

Two Views of the Herreshoff Bar Harbor 31s



by Maynard Bray

The Bar Harbor 31-footer INDIAN with her original cutter rig.

Thirteen identical Bar Harbor 31-footers left the famed Bristol, Rhode Island, plant of the Herreshoff Manufacturing Company in the spring of 1903, having been built there the previous winter. They were not unusual boats for their day and, in fact, were about the smallest sailing craft—at just over the minimum waterline length of 30'—that could lay official claim to the title of yacht and thus be eligible to race and cruise with major yacht clubs. Today it is different. By present standards an overall length of 49' and a draft of 8' is considered big.

The original owners all had their permanent addresses in Philadelphia, New York, or Boston, but presumably all of them had some summertime connection with Bar Harbor and its environs on Mount Desert Island in Maine. Most of them no doubt owned summer "cottages" (read mansions) for which the area became famous. Strangely, however, there was no yacht club and little in the way of organized racing in Mount Desert waters in 1903, and the Bar Harbor 31-footer may well have been a racing class in name only.

Within five years only two boats were still owned by the men who had had them built and these—named BAT and FLIGHT—were about the only ones left in the Bar Harbor area. ASTRILD disappeared from the yacht register, but the remaining 12 boats were still around at age 25.

Auxiliary engines and taller masts sporting the new marconi rig—cut down in area from the original gaff-rigged cutter sail plan because of its great efficiency—began to show up. By 1929 a couple of the boats had been rerigged as marconi yawls; a few others as single-headsail sloops. A modernization was taking place. FLIGHT now sailed on Lake Michigan, New York sailmaker Louis J. Larsen now owned RELIANCE (ex JOKER) and she hailed from Manhasset Bay, SENORA (ex BEN) and SCUD were out of Essex and New London, RED WING (ex BAT) was in Narragansett Bay, and ARIEL (ex CURLEW) was back at Bar Harbor. The other five boats hailed from

Marblehead or Boston where the Universal Rule racers were having their heyday. The rerigged Bar Harbors—INDIAN is a good example—fell into Universal Rule Class P but never made much of a showing since their ratings were so high for their speed. Back in 1902, when they were designed, the so-called Seawanhaka Rule (a rule which penalized waterline length but didn't take into account the length on deck) was in vogue, and the scow-like hull of the Bar Harbor class with its long overhanging bow and stern was a result. But such a boat wasn't favored under the new and supposedly more wholesome Universal Rule.

Walter Shaw, who owned INDIAN for many years, was convinced not only that the Bar Harbors were better fitted for cruising than the new P-boats, but were a far better bargain as well. He paid \$2,250 for INDIAN in 1912 (about half of what she had cost when new), laid out another \$3,500 in 1922 for a new marconi sloop rig, a complete redecking and some other strengthening, and urged the other Bar Harbor owners to make similar conversions and to get into racing as a class by themselves.

His ideas never took hold, however, and the ensuing years of the second quarter century were rough ones—as that period proved to be for all boats attempting to weather the stock market crash and ensuing depression, the great hurricane of 1938, and the idle (for most of them) years of World War II. In 1953, at the 50-year mark, only five Bar Harbor 31s were listed in Lloyds Register of American Yachts. Those five boats, I believe, kept going through age 75 and are still around today.

INDIAN, a boat whose name has never been changed, is one of the five survivors. She is back at Bristol in the Herreshoff Marine Museum there, having been donated by George Lockwood, her owner for the past 30 or so years.

The Bar Harbors are very beautiful and extremely interesting boats. The two write-ups which follow—one technical, the other experiential—are but a small part of what could be said about them.

DESPERATE LARK

DESPERATE LARK, one of the surviving Bar Harbor 31-footers, was built in 1903 and is pushing 80 years of age. Her owner for half this time (along with his wife Frances) was Frederick L. Day. Fritz and Frances bought DESPERATE LARK, then called CRICKET, in 1939 and sailed her together nearly every year after that. DESPERATE LARK is the most original surviving boat of the Bar Harbor class. The Days' adventures with her were many, and in 1978, in celebration of the boat's 75th year, Fritz Day wrote a book about their life with DESPERATE LARK. The excerpts that follow are from that yet unpublished manuscript.

On buying a Bar Harbor 31:

"Four thousand dollars a year? We'd both have to get jobs."

"Oh, there's no need to spend anything like that! the old man has a paid captain and a paid hand. You and I could sail that boat alone, just the two of us, and do the varnishing and painting ourselves for a mere three or four hundred!"

"By the way, how big is she?"

"Well, she's a bit large."

"You might as well tell me."

"Forty-eight feet ten on deck."

There was considerable silence.

We sat down on a cushioned seat and stared about us. White paint and shining mahogany everywhere, the cabin sole pristine battleship gray.

"Plenty of space," mused my better half, lightly. Sarcasm, I guessed.

Forward of the main cabin was the galley, containing a polished brass stove with three burners. Opposite it a sliding door opened into the head with its toilet and wash basin.

Still farther forward was the low but roomy fo'c'sle with two folding pipe berths and a big icebox.

"Aren't you going to take up the floorboards and look at her timbers?" asked my wife suddenly.

A bit surprised by this sign of interest, I took an icepick from the galley and raised a section of the floor. I poked the icepick at the oak timbers and then straightened up and laughed.

With a more moderate sail plan and a marconi yawl rig, DESPERATE LARK has been a successful (and at times exciting) cruiser for two.



"I'm going to dull the point," I said.

Her bilge was clean and dry. No winter-boat smell here.

"You know," said the broker, "she has five tons of lead on her keel. They could get more for her if they broke her up for scrap."

I glanced at Frances. Her face was a study of incredulity.

"Break up a beautiful yacht like this for *scrap*?" she exclaimed.

We climbed down a ladder to the ground and stood looking up at the long, smooth, green hull in silence.

"We're out of our depth," said Frances. The waterline where the white topsides began was far above our heads.

"Do you think," she asked, "that we'd be crazier to buy that boat or not buy her?"

My jaw dropped. Had I really heard what she said? For seconds I held my breath.

"I think we'd be crazier if we didn't buy her," I answered in the most casual tone I could muster.

Back in the broker's warm and handsome living room we enjoyed a good rum drink — a sort of stirrup cup to brace us for our 70-mile drive back through the blizzard. When we were warmer both within and without, he asked, "Well, how about it?"

We exchanged glances. The

would-be-but-not-yet-captain got up and sauntered around the room. "Well," I said at last, "we haven't the thousand dollars asking price right now..."

"You don't need it yet," said the broker. "How about \$50 down to hold her while you make arrangements?"

My head swam. It was so smooth and easy. He might have been the devil offering all the beauties of the world — and never mind doomsday.

There was no turning back. I sat down and mechanically wrote out a check for one third of our earthly funds at 2 o'clock on this Sunday morning of 1939.

On changing her rig:

Frances and I went down to take possession. We loaded on ice and food, bedding and duffel bags, and were savoring our incredible luck when the mainsail was carried aboard. By two men.

I hefted one end of the roll, Frances lifted the other a few inches and dropped it. She gave me a bewildered stare.

"Rather heavy canvas," I mumbled.

Besides this, another thing stared me in the face: the necessity for either a divided rig or a reliable engine. The main boom extended far out over the stern, and a heavy gaff lay along it.

Frances would never be able to hoist this sail in case of an emergency, and when the thought of reefing it began to form, my mind refused it as a horse refuses a jump.

There was a long silence aboard the CRICKET.

"L. Francis Herreshoff lives here in this town," I said finally. "He is the son of Nat Herreshoff who designed our boat. It might be a good plan to go and tell him our troubles."

We went to see him and were relieved when he took an interest in our problems and assured us on the spot that CRICKET could be rigged as a yawl without moving the mainmast. For jib-headed sails we would need a taller main and a mizzen mast at the after end of the cockpit. The present sails could be recut.

I began to breathe again.

I told him that I didn't understand engines and didn't want to, and he suggested that we could make do with a small outboard for emergencies. He would design a bracket for it which could be latched onto the port quarter.

We left him with the understanding that he would design our sail plan and Graves' Yard and sailmaker would do the rest.

The first cruise in Maine:

We dropped anchor off our stern, fearing we might not have room to circle into the wind. The LARK slowed; we payed out our line. The soundings proved adequate to within a few yards of the cove's head, and we dropped another anchor off the bow. The stern anchor held. We doused the sails and snuggled down. Then, with Dave manning one anchor rode and I the other, we slowly coaxed LARK to turn on her keel and tied her down again with her bowsprit heading out to sea.

I was quite pleased with this maneuver, accomplished so quietly, without exploding cylinders. It seemed to suit the place.

A sense of speed:

It was a splendid day to sail anywhere, but with the need of supplies uppermost in our minds, we took a course for Boothbay Harbor. LARK heeled to the wind and tore along with a bone in her teeth making 9½ sea miles (as measured between two buoys) in one hour flat.

We were filled with elation till we realized suddenly that we had Squirrel Island ahead and should change course for the harbor entrance. Our glee turned to funny consternation. We had expected a day's sail and



Frances Day at LARK'S diamond jubilee.

somehow had arrived at our destination in less than three hours!

Comes the war:

That fall (1941) we cleared the LARK for winter, not knowing at the time that LARK would spend four long years in the dark shed. And not knowing that the dark shed would be in the midst of a din of buzzing and hammering as minesweepers and subchasers slid down the ways of Graves' Yard.

Sailing with friends:

LARK was dipping her bowsprit and raring to go. We had a struggle with the anchor, which might have been serious without Johnny aboard. Then we romped out of Provincetown, pitching and sliding, white water leaping in every direction.

Johnny helped with the sheets and backstays. Jack sat in the cockpit and clung to the coaming, his eyes glued to the horizon. Patty stood by the mizzen shrouds looking beautiful, till she got soaking wet and decided to sit shivering in the cockpit.

After we squared away on course for a bell buoy some 15 or 20 miles off, Johnny disappeared into the fo'c'sle. Patty followed soon after. Jack stayed a little longer, but it was a losing battle, and soon we were left alone.

Without an engine:

I went on deck and hauled the tender alongside. Frances came up and said, "Aren't you going to bring up the dinghy?"

"I did."

The landing stairs were in place, but no dinghy. I looked astern and saw her drifting rapidly downwind toward a low railroad bridge.

"Cast off!" I shouted.

We rushed to the bow, hoisted the forestaysail and dropped the pennant

overboard. LARK whirled in her length and bore down on the little cockleshell, rocking lightly in the northeast chop.

We hooked her, perhaps 50 yards from the bridge, and headed back upwind. I had expected to need the mizzen for the return trip, but LARK tacked easily under the forestays'l alone.

Beaming with pride, we picked up the mooring again and piled into our errant dinghy.

A new powerplant:

LARK had had no power but wind power since our little outboard had been stolen in Provincetown several years earlier. Inevitably, our sail handling had improved. We made eggshell landings at piers and floats and picked up moorings under forestays'l alone. But a calm was still a calm. Gradually, my touchiness about harming LARK'S wonderful sailing qualities by installing an engine began to fade, and the end of the summer of 1948 found us equipped with a semi-inboard engine. After much discussion and considerable time spent at Goudy and Stevens' yard, we emerged with a 14½-horse outboard motor installed in a well in the after end of the cockpit. The well consisted of a copper box extending from the cockpit floor to the outside of the hull below to accommodate a long shaft. This rig had several advantages. It was relatively cheap. There would never be any gas or oil in the bilge. And we could always haul the thing out and leave it ashore if we felt like it. It added very little weight and would give us a speed of six knots.

A squall off Mount Desert:

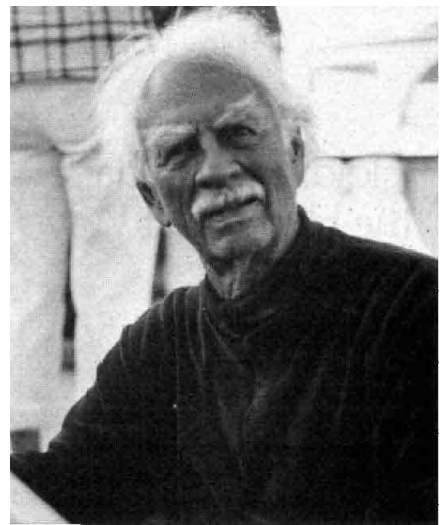
I watched the telltale on the port shroud, but after a faint wiggle it hung limply down. Sitting with my hand on the tiller, waiting for something to happen, I remembered the old superstition and called down below for a penny to pay for a breeze. Scott reached out of the companionway and popped the toll over the side.

LARK continued to drift by the shore of Mt. Desert so lazily that I was tempted to lie down and snooze, when suddenly she reeled under my feet! Lee rail foaming, sheets taut, cries and crashes down below, she was tearing out to sea like a mad thing.

"All hands on deck!" I roared, easing her into the wind as best I could.

"Douse the main!" I shouted to the shocked crew struggling through the hatchway.

Scott made a dash for the main



Frederick (Fritz) Day at the tiller.

halyard. Rowland stood by to push the boom into its chock. Frances and Graeme collected stops from the deckhouse rail, and Jane crouched in the cockpit waiting to be given a job.

The sail came down, flapping crazily from starboard to port, while LARK shook in a 50-knot squall! Scott worked his way aft, securing stops, and gave me a wink and a big grin.

"I only had a dime," he shouted.

At 75 years (1978):

Today I sit on the high plank deck that runs along the west side of the cottage on Little Deer Isle. Through the spruce trees I can see across Penobscot Bay and down over the massive rocks to the water where LARK lies at her mooring. Twenty-five years have passed since the yellow-tassel birthday celebrations that marked the 50th anniversary of her launching.

Her shell is as true as the day it was built. The carefully selected longleaf yellow pine of her hull shows no sign of rot.

We are preparing for a very special event. LARK has survived 75 summers of sailing with all their freaks of weather, strategies and errors of her skippers and crew. We celebrate the whole of it, all that we know and all that we don't, and call it her "diamond jubilee."

Last August we went for a sail with Fritz and Frances Day aboard their beloved LARK. What a thrill it was to feel the easy speed of her long hull and the quickness of her helm, and finally, when it was over, to see her skipper make the mooring under sail alone.

It will be sadly different in 1982; Fritz Day died last fall at age 90. We send our heartfelt condolences to Frances and DESPERATE LARK and wish them well in years to come.

Holding the Shape the Herreshoff Way



Each winter for years DESPERATE LARK has been stored outside with masts in place and her bow and stern unsupported. She's nearly 80 years old and her sheer is still perfect.

What makes a boat last—and last—far beyond her normal life expectancy? Is it durable materials? Classic good looks? Continuing usefulness? A series of good owners? Money? Luck? Perhaps it is all of the above in some magic combination. But one sure-fire way longevity is jeopardized is when a boat's sheerline becomes hogged. There are few sailors who want to own a boat with a hump in her sheer or a boat whose stern has drooped like a piece of wet spaghetti. There is no amount of gleaming varnish or elegant joinerwork which can compensate.

Many turn-of-the-century sailing yachts were long-ended, low-sided, deep-keeled craft that carried large spreads of sail. Inherent structural stiffness was minimal. There were hundreds and probably thousands built to this style—just look in any yachting magazine of the time—yet

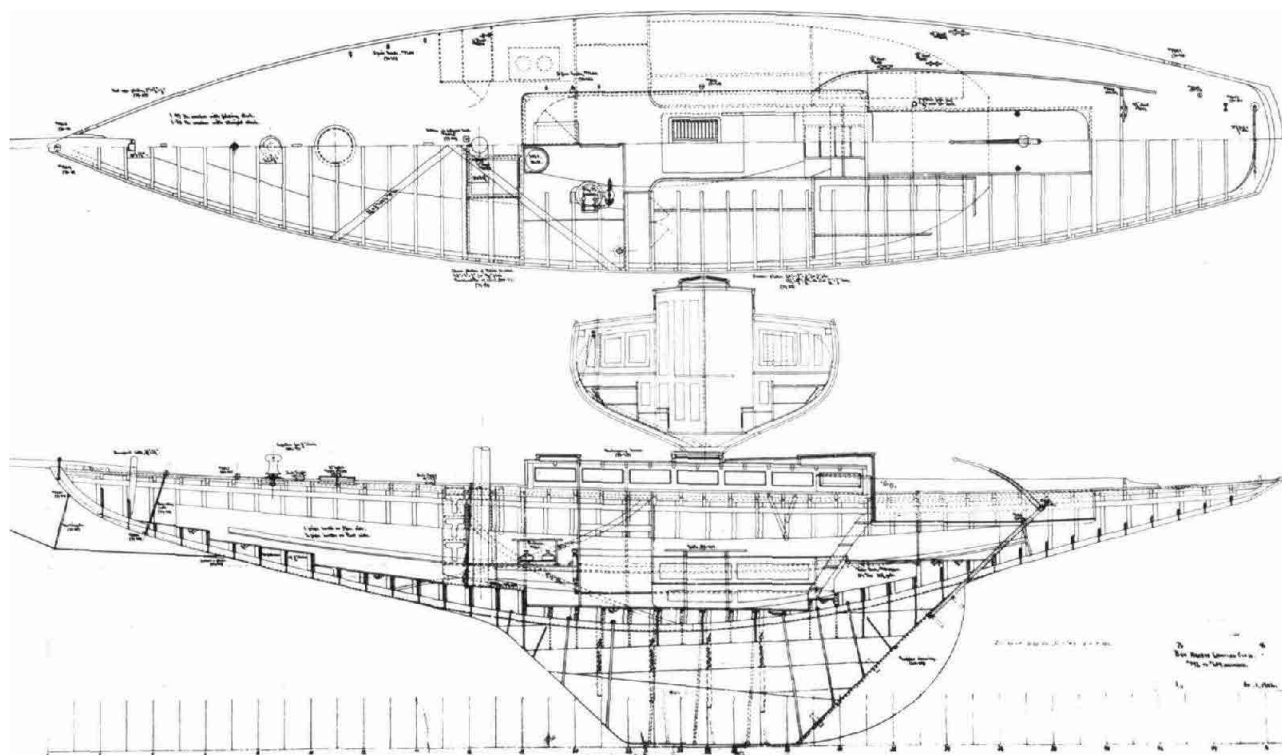
few boats made it even to 50 years of age. Hogging was a common fault and was a key factor in their demise.

There were exceptions, and the boats from the Herreshoff yard at Bristol, Rhode Island, were one of them. N.G. Herreshoff had had many years of experience in putting together wooden hulls so they wouldn't flex or change shape, and by 1900 had worked out some fairly standard strength-giving features which were incorporated in most of his long-ended wooden sailing craft. Most of his designs were handsome to begin with, and because they were strong enough to retain their original shape over the years, Herreshoff boats always wound up with more than their share of good owners. Of course his boats had other sought-after attributes as well; I don't mean to belittle their other features in the least when I say that the ability of Herreshoff boats to keep a fair hull

and a fair sheerline was a key to their long life.

How in heaven's name is it possible for a long-ended boat to hold her shape year after year? The hull holds up the heavy lead keel when she's overboard; the keel holds up the hull when she's hauled out for storage. She shrinks in winter and swells up again in summer. There are the stresses of sailing in heavy winds and rough seas. And old age is always a factor.

Like most of Capt. Nat Herreshoff's work, his solution to the hull stiffness problem was simple, fairly inexpensive, and most effective. The 13 boats of the Bar Harbor 31-foot class of 1903 (49' overall) are a good example. But there are others. Take two other Herreshoff one-design classes of 30' waterline length, for example—the Buzzards Bay 30s of 1902 (47' overall, 14 boats) and the famous New York 30s of 1905 (43½



Courtesy Hart Nautical Museum, MIT

overall, 18 boats) which were featured in WB No. 35. I know of four or five Bar Harbors, five Buzzards Bays, and an astonishing 13 New York 30s that are still in existence, and while to be sure there are a few basket cases among them, the sheerlines of these craft still look good.

Shown here is the construction drawing for the Bar Harbor 31-foot class, the most extreme of the above-mentioned designs. Let's take a look at what gave these craft their long-term hull stiffness and kept their hulls from going out of shape.

Double planking—Double-planked topsides with both layers running fore and aft and their seams staggered so they could be screw-fastened to each other as well as to the boat's framing formed a rigid skin which, once built, resisted any change in its shape. Because Herreshoff always built his hulls upside down where working on them was convenient, an extra layer of planking was no big deal, and any Herreshoff boat over about 35' in overall length was generally double planked.

Tight seams (without caulking, that is) were used for both inner layer and outer layer. The outer one was the thicker of the two so it could be bunged and was bedded against the inner one in heavy shellac. Back fastening between the frames from the inside held both layers together and made the completed skin rigid. This band of double planking covered about two thirds of the hull, extending from the lower edge of the rabbeted sheer strake to well below the turn of the bilge where its outer layer likewise lapped onto the rabbeted edge of the first strake of single thickness planking. Smooth topsides with seams which stayed so tight as to be nearly invisible were another benefit of double planking and a trademark of Herreshoff.

Diagonal metal strapping—Metal (usually bronze) strapping, running diagonally from rail to keel, let into the frames where it crossed them, and fastened to the inside surface of the planking, kept the hull from twisting or wracking under the opposing forces of the rig and the ballast keel. Similar strapping crossed the deck in way of the mast. Herreshoff always used this metal strapping, in one form or another, in the bigger boats with deep heavy keels to supplement the double planking.

Oak, teak, or hard mahogany sheer margin—The sheer strakes and covering boards were usually oak (and sometimes of hard mahogany or teak) well screwed together to form, in

effect, an L-shaped longitudinal tie which ran along the sheer from bow to stern on both sides of the boat. These ties or margins, spread as they were by the deck beams and well connected to the breasthook forward and to the quarter knees aft, resisted any elongation of the hull at deck level—a frequent cause of drooping bows and sterns. On the Bar Harbor class, the sheerstrake butt block is through-bolted rather than screwed to further strengthen the sheer margin assembly. And of course this assembly was stiff enough to prevent any local unfairness from developing in the boat's sheerline from the pull of rigging. Being of a stiff dense wood it held fastenings well, and the toe rail, the bow and quarter chocks, pad-eyes, and other things that were attached to it stayed put. Nearly all of Herreshoff's decked boats had this feature, whereas in other craft one might find softwood sheerstrakes and fore-and-aft laid decks that ran right out over them with no covering boards at all.

Hull framing held fast at its ends—Looking at a transverse section through the hull, one can easily imagine the hump in the sheer that would occur if the frames were to straighten out appreciably. Yet, with the mast and ballast pushing down at

the centerline and the rigging pulling up at the rail, that is the tendency. Herreshoff kept his frames from changing their shape by securely bolting or riveting their ends to something secure; the frame heels were fastened to floor timbers and the frame heads were locked between and bolted through the clamp and sheerstrake. Above the clamps, the frames were fastened to the outboard ends of the deck beams. There were hanging knees to further hold the frame heads in place—six pair of them on the Bar Harbor class, for example, located on the frames nearest the mast and over the ballast keel where most of the stress comes. Structural bulkheads are, of course, another means of holding the transverse shape of a hull, but Herreshoff rarely used them in this type of craft—probably because he felt they were a needless complexity and wouldn't integrate well with his practice of using continuous bow to stern hull ceiling.

Sheer clamp—The sheer clamps, which ran from bow to stern at the intersection of the deck beams and frames, acted as continuous knees to help hold the angle there from changing, since both the beams and frames were bolted to them. Besides this, the sheer clamps were well secured to the

stem and stern and helped keep them from sagging; that is, the clamp served as a longitudinal strength member up high in the boat where that kind of strength was needed.

Moderate rigging loads—Although not unique to Herreshoff boats, the turn-of-the-century sail plans with their large gaff mainsails and relatively small jibs were, compared to the tall go-fast rigs of today, easier on the hulls that supported them. There was far less need back then for a tight jibstay, since those early boats with big mainsails weren't very dependent on a headsail for their speed. The short masts that went with

the gaff rig meant better lead angles for the shrouds and correspondingly less load on them. Less tension in the standing rigging meant less compression on the mast and less push against the mast step. The highly stressed, high-aspect, large-headsail modern rig, sailed hard, is a sure way to pull even the finest old hull apart.

One might think, after reading the above, that the features which gave Herreshoff boats so much strength would take up a lot of space and be heavy. What continually amazes me about Herreshoff is that these key strength-giving elements are light-

weight, small in size, beautiful to look at, and simple to build. A truly marvelous combination.

There is more about the construction of a Bar Harbor 31 and other boats from that yard that is worth knowing. Not only the features that make them strong and long-lasting, but the details that make them look so beautiful. The way the paneled doors and bulkheads are built, for example, is a study in itself. N.G. Herreshoff must have had the following guidelines always in mind as he went about the business of designing, and because his blend of these ingredients was consistently near perfect, he is still thought of by many as the best in the business even though he's been dead for over 40 years:

- Make the boat sail fast and handle well.
- Make the structure light and put the weight thus saved into ballast.
- Build things strong enough so they won't break—but just barely so.
- Keep things simple and design things that can be easily built.
- Make everything you design pleasing to look at.
- Use long-lasting materials.
- Put it all together with good workmanship.

Bar Harbor 31-footers

LOD	48'10"
LWL	30'9"
Beam	10'4"
Draft	7'3"
Sail area	1,425 sq ft

Hull No.	Original Name	Original Owner
592	KUWANA	John B. Trevor
593	ASTRILD	Henry L. Eno
594	ZARA	Joshua M. Sears
595	JOKER	H.M. Sears
596	BAT	Edgar T. Scott
597	BEN	A.Y. Stewart
598	CURLEW	R.H. Gallatin
599	INDIAN	W.C. Allison
600	FLIGHT	E. deV. Morrell
601	REDWING	T.G. Congdon
602	CRICKET	F.G. Ladd
603	SCUD	A.J. Cassatt
604	PAPOOSE III	V. Everit Macy

Further Reading:

- Bray, Maynard. "The Genius of N.G. Herreshoff," *WoodenBoat* No. 33, p. 50.
- Herreshoff, L. Francis. *Capt. Nat Herreshoff, The Wizard of Bristol*. New York: Sheridan House, 1953.
- Herreshoff, L. Francis. *The Common Sense of Yacht Design*. New York: Rudder Publishing Company, 1946.
- Herreshoff, N.G. *Rules & Regulations for the Construction of Racing Yachts*. New York: New York Yacht Club, 1928. (These rules have been reproduced in Francis Kinney's book *Skene's Elements of Yacht Design*.)
- Shaw, W.K. "Bringing the Bar Harbor 31-footers up to Date," *Yachting Magazine*, December 1922, p. 297.