figure 24,
Figure 25). The implication is that the sharp-sterne ned version of the favored craft was no longer available at that time. Construction of the SKIPPER SAM has been attributed both to Charles J. Hill (Ingeborg Holte in Lenihan 1987:463) and Croft of Grand Marais (Lind 1990a).

However, the SKIPPER SAM is no longer quite the anachronism she was once believed to be. A number of other double-ended vessels were in use by both commercial fishing and recreational interests beyond the assumed demise of the type. The gas boat HILDA is a former commercial fishing boat used in Washington Harbor and now undergoing restoration in Duluth, Minnesota. Built in 1936 by John Miller in Bayfield, Wisconsin, she is another example of the seaworthy double-ended hull, and was used for fishing until the 1960s (Dahl 1991, Vernacular Boat Archive [VBA]).

In 1940, the shop of Hill and Sons constructed the VALKYRIE for "Commodore" Kneutson, owner of the Rock Harbor Lodge. She was a 28-foot round-bottomed wooden launch with a "canoe back stern" (Hill 1989c, Vernacular Boat Archive [VBA]). The term "canoe back" was another name for double-enders among local fishermen and boatbuilders (Hill 1987 in Lenihan 1987:463). This boat was used to take lodge guests on sightseeing trips in Rock Harbor (Hill 1989c, VBA).

Another double-ended gas boat, the MINONG, was in use by commercial fisherman Jack Bangsund in Rock Harbor in
1948, and doing double-duty by carrying passengers from the steamship NORTH AMERICAN from Mott Island to the Rock Harbor Lodge (Bangsund 1989, Vernacular Boat Archive [VBA]; "Commercial Fishing Tabulation, Isle Royale National Park" 1948, Vernacular Boat Archive [VBA]). Interestingly enough, she remained in use long enough to be reribbed in 1950 at the Lutsen Boat Works (Bangsund 1989, VBA).

The Holger Johnson family of Chippewa Harbor remembers their double-ended green gas boat, the FROG, a 22-foot lapstrake vessel they used for commercial fishing (Miller et al. 1990a, Vernacular Boat Archive [VBA]).

Finally, a photograph in the Vernacular Boat Photo Archive shows Edward Kvalvick in a double-ended vessel. The photo is undated but it is known to have been taken sometime in the 1930s.

It thus appears that the seaworthy double-ended configuration was never abandoned entirely. In some vessels, it did continue in its pure form. In others it was adapted into a compromise between operational practicality and seaworthiness. As observed by Dave Dillion, such gas boat hulls, especially those built by the Hills, continued to be built double-ended below the waterline, fitted with a flat, raked transom above a sharp stern (Dave Dillion pers. comm., Summer 1990). This configuration was yet another mark of the Mackinaw
heritage. Sometimes referred to as a cut-away stern, it provided improved performance in a following sea (Lenihan 1987:463,465).

The change from sharp sterns. With time, however, seaworthiness in gas boat design became a secondary consideration as emphasis shifted toward improving a boat's utility as a work platform and cargo hauler. To this end, sterns were squared off to provide more room for handling fishing gear and greater carrying capacity for the catch (Stanley Sivertson pers. comm., July 14, 1991). It has already been mentioned that a number of factors were operating to move boat design from sharp to square sterns even before the advent of the inboard engine. The classic sharp stern made for boats that were difficult to pull out on a slide.

...they wouldn't have been [difficult to pull out on a slide] if you didn't have that rudder sticking down there, you know...you had to have the rudder post--you couldn't put it along the stern transom. You had to put it inside the boat...or I suppose they had them outside before, but you didn't have as much ease--you know, when a fisherman pulled nets...(Sivertson 1990c:28).

Lifting nets over the aft end of a square-sterned boat was a much more efficient operation, and would continue until the development of power net lifters which brought the nets in over the bow.
...when we fished at McCormick before we had the boats with the net lifters, where we lifted on the bow, oh, you'd pull that rudder up and take it off the stern and you had room to stand back there and pull. And two men, one man could stand behind the other and pull. And we had a roller that wide back there, so you had some space. But on a sharp-sterne boat, that part of the stern would be in the way back there, you know, because...You wouldn't have any room, hardly, to stand.

So all those things where they got away from the sharp-sterne boat, I think, all of them admitted that the sharp-sterne boats were a lot better sea boats, you know. Well, you can stand in there yourself, you know. See, when you come into a head sea, if you got the sharp-sterne boat that can sink down, like a lever, you know. You know, it can sink like a pendulum or whatever...this way, why, the bow's going to come up easier than if you got a wide, wide stern. Well, you've seen some of them park boats. Christ, they plow right through the sea, almost...Even the Bertrams... would have it like that. That's the stern that does it, that can't lift the bow so easy (Sivertson 1990c:28-29).

The choice of such a design clearly represented a conscious decision.

**Bow design.** Bows were constructed in two forms: sharp, with a flare at the top, and more blunt, with little or no flare, and each had its advantages and disadvantages. The sharp, flared bow made for a dry boat when going into a head sea, although it had a tendency to sheer off in a following sea; the full, rounded bow (also called a "runt" bow), was wetter and pounded in a head sea, although it
behaved well when running with the seas (Howard Sivertson pers. comm., August 18, 1991; Sivertson 1992c).

**A Sivertson ownership chronology.** Stanley Sivertson, the last of the commercial fishermen to be operating on Isle Royale, first came to the Island to fish in the spring of 1933, a young man of 20 years (Sivertson 1990c:12-13). Throughout his long career he has seen, operated, and owned a wide variety of gas boats. He is able to provide an inside look at their use and development from a fisherman's perspective.

According to Stanley, "Well, I guess I liked all the boats we had. Except one." That one was constructed by a Bayfield builder named Mulkie, who had also built Milford Johnson's fish tug ESTHER M. "I think it should have been a sailboat. It had a deep keel in it....like a 'V'." In 1946, Stanley brought her back to Isle Royale from Bayfield (Sivertson 1990c:2-3). He remembers

...that boat was such a misfit in a sea...you sometimes get a sea that throws you one way, and that boat would go up— and you know, coming back from McCormick's, [some]...times the seas were 6, 8, 10, 12 feet. And boy, when it would fall, it would always seem to fall on the side...Well, because this side was kind of flat, I suppose...Then we go up and come down [and]... we were on the other side of the cab, and I got so disgusted. One time I came back and I had about five, six boxes of trout, and it started blowing southwest...Before I got back, every--I could not hold those boxes in place, any place I try to jam
them in. But that boat jumped and rolled and pitched so hard that by the time I got back, every box was broken and the fish was all over on the floor in the boat....on Isle Royale you get every wind, you know...every way the wind blows. So that was about one of the worst boats I had (Sivertson 1990c:3,4).

He finally sold it to John Malone, who intended to use it to fish out of Duluth, where "...there's not much sea...unless you go out in the northeast. It usually runs northeast..." (Sivertson 1990c:4).

One boat which made a lasting impression on Stanley was his father's STAR.

I was maybe only five years old, and I thought that boat the STAR was such a wonderful boat. And it was a nice one. It was Ole Danielson, I think, had built it... He done real nice work. It had a big Kaley engine, the two-cylinder engine....and I don't know why he sold it....I never quite could figure out why my dad would sell a beautiful boat like that, you know (Sivertson 1990c:9-10).

The first gas boat that Stanley, himself, owned (he had owned skiffs prior to getting it) was a vessel called the SLIM, purchased from a Wright Island fisherman who was quitting the business (Sivertson 1990c:4,5,10). He used the SLIM for several years, and remembered one precarious incident in her, when he was fishing with a man named Bugge (Sivertson 1990c:5,6).

And then one time, when we was down to McCormick's with it ourself...And it was rough down there, you know, coming back in [a] southwest wind....But anyway, so we got caught in the storm. Which was quite regular when the wind
shifted to the southwest in the fall. It got rough down there, you know. Christ, you have the whole hundred-and-fifty-mile sweep from the west end of the lake (Sivertson 1990c:5,6).

...we hit a big sea and the boat kind of landed on its side and put a lot of pressure on the rudder, and it broke the rudder iron off. In those days, we had...like some of the sailboats have, a channel iron that comes up, and the rudder...hooks...on it, you know....but it broke the rudder right loose. And of course it was such big sea we couldn't fix it...John Miller and George Torgerson, then, they came along side of us and we kind of got a line on us. Why, then we could run our engine because they were steering us with this long line...we run the engine, too....and we were steering with an oar. We were getting along... (Sivertson 1990c:5).

All in all, SLIM was a good, seaworthy boat. Even so, it had its limitations. Stanley reported, "...We decided we could sell it if we got another boat. And it wasn't quite big enough, because it was a kind of narrow boat. It was all right for one man, but not big enough, really, for two men. And we were trying to get something a little bigger..." Ultimately, SLIM was sold to a Grand Portage Native American named Billy Droulliard, who had worked with Roy Oberg. It was at that point that "...we got the SIVIE, I guess, and the TWO BROTHERS built" (Sivertson 1990c:6,8).

The gas boat SIVIE. On July 2, 1991 the author was scraping out the bilges of the beached gas boat SIVIE preparatory to compiling a scantlings list that would be the first step in developing a set of lines and
construction plans for her. The bottom of the hull was filled with pine needles and the assorted bits of trash for which abandoned gas boats seem to become repositories. A finger slashed on a jagged piece of bottle glass encouraged more careful excavation, with the result that, beneath more such pieces, a torn rectangular wad of saturated paper was uncovered. Originally believed to be the label from the smashed bottle, rinsing under a spray of fresh water revealed it to be a folded package of the SIVIE's documentation. Three separate documents were present: a U.S. Coast Guard Boarding Card, a commercial fishing license, and a Certificate of Award of Number.

The latter revealed some important basic information about the SIVIE, including the correct spelling of her name, which had been in some dispute at the start of the study:

Number Awarded: 36E38
Owner: Arthur Sivertson, Washington Harbor, Isle Royale
Citizenship of Owner: U.S.
Name of Vessel: Sivie
Length (overall): 23'8" Beam: 7' Draft: 2'
Type: Open Rig: Gas Screw
Service: Commercial Fishing
Year Keel Laid: 1947 Construction: Wood
Place Built: Duluth, Minn.
Builder: Art Sivertson & Hoken [sic] Lind
Engine Maker's Name: Gray
Serial No. (if available): D3208 Horsepower: 73

Built in 1947, she took her name from the nickname given to her owner's children by their schoolmates, who
referred to them as "Sivies." SIVIE is important because she was constructed at a time when the Lake Superior fishery was undergoing significant changes. The infestation of the parasitic sea lamprey was beginning to affect the lake trout population. Fishermen were switching from the use of hook line rigs to floating gill nets, and their deteriorating economic situation was causing a change from two-man crews to single-handed boat operation. She was last used in 1967 and was in good shape when pulled up on shore (Sivertson 1992a,1992b). She remains one of the most intact gas boats on the Island, and is a good example of the type in one of its final forms. In addition, she represents the last known example of a gas boat constructed by Hokan Lind, an important though lesser-known North Shore builder.

From an ethnographic standpoint, her history is richly documented in the form of photographs and folk recollections. Her principal builder is still alive, as are the brother and son of the original owner and co-builder. All have vivid memories of the designing and building of the boat, as well as her operation and performance.

These two aspects of the available data base will ultimately allow the retrieval of sufficient information to produce a set of lines and construction plans for a boat.
whose construction used none to begin with, permitting the documentation of a vessel type for which there exist no written records save those that have come out of this project. These can then be compared with existing lines and plans from the Mackinaw sailboats and allow a more definitive investigation of just how the two hull types are related. In addition, the recording of her history and development in an ethnographic context will allow an analysis of her evolution and use from an emic perspective.

Arthur S. Sivertson was a veteran Lake Superior fisherman. With his brother Stanley, he formed the Sivertson Brothers Fishery in the early 1940's, and he had owned or run at least five different gas boats before deciding to use his knowledge and experience to design one himself. Art's son Howard recalls that his father "...was all for 'having a boat with a sharp bow, a little bit of flare, something that would be dry running into the seas. And he also wanted a flat back on it that would be stable to work in, it wouldn't be a tippy boat" (Howard Sivertson 1991:1) (Figure 41, Figure 42).

Such boats did not ride well in a following sea, which would slap the flat transom and throw the boat around (Stanley Sivertson pers. comm., July 14, 1991). However, the gain in this trade-off was a more stable work platform,
one that rolled less. Again, according to Howard Sivertson, his father wanted his new boat to have

a pretty good flare up by the coaming and then fill out fairly soon back after that, and then maybe flat on the bottom for stability...and he came to the square stern, of course. And what he had to give up with that square stern was the easy running with the sea. A square stern will start to broach a little bit more...than a double-ender, with a pointed stern. And...so he gave up that for that stability of a work boat...(Howard Sivertson 1991:6-7).

Stanley recalled that much of the reasoning that went into SIVIE's design was the need for her to be capable of single-handed operation, especially while running gill nets. Accordingly, she was given a square stern so she could serve as a work platform for tending them and setting their anchors (Sivertson 1992b). Howard stated that

...usually the SIVIE only had one man fishing in it...And my dad fished alone and so did Stan fish alone, so they wanted boats that they could handle by themselves and as a one-man operation. So they had steering in the front, steering on the side, and a tiller in the stern, so they could steer from any position they happened to be in the boat (Howard Sivertson 1991:4).

Such provisions are evidenced by pulleys and metal eyes along SIVIE's inboard sides for the purpose of leading steering cables forward from the rudder, although the main steering control was from a side-mounted wheel. There are indications that other controls, such as the shift lever, may have been run to the forward areas of the boat as well (Enar Strom pers. comm., June 1990).
But Art Sivertson had other reasons for choosing this particular shape for his vessel. Fishermen working in a gas boat would be wearing their rubber boots, and in getting up against the sides to gaff fish, their feet would slip on the rounded surface of a typical hull. His design of a relatively flat bottom and sharp bend at the chine allowed him to get his toes closer to the side of the boat, making such slipping and sliding less likely (Howard Sivertson pers. comm., November 1, 1991).

Art had no real experience in designing or building boats, but his years of work as a commercial fisherman had shown him what did and did not work, and the picture he had formed in his own mind of the ideal vessel has been described above. He got together with Hokan Lind, a North Shore resident who was a part-time boatbuilder, and proceeded to make his planned new boat a reality. Art's son recalls that "He just went ahead and did it. Hokie knew the technical aspects probably more than my dad, but my dad knew the design he wanted, and was pretty adamant about that" (Howard Sivertson 1991:6).

So the two set to work. Again, according to Howard Sivertson:

I know they didn't have a plan. Whether Hokie had made a half model, I don't think so....when I did go out [to watch them] it was mostly kind of a make--put the plank in, and take it--eyeball it, and see what she looked like, and if you
didn't like it, change it a bit, you know. So it kind of grew as it went. But my dad had a firm idea in his mind what he wanted his boat to look like. And Hokie probably has another picture in his mind, and he never did get to putting it down on paper, so it just kind of grew from the keel up (Howard Sivertson 1991:4).

And so he and Hokie would have many, many friendly arguments about the boat, and they would stand and look at it and stare at it and argue about each plank that went on and decide whether this was the right sheer or whatever. And I can just see Hokie shaking his head..."No, Art, that's not the way it's going to be," you know. And dad said, "Yeah, that's the way I want it, Hokie," and then they would go ahead and steam ribs and nail on planks (Howard Sivertson 1991:1-2).

Ultimately, however, a deadline came, and Art needed his new boat right away. Hokie had already completed the most difficult part of the planking, the bottom portion, so with enough help, the rest could be attached quite rapidly.

When Sivertson, they had to have the SIVIE in a hurry, you know, oh boy...Well, I was working for the Department of Agriculture at the time, you know. But then, one night, Art and Stanley...they come and they had another carpenter..."We're going to work on the SIVIE."

"Oh," I said, "OK."

"All you have to do is fit the boards, we'll nail them on there."

"OK"...Well, we sheeted that thing up on pretty near all the way both sides. Because I had it started on the bottom, you know. And this was on a Friday night, and I had Saturday off, see?...Anyway, we went out there Saturday morning, and we were working--knock on the door. Well, open the door--policeman.

He said, "What have you got here, a box factory?" "Oh boy," he said, "that's a beautiful boat you're building there."

"Yeah," I said, "That's what I'm doing."
Well, he said, "You were working pretty late last night, weren't you?"
"Yeah."
"Well, we had a complaint," he said, "from the neighborhood—that you had started a box factory here."
"Well," I said, "we were doing some nailing, that's for sure," I says.
"...That's a beautiful boat, that's all I need to know," he said.
So, somebody complained. So I told Stanley the very next day, "This overtime has got to be cut out." He laughed. But we got it done in time, anyway (Lind 1990b:17-19).

The launching itself was not accomplished without incident, either, but there was pride and satisfaction enough to go around. Howard remembers watching the event as a high school senior.

And I went with them to Grand Marais to launch it. I think they put her on a flat bed truck, I'm not positive, but they had a little trouble launching it at the Coast Guard station in Grand Marais. They couldn't back the truck far enough out in the water...it was probably still a low boy, but it was still kind of high, no rollers and everything, so everybody got out there and pushed and tugged, and the end result is my father was on the back and went in the lake—before the boat. That's one of the highlights, [the]...dunking of my father. He got launched first (Howard Sivertson 1991:2).

Hokie Lind remembers the occasion in somewhat more detail.

And in them days, there were no boat trailers, you know, to speak of. We had to haul it up to Grand Marais on a pulp wood truck. Big flat bottom. And that's way up high, you know. We had a heck of a time loading it. But to get it unloaded into the lake, that was something else. Well, I said, "Back the thing in there."
"Oh," he said, "I don't know."
"...Yeah, sure." Well, he did well. He got it in part way, and Art went up there and took a
couple of the braces off, and in doing so, he lost his balance and he fell in the lake. And it was cold in the spring, you know. Talk about fun! But, it went. We got that boat in the water, we started the engine, and boy, did she go! Just, she just slid, you know, like that.

Boy, Stanley. "That's what I want," he says, "right there. She'll make 14 [knots?]."

"Sure," I said, "she will." He had a six-cylinder Graymarine, brand new, put in there...

So, it was the beginning of a real good era. For all of those people (Lind 1990b:19-20).

Many gas boats carried sheets of metal sheathing along the turn-of-bilge from the stem to approximately amidships as protection from ice. For the fishermen of Washington Harbor this was especially a problem in the spring of the year, when they took their boats to Windigo, at the head of the harbor, to get bait fish. The "night ice," as it was called, would otherwise "cut the boat to ribbons," abrading and even slicing through wooden hulls during early season fishing. This was particularly a problem with lapstrake boats, which had even more surface area exposed to the ice. Stanley Sivertson recalled that, "clinker-built boats were hard to put the iron on," as the overlapping plank construction prevented the effective placement of the tin sheets on the boat's exterior (Sivertson 1992c).

Stanley remembers carvel planking becoming the preferred construction method sometime in the 1930s and possibly earlier. He said the lapstrake boats were drier and more stable, as the clinker surface "gripped" the water
and inhibited rolling (Sivertson 1992c). Boatbuilder Reuben Hill also spoke of customer satisfaction with lapstrake boats.

And a lot of them liked the lapstrake. It's a good weather boat. A lot of buoyancy in a lapstrake boat, a small boat. Because it carries it well, you know. More wood...every little bit of a shoulder helps in weather, you know. The Coast Guard, all the old Coast Guard boats were lapstrake boats. And then they're a good weather boat. And they're strong, because they're overlapping, you know, and tied together real well (Hill 1990b:34-35).

But there were disadvantages with this type of hull as well. Aside from the problems in attaching sheathing to the outer surface, the irregular inner faces and seams were more easily damaged by activity inside the boat, and recaulking the seams was more difficult than with carvel planking (Sivertson 1992c). Considering these factors, and the extra costs for labor and materials in lapstrake construction, it seems reasonable to assume that both builders and users were pressured to make the change.

Both the SIVIE and the TWO BROTHERS were sheathed from the first (Howard Sivertson 1991; Sivertson 1992c).

Yeah, they do that right away...they put the tin on to protect the hull from the night ice in the early fishing weather in April. So they would tin it right away. My dad had found out...from taking apart other boats that he had owned that had the tin on all its life, that he thought possibly that there might be some rot that gets under that tin. You know, and it would be a good place for the boat not to breathe, and maybe start to dry rot underneath that tin, but when he
took the tin off those boats, it seems to me he always said, boy, that there wasn't a bit of rot under any of the tin, so they had no qualms about putting tin on, that it would rot or anything (Howard Sivertson 1991:8-9).

The sheathing was applied after the wooden hull received some initial preparation. According to Howard Sivertson:

I think they tarred it pretty good first. You know, with pine tar, not real thick tar, but with pine tar, to preserve it good. They put Cupricide on all their boats...just like they're preserving wood now, you see the green lumber? It's sort of a form of Cupricide, I suppose. Cupricide was a brand name. But he put that on all of his boats. Before he painted them, he would Cupricide them real good, or tar them real good. The old boats were usually tarred inside, pine tar, just painted on thin-like, and that seeped into the wood, prevented the rot and allowed the wood to breathe (Howard Sivertson 1991:9).

Stanley recalled that either tar paper or tar felt was placed between the planking and the sheathing on the TWO BROTHERS. Unlike the technique of covering wooden hulls with fiberglass, the use of tar paper and metal sheathing did nothing to promote rot (Sivertson 1992c). He and others had experimented with the new material, with unsatisfactory results: it peeled off repeatedly, kept moisture in, and was less protection against the night ice than the tin (Sivertson 1992c).

Howard described his father's preferences for the final painting: "And the outside was painted then. My dad
always liked to use flat white paint because it didn't form a skin. A skin that would prevent the boat, the wood from breathing, so. His boats--he proved to be right, I think. They lasted a long time" (Howard Sivertson 1991:9). The present condition of SIVIE certainly bears this out. For having been left unused and unprotected for some 25 years, her hull is remarkably solid, albeit a "little limber" (Howard Sivertson 1991:9).

The end result of the work of Hokie and the Sivertsons was quite successful. Howard stated that "...it was their pride and joy..." (Howard Sivertson 1991:3). In fact, his father...

...bragged about [it]...He was very proud of it. And, of course, it was the first boat he ever built or took part in building and he was very proud of it, and the SIVIE was a proud boat. It worked real well. It did anything he wanted it to do. I don't think dad wanted to change a thing after he got it all done. And of course, my dad and Stan Sivertson also had the Gray Marine dealership in Duluth, Minnesota. And so, all our boats had Gray Marine engines in them. And I think there was a 6-226 in that one...that was an express 6-226....The express was a high speed engine (Howard Sivertson 1991:7-8).

As happy as the Sivertsons were with SIVIE, she still taught them a few lessons, and after a time, Art and Hokie collaborated once again to produce the gas boat TWO BROTHERS. Howard recalled:

Hokie and Dad got together again on the TWO BROTHERS and that was probably their finest boat...made up for some of the errors that may
have been in the SIVIE. I don't know what errors they made in the SIVIE, but they made a little different hull in the TWO BROTHERS, and a little bigger boat, and very fine boat (Howard Sivertson 1991:3).

According to Stanley, the choice for SIVIE's original engine—which he stated was indeed a Gray Marine six-cylinder "express" 226 (fitted with a thermostat and an advanced fuel pump)—was a mistake. This was because, despite its designation as a high-speed engine, it did not allow the boat to travel very fast, a result of their inability to run it at the high revolutions recommended by the manufacturer to achieve the proper speed (Sivertson 1992b). Howard remembered that

The TWO BROTHERS had a 6-226 lugger engine in it, and with a two-to-one reduction gear in it, so the engine could run faster and the propeller could spin a little freer, they could use a little bigger wheel. And they found that that was an excellent combination, that Gray Marine—I'm pretty sure it was 6-226...it was a six cylinder. It was a lugger style, so--the lugger was a power engine rather than a high speed engine. The express was a high speed engine. And then the reduction gear was a real help... They figured if they built another one, they'd build it just like that one (Howard Sivertson 1991:8).

In addition, the TWO BROTHERS was built wider and higher in the bow than her little sister SIVIE (Sivertson 1992b).

The field investigation of SIVIE's hull was conducted according to methods described in a draft of the Museum Small Craft Association's Boats: A Field Manual for their
Documentation. Over a period of six weeks, nearly every plank, fastening, and fitting on the SIVIE was drawn and photographed, and the shape of the port half of her hull recorded. In addition, the features observed in the field were more readily understood as a result of interviewing her builder and users.

For example, every other gas boat examined during the project had its fuel tank mounted high in the bow, above the level of the engine, the result of inboard engines taking fuel through a gravity feed. Later engine models, such as those made by the Gray Marine Motor Company around the time of SIVIE's construction, had effective fuel pumps that rendered this arrangement unnecessary (Howard Sivertson 1991:11). In the field it was noted that there were indications that she once had a bow mounted fuel tank, although it presently is located in the stern, housed beneath a wooden bench. Her bow has wooden blocks bolted on the inside that appear to have been supports for mounting a net lifter, and a set of double keelsons has been set in the forward half for added strength.

Stanley Sivertson stated that SIVIE's relatively narrow bow caused her to cut into the seas, and that excessive weight forward would cause her to do so to a greater degree. As a result, when a net lifter was installed in her bow, the original forward-mounted fuel
tank was moved aft to compensate (Stanley Sivertson pers. comm., July 14, 1991; Sivertson 1992a, 1992b). SIVIE was fitted with a smaller version of this device, which was mounted on the starboard side and had enough mass to unbalance her to forward and starboard. To counterbalance this effect, ballast of heavy chain and sometimes rock was placed in the stern. As a consequence the hull was twisted out of shape and the deformation is still visible today (Sivertson 1992b). Upon first being observed in the field, it was thought to be a result of the way in which the boat had been braced when hauled up on shore. Stanley has said that the weight of the net lifter and the ballast adversely affected her seaworthiness (Sivertson 1992c).

Howard Sivertson confirmed that SIVIE had carried a net lifter, adding that fishermen

...would take those on and off, depending on the season. They were totally removable, and they would put those net lifters on in the fall, and during the spring and summer they would leave that bow open, because they would be fishing hook lines and that was an extra weight. You get that net lifter engine in the way of the net lifter itself...[that] was detrimental to the bow being able to lift as fast as it should for the seas. So they tried to make it so they could take it on and off (Howard Sivertson 1991:11).

A net lifter was something supplied by the fisherman himself, rather than being provided by the builder (Howard Sivertson 1991:12).
SIVIE's coaming bears the characteristic grooves worn by gill nets and hook lines being hauled in over the sides, but a series worn in the transom went unexplained until Stanley Sivertson offered a clue to their origin. SIVIE is fitted with a small afterdeck, a feature not seen in earlier gas boats. This feature developed in response to one particular incident, but proved quite convenient in light of the changes in fishing technology that were occurring at the time.

A gas boat owned by one Charlie Parker, also a Washington Harbor fisherman, carried a two-man crew and was powered by an old Buick engine. When the carburetor or fuel line would become clogged, the engine would chug and choke up, sometimes causing the boat to lurch. This happened on one occasion in the vicinity of Long Point, and the boat suddenly jerked. One man was standing in the stern, and the sudden motion flung him backwards and over the side. His body was never found, despite the efforts of Stanley and several others who dragged the area with hooks. Following this incident, Art and Hokie added the small deck to the stern of the SIVIE, which was under construction at the time. It would offer extra protection for her crew against falling overboard from the helm—something to catch an off-balance crewman, or at least one more thing for him to grab hold onto (Sivertson 1992a).
This afterdeck proved even more useful with the new fishing methods that came about during the 1940s. Two major factors were operating on Isle Royale fishing at that time. The first was that the use of floating gill nets was tried by North Shore fishermen, who found technique very effective. Their use spread rapidly to Isle Royale. These nets required the use of much heavier anchors than the fishermen had been accustomed to in order to hold them in place. Such anchors were made up of a number of heavy bags of gravel, with a combined weight of several hundred pounds (Sivertson 1992a).

The second factor was that at this point few fishermen could afford to hire help, so many of them were operating their boats alone. Setting such large anchors out on the fishing grounds by one's self was a difficult and dangerous operation, for in getting them over the side of the boat, a man could easily become entangled in the lines and dragged down to his death. So it was that the fishermen developed the idea of carrying "dumping boards" on which the anchors would be placed while the boat was still at the dock. Each anchor was made up of a set of three gravel bags with a combined weight of 500 pounds; a man alone could lift them into position one at a time, and push or slide them off the dumping board all at once at the location of the set. SIVIE's afterdeck proved to be an ideal location for
placing the dumping board, and it is likely that the deep grooves in her transom were the result of the running out of the anchor lines as the sacks plummeted to the bottom (Stanley Sivertson pers. comm., July 14, 1991; Sivertson 1992a). Stanley Sivertson has stated that the TWO BROTHERS was built with a wider stern specifically to hold an aft-mounted fuel tank and a dumping board to counterbalance a net lifter in the bow (Sivertson 1992c).

There has been some discussion of Hokan Lind's designs versus those of the famous Hill boatbuilding family, also of the North Shore. Perhaps one of the Howard's more revealing observations on this topic was the following recollection about the SIVIE.

I used to race with it once in a while. I had the A.C.A., I was working for A.C. Andrews, and our boat was—the A.C. ANDREWS—was launched in 1949. It was a Reuben-Hill-designed hull, and used the same engine as the one in the SIVIE, so when I'd catch Stanley coming in from the lake, I'd race with him, and, nobody ever won. That's the only thing I can remember. Otherwise, it was just a good work boat. Nothing spectacular that happened to it....Nice little boat, and I'm sure Stan would like to have kept it...he still is keeping it. But he would like to have gotten in the water again, and done the job it was designed to do (Howard Sivertson 1991:12).

The coming of the sea lampreys sent the lake trout population crashing, and the fishing industry collapsed as well. SIVIE was one of the casualties, used infrequently after the destruction of the fish stocks. She saw her last
use in 1967, after which, still in good shape, she was
pulled up on shore for the final time (Sivertson 1992b).

And there it sat. And many, many people have
wanted to buy it, including myself, but Stan was
always going to keep it, because the trout were
coming back, and he was going to start fishing
tROUT again with it. And that's gone on now
since, what, 60? That's 31 years. And the boat
still sits there. Of course, I think it's too
late for anything now...But it was a very nice
boat, and it was the first boat that Sivertsons
had with the little steering wheel on the side.
Which made it real classy, almost yachtlike
(Howard Sivertson 1991:3-4).

Ironically, SIVIE's demise is partly a result of her
being pulled up. According to Stanley, it was the impact
of environmental forces she had not been designed to
resist--sitting on land, her hull given unbalanced support
while it alternately dried out and filled with rain, snow,
ice, and rotting organic material--that helped to finish
her. In contrast, the launch PICNIC, another Sivertson
boat which continued to be used regularly, lasted much
longer. Dr. Cochrane put it very succinctly when he
stated, "Being used prolonged its usefulness" (Sivertson
1992b). However, a second factor contributed to SIVIE's
deterioration and PICNIC's survival. Stanley pointed out
that the former "went all to pieces before it could be
fixed" while the latter continued to operate
satisfactorily. He believed this to be the result of
differences in use rather than differences in construction,
as SIVIE had been built to be and spent all her working life as a fishing boat, while PICNIC had been built as a pleasure vessel and used as such before the Sivertsons acquired her (Sivertson 1992a).

**Inboards, cars, and hook line fishing.** Many of the gas boats abandoned on Isle Royale still retain their engines, and the manufacturers' plates give some indication of the wide variety that was available in the heyday of Lake Superior small craft: Capital, Scripps, Detroit Marine, Continental Motors, Standard, Red Wing, Kermath. The companies are all gone now, though a few of their products survive in restored vessels. Of particular interest to this investigation is the Gray Marine Motor Company, for at one point Stanley and Arthur Sivertson operated one of its dealerships in conjunction with their fish business. Stanley explained why they decided to expand their services to include that aspect:

...one thing, at that time, we thought they were one of the better new-style engines, and we wanted to change from automobile engines to marine engines in the boats, because the car engines were not—like I said, they had some good qualities, like, you know, you could shift gears with a transmission, but they weren't built for boats. And the cooling systems were different. So when they got...regular marine engines with thermostats on them...in those days, we had to try to rig up our own by-passes, kind of, to keep the engines running warm enough. We had lots of trouble, valves sticking and breaking, and valve
springs breaking, so. So...got these marine engines where you could keep a good temperature in them. You didn't have so much trouble with valves burning, sticking, and springs breaking, see. So we got into it for that, and also to try to—we were in the marine business. We were selling nets and rope and things, and we sold a few engines. We still got lots of parts up here, you know. But, that was one of the reasons (Sivertson 1990c:35-36).

Boatbuilder Reuben Hill also remembers problems with early engines:

...normally, most of the boats that we had on the North Shore were Gray Marine engines. I think I mentioned before that we had trouble with the valve springs breaking. In the older motors. But they corrected that....they put in a thermostat so that as you took in cold water, it wouldn't let in any water, any colder water because there was this normal water in the engine block, and as it got hotter, then, of course, gradually it...[would] open up a bypass and let the water, colder water come in. And that solved the problem right there. No more trouble. So that was a wise thing. And...they had to try to correct something, because when you're making valve springs all the time, why, that's not good (Hill 1990c:29).

Stanley remembered when he and Art went to meet with a manager of Gray Marine's sales force.

And I remember we went down to a guy by the name of P.C. Chamberlain. He was a manager of the sales force in Detroit at the time. Art and I went down there about 1947, I suppose. So we talked to him. We met with him [about]...the engines, and...he told us a[n] interesting story...he told about Henry Ford and the fellow [who]... started the Gray Marine Engine Company. His name was Gray. And then, Henry Ford tried to get this Gray, because he'd already built a few engines to come in with him and the Ford Motor Company...For some reason, this Gray had to go to Washington, and this Henry Ford got on the train
and rode all the way with him down there, trying to talk him into going into business with him. And "No," this Gray said, "you come into business with me. Everybody's going to need inboard motors," you know. "That's the way they get around now." That's when it was just coming up, you know. There were different people starting engine companies. But anyway—and Ford needed the money, because this Gray had money evidently. Had enough. It was kind of interesting... But anyway, they didn't get together, but Ford went back and got the money some other way, and that's when he burgeoned out, but so did Gray [and]... Gray Marine engines, see?....Well, that's where he [Ford] was going to get money. He was going to make him [Gray] a part owner, see. But...then this Gray told him, "You come and work for me and be a partner with me." And then it never turned out that way, so. But that's when the Ford Motor Company was kind of starting, you know (Sivertson 1990c:36-37).

As for the engines themselves,

Well, we never sold a lot of them. It was kind of a part of the fish business. There was people changing over some engines at the time, and there were still quite a few commercial fishermen around. So we sold some down to Milford [Johnson], I think Milford bought some. Then Holger Johnson, I think, bought one. And...somebody, oh, what the heck—Skadberg, at Hay Bay bought one. And, well, we sold a few on the Island, then, and we've sold quite a few up here...But not a lot. We were never big in that (Sivertson 1990c:37-38).

Those gas boats which remain on Isle Royale range in length from 18 to 28 feet. A variety of factors were operating to determine the ideal length for these craft. Testimony from a number of informants indicates that 24 feet was the most popular size, both for ease in hauling out and because it was about the maximum size that one man
could row (Hill 1987 in Lenihan 1987:463; Oberg 1990). This was an important consideration for hook line fishing, as will be explained shortly. In addition, there was the issue of the helmsman's field of view. Isle Royale fishermen frequently steered from a standing position in the sterns of their gas boats, as this allowed better visibility. The helmsman would hold the tiller between his legs, its height somewhere between ankle and knee. The heyday of the gas boats took place during the time of the pulp wood industry, when huge rafts of logs were being wrestled across the lake by work tugs. These pulp sticks escaped the rafts in varying numbers and drifted about, creating a serious hazard for the small power vessels while, according to Stanley Sivertson, the Mackinaw sailboats, moving at a slower speed, were not as likely to be sunk by a collision with an errant pulp log. A boat that was too long would obstruct the helmsman's view ahead (Sivertson 1992a). It should be noted that only one 28-foot gas boat was found on the Island, and that was a resort-era launch never used for a commercial fishing and not fitted with oarlocks. However, Stanley Sivertson recalled that Tom Eckel's boat, the SEAGULL, carried a Palmer engine and, at 27 feet, "...was the biggest boat the hook line fishermen had around here at the time (Sivertson 1990c:15).
Length-to-beam ratios were fairly constant at 3:1 (Hill 1987 in Lenihan 1987:463; Lind 1990a:2; Tolson 1991), and the boats were either strip-built or had carvel planking, clench-nailed to steam-bent frames (Tolson 1991).

Another characteristic of most of the Isle Royale gas boats (eight out of eleven examined) was the low coaming that bounded their open hulls just inside the narrow decks (Figure 18 and the figure on p. 271). In addition to keeping out the water, they also served as a base for mounting the oarlock pads. According to Stanley Sivertson:

...those coamings, you know--every boat that I, that we ever used had [one]...some people, you see, in other places, they just had the deck. You know, the deck about that wide, over the top of the ribs. But every boat I ever seen on the Island had also that vertical coaming...to shed the water....Well, then you had your oarlock sockets in there. That was a way to mount the oarlock sockets so you had some bracing, you know (Sivertson 1990c:23).

With few exceptions, provision was made for rowing in all gas boats, and each carried one or two sets of oarlock pads and oarlocks. Of the gas boats examined in the study, only two had no obvious provisions for rowing: one was the resort launch HMS, which was too big to be easily propelled by oars, and the other was the fishing boat MOONBEAM. In the fishing gas boats oarlock sockets served a dual function. First of all, early engines could not be throttled down, so once out on the fishing grounds it was
FIGURE 18. Foredock of gas boat ISLE, showing absence of coaming (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
necessary for one fisherman to row while his partner tended
the hook lines (Oberg 1990). Alternatively, the boat might
be pulled hand-over-hand along the main line of the rig.
Roy Oberg described both the reasoning and the operation:

> Most of them didn't go over 25 feet because they're too big to haul on the hook line, see? When they use hook line fishing, they had to pull the boat or row it along the line as they [checked the snells]...So one guy did that...and the other one baited, changed the bait. You have to take in the old bait and put a fresh one on and drop it over...and these were only 60 feet apart, these hooks...later years, then, they got better engines and stuff, and they could run these engines slow enough that they run...with the engine and go along the hook line. And then it was a lot easier, you know. And...originally they were two men in a boat all the time. But later years then, they start[ed] doing it with just one. One guy would do it himself, like Milford and Arnold. They used to run 15 lines a day. And they'd have three stretches out. So they try to bait--every third day, they try to put new bait on the other one, see? Of course, if you got a storm, then it'd be four or five days, maybe, before they got back to that other one... But they were, them boats were 22, 23, up to 25 feet, most of them (Oberg 1990:12-13).

The second function of the oarlock sockets was as a holder. "And then we used that same oarlock socket...for the running pin, we called it. Let the [hook] line run around the running pin." The running pin served as a guide for the main hook line as the boat was rowed or pulled along it. The pin was made of birch or oak, and both it and the oak coaming were subjected to considerable wear from the abrasion of the hook line as it came into the
boat. "Yeah, that railings [coaming] would wear down. And that pin would get grooves in it..." (Sivertson 1990c:23). A number of the gas boats remaining on Isle Royale exhibit this diagnostic grooving on their coamings (see Appendix 4).

The strategy of hauling a vessel along the main line added another factor to gas boat design: a boat could not be too heavy. It has already been mentioned that the preferred set of a hook line rig was across any prevailing current. An overly-heavy boat would "take too much current" in a strong flow and might break the main line or shift the rig (Sivertson 1992a).

So human muscles were the primary means of propelling a gas boat in hook line fishing. Speed in the operation was important, both as evidence of efficacy and a source of pride. The engine would be used only to move the boat from one gang to the next, although if its transmission had a neutral position, it might be left on as the snells were being hauled. Considerable care was required during the process, as the fishermen had to keep the three lines of the hook line rig—float string, main line, and snell—clear of the propeller (Sivertson 1992a).

As the fishermen began putting automobile engines into their gas boats, the need to row along the hook lines was mostly eliminated. Stanley Sivertson explained:
We had first a Palmer engine in the RUTH, and then we started putting car engines in, because we could get these shifts transmissions [sic] so at the hook lines, you know, you could take them out of gear or you could run them at lesser speeds than you could if you had a full clutch.... So most of the boats there, Torgersons too, and everybody started putting Buick engines and Chrysler engines--we had a...Chrysler engine in the RUTH after the Palmer, but we had a Palmer two-cylinder at first. And let's see. Then in the other boat that's laying there, that the Bugge's sold to us--SEA BIRD, think it was SEA BIRD. And that, that had a Buick in it. And John Miller finally...I wonder if that was the ELBA, the name of his boat...Anyway, he also put a Buick in that one. And George Torgerson had one that had a Buick...they turn out to be pretty good motors, you know. Not as good as the marine motors, but they had these transmissions that you could shift...at the hook line, you could shift them into low gear if the wind was with you, pushing you, you know. And for setting nets, if the nets were...tangled, or deep, or--when you're setting, these transmissions were much better, because you could get into low gear, or second gear, or high gear, you know (Sivertson 1990c:11-12).

The transmissions of the automobile engines made the difference in more efficient running along the gangs.

Gas boats on Isle Royale. The collection of gas boats present on the Island spans the history of the type, illustrating its various evolutionary stages as well as the styles and construction techniques of a number of builders.

The usefulness of the gas boat as a type ended, not because of any dramatic technological advancements, but rather as a result of the collapse of the lake trout and whitefish populations, decimated by the sea lamprey in the 1950's. The decline of the fishing industry on
Isle Royale is evidenced by the extensive repairs present in many of the boats: supplemental bracing, heavily-sistered frames, and multiple sets of fastenings. Many contain so much of this type of repair work that it is often difficult to recognize the original construction. A few of these boats were converted or built as charter vessels to take advantage of the tourist trade, but most were simply hauled out one last time, carefully shored up, and abandoned (Tolson 1991).

The Isle Royale Vernacular Boat Study located and examined a total of 11 gas boats during the 1990 season, and it is known that several more remain in various places and various stages of disintegration around the Island. Many still retain their original engines and fittings, but unfortunately all are rapidly succumbing to rot, collapsing under the weight of heavy winter snows. The best-preserved examples are those which are in private hands and have been moved off-island for restoration and use as pleasure craft (Tolson, 1991).

The Launch

The gas boat was an extremely versatile design, perfectly adapted to conditions on Lake Superior, so it is not surprising to find it modified for uses other than fishing. When the same hull used for commercial fishing was constructed for recreational activities, the result was called a launch or motor launch (Lenihan 1987:465). According to Stanley Sivertson, the fishermen "...called
them fantails...because most of them, in the early days, had that fan tail on, you know." His father, Sam Sivertson, was heard to refer to them as launches. Stanley explained, "Well, I mean they called them launches, but many of them were fantail boats. Barnum had one. And Andrews had one in the early days" (Sivertson 1990c:32). He recalled one other.

Then they had a boat up at the Washington Club and that was a fat, chunky boat with a fantail stern. And that's the one they took across when Art's wife [was ill]...They had to take her off the Island. About 1926, I think it was. That was the biggest boat around there at the time, see, so they used [that. There was]...a storm from the north, northwest and they had to take her across to try to get her into a hospital [in Thunder Bay, Canada] (Sivertson 1990c:33).

Double-ended launches were prevalent in the late 1890s and early 1900s, but like many of the working gas boats, the sharp stern was ultimately replaced by the square stern, which offered more space (Lenihan 1987:465).

According to boatbuilder Reuben Hill, a launch was "...one that is used for commercial use, for taking people out...that was fancied up a little bit different. It maybe had a top the full length of it and curtains to drop down in case of weather. That's what the boats at Rock Harbor were" (Hill 1987 in Lenihan 1987:465). Such boats were fitted out to provide more passenger comfort than their working sisters, with benches and cushions. In addition,
they may have carried more decorative fittings, such as brass rails. The launch was, in the eyes of fishermen and boatbuilders alike, "a resort-related boat" (Lenihan 1987:465). Several Isle Royale launches have found homes off-island with owners who are dutifully working to restore and maintain them. One still regularly makes the voyage from the North Shore to Isle Royale for summer cruising about the Island. This is the PICNIC, built in 1943 for A.C. Andrews of Washington Harbor by Reuben Hill, and since acquired by members of the Sivertson family (Hill 1989d, Vernacular Boat Archive [VBA]). The WINDSOR II, a former resort boat, is in private hands in Michigan.

Only one launch was known to actually be on Isle Royale at the time of the study, and that one has since been removed by its owners (Figure 43, Figure 44). The HMS was built by Reuben Hill for the Scofield resort at Belle Isle, Isle Royale, where she was "used by the resort for trolling, [and] trips along the Island to various picnic spots with guests" (Hill 1989a, VBA). She was eventually acquired by the Gale family of Tobin Harbor "when former resort owner Fred Scofield sold out" (Hill 1989a, VBA). During the Second World War, five Island women used her to circumnavigate the archipelago (Oikarinen 1979:115), and she is fondly remembered by many Island residents.
The HMS exhibits the same Hill Signature in her construction that is present in the working gas boats built by Reuben Hill, although she shows some differences which mark her as not intended for fishing. Her length of 28 feet is beyond that preferred by the majority of fishermen, and her lack of oarlocks shows that she was not designed to be rowed. In addition, she carries a few more frills than her commercial sisters: permanently-mounted floorboards, four bench-type seats, and foredeck planking that has been laid in a little more elaborately (Tolson 1990b, VBA). She is worth a more thorough documentation in order to have a basis for comparing a known resort launch with gas boats by the same builder. In addition, she has a rich oral history and has been documented photographically by her owners, allowing the potential for compiling a thorough technical and ethnographic history.

The Submerged Cultural Resources Study reports that in recent years, area sport fishermen have taken to using strip-built "launches" of 12, 14, and 16 feet in length and powered by outboard motors (Hill 1987 in Lenihan 1987:465). Such boats are today known as "outboard boats" or "runabouts" (Lenihan 1987:465).
The Rowboat/Outboard Boat

This type of craft is also prevalent among the boats remaining on Isle Royale in the form of round-bottomed, square-sterned boats used for both commercial fishing and recreation. These were built both lapstrake and smooth-seamed, with one or two sets of oarlocks and reinforced transoms to allow them to take an outboard motor. They have a beam that is generally slightly less than one-third their length of 16 to 18 feet. Such boats may have begun life as rowboats/rowing skiffs and been reinforced for outboard motor attachment, or been built with the idea that they could be operated under both engine and oar power.

It is not certain whether there was any particular vernacular designation for this type of boat, as the term rowboat is applied by some to boats that take an outboard (Stack 1989, Vernacular Boat Archive [VBA]) and others refer to them as outboard motor boats (Hill 1989b, Vernacular Boat Archive [VBA]). For the purposes of this study they have been designated "rowboat/outboard boats."

The Isle Royale Vernacular Boat Study has examined five examples of this type, and has observed quite a few more in various places around the Island. Some of the best preserved illustrations built for recreational use are the 16 lapstrake boats built by Reuben Hill for the concessionaire at Rock Harbor. These boats are nearly 60
years old (Hill n.d.) and still in use by new generations of visitors. They are about 16 feet in length and have a maximum beam of about 5 feet, 2 inches, with steam-bent frames (Tolson 1990b, VBA). They are particularly important because they provide illustrations of the Hill building methods as applied to a different type and smaller-scale vessel than the gas boats.

Probably the best preserved example of a working boat of this type located thus far is the one currently on shore at Edisen Fishery in Rock Harbor (Figure 19, Figure 20). Even so, it needs considerable stabilization to arrest an accelerating deterioration. The transom is missing, the after ends of some planks are rotted and crushed, and the thwarts and standing knees are rotted and broken (Tolson 1990b, VBA).

The strip-built craft is 17 feet long, with a maximum beam of 5 feet, 8 inches and steam-bent frames (Tolson 1990b, VBA). She was featured in the 1976 film "Fishermen of Isle Royale," where she was used by Pete Edisen to demonstrate gill net fishing. Pete Edisen was one of the last commercial fishermen to work on Isle Royale, and this was the last boat that he used (Maass n.d., Vernacular Boat Archive [VBA]). He was very much a part of the fabric of Isle Royale as it was perceived by many park visitors, who saw him using this particular vessel. As such, it has a
FIGURE 19. Pete Edisen's rowboat/outboard boat, profile, port side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 20. Pete Edisen's rowboat/outboard boat, starboard quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
particular interpretive significance and should be considered for restoration and in-depth documentation.

The Fish Tug STANLEY

The Submerged Cultural Resources Study for Isle Royale National Park reports that the vessel type known as the fish tug was used primarily from the 1930s to the 1950s. The fish tug utilized a hull design similar to that of the gas boats, but tended to be larger, generally about 35 feet in length (Lenihan 1987:468; Hill 1990b). Its totally-enclosed deck and pilothouse permitted winter gill net fishing (Lenihan 1987:468; Sivertson 1990c:16). Boatbuilder Reuben Hill remembers constructing a number of these vessels: "We built quite a few like that. Had [it] all covered over because it [was] for in the late fall, when it was cold. And they had [a] stove, a special stove in there to keep the nets from freezing and things..." (Hill 1990b:12). Few Isle Royale fishermen stayed on the Island for winter fishing, and since the enclosed deck of a fish tug was incompatible for the hook line fishing conducted during the earlier part of the season, this type was not generally seen there (Sivertson 1990c:16).

A few families did have such vessels, however. Three well-known examples of Isle Royale tugs were the JEFFERY, owned by Milford and Arnold Johnson and used for their Star
Island fishery; the AH-WA-NEESHA, owned and operated by their half-brother Holger Johnson; and the STANLEY (Lenihan 1987:469,470). Of these, the last two have been lost and/or abandoned on Isle Royale.

According to the SCRU report,

AH-WA-NEESHA, launched in 1922, was built along the lines of a commercial fish tug, although its early use was in the passenger/freight trade. Purchased in 1937 by Holger Johnson and Otto Olsen, the vessel was "converted" to commercial fishing. No longer principally a passenger boat she was then referred to as a fish tug (Lenihan 1987:469).

AH-WA-NEESHA is currently aground on the shore of Chippewa Harbor and badly broken up. Period photographs reveal a rather elegant design, with an unusual oval-shaped cabin covering most of the deck area. The SCRU report dates her loss to 1955 (Lenihan 1987:469), and one local tradition tells that her owner, angered because he was told he could no longer operate the vessel from Isle Royale (presumably due to the formation of the park), deliberately ran her ashore in the harbor. Thom Holden of the Canal Park Marine Museum in Duluth, Minnesota has put considerable effort into documenting this boat, so no attempt was made during this project to give her other than a cursory examination, particularly since there has likely been considerable additional deterioration since his work was completed.
The STANLEY is probably the best-known small craft wreck on Isle Royale. According to Roy Oberg, she was not highly regarded.

But the bigger boats, like they lived in...There was one that lived there at Star Island that belonged to the Ronnings. And that sank there. It laid on the bottom for many years...Inside of Star Island. That was called the STANLEY. And the Ronnings built that. And I remember stories my uncles used to tell and stuff like that. And this Chris Ronning built this boat himself. And they always joked about it, because they said it was just built out of scrap lumber...In the old days...crackers came in big boxes. I don't know if they were 20 pounds to a box or something, and they were wooden boxes. So every time they'd get one of these boxes, they'd throw it out when they went by the STANLEY, and they'd say, "Hey Chris! You can save this and build yourself another boat!" (Oberg 1990:13-14).

Little information about the STANLEY prior to her sinking is available. The SCRU report states that she was built in Two Harbors, Minnesota in 1914 and owned by John E. Johnson, who operated a fishery at Star Island, Isle Royale. At least one photograph of the fishery from the early 1930s shows a partially submerged STANLEY, which sank next to the island's main fish dock some time before 1935. At some point her engine, possibly her cabin, and other salvageable elements were stripped from the hull, after which she was hauled out into Lorelei Lane between Inner Hill Island and Star Island and scuttled (Lenihan 1987:385, 389, 471). She remains there yet, readily visible through the clear water, a familiar Isle Royale landmark.
Extensively documented by the Submerged Cultural Resources Unit in 1982, she was not examined during the Isle Royale Vernacular Boat Study. Their report describes STANLEY as "typical of a circa 1920s to 1930s era fish tug" (Lenihan 1987:471). She is the best preserved known example of the type on the Island.

The DAGMAR: A Member of the Mosquito Fleet

Rakestraw records the DAGMAR as a contemporary of the AMERICA, the DETROIT, and the WINYAH, one of the freight/passenger vessels that carried people and supplies out to Isle Royale and returned to the mainland with the fishermen's catches (Rakestraw 1968:21). The SCRU report states:

DAGMAR, launched in 1914, was also built along the lines of a fish tug. Used as an inland coastal freighter, it was purchased in 1930 by Arnold Johnson and used as a fish tug and later a freight/passenger boat. DAGMAR was lost in 1935 approximately 1/2 to 3/4 mile northeast of Chippewa Harbor. At the time of loss, the tug was owned by the Brazell Motor Freight Company (Lenihan 1987:469).

Hokan Lind remembers watching Chris Ronning construct the DAGMAR, and he, himself, has built a scale model of it. According to Hokie, her keel and stem were hewn from the trunk and root of a single white pine, apparently the same technique applied to his father's boat, the DORIS (Lind 1990a).
Olga Johnson recalled that her husband owned the DAGMAR "during the CCC days," although he only had it for two or three years. The 46-foot vessel was built by the Ronning brothers, Olaf and Chris, and probably constructed somewhere on the North Shore. The brothers had been coopers in their native Norway, and good carpenters (Johnson 1990). Constructed from local lumber, the vessel had a flat bottom:

Big, flat, with a cab...[a] pilothouse...and then a small kitchen in the back, and canopy top, so it's all open. And they built it, and fished with it. Also picked up fish...But what they did that was unusual, I think, is—they were at Green Island also. And what they would do is, as coopers, they could, they'd make...kegs—they'd make all their own kegs. In the off season. Go to the Isle Royale, fish herring with the skiffs, load up the old DAGMAR, and haul it back (Johnson 1990).

At some point the two brothers, working alone, decided the vessel wasn't large enough for their needs. Green Island, their base of operations, had "a very shallow slope on the inside," and there, working alone, the two hauled her up on shore. They then cut the boat in half and used a winch to haul the forward portion ahead another 8 or 10 feet, adding new construction in the gap to lengthen the vessel (Johnson 1990). This method of enlarging a boat was not unheard of, but was usually applied on the North Shore, where yards, tools, and labor were more readily available.

The boat was then sold to
...Ed Mattson...who also wanted to make the runs to Isle Royale, picking up fish and so forth, and back. And then it was sold to my dad, [Arnold Johnson] who had it for a couple of years. I think they were trying to start a fishermen's union then, and he was hoping to pick up fish along the Island, you know, [and]...get a better price by doing this...And then, I suppose the union didn't work out. Dad sold it to Brazell [Motor Freight Company]... (Johnson 1990).

While under the ownership of the Brazell Motor Freight Company, the DAGMAR was lost on a run to Chippewa Harbor. Ron Johnson recalls that there was "a little alcohol involved there." The boat had left Rock Harbor and was heading southeast along the shore toward Chippewa Harbor with navigator "Otto [Olsen], who was a native, and knew all the rocks, and every little niche" (Johnson 1990). Ron stated that

...the weather was a little--I don't know--dark or foggy and Otto had had a couple of drinks, as he sometimes did. And he told the guys where to turn in. Well, they made the turn, but I think they were a quarter-mile too soon, and slid right up on the rocks, you know. And evidently hung there long enough so they could, you know, get off... (Johnson 1990).

The bow stayed out of the water long enough for the crew to scramble ashore, but the boat eventually went down. Olga Johnson recalls the wreck occurring after her family had left the Island for the winter (Johnson 1990).

Roy Oberg theorized about other factors contributing to the DAGMAR wreck.
...my grandfather, he had an old...Liberty engine. That was one of them. Like [the]...old Kahlenbergs, you had to heat them. They had a big hot spot on the head where you heated them with a[n] acetylene torch. And they used to have a torch tank...like your propane is now, almost. It was the same idea. Then they heated them till they got them red hot, this bulb, and that's what they used for ignition...Well, they call them semi-diesels, is what they really were. And they used to run real cheap, them. They could go, oh, I don't know how many, miles and miles on a gallon of fuel.

...that's what the DAGMAR had in it when it got wrecked. And they were made then, they run on kerosene. But then with time--they were running in the fog that time, when they were going back from Rock Harbor to Chippewa Harbor. And they had a big dance over there on Caribou Island, where they used to have dances on Fourth of July. And I think that's the time--I don't know too good of details on it, but what I heard was, that they were running on kerosene, but when you got to a dock, to maneuver them you turned them over on gas, see? And they'd run on gas, then. They could maneuver them to slow them down and back them up and stuff like that, because you had to direct-reverse the engine. They didn't have a clutch in them, see. And that's what happened. When they run up to the rock there, they were running on kerosene and then they couldn't get her started again. Because they--if they'd had her running on gas, they could have backed away, see? When she laid there and pounded to pieces. The guys got off. They jumped off on the shore and she just laid there. I often wondered, if they could get that boat that goes down with that robot and see if that thing is still laying on a shelf there somewheres. To see if that boat...if it didn't fall into deeper water it still could be salvaged (Oberg 1990:10-11).
NAMING BOATS

When asked who was responsible for naming a boat,

Stanley Sivertson replied:

...I'd think up names and then they'd tell me which one they didn't like. But, even when Art [his brother] was with me, it was--he always put it off on me to name the boats. But like the RUTH, the one boat that's still over on the island? You probably looked at that, the RUTH, there. That was named after a good friend of ours that worked for...Booth fisheries. She was a bookkeeper there, see? Ruth Wold...(Sivertson 1990c:11).

The TWO BROTHERS, designed and built by Art Sivertson and Hokie Lind, was also named by Stan. The name was particularly appropriate, because two brothers owned it (the Sivertsons) and two brothers fished out of it (Carl and Einar Eckmark) (Stanley Sivertson 1991). He also reported that when Gus Torgerson changed the name of one of his boats from EVELYN to EDGAR ISLAND (the place he came from in Norway), others in the harbor regarded the act as "awful" (Sivertson 1990b). It has long been a superstition among sailors that the changing of a vessel's name is an invitation to bad luck (Boyer 1968:189), and it seems likely that this was the reason behind their feelings.
CHAPTER VI

THE ISLE ROYALE/NORTH SHORE BOATBUILDING TRADITION

INTRODUCTION

The geographical conditions found on Isle Royale and the North Shore brought a comforting familiarity to the lives of Old World immigrants, who found the area to be similar to the land they had left behind: "...like, a piece of Norway" (Lind 1990b:28). The area imposed its own requirements on watercraft, and a number of types had been born and developed long before the Scandinavians arrived. However, like immigrants everywhere, they brought with them their own knowledge, tools, and techniques, which they proceeded to apply and adapt to New World boatbuilding.

There does not seem to have been a great deal of boatbuilding done on Isle Royale itself. The Linklaters may have made their canoe there. Perhaps a few skiffs were constructed. Ed Holte of the Wright's Island fishery built a small lapstrake rowing skiff as a special project some 65 years ago (Karan Holte pers. comm., August 1991). And at least one case of heavy-duty alteration occurred when the two Ronning brothers hauled the DAGMAR out at Green Island and lengthened her by 10 feet (Johnson 1990).

Most of the boatbuilding took place on the North Shore, the Lake Superior coast of Minnesota, where a
variety of shops, partnerships, and families turned out the many small craft that eventually appeared on Isle Royale. The names are many: the Wayzata Boat Building Company of Wayzata, Minnesota; the Moore Boat Works of Wayzata; the North Shore Boat Works of Duluth; the Lutsen Boat Works; the Thompson Boat Works of Duluth; Joseph Dingel Boat Works of St. Paul; Great Lakes Boat Builders of Duluth; Falk Boat Works; Charles Hill & Sons of Larsmont; Hokan Lind and Art Sivertson; Axel Olof Oberg and Roy Bernard Oberg; Otto Olsen and Holger Johnson; Ole Danielson; E.J. Croft; Ed Holte; Hjalmer Mattson; John Miller; Paul Le Plante; and Henry J. Redmyer (Moore Boat Works Catalogue n.d.; Survey Forms, various, VBA; Raff 1981:83; Lind 1990c; Oberg 1990; Tolson 1990b, VBA; Mattson 1991; Stanley Sivertson 1991).

Many of these shops now exist only as name plates on rotting hulls, faded photos in cherished albums, or fading memories in the minds of those who knew, used, and built the boats. Regrettably, only a fraction of these could be examined, and fewer still in any detail. Even so, the study was able to document something of the history and techniques of two of the best known independent builders of small craft for Isle Royale and the North Shore, who provide an interesting comparison and contrast in family history and building methods.
OLE DANIELSON

One of the earliest builders remembered on the North Shore was Ole Danielson, "who made a lot of good boats" (Stanley Sivertson 1991). Stanley Sivertson remembers that "...there was different boatbuilders came at different times, see? In my life, anyway, it was Ole Danielson. That's first one I remember, and my dad talked about what a beautiful boatbuilder he was" (Sivertson 1990c:30), and that "[He]...was probably one of the oldest ones that I knew about, and he was a craftsman, really" (Sivertson 1990c:29). Stanley remembers Danielson as the best of the builders with whom he was acquainted (Stanley Sivertson pers. comm., Summer 1991). Initially highly regarded, Danielson built a number of vessels, one of which was the 25-foot launch SUNBEAM (one of the first such boats on Isle Royale) for the Barnum family in the early 1900s (David C. Barnum pers. comm., January 6, 1992).

His work suffered in later years when he got old and, according to Stanley Sivertson, began working with a house carpenter, possibly Ole's father-in-law. His new partner wanted to show him how to build boats using less time and effort (Sivertson 1992c). The boats produced by the new partnership (and new philosophy) showed none of the master's craftsmanship. Stanley recalled, "...and that's when he built these boats, the MARY ELLEN that they had at
Singers, and ours, the RUTH. They all were kind of flukes..." (Sivertson 1990c:29).

In fact, at least some of the boats required additional work to render them safe for use. Stanley described some of the corner-cutting done by the shop: "Like, the ribs were just toenailed into the keel instead of having it, you know, a keelson across....and putting the planks too close together, so you didn't need corking in them, but when the boat swelled up in the water, it pulled the planks away from the ribs. That's what happened to ours, see?" (Sivertson 1990c:29). Stanley had to return his own Danielson gas boat, the RUTH, to Duluth for additional work after she almost sank the first fall he had her (Sivertson 1990b). According to him, the planks had insufficient support and the boat had no keelsons, which struck him as incredible (Sivertson 1990b). In addition, the builders had failed to make an allowance for the swelling of the planks that would occur when the boat was placed in the water (Stanley Sivertson 1991). The Sivertsons partially alleviated this by cutting a gap the width of a saw blade between some of the planks (Stanley Sivertson 1991).

...see, the MARY ELLEN...that Singer's had, that developed trouble. They had to take that back, on the AMERICA, I think it was. And, all the way back to Duluth. And ours...that had the same trouble. It was swelled up...and they--and a
couple of the boats, they had to take a saw, and kind of try to saw a space between the planks. Because they'd been so dry, evidently ... that's what they talked about, kiln-dried lumber. That they shouldn't have used kiln-dried lumber (Sivertson 1990c:31).

Some were not fortunate enough to discover such flaws in time to have them repaired. "...Gus Torgerson, he drowned in his out here, the first year they had it. Gus Torgerson and three other men" (Sivertson 1990c:29). Gus Torgerson of Duluth and Booth Island was a friend and chief competitor of the Sivertsons (Sivertson 1990b). He, along with Torvoh Seglem and two other men were in a Danielson boat near Duluth when they were caught by a sudden squall. Some of those who knew Danielson's later work assume that the vessel split at the keel and was rapidly beaten apart. With their boat literally disintegrating beneath them, the four would have had no chance (Stanley Sivertson 1991).

When asked if this fatal wreck affected the reputation of the boatbuilder, Stanley's reply was surprisingly mild: "Oh, a little bit, little bit" (Sivertson 1990c:31). He stated, "But that was, I guess, the first of people trying to make short-cuts in building, you know, and not building them the way the craftsmen had built them before....there's an art to the boatbuilding when you build them out of wood, that's for sure" (Sivertson 1990c:29).
Only three of Danielson's boats are currently known to exist. The first is a varnished rowboat owned by the Barnum family of Isle Royale, which likely represents his early work. The second is the Sivertson Mackinaw sailboat (Sivertson 1992b). Its deteriorated condition renders examination difficult, but the lapstrake construction and vessel type indicate it, too, must have been one of his earlier and presumably better efforts. The third is the RUTH, which, along with another gas boat, is hauled up on shore at the site of Art Sivertson's Washington Island fishery. The fishery itself has long since been burned by the Park Service, but the two gas boats provide an interesting comparison of the quality of the wooden boat craftsmanship of two different builders.

The SEA BIRD is a wooden gas boat built by Reuben Hill (Sivertson 1990b) and purchased by the Sivertsons from the Bugges of Knife River, Minnesota (Sivertson 1990c:11) (Figure 35, Figure 36). She is carvel planked with tiller steering and a frame in the bow for supporting a net lifter (Tolson 1990b, VBA). She exhibits the typical Hill hull design, with a blunt, full bow and cut-away stern, and is metal-sheathed against night ice along the turn-of-bilge from the stem to aft of amidships, and again in the after portion of the hull above the keel (Tolson 1990b, VBA). The majority of her interior is braced with steam-bent full
frames; half-frames are present in the stern, where there is an extreme curvature to the hull (and possibly in the bow, which could not be examined) (Tolson 1990b, VBA). It is not certain what her original engine was, but at some point she was fitted with a Buick automobile engine (Sivertson 1990c:12), and currently carries a four-cylinder Gray Marine engine from the Continental Motors Corporation (Tolson 1990b, VBA). Her condition is poor, with a majority of the wood being rotten, but the integrity of the hull and its components is good.

Next to her rests the RUTH, built by Ole Danielson in his later years (Sivertson 1990b) (Figure 37, Figure 38). She, too, is carvel planked, but bears no evidence of having carried a net lifter. The type of steering she carried is unknown. She has a blunt, full bow, a cut-away stern, and carries metal sheathing from her stem along the turn-of-bilge to approximately amidships. Her framing is a combination of steam-bent half-frames and half-frames paired with futtocks. The futtocks are placed forward of the half-frames and are slightly shorter, and all half-frames overlap the keel, to which they are nailed.

Originally fitted with a Palmer engine, she later carried a Chrysler engine, which may be the same one in her now. Her condition is very poor, her wood badly rotted. The most striking aspect of her deterioration is the fact that the
hull has literally blown apart; the transom has separated from the planking on the port side, and the hull has opened up along the keel, leaving only the bow intact (Tolson 1990b, VBA). No other gas boat examined during the course of the study exhibited this type of structural deterioration. They are, in fact, remarkably intact once one allows for 30 years of unchecked deterioration. This certainly tends to support the charges of poor craftsmanship against Danielson.

It is interesting, in light of these two vessels in juxtaposition to each other, that Stanley reported that the Hill family followed Ole Danielson in the chronology of boatbuilders.

And then came the Hills, and...then came the fellows that built the COPPER QUEEN. Winnakes. Winnake brothers out of [Copper Harbor, Michigan]....Well, they were supposed to be expert boatbuilders. Then this Mulkie was a good boatbuilder, too, but he wasn't as--well, like that one boat he built...But he wasn't maybe a sailor. So he built it, maybe, for a purpose, then, and I suppose served that purpose, but--the Hills built good boats. Well, he did, too, this Mulkie, because...the SHARON JOHN, the RITA MARIE, and KNIFE ISLE, and the NORTH SHORE, and a few others...are the ones he built. And they held up a long time. They were good boats. They thought the SHARON JOHN, he built the bow a little bit too low, but, that was maybe a kind of design so that--because they had the pilot house in the stern so you could see over the bow when you were running, you know. And with the wider sterns on them, so--but they all were considered good boatbuilders, except the one that got in with Ole Danielson at that time (Sivertson 1990c:30).
THE HILL FAMILY

Edgar Reuben Hill is probably the best-known boatbuilder on the North Shore and Isle Royale. He is certainly the most prolific. By his own estimation he, his father, and his brother have built some 120 boats for use on the North Shore and at Isle Royale (Hill n.d.). As independents, in various partnerships, and in a number of yards, he and his family have constructed a wide variety of vessels across the spectrum of work and pleasure boats. Their creations have ranged from small rowing boats through gas boats to fish tugs and large freight boats; from a 22-foot sloop to a large two-masted sailer, as well as five 120-foot antisubmarine boats constructed during World War Two (Hill 1990a). He has even built a fuselage for a small plane.

Reuben started in the craft of boatbuilding at a very young age, learning from his father, Charles J. Hill. "...Dad was pretty much on boats, you know. That was... pretty much his livelihood...from the Old Country..." (Hill 1990c:10) Charles' family were natives of Sweden who eventually moved across into Finland and settled near the town of Pormo (Hill 1990c:33). They were called Swedish-speaking Finns (Hill 1990b:30). According to Reuben, "They were boat people and did boat work there," so there was no
doubt where young Charles first began to learn the trade (Hill 1990b:4).

Born in 1873, Charles J. Hill immigrated to the United States in the early 1890's, working for a number of years in the mines of northern Michigan. From there, he moved on to the Iron Range of Minnesota, staying only a year before going on to Duluth, where he spent his summers doing carpentry and winters working in the logging camps. In 1898, he married Mary Mattson Hendrickson, and some time before 1900 (Setterlund 1982) went to work for the Patterson Boat Works, where the craft of boatbuilding got "stuck in the blood," in Reuben's words (Hill 1990b:4).

For a while the Hills lived on Encampment Island, which had been homesteaded by Mary's brother, Hans Mattson (Hill 1990b:1; Setterlund 1982). It was while living there, over the period of 1902-1903, that Charles constructed his own 45-foot freight boat, the THOR, and went into business for himself (Setterlund 1982). He used the boat—which he eventually hauled up on shore and lengthened to 58 feet in 1908 (Setterlund 1982)—to travel up and down the coast, picking up fish at Isle Royale and all the little fishing villages along the North Shore. Reuben fondly remembers he and his brother riding along with Charles ("I can still hear that two-cycle engine: ca-chunk, ca-chunk, ca-chunk") (Hill 1990b:2).
At some point, likely during this period, Charles himself lived on Isle Royale for a few years, fishing from the area now known as Hill Point, which was probably named for him (Hill 1990a). Ultimately, he sold his boat and in 1910 moved to Larsmont, Minnesota, where he bought 40 acres of land (Setterlund 1982) and began his own boatbuilding business. According to Reuben, "He was a good, good carpenter. Good, good head on him" (Hill 1990b:30). He added that "...the thing he stressed particularly, he said, 'If you're not going to do a good job, leave it alone. Don't mess with it. Because you're just in trouble, that's all'" (Hill 1990c:17).

In 1913 he built the GOLDISH, a 64-foot freight boat with what was called a hurricane deck, a deck extending from the pilot house to the stern and serving to protect the cargo carried on the main deck (Hill 1990b:2). The GOLDISH is still fondly remembered by many North Shore residents as a member of the famous Mosquito Fleet.

It was during the construction of the GOLDISH that the craft of boatbuilding got "stuck in the blood" of young Reuben Hill. The nine-year-old and his eight-year-old brother, Helmer (Setterlund 1982), were responsible for hauling small buckets of water up a ladder and sloshing them into the hull to help keep it from drying out in the summer heat. The two boys scrambled around the yard,
picking up blocks of wood and attempting to whittle them, without much success, until Charles finally said, "If you kids quit bothering me, why, I'll make you--I'll cut out a half model that you can work on and trim up" (Hill 1990b:5). He did, and according to Reuben, that was the beginning of a career that he continued, alone and with his father and brother up into the mid-1980's.

Reuben did not build from lines or plans. His designs were in his mind instead of on paper, so he began by carving out a half model, a scaled version of the hull-to-be, born out of his knowledge and experience and carved by hand from a block of wood. The contours of the half model were exactly those that would be reproduced on the boat itself, and once the little hull had been shaped, Reuben would add any features a customer might request (The Seiche 1980:2). "...Since we were knee-high to a grasshopper we were on boats on the Lake Superior, you know," he said (Hill 1990b:13). So he was very familiar with what would and would not work as an element of boat design.

"You had an idea you better make them reasonably long for what you wanted and then fairly beamy so that they wouldn't be tippy. You soon found that out, you know." The length, breadth, and draft had to balance each other in order to make a boat that was both stable and seaworthy,
and on top of that, special considerations, if any, had to be taken into account (Hill 1990b:13).

If you want a boat for speed, then you don't cut up the stern. You got to have it reasonably easy on the transom...so you don't...cut it away, because...you get too much drag if your stern is brought up quite a lot. Of course, for that, they got to have the room for a prop...If you put in a lot of power, of course, then you change that to a degree. Because you got to have room for your prop below that. And then in building the strut to cover your wheel, you know, stuff shaft and things..." (Hill 1990b:13).

It has already been explained how the gas boat was the western Lake Superior fishing craft in its ultimate form, and Reuben Hill was one of the premier builders of such vessels. According to him, the 24-foot length was the most popular (he remembers making a half-dozen or more) and was large enough to be secure in fairly heavy weather. It followed what was a standard formula of the breadth being equal to one-third the length, 8 feet of beam providing a good balance for a boat of that size (Hill 1990b:5-6). Hill boats of that size and style were in use at fisheries and resorts both on Isle Royale and the North Shore.

It was very important during the carving of the half model to make certain that all its lines were "fair," or at least that there were no hard breaks anywhere in the curves (Hill 1990b:16). A fair line is one that follows a smooth curve, without any kinks or sharp bends. Such checking was all done by eye, and was necessary to prevent any such
points from showing up on the full-scale molds. Reuben says his own eye for a "fair hull shape" was a legacy from his father (*The Seiche* 1980:2).

Unfortunately, as seems to be the case with boatwrights throughout history, few were saved. Generally they were either given away to clients who had purchased the boats or reshaped as models for newer boats. Some models were used unchanged for the construction of more than one of the same shape hull.

Once the half model had been carved to his satisfaction, Reuben would pick the offsets from it and transfer the measurements to heavy pieces of cardboard obtained from mattress and furniture stores. These would serve as full-scale patterns which were then used to develop the construction molds (Hill 1990b:15).

Molds were constructed to define the hull shape at intervals of approximately 4 feet and were set up on the keel. With the molds in place and the transom set up, a batten—a long, thin strip of wood—was run along the outside edges of the pieces to make certain they produced a fair line. Even though measurements could be taken quite closely from the half model, it was still possible to get a small amount of variation when the full-size hull was set up. Hence the need to check the hull shape in several places to ensure a nice, even set of curves before
attempting to plank it. One of the most basic and most important aspects of boatbuilding is knowing that a plank of good, straight-grained material will find its own curved shape, that is, "...it doesn't make any unnecessary kinks, because the wood itself just would fight that..." (Hill 1990b:15-16).

Mr. A.C. Andrews (who was 92 years of age at the time) once ordered a boat from Reuben, saying, "Be sure and make it good and strong so it lasts a long time," to which Reuben's response was, "Well, that's fine...we do that all the time, get best material we can get, and oil or whatever we need..." (Hill 1990c:18-19). He was particular about the materials he used in his boats, believing that if you want to "...have something good and strong, you've got to have good, strong material. And of course, fastenings as well" (Hill 1990c:21). Usually oak was used for the major strength members of a boat: keel, framing, stem, and transom supports (Hill 1990b:21). Other than that, native white pine was regarded as the best material available in the area (Hill 1990b:21), and was used for planking. On larger boats, such as the 35-footers, cypress was used, a "good, tough wood" (Hill 1990b:21). Western cedar, which had a nice, straight grain, was a good material to work with and was used quite a bit (Hill 1990c:24). In addition, Reuben remembers building a few smaller boats out
of all mahogany, which was a good, tough wood but hard to work with hand tools (Hill 1990c:24).

A company called Woodruff Lumber provided Reuben's family with their building materials. Because it supplied oak for bridge work, it was able to provide pieces up to 40 feet in length. They were able to meet all the Hill needs, even doing the cutting and heavy milling work, such as the four-by-eight keels for the bigger fishing boats in any length desired (Hill 1990b:25,26) and shaping frames to Charles's specifications (Hill 1990c:22). The Hill family seems to have had a rather special, cooperative relationship with this company.

In the Scandinavian tradition, Reuben built his boats shell-first, constructing the planked hull over the molds before installing the frames. A variety of plank stock was used to produce the shell. A "kidney plank job" was a boat that used strip or "kidney" planking, pieces of lumber about 2 inches wide and 1 1/8 inches thick (Hill 1990b:14).

...They were concave underneath and convex on top, so that they snugged over one another. That's right. It made it stronger because there was no movement... [athwartships]...when you nailed, edge nailed, it was no movement this way whatsoever...rather than a smooth seam job...and would get flattened, you see (Hill 1990b:14).

This type of planking was laid in place, one piece at a time, working upward from the bottom of the boat. Each piece was nailed to the one below it. When Reuben and his
brother were working together on smaller boats that used this material, they would start together at the stem and work aft, one on each side. "And of course, on occasion, if you needed a hand, why, we could swing around and give each other a hand..." (Hill 1990c:27).

At one small boat shop the process was streamlined somewhat.

We had one fellow that drilled holes...in this kidney plank, every, oh, about every 9 inches, I suppose. About that. And that's what he did while we were working, and it was the three of us working on a boat. And he'd drill all the holes, every 9 inches, in these strips. So we put them on, we just have to start nailing right there, see. So, that worked real well. And, of course then you'd watch, so that when you placed another strip on top, that you'd get about the center of that 9-inch gap, so they...nail every, every 4, 4 1/2 inches, you see. Otherwise, if you just nail in place, you be surprised how often you'd hit right on top of a nail, the one below...So, that way, much easier, and of course then, you never hit any nails, you had good, solid wood all the way through. And not so apt to split. And even though you had to drill through the top one, the bottom, of course, wasn't drilled, because you hit...fresh wood, then...But, that worked very fine, anyway (Hill 1990c:28-29).

In addition, many boats were "plank jobs," that is, built carvel planked, the bigger vessels exclusively so, with cotton caulking or oakum in the larger seams (Hill 1990b:15). A 64-footer would be planked with 2-inch by 6-inch material. The planks had a slight taper of perhaps 1/8 of an inch or slightly more from the inner edge of the plank to the outside edge. As a result, at each seam they
would butt snugly together at their inboard corners and have a slight "V"-shaped space extending from there to the outboard edges. This out gauging was critical, for the wrong amount of taper would allow the caulking to wash out in heavy weather. The spaces themselves were caulked first with a layer of cotton, then oakum over the top, on the outside (Hill 1990c:17,18). Picking and rolling the oakum to make a long, smooth, even string that was suitable for caulking was an art in itself.

The frames themselves were steam-bent oak. Ideally, naturally_curved pieces of wood are best for curved boat parts since there are no specific weak points along the curved grain as there would be in pieces sawn to shape. The depletion of forest resources often makes such crooks and bends, found where branches and roots join the tree trunk, scarce. Older vessels, such as the DORIS and the DAGMAR reportedly used such pieces for a single keel-stem piece. Such pieces were found only occasionally in the boats examined during the course of this study, however. In particular, the horn timbers and transom knees of some older gas boats with cut-away sterns may have been naturally_curved members. But for most curved pieces, the North Shore builders opted for steam bending, a process that rendered strong woods such as oak pliable so that they
could be bent into curved shapes, which they would retain when they cooled and dried.

Reuben's family did all their own steaming at their shop in Larsmont, where they used a wooden steam box that produced a wet steam that was perfect for bending. In addition, they had constructed a bench out of heavy planks in which pegs could be set in various places to serve as a jig for bending and holding steamed lumber in the desired shape. A piece would be cut to fit the curve desired, and placed in the steam box. Pegs were placed in the bench at the locations necessary to define the curve and when the piece was brought out of the steam box, it was bent into shape on the bench and wedges driven in to hold it in place (Hill 1990c:13,16).

But you got to work fast, then, because soon's you take that thing out of that steam box, you better get moving right now. Or it cools...quite quickly, you know, even though it's warm weather. Oh, I tell you. On these smaller boats, of course, we bend them in by hand. Sometime we'd, on the smaller boat we steam bent...put them from gunwale to gunwale, right on through, you see...But the easiest way, and it's quicker then, is put them in half. And then you could, stopping it on the keel, and then, and then put a clamp on it. And then wrap it down, you could make it follow the [curve] very, very nicely. Of course, then the boat was practically done, the hull was practically done by then...So it was easier to get the bit right in, of course, then. That material was usually about, oh, three-quarter by inch, or five-eight by three-quarter. The smaller boats were about five-eight by three-quarter (Hill 1990c:13-14).
The time element in steaming is critical, depending mostly on the size of the piece and ranging from 10 minutes for the pieces 3/4 by 1 inch to an hour for the very heavy material, those pieces larger than 2 1/2 by 3 1/2 inches. Reuben reported, "When we steam quite a few ribs, I put in maybe 10 ribs. At 10 minutes I take the first ones out, that had the easiest bend. Amidships, you see. And by the time I got to putting in the last rib, the 10th one, they were getting...(a) bit firm...Once they start cooling off, then you're in trouble right away" (Hill 1990c:15,16).

Reuben took care to make his boats strong. In the larger ones, where molded or steam-bent frames were secured in pairs on the keel, an oak "floor frame" was placed forward or aft or on both sides of the frames. The floor frame was drifted into the keel and bolted through, and bolted through each of the two frames (Hill 1990c:2-3).

Galvanized fastenings were preferred, although bronze, copper, and brass were also used (Hill 1990b:21; Hill 1990c:21). In addition, a material known as Monel was used from time to time. It would

...withstand rusting for years and years and years. Well, it doesn't rust, period, you know. In fact, where we built boats that we had to put shaft logs under the bottom, where their propeller shaft comes through. There we used Monel bolts. We had put in some bronze, but they had broken. Because the oak would swell, and due to the vibration and all, some had broken off. So we just put Monel. Kind of expensive, but
they were worth it, because they would withstand the shaking and the pressure from anything like that (Hill 1990c:21).

Copper clenched nails of various lengths were used on smaller lapstrake boats, with length dependant on thickness of material as the planks tapered off forward and aft (Hill 1990b:21-22).

Clench nailing was also used on larger boats. As Reuben once told a Coast Guard inspector, "We have used this kind of a nail, a clenched nail, since first I ever saw a boat, or worked with my dad with a boat, or my brothers...we've done that all these years. We haven't lost a boat" (Hill 1990b:22,24).

In clench-nailing a boat, the hole was always pre-drilled to avoid splitting a rib. Then a nail that was the exact length necessary, plus about 1/8 inch, was driven into the hole from outside, through the planking and frame. When it came through on the inside, it was bent over and a tool called a bucking iron held over it by a second worker on the inside of the boat. Then, when the outside worker continued to drive the nail, it would continue to bend back into the wood and solidly clenched the plank to the frame. Reuben remembers clench-nailing with at least two types of nails. The first was a galvanized nail with a small knob on the center part of the head that prevented a hammer from striking the edge of the nail. The second type was also a
galvanized nail, but smaller. A round-headed nail, it was called a "duck bill," for the shape on one end of it. A length was selected such that the tip barely protruded through the wood, and the bill was bent over and clenched (Hill 1990b:23-24).

Metal pieces such as struts, rudder irons, and shoes were all hand-forged (Setterlund 1982). Reuben often used the services of some brothers who lived at Knife River. They "...did machine work, they did a lot of work for me, for a few struts and things, and intermediate bearing supports and stuff." Their skills came in handy while Reuben was building a gas boat for A.C. Andrews, who had a summer home on Washington Island at Isle Royale. Reuben was told by the prospective 92-year-old owner to "Be sure and put in oarlock sockets, so in case we get stuck, the big boat is stopped, so we can row ashore." Reuben knew that rowing this boat, which was 24 feet long with an 8-foot beam, would require some pretty long, heavy oars. He suggested the carrying of a smaller 5-horse engine for emergencies, instead (Hill 1990b:19,20). Andrews agreed, and Reuben contacted the Knife River shop.

And so they made a rack for that boat--for that motor. And so I could fit it over the transom, just lift it right over the transom, drop it on there, and you're in business. So we launched this at Grand Marais. I didn't have gas and stuff in the main engine--it was about a 90-horse Graymarine, I think it was. We put that into the
water then, and I said, "Well, now's a good chance to try this 5-horse, see what it'll do." And kind of a fresh breeze coming across from the northwest, across Grand Marais Bay. And we started up, matter of, ah, about 15, 20 second...super job, right on out into the--so I was plenty pleased with that, that would take care of what they wanted (Hill 1990b:20).

Invention and improvisation were as vital to Reuben as his most basic tools. He had no thought of simply giving the customer just exactly what he had asked for, but rather used his own knowledge and experience, together with his professional contacts, to give Andrews the best boat for his wants and needs. This launch, with some modifications, is still cruising between Isle Royale and the North shore as the PICNIC.

As far as tools and techniques are concerned, when the family first moved to Larsmont, they were living down on the lakeshore, where they had no electric or telephone hookups (Hill 1990c:27). As a result, Reuben remembers the early work on big boats all being done with hand tools, with the heavy milling work being done by Woodruff Lumber (Hill 1990c:22). Reuben himself once spent three days trimming 20 feet of a 4-inch oak keel by hand with a rip saw (Hill 1990c:23). He remembers using an adze quite frequently on some of the bigger timbers, and said his father had what he called a "hand axe": "It's bevelled...so you just chop on one side of it" (Hill
1990c:26). This tool was most likely a broad axe. Hand drills, too, were used ("...little bit of a hand twister, you know...") quite satisfactorily for many years (Hill 1990c:26). Later on, the family moved up to the hillside, where utilities were available from the co-op power company. 

"...And so we got power, which was a blessing. Because then you could buy all the tools you needed" (Hill 1990c:27).

When the Hills were building a number of 35-footers at their shop on the hillside in Larsmont:

We had a big, big shed there, about 40, 45 feet long, that we did, made these 35-footers. And then we...started to use...power tools. Saw, that we rip stuff out to what size we wanted...And then, we had a lathe...[for making things] like net floats for the fishermen and stuff. And then we used lathes and stuff...but from then on, of course, we got more power tools. Band saws and stuff. Which come in mighty handy. But it's a day and age where you got to have material to—that you don't do this all by hand, you know (Hill 1990c:22-23).

In particular, Reuben remembers purchasing an electric block plane to aid him in repairing a group of 16 lapstrake boats he built for a resort at Isle Royale National Park in 1936-7, and which are still in use there (Hill 1990c:24; Hill n.d.). He was repairing the hulls with marine plywood, which, because of the glue in it, was very hard on hand tools. After a bit of getting used to, it became one of his favorite tools.
It just takes a while to get accustomed to the weight and the balance of the tool, you see...If I had anything to do now, I'd still use it. I wouldn't let that one go, because that was a blessing, I'll tell you. Oh, that was a good tool...it's different, it's definitely different. You grab a hand plane, and you can take two different hand planes, and they don't feel the same. Surprising enough, you know...And--so it's the same thing with a piece of electric equipment, you know. The weight of it, and the balance, and how they work (Hill 1990c:24-25).

Apart from the types of tools being used, Reuben pointed out that when he was working on a boat he had the same number of tools on both sides

...because otherwise you were chasing around that boat. Getting--picking up a tool. And when you got part of the bottom in, of course, you put some inside the hull, you know, so you just reach for, take a stick, and--with a nail and hook it up...Any way to make it a little easier, you know. But, definitely different kinds of tools, same tools on either side. Because you needed them anyway (Hill 1990c:27).

There does not seem to have been much specialization of job skills in the Hill shops. For the most part, everyone seems to have had a hand in the various tasks that went into building a hull and finishing a boat. "...we did all that, everything right to the very--electrical wiring, and the stuffing boxes, mounts for those, and the thrust bearings inside, and all that. All the foundations, all that was put in...(Hill 1990c:28).

Where engines were concerned, residents on the North Shore knew that the Sivertsons, a well-known family of
fishermen, had a dealership for Gray Marine engines in Duluth, Minnesota. As a result, most of those who bought boats from the Hills wanted Gray Marine engines installed, although Reuben says their shop occasionally put in a Kermath. Engines were almost always installed by the Hills, a notable exception to this being boats built for the Johnsons, another well-known fishing family. They used other brands of engines entirely, which they installed themselves after the Hills put in the mountings (Hill 1990c:29,30).

With hulls from 20 to 35 feet in length, the engine foundations were installed early in the construction process.

...We got the hull built so that we get about from the center to the side where we're working, then we'd scribe in and make the engine foundation. We knew about what they had to get the right angle for the--to follow through with the prop, and the motor, what the motor was like, you know, and all...rather than build the boat and then start standing on your head trying to scribe where these heavy foundations were....and that would--that increased productivity...as far as that's concerned, because it was much easier to do then, and you get more accurate. You could follow the hull, you know, and did a good job that way...(Hill 1990c:28).

In addition to what Reuben himself has had to say about his craft, an examination by boat documentation specialist Dave Dillion of the Hill boats has led to his discovery of a "Hill Signature," a particular combination
of construction traits that is so far proving unique to the Hill gas boats. It includes: 1) stem construction using an upper stem section attached to a knee and a gripe, which is then scarfed to the keel (this allows the use of a number of straight pieces instead of a single long curved piece, perhaps a matter of economy or material availability); 2) a chevron pattern in the foredeck planking; and 3) a double-ended hull below the waterline (Tolson 1990a). In addition, the manner in which the outboard foredeck planks are scarfed to the side deck planks may be characteristic, but this has not yet been verified.

The finishing touches on a boat varied. For the interior of the smaller vessels, Reuben preferred tung oil, which proved very satisfactory. For the bigger boats, the fish boats, hot pine tar was used. In addition, every fall, when ice on the lake prevented fishing, the fishermen would give their boats a thorough cleaning and paint the insides with a mixture of more hot pine tar and linseed oil. This treatment "...really penetrated the wood...I think that preserved a lot of these boats that went on for years and years and years" (Hill 1990c:30-31).

On the outside, a good marine base was used--a special bottom paint, generally red or orange, below the waterline and white above (Hill 1990c:31). Other than that, Reuben
does not recall any particular preference for colors. Whatever a customer wanted was fine with the Hills.

Concerning boat colors, Stanley Sivertson recalled that "Almost all the boats were white and I don't know really know why, if there is any reason. Once in a while, like a South Shore boat, I remember the EAGLE, I think it was...That came across and it was black...but, see, black would shed ice a little more in the wintertime." As for the coamings on Sivertson boats, "Well, we used to varnish that, you know...we always varnished..." (Sivertson 1990c:22-23).

Purchasing a Hill gas boat involved a substantial financial investment. According to Reuben, "Well, a 24-footer, costwise, twenty-four hundred dollars, years ago. You couldn't touch that for anything, any part, either boat or motor. That's years ago. I imagine we made maybe, three, three-and-a-half an hour, maybe. Four at the best" (Hill 1990c:29). That price did not include the motor (Setterlund 1982).

Generally, a customer would come to Reuben and describe what kind of boat they wanted, at which point he would carve a half model and show it to them before beginning work (Hill 1990b:34). Indeed, many knew something about what they wanted based on the vessels they had seen back in the Old Country. Reuben and his family
would build such a boat for a customer, "if it was within reason." Sometimes, however, what they wanted just wasn't practical, despite being workable (Hill 1990c:10). The means of propulsion desired by the customer was a major factor. According to Reuben

You just can't make any old shape if you're going to have a boat with the prop coming out through the bottom or if it's going to be protected, you see...Quite a number of times people...want a certain boat...and...you just couldn't make it to run it...Except if you...put an outboard motor on it, of course, that's a different story because you can have any shape then (Hill 1990c:10).

Sometimes, if he had material, he would simply start to build a boat on his own, but before long someone would see it and want to buy it. "Never. I never had one that had to set there." (Hill 1990b:33).

HOKIE LIND

A somewhat different perspective on the craft of boatbuilding comes from Mr. Hokan (Hokie) Lind, who currently resides in International Falls, Minnesota. He did not come from a family of professional boatwrights, although the vital importance of boats to his family's lifestyle both in the Old Country and America produced a need for them to be able to build their own vessels. The Scandinavian immigrants who settled Isle Royale and the North Shore all came from areas where the ability to make
and use boats was an integral part of their culture. To a certain extent, everyone built boats, although not everyone did so professionally. Hokie worked as a fish inspector for the Department of Agriculture for most of his adult life, building boats in his spare time (Lind 1990a).

Hokie's father, Dan Lind, was a fisherman in Norway (Lind 1990a), living across from the city of Trondheim ("Nothing but mountains and little pieces of land") (Lind 1990b:10). He lived only 6 miles away from Ellen Carlson, who he would later marry, although they would not meet until both had come to America (Lind 1990b:10; Marcus Lind 1990:2). It was in Norway that Dan first learned boatbuilding, helping construct the dories that were the primary craft in use there. According to Hokie, boatbuilding by the family back then was not so much a continuing tradition as a matter of necessity: "...they had to have them, you know..." The one-man dories used by the family in Norway were similar to the skiffs that would come to be used on the North Shore, although narrower and sharp at both bow and stern (Lind 1990b:8-9).

According to Hokie, his parents, like many others, left Norway to escape forced military service. After considerable effort, they were able to save enough money to make the trip, coming over some time around 1890 (Lind

So he had a relative out in South Dakota. Hammondson. So he went out there and then—well, of course this North Shore reminded him so much of Norway. Rock-bound coast, had been fishing over there. Of course, he was only 18 years old. But anyway, he landed and he went to Duluth then. And then, the first boat in the spring of the year, up to Isle Royale. Stayed there all summer, fishing, and back to Duluth. And landed as a lumberjack. Now, that was when they were logging there, right in Duluth, you know. And they didn't have a logging camp, but they stayed down in town, and then they'd haul them out with a horse and sleigh, early in the morning...they'd take them out there so early, it was still dark, and it was cold, they had to make a fire to keep warm...Then they started working, and then, of course, at noon they hauled the food out to them. And he said if you [didn't]...eat in a hurry, the beans would freeze to your plate, because they...[had] no shack or anything [to eat in], see? And back downtown again...(Marcus Lind 1990:1-2).

Ellen came later to join her brother, who was a carpenter in Two Harbors, and in Duluth, she and Dan met and married (Lind 1990b:10; Marcus Lind 1990:2). Ultimately, they would raise a family of six boys and five girls.

Their first year together they fished in Duluth, at the present-day location of Leif Erikson Park, but eventually went on to Isle Royale, where Dan and his brother fished at Little Todd Harbor. The two brothers worked on their own, fishing mostly hook lines ("That was cheap rig, see?") from round-bottomed sailboats. These
craft were left on the Island over the winter months, pulled up on shore and flipped upside-down (Lind 1990b:13).

Like many of the others pursuing a livelihood on the Island, they went back and forth by steamboat, taking everything with them each way, including the kitchen stove. Then they had their first child, a son named Johnny, followed a year and a half later by the second son, David. Hokie related, "That's when Mother said, 'That's enough of this. You're going to find a place. If you're going to fish, you're going to find a place'" (Lind 1990b:11). His older brother Marcus stated:

And they had seen the shore so much then, you know, that they knew. So Dad and my uncle Tom, they took off in a little 18-foot sailboat. Started up the shore to see if they could find a place, you know. That was about in 1896. So, over here to Castle Danger, you know, that shallow reef outside there, and broke up all the rough water. It was just like a harbor in there, all sand...

And they pulled in there and there was one man living there. He was a family man, and he had been there...since 1893. His name was Ole Wick. So they asked him, and he had squatted too, he didn't own the land. They asked him if it would be all right. It looked like a nice place to operate out of. "Yeah." Said, "Go ahead." So then they built a shack down there. And there was other guys in there...there was quite a few fellows there, but then around the turn of the century, Ole Wick, there, he had a chance to buy the land. From some company in Wisconsin, I guess. So he bought the land, and then he told them fellows "You got to move now, because this is my property."

So that's when Dad found out about this homestead here, 40 acres. So he applied for that around nineteen hundred and two, and if he hadn't
done any improvement he would lose it, it would go back to the government again. But then by 1904, that's when he had the house built here, and then he got the title. So, all the other fellows, they had to move out of there, too, you know (Marcus Lind 1990:2-3).

So the family homestead was established "...at Castle Danger. That's by Two Harbors [Minnesota]. And there they settled. Where Gooseberry Park is. We were adjacent to that. And my dad bought that homestead right from a guy that had been sent in there to buy it so they could log it" (Lind 1990b:11).

Dan Lind bought the parcel at Castle Danger, part of which was in Lake Superior, for the princely sum of five dollars. There the family continued the business of fishing. (The original building still stands, and it and a portion of the property remain in the Lind family as a popular North Shore resort). At that point in time, there was a great demand for frozen herring to be shipped to the immigrant farmers in North and South Dakota. Three or four hundred tons were shipped from the North Shore in one year alone. According to Hokie, they sold for around three dollars per hundred, which was considered a good price (Lind 1990b:11,12).

Pa made big money. He was considered a big businessman in Two Harbors. That's when he bought a team of horses, and farm equipment, even a threshing machine, to thresh grain. Work. And we had cows, a beautiful big barn, that he built from lumber from the old lumber camps that he
tore down. And I remember...the captain on the WINYAH, he'd come and he'd go inside the Gooseberry Reef and come and then he'd turn out for the Castle Danger reef. One time I asked him, "What do you do that for?" He said, "I always admire looking at that beautiful farm. That nice big red barn, that white house, and the grain field, that yellow grain field." Well, they were very ambitious (Lind 1990b:12-13).

Even today, "...the old homestead looks like, a piece of Norway." "Beautiful home," he adds. "But it should be, we all worked on it" (Lind 1990b:28).

In 1910, with the help of several others, including "an expert" named Ed Larson, Dan built himself a freight boat, the DORIS (Lind 1990b:8-9). Marcus recalls that

It was built right over here. And then they had to lay down some logs, you know. And shove her in the lake. And then they towed it to Two Harbors. Because we had a brother-in-law and an uncle that worked in the shops there, you know. And they had money to pay, so they hauled her in there, and then they...installed the motor there during the winter. And then by next spring then she was ready. And then they run her down home here. But that motor was installed right there in the bay in Two Harbors (Marcus Lind 1990:9-10).

She had a one-piece keel-stem combination cut from a single spruce tree, with the trunk forming the keel and one of the attached roots serving as the stem. Power was supplied by a Kahlenberg two-cylinder engine that was run by Dan's brother, and she could carry 8 tons of freight, although 7 was the preferred maximum load. During the First World War, the government appropriated the DORIS for patrol duty
in Two Harbors, returning her to the Linds at the end of the conflict. They did pay rent for the use of the vessel, "But, they caused a lot of damage to it, too" (Lind 1990b:7,8).

Young Hokie was one of the helpers on DORIS's construction, although only six or seven years old. That was where he got his first boatbuilding experience, learning from his father. His job was "...holding something or steadying something with the hold hooks, you know, so he could hew, and chisel, and plane. Lot of work" (Lind 1990b:8). A scale model of the DORIS constructed by Hokie currently rests in the den of the original family home. He learned more "by watching every move they made" (Lind 1990a). More specifically: "...They knew how. The know-how, you know, was the anxiety that I always looked for. I was peeking at them all the time. The way they'd hew, or chisel, or they'd take a look, and 'Oh, no, ain't right. OK'" (Lind 1990b:30).

As a part-time boatbuilder, Hokie worked in a variety of shops and partnerships in French River, Lakeside, and Duluth, where he built only skiffs and gas boats. His garage, wherever he lived, usually served as his workspace, and his work was in demand. Only building in his spare time, however, he could not always meet it. He took great pride in his work (Lind 1990c:16), and his Isle
Royale customers included Sam Johnson of Wright's Island, Pete Edisen, Carl and Einar Eckmark of Washington Island, and a large number of other fishermen in Washington and Rock Harbors (Lind 1990a). In fact, the family resort was one of the customers, for boats to be used for taking out parties of trollers (Lind 1990b:28; Marcus Lind 1990:13).

The first boat that he built himself was the BLUEFIN, a 22-foot gas boat with a 7-foot beam. "That was a good Lake Superior boat....Very seaworthy" (Lind 1990b:2).

Unlike the Hills, Hokie did not build from half models (Lind 1990a). Rather, he would draw out plans based on what a customer wanted, revising the design as necessary to "get them shaped right" (Lind 1990a; Lind 1990b:3). He had his own ideas of what made a good, seaworthy gas boat:

Well, the bow should split the wave, for one thing, you know. It shouldn't go like a scow, [that is, it shouldn't smash into the waves]....shape them so that they'll just take the wave and split it, and lift themselves out. But then you got to have that clearance here, in the stern [a kind of upswept shape]...So that she's got a chance to bounce, see? Now if that was straight out here, she'd nosedive (Lind 1990b:2,4).

In addition to designing his bows to "split the wave," Hokie also made them flare out a bit at the sheer so as to throw the spray to either side (Lind 1990c:3). He believed this to be one of the major differences between his designs and those of the Hills, who he felt built wetter boats, with sides just coming together at the bow, having no flare
at all (Lind 1990b:19). He commented on more modern Lake Superior boats: "Well, that type of boat, today it's plastic. Tin. Aluminum. You take a look at these scoop shovels they're running around here with, you know, Lake Superior. You'd get wet in a hurry" (Lind 1990c:3).

Like other North Shore builders, he believed in the length to beam ratio of 3:1, but only "Up to 35, 40 feet. There, they get bulky if you have them...one-third. That makes a difference." On the BLUEFIN at least, he placed the maximum beam at about one-third of the length of the boat aft of the stem (Lind 1990b:2-3).

Once a design had been determined, the next step was to draw out the measurements and construct the forms upon which the hull would be built (Lind 1990b:3). "You'd probably make them over more than once to get just what you want" (Lind 1990b:16). Once a good set of forms had been developed, a set that produced a good boat, they were kept and used to build more boats, or even lent to others who wanted to build a boat (Lind 1990b:3,4). Hokie had no qualms about sharing what he had worked out.

You got forms that you make a good boat by. You hang on to them. You know where to place them....And two or three other people used those forms. And they done pretty well, but they didn't put them together like we did. Too flimsy....And we had many cranks that would come, look. "Boy, that looks good to me." And when you get that, then you got it made (Lind 1990b:3-4).
But having a good set of forms was only part of it. Knowing where to place them was critical.

Once the forms were completed, the first step in the actual construction was to set up the keel.

And that had to be done right. In order to get the rounding, you know. You just can't run the square out then square down. You got to lay a piece in there, and then another piece, and round it all off. And then that's got to be mortised. All the way. To fit that, see. That's comparatively easy because you just draw lines, use the chisel. Sounds like a couple of woodpeckers working, but it goes (Lind 1990b:16-17).

Next, a crosspiece would be nailed on the keel (Lind 1990b:16) to hold each of the forms, which were then set up on the keel. "You know where to place them. So far from the stem, so far in the center, so far from the stern. And then the sternpiece" (Lind 1990b:3). One would be placed about one-fourth of the way back from the bow, another at the stern, and the others spaced equally in between (Lind 1990b:3-4). With the forms properly spaced, the desired sheer line was marked by a batten nailed in place on both the port and starboard sides (Lind 1990b:3,17) "So you know what you're going to have. From there it's your own to measure" (Lind 1990b:3). Next, "...you put up a string, so you're sure that you're in the center. You ain't this one and then that one and that one. There's the center. Then
you brace it from the roof of the garage, from the
cross ties. So it can't move" (Lind 1990b:17).

Hokie had definite preferences as far as his materials
were concerned. He used oak for all the strength members
of his gas boats: "...the sternpiece...that should be
solid oak, of course. And the stem and the keel is oak.
All oak. And the ribs" (Lind 1990b:4).

Planking was something else.

The lumber man would see me coming, "I know what
he wants." Raffin had the sawmills. Raffin and
Quist had sawmills. And they'd cut and they'd
season it, in a shed, you know. And they'd lay
aside Number One Clear...Pine. And that's little
more than three-quarter thick. We wanted it that
way. So they just surfaced the 1 inch, you know
(Lind 1990b:15).

Hokie clearly enjoyed a special relationship with the
lumberyard, which, knowing exactly what he needed and
wanted, took care to make sure they could provide it.
However, his particular supplier could only provide pieces
of a certain length. "Sixteen feet was the [maximum]
length that we could buy...Because they cut the logs,
that's the way they milled them. Well, on a 22-foot boat
you had to have a splice someplace." A miter box was set
up so that short pieces could be joined, "And then so you
could put a nail right through the two of them" (Lind
1990c:3-4).
The Lind shop also followed the Scandinavian tradition of shell-first construction. With the forms in place, he constructed a hull skin of white pine planking, using strip planks that were similar to but smaller than the "kidney planking" used by the Hills. Hokie never referred to it by that name, simply calling it "concave" (Lind 1990c:15).

The most difficult part of the planking was the very bottom of the hull, along the keel, where the work of planking was not unlike putting together a puzzle. It was necessary to fill in these lower parts of the hull before trying to lay in the actual strip planking to avoid having to bevel either end of the strips. This was done by taking "...probably a 6-inch board. You rip that into strips and nail it back on the keel." This "piecing" began at the keel and extended outward to either side in concentric arcs for 8 to 10 inches, not touching either the stem or sternpost (Lind 1990b:20-21). With this done, the strip planking could be laid in place fairly easily.

Hokie's planking was convex on the top surface and concave on the bottom, 13/16 of an inch thick and 1 1/8 inches wide. The main advantage of this system was "...that you could make a crooked board out of a straight one. You know, you could roll that quite a ways. Except when you come to go around the stern. Then we had to split
one of them [shave off one of the corners of the concave face]...So we could make the curve" (Lind 1990c:2).

Stacked on top of each other, these pieces could rotate around each other while being laid, to neatly follow the desired curve of a hull while overlapping each other tightly enough to prevent any athwartships motion. The strips were laid in place one at a time, each being nailed to the one below it with six penny box, resin-coated nails. "And then, you see, when you went over that with the sander outside, boy, it was slick as a whistle." In addition, "...it made them solid as a rock, you know. And boy, when you were out there, sometimes when it'd come up with a good northwester or a southwester, you'd take a pretty good beating. But instead of getting in a hurry to get home, pull the throttle back a little bit, check her down. And she'll behave." Such construction eliminated the need for caulking between the planks although "...if you wanted, you put a streak of white paint on them. You can do that. And she'd be tight as a cork when you throw her in the water" (Lind 1990b:6,16). This method of construction was used in the gas boat SIVIE and her larger sister, the TWO BROTHERS, both of which have been described previously. "Well-built. Stanley said, 'The bow in that thing [the TWO BROTHERS] is like the Rock of Gibraltar.' Yeah. And of course we had the keelsons, and the--well put together. They have to be.
And it was built with strips like that for the planking" (Lind 1990c:14-15).

According to Hokie, "We were responsible, you might say, for inventing that sort of a thing" (Lind 1990b:6). "Together with Falk, we figured it out. Oh, sure" (Lind 1990c:2). Stanley Sivertson supports this claim, stating that he first saw this technique applied in Lind vessels and that as far as he knew, Hokie was the first to use such strip planking (Sivertson 1992c). It has already been described how Hokie obtained his plank stock from the sawmills of Raffin and Quist, but beyond that, he arranged for the milling himself through some resourceful cooperation.

First of all, "I had the knives made in Two Harbors, in the shop there. The concave and the convex" (Lind 1990b:16). These were made in the railroad shop, where he had relatives working who would provide whatever he needed (Lind 1990c:4). The finished blades were then brought to Mr. Falk, at the Falk Boat Works, who

...had a shop there on the North Shore there, too, not far from me. But he made only little racing boats and stuff like that. But he had a machine. He says, "I'll rig that up" (Lind 1990b:15).

...he had the attachment that went on the dado head on the rip saw. You know, and then...clamp that on, and it had a spring that held the lumber down and a spring that held the lumber in. So. Rip them all first, you know (Lind 1990c:4).
The shell was then ribbed about every 8 inches using steam-bent oak.

Oh yes, absolutely. Steam them. Saw rib is no good. It'll break with the grain, you know. So that's quite a job, to rib them...But it goes good if you got the right steam box, you know. And the right cooker. You got to have the guy that, there's a rib cooker. Got to put them in, turn them, take them out, turn them, put them back in (Lind 1990b:5).

Hokie remembers steaming as being something in which people specialized: "You had somebody with you that knew. He knew what you wanted." He was fortunate to have such a person close at hand. "...Bill Stanley, he was a boy living with me, and him and my boy, they got along real swell. His parents separated, so Bill came, I said, 'You can come and live with me, sure.' And he wound out to be my steam boy, on the steam box. He knew just what I wanted" (Lind 1990b:5,18).

Once the ribs were steamed sufficiently, they were removed from the steam box and each was stepped on to begin the necessary bend. After that, the hot rib was clamped to a jig in the shape of a half-moon, where the rest of the bend was completed and the piece held in place for about one minute. "And then, as you went along, you made your adjustment here as you needed it. A little trick to that, too." When the clamps were removed, the piece would hold
its shape and was installed in the boat. "But you had to work pretty fast" (Lind 1990b:21).

Fastenings were, for the most part, galvanized nails. "We used the six penny box, coated, resin coated, for nailing [the hull planks] together. Then we used galvanized for the ribs" (Lind 1990b:16).

A team of two men would work assembly-line fashion to clench-nail the planking strips to the freshly-steamed ribs as they were inserted into the hull. One man working inside the hull would drill through the rib and the underlying planking. His partner on the outside would then drive a nail back in through the hole. The first would clench it over the rib on the inside. "But you had to work pretty fast. One man drilling inside, one man outside nailing in, and then the guy drilling, he'd do the clenching" (Lind 1990b:21-22).

Regarding the heritage of tools and techniques, Hokie is certain that the immigrants to the North Shore brought both tools and building methods with them when they came, so that their boats in America were built pretty much as they had been in Norway. "That's right. That's right. That's what they did. We had Ellingson, old man Ellingson, he was a good one. Ed Larson, he helped my dad. But they were clever with their, they had their own wooden planes and chisels and, they had, well, they even had planes that
had a rock in them, you know..." (Lind 1990b:30). Dan Lind made many of his own tools.

But there, too, the Virginia-Rainey Lake Lumber Company was logging right adjacent to our place. And we got to know those people up there. Little Joe was the blacksmith. A wonderful guy. "What do you need, Dan? What do you need?" Oh. Pa would tell him. "I'll have it for you." The shoe. The rudder. And all of that. Go in his blacksmith shop. He'd make it up. Yeah. He'd send it down somehow. So. Those people in them days seemed to be more congenial, should we say, or give—cheerfulness of giving. And they thought it was wonderful to be able to do it...And we had a blacksmith shop of our own, where we could splice and shoe horses, one thing and another (Lind 1990c:5).

Not surprisingly, the smith was the self-reliant Dan Lind. "My dad. Could do anything. He learned after he got here. He worked in the woods, you know. Sometimes in the winter when the lake froze, he'd go to the lumber camp for a short time. But, oh, courage is all it needs, you know. Don't be afraid to try it. That's all" (Lind 1990c:5).

As far as his own tools were concerned, Hokie used both hand and power tools. "Oh, the ripping, the saw table. But an awful lot of it was done with the handsaw. Miter box to make the joint." In addition, like Dan, he made or had made many of his own tools. "I got one in the tool box out there that is just a hunk of wood, but you could place it on here and tip it whatever way you want and hold it while you nailed, see" (Lind 1990c:3,4).
Tasks such as drilling the hole for the propeller shaft and mounting the motor were all done by Hokie and his helpers. He had a standard formula for determining the line for the drive shaft. A point was marked one-third of the way up the bow from the keel. A string was stretched from there to a second point on the center of the skeg, one-half of the way up the stern and nailed in place (Lind 1990c:6). This defined the propeller line.

The hole for the shaft was bored by hand with a brace and a 1 1/2-inch bit. "Most of the time we used a inch-and-a-quarter shaft, so you had to have the hole a little bit bigger. Then there was a stuffing box that went on there, and then the center bearing, then you were all set." It took a bit of effort to keep the hole straight during the boring process. "You had to get it started right. If you were way off, why--But most of the time we came out perfect" (Lind 1990c:6-7).

Customers would pick out their own engines, which would then be installed by the shop (Lind 1990c:5-6,7). Mounting was something of an art. The engine itself was mounted at an angle to keep the line between it and the shaft as straight as possible, although U-joints were sometimes used between the two (Lind 1990c:6). But from time to time a boat would shrink or swell after being put in the water.
Then you'd check your alignment. And disconnect the shaft, you know. That had an insert and, when it slid together, you know. And if it was off, you'd shim accordingly. Go around with your feelers, and--It should be as smooth as possible because if you have that [a mounting off-line], you got a shaky boat. It just vibrates (Lind 1990c:7-8).

Hokie's boats were painted inside and outside. "...We used varnish on what we called the coaming, the inside here. And otherwise it was a good sealer and good paint. Sherwin Williams" (Lind 1990b:22). Sometimes a copper-based wood preservative was used.

But it's harder to get a good, tight boat that way, if you use too much of that. Because it gets in the seams and the paint won't, you know. I mean now that you pull your boat up and let it dry out, then you paint it in the spring, you know, before you throw it in the lake. So otherwise, we didn't use any preservative. The good oak, you know, that lasted (Lind 1990b:22).

On his first boat, the BLUEFIN, he experimented with creosote on the advice of a spectator and found the results were less than satisfactory.

A guy told me, he was a teacher in school. He came down there every day after school and admired the work that was going on. Because when I had a little time, I'd go out there and work on that, you know. And Saturday of course, I'd work on it all day. Sunday, of course, that was a little different. But he was the one that suggested.

"Well," I said, "That's what they use on fenceposts, ain't it, crud like that?"
"Yeah," he says, "that'll last forever." So I creosoted the inside.

He said, "Why don't you [do] the outside?"
"No," I said, "You got to have some paint on there too, you know." Well, I painted the
outside....Anyway, it never did get dry, that creosote. Mom, she was--because we went up to the North Shore the following summer on a vacation with it. Had all this sticky stuff. Started sniffing all the time.

"Well," I thought, "I'll paint it." I painted it. It wouldn't dry! And what did I do? I took a can of kerosene and a big swab and I washed it inside. Boy, did I have a mess! But then the paint stuck...That did the trick. And that boat lasted for an awful long time....over 20 years...but still in good shape. That's what that creosote done, you know (Lind 1990b:22-24).

Methods of paying for a boat varied. Some were constructed on credit, and although payment would be a while in coming, it was always made in one way or another. "We didn't get the wages they're getting today, I'll tell you. But, we didn't need it, either" (Lind 1990c:8).

Concerning the contract between buyer and builder, Stanley Sivertson recalled that there was only a verbal agreement and a small initial deposit to enable the boatwright to purchase the necessary lumber (Sivertson 1992c).

In any case, there was a special relationship between a boatbuilder and his fishermen customers. A man's need for a boat might be a matter of vital importance, not just personal preference, and Hokie certainly recognized that and tried to accommodate it, as in the case, previously described, where Art Sivertson wanted his new boat SIVIE right away.

Skiffs were in great demand on the North Shore, owing to the geographical conditions there, and Hokie built more
of them than anything else. "We were building two to three, to three to four skiffs every winter" (Lind 1990b:27).

In the Lind shop, the construction of a typical 16-foot hard-chined skiff began with a written plan, not a half model. The first construction step was the cutting and shaping of a special piece called the "starting board" (Figure 21). It was a 6-inch plank of clear stock, 16 feet long with a concave cut in the bottom edge that became a slight diagonal cut at one end. One starting board was placed at the chine on either side of the boat, and when they were bent to follow the desired curve of the sides, the concave bottom edge came to lie in what would be almost a flat plane that would define the bottom of the skiff, with a slight rise in the stern (Lind 1990b:24-25).

With the starting boards ready, the next step was to prepare the stem piece. The starting boards were then fastened to the stem, bent around, and tacked to each end of a spacer board placed 36 inches aft of the stem. The butt ends of the spacer board were cut on an angle toward the bow to allow the starting boards to lie flat against them. Next, the starting boards were bent in farther and nailed to the transom (Lind 1990b:25-26).

When the starting boards were fastened to the stem and the stern, a string was run from the center of the bow to
the center of the stern and the floors shaped accordingly. These were then inserted and nailed to the starting boards, with 28-inch spacing (Lind 1990b:26).

And no skiff should be narrower than 42 inches. If they're narrower than that, then they get what we call "cranky." They [the fishermen] used to lean over on the sides a little bit and they [the skiffs] won't behave. I made one for Sivertson one time. And Art ordered the material and I told him what to order. Well, he ordered them bottom pieces too short, by about 2 inches. I told him.

"Well," he said, "go ahead, build it." We built that down at Duluth, down at the warehouse. And Stanley come in one day, and he says, "I don't know what you did with that skiff, but," he said, "she's awfully cranky."

"Well," I said, "I told you" (Lind 1990b:24-25).

Along with the floors, the ribs were installed, one pair for each floor, also about 28 inches apart. With the ribs in place, the sides were planked to a height of about 21 inches (about 23 inches at the bow) (Lind 1990b:25,26).

Once the side planking was in place, the skiff was flipped upside-down and the bottom planks attached. Finally, the keel was nailed in place (Lind 1990b:26-27).

Hokie's brother Marcus was also a boatbuilder. He recalled, "Oh, we built a lot of them. We built a lot of them skiffs, you know. We built boats for...oh, all the way up to Isle Royale. Grand Portage, we built boats for guys. Quite a few years ago, now..." (Marcus Lind 1990:19).
THE OBERG FAMILY

Roy Oberg is the nephew by marriage of boatbuilder Reuben Hill (Hill 1990a), and boatbuilding was done by the members of his branch of the family as well, although here it does not appear to have been an organized family tradition. Roy's grandfather, Axel Olof Oberg, had originally lived in Sundsvall, Sweden, where, as a young man, he had smuggled salt across the Gulf of Bothnia from Russia (Oberg 1990:16). That country had plenty of it, and it was in great demand by the Scandinavian countries, which needed it to preserve the catches from their fishing industries (Oberg 1990:16-17). He came from Sweden to Two Harbors, Minnesota, where he built several boats (Oberg 1990:1). According to Roy, "There was two or three--well, he built smaller ones too, but I meant he built at least three. 'I'm not sure. I think it was the CITY OF TWO HARBORS and the THOR, and I'm not sure about the REDWING" (Oberg 1990:25-26). Of the CITY OF TWO HARBORS, Roy recalls, "It was a gas boat, something like that, but I think it was about 60 feet. It was supposed to have been a little bigger than most of them" (Oberg 1990:19). It should be noted that his definition of gas boat as used here must simply imply a powered vessel, not the smaller fishing boats mentioned in Chapter V.
He eventually moved on up to Grand Portage in about 1910 (Oberg 1990:1). He spent at least some of his time at Isle Royale, fishing in Little Todd Harbor (Oberg 1990:6). Roy's father, Axel Bernard Oberg, was only three years old when he was brought to America (Oberg 1990:16). As a young man, Axel Bernard came to Isle Royale and worked for Eric Johnson, who in 1908 was moving from the fishing business into the resort business. On Johnson Island, later Davidson Island, Roy's father worked on the construction of the docks and cribs (Oberg 1990:1-2). At the same time, the woman he would later marry was not far away, working in Tobin Harbor for her uncle Gus Mattson, who also had a resort. After their marriage, the Oberg spent their winters in Duluth, and Mr. Oberg fished at Isle Royale and also hauled fish back from the Island and along the shore, as described earlier (Oberg 1990:2). During the period of 1923-1925, when the new highway north of Duluth was being constructed, the Goldish family had a contract to haul supplies along the stretch between Duluth and the Split Rock Lighthouse. Using their own vessel, the GOLDISH, they worked with Axel Bernard and his brothers, along with his boat, the ELVINA (Oberg 1990:19-20). Roy recalls:

In them days, they had steam shovels and horses and they had to haul food for the guys. They had camps along the way, just like logging camps, where the workers worked. And most of it was hand work or horse work. And they'd have horses
and scrapers. That's why they had to go around all the rocky hills. That's why it's so crooked ... And my dad and the Goldish boys, Goldish had the contract on it. And my uncles worked with them and they run the GOLDISH and my dad's boat the ELVINA, and hauled out materials on that (Oberg 1990:20).

Axel Bernard eventually went to work for the Superior Dredge Company in Duluth, fishing only occasionally in the fall and spring (Oberg 1990:16).

Roy Oberg recalls helping his grandfather construct two or three small boats. These were clench-nailed with square nails called "klaut" [spelling uncertain] nails, which Roy recalled "...looked almost like a horseshoe nail." The boats were kept upside-down while Axel Olof planked them, with young Roy underneath and holding the bucking iron to clench the nails (Oberg 1990:17-18).
CHAPTER VII

CONCLUSION

THE BUILDERS

...When we were in Lakeside I had a nice big garage there, 30-foot garage, that's where I built the SIVIE, the MARLIN, the TWO BROTHERS, the DOLPHIN. That was the main boats, round-bottomed boats I made there. And they were all good ones. Some of them are still available, I guess, but they're getting old, you know (Lind 1990b:1).

In fact, at the present time the SIVIE may be the only one of Hokie's gas boats still in existence. Her big sister, the TWO BROTHERS, after having survived countless storms, fell to pieces while hauled up on shore in Superior, Wisconsin before the extensive repairs she needed could be completed. It is perhaps fitting that his last gas boat now rests on shore at Stanley Sivertson's, the last commercial fishery at Isle Royale.

Marcus Lind recalled the lamprey invasion prompting the family to get rid of all of their resort boats.

But when the lamprey come in here, we figured a wooden boat standing on shore, not being used, it'll deteriorate faster then, so we sold all our boats. It took about eight years before they found out a cure for the lamprey. Otherwise people would come here and want to go trolling. We told them "No." Just...be a boat ride because there was just no trout left in the lake, you know. Yeah... dead lake trout laying up there on Isle Royale. Oh, man alive (Marcus Lind 1990:19).
As for Hokie himself, he stated, "I'm getting old, but I've enjoyed doing what I did. I have some memories I wouldn't trade with anybody. Fond memories. Good memories. And it's just like building a lifetime. If you build a boat that don't leak, you'll stay afloat for a long time" (Lind 1990c:19).

After examining the Hill and Lind operations, a number of interesting similarities and differences become apparent. The work of each of the two builders is readily distinguishable from that of the other. The Lind gas boat SIVIE has an elegant sharp, flared bow, but her stern is a flat, raked transom. All the Hill gas boats examined had a more blunt, unflared or slightly-flared bow, but with cut-away sterns above hulls that were double-ended below the waterline. So while the SIVIE is an example of one final form of the commercial gas boat, where a certain amount of handling was compromised in favor of work space, cargo capacity, and a more stable work platform, the Hill gas boats more than any others maintain a continuity of form and style with their Mackinaw ancestors.

There is a strong connection between the two builders, who share ethnic, regional, and occupational ties. Both the Linds and the Hills are the descendants of Scandinavian immigrants who, either out of necessity or tradition, built boats in the Old Country. Once in America, the first
arrivals--Charles J. Hill and Dan Lind--both worked as commercial fishermen in western Lake Superior and eventually built their own freight boats and went into business servicing the industry. Both came to own substantial parcels of lakefront property (the Hills, 40 acres at Larsmont; the Linds, 40 acres at Castle Danger). However, where the Hills maintained a family tradition of full-time boatbuilding, the Linds took advantage of the rising tourist trade by turning the family home into a resort and taking out charter parties of fishermen. Marcus Lind recalls

...we built our first cabin in 1933. So we had a Bible student here, teaching Bible for the kids a couple weeks during the summer...And he says, "What are you going to call this place now?"

"Oh," we says, "we haven't got any idea"....

"Well," he says, "now there are a lot of these fellows have starting building tourist cabins. They got names on their places"....and he says, "You know what you could call this place? You could call it 'Castle Haven'. Because it's like a haven down in here." So that's how it got its name (Marcus Lind 1990:13-14).

Marcus Lind was quick to admit that taking out charter parties of fishermen paid better than working the family farm (Marcus Lind 1990:14). Hokie himself worked as a fish inspector for the Department of Agriculture most of his adult life, working only part-time as a boatbuilder, though his creations seem to have been much in demand.
Why did this occur? Reuben Hill was a skilled boat operator who also worked as a handyman and fishing guide for two Isle Royale resorts for seven seasons. He certainly had the ability to run such an operation. Perhaps the main reason is that for Reuben and his family, the trade always remained "stuck in the blood." A young Hokie Lind avidly watched a number of Old World immigrant craftsmen in an intense effort to learn the craft, but never spoke of it as something that was a part of his being, as Reuben did.

Invention and improvisation played major roles in the craft of boatbuilding, as well as in the personalities of the individuals involved. Manufactured parts might be unsuitable or simply unavailable, so the boatwrights of the day quite naturally developed special working relationships with other local craftsmen, such as the smith. Both Reuben Hill and Hokin Lind maintained rather unique ties to the lumberyards that supplied their materials. The heavy milling equipment needed for shaping many integral parts of the boats of the day was financially beyond the reach of the small shops. The Hills were able to utilize the facilities at Woodruff Lumber for cutting and shaping the keels and frames of the larger craft they constructed. By drawing together a number of small, independent operators, Hokin Lind simply arranged to set up his own specialized
mill. He stated, "We didn't patent anything." They simply did what they needed to do. "We made the first fish scalers. The herring scalers. Out of Model T Ford wheels" (Lind 1990c:3).

What emerges is a picture of a small, tightly-knit community of craftsmen, whose members possessed a wide variety of skills, at which, of course, some were better than others. Those who could, did. For themselves and for each other. The various boatbuilding staffs themselves seem to have been in a constant state of flux. Shops and partnerships were frequently forming and dissolving, particularly during the war years. At Inland Waterways, the yard where Reuben Hill worked on subchasers for the Navy,

...we had 85 men working there [among them Charles J. Hill]. And, well, he said, "This is really something," he said. "I showed the boys how to do this, and now I got to work for them." He was kidding us....And along the South Shore they pick up everybody that had ever looked at a piece of boat, you know...Of course, a lot of fellow on South Shore had done boat work and repaired boats, and so, we got a hold of a good, good bunch of fellows....Very good, very good workmen (Hill 1990c:18,19,20).

What they couldn't buy, they made. What they couldn't make, they had someone else make. If there was no one else, they simply learned to do it themselves. There was never any mention of stopping a project because anything
was lacking: not material, not tools, not knowledge. As Hokie Lind said, "courage is all it needs."

METHODOLOGY

For those who may continue with the Isle Royale Vernacular Boat Study, or begin a similar survey/documentation project of their own, the following is a critique of the study methodology.

At the conclusion of the project, Dr. Cochrane observed:

Perhaps the most critical factor discovered early on in the Isle Royale Vernacular Boat Study is the impossibility of effectively understanding the elements of the "little fleet" divorced from their ethnographic context. Analytical mistakes are more likely without consulting a history of use, if available (Tolson and Cochrane 1992).

For example, at the Mattson Fishery in Tobin Harbor, the PI recorded two gas boats and noted a third vessel--an old, white, strip-built rowboat, upside-down in the weeds near the fish house dock. It was not learned until later, in conversation with Louis Mattson, that this boat was never used by the family fishery. In fact, Louis's father, Art Mattson, obtained her, beat up even then, from someone in Tobin Harbor, and simply kept her tied to the dock to prevent tourists from pulling up (Louis Mattson pers. comm., August 16, 1991). Information ranging from whether a boat was actually used at a fishery to the meaning of a set of grooves in the coaming of a gas boat or why the
SIVIE has her fuel tank in the stern instead of in the bow like every other gas boat is something that can only be obtained from informants and understood only in terms of the ethnographic environment where vernacular watercraft had to function. Furthermore, "Without such background material, when it is available, the documentation and replication of simply a boat's physical parameters is an impoverished record" (Tolson and Cochrane 1992).

Such empirical observation is, however, the necessary first step in documenting Isle Royale's vernacular watercraft. Few models and no written records are available for study, necessitating the generation of at least lines drawings for representative examples. There is no other way to save them, short of outright preservation, which is not always a viable alternative. Such field research has been critical to the study, but--and this cannot be over-emphasized--it takes time. Perhaps a third of the known vernacular watercraft known or reported to be on Isle Royale were surveyed during the 1990 field season, and more continue to be discovered by park employees and visitors.

As a means of supporting physical measurement, documentation through collecting and reviewing contemporary photographs was an extremely successful study technique. Many current and former Island residents were forthcoming
with what they considered "heirloom" photographs of boats, but were only willing to loan them. The fact that so many boats have been recorded for posterity in photographs testifies to their status as prized family possessions, and families' desires to retain and yet share such photos underscores the importance of what they represent. The solicitation of such photos was a particularly effective way of documenting boats long since destroyed, and, coupled with informant responses, has allowed the expansion of the Vernacular Boat Archive beyond those boats whose physical remains could be located. Many such photographs remain in private hands on the mainland, and once located, their owners were never reticent about loaning them out for copystand duplication. A continuing effort to locate and copy other such collections would likely meet with equal success.

The oral history interviews added details beyond what could be obtained through empirical observation of derelict hulls. They provided information, but perhaps more importantly added a "humanness" to the information that was obtained. That is why, wherever possible in this report, the people of Isle Royale and the North Shore have been allowed to tell their stories in their own words. Through them, much has been learned that could never have been deciphered through an archaeological methodology.
Photographs and drawings of Isle Royale boats mean infinitely more when they are accompanied by taped or written testimony describing their actual use on a special Fourth of July outing or performance bringing a father and husband safely through the teeth of an October storm. Unless one cares to construct and sail replicas by trial and error, it is only through such interviews that details of how a boat performed, was used, and was regarded by her owners and operators can be accurately obtained.

On the surface, the boat questionnaire developed by the CRMS was a simple, cost-effective way to solicit help from a large number of potential informants without the need for face-to-face interviews. Those which were returned provided a large amount of information, but regrettably, they were only a small percentage of the number originally sent out. Follow-up phone calls might be an effective way to encourage completion of the forms.

Finally, there is no easy way of implementing a project of this nature. It requires a dedicated effort and the expenditure of massive amounts of time if anything of any use is to be obtained. There are no short-cuts.

FUNCTION AND MEANING

That Lake Superior was the primary interest of both commercial fishermen and summer people is evidenced by the
several dozen watercraft that yet remain on the Island and the many more that have been lost, destroyed, or removed to the mainland. Families did not own just a single boat, but two or more. The subject of boats was a popular topic of conversation among the Islanders: how they were designed, how they performed, and memorable experiences while using them. The importance of boats as the center of Island life was understood by residents from a very young age. The children of commercial fishermen ventured out into protected harbors to imitate their parents, rowing about and perhaps setting a torn, cast-off net. The lake drew the attention of all age groups, stimulating a lively maritime culture. Long-time resident Ingeborg Holte described the feeling: "We loved the Island from the lake" (Holte 1980a).

This maritime culture is today in very real danger of becoming extinct. Dr. Cochrane has observed that:

Unfortunately, too few of the riches of Isle Royale's "little fleet" remain. Today, we are forced to speak more of boat types than notable boats of each class. Rotting hulks rather than representative restorations characterize the condition of this fleet. And as the vernacular boats are lost to time, so too are their owners and makers. What remains today is a memory culture of those who remember "when..." And it is this memory culture which compounds the task of fairly analyzing these boats and their meaning. Idealized accounts and overzealousness on the part of the investigators need to be checked and soberly reconsidered. More confounding is the tendency on the North Shore to
make commercial fishing and boats a regional
tourism symbol. For example, nautical themes and
boats are now decor in some of the finer North
Shore restaurants. Fortunately, the remaining
fishermen are perhaps the most critical of
romanticizing. Other sources of ethnographic
data (photographs, diaries, fishing logs, and the
boats themselves) are antidotes to any romantic
trend (Tolson and Cochrane 1992).

One of the most important observations to be made
about Isle Royale watercraft is that they worked, and
worked well. There are few accounts of boat failures, the
most notable being Stanley Sivertson's report of the
drowning of George Torgerson and three companions in an Ole
Danielson boat (Sivertson 1990b; Sivertson 1990c). It is
far more common for oral histories to confirm the
reliability of the local watercraft. A dramatic example of
this is found in John Skadberg's story of a lightning
strike on his small wooden boat.

One time I pulled in here [at Paul Islands]
during a storm. Lightning hit me, and then I was
in trouble. It hit the motor, and I might have
gotten it too, but I was standing on a rubber mat
with rubber boots. It knocked me to my knees,
but it didn't take long before I got my strength
back...I thought it was the end of me. I had to
bail out the boat and try to get the motor
started. See, when it hit the motor it followed
the shaft out. It burnt up my ignition; it burnt
up my points; and the bailer didn't work. I had
a hand pump and pumped the water out that way,
but I was afraid to row the boat across Siskiwit
Bay, that was 4 miles, at least 4 miles...I
didn't know what to do. Well, by golly, I kept
chiseling around, chiseling around, and I
chiseled the points apart with a little ignition
filer. [It started and] I got home...(Skadberg
1988).
Dr. Cochrane has described what he refers to as an "intimacy of scale" between a boat and its operator in the environment of Lake Superior:

In Skadberg's and Sivertson's stories, a man and a boat are dwarfed, threatened, and in one instance, overcome by the most elemental forces. The intimacy of scale between boat and man is contrasted sharply with the size and threat of the Big Lake. This intimacy of scale and purpose, one man and one boat, encouraged fishermen and even summer people to personify their boats. In their most impassioned storytelling, boats were talked about as if they were human. For example, through metaphor boats are compared to wives, family members, and occasionally exhibit human-like traits. Certainly there was a profound relationship between the solitary boat-man bobbing around on a fresh water sea.

Relative smallness was matched with technological simplicity. Simplicity allowed for versatility—boats which could be used for different types of fishing. And, in most cases, fishermen could repair their own boats, including engines. For example, fishermen regularly ribbed their own vessels. However, for more difficult jobs, such as valve grinding, a fisherman-mechanic such as Ed Holte was consulted and might even do the job. Despite their relative simplicity and smallness, Island boats were the most expensive part of a fisherman's gear. They were basic, not fancy tools, and made to be functional (for example, not having any nail, screw, or edge that might grab a fishing net as it was being hauled in or "set") (Tolson and Cochrane 1992).

Simple aesthetic concerns were outweighed by an awareness of and respect for such functional characteristics (Cochrane 1988). From the point of view of the fishermen, a boat's real beauty was embodied in this functional quality. In fact, the functional value of these
watercraft led to an enduring appreciation between
fishermen and boats by linking them more closely both to
the underwater environment of the present and to their
ethnographic past.

In the first case, boats offered a means of exploring
the shadowy subsurface kingdom of Lake Superior and
exploiting its fishery resources. They enabled fishermen's
"...imagining the world from [an] alternative vantage
point" (Hufford 1990). Dr. Cochrane writes:

For that most inveterate of fishermen, Stan
Sivertson, boats were a means to "think fish."
Further, Stan believes fish can learn by watching
others get caught and hurt. Fishing, then,
becomes an enterprise of constantly changing
techniques to overcome the "learning" of fish.
Thus, in the context of talking about fishing,
Stan said, for example, that he "...tried to
outfox the fish..." or "it's the foolish ones
that get caught..." and "...whitefish are
smart...they have leaders" (Sivertson 1980b).
Other fishermen also "thought fish" but
prescribed less rational capabilities to fish
than Stan. Yet for all fishermen, boats
provided, in essence, for a continued
"conversation" between fishermen, their
livelihoods, and submerged natural resources. In
a diminished form, this was also true for summer
people who loved to troll for trout: boats
provided an ideational vehicle to "think the
other"--the unseen fish and bottom lands
(Fernandez 1986). Vernacular boats became the
principal enabler for fishermen and summer people
to ponder the unknown, intriguing underwater
world surrounding their Island homes. The result
of that continued "enabling" is that boats became
further esteemed and appreciated for diverse
reasons (Tolson and Cochrane 1992).
In the second case, Island boats served to tie fishermen to their heritage. For example,

The persistence of the "double-enders" in gas boats underscores a persistence in design, undoubtedly based on function, that linked later boats with those used by Scandinavian immigrants. While fishermen rarely voiced this link, they certainly were very vocal in linking the western Lake Superior boatbuilding tradition with Old Country ways. A counter force to the persistence of design was the succession of innovations in engines, fishing gear, materials, and electronics. In the boatbuilder's shop and at Island fisheries, tradition warped with innovation. A community-based aesthetic of what was functional and pleasing played against labor-saving and communications innovations. The lack of disposable income to purchase the newest and most cost-effective equipment meant traditional designs lasted a little bit longer (Tolson and Cochrane 1992).

There was a close and special relationship between fishermen and boatbuilders.

Fishermen viewed themselves and boatbuilders as members of the same group, with many of the same concerns and outlooks. Boatbuilders were "one of us," despite their rather specialized skills. The nature of the relationship in which fishermen put their faith in boatbuilders and their safety in the boatbuilders' hands assured a sense of commonality. For fishermen, who rarely knew how to swim or who would die of hypothermia in the cold water even if they could swim, a dry boat was the only means of safety in a squall or storm. They had to have confidence in their ability (and the boat) to get through. This relationship between owner and maker was often warm and trusting, which on occasion modified fishermen's opinions of their boats. As long as a boat was functional, fishermen were tolerant of minor peculiarities or discomfort in their boats. Then again, it may have been their own design ideas, incorporated into the hull, which needed some refining.
Boats were the lynch-pin in a distinctive world view of Island fishermen. Not abstracted from other aspects of fishery life, their meaning is intermingled with weather beliefs, navigational skills, environmental knowledge, fish biology, family history on the Island, and a high regard for captainship. Many fishermen's sons, blocked from becoming Island fishermen themselves, became the next best thing: captains. A healthy regard for the lake and mastery of a vessel were highly esteemed values. Boats were the means to accomplish those ends, or maybe to get down the harbor to court a fiancee. Elegant in their simplicity and versatility, vernacular boats once criss-crossed the bays and harbors of Isle Royale (Tolson and Cochrane 1992).

BOAT DISPOSAL

Wooden watercraft have a limited life span. Even the gas boats, which represented the Isle Royale vernacular boat tradition at its zenith, only had a working life of 15 to 20 years, according to how well they were maintained (Lind 1990c:18). This is an important consideration in understanding innovation in boat design. Stanley Sivertson has stated that of all the boats he has owned, only two were purchased new, prompting Dr. Cochrane to observe:

This is an important notion to consider. The length of service of a boat, call it its generation, serves as a force of conservation on boat design. If boats last a long time, then there is less opportunity to adapt boat design. On the other hand, if boats only last a decade or two there is a built-in mechanism for constant boat design innovation. Or, at least, more wholesale boat innovation (Sivertson 1992c).
Ultimately, however, every boat had to reach the end of its useful life. Dr. Cochrane writes:

Inevitably, owners had to dispose of their boats, no matter how fondly regarded. It was one of the responsibilities of ownership, that the owner would decide on when and how to dispose of his boat (Holte pers. comm., 1980). Once the decision was made, owners either sunk, burned, or turned loose a boat in a storm to be dashed to bits on the shoreline. Washington Harbor fishermen let a number of "old hulks" loose in a southwester to be battered to bits at the "gas boat graveyard" on Johns Island (Sivertson 1989, Vernacular Boat Archive [VBA]; Howard Sivertson pers. comm., 1990; Robert Johns pers. comm., July 1991). Also quite common was a disposal technique of grounding boats at the head of harbors. For example, fishermen put boats at the head of Hay Bay, Chippewa Harbor, and other locations scattered about the archipelago. Winter ice, rot, and other elemental forces worked quickly to bust the wrecks up (Skadberg 1989, Vernacular Boat Archive [VBA]; Violet Miller et al. 1990a, 1990b, VBA). Others sought a quicker end by burning, as with Emil Anderson's JALOPY which was cut up for firewood (Anderson 1990d, Vernacular Boat Archive [VBA]).

Perhaps the most exotic end for an Island boat was observed at Hay Bay. Investigating "two" skiffs pulled up at the Skadberg Fishery, the authors were puzzled by only finding the extreme bow end of a bright pink skiff. Walking around the fishery grounds, the authors-turned-boat-detectives observed an atypical landscape feature, a spruce tree boulevard. Then, nearby, they spotted the remains of what appeared to be a "moose blind" (for hunting?) or tree house. After looking it over, the detectives realized the tree house was really the pink skiff, broken apart and nailed firmly to the tree, 12 feet up in the air (Tolson and Cochrane 1992).

As with many of the other aspects of the vernacular watercraft tradition on Isle Royale, getting rid of boats was also a subject for storytelling, and such accounts
reveal much about the use and reuse of materials and the feelings of fishermen for their vessels. Karan Holte, daughter of Ingeborg Holte, described the end of her grandfather's Mackinaw boat, which was recycled into a secondary use at the fishery. "We had an old john closer to the point [a grassy point near the entrance to their fishery] which was made out of half of an old boat, an old Mackinaw boat, chopped in half and set up with the bow or stern pointing straight up. It was a nice one" (Karan Holte pers. comm., 1980).

Stanley Sivertson is without doubt the best example of a fisherman who is reluctant to get rid of any boats at all. Dr. Cochrane writes:

Stan Sivertson grew particularly fond of his boats, and many of them lie outside his fish dealership in Superior, Wisconsin. When asked, "Did you ever get rid of any boats?" He added, "Yes, a couple." But he hastened to add, he found it hard to do so because "boats were my friends." Later, when we revisited the topic, he mentioned that his wife thinks he "should get rid of a few boats." And he said he would like to, if he could find somebody who would take care of them and give them the attention they deserve. Then he coyly added, he had trouble getting rid of boats, because, "it was like getting rid of your wife." (Sivertson 1990). Only Stanley's "faithfulness" to his wife, Clara, who he has been married to for over 50 years, surpasses his affinity for past work boats. Stan outlines this affinity in another story in which he expresses disbelief over why his father made the mistake of selling the STAR, one of his favorite gas boats (Tolson and Cochrane 1992).
Perhaps the best example of the strong and lasting bond between a fisherman and his boat is that concerning Ed Holte's "release" of his favorite SLIM. He was reluctant to retire his old companion, as his daughter Karan tells the tale:

After a few drinks Dad decided to let it [the SLIM] go, to find its own home. He untied it from the dock and let it go, but it hesitated. Then it drifted around the inner harbor and then came back to the dock. He got upset and took it back into the harbor and then tied it to a tree, so it wouldn't drift back. There it sunk, tied to the tree. (Cochrane 1980).
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Volunteer

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APPENDIX 1

COCHRANE SURVEY FORM
ISLE ROYALE HISTORIC SMALL CRAFT SURVEY

Name of boat: ____________________________ Official Number: _______________________

Present location of boat: ____________________________

Owner (and address): ____________________________

Physical Description (type of craft, materials, dimensions, present condition, engines):

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

seaworthiness:

______________________________________________________________________________

If possible, please include photograph(s) of boat.

Boats of similar type (name and location):

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Boat History:

Name of builder and construction date: ____________________________

Builder's boat building experience: ____________________________

______________________________________________________________________________

Alterations/rebuildings:

______________________________________________________________________________

Past Owners and uses:

______________________________________________________________________________

(over)
ISLE ROYALE HISTORIC SMALL CRAFT SURVEY

Unusual events in which the boat played a part: _______________________________________

____________________________________

Role of boat in Island history: ______________________________________________________

____________________________________

Knowledgeable resource people to consult: ___________________________________________

____________________________________

Additional notes: __________________________________________________________________

____________________________________

Report Prepared by: ___________________________ date: ___________________________

Thank you for your help in filling out this form! With your assistance we will add to what is documented about the rich maritime traditions of Isle Royale.

Tim Cochrane
Park Historian
APPENDIX 2

LAKE SUPERIOR MARINE MUSEUM ASSOCIATION SURVEY FORM
HISTORIC SMALL CRAFT SURVEY
Guide to Photographic Data

PROFILE
STERN or TRANSOM (exterior)
THREE-QUARTERS BOW VIEW (exterior)
THREE-QUARTERS Stern VIEW (exterior)

DETAILS
Stem at forefoot (exterior)
Underside of stern (rudder-propeller-sternpost)
Deck at stem
Inside of stem at keel (framing scheme)
Inside of stern at keel (same)
overall interior view (more than one if necessary)
Engine (one each side)
Detail of gunwhale-transom fastening (bulwark at stern, inside)
Cabin Framing (typical) if exposed
Special equipment or details (net-letters, centerboard box, etc.)
Stem and rails

Construction details of
Stem and keel (interior)

Framing, bulwark and
transom (inside)

Rudder and Sternpost
Arrangement

Framing at stern;
keel and deadwood
(inside)

Stem and rails

Forefoot and
planking

HISTORIC SMALL CRAFT SURVEY
Photo close-up requirements
SAMPLE

Deck

Length 3'6"

16'0"

5'6"

Engine box (5 x 6')

2'0"

2'4"

5'2"

Plan

Deck 6'6"

6'8"

10'1" 11'6"

10" 10'0" 8'10"

Profile

HISTORIC SMALL CRAFT SURVEY
Basic Hull Measurements Worksheet
SAMPLE MIDSECTION SKETCH

Exact shape not important

Half of width

2 x 4
1 x 4

3 x 5"
2 x 2 g+t-rd

Planking
3/4 x 4" d

Depth

Frames 2 x 3"
Oake
(spaced 12"

Floorboards
1 x 6" ±

HISTORIC SMALL CRAFT SURVEY
Hull Midsection Sketch Worksheet
HISTORIC SMALL CRAFT SURVEY
Preliminary Data Sheet

Name of Boat __________________________ State or U.S. Number ______

Present Location ______________________

Notes

A. General Description (type of craft, materials, condition; engines)

B. Historical Sketch (owners and dates, uses, rebuildings, builder and location)

C. Sources for further data

Prepared by ____________________________ Date __________________
HISTORIC SMALL CRAFT SURVEY
Preliminary Midsection Sketch Plan

MEASUREMENTS

Keel (amidships)  \( d \times w \)

Keelsons & Stringers
   number each side \( \_ \_ \_ \_ \_ \_ \_ \_ \); \( d \times w \)

Frames  \( d \times w \)

Frame Spacing " (center to center)

Fastenings
   frames
   planking

Planking (average)  \( d \times w \)

NOTES
APPENDIX 3

DAVID DILLION SUPPLEMENT

TO

LAKE SUPERIOR MARINE MUSEUM ASSOCIATION SURVEY FORM
**HISTORIC SMALL CRAFT - GUIDE TO PHOTOGRAPHIC DATA**

**PROFILE**

SEE DIAG BELOW:

**PORT**

A = FROM DISTANCE
HORIZONTAL FULL FRAME

B = CLOSE AS POSSIBLE
VERTICAL FULL FRAME

C = DOWN INTO BOAT
WITH AS MUCH
COVERAGE PER
FRAME AS POSSIBLE
AND FROM AS HIGH
AS POSSIBLE

**STERN**

PORT

STBD

 Details:

**BOW - STEM JOINT:**

WITH FASTENING
LOCATIONS INDICATED
INBOARD & OUTBOARD
WITH CHALK LINES OR
MARKER ON TAPE. (MARK
Tape BEFORE PUTTING ON BOAT.)

**STERN - AS ABOVE**

**VANTAGE POINTS FOR PHOTOS**

FROM A DISTANCE - AT EYE LEVEL OR AS NEAR
AS POSSIBLE TO GIVE TRUE PROFILE AND END ON
 IMPRESSION.

WHEN YOU CAN'T GET FAR ENOUGH AWAY TO GET
WHOLE BOAT IN ONE FRAME, TAKE OVERLAPPING
(PANORAMIC) SEQUENCE OF PHOTOS.

TRY TO TAKE PHOTOS FROM SEVERAL VERTICAL ANGLES
Stern.

LET REFLECTED LIGHT WORK FOR YOU TO HIGHLIGHT
HULL SHAPE AND JOINTS.
APPENDIX 4

BOAT DATA SUMMARY SHEETS

FOR

ISLE ROYALE GAS BOATS
BOAT DATA SUMMARY SHEET

Boat Name: ISLE

Boat Type: gas boat (converted Mackinaw sailboat)

Registration Number: 36B898

Present Location: on shore at Johns Island, Isle Royale

Owner: Robert Johns

Builder: Paul Le Plante

Crew:

Dimensions (as measured in field)
  Length: 18'5"
  Beam: 5'10"
  Draft:

Hull Type
  Bow: straight raked stem, full bow
  Stern: cut-away
  Foredock: parallel planking
  Pegged Transom: unknown

Planking: carvel

Framing Sequence: 10 frame stations; framing consists of a confusing combination half-frames, futtocks, and floors

Frame Spacing: 21"

Evidence of Repair: at some point, the sides of the vessel were raised; the longer ribs were likely added for support at that time

Fuel Tank: mounted in bow

Evidence of Net Lifter: none

Oarlocks: one set
Engine: removed
Make: Detroit Marine
Model: Waterman
Serial Number:

Steering: tiller on wooden rudder

Special Features: mast step and mast collar, no coaming
Sheathing: none

Diagnostic Markings: none noted

Color Scheme
Hull below waterline: white over red
Hull above waterline: green
Topsides: green
Interior: upper portion green, lower portion red
Other: green half-frames, red floors

Historical Summary: vessel is reportedly a Mackinaw boat built in 1912 by Paul Le Plante. The single-masted sailboat was converted to power by Edgar Johns, who raised the sides and equipped her with a Detroit Marine Waterman Engine of four horsepower. The engine was very reliable, but Edgar kept the mast step and collar intact in the bow. At some point, while the boat was in storage in a now-destroyed boathouse on Barnum (?) Island, a visitor jumped on it and smashed a hole through the hull. The Johns family patched the hole with a sheet of asphalt shingle material and floated her over to Johns Island before the boathouse was torn down.
FIGURE 22. Gas boat ISLE, profile, port side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 23. Gas boat ISLE, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: SKIPPER SAM

Boat Type: gas boat

Registration Number: 36A524

Present Location: on shore at site of Holte Fishery,
Wright Island, Isle Royale

Owner: Karan Holte

Builder: probably E.J. Croft of Croftville, Minnesota

Crew:

Dimensions (as measured in field)
  Length: 17'8"
  Beam: 7'
  Draft:

Hull Type
  Bow: curved raked stem, full bow
  Stern: double-ended
  Foredeck: parallel planking
  Pegged Transom: N/A

Planking: carvel

Framing Sequence: 20 frame stations, three of which are
paired half-frames, the rest being full frames; some floors
present.

Frame Spacing: 8"

Evidence of Repair: none noted

Fuel Tank: removed

Evidence of Net Lifter: none

Oarlocks: one set
**Engine:** removed

**Make:**

**Model:**

**Serial Number:**

**Steering:** tiller on metal rudder

**Special Features:** true double-ended configuration is unique; seat in stern for helmsman; atypical coaming (outboard of foredeck)

**Sheathing:** none

**Diagnostic Markings:** none noted

**Color Scheme**
- Hull below waterline: white
- Hull above waterline: white
- Topsides:
- Interior: gray over green
- Other:

**Historical Summary:** Ingeborg Holte reported that SKIPPER SAM was built by Charles J. Hill at the special request of her father, Sam Johnson, in the 1930s when double-enders were no longer being made. Reuben Hill, Charles's son, does not remember his family building it, and boatbuilder Hokan Lind credits the construction to E.J. Croft of Croftville, Minnesota. It has since been learned that double-ended gas boats were being built after the turn of the century and the SKIPPER SAM is not the anachronism it was once thought to be.
FIGURE 24. Gas boat SKIPPER SAM, profile, starboard side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 25. Gas boat SKIPPER SAM, interior from aft (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: BELLE

Boat Type: gas boat

Registration Number:

Present Location: on shore at Edisen Fishery, Isle Royale

Owner: Isle Royale National Park

Builder: Charles J. Hill

Crew:

Dimensions (as measured in field)
Length: 23'9"
Beam: 7'2"
Draft: 1'10"

Hull Type:
Bow: straight plumb stem, full bow
Stern: cut-away
Foredock: parallel planking
Pegged Transom: yes

Planking: carvel

Framing Sequence: 33 frame stations. Difficult to interpret due to additional members resulting from repairs and lack of access to bilge. Appears to be a series of half-frames extending from top of keel to several inches below gun'1. Aft of and adjacent to each half-frame is a futtock extending from above the turn-of-bilge to deck level. Also aft of and adjacent to each half-frame is a short floor, bolted to the half-frame. Keelson lies atop floors and is bolted to keel.

Frame Spacing: 8" to 9"
Evidence of Repair: some of frames probably represent repair work
Fuel Tank: mounted in bow
Evidence of Net Lifter: none
Oarlocks: two sets

Engine
Make: Scripps
Model: D-2, two-cylinder
Serial Number: 7682

Steering: tiller on wooden rudder

Special Features: odd brackets on coaming, probably for primitive spray hood arrangement; afterdeck fastened with copper nails
Sheathing: none

Diagnostic Markings: wear marks on the tiller indicate it could be secured in set positions

Color Scheme
Hull below waterline: red over green
Hull above waterline: white
Topsides: green
Interior: appears to have been unpainted, although traces of green are present on some frames and floorboards
Other: green rubrail, gray engine box

Historical Summary: BELLE was constructed around 1927-28 by Charles J. Hill, assisted by his son, Reuben Hill, for Arnold L. Johnson for commercial fishing. She was also used as a guide boat. In 1940, she was hauled to Two Harbors aboard the steamer WINVAY, where a larger coaming was installed. She was last in the water in 1951, when
Arnold Johnson left the Island. She was then hauled up on shore and later sold to a South Shore man for $50.00, although he never came back for her. As a part of the Edisen Fishery complex, she eventually became the property of Isle Royale National Park.
FIGURE 26. Gas boat BELLE, port bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 27. Gas boat BELLE, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name:

Boat Type: gas boat

Registration Number: 7-865

Present Location: on shore at Stanley Sivertson Fishery, Washington Island, Isle Royale

Owner: Stanley Sivertson

Builder:

Crew:

Dimensions (as measured in field)
- Length: 17'7"
- Beam: 4'10"
- Draft: 1'10"

Hull Type
- Bow: straight raked stem, narrow bow
- Stern: cut-away stern
- Foredeck: gone
- Pegged Transom: yes

Planking: carvel

Framing Sequence: 16 frame stations, four of which were heavily reinforced; vessel has a combination of floors, frames, and futtocks, but rotten wood, collapsed floorboards, and trash and heavy plant growth in the bilge made close examination and therefore accurate analysis impossible in the time available.

Frame Spacing: 10"

Evidence of Repair: the reinforced frames may represent repairs
**Fuel Tank:** missing, but probably originally mounted in bow

**Evidence of Net Lifter:** none

**Oarlocks:** one set

**Engine:** removed  
  **Make:**  
  **Model:**  
  **Serial Number:**

**Steering:** missing, but probably tiller on wooden rudder

**Special Features:** boat contains built in storage boxes on starboard side, opposite engine bed

**Sheathing:** none

**Diagnostic Markings:** grooving present on coaming forward of oarlocks

**Color Scheme**  
  Hull below waterline: orange  
  Hull above waterline: white  
  Topsides: green  
  Interior: red  
  Other: green ceiling planking, red floorboards

**Historical Summary:** no information available
FIGURE 28. Unnamed gas boat, profile, starboard side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 29. Unnamed gas boat, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: MOONBEAM

Boat Type: gas boat

Registration Number: MC1656BG

Present Location: on shore at site of Mattson Fishery, Tobin Harbor, Isle Royale

Owner: Louis Mattson

Builder: Hjalmer Mattson

Crew:

Dimensions (as measured in field)
  Length: 18'5"
  Beam: 6'7"
  Draft: 1'6"

Hull Type
  Bow: straight raked stem, full bow
  Stern: flat raked transom, "V"-shaped bottom
  Foredeck: parallel planking beneath canvas covering
  Pegged Transom: no

Planking: carvel (strip built)

Framing Sequence: 16 frame stations; original scheme was a series of 16 paired steam-bent half-frames, with a floor directly atop each pair (except the foremost and aftmost, which flanked the stem and transom knees, respectively).

Frame Spacing: 12"

Evidence of Repair: a variety of sisters and other braces have been added, including a set of 11 heavy sisters per side, asymmetrically placed

Fuel Tank: originally mounted in bow
Evidence of Net Lifter: may have support blocks in bow, port and starboard

Oarlocks: none noted

Engine: removed (data is for original)
  Make: Capital
  Model: water-cooler one-cylinder, 5-7 hp.
  Serial Number:

Steering: tiller on wooden rudder; presence of hardware indicates steering was rigged for operation from anywhere in boat

Special Features: semi-fancy cupreous metal railing on foredeck; unidentified fitting on afterdeck, attached to strap hinge on deck, just starboard of centerline; no coaming

Sheathing: none

Diagnostic Markings: rubrail heavily grooved, possibly from hook line use

Color Scheme
  Hull below waterline: green over red
  Hull above waterline: white
  Topsides: green rubrail, white foredeck covered with red-painted canvas
  Interior: red above floorboards, no paint below
  Other: rudder, green over red below WL, white above WL; green clamp and forward bulkhead; red floorboards

Historical Summary: According to Louis Mattson, MOONBEAM was built sometime in the 1940's by his uncle (on his mother's side), Hjalmer Mattson, for Louis's father to use for inshore fishing. Hjalmer was born in the United States
and fished from French River, where he also built boats. He built a number of boats, but only for himself and his family. Louis does not remember him having any special training, but suspects that he simply needed boats, couldn't afford them, and so built them himself. Louis stated that she was a good boat, and was always powered by a one-cylinder engine.
FIGURE 30. Gas boat MOONBEAM, port bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: MINERVA

Boat Type: gas boat

Registration Number: MC1655BG

Present Location: on shore at site of Mattson Fishery, Tobin Harbor, Isle Royale

Owner: Louis Mattson

Builder: Edgar Reuben Hill

Crew:

Dimensions (as measured in field)
- Length: 22'4"
- Beam: 6'7"
- Draft: 2'

Hull Type
- Bow: curved raked stem, full bow
- Stern: cut-away stern
- Foredeck: parallel planking
- Pegged Transom: yes

Planking: carvel

Framing Sequence: 31 frame stations; scheme consists of a series of 31 pairs of steam-bent half-frames, each nailed to the keel; except for the aftermost four stations and foremost station, all sets seem to be paired with a floor, also nailed to the keel; floors and half-frames are bolted together; aft of amidships, floors are forward of frames with bolt heads forward; forward of amidships, floors are aft of frames, with bolt heads aft

Frame Spacing: 8"
Evidence of Repair: a few heavier sister frames have been placed aft of amidships, four starboard, five port

Fuel Tank: originally mounted in bow

Evidence of Net Lifter: net lifter supports on port and starboard sides

Oarlocks: one set

Engine:
Make: Universal
Model: Flex Four, four-cylinder
Serial Number:

Steering: tiller on wooden rudder

Special Features: wooden storage box built into inside of starboard bow; port and starboard gun'ls are different, with port apparently a replacement; lever mounted on hinge on floorboards to port side of engine box; wooden cocoa box serves as holder for battery on starboard side of engine; boat contains large quantity of artifactual material

Sheathing: from keel rabbet to above waterline, then just along turn-of-bilge, from stem to one-fourth of boat length aft

Diagnostic Markings: some wear on forward section of coaming, but may be from wood deterioration rather than nets or hook lines

Color Scheme
Hull below waterline: red
Hull above waterline: white
Topsides: green
Interior: red over white
Other: red floorboards, green engine box cover
Historical Summary: The MINERVA was built by Edgar Reuben Hill in the 1930's. She was used for fishing, but mostly for offshore, at Passage Island and Gull Rocks. Louis Mattson remembers this being a good boat, one that made it through several bad storms, but does not remember it being particularly wet, as some Hill boats are reported being.
FIGURE 32. Gas boat MINERVA, profile, starboard bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 33. Gas boat MINERVA, profile, starboard side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 34. Gas boat MINERVA, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: SEA BIRD

Boat Type: gas boat

Registration Number: 36A672

Present Location: site of Arthur S. Sivertson Fishery,
Washington Island, Isle Royale

Owner: Stanley Sivertson

Builder: Edgar Reuben Hill

Crew:

Dimensions (as measured in field)
Length: 24'10"
Beam: 8'0"
Draft:

Hull Type
Bow: curved plumb stem, blunt full bow
Stern: cut-away
Foredock: canvas covered, pattern not visible
Pegged Transom: unknown

Planking: carvel

Framing Sequence: 31 frame stations, most use full frames except in bow and stern, where hull has extreme curvature at keel; some floors are present, and rest atop frames; most ribs from amidships forward are capped with metal straps; where floors are present, straps extend onto them

Frame Spacing: 9"

Evidence of Repair: metal straps and floors probably represent efforts at reinforcing

Fuel Tank: mounted in bow
Evidence of Net Lifter: frame for mounting net lifter is set on support blocks on port and starboard sides of hull; an elaborate bracing system ties the frame to the hull, keel, and frames; a keelson runs forward from the forward edge of the engine bed, as in the Sivie

Oarlocks: two sets

Engine
Make: Continental Motors Corporation
Model: Gray Marine, 4-cylinder
Serial Number: F4162 22387

Steering: tiller, metal rudder

Special Features: support frame for net lifter, canvas covered foredeck

Sheathing: along turn-of-bilge from stem to aft of amidships

Diagnostic Markings: wear on coaming, possibly from hook line use; groove worn in center of top of transom, possibly from net anchor lines

Color Scheme
Hull below waterline: red; aft of metal sheathing, green
Hull above waterline: white
Topsides: green
Interior: green
Other: green decks and floorboards

Historical Summary: boat is reportedly built by Edgar Reuben Hill and owned by the Bugge family in Knife River, Minnesota; it was purchased from them by the Sivertsons and at one point had a Buick or Chrysler automobile engine.
FIGURE 35. Gas boat SEA BIRD, bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 36. Gas boat SEA BIRD, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: RUTH
Boat Type: gas boat
Registration Number:
Present Location: on shore at site of Arthur S. Sivertson Fishery, Washington Island, Isle Royale
Owner: Stanley Sivertson
Builder: Ole Danielson
Crew:

Dimensions (as measured in field):
  Length: 22' +/−
  Beam:  8' +/−
  Draft:

Hull Type
  Bow: curved plumb stem, full bow
  Stern: cut-away
  Foredeck: parallel planked
  Pegged Transom: yes

Planking: carvel

Framing Sequence: 24 frame stations, paired half-frames with futtocks except for forwardmost 5 stations, which are without futtocks; floors present in intact section of bow, atop, ahead of, or behind half-frames and futtocks
Frame Spacing: 8" to 12"

Evidence of Repair: floors and futtocks probably represent reinforcement
Fuel Tank: mounted in bow
Evidence of Net Lifter: none
Oarlocks: one set noted

Engine
Make: possibly Chrysler automobile
Model: Delco (?), 6-cylinder
Serial Number:

Steering: unknown

Special Features: none

Sheathing: from keel rabbet to above waterline, from stem to amidships

Diagnostic Markings: grooving on forward and sides of coaming from hook line and/or gill net use

Color Scheme
Hull below waterline: red
Hull above waterline: white
Topsides: green
Interior: dark gray over light gray over green over red, bilge creosoted or pine tarred
Other: floorboards gray and/or green on top, creosoted or pine tarred on bottom

Historical Summary: boat reportedly built by Ole Danielson, once a highly-regarded craftsman, after he was along in years and had hired a house builder as an assistant. The quality declined in the boats produced by this team, and at least one is believed to have fallen apart in a storm, drowning its crew. This vessel has opened up along the keel and literally "blown apart," something unseen in any other gas boat examined during the study.
FIGURE 37. Gas boat RUTH, starboard bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 38. Gas boat RUTH, view from aft (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: TERN

Boat Type: gas boat

Registration Number:

Present Location: on shore at Mott Island, Isle Royale

Owner: Isle Royale National Park

Builder: E.J. Croft

Crew:

Dimensions (as measured in field)
   Length: 18'1"
   Beam: 7'
   Draft: 1'4"

Hull Type
   Bow: straight raked stem, narrow bow
   Stern: flat raked transom
   Foredock: parallel planking
   Pegged Transom: unknown

Planking: carvel

Framing Sequence: 20 frame stations, using steam-bent full frames; possibly half frames in extreme forward part of hull; six floors

Frame Spacing: 9.5"

Evidence of Repair: boat was extensively restored in 1979; obvious indications are three painted floors of one size stock and three unpainted floors of thinner stock

Fuel Tank: mounted in bow

Evidence of Net Lifter: none
Oarlocks: none noted, but one of the original owners stated that "oars and oar locks were always in the boat, as a safety [sic] measure"

Engine
Make: Gray Marine
Model: Graymarine Lugger Sea Scout 91, four-cylinder
Serial Number: F12503

Steering: side wheel steering, tiller, metal rudder

Special Features: two seats, one each in bow and stern; hull has wide, flat cross-section suggestive of a canoe

Sheathing: none

Diagnostic Markings: none noted, but an extensive restoration may have eliminated them

Color Scheme
Hull below waterline: white
Hull above waterline: white
Topsides: green
Interior: gray
Other: gray floorboards

Historical Summary: the TERN was built sometime around 1949 by E.J. Croft of Croftville, Minnesota. She was designed and purchased by Ed Holte, who used her for hauling at his fishery on Wright Island. His wife Ingeborg recalled that her father used to visit the builder during construction to make sure it was being made right. She cost about $1000.00 ($300.00 for the hull and $700.00 for the motor). Ingeborg describes her as being "Definitely our best tool" and "A very good sea boat. I liked her better than our larger one." "It brought us through some
really rough seas." The boat was purchased from the Holtes by Isle Royale National Park for $500.00 and extensively restored in 1979 by Brown Boats of Mound, Minnesota. It has not been in the water since 1985 and its condition has deteriorated considerably.
FIGURE 39. Gas boat TERN, port bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 40. Gas boat TERN, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: SIVIE

Boat Type: gas boat

Registration Number: 36E38

Present Location: on shore at Stanley Sivertson Fishery, Washington Island, Isle Royale

Owner: Stanley Sivertson

Builder: Arthur S. Sivertson and Hokan Lind

Crew: one

Dimensions (as measured in field)
Length: 23'5"
Beam: 7'6"
Draft: 2'

Hull Type
Bow: straight raked stem; sharp flared bow
Stern: flat, raked transom with flat bottom
Foredock: parallel planking
Pegged Transom: no

Planking: carvel planked (strip built/"kidney planked")

Framing Sequence: 33 frame stations, steam-bent half-frames; floors forward of amidships

Frame Spacing: 8" to 8.5"

Evidence of Repair: none

Fuel Tank: originally mounted in bow, now in stern

Evidence of Net Lifter: support blocks port and starboard;
two keelsons over heavy floor timbers mounted forward of engine bed

Oarlocks: two sets
Engine: removed
  Make: Gray Marine
  Model: express 6-226, 6-cylinder
  Serial Number: D3208

Steering: side wheel, with quadrant and metal rudder

Special Features: aft-mounted fuel tank; double keelsons forward of engine bed; hardware for controlling steering and shifting from various places in the boat

Sheathing: from keel rabbet to above waterline, from stem to aft of amidships

Diagnostic Markings: grooves worn in coaming from hook lines, gill nets; grooves in top of transom from net anchor lines

Color Scheme
  Hull below waterline: red
  Hull above waterline: white
  Topsides: bare wood--no traces remain
  Interior: creosoted or pine tarred
  Other: green bulkhead, fuel tank cover, and floorboards

Historical Summary: Vessel was designed by commercial fisherman Arthur S. Sivertson, based on his extensive knowledge of commercial fishing boats and techniques, and built with the help Hokan Lind, a part-time professional boatbuilder. Keel was laid in 1947 and boat was retired sometime in the 1950s with the collapse of the lake trout fishery resulting from lamprey infestation in Lake Superior.
FIGURE 41. Gas boat SIVIE, profile, port side (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).

FIGURE 42. Gas boat SIVIE, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
BOAT DATA SUMMARY SHEET

Boat Name: HMS

Boat Type: launch

Registration Number: MC7990BT

Present Location: Bayfield, Wisconsin

Owner: Tom and Chris Gale

Builder: Edgar Reuben Hill

Crew: N/A

Dimensions (as measured in field)
   Length: 28'2"
   Beam: 7'4"
   Draft: 2'7"

Hull Type
   Bow: curved raked stem, full bow
   Stern: cut-away
   Foredeck: chevron planking
   Pegged Transom: unknown

Planking: carvel (strip-built near keel and from turn-of-bilge to deck)

Framing Sequence: 35 frame stations; aftermost seven stations and foremost five are pairs of half-frames, others are steam-bent whole frames; all stations except aftermost four and foremost two are paired with a floor timber; the third through fifth stations from the bow each have a "high" (relatively speaking) unpainted floor forward of the frame; stations six through thirty (moving aft) each have a "low" unpainted floor; the remaining stations have "high" unpainted floors; the pattern may be disrupted for the
three frames beneath the engine due to the presence of the engine bed; forward of the engine, low floors are forward of the frames and high floors are aft; aft of the engine, high floors are forward of the frames and low floors are aft.

*Frame Spacing: 9"*

*Evidence of Repair: none noted*

*Fuel Tank: mounted in bow*

*Evidence of Net Lifter: none; boat was never used for commercial fishing*

*Oarlocks: none*

*Engine*
  *Make: Gray Marine*
  *Model: Gray Motor Model 4-52*
  *Serial Number: C29449*

*Steering: sidewheel steering with quadrant and metal rudder*

*Special Features: two large bilge keels, probably installed to reduce roll; four bench seats*

*Sheathing: none*

*Diagnostic Markings: none*

*Color Scheme*
  *Hull below waterline: red*
  *Hull above waterline: white*
  *Topsides: varnished*
  *Interior: gray*
  *Other: green stripe at waterline; no paint below floorboards, possibly pine tar or creosote*
Historical Summary: The HMS was built by Edgar Reuben Hill for the Scofield resort at Belle Isle, Isle Royale, where she was "used by the resort for trolling, [and] trips along the Island to various picnic spots with guests." She was eventually acquired by the Gale family of Tobin Harbor "when former resort owner Fred Scofield sold out." She has been moved off-island to Bayfield, Wisconsin.
FIGURE 43. Launch HMS, profile, starboard bow (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
FIGURE 44. Launch HMS, port quarter (courtesy of Isle Royale National Park, Vernacular Boat Photo Archive).
APPENDIX 5

LETTERS OF RELEASE

FOR

ILLUSTRATIONS
April 7, 1992

H2217(ISRO)

Mr. Hawk Tolson
6939 Big Creek Parkway
Middleburg Heights, Ohio 44130

Dear Hawk:

I understand that you are nearing the completion of your thesis and would like to use photographs and a map from the park’s collection as illustrations. I am writing to grant you the park's permission to use photographs taken during the course of your research as long as they are properly credited as being provided “Courtesy of Isle Royale National Park.” The map may also be used as an illustration and need not be credited to the park.

Our best wishes to you as you finish your thesis. We are always excited to have students choose Isle Royale topics, as it enhances our knowledge of the park's resources and benefits the course of study of the researcher. This project certainly uncovered a wealth of information about significant, but previously little known, Isle Royale cultural resources. Many of the boats, their builders, and the fishermen who relied on them may have been lost without your research efforts.

Sincerely,

Elizabeth Amberg
Cultural Resources Management Specialist
906-487-9081
From C. Patrick Labadie
5103 Beaver Lane
Duluth MN 55811

To Hawk Tolson
936 Big Creek Pkwy
Middleburg Hts. OH 44130

20 April 1992

Dear Hawk,

I'm pleased that my small craft survey format has proven useful for you, and would like to convey my permission to reproduce the survey forms or any parts thereof in connection with your report on Isle Royale's small craft.

Please feel free to call on me if there are any other ways that I can be helpful to you.

Respectfully,

[Signature]

C. Patrick Labadie
VITA

for
Hawk Tolson

Mailing Address: 2553 Texas Avenue South
                 Suite C
                 College Station, Texas 77840

EDUCATION

BACHELOR OF SCIENCE degree, 1978, The Ohio State
University, Columbus, Ohio

  Major: Parks and Recreation Administration

JUNIOR STATUS, Colorado School of Mines, Golden, Colorado

  Major: Geophysical Engineering

CERTIFICATE, Advanced Open Water Diver, 1981, PADI,
Columbus, Ohio

WORK HISTORY

May 1990 - Present
  PRINCIPAL INVESTIGATOR, Isle Royale Vernacular Boat
  Study, Isle Royale National Park, Houghton, Michigan

January 1990 - May 1990
  CONSERVATION RESEARCH ASSISTANT, Conservation Research
  Laboratory, Texas A&M University, Nautical Archaeology
  Department, College Station, Texas

April 1985 - August 1989
  Employment as a field and laboratory archaeologist
  with a variety of public and private agencies on a
  seasonal or project basis