LET THE BEST BOAT WIN

The Story of America's Greatest Yacht Designer

CONSTANCE BUEL BURNETT

illustrated by John O'Hara Cosgrave, II

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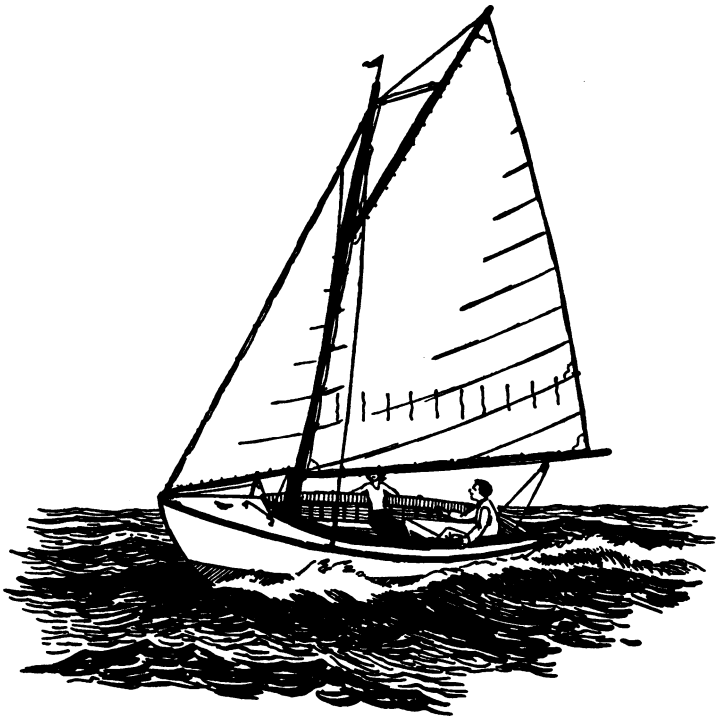
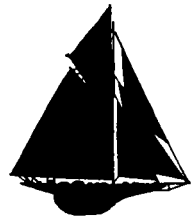


This book is dedicated to the smallest of

Captain Nat's great fleet

The Herreshoff 12 1/2 footer



CHAPTER 1

EARLY on a spring morning in 1903, an atmosphere of tense waiting pervaded the small town of Bristol, Rhode Island. On house stoops and street corners people collected in groups, eying the unsettled look of the April sky with concern. Superstitions were deeply rooted in the old maritime community. A new Cup defender was to slide down the ways at the Herreshoff yard that afternoon, and since it was an event of national importance, everyone hoped the boat would be floated under clear skies. Rain at a launching ceremony had a dampening effect on the spectators and easily engendered in the minds of sailing men the belief of bad luck.

The man most involved in what was to happen that afternoon, however, had spent his whole life eliminating the element of chance. Nathanael G. Herreshoff (called Captain Nat by the townsfolk) had been up before any of his neighbors in his large frame house on Love Rocks, a point of land a stone's throw from the boatyard. At dawn he had tapped and reset both his barometers, the

one in his room and the one in his workshop. When he peered at them again, three hours later, neither needle had budged. Regardless of present clouds there would be favorable weather. He went quietly about his preparations for the coming event. They were, as always, exact, meticulous and calculated down to the last detail.

Strangers, pouring into Bristol on special trains from New York and Boston for the launching ceremonies, had to be directed to the huge construction sheds on the Hope Street waterfront. The Herreshoff boatyard displayed no signs, unless you counted the one word OFFICE printed in neat gold letters on the door of a building on neighboring Burnside Street, which looked insignificant among the sprawling array of lofts, shops and foundries.

"Whose office?" asked occasional strangers.

"John Herreshoff's — Captain Nat's brother," citizens of Bristol replied, looking their astonishment that anyone could ask.

The deep-toned clanging of the bronze bell in the cupola of the machine shop on Burnside Street, which summoned some two hundred Herreshoff workmen to and from the yard, was as much a part of the life of Bristol as the harbor and its boats.

At noon today, the bell had rung the hour of lunch and the usual call back to work. After that, although the April air was tinged with sharpness, people opened their doors frequently and listened. A third pealing of the bell was to be the signal that all was ready for the launching. It came at exactly fifteen minutes after two.

Like everything ordered by Nathanael Herreshoff, the timing was precise.

Along Hope Street, which skirted the harbor, where the town's finest old houses stood, most of the townspeople were already assembled. Now the Herreshoff machinists, carpenters, riggers and sailmakers poured out of the yard and joined the throng.

Only an under blacksmith and coppersmith delayed to tend the forges and bank the fires properly before leaving. Having the same first names, they were dubbed "Charlie Black" and "Charlie Copper" by the yardmen.

"Wouldn't miss this launching for a week's pay," grinned Charlie Black, leaning a poker against the brickwork of his forge.

"Nor I." Charlie Copper waited for him at the door of the shop. "She'll be a sight leaving the South Shed."

Many others felt the same way. It was to see the largest "single-sticker" ever built leave the Herreshoff ways that yachting enthusiasts up and down the Atlantic seaboard had crowded into Bristol. And her size was only half of the show. Inside her there was more ingenious machinery than had ever been devised for a sailing yacht. Much of her running gear was controlled below decks by specially designed winches. The handling of a big Cup defender required scientific ingenuity as well as seamanship. It was an art in itself, a factor as important as the design of the hull and of the sails and rigging. It took skilled manpower and plenty of it to break out giant spinnakers, balloon jibs and topsails, or to take them in without a mishap or loss of headway.

Simply swinging those great yachts about on an opposite tack, loosing and sheeting home their immense sails in a matter of seconds, demanded the flawless and perfectly co-ordinated performance of a professional crew.

Captain Charles Barr, who had already commanded the Herreshoff Cup defender *Columbia* in her two successive victories against the British challengers *Shamrock I* and *Shamrock II,* had been chosen to captain this new sloop. He hand-picked his seamen; trained them for weeks before each event.

As the blacksmith and coppersmith approached the end of North Wharf, they were hailed by one of the yard carpenters.

"Hey — you, step lively! I've been holding this skiff for you."

The two broke into a run and scrambled into the small boat. Pushing off, the three men rowed quickly toward the fleet of miscellaneous craft gathered in the harbor to watch the launching.

A Boston reporter standing in a nearby launch trained his field glasses on the South Wharf where a crowd of prominent yachtsmen were assembled.

"You're Herreshoff men, aren't you?" asked the newspaperman of the three as their skiff came alongside. "Can you identify Nathanael Herreshoff for me?"

The blacksmith shook his head. "He ain't there, mister. He's in the shed, directing the launching. You won't see him till the whole thing's over."

"Time's about up," said the reporter, consulting his

watch. An expectant hush, spreading to the spectators on the water, had settled on shore.

"Couldn't have better weather," murmured the coppersmith, glancing at the unruffled water.

On land as well as in the drifting flotilla all eyes were turned toward the yawning aperture of the South Shed. Dimly visible within its shadows towered a tall white stern which seemed to touch the lintel.

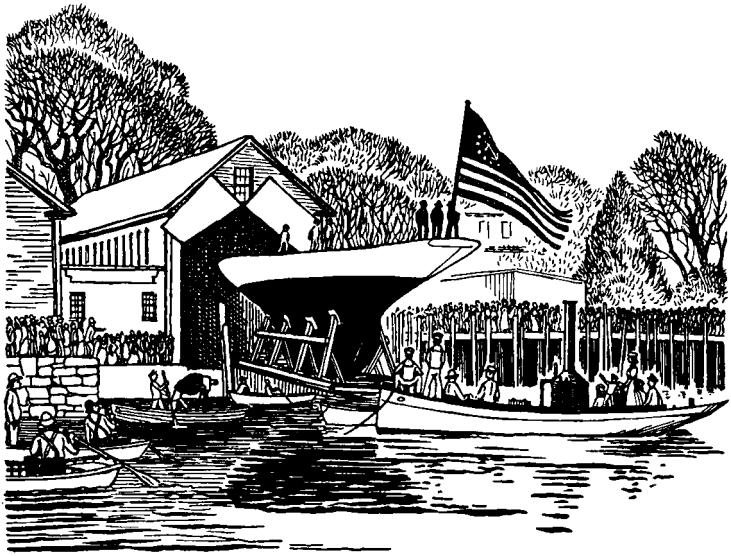
"Holy mackerel!" whispered the reporter. "Can they get her out? She fills the shed."

The waiting silence was unbroken now except for the muffled rattle of oars as people in rowboats shifted their position carefully to get a better view. At last watchers on the water detected a stir on the wharf. The tense quiet was suddenly shattered by a crash of glass. A girl's voice rang out, clear and confident.

"I christen thee — *Reliance!"*

Within the shed, at the same moment, Nathanael Herreshoff raised his head in a quick, curt nod. It was the wordless signal, familiar to all his men, which started every Herreshoff boat down the ways. Upright in her launching cradle, its wheels set on heavily greased tracks, the great white yacht began to move. She emerged slowly from the shed, revealing inch by inch her stately length, the twenty-foot depth of her keel, the clean-cut grace of her lines.

Controlled by a wire cable, she rolled smoothly down the pitch of the track which had been carefully calculated. Gathering momentum as she came, but never too much, *Reliance* glided to meet her element. Her



Launching of the *Reliance*

long, overhanging stern skimmed the water lightly, then settled. She was waterborne.

Cheering turned into pandemonium as she floated off her cradle. The press of small craft trying to get nearer was fended off by determined yardmen. The new Cup defender had been dressed for her christening. Garlands of holly and white carnations hung from her bow. Poised at her stemhead stood an American eagle, its wings spread for flight. From her stern the Stars and Stripes had been unfurled.

On shore people began to mill around, looking for designer Nathanael Herreshoff and his brother John. Strangers who had not been told about John Herreshoff

received a shock when they met him. He moved slowly, between his wife and an attendant. His closed eyes were sightless. In youth he had refused to be led. Later a big Newfoundland dog had been his constant companion, but finally, resigned to the necessity of having a guide by several bad falls, John had an employee of the yard always at his side. Blinded at fourteen, John Herreshoff had at first been fiercely resentful of help, inventing his own methods of finding his way about and developing uncanny sense perceptions in his hands. These faculties, added to a phenomenal memory, had become a legend in Bristol and served him well as business head of the Herreshoff yard.

John's powers of observation deceived people, especially those who hoped to foist shoddy work on a blind man. "He's not blind — it's a trick!" a harness maker once protested furiously. He had failed to put the stipulated number of stitches on a piece of leather and John's fingers had at once detected the omission.

Employees at the boatyard had huge respect for John Herreshoff. His hands, inspecting their work, were as good if not better than eyes. They overlooked nothing. With his cane, which he used like a yardstick, he measured the distance between screws and checked the position of every rib. Experience had taught the men that he could tell by touch whether a calking job allowed for expansion and what type of plane they had used on different kinds of wood. He carried specifications in his head and had never failed to discover when

they were not being followed. The caliber of workmen John Herreshoff hired had become a legend too.

" 'Bout thirty year ago I first saw a Herreshoff steam launch," one mechanic liked to tell inquirers. "I'd never seen such brass and copper fittings. The steam engine didn't cough nor spit. It purred like a cream-fed cat. And the mahogany topsides might have come off a piano, they was that polished. Made up my mind then, I'd apply for a job at the yard. Been there ever since."

Because it was soon known that the Herreshoffs demanded perfect workmanship none but the best craftsmen applied. Careless workers were not tolerated and usually left of their own accord. Only the real artisan was at home in that yard where carpenters and riggers vied with each other to establish standards of excellence. They had found that it paid. A man had only to say he'd been employed in the Herreshoff yard a number of years to be acknowledged a master of his trade.

Blind John Herreshoff was loved by his men. He was a strict overseer and a shrewd bargainer, but he had a genial nature. In a craft, however, a pair of eyes must be the final authority, and so his brother Nathanael was the acknowledged chief of the yard. Captain Nat, as the yardmen called him, had overkeen eyes certainly. They softened only when they rested on his boat models lining the walls of his workroom, more models than any one marine architect had ever designed before or might again.

Captain Nat was not genial with his employees. He

was taut as a strained stay and just as ready to snap. A fanatic when it came to work, he had little time to be affable and less for idle talk. Though he looked frail beside his heavier brother, John, he had the tough resilience of a wiry frame. Both brothers wore beards. Captain Nat's sideburns framed a weathered face, lined by much exposure to wind and sun. His narrow shoulders were stooped from leaning over a drafting board or tool bench. All day and every day and sometimes far into the night he was at some sort of work, modeling, calculating or drawing diagrams and lines fine as the threads of a spider's web and more precise.

Constant vigilance was the rule in the Herreshoff yard. Mistakes were rare, accidents almost unknown. Captain Nat's workshop was in his house, but he was on call there night and day when his foremen and superintendents needed him. He alone assumed all responsibility for launching the large and costly boats — the high-powered steam yachts and immense, deep-draft racing sloops for which the yard had become famous. No one else designed their great launching cradles, no one but Nathanael Herreshoff gave them to the sea.

In emergencies it was for Captain Nat the employees sent. The Herreshoff men long remembered a certain wild February night in 1887 when the night watchman roused his Chief at two in the morning. A southerly gale had been breaking up the ice in Bristol harbor. Wind and an abnormally high tide had driven ice against the doors of the South Shed and crushed them in.

Within the shed a 145-foot steamer was under construction, her framework now awash and in danger of being thrown out of line.

By the time Captain Nat arrived, all the yardmen had been summoned and confusion had reached a climax. It was before the days of electricity. The only light in the shed came from dim lanterns.

The men struggled to carry out orders while they floundered knee-deep in the freezing sea which kept pouring in through the broken doors. They dodged hunks of ice and clung to whatever holds they could catch in the semi-darkness. Under such conditions, the task of lashing down the big steel frame seemed impossible. But under the sharp, confidently barked out commands of Captain Nat no one dared suggest defeat.

After repeated failures, two cables were finally passed from the framework and wrapped around iron cleats imbedded in the shed's beams. Then the yard crew straightened tired backs, waiting for the next order. None came. Puzzled, they looked about. Captain Nat was nowhere in sight. They swung their lanterns in wide arcs, shouting his name. No answer. He had vanished.

The floor of the shed had removable hatches, which in the stress of the emergency no one remembered. The inrush of water had floated their covers off, and unseen by anyone, Captain Nat had fallen through one of these openings and been sucked away by the receding waves. Caught between sea bottom and the floor of the shed, he could not have been reached by his men, even if they had known where he was.

Hot exasperation at being interrupted in the middle of an unfinished job kept Captain Nat warm for a few seconds but the icy water soon penetrated to his marrow. Grimly he faced the certainty of being drowned by the next incoming wave. It was upon him now, sweeping him up like a chip of wood. But instead of breaking his head against the flooring as he expected, it washed him to an open hatchway. Too numb to wonder at the miracle, he only knew he must climb out quickly or be sucked under again. His hip boots were filled with water, his heavy wet clothing weighed a ton. It was rage over this final handicap which gave him more than a man's strength to haul himself out of the reaching grasp of the waves.

"Good God, sir — what happened?" asked one of the foremen, as his Chief, salt grass and seaweed streaming from his wet slicker, staggered into the short beam cast by his lantern.

Captain Nat paused, but only to fill his lungs.

"Neilsen — " he shouted angrily, "don't bend that cable around the propeller strut. Didn't you hear me say to carry it forward of the shaft!"

Two hours later, the framework having been made as secure as possible, he stamped home shivering, to another battle — with pneumonia.

Sixteen years had elapsed since that stormy night. The men who had helped him then were still in the yard in 1903. With others of the force who had worked a long time with Nathanael Herreshoff, their loyalty had

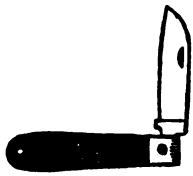
deepened. A man with his skill and knowledge had a right to be short-tempered.

Most yacht designers confined themselves to that single field, which was arduous enough. But Nathanael Herreshoff was also a master shipbuilder who had introduced many innovations in boat construction, revolutionized sailmaking, invented countless items of running gear and designed the best small steam engine on the market. No yacht designer before him or since has shown an equally productive genius.

When the *Reliance* was launched, Nathanael Herreshoff had reached the peak of his abilities and his reputation as the leading yacht designer of his time.

For the renown of the Herreshoff yard an equal amount of credit belonged to John Herreshoff, Nathan¬ael's sightless brother, whose genius for attracting and managing men held together a remarkable group of shipworkers. Without this army of skilled craftsmen carrying out his designs under his personal direction, Nathanael Herreshoff could never have accomplished the astonishing amount he did.

The fact that one of the Herreshoff brothers was blind added a note of the miraculous to their achievements. Half humorously, half grudgingly, competitors at home and abroad were now referring to Nathanael and John as "those wizards of Bristol."



CHAPTER 2

THE CENTURY-OLD manor house, in which Nathanael Herreshoff was born in the year 1848, stood on a wooded peninsula across the water from Bristol, called Popa¬squash Neck. From this point a lovely panorama of blue water was visible and an ever changing procession of incoming and outward-bound vessels.

The earliest recollections of young Nathanael were linked to Narragansett Bay and its shipping. It was not unusual in calm summer weather for a large topsail schooner or barkentine under full sail to remain motionless for hours within view of the shore, mirrored in the still waters like a floating cloud. Maritime commerce was at its height. Majestic square riggers and clipper-built schooners, carrying an immense spread of canvas, were unforgettable pictures in his boyhood.

Ships dominated not only the view from Popasquash Neck but the lives of the Herreshoff youngsters. The cargoes of passing vessels, the ports they hailed from, whether that distant bark beating up the East Passage was the *Jane Peabody* out of Bangor, Maine, or the

whaler *Hepzibah* were matters of intense and often heated debate. If disagreement led to a scrimmage, as it was apt to among lively boys, their father, Charles Frederick Herreshoff, benevolent but firm, calmly confiscated the telescope monopolized by the biggest and suggested that the argument be carried out to the onion fields, where they could work off excess energy weeding.

"To settle the matter," he added with a just perceptible twinkle, "I'll sail out myself and get a close look at your bark." An announcement not intended to console the onion weeders.

Like a good many other people on Narragansett shores, Nathanael's father found it profitable to raise Rhode Island onions and ship them to Cuba. The extra income was welcome to Charles Frederick Herreshoff. Seven of his nine children were boys, needing an expensive education. He had some private means besides, inherited from his mother, and a share in the family property on Popasquash Neck. Country living on the water suited him. He was not only an expert yachtsman; he had a passion for designing and building his own boats which he moored off his beach and invariably called *Julia,* after his wife.

These small craft were catboats, much in vogue on Narragansett Bay in those days. About twenty-three feet overall, they had roomy cockpits, clean-cut lines and a seaworthiness which was to characterize all the yachts designed by his son Nathanael.

The Herreshoff love of boats, handed down from

father to son, was part of the family's Yankee inheritance. There were sea captains and sea merchants among their New England forebears. Nathanael's great-grandfather, John Brown of Providence, owner of a fleet of ships in the China trade, had been one of Rhode Island's "merchant princes."

In his youth, Nathanael's father, like all Bristol boys, had haunted the town wharves and shipyards. There he heard stirring tales of Bristol privateersmen and the captured wealth they brought back to the home port during the War of 1812. He listened also to the yarns of old sea dogs who had sailed to Africa in swift shallow brigs, launched in Bristol for the slave trade.

Bristol-built slave ships and privateers were among the fastest of their day, but by the time Nathanael was born, the slave trade had fallen into disrepute in New England and privateers had been outlawed. With the passing of that era the town's maritime importance as a shipbuilding center dwindled. However, ship carpenters and retired sea captains who had been part of that history-making epoch kept their skills and traditions alive for the next generation, and most important of all, for the sons of Charles Frederick Herreshoff.

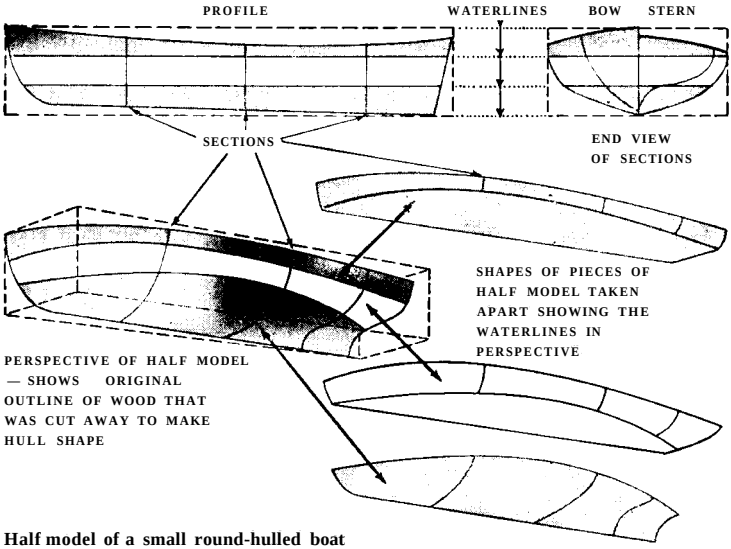
One of these skills was whittling, an art practiced by sailors during idle moments at sea, and not to be confused with "scrimshaw," the carving of whalebone by whaling men. As soon as the Herreshoff boys were old enough to be trusted with a sharp knife, their father taught them how to make many useful and ornamental things.

Woodworking was a hobby among the gentry of Rhode Island. Some of them did fine cabinet work. Charles Frederick Herreshoff himself often carved an acorn or pineapple-shaped cap for a fence post on his property, or whittled some household article for his wife. These were pleasant tasks to be undertaken of a winter evening when the family were gathered round the crackling logs in the great living-room fireplace of the old manor house.

Or, if there were no other demands on his time, Charles Frederick brought to the fireside a nearly completed half-model of one of his boats. Patiently, accurately, he would shave off a little fullness in the stern, or with sandpaper deepen the sheer along the deckline by a fraction of an inch. To shape a half-model from which a real boat would be developed took more than a whittler's skill. In the old slave quarters on the place (now converted into a carpentry shop), Nathanael's father kept a whole assortment of special tools for his boat modeling and building.

The first boats Charles Frederick built were modeled by an old method taught him as a boy. It was a process his young sons watched with fascination. Their father was a skilled workman. It looked easy until they tried it themselves!

He began by taking six rectangular pieces of wood about a foot and a half in length and half an inch thick. Three of them were of soft white pine and three of darker cherry wood. These he planed down and rubbed until they were smooth as satin. Next he laid them al¬



Half model of a small round-hulled boat

ternately one upon the other, like a sliced loaf of bread, and drove wooden dowels or pins through the layers to hold them together.

"Shipbuilders call this the 'bread and butter system,' " he told his boys, "because the light and dark shades of the different slabs look like slices of bread and butter. Now that I've built up my block, I'll place it in a vise on my workbench and begin shaping it into the profile of a boat."

"Why not have used a single block of wood? Why make it out of sections?" his wife, Julia Herreshoff, asked once.

"Because, when my model is shaped, I shall want to pull out the dowels and take it apart. By tracing the

outline of each section on paper I will get the accurate lines of my boat. Shipbuilders call this step in boat design 'laying down the lines.' From the basic measurements of these sections all the other lines and dimensions of my boat will be calculated."

The Herreshoff children had been initiated very early into the mysteries of boat design. By now the process was as familiar to them as the mixing of johnny-cake in their mother's kitchen.

While their father rubbed and polished the model of his next *Julia* one evening, the girls, Caroline and Sally, sat at a lamp lighted by whale oil. Caroline was crocheting a bedspread. She needed only two more squares to finish it and then she would fold it away in her "Hope Chest" which every girl started at sixteen. As her fingers moved busily, she dreamed of the home she hoped to have some day — and the children. Sometimes she prayed that none of them would be afflicted, like her eight-year-old sister Sally, with bad eyes.

Sally's eyes had begun to trouble her this past year, and the family physician who prescribed for all ailments in country districts, had advised that she use them as little as possible. So Sally was learning to do well a number of things that her fingers could accomplish without her eyes. One of these was knitting. The other was to play her mother's Chickering piano. Sally had a quick mind, like all the Herreshoff children, and her mother was training her memory and teaching her fingers to find their way on the keyboard with only an occasional glance — a thing all thorough musicians

should be able to do, Sally was told. She was being taught, too, not to complain of her handicap but to pride herself on making the best possible use of her head and hands.

"I've dropped a stitch and picked it up without looking — and I did it right," she said triumphantly to Caroline now, holding up the sock for inspection.

James Herreshoff, the oldest boy, was nineteen and away from home much of the time at Brown University in Providence, the college named for his great-grandfather, John Brown. But the next oldest boys, Charles, John and Lewis, were each whittling a piece of their own choosing under their father's guidance. Good-tempered Charles merely laughed at Caroline's banter about the small wooden chain he was fashioning into a girl's necklace. John was carving a cage with a ball inside it. The trick was to whittle these marvels whole, out of a single block of wood.

It was like John to try something too hard for his twelve years — and to succeed. But it was best to leave him alone while he worked.

"It's because you *will* breathe down my neck, Natty!" he cried furiously when his knife slipped. "Go watch what Lewis is doing."

Nathanael was five and too young to be allowed a knife, but he stood watching intently every move of John's hand. He edged back a little when he was asked — a very little. Who wanted to watch Lewis? Lewis was only nine, a beginner doing beginner's work.

Julia Herreshoff, the children's mother, had been en¬

tirely absorbed in the Bach fugue she was practicing at the candlelit piano until John's outburst caught her ear. Would Natty never learn to keep away from John when he was busy, she wondered? In other days it had been Charles who shadowed his older brother James. James's inventive streak had fascinated the younger boys. They were always at his elbow while he experimented. But James had a serene competence like his father's and never lost his temper unless someone touched his work.

It was impossible, Julia Herreshoff told herself, to keep her mind on counterpoint if John was going to explode any minute. She turned to look at her boys. Nathanael had barely moved an inch away. If he were to jog John's arm —

"Natty," she called in a low voice, "Natty!"

She had to repeat his name again before he looked up. "It's your bedtime dear — say good night."

He took a deep, shaken breath. John had just cut the ball free — very carefully and skillfully — from the base of the wooden cage he had carved. Nathanael looked at his mother imploringly. She pointed to the clock on the mantel. The hands stood at seven-thirty.

"Now, Natty — say good night now."

He came to her, feet dragging, and murmured "good night" obediently when she kissed him. Julia Herre¬ shoff's eyes followed him affectionately as he left the room. He was her good, quiet little Nat — too quiet. She would have preferred him big and boisterous as the other boys had been at his age. His thin frame worried her almost as much as Sally's poor eyes. Her thoughts

traveled upstairs to the trundle bed, where the two youngest, Francis and Julian, lay sleeping soundly. They were big and sturdy, as all the others were, save Nat. She turned back to her music, somewhat comforted.

"Little Nat," the family called Nathanael, or "Natty," nicknames he hated because they reminded him he was smaller than a Herreshoff ought to be. The Herreshoff men inherited their unusual size from a Prussian ancestor who had been an officer in the bodyguard of Frederick the Great. Nathanael had heard his father say so often. Among a lot of strapping brothers and uncles, and a father who was exceptionally tall and strong, Nat felt dwarfed.

There were, in fact, only two people who didn't make Nat feel small. They were Dr. and Mrs. Nathanael Greene of Middletown, Rhode Island. Because Nat was named for Dr. Greene, who had been a college mate of his father's, there was a close bond between the two.

"Always remember that the first Nathanael Greene was a brave general on George Washington's staff. You and I must live up to our name," Dr. Greene told Nathanael.

Nat understood that it was a proud thing to be named for an American general. He was pleased that he alone shared this honor with Dr. Greene. He copied this much admired friend; even unconsciously absorbing some of the profanity to which Dr. Greene was addicted, and which he sometimes forgot to restrain, greatly to his

wife's dismay. Mrs. Greene was a gentlewoman of the old Victorian school. She addressed her husband formally as "Mr. Greene" and considered the nickname "Natty" a belittling substitute for her husband's distinguished family name. When the Herreshoffs used it she always rebuked them.

A man-to-man relation between Nat and Dr. Greene began with an incident in this same year which the little boy never forgot. During a visit of the Greenes to Popasquash Neck, his father and mother and their guests boarded the family catboat one morning for what Nat supposed was the return sail to Middletown. It was an understood thing that Nat always went along on these trips to the Greenes' home. He rushed down to the beach, only to have his father call across the water that they were going "to town," not Middletown. The difference was not apparent to a five-year-old. They sailed away, waving heartlessly — or so it seemed to him. Nat flung himself face down on the sand.

Hours later, when the *Julia* returned from Bristol and the party stepped ashore, they found him still there. He had cried himself to sleep, and meanwhile the tide had risen. It was nearly to his feet when they reached him, glad they had come no later.

Nat thinks I deserted him. I must do something to make things right between us, thought Dr. Greene, as they all walked back to the house. A minute later his foot struck a box turtle hidden in the field grass. Just the thing to amuse a small boy!

"See, Nat — I brought you a box," he joked, handing

him the turtle. The animal had drawn into its shell. Nat was charmed with his pretty black and brown "box," but when he tried to open it the thing suddenly stuck out a head and four legs. His nerves shaken by his long cry of a few hours ago, the little boy dropped the turtle with a scream and ran to his father. Feeling "little Nat" had been badly used, the adults bent over him with comforting endearments, but these ceased abruptly when they heard the string of oaths issuing from his childish mouth. His startled mother decided there was considerably more underneath "Natty's" quiet than she had suspected.

As for Dr. Greene, he knew very well from whom Nat had heard those bad words. Conscience-stricken now for more reasons than one, he searched his pockets rather desperately. He had not meant to trick Nat. All he could find for a peace offering was his jackknife. It was no ordinary one. He parted with it only because friendship was at stake. Julia Herreshoff caught her breath when the blade was opened. The razor-sharp steel bore the mark of a famous British cutler and the words: "Made for New England Whalers."

After showing it to envious brothers, Nat was persuaded to let his mother keep it for him till he would be ten. Thereafter, he used it all his life, cherishing it in memory of his childhood friend and leaving it when he died to a grandson — Nathanael Greene Herreshoff 2nd.

A few days after Nat received his jackknife the Greenes sailed home in the Herreshoff boat and this

time Nat went along. He glanced scornfully at Caroline, fashionably dressed in a long full skirt of blue serge and a jaunty reefer jacket to match. The weather was fair, but Caroline would spend most of her time in the cabin to protect her fine clothes from the spray. He was fonder of Mrs. Greene, who pinned a faded duck hat to her head when she went sailing and wore sensible old clothes. As for his mother, Nat never knew what she wore; he only knew she always looked right.

Julia Herreshoff was a handsome woman to whom marriage had brought deep content. Life on Narragansett Bay suited her as well as it did her husband. She was a Lewis and descended from a long line of sea captains. The name was famous in Boston maritime circles.

A better schooling had been given her than to most women of her day. She had been abroad in the packet commanded by her father and was an excellent linguist and a skillful player on the harpsichord. Her culture greatly enriched the lives of her children — especially of those four who were to become blind before their youth was over.

Today she could see no such cloud darkening the future. Her glance rested with familiar satisfaction on her husband, sitting relaxed and content at the tiller. A true Nordic type, powerfully built and bronzed by long hours in the sun and wind, he had more the look of a Viking than a Rhode Island country gentleman. At the moment, he had eyes only for a possible quiver in the luff of his sail.

Behind him, trying to creep up to windward, came

Charles and that young demon John, in *Julia I,* the older boat his sons were allowed to sail. They had boasted they would beat their father to the buoy off the end of Bristol Neck. The course lay on the way to Middle¬ town, and because their father was handicapped by a boatload of passengers, the boys had given him a head start. But John was a keen sailor for his twelve years. He didn't race for fun. He raced as he did everything — to win.

Today he had bullied his older brother Charles into letting him take the tiller.

"I'll skipper the boat — you can shift ballast. You've more heft," he argued. Ballast consisted of heavy cob-blestones that had to be shifted with every tack, and as Charles had the strength of an ox to match his unusual height, there was no denying the point.

For some time their father held the lead in this family contest. His new *Julia* could point higher than the old one and he was careful not to lose an inch. Dr. Greene cheerfully shifted his own weight when required and the ballast as well. The tide was strong and helping both boats but the wind was contrary, raising a choppy sea which greatly impeded them.

John soon abandoned his first tactics and veered to leeward, cutting under his father's stern and heading for smoother water in the lee of Hog Island. This increased his distance from the goal, but it was a gamble the boy had seen tried by older skippers. It worked this time mainly because Charles Frederick found sailing close to the wind too wet for the comfort of the ladies. When

he had women passengers, he was a gentleman before he was a sailor. Accordingly, he eased his sheets.

John rounded the buoy one minute ahead of his father, who raised his cap in acknowledgment of defeat.

Caroline peered from the small cabin where she had taken refuge from the salt spray. "Master John will certainly crow loudly when we get home. Just see how cocksure he looks! He's really too smart for comfort."

Nat had been leaning far out over the cockpit all this time. His mother's firm grip on one ankle was all that kept him inboard. He had wanted John to win.

"You'll be sailing a boat yourself one of these days, Natty," she smiled at him.

"I'm going to sail as smartly as John!" He threw a defiant look at Caroline.

"Self-assured — like all the other Herreshoffs before him," laughed Julia Herreshoff with a quizzical glance at her husband.

CHAPTER 3

JOHN had always understood that to have money in one's pocket was an asset. When he was quite small he discovered that money could be got by anyone enterprising enough to work for it. From then on he began to earn and to save. By now he was making himself useful around the Bristol wharves and yards. His savings were for the boat he intended to build. The advantages of being both owner and master of a boat had never been more obvious to him than on the sail home with Charles after the race against his father.

"My turn at the tiller," Charles had announced the minute they rounded the mark.

However, John had possession of the tiller and John was flushed with victory.

"Shucks — we agreed I'd be skipper."

"Only for the race."

"You can have it as soon as we pass Hog Island."

"No — *now!* Give over — you shrimp!" Legs wide apart to balance himself, Charles faced John angrily in

the yawing cockpit. *Julia I* was running before the wind and rolling heavily in the lumpy sea.

John ignored him. Charles would scarcely dare stage a tussle in one of his father's boats. They would all be deprived of its use for the rest of the summer. Anyway, John was obliged to watch his sail which was too far out for safety. Catboats have long booms. With each downward roll the end of his dipped in the water. If it plunged too far into a wave the boat might "pitchpole" — a piece of bad seamanship he had been sternly cautioned against.

Unfortunately, John took his eyes off Charles one second too long. His brother seized the canvas bucket used for bailing, slammed it down over John's head and grabbed the tiller in almost one motion. He remembered (in case John got tough) to swing the boat into the wind just enough to avoid a jibe.

"Who's skipper now?" he gloated while his brother struggled furiously to extricate himself.

This incident so increased John's determination to have his own boat that he got out of bed at five the next morning. Nat, who always slept lightly and in the same room with his older brothers, watched John through half-shut lids. He could tell by the speed with which he kicked off his blankets and thrust his head into his shirt that John was planning to do something interesting — so interesting, in fact, that he clattered downstairs in his shoes, forgetting the family rule that early risers must walk in stocking feet. Thump! That was the back door banging to behind him.

Nat pulled his clothes on as fast as he could, and crept out of the room carrying his shoes. Charles and Lewis hadn't stirred, and by some miracle the rest of the household still slept. There was no one to stop him this time from tagging after John. He paused on the kitchen stoop and put on his shoes, his fingers clumsy with hurry. John was nowhere in sight, but there were two places he was almost sure to be; one was the path leading to the water, and the other the tool shop.

The path first, thought Nat, because it led to what he knew John liked best — boats. While John was forbidden to sail his father's cherished *Julias* alone, the skiffs could be used for a row to Bristol or to anchor out where the fishing was good. Nat's feet flew in anticipation, forgetting he was not likely to be invited to go along. But when he came in sight of the beach, no John was on the pier and the rowboats lay untouched on the shore.

The little boy rushed back up the path, his throat dry from anxiety over missing something. When he reached the tool shop it was empty. Nat continued his search around the building. He found John behind it, in the meadow, hammering a stick into the ground.

Nat watched him. After the stick was planted, John walked away from it, counting out loud and pacing. He went a distance and drove another stick, then turned and walked off at right angles, counting again. This he did three times until Nat saw he had marked out a long rectangular space. Perhaps it was a game — like hopscotch. Curiosity got the better of Nat. He walked boldly up and asked: "What're you playing?"

John looked at him without really seeing him. His mind was on an important matter.

"Forty by fifteen — that's big enough, I guess," he answered.

Nat stared, and John, finished with his calculations, pointed with an Olympian gesture to the four sticks.

"There," he said, "it's my ropewalk. I'm going to make cotton rope for ladies' hoop skirts — yards and yards of it. Miss Bean, the seamstress, told Ma there was money in it. Wouldn't be surprised if I became a millionaire. The money I earn will be to build boats."

Nat was impressed. He looked at the spot John indicated. "I don't see any ropewalk," he said.

"I do," said John, as if that were enough, and walked back to the house.

After a few weeks, when Nat saw it too, he never let on that he hadn't known what a ropewalk was. John's walk, which he built from discarded wood on the farm and odds and ends picked up in Bristol lumberyards, was a long, narrow shed in which he installed very simple ropemaking equipment. At one end hooks were set into the wall, at the other end there was a wheel which had to be turned by hand. Strands of cotton, running the length of the shed, were attached to the hooks and twisted by the wheel into rope. There wasn't much more to it than that. For his father's assistance in setting up the uprights and roof beams and making the handwheel, John did so many hours of work in the onion fields.

John's reputation for bargaining had begun with a

farm pig that wasn't worth its keep. John traded it for anything he could get. Each new owner dumped it back on his hands but he accumulated quite a lot before the pig died.

John now employed Nat to turn the wheel because it took two people to operate the ropewalk. Nat's pay would not be in money, John explained. Every business had an apprentice. An apprentice learned his trade by helping and watching, and moreover, Nat would be taken on business trips to Bristol in the rowboat.

"You'll like that," John wound up the transaction.

Nat was dazzled by John's sudden and unaccountable need of him.

"Can I row — when we go to Bristol?" he asked.

"You bet," said John generously.

And so Nat did all the rowing until one day during supper his mother noticed he could hardly lift his fork to his mouth and seemed about to drop off his chair.

"Did you and Nat go to Bristol this afternoon?" she asked John casually.

John nodded, his mouth full of johnnycake. "Got an order from Mr. Fraser too — he wants fifty more yards of rope."

"John —" Julia Herreshoff spoke quietly but her eyes gave him a searching look.

"Yes, Ma."

"Did you let Natty row you over and *back?"*

"I wanted to — " Nat put in quickly.

"Yes, he likes to, Ma. And the boat rides better with me in the stern and we had a load of rope going over

and a bale of cotton to bring back. Have to keep it clean, you know. I hold the cargo off the floor of the boat. You see there's always dirty water on the — "

"That will do. After today — dirt or no dirt, you will do half the rowing."

"Yes, Ma."

Suspecting he had treated his small brother a bit shabbily, John made him a second offer. On all fishing expeditions Nat could be his partner. "Bristol fishermen divide the catch and the cost of equipment. I have plenty of fishing tackle for the two of us — so you can furnish the bait," said John, and Nat, elated by his promotion to partnership, dug clams and sandworms at low tide, when the mosquitoes and gnats were always out in full force.

A mark of the born trader is the ability to conclude a bargain to the satisfaction of both parties. John's skill never deserted him. It was augmented by the uncanny sense of touch he later developed in place of sight, and on which he came to rely in business deals. When bargaining for lumber, sailcloth or any one of the basic supplies needed by the Herreshoff yard, he would, if he found the dealer difficult, lay his hand on the man's arm. The gesture was friendly and his touch magnetic. The yard clerks who knew him well would report chuckling: "Mr. John's got hold of him now." Resistance seemed to melt from that moment on and the deal was soon settled — not to the disadvantage of the yard.

The ropewalk which John made was operating at a small profit and giving himself and Nat plenty of occu¬

pation when the family was obliged to leave Popasquash Neck and move to Bristol. Charles Frederick Herreshoff had been the only one of his generation to marry. The use of the manor house had been his while his brothers and sisters were living on other family properties. With the sale of these, however, uncles and aunts began to visit Popasquash Neck more frequently and for longer intervals. The old manor house grew too full for comfort.

Although the oldest boy, James, had left to work for the Rumford Chemical Company near Providence, there were still eight young people living at home. The Herreshoffs were a vigorous tribe, all of them opinionated and talented, and most of them driven by strong hobbies. The added presence of relatives who used tobacco and liquor brought an element into their home which Julia Herreshoff and her husband disliked and from which they intended to safeguard their boys.

With the sole exception of Charles, whose taste for farming led him to stay on at Popasquash Neck with his uncles, the Herreshoff boys not only retained a strong aversion to tobacco all their lives but were also teetotalers.

"Most of your brothers are famous for something, Mr. Charles — now what are you famous for?" the ladies of Bristol used to tease the least gifted of the Herreshoffs.

Easygoing and content with a leisurely life in which sailing and farming were of equal importance, Charles would boom jovially: "About all I can claim fame for is

being a rather good judge of whiskey and tobacco."

Freedom and privacy to rear their boys away from these influences made the wrench of separation from the family acres on Popasquash Neck less hard. A comfortable home was bought in Bristol, with a good view of the harbor, and life went on for John and Nathanael and the other young Herreshoffs much as it had before.

John was obliged to abandon his ropewalk but it didn't matter too much. He was ready to try something new and lost no time fitting up a small machine shop with the money he had earned. Providence relatives, pleased with the initiative he showed, helped him buy a good lathe. Business went on as usual for John — but not for Nat. John needed no "apprentice" to operate his shop. The gap of seven years between the two boys had never been wider.

"Look here, Nat — " At fourteen, John's voice had become a man's and so had his authority. "It's all right for you to stand over there in that corner and watch — but if you lay a hand on my tools or touch my lathe you shan't come here again. You're too young to use such things. Want a finger chopped off?"

Nat was seven and had three more years to wait before he would be permitted to use his prized jackknife, so he obeyed, sitting on a high stool, so absorbed and quiet that John forgot he was there half the time. From this vantage point Nat followed all that went on in the shop, and what went on was soon of enthralling interest, for John now set about the building of his boat. What he had in mind was a small open boat like a skiff, which

could be sailed as a sloop as well as a cat. The shaping of the half-model was his first task.

"Start making up your block," said his father, "you have the shape of your boat in mind and you know the first steps of model making."

John did not use the old "bread and butter system." Nor did the simple design and construction of his open boat require the newer method of laying down the lines his father employed in making his larger cabin boats. Still, the work was arduous enough for a boy.

He chose a single block of white pine and drew on it the profile of his boat, as he wanted it. Then with a drawknife, gouges, chisels and special planes, he carved the block to conform to his drawing. It took him a number of days to cut out the bow and stern, carefully following the curve of the deck, or sheer line, then the dead rise, or outward curve of the boat's bottom, and finally the tumble home, or inward curve of the topsides. His model had to be shaped to scale — one inch to a foot, and that meant great accuracy in the proportions of all its sections.

When it was finished, shellacked and polished, his mother displayed it with pride on her living-room table.

The day came when John calculated the actual dimensions of his boat, multiplying by twelve the measurements of the various sections of his model, thus translating its inches into feet. He worked with deep excitement and concentration, his model, his measuring instruments and his mathematical calculations laid out on the dining-room table.

Next summer she'll be in the water, he promised himself.

Gathering up his precious model and his materials, he left the room to go to his machine shop. It was the safest place to keep what he valued because he could lock the door.

Intent on his plans as he passed through the lower hall, he failed to see ten-year-old Sally approach from a door on his right. They collided. His precious model was knocked out of his hand and fell to the floor. In her confusion Sally stepped on it. John uttered a furious cry.

"Thunder — can't you *look!"*

He stopped, wishing he hadn't used that last word. Look though she might, Sally's eyes saw less and less every year. Torn between pity and consternation, John picked up his model and examined it anxiously.

There were marks on its polished surface but no damage that couldn't be repaired. However, his silence told Sally that their collision had been nearly disastrous.

"Did I break your model?" Her voice shook a little.

"No — it's all right, Sally. I ought to have seen you coming."

"I'm glad you controlled your temper, John," his mother said later. "I saw what happened."

John burst out impulsively, "That Boston doctor you sent her to hasn't been able to do a thing for her! Will she be blind some day, Ma? She doesn't seem to mind. I'd die!" Seeing tears in his mother's eyes he fell silent and hung his head.

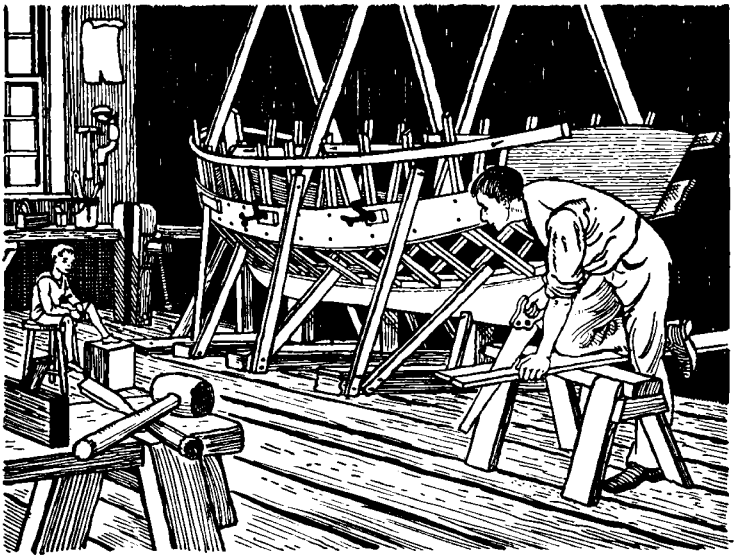
"We're doing all we can for Sally," Julia Herreshoff answered quietly. "You can help, John, by being patient."

Summer turned into fall while John laid his keel and with his father's help sawed the wooden frames for his V-bottom boat out of ordinary planking. His father showed him how to join the bottom and side frames together at the keel and chine by means of wooden gussets or braces riveted to each.

By the end of November the skeleton of John's boat stood complete. Her lines were good. She would be a fast, trim sailor, everyone told him. Now the planking began. John was in such a state of elation that he thought of nothing but his boat. School had started and winter weather was approaching, but work could continue since the *Meteor* was being built in an old shed on the place.

He was a quick, sharp student, or his marks would certainly have suffered that winter. He tore home from school to use the last minute of daylight on his boat, skimmed through his lessons and was up and at work again as soon as the sun was high enough to light the shed. He talked so much about garboard strake, sheer strake, seams and calking that his mother banned boatbuilding as a mealtime topic.

Nat hung around the edges of John's activity and excitement. His school days were shorter and John usually found him already in the shed when he arrived, perched on a stern deck beam and holding a stick he called his "tiller." In imagination he was sailing John's boat all



John Herreshoff builds the *Meteor*

over Narragansett Bay. John grunted none too cordially when he caught him at this game. He didn't like the idea of someone else skippering his boat, even in play, but he let Nat be, because if he stayed he could get him to run errands to the hardware store for nails, putty, or any other needed item.

One morning John came home from school long before the lunch hour. The teacher had sent him home, he told his mother. No — he'd not misbehaved. There'd been an accident. A wildly thrown ball in the play yard had struck him in the eye. Yes — it hurt too much to study, but not enough to keep him from working on his boat, John insisted, and went out to the shed.

Julia Herreshoff was not alarmed at first, but the in¬

cident worried her the longer she thought of it. One child seemed to be going blind. It was enough to make any mother apprehensive. She let an hour pass while she fought a mounting sense of disaster. Overpowered by it finally, she went in search of her husband and told him what had happened. "John's in the shed," she said, "do go and see if he's all right. My fear is probably foolish."

John was sitting hunched on a wooden box when his father found him, his face hidden in his hands. He did not move or look up at the sound of steps.

Quickly his father put his arms around the boy.

"What is it, son?"

"I can hardly see, Pa — things got worse while I was working. Pa — will I be like Sally!"

By the time Nat arrived back from school the country physician was doing all he could for John, but in 1856 practically nothing was known of the pathology of the eye. A few weeks later John was totally blind. The cause was pronounced accidental.

John had to be told that he would never see again and his despair weighed heavily on the stricken household. He frightened his brothers and sisters off with his violent rejection of sympathy and sat moodily in his room. No one mentioned his boat, nor would he speak of it.

"Leave him alone," his father said, "he has lost his bearings in the dark. But the shock will pass and he will find himself. We must wait."

The only person John could tolerate was Sally. Julia Herreshoff sent her to his room whenever she felt he

had been alone too long. "It's Sally," the little girl would say, touching his unresponsive hand, and she would sit by him in silence with the knitting which was her great resource. Always when she left, John's face had lost some of its bitterness.

There came a warm day in April when John heard the old familiar call of returning robins. Harbor sounds and harbor scents came through the open window where he sat. Hot sunlight fell on his cheek. He heard the creak of a hoisted sail, hammering in a nearby yard, the smell of freshly tarred decks and of weathered sails, varnish — paint — Something broke in John. He buried his face in his arms and cried.

An hour later Caroline came hastily to her mother.

"John's coming down the stairs — I daren't help him."

"Get your father quickly. We'd better keep out of the way."

His father reached John before he had gone more than a few halting steps from the stairs. Linking his arm through the boy's as though he had expected to meet him there, he said: "Let's go out to the shed. It's time we got busy on your boat."

John couldn't speak, but he went.

Once in the shed, his father guided him to his boat and left him there. John felt his way around the framework. Twenty-four ribs, eleven planks — he counted them. They were in position, just as he had placed and secured them. The boat had been nearly planked when work on her stopped. He knew exactly how she looked.

The hard grain of the wood under his fingers was comforting. The sweet smell of wood shavings still filled the shed. His finger found a few nails that had sprung out a bit. He heard his father return.

"There are some nails loose," said John.

"I've brought your tools — been keeping them in my quarters where they wouldn't rust. You can hammer them back in if you hold a piece of wood against the planking to protect it. There are plenty of chips on the floor of the shed."

He let John grope till he found what was needed and offered no help while John rummaged among the tools for a hammer.

"I think this mallet would do better than a hammer," John decided.

"You're right — it would."

Feeling his way around the hull, John located each nail and drove it in with evident satisfaction. For a few minutes he had a sense of victory. But the small task was soon finished. What shall I do next? thought John, and the mallet dropped from his hand. It seemed there would never again be an answer to that question. He stood motionless while waves of rebellion and despair surged over him once more.

"I'm going back to my room, Pa," he choked, turning away.

Charles Frederick caught him by the arm. "No — you've got to lick this thing. The sooner the better."

Father and son stayed a long time in the shed. When, at length, they returned to the house, John was talking

briskly about a second lathe for his machine shop. His father had told him there were many things he could go on doing — if he would swallow his pride. Nat, for instance, was only too eager to be allowed to help in the machine shop. Nat could guide his hands on the lathe while John controlled it with the foot pedal. All he needed was the loan of a pair of eyes.

"You can have his — and mine too, whenever you need them," said his father. "In fact, after we get the Meteor finished and in the water, there's no reason why you shouldn't go on sailing — if you want to."

John stopped abruptly.

"How!" he demanded angrily.

There was a pause. His father's voice was carefully matter-of-fact.

"Nat would have to take the tiller — of course."

Without answering John started walking again, very slowly. When they reached the house he took a deep breath and made his decision in three muffled words.

"All right, Pa."

CHAPTER 4

THE LOSS of his sight which so altered John's life left its mark on Nat's also. During those first weeks, when John nursed his black moods in solitude, the family were too deeply concerned about him to give a thought to Nat. The little boy sought refuge from the unhappy atmosphere of his home by going to the spot where he and John had always been busy and contented.

Whatever else John had lost, his boat was still there, in the shed. She was Nat's boat too, in a way, because he had shared every step in her building. He could not bear to think she might never be completed, and so he finished her in his mind. It was as satisfying to do that as to sit on the stern frames and pretend he was the helmsman. It had angered John to find him there, and although Nat had sometimes climbed up into the skipper's place just to annoy him, there was no pleasure in it now that his brother was in deep trouble.

He sat on an inverted nail keg on the shed floor instead, and step by step he pictured to himself how he would go about adding the necessary deck planks to the

Meteor and the finishing details. He gave her brightly varnished spars, a spotless new sail, topsides covered with dazzling white paint and a neat crimson waterline. Her trim little bow plunged through the green waves of his imagining and the froth in her wake hissed "Catch me if you can!" For, of course, the *Meteor* was going to pass every boat her size. John had said she would.

John's chisels, planes and drawknives lay on the shed workbench just as he had left them. There were, too, odds and ends of wood on the floor. Nat had been told countless times to keep his hands off John's tools, but there was no one to tell him so now. He fingered a piece of soft pine. It was a rough block but its sawed-off ends showed the fine grain within. The temptation to place it in the vise on the bench and shave its sides smooth was very strong. Nat knew that the wood underneath that rough surface would be satin to his touch, its color pale buff, like taffy after it has been pulled. His mouth watered at the thought.

Before he could stop himself, he had screwed the block into the vise, and seizing a drawknife by both handles, laid the blade carefully against the wood and then drew it — not hesitantly and clumsily toward him, but in one long, steady downward stroke, as he had often watched his father and brothers do. The rough top peeled off. Curling under the knife's sharp edge, it revealed the cream-colored wood beneath. Nat stood motionless, stroking the block, feeling the deep content of one who has done something skillfully.

"Well — Nat, you used that drawknife like an old

hand!" Startled that he had been caught, he froze in his place. But there was no look of rebuke on his father's face, only a smile. "I've come to put away John's tools so no harm will come to them. He bought many of them with his own earnings." Noticing Nat's crest-fallen silence as he took away the drawknife, he added: "I've tools in my workshop that you can use. Come to me after school and I'll start you on anything you want to make."

"Really — will you, Pa?"

The intensity in the little boy's question made his father look at him again. Nat had been under the rule of a much admired older brother all his life. Freed only a few days from John's domination, he was revealing ability.

"It takes a good deal of practice to handle tools as you did just now, Nat. I expect you've learned from watching John, but that's over. Perhaps you can do something for him now. You could guide his hands on a lathe —"

"He'd hate that — he'd never let me," said Nat quickly.

"Maybe. However, I think he will. John's unhappy at present, but he'll want to get back to the work he loves, and then you can do the seeing for him — you can be his eyes."

During the next three weeks when no one could get nearer to John than the outside of his shut door, a new intimacy began to develop between Nat and his father. Lessons in woodworking became a daily pleasure to

them both. Nat felt a heady confidence in himself that was strange and exciting.

Finally the day came when, on his return from school, he found his father and John at work in the shed. They welcomed him, and Nat became one of a team of three, instead of a wistful onlooker. His father made use of his clever eight-year-old hands as John would have scorned to in the days of his jealous young competence and pride. Working together whenever Mr. Herreshoff could give time to the project, the three of them finished John's Meteor within a year. No more loving industry and painstaking skill ever went into the building of a small boat. It had become the symbol of a new life for John.

The months which brought it to completion wrought a change in him. With a return to action, hope revived. Slowly it was borne in upon John that he was not alone in his rayless dark. Others had learned to live with the same handicap — had even won honors in achievement. If they could, why not he?

No one felt more keenly for him than his father, who was too wise to show it. "There are men who turn disaster into victory," he told him, knowing that John had never yet passed up a challenge. "They are a select company, and you have the ability to be one of them if you will. It is for you to decide, John, whether you make the effort or no."

His father undertook John's schooling at home, reading aloud and selecting subjects and writers with an eye to stimulating the boy's courage.

"We don't any of us half use our faculties," he said once, halting in his reading of *The Conquest of Mexico* by William H. Prescott. "By the time he was twenty-two, Prescott was practically blind. One eye had gone and the other he could use only a few minutes a day. So he taught himself to memorize. I'm told he still works his books out in his head — sixty pages at a time — and then dictates them. Quite a feat, isn't it? You've an unusually good memory yourself, John."

Examples of that sort were not lost on a boy who hated to be outdone. John began to join Lewis and Nat at their homework of an evening. Nat's arithmetic was child's play but Lewis, being four years older, had fairly complicated problems. It became a stimulating game for John to pit his mental calculations against the figuring on paper of younger brothers, especially since he soon beat them in speed and accuracy.

One freedom led to another, John discovered. He disliked carrying a blind man's cane and invented one of his own which he was proud to exhibit. The stick was of a specified length and circumference. Inches and fractions of inches were notched off so that he could identify them by touch. In his machine shop, which he soon ran again with Nat's help, he needed to take constant measurements. With the return of his ingenuity and enterprise his old drive came back.

Nat was nine now, a thin, high-strung, fast-growing child with sharply observant eyes, who never played games or had any lighthearted fun. During the next six years he worked; his employer a blind, frustrated

brother who made merciless demands. Driven by John's unending projects and his own passionate interest in them, Nat hurried home from school every day to accomplish tasks beyond a child's capacity. The discipline of that period shaped him for life.

John had found courage to go on, but he had never had patience. His exasperation was heightened by the fact that almost everything he wanted to do must wait until Nat came home to guide his hands. Work on the *Meteor* had been directed by his father, under whose skilled supervision few mistakes were made. But in the machine shop John and Nat were alone and Nat had to learn an exacting craft from a quick-tempered master.

John's small business was doing well. Not only were customers glad to encourage a blind boy in his fight for independence, but it was common knowledge in Bristol that in anything they undertook, the Herreshoff boys did a better job than most men. The town was proud of them in its laconic New England way.

At the moment, townspeople were specially proud of James, the oldest Herreshoff son. In boyhood he had been like John, always building and making, although he did not have John's sharp business sense. James was a manufacturing chemist. He'd invented a thing called "cream of tartar powder," later to be known as baking powder. Folks said it had already made him a rich man — and he was still in his twenties!

On a visit home, James offered to take Nat's place in the machine shop, to help John and give his small brother a holiday from his "slave driver" as James called John.

The offer was accepted, but without any enthusiasm on the part of either.

"They're a queer pair." James laughed about it afterwards to his mother. "John doesn't dare pitch into me when I don't do things exactly to suit him. He has his way of working and I have mine. I must say that between us we sometimes make a mess of things. But he can swear his head off at Nat — and I do believe Nat likes it, he's so intent on learning how to do things. The funny little shrimp has to stand on a box to be high enough to see what he's doing with John's hands."

"They've always understood each other," said Julia Herreshoff. "I tried to get Lewis to help John but he just hasn't as much knack with tools as Nat. Lewis could go far with music — his German inheritance, I guess — but in America music is no profession for a man."

The next morning James announced that he was going on an all-day sail. Maybe the young tyrant will appreciate Nat better now he's been without him a while, he thought. When he got back he went to the shop to see how the two were getting along.

"Gosh-all-hemlock!" John was shouting as James stepped into the shop. "The holes we drilled in that shelf are too small for the pegs! It's up to you, Nat, to pick the right-sized drill. That's the second time you've made a mistake, drat you!"

"Aw, shut up — shut up, shut up — " Nat's rejoinder was unconcerned as he poked contentedly among John's tools — those tools he had once been forbidden to touch.

"Here's the right drill — we can make the holes larger. Better have made them too small than too big. I was being careful. Last time they were too big and we had to begin all over again on a new piece of shelving."

John grumbled some more to save his face, but Nat paid no attention. The noise of the lathe resumed and put an end to talk. James slipped out of the shop with an amused shrug. They were getting along fine!

A May breeze ruffled the bay water invitingly on the day the *Meteor* was rigged and readied for her first sail. The whole family came down to the shore to see Nat and John off. It was a great occasion, and Julia Herreshoff reminded herself firmly that Nat should know enough by this time to keep the boat right side up. Her heart ached for John as she watched him feel his way about the cockpit, touching the halyards and making certain of the location of every cleat.

But John wasn't feeling sorry for himself — not at that moment — and left no doubt in anyone's mind that he was captain and owner of the *Meteor*. Nat had been told before he stepped aboard that no soiled hands on the mainsail or muddy deck marks or scratches from boot nails on the varnish would be tolerated.

"You can sail for me, Nat, if you're careful about these things — otherwise I'll have to get someone else." He sounded quite like himself, did John. Julia Herreshoff and her husband looked at one another and smiled.

"I'll tend the mainsheet," John continued confidently. "I can tell by the feel whether it needs slacking or trimming. It'll be like holding the tiller — almost."

The last word came after a pause. No one said anything. His father had secretly intended going on this trial sail to handle the mainsheet himself. He wasn't sure, either, that Nat could bring the boat back to its mooring. Now he changed his mind.

"Best let them figure it out between them," he said in an undertone to his wife, "I'll go out in the *Julia* with Lewis. We'll keep them in sight."

John hoisted the *Meteor's* mainsail himself. He knew where the throat and peak halyards were located. When all was shipshape, Nat took the tiller.

"The wind's due west, John," said his father, before pushing the *Meteor's* nose away from shore. "You'd better take a port tack down toward the head of the bay. Nat — you know how to ease her into the wind if you get a brisk puff. You've a brand-new sail, John, and you don't want to stretch it out of shape — so don't push your boat — take things easy." He gave the *Meteor* a good shove, the sail filled, and they were off.

The family stood watching till they reached the shallows at the north end of the harbor. There they saw the *Meteor* come about in answer to her helm. There was evidently no hesitation about Nat's steering. The sail fluttered an instant and then flattened as John hauled it in. Now they were on the starboard tack and going nicely again.

Julia Herreshoff drew a long breath. "They're all right, I guess."

After the excitement of putting the boat through her

first maneuvers, Nat relaxed. He had often steered the *Julia*, but always under his father's eye. Nat had been nervous about this trial sail with John. If John gets mad he'll rattle me, he thought. But the *Meteor* heeled, gathered speed on her side and suddenly Nat felt the familiar pull of the tiller and all his fears vanished. It was as though he'd been handling a boat all his life.

Sitting slightly forward, with his back to Nat, John held the mainsheet. He had not spoken since they left the shore. He's angry about something, Nat worried. Then he saw one of John's hands let go of the sheet, and with a quick, furtive movement brush something from his cheek. Embarrassed, Nat looked quickly away. It was terrible to watch an older brother cry. Nat kept his eyes on the mainsail for what seemed an eternity. When John finally spoke his voice was steady.

"Where are we, Nat?"

"Getting close to the town wharf."

"Thunder! How close? Come about — what are you waiting for!" In the scramble to shift ballast and get seated on the weather side John recovered his nonchalance.

"Gee whillikens! She's an easy sailer — isn't she, Nat?" he said with pride. He hung one hand over the side and let the water ripple through his fingers. "Moves right along. How does the sail fit — any puckers?"

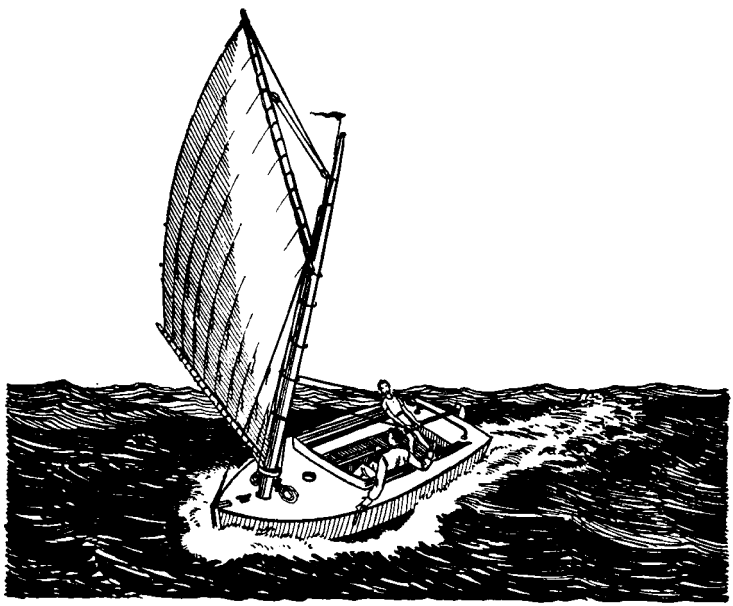
"Like a glove," said Nat, remembering an expression of his mother's. "There's Pa and Lewis in the *Julia*. Bet they'll have to do some sailing to catch up with us."

"Might be good practice to go down wind and meet

them. You watch the sail and tell me when I've paid out enough."

"All right." Nat turned the *Meteor's* bow away from the wind. "We're sailing with the wind on our quarter now," he said. He had been cautioned by his father before they went out to keep John posted on every change in the boat's position. "Remember, he can't see, but he can visualize what you're doing and how the sail should slant. He did it so often when he had his sight."

"Keep her on the quarter," said John now. "Pa'll look out for us. We don't want to jibe in a new boat — and anyway — have you ever handled a boat in a jibe?"



Meteor **under cat rig**

"I've seen it done often."

"Well, so far you've done everything pretty well," said John with royal condescension.

"John," his father called when the two boats were near each other, "she's the trimmest boat on the bay! If you sit a bit farther forward she'll point higher. She's down by the stern a bit. How about you and Nat showing some seamanship?" He threw one of the *Julia's* cork fenders overboard. "There's plenty of searoom here. Pick it up!"

This was to be the real test of his knowledge, Nat knew, and of John's willingness to take orders from him. The little boy squared his shoulders.

"Coming about on the port tack," he told John, "are you ready? Hard-a-lee!"

The fender now bobbed in the water some distance off to starboard. Nat described its position to his brother.

"We'll have to take a couple of tacks to get nearer," said John. "We don't know yet how much way the *Meteor* will have when she's pointed dead into the wind. Only practice will tell us. Better get a boat's length from the fender first, and then round right up on it. Keep it on our starboard bow and I'll try to pick it up."

With his mainsheet slacked, their father let the *Julia* drift while he and Lewis watched Nat and John maneuver. It took self-control not to offer advice, but he had decided the two must work things out for them¬

selves. Besides, John had to get acquainted with his new boat. Who but an owner was entitled to that?

Nat was on his mettle and liking it, to his great surprise. Like an actor who has agonized before facing an audience, his stage fright had vanished now he was in action. He judged his distances accurately and came about at the right time. John was having as good a time as Nat was. He moved fast in the cockpit, doing his part expertly, now he was more used to it.

"Ready about!" called Nat for the last time. "Give me the mainsheet, John, and you get up in the bow!"

The *Meteor* whipped about swiftly like the biddable little craft she was, and John, leaning out over the coaming, found the fender bobbing under the starboard rail and hauled it inboard.

"Well done!" The shout came from the watchers on the *Julia.*

"Did it the first time!" said John. "Tell you what, Nat, we'll get out on the bay early every morning. Pretty soon we'll be ready to race her!" John's broad grin told Nat he had passed the test.

CHAPTER 5

NAT HAD KNOWN the DeWolf family all his life. They were Bristol people from farther back even than his own ancestors. "Natty" would sometimes be told to wash his hands and spruce up because he was going to Clara DeWolf's house. Clara was little more than a baby then, but there were older brothers and Providence cousins for him to play with. When he went, Nat was reminded firmly by his mother that he would be a guest, and that he must do what the DeWolf children liked to do. She knew very well that he was bored by what they liked to do.

Clara's family lived on an estate just outside of Bristol where they raised cows and other livestock. Horseback riding was their chief amusement. Animals didn't interest Nat. The first time he went to the DeWolf place he looked around in vain for a toolhouse. Maybe they have a machine shop, he thought. But he couldn't find even a workbench.

"Where do you make things here?" he asked.

"Make what?" the DeWolf boys stared uncomprehendingly.

After that, Nat sank his hands in his trouser pockets and followed his hosts listlessly around the stables, the pens and the paddocks. Once the DeWolfs took Nat on a picnic sail, unaware that his eyes were making merciless comparisons between their leisurely, comfortable catboat and his father's *Julias.* The Herreshoff boats were swift and beautifully kept. They had shining oak or mahogany brightwork and spotless decks and white topsides. Nat saw with astonishment that some people were content to sail what his older brothers would have described as a "tub," and worst of all they committed the sin of sins in not keeping it spotlessly shipshape.

On a Herreshoff boat every line was neatly coiled before you went ashore. Tillers were lashed with just the right amount of free play. Stays never sagged. There was the right way to furl sails, to make fast a halyard, to secure a mooring line. On such points a Herreshoff was judged at home. Nat knew no other measure.

"Want to take the helm, Nat?" the DeWolfs asked cordially.

Nat shook his head. They thought he was too shy, but the truth was, he didn't want to be seen sailing a boat that showed sea grass on her waterline.

The DeWolfs were descendants of privateersmen, sea merchants and whaling captains. They were among

the richest and most prominent people in Rhode Island. Being well-bred New England folk their family complacency was not offensive — except to a small person like Nat, with an inherited pride in the scientific knowledge and manual skills of the Herreshoffs. The palatial mansions of the DeWolfs faced the harbor on Hope Street and were built after the War of 1812, when James DeWolf had become fabulously rich from the prize money captured by his famous privateer *Yankee.*

The legendary exploits of the DeWolfs were often spoken of in a small town like Bristol, proud of its important citizens. They surpassed all Nat knew about his merchant prince great-grandfather, John Brown of Providence, and even eclipsed his splendid ancestor in Frederick the Great's bodyguard.

After the Herreshoffs moved to their new home in Bristol, Nat saw much less of the DeWolfs. He was completely absorbed in his work with John. Moreover, since John had lost his sight troubles had multiplied in the family. Sally had become totally blind. She stayed a great deal with her aunts on Popasquash Neck now, because her mother had to devote so much time to Lewis. With hardly any warning Lewis went blind, and as if that were not enough, the youngest child, Julian, was beginning to complain of his eyes. The eye malady from which these young Herreshoffs suffered was to be diagnosed much later as glaucoma. No other generation was afflicted by it.

Family life had altered under these swift-striking calamities. Devoting their time to helping their children

overcome crushing handicaps, Mr. and Mrs. Herreshoff saw less of their neighbors. Old acquaintances were solicitous, however, and dropped in frequently to enquire after the blind boys. The DeWolfs were among these friends. One afternoon they sent Clara and her Providence cousins over to see the younger Herreshoffs. They were to be called for at the end of the day. Nat hadn't seen the Providence cousins for four years, but he remembered having had to do things that amused them. The tables were now reversed. They were his guests.

Hardly had they arrived before he remarked casually that he and John sailed every afternoon and that the boat held only two. His mother gave him a long look. She had known John and Nat to make room for friends when they wanted to, but she made no comment.

"I shall be reading *Deerslayer* to Lewis — you'll enjoy listening, won't you?" she said a minute later to the DeWolf guests.

Deerslayer was a favorite book with the Herreshoff children. It was usually read in the evening, when they could all listen. Nat started to protest, but a stern glance from his mother silenced him. The DeWolfs murmured politely that they would enjoy *Deerslayer* very much. One of them, however, looked crestfallen. There was an awkward pause until Mr. Herreshoff said genially:

"Look here — Francis and I are going out on the water. Perhaps one of you would rather sail. Why

don't you come with us? You too, Clara," he added to the smallest visitor who was only six and obviously not of an age to enjoy James Fenimore Cooper. The unhappy guest brightened and so did Clara.

Nine-year-old Francis Herreshoff had been crewing for his father ever since Lewis had lost his sight. He was as competent in a boat as all his brothers had been at that age.

Rowing out to the moored boats, Mr. Herreshoff noticed that Nat was carrying the *Meteor's* jib in a tight and inconspicuous bundle in his arm.

"The wind's in the northwest. You know what that means, boys. It will be freakish and probably we'll get strong puffs before sunset."

It was all the hint he intended to give them that one sail was sufficient on a day like this — especially for the *Meteor*. The small boat had two mast holes, one located forward, near the bow, and the other amidships. When the mast was stepped into the forward hole she was used as a catboat, when it was placed amidships she became a sloop. The fact was, the *Meteor* was more manageable as a catboat. This had been apparent shortly after she was launched, but no one had had the heart to tell John.

After testing the boat himself, Mr. Herreshoff had told his wife that it couldn't be helped. "John will come to realize it gradually, and anyway, he'll soon be wanting to build a larger boat," he said.

The boys had given a noncommittal "Yes sir" to their father's comment about the wind. In the back of John's

mind lay a not unnatural wish to show the boy from Providence what a fine sloop he had built. He didn't want to use the **Meteor** as a catboat today. It would make her look like any other sailing skiff. Narragan¬ sett waters were full of them.

Nat wanted to show off too. The praise he had been receiving for his skill at the tiller meant a great deal to him. If the *Meteor* carried too much sail this afternoon, so much the better. He would be seen handling her ably.

Working fast, John and Nat raised their sails and got underway before Mr. Herreshoff, in his *Julia,* was ready. Nat's first tack was inshore. There he brought the Meteor about with a flourish, and heading back toward his father's boat, swept past her to windward much too close. The *Julia* had left her mooring by this time, but she had not yet gathered headway. Blanketed now by Nat's sail, she rocked helplessly in stays.

"Pretty — bad— manners!" his father called after him in disgust, then turning to his passengers, he asked: "Anyone mind getting soaked? Good — then we'll sit to leeward. She goes faster with her rail under and we'll soon sail circles around those two pirates."

The *Julia* was swifter and larger than the *Meteor,* and moreover she was skippered by one of the shrewdest sailors on Narragansett Bay. Charles Frederick Herre- shoff had passed as much knowledge and skill on to his sons as he could. Experience alone would teach them to profit by it. The tricky weather he had predicted was giving Nat considerable trouble already, he no¬

ticed. By midafternoon the wind was heavier and the *Meteor* was being knocked down by each hard gust. The pressure of wind at her head, caused by the jib, made her stubborn. Each time she had to be laboriously righted, and each time the process slowed her.

Meanwhile *Julia*, properly balanced and buoyant, knifed a passage for herself through the squalls with hardly a loss of headway. Time and again she went by the smaller boat so fast that Nat, mortified and busy trying to keep his craft moving, saw only his father's swiftly disappearing stern and the DeWolf cousin perched on it, grinning impudently. Leaving them far behind, only to return in a few minutes, Mr. Herreshoff sailed circles around them with no trouble at all.

"Is that Pa again?" demanded John as he heard the hissing rush of the *Julia's* approach for the ninth time.

"Yes!" His eye on the darkening ripples ahead, which meant a fast approaching puff, Nat was too busy to say more.

"Thunder!" the vicious gust heeled the *Meteor* over so hard that John was almost thrown across the cockpit. "What's the matter with you, Nat — can't you see those squalls come?"

"It's the jib. Seems to give her a lee helm. I can't ease her into them."

"Why didn't you say so before? I'll haul it down."

Letting go of the jib sheet, John groped his way forward to the cleat which held the jib halyard. He cast it off, but the line was swollen and wet from the

spray and the halyard wouldn't budge. The jib remained up.

"Bring her into the wind!" shouted John, sprawled on the forward deck and vainly reaching for a sail he could not see.

Nat tried to obey, but a second squall, harder than the last, hit, and John's heavy weight on the small boat's bow made her unmanageable. Knocked flat this time, the *Meteor* remained on her side, taking in water. Nat found himself floundering in a welter of submerged canvas. John slid overboard, clinging to the bow. Spitting water out of his mouth, he expressed his opinion of Nat's seamanship in terms every Bristol boy could understand.

Meteor **capsizes in a race with the** *Julia*

Nat's disgrace was acute. When he saw his father coming to their assistance he wished he could dive under the water. However, once the *Julia* came alongside he found to his relief that everyone was too busy to notice him. It took only a few minutes for the *Julia's* crew to douse her mainsail and furl and tie it out of the way. John was helped aboard next, and Nat was told to cast off the *Meteor's* main halyards.

Submerged though the little boat was and lying on her side, her wooden hull, unweighted by ballast, had enough buoyancy to keep her from sinking. In order to right her, however, the mainsail which was full of water had first to be lowered. Nat crawled forward to release the main halyard which had been fastened in a half-hitch. He found the rope wet and impossible to loosen with his fingers.

Nat dug into his pocket for the prized jackknife given him by Dr. Greene. Since the day he had been declared old enough to use it he was never without it. He intended to pry the halyard loose.

"Great Scott!" his father stopped him as he opened the blade. "Don't use a knife — take this," and he handed him a small marlinspike from the *Julia's* locker.

Startled and mortified by the rebuke, Nat obeyed. He freed the halyard, lowered the sail and tied it around the boom. It was slow and awkward work, under water most of the time. Meanwhile the oar which the boys used when they were becalmed had floated out of the boat and drifted off.

"Better recover that before you do anything else,"

Mr. Herreshoff said. Nat plunged after it. When he swam back his father had managed to pull the *Meteor* erect by her mast.

"Get in and bail now," the boys were told.

Mr. Herreshoff gave John the wooden scoop he kept on the *Julia* for that purpose, and while he and his crew kept the smaller boat on an even keel the two boys worked fast, Nat using another scoop belonging to the *Meteor*.

"You can sail her home now," said their father coolly when she was emptied of water. He didn't offer them a tow. When his boys chose to learn the hard way he let them have their fill of it.

It was no fun to sail with gear and canvas sopping wet. John decided to restep the mast in the forward hole and run back to his mooring under his mainsail alone, since the wind was still freshening. To do this the jib had to be removed and Nat found the halyard still stuck in the masthead block. He was compelled this time to cut the gear away.

"That means a new jib halyard," growled John. "Why didn't you remember to take it off while Pa was here to help?"

"Why didn't you?" Nat might have flung back, but he rolled the sail into a bundle and placed it in a safe spot under the coaming without answering. He knew better than to bait John when he was in a black mood. There were plenty of Bristol boys who would jump at the chance to sail the *Meteor* if Nat didn't get along with her owner.

When he and John hoisted the mainsail there were dirt stains where he had inadvertently stepped on it while the boat lay on her side. The two boys sailed home and picked up their mooring with hardly a word spoken.

In the *Julia* Charles Frederick Herreshoff was silent too. He hoped his boys had learned something. John was sufficiently punished by what had happened to his boat. Nat had been bitterly humiliated when the *Me¬teor* capsized, but it was what the boy needed. He had been inexcusably rude. Nat was developing unsociable traits. Some speculation as to the cause of it flitted across his father's disturbed mind — a cause connected with John.

He remembered hearing John say to Nat a year ago: "We'll have to temper this gouge. There's a trick to it and you'll just have to catch on. I can't have my tools ruined, mind!"

Tempering tools was an exacting job, even for a man. Nat had done it well the first time, and now, at eleven, he had become as expert in mechanical skills as a full grown apprentice.

The family had long since ceased being surprised at the things Nat attempted. Nobody had felt any concern for the small boy, straining to accomplish tasks beyond his age, pushed by an older brother's frustrated ambitions. Could that be the reason for Nat's changing disposition? The question occurred to his father today, but he dismissed it with a troubled sigh. What would become of eighteen-year-old John if he were deprived

of Nat's sharp eyes and deft hands?

Arrived at his own mooring, Mr. Herreshoff and his young crew made the *Julia* shipshape. He glanced at the *Meteor* nearby. Nat and John were having an argument, he could see. He wondered why they were taking the mainsail off. It was customary, when sails got wet, to leave them up till they dried. Removing them was a process almost as laborious as bending them on again. Had the mainsail got torn?

"We're bringing the sail ashore to wash it," John explained when his father came to pick him and Nat up in the rowboat. "It's a thundering shame, but Nat walked on it and the marks won't come out unless it's scrubbed. He had to cut the jib halyard away too." John glowered with irritation as he felt his way into the rowboat.

"My knife!" Suddenly reminded of his most cherished possession, Nat stood upright in the *Meteor* searching his pockets.

"Dropped it overboard most likely," John said by way of comfort.

They waited while Nat, oblivious to everything else, got down on his knees and searched frantically under the seats. He lifted the floorboards and explored the bilge. No knife, anywhere.

He turned to his father, his mouth twisted with his effort not to cry. "Maybe I did lose it overboard — I don't remember what I did with it — after I took the jib off." His voice rose and broke.

Mr. Herreshoff looked at him in amazement. Not

since Nat was five, when he had been scared by the turtle and Dr. Greene had given him his knife, had he cried. Well! It was a pity for him to lose such a valuable gift — and Dr. Greene would have to be told.

"Sorry — but there's nothing we can do about it, my boy. Get aboard," he said. "Clara's family must be waiting for us."

Sick over his loss, Nat obeyed. He sat in the bow with his back to the others. He was wet and cold and the sobs he could not control came through chattering teeth. When the boat finally grated on the beach his father spoke to the small shivering form up forward.

"Go to your room, Nat, immediately, and change into dry clothes."

Glad to escape, Nat flung himself over the side. John, Francis and Mr. Herreshoff pulled the rowboat up the shore. Clara slowly followed her cousin who was carrying the wet sails up to the house.

No one had spoken to her for a long time. Once, on the *Julia,* Mr. Herreshoff said kindly: "Sit over here, Clara, out of the way." She had obeyed, and from that moment on the boys had pushed her firmly and not too kindly out of the way all afternoon. When the *Meteor* capsized, it seemed to a six-year-old girl like a real disaster. She was further upset because everyone treated Nat as though it was his fault. John lashed out at him for things he couldn't help. And when Nat cried over his knife no one cared. Clara's heart was ready to burst.

On the way to the house she decided she hated them all — except Nat. It was then she saw something fall

out of the bundle of sails her cousin held. It dropped almost at her feet. She picked the thing up, stared at it and then ran to the house as fast as she could. Nat was halfway up the stairs when she reached him.

"I found it — I found it — look! Your knife!"

Unbelieving, he came slowly down the stairs.

"It dropped out of the sails," she said, handing it to him.

He clutched it so eagerly she thought he would forget to thank her, but after a long look at the knife he thought he was never to hold again, he pumped her hand awkwardly up and down, his face one broad grin of relief.

"Gosh, Clara—gosh!" He shook his head, unable to think of another thing to say.

CHAPTER 6

THE OLD TANNERY on the Bristol waterfront, opposite the Herreshoff house, had been empty for some years when Mr. Herreshoff bought it. Now, from within, came the sound of busy hammering. A great enterprise was underway there — the construction of *Sprite*, John's new boat. The same love and pride of ownership felt for the *Meteor* was never to be quite duplicated; she would always be the symbol of John's liberation from despair. But the *Meteor* had been little more than a shallow sailing skiff. The *Sprite* was a long step in advance of that first boyish venture in boatbuilding. She was to measure twenty feet over all with a nine-foot beam, and she would have a cabin. A centerboard, together with half a ton of inside ballast, would make her much more stable, and a supposedly watertight bulkhead amidships, added to her seaworthiness.

It was certain by this time that boatbuilding was John's life interest. It might even provide him a livelihood; sufficient reason for acquiring the Old Tannery in which a small business could be started. To educate

three blind sons and try to make them self-supporting was a problem demanding anxious thought and wise preparation. There were, in those days, no schools for the blind. Nothing was done for them beyond the help their own families might initiate.

The building of the *Sprite* was training for a future shipbuilder who would be blind. Between them, John explaining in words what he wanted and his father supplying the hands and tools, father and son made a half-model of the *Sprite*.

"I want a little more sheer," John would say, feeling the curve of the deck line, "and the stem must be rounded more — where it meets the waterline."

His father would then cut a fraction off here and there, until John's fingers were satisfied that the wooden form corresponded with the shape in his mind. To Nat fell the task of scaling up the finished model, section by section, to full size. It was labor involving mathematics beyond the ability of an ordinary twelve-year-old boy. Nat also made careful drawings of the spars and sails. Upon his correct calculations depended the success or failure of the *Sprite*.

Because this boat was a much larger and more important undertaking than John's first one, Mr. Herreshoff employed a local carpenter, William Manchester. All his own Julias had been built on his place at Popasquash Neck with the aid of this Bristol man. John, now nineteen, was familiar with every phase of boatbuilding and would superintend the work himself. The measurements Nat took off from the half-model of the *Sprite*

and chalked on the floor of the tannery were for Mr. Manchester's use. John did not need them. He carried the plan of the *Sprite* in his head. Besides all this, John would not be able to order a man around as he had Nat. It was the best possible way to teach him to control his temper.

The carpenter began work in the Old Tannery with considerable skepticism. He would be supervised by a blind boy — an utter piece of nonsense, of course. The idea was just to make John feel useful. But because he had liked and worked for Charles Frederick Herreshoff for years, he agreed to come. He was elderly — an old hand at boatbuilding. No doubt that was why Mr. Herreshoff had chosen him.

Mr. Manchester discovered his mistake soon enough. Beside him worked a boy who never mentioned his handicap, and who didn't appear to be sightless until you looked at his face; in whose memory were stored the correct measurements of each sawed frame; who could identify gouges and planes by the feel of their blades; whose hands were endowed with mysterious sight as they traveled over the skeleton of the *Sprite*, checking rivets and ribs and measuring their position.

As for John, he had to keep a firm leash on his tongue. The carpenter at first ignored him, and went ahead on his own responsibility. He didn't wait for checks. However, when John caught several places where ribbands and frame were imperfectly joined, the carpenter said, "Well I'll be durned!" and did the work over without further comment.

Working for a young Herreshoff was evidently going to be like working for the older one. Who but a Herreshoff would insist on the framework being as perfect as the outside — where it showed! He discovered, too, that details and specifications were stored in the boy's mind with unbelievable accuracy. Soon he waited for John's inspection as he would have waited for the inspection of a foreman.

John, meanwhile, was learning the tricks of the trade from a practiced workman who loved his craft and liked nothing better than to talk as he worked. The friendship which developed between the two was to be of immense value to John in his future relations with shipyard workers. It was a great blow when Mr. Manchester died suddenly. John had grown to love the old man and the *Sprite* was only half finished.

His father now gave John all the time he could to help him complete the boat, but another blind son, Lewis, needed his attention and the days were past when Nat could be counted on for so many hours of work a day. Even though he still came straight home from school the time spent at school was longer and his homework more demanding.

Nevertheless the *Sprite*, begun in September, was launched late in June. A burning necessity, which no Herreshoff could resist, arose to speed her completion. News reached Bristol in March that the English ship, the *Great Eastern*, the largest paddle-wheel ocean liner built, about which fabulous reports were circulated, would sail to New York that summer.

"We *must* see her," Charles Frederick Herreshoff told his wife. "It's an opportunity John and Nat mustn't miss — nor Lewis either."

"Think of the cost of the trip — for four people. And hadn't we better face it," Julia Herreshoff reminded him, "what will John and Lewis get out of it? Only the bitter realization that you and Nat are seeing what they can't see."

It was no easy thing for her to say, she who insisted that her blind children share all the activities of normal people. But hard times lay ahead. President Lincoln had declared that if the South seceded the North would fight to preserve the Union. In wartime everyone found it difficult to make ends meet, and their large family included four blind members who were dependents.

"We'll travel to New York in the *Julia* and the *Sprite.* It will cost nothing, and the cruise will be adventure enough for John and Lewis, even if they can't see the *Great Eastern.* Lewis will go with me and we'll somehow finish John's boat in time." Charles Frederick was a boy himself in his enthusiasm. Julia Herreshoff said no more except to insist that he and Nat have on board at least one other sailor who could see. Until they reached Watch Hill the run down the Rhode Island coast would be in unprotected waters. The seas off Point Judith were nothing for a child to cope with in heavy weather, she reminded her husband.

In the following weeks she tried not to dampen the prevailing joy. The house was full of the kind of cheer¬

ful masculine uproar she had missed since the happy days at Popasquash Neck. Roughhousing, sparring and joking increased as the day of departure neared and spirits soared. Lewis practiced long-distance swimming, bribing ten-year-old Francis to guide him in a skiff across the bay.

"You see, Ma," Lewis's explanation had an unmistakably hopeful ring, "I might have to swim several miles — you never can tell."

"Tommyrot!" his father laughed, pulling him out of his mother's hearing, "you'd much better spend your time giving those spars I varnished another sandpapering before I varnish them again."

John and Nat, studying the coastal chart together, jubilantly discussed the possibility of fog and collision. At that period there were no bell buoys nor were lighthouses identified by flashing rotating lights.

"Buoys won't help us in the dark," John reminded Nat. "In night sailing you have to sail by compass. Otherwise you can't figure accurately where you are. Then there's the Boston steamer. Of course a sailboat has the right of way, but she might not see us in a fog. And she'll never hear a dinky horn like ours — she makes too much noise moving through the water. You have to watch out for those big ships. Plenty of Banks fishermen have been run down by ocean liners."

The *Sprite* was completed finally, and the Herreshoff household waited in suspense for news that the *Great Eastern* had left England. People expected almost anything might happen on her voyage over. Some disaster

occurred practically every time she put to sea. From the day of her launching when numbers of shipyard workers had been killed, she had established a record for being not only the largest passenger ship, but the biggest Jonah afloat. The Herreshoff boys knew not only her dimensions but all her unique features by heart.

The *Great Eastern* was 693 feet long, her beam was 120. Her six masts carried 6500 square yards of sail. She had five vast funnels and two sets of engines; one engine to turn her paddle wheels, the other to work her giant 24-foot propeller screw. It was rumored that she could accommodate 4000 passengers. Not only her size but the mounting list of her mishaps stirred the imagination. John and Lewis, in their blindness, undoubtedly pictured a more massive and exaggerated image of her than did Nat whose mathematical sense of proportion was already uncanny.

At last, word came that the big ship would anchor in the North River. Her owners would not risk docking her.

Nat was never to forget the start of this, his first cruise. He had been roused from bed while it was still dark. They left in the silence of dawn, the harbor shrouded in mist. A light south wind drifted the *Sprite* and the *Julia* toward the sea.

All the way down Narragansett Bay the damp shore air was heavy with the scent of bay leaf, pine, honeysuckle and wild clover. For the first time in his life, Nat noticed the sweet smell of land. At the same time

a pang of homesickness smote him and a tremor of fear for the unknown adventure he was facing. His mother had called him "Natty" when she said goodbye. She always did in moments of tenderness. He would tolerate the childish nickname from no one else. The memory of her, patient, enduring and strong, as she stood waving to them from the Bristol shore, stayed with him until they sailed out of the East Passage into the ocean. Then, as the little *Sprite* climbed gallantly up the long, steep side of her first Atlantic roller, all Nat's sailing blood awoke.

Off his port bow hung an opaque curtain of fog. To starboard the Rhode Island coast receded dimly. All around him the powerful slick sea rose and fell in lazy swells. The *Sprite* slid down a watery trough and struggled back up again. The *Julia* vanished behind a moving wall of water. This was ocean sailing. Nat's hand tightened on the tiller.

"Shall I take over?" it was Georg D'Marini, third member of the Sprite's crew. The cool authority in the question left no doubt. It had been understood that Georg, who was an experienced Bristol yachtsman, should take the helm in all open waters.

"Yes sir." Nat relinquished the tiller reluctantly. He had just caught the hang of it — how to offset the swing of those big seas with the rudder. And now someone else was going to steer!

"She rides the swells like a cork," John beamed. "You know, about every seventh wave is a whopper! I can

tell by the lift in it." He had long since stopped nursing any useless regret for his eyes. He could still feel and hear better than most people.

"*Sprite* loses headway, though, in the troughs," he added.

"It's only because she's small and the waves cut her off from the wind," said Georg. "Just as well too. We musn't get too far ahead of the *Julia*."

John digested this hint that the *Sprite* was faster than his father's boat in blissful silence. Then he leaned forward intently.

"We ought to be passing Beavertail buoy soon — on our starboard. Can you make it out yet, Nat?"

"Nope — weather's too thick."

"Keep a sharp lookout then." John's sense of timing, like all his other senses, had become acute since he had been blinded. Five minutes later they drifted by the buoy and John relaxed against the cockpit coaming. "I could eat hardtack! Rustle up some gingerbread, Nat. Ma packed three loaves in that basket."

The south wind continued light all day and the fog did not lift. Nat and John took turns blowing the horn. Twice John's sharpened hearing caught the muffled sound of creaking gear which warned of a nearby boat. They passed Point Judith at noon, and after that the tide changed in their favor. Drifting with it, *Sprite* and *Julia* reached Watch Hill in the late afternoon. Anchoring for supper, they waited for the expected shift in wind which should blow off the fog and make the night trip down the Sound easier. The shift came

from the northwest, while the crews of both boats were snatching a little sleep. Nat had resented being told to turn in, but the long sail in an open, rocking boat had so drugged him that he did not waken till John shook him.

"Come, Nat! We're off New London now. It's your trick at the tiller."

Nat opened his eyes to inky blackness and a violently pitching world. Where was he? When he remembered, he was furious.

"You might have called me sooner. You knew I wanted to steer through Fishers Island Race."

"Pa said not to sail through the Race," John shut him up tersely.

"Too big a sea there. Wind and tide were contrary," said Georg, "so we kept in the lee of the Connecticut shore and went through Fishers Island Sound instead. Now look, Nat." He pointed to the compass box screwed to the floor of the cockpit. A chart lay beside it and a lighted lantern. "This is your course and here's the chart. John knows the shoals and reefs in the order in which we'll pass them. There's the light ship off New London — see it flash? There'll be another off Bartlett's Reef and one south of Long Sand Shoal. That's where you'll have to watch out not to run us straight onto Duck Island. Call me when you see Falkner Island Light — or sooner if necessary." Georg rolled himself into Nat's discarded blanket, threw himself on the starboard bunk and in two minutes was dead to the world.

For a while Nat kept his eyes fastened on the compass.

The needle veered crazily at first, as the *Sprite* plunged and bucked the waves. The tiller pulled his arms right out of their sockets — or so it felt. Finally he wrapped the end of the mainsheet around the stick. That kept it steady and took some of the strain off him. *Sprite* with her very long boom was no improvement on the *Meteor* when it came to steering. She was a brute in a heavy wind!

Handling the boat now with much greater ease, Nat could relax a little. The *Sprite* was tearing through the night at a great rate. Behind him he could see the red and green running lights of the *Julia* and her shadowy mainsail, mysteriously illuminated by the lantern in her cockpit. Overhead the clear black sky was full of swinging stars. An immense silence surrounded him. The rush of moving water under the *Sprite's* keel and the regular slat-slat of the halyards against the mast were not noise, they were the rhythmic music of motion on the sea. The magic of night sailing gripped Nat. Even John felt it. They spoke to each other in low voices.

When Falkner Island Light showed on their quarter they called Georg. Nat begged to be allowed to sit up.

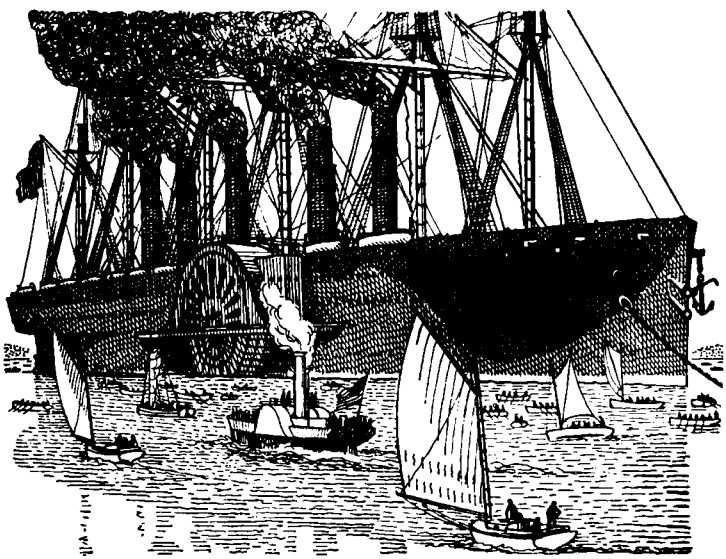
"It's your watch below," Georg replied cheerfully but with a shortness which closed the subject. John turned in this time too, a fact that consoled Nat somewhat.

It was just as well that he dropped asleep quickly again. He needed all his faculties for the early morning run. There were dangerous currents and eddies off Hell

Gate, where the waters of the Harlem River, Long Island Sound and the East River met. River traffic and tows had to be dodged all the way to the Battery and around into the North River, or Hudson.

On board the *Julia,* Henry Slocum, who knew the city waters well, piloted. *Sprite* had to follow in her wake as best she could. They had made the trip from Bristol to Manhattan in twenty-seven hours, an unusual time record but one which the Herreshoffs thought natural for boats they had designed and built.

The *Great Eastern* proved a sight worth twice their journey. *Julia* and *Sprite* joined the throng of small craft which kept milling around her long, towering hull. No one was allowed on board — an overwhelm¬



Julia **and** *Sprite* **sailing by** *Great Eastern*

ing disappointment which had to be endured philosophically.

"It's hardly to be wondered at," said Mr. Herreshoff, "when you think of the damage souvenir hunters can do and what insurance losses she has already piled up in accidents."

"What does she look like in the river?" John asked longingly of Nat.

"Remember how far it is from our house in Bristol to school?"

"A little under an eighth of a mile."

"Well — the *Great Eastern* almost stretches the distance. You can figure her height if you pile four two-story houses on top of one another."

"Her funnels must be two stories high," estimated Georg, studying them through a telescope, "and her side wheels too."

Boats filled with sightseers were circulating around the visiting ship. Occasionally they got in the path of tows and ferries, whereupon horns tooted and men shouted angrily.

After a couple of hours the crews of the *Julia* and *Sprite* had looked their fill. Finding safe berths in Ho¬boken, where their two small yachts could tie up for the night, took another two hours. Then Mr. Herreshoff invited everyone on board the *Julia* for a sail around the great harbor. Skyscrapers were still unknown then, but the busy docks lining both sides of the river and the shipping from the four quarters of the globe were sufficiently spellbinding to the visitors from Bristol.

Two days later a brisk south wind sped the *Sprite* and *Julia* home in twenty-six hours. The evening of their return to Bristol, neighbors and friends gathered on the shore to welcome them back and to get a first-hand account of the mammoth liner whose ill-fated voyages were to continue, to the somewhat morbid delight of yachting circles.

CHAPTER 7

A SHORT WHILE after the memorable cruise to New York harbor, John entered his *Sprite* in a race against three larger boats modeled and built by established yards. The outcome was of great importance to him. One of the participants would be a Mr. Davis, of the well-known firm of Davis and Childs. Davis was a famous boatbuilder. Should *Sprite* beat his boat *Planet,* the news would get around that John Herreshoff had built a fast boat and customers would increase. John did not hesitate about the choice of a helmsman. It would be Nat. To pit so small a boy against seasoned yachtsmen seemed no risk to him. He and his father had taught Nat to sail. They took it for granted that a Herreshoff would be a credit to his training.

The starting point of the race was Jerry Angels's Clamhouse, an old stern-wheeler moored off Fields Point and converted into a restaurant. The course was down the Providence River to a designated marker and back — but twice around.

Through constant practice, John and Nat had become

a unique sailing team. No words were ever wasted, no time lost. Their efficiency was in part due to the fact that one of them was blind. No arguments about maneuvers were possible. In John's boat the helmsman alone could see, and therefore the helmsman decided. When he had been only eight, circumstances had thrust Nat into this position of command, after having been bossed all his life by an older brother. Some innate sense of mastery in him had made the sudden shift possible.

In the race about to be run, the first two boats to arrive at Fields Point were the *Sprite* and *Planet.*

"I'll be derned if he hasn't a child at the tiller!" exclaimed one of the men crewing on *Planet* when he saw Nat.

"John Herreshoff is blind. His younger brother is always the helmsman," Mr. Davis answered.

"Blind?" The question was incredulous.

"What's more," continued Mr. Davis, "I see John has along another blind brother, Lewis. Ben Appleton is with them — to keep his eye on the repeat watch, I suppose. That young Nat will be the skipper though, and you'll see, he'll give us a run for our money. Those Herreshoff boys are taught sailing from the cradle. Besides, *Sprite* will get time allowance. We're five feet longer and have more sail area."

The two other competing boats were soon on hand and ready. On the stern of the Clamhouse a group of friends and curious onlookers had gathered, and in a rowboat anchored on a line with Fields Point sat the Race Committee with watches and a pistol.

On board the *Sprite* no one spoke. Silence and concentration on the job were Herreshoff rules in a race.

"How many minutes to go?" asked Nat, finally, of Ben Appleton.

"Five. We'll hear the warning signal in two minutes."

The four competitors were now sailing back and forth behind the starting line. The wind was northwest and steady — a good racing breeze.

"I'll stay on this port tack two minutes longer. When we come about we'll have the wind on our starboard quarter, John," said Nat, careful as always to let his blind brother know the boat's position.

As he swung *Sprite* into the wind the warning gun sounded and Nat headed for the line. He had gauged his distance carefully. The other boats had chosen to stick closer together and were now crowding each other for position. If they fouled another boat they would be ruled out of the race. Should they cross the line too soon they would have to go back and begin over. Jockeying for place was the most exciting and the trickiest part of racing. Nat had been warned by his father to keep out of that sort of contest for the present.

"Wait till you've had more racing experience," he said. "They all take chances to get over the line first. If someone protests that you fouled him it's not always easy to prove your right of way. The main thing is to keep clear of other boats and stay to windward of everyone if possible."

Bang! A sharp explosion split the silence.

"Starting gun!" yelled Ben. The race was on.

Unhampered by the proximity of rival boats and gaining headway all the time, Nat slipped over the line close behind *Planet* and to windward of everybody. Since he had time allowance, he was actually in the lead.

During the first lap of the course *Planet* and *Sprite* pulled quickly ahead of their competitors. The second time around they left them far behind. It was a close race now between Nat and Mr. Davis. Rounding the mark boat at Gaspé Point for the second and last time, they encountered difficulties.

Before this, wind and tide had favored the contestants. The course had been down wind, and *Sprite* had been sailing free with her boom at right angles to the boat and her mainsheet extending far out over the water. Now the tide had turned and was flowing strongly in the opposite direction. Not only was the river current against the incoming tide, but also the northwesterly wind. The change was soon visible to Nat in the deepening color of the water and in choppy seas.

He saw *Planet* jerked almost to a stop as she bucked the waves rounding the mark. He saw also that she was pushed dangerously close to the mark by the strong tide. To foul it was to be put out of the race. She missed it however by inches, and with flattened sails started home on the final leg of the race.

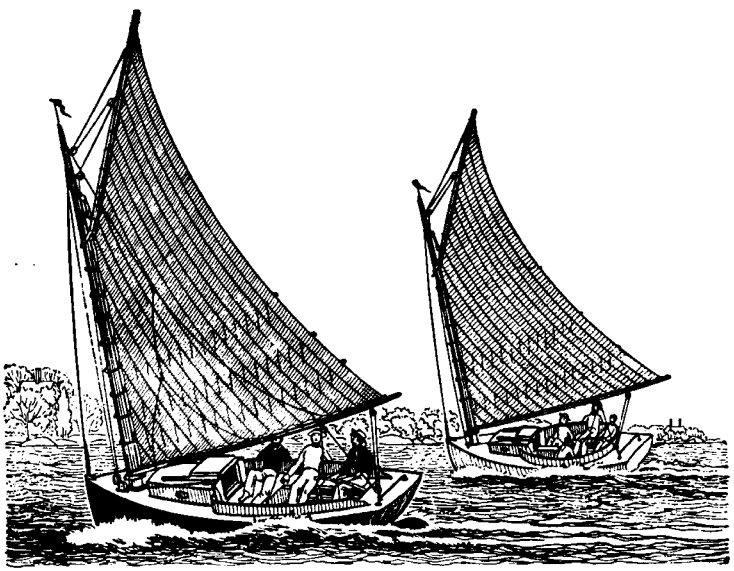
Nat gave the marker a much wider berth. He knew what to watch out for in the *Sprite*. Her long boom made her awkward in lumpy seas. Sure enough, the end of her boom plunged into the water as she heeled sharply in rounding the marker. For a minute Nat's heart was

in his mouth. Could he lift the boom out by easing the *Sprite* into the wind, or would this cause her to lose headway and drift down on the marker?

Sensitive to his boat's every motion, John guessed the danger. Quickly he felt his way to the windward side where Ben and Lewis were already sitting. His sudden weight there yanked the boom up. Water spilled from the clew of the sail. Ben hauled in the main sheet with all possible speed. They were safe now, sailing close hauled and off on the homeward stretch.

"Close shave that!" said John clambering back to his place.

Nat didn't answer. There were a number of things he was going to change about spars and rigging when



Sprite racing

he designed a sloop. One of them was to place the mast more amidships.

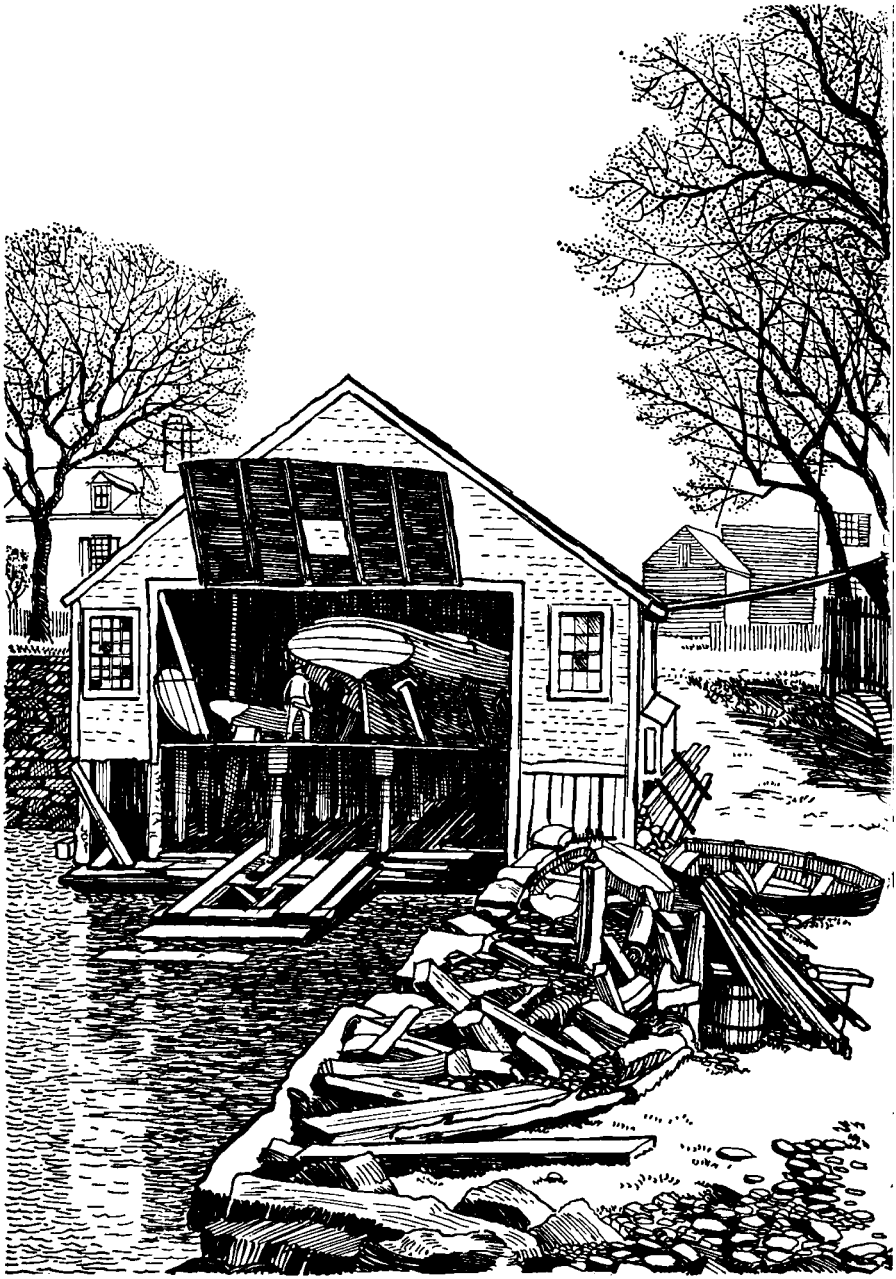
Tacking back and forth against the wind and up the river to Jerry Angels's Clamhouse, the *Sprite* never lost a moment's headway. Nat had already developed that fine co-ordination between hand and eye which kept a boat moving on the edge of the wind. It was a delicate operation requiring a light touch on the wheel or tiller. His sails were always full, yet never too full, nor were they trimmed down too flat. He came about so skillfully that his boat never seemed to spill its wind but kept going.

Nevertheless he had lost seconds rounding the marker, and he mourned them. He had hoped to come abreast of *Planet*, but now he was unable to. *Planet* had put a hundred more feet between herself and *Sprite*.

However, before the race was finished Nat managed to recover some of the lost ground, and although his rival crossed the line ahead, he did not do it with enough margin to offset the time allowance his larger *Planet* had to give the *Sprite*. John's boat was declared easily the winner therefore.

Until he built another boat, *Sprite* remained the fastest sailer on Narragansett Bay. John and Nat accepted their success with characteristic Herreshoff composure, their minds already set on future goals.

The victory did not hurt John's prospects as a builder. He became known in the locality and began turning out rowboats and skiffs for the trade. They were so well constructed that he got all the orders he could handle.



The Herreshoff boatshop in the Old Tannery, Bristol

The Old Tannery buzzed with activity. He was employing more boatbuilders and getting occasional assistance besides from his father and Nat. He was beginning to make profits.

In the meantime, Nat started high school. He was thirteen; striding out of childhood. Always quiet, determined and furiously concentrated on what he was doing, his eagerness now for work which grew always more interesting, at school, in John's machine shop or in the Tannery, kept him at a burning pitch of excitement. The expenditure of so much mental energy coupled with the sudden growth of his young body made him ravenously hungry most of the time. Julia Herreshoff was used to the devouring appetite of teen-aged boys, but Nat's thin, nervous frame grew tall without filling out, no matter how much he ate.

"Patsy will have to bake again, Ma! I know where half the muffins go anyway. Nat ought to have a nose-bag tied around his neck. He eats like a horse!" Caroline, indignantly inspecting the larder, always found empty bread tins.

Nat was beginning to make independent experiments now that the machine shop had four lathes. One of his inventions, completed when he was sixteen, was a small rotary steam engine of an entirely original design. Already he was anticipating future developments, for seventy-five years later this type was to be used on model airplanes. The habit of coming home directly school was out to labor on his own or John's projects was never broken. Meantime, John modeled two or three new

sailboats with his father's help. It was Nat, always, who laid down the lines and did the paperwork for him.

As soon as they were launched, it was Nat also who sailed these boats. His seamanship increasing with each year, he won race after race. By the time he was fifteen his fame as a helmsman had spread. Every summer he was asked to act as sailing master on well-known yachts wherever races were held.

While still a youth he thus became familiar with all yachting areas between Boston and New York. This was valuable knowledge to a future yacht designer who must take into consideration the weather and seas prevailing in the localities where his boats would operate.

Looking back after a lapse of one hundred years, it is impossible to say what proportion of races Nat won. The demand for him as a helmsman continued as long as he had time and inclination to give to the sport. But despite his skill in racing, there was something much more compelling in Nat which forced him to create.

He had begun at last to model boats of his own. There exists a half-model Nat designed when he was fourteen. It is typically a boy's small boat, but the harmony of its lines satisfies the eye as a fine drawing does, or a beautifully proportioned vase.

The *Popasquash,* a catboat, and the 25-foot sloops *Fanchon* and *Ariel,* were successful boats designed by Nat and built in the Old Tannery when he was sixteen. And then, in Nat's mind a new shape began to emerge that would rival them. No boat he had yet modeled so haunted him. Her line from bow to keel — the line

that would cut and thrust her forward — was a flowing curve. This purity of line, most of it under water, was to be a feature of all Nat's boats. The secret of the beauty inherent in his work lay in his strict obedience to the science of his craft. Nat strove only for unerring performance and efficiency. Inevitably these resulted in beautiful proportions.

His genius was asserting itself at the same time that John's boatbuilding matured into a real business. At twenty-two John had so much work that it was worth his while to own a sawmill where especially selected timber could be cut into planks and beams to his requirements. He took a partner and employed a number of men. The card he had printed announcing his new venture shows that blindness had not robbed him of self-assurance and enterprise. It read as follows:

HERRESHOFF & STONE,

YACHT AND BOAT BUILDERS,

BY STEAM POWER.

Yachts and Sailboats of all sizes, built to order at short notice, with special reference to SPEED, COMFORT and SAFETY, and warranted equal or superior to any others, as to style of model and construction. Also,

SURF BOATS, QUARTER BOATS, SCHOONER'S YAWLS, CLUB BOATS AND ROW BOATS,

OF ALL STYLES AND SIZES.

Boat Lumber on hand for sale. Logs sawed and Lumber Planed to order.

BRISTOL, R. I.

JOHN B. HERRESHOFF. DEXTER B. STONE.

Dexter lasted two years. Perhaps he found the pace set and the exacting Herreshoff standards trying. Many people did. John did not really need him. He carried on by himself after Stone left.

Nat didn't talk much about the new model on which he was working. He was silent about things he cared deeply for, and he had no difficulty keeping this plan to himself for the Tannery was a beehive of activity, with John so excited and busy with his new partner that he forgot Nat — except when he needed him to design a sail plan or to do something at which his younger brother was more expert than anyone else. Nat and his concerns were pushed into the background by more than John at this time.

Disaster had struck the Herreshoffs again. Julian, the youngest, had gone blind. He was only a child when he lost his sight. It was going to be harder to educate and fit him for life than any of the others. Nat's mother aged noticeably under this last blow. Inevitably she freed the able-bodied among her sons now, to fend for themselves. They were competent men before their time anyway. Sally, Lewis and Julian needed every minute she could spare. Nat, solitary by nature, never noticed the altered family relation. He was just entering a world of his own into which he would penetrate more and more deeply as time went on, and in which he was supremely content. He was never to need people badly again, except as they touched his work or were necessary to it.

It was some time before the boat from his new

model could be built since John and his workmen had previous commitments that filled the Tannery to capacity. However, two years later, the *Violet*, as Nat named her, floated on the bay, her grace mirrored in the sunflecked water.

Now she must be tested, and no better challenger existed than the latest Julia designed by his father. Nat had waited so long for this moment and his faith in his boat was so strong that he never doubted the outcome. But this trial race was Herreshoff against Herreshoff. His father no longer regarded Nat as a boy. He was eighteen and a very stiff competitor. The older man, quite properly, was keen to prove the worth of his own design. He used every skill he had and won the race.

Nat was stupefied. The shock of his first failure shook his confidence to the point of despair. He was numb under it and under the necessity to accept defeat like a gentleman.

"You sailed a fine race, sir — *Violet's* no good."

The effort the admission cost showed in his face and Charles Frederick Herreshoff noticed. He looked at his son in silence a minute.

"Why, Nat," he said slowly, "*Violet's* not broken in yet; give her a chance."

Nat turned away without a word. He went directly to his room where the half-model of *Violet* hung in the place of honor on the wall, above his other models. He took it down and went out to the old shed where he had dreamed before and helped John build the *Meteor*. It seemed a fitting place to kill a vision which had de¬

ceived him. Taking an axe, he hacked the model of *Violet* to pieces.

"No boat will ever be built from you again," said Nat, when his act of destruction was complete. The axe dropped from his hand. A great sob choked and shamed him. It had given him no satisfaction to wreck his model. Nat strode back to his room.

In the museum in Bristol which now houses all the models designed by Nathanael Greene Herreshoff, that of *Violet* alone is missing. The boat herself, Nat could not destroy. She was sold and won many races for her owner. Nat learned that he had judged her hastily. The incident taught him patience. He never again condemned a boat until she had been thoroughly tested.

CHAPTER 8

THE PROFESSOR of analytical geometry at the Massachusetts Institute of Technology had had no personal contact with the quiet boy who sat a little aloof from the others in the last row; who took no part in the discussion but listened attentively, and passed in papers that were not only neat but accurate. His diagrams and figures were beautifully precise. The instructor labeled him (when he thought of him at all) as one of those students who make excellent draftsmen and remain draftsmen.

When the boy approached him rather diffidently after class one day, he suspected he hadn't understood the problem for that morning, involving a certain curve. It was the most complex lesson since the beginning of the term.

"Yes, Herreshoff?"

"I was specially interested in today's lecture, sir, because I used that curve once, in constructing a small rotary engine."

"You constructed an engine? Where, may I ask?"

"At home. I used that curve in making valve settings."

"You did! It hasn't been applied that way before — to my knowledge. Here — explain how," and he shoved a piece of paper in front of Nat. Nat sat down, and while he explained, drew a diagram quickly and surely.

A few sharp questions came from the older man. The boy's answers were unhesitating and lucid. He evidently had a tongue in his head when he wanted to use it. At the end of Nat's demonstration the professor paused, then asked: "I suppose your engine operates?"

Operates! Nat stared. Wasn't John using it at home?

"Yes sir," he answered.

"Good. A nice piece of original work, Herreshoff. I shall expect a little more vocal expression from you after this." The professor turned to another student before Nat caught the twinkle in his eyes.

A few days later, young Nathanael Herreshoff received an invitation from President Rodgers of M.I.T., inviting him to exhibit his engine before members of the Society of Arts, which held its fortnightly meetings in a building of the Institute. Somewhat stunned by this attention, Nat asked the family to send on that little engine he had made two years ago in the machine shop. For some reason or other they were interested in seeing it at M.I.T. He hoped John wasn't using it at the moment. He would send it back as soon as possible.

Nat's letters were as brief and uncommunicative as he was. It took another Herreshoff to read between the lines that the occasion was important. His father saw to it that the engine left Bristol promptly. Shortly after

its arrival in Boston, an outwardly cool but secretly elated freshman demonstrated the engine he had designed when he was sixteen to a group of outstanding scientists and engineers. He was applauded. Complimentary things were said that wakened a new desire — to excel in mechanics.

The born artist and craftsman in Nat had never really needed to be taught. An innate sense of proportion ruled his eye and moved his hand. But science he had to learn as others learned. Even his inherited taste for mechanics was not to spare him the discipline of study. Science was the branch of his profession which offered him the greatest challenge and engines were to fascinate him all his life. Fast power yachts were an exciting new development. Far from sharing the traditional contempt of sailing men for vessels propelled by motor, Nathanael Herreshoff took as much pride in the steam yachts he built as in his longer remembered and far more beautiful sailing craft. As the years passed and increasing rheumatism — the result of constant exposure to cold and wet — forced Nat to take better care of himself, his own steam yachts enabled him to get on the water with greater comfort.

Nat remained three years at the Institute of Technology. He had gone there for a special course. When it was over he was twenty-one and equipped to earn his living. He applied at the Corliss Engine Company of Providence, Rhode Island, for a job. They were the foremost engine builders of the period. Employed first merely as a draftsman, he was soon chosen for the re¬

sponsible work of inspecting and adjusting immense steam engines and mechanical pumps after they were installed by his firm in factories and big cities.

His days were now wholly devoted to the Corliss Company, but evenings and Sundays were spent in some form of boat work. Someone had to keep modeling the yachts John built. Since the *Sprite*, John had himself modeled six more boats with his father's and Nat's help, but without sight, he could do little more than repeat remembered shapes. The culminating satisfaction of creation was missing for a blind man. Unable to see his finished product, John never experienced the sense of completion which replenishes. He faced this fact with customary courage. The yard must be his life.

Its standards of workmanship were already attracting enough attention so that his business was beginning to expand in unique ways. Very few builders, for example, could advertise their boats as built by steam power. The old hand method, much slower and not as efficient was still prevalent. Moreover, John knew his business would continue to expand as long as the inventive genius of two brothers was at his disposal.

One of these brothers was James, already a well-to-do man through his invention of baking powder and continuing to experiment for his own amusement. Some of his inventions he dropped before they were perfected, others he lost interest in as soon as completed and never marketed them. But he contributed several innovations that helped John's business. One of them was an anti¬

fouling paint, another was a sliding seat for rowboats which is now universally used in racing shells. With Nat, he developed a successful coil boiler which was to be the lightest steam generator of its time. James was the most genial of the Herreshoffs and a very handsome man. One of the most eligible bachelors between Newport and Providence, he was soon to marry.

As for Nat, marriage never entered his head at this period. At twenty-four his time and his thoughts were completely absorbed by engines and boats. His few acquaintances were yachtsmen or engineers. He had not seen Clara DeWolf since he had begun work for the Corliss Company, although she was one of those neighbors who came to the house regularly to read to his blind brothers and his sister Sally. She did not come week ends when Nat was home. It was by mere accident that, entering the house one Sunday afternoon after a sail, he came face to face with Clara on the stoop.

"You don't remember me," she declared, laughing at his complete lack of recognition.

Nat made no attempt to deny it.

"I'm Clara DeWolf."

Nat's glance was fleeting, but his eyes that missed no detail of a boat could not help noting that Clara had become beautiful at nineteen. No social instinct prompted him to comment either lightly or pleasantly on this interesting fact, however. If she had been a valve or a cylinder he would have found something appropriate to say.

"Have you got that knife still?" asked Clara.

"Knife?"

"The one you thought you lost when your brother's boat capsized — oh, years ago."

He dug into his pocket and showed it to her without a word. It was the right thing to do anyway, for she smiled.

"I hear about you from my brothers. Everyone uses those measurements you made for the Boston Yacht Club — the tables that give the correct time allowance for every sized yacht in a race. I'm told it was a mathematical stunt and that you did it when you were only a freshman at M.I.T."

It should have been Nat's turn to smile. Instead he scowled with embarrassment. "Oh, well — I've done harder things — " he heard himself stammer, and felt Clara's eyes scrutinizing him with quiet amusement. He wished he could sink that remark in the bay!

To his immense relief, Clara's mother came out of the house just then with his parents. Conversation became general and the DeWolfs left almost immediately. Before their carriage was out of the drive Nat was leaping upstairs to his room, Clara forgotten.

On his drawing board he had started laying down the lines of *Shadow,* a sloop he had modeled two years ago. Her wineglass shape was a compromise between the straight-stemmed English cutters that pushed their prows through the water and the American skimming-dish type of bow that slid over the surface. *Shadow*

carried her ballast low, a fact which threw weight behind her speed. Her bow was shallow up to a certain point, then it curved downward, joining the keel in a graceful flowing line. None of these new features could be detected above the waterline, but they were mainly responsible for the one hundred and forty cups *Shadow* was to win later for her owner.

Besides their shapes, there were always other winning factors in the boats produced by Nathanael and John Herreshoff. The sails which drove them received meticulous attention. These were designed by Nat and as perfectly cut and sewn (from the best materials) as a long line of old-time Bristol sailmakers could make them.

Two years later, Nat was so outstripping his father that he was doing all the designing for John's yard. This included the designing of small steam engines, a fulltime job in itself, accomplished on top of his working week for the Corliss Company. He was doing what he liked best and thought very little of the pace he had set himself, until a slackening of ability to concentrate startled him.

The family advised him to take a vacation. It was long overdue. John's yard could better spare him for six months now than later, when he might need a longer period of rest perhaps, his father pointed out. He gave in finally, but it was a wrench. James was in the middle of enthralling experiments with a coil boiler.

Lewis and some cousins were in the south of France

and he was urged to join them. The ocean crossing would be his first. Nice was on the Mediterranean and there was so much salt water in the picture that Nat grew almost enthusiastic. In February he sailed on the German liner *Goethe* — a steamer with auxiliary sail.

Immediately he was on board he started a log.

"Steamer left dock at 2h.40m. Passed Castle Garden at 2-55. Engine 46 rev. Passed S.W. Spit at 4h.5m. Engine 50 rev."

The split-second departure of the pilot was duly set down, and the rigging and lines of the smart pilot boat which took him off. After numbering the passengers, Nat listed the ship's menu for supper, a concession to appetite which showed he was already recovering. He turned in at eight o'clock, but not before noting the weather: "... wind W.N.W. strong, sea beginning to make up but ship quite steady. Engine 52 rev."

In his cabin he found a thermometer. He would have preferred a barometer, but it was an instrument anyway. "Thermometer in state room 45 degrees," Nat ended his recordings for the day, and dove shivering between the blankets, satisfied he had not omitted a single item of real interest.

Next morning Passenger Herreshoff did not wait for a guide to the ship's engine room. He arrived unannounced and displayed such tender concern for the proper functioning of each cylinder, piston and crank that the chief engineer ushered him without ceremony up the ladder again.

He was "driven" out of the engine room the first day,

Nat wrote in his log, "and they pretend not to understand English, so I cannot get much information."

Above decks it was different. No one objected to his minute inspection of the vessel's deck planking and plates, her smokestacks, masts, rigging, sails, stanchions, davits, lifeboats and finally her propeller.

"The propeller," estimated Nat, "is 19f. dimension and 27f. pitch, making 52 rev. per minute; without slip it would go ahead 27 x 52, equals 1404 f. per minute. Taking her speed at 12.8 knots or 1281 f. per minute the ship $1 - \frac{1281}{1404}$ equals .088." A thoroughly satisfying computation!

The culminating satisfaction of the crossing would have been counted a mixed blessing to anyone but Nat. The ship's bell was located directly over his bunk. It is a "comfort," he wrote, to hear it "ring out its half-hour and hour of the watch while I lie awake."

Considering he was denied the privilege of probing the *Goethe's* vitals, time passed more rapidly than Nat would have believed. Arrived in Paris, he stayed only briefly. Paris lacked two essentials; a harbor and shipping. However, he gazed dutifully at pictures and statues in the Louvre and then spent two hours of unalloyed happiness in the city's pumping station.

At Nice the blue Mediterranean shouted a welcome and Nat's interest picked up. Noting his hardly disguised boredom during enforced lounging on beaches and visits to local spots of interest, his cousins, the Eatons, wisely left him to his own resources and, perhaps

not without design, showed him the sailboat they had bought from a local yard.

"What a mess!" exclaimed Nat and promptly went to work on it. The smell of paint and varnish was so reviving that the job was too soon completed. Whereupon he started a little project of his own which he had been nursing ever since they had taken him to see the torrential river Var, which rose in the Maritime Alps and cascaded into the Mediterranean. The net result was a small double-ended kind of kyak which he christened *L'Ondo,* and in which he intended to shoot the rapids.

The Eatons were skeptical and the local people said he was out of his mind, but Nat was twenty-six. Everyone agreed he was old enough to drown himself if he chose and so *L'Ondo* was transported by oxcart to the place he had picked. Shooting rapids when you have never done it before and meeting a heavy surf at the finish of the trip is likely to make every other kind of boating seem tame. The headlong descent almost shook Nat out of his phlegmatic calm, but not quite. *L'Ondo* shipped hardly a drop of water — a matter of gratification to her builder and of considerable astonishment to his critics.

Having successfully broken local precedent, Nat turned his attention to a new scheme which seemed almost as crazy to his European acquaintances. He meant to take a blind brother on a cruise to Marseilles, and from there up the canals and rivers of Middle Europe to Holland. "We'll build a special boat for it," he told

Lewis, and that word "we" opened a door for a sightless man and led him out of the unbearable limitations he had endured ever since he had left Bristol.

Lewis had occupied himself in Nice, studying languages and music — but all study was a struggle against frequent discouragement and great odds. The Eatons were invariably kind — everyone showed him extreme consideration. That was part of the horror the blind had to endure. At home no one made that mistake.

Several weeks later the *Riviera* was finished with the help of a local carpenter. She was a seventeen-foot V-bottom sloop not much sturdier or bigger than a skiff.

"I want you to get a priming coat on her this morning," Nat said to Lewis, linking his arm through his and walking at a brisk pace. "No time to lose — every day counts now." Guided to the scene of operations and provided with everything he needed, Lewis was then left to figure out the manner of his accomplishing this task. It was remarkable how much ingenuity you could develop when no one was around watching you. Nat meantime had gone back to the house to cut the sails and show the Eatons' Italian seamstress how to sew them up.

A few trial sails were taken in *Riviera* for skipper and crew to get used to her idiosyncrasies. She was not without them, and could be capsized without half trying, owing to shallow draft and oversized sails — all designed to speed her through inland waterways.

They started for Marseilles in mid-July, towing *L'Ondo* which they hoped to sell on the way. The Eatons and their Italian friends, including children,

nursemaids and servants, saw them off. It was a noisy farewell punctuated by gesticulations and many appeals to the saints. Marseilles was at least one hundred nautical miles down the coast. "Santa Maria! In that cockleshell — and one of them blind. The foolhardy Americans!" The populace on the fringes of the group shrugged their shoulders as the *Riviera's* large sail filled and pulled the frail boat out to sea. In half an hour she was a mere speck on the horizon.

The first night was spent on a beach under a tent they had brought. The camping site smelled of seaweed. Mosquitoes devoured the two mariners. "Everything very comfortable," Nat wrote cheerily in his diary. There is no record of what Lewis said.

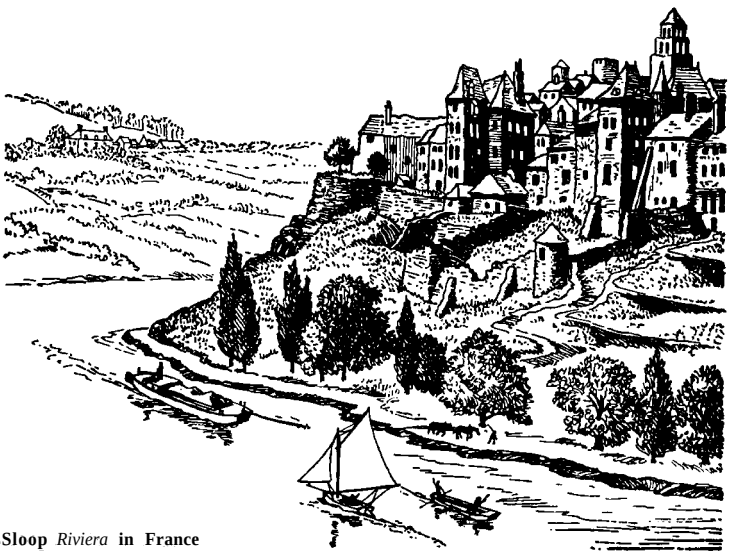
At St. Raphael the next day, however, they decided to put up at a hotel, and there they made their only attempt to sell *L'Ondo*. After Nat demonstrated how easy she was to handle, the hotelkeeper became the first prospective buyer. He stepped aboard her confidently and capsized her in three minutes flat. The hotel staff and guests who had been interested spectators hooted joyfully and there were no more enthusiastic bids for *L'Ondo*. As she was a hazard to tow in the open sea, her builder and designer shipped her ahead to Marseilles.

Encountering what Nat called "reefing winds, squalls and calms" and what local sailors would probably have called the "Mistral," the *Riviera* proceeded down the coast. To be prepared to meet the caprices of Mediterranean weather, disconcerting to a foreigner, Nat had only himself to rely on. Lewis had sailed a good deal

in his boyhood. The motion of the boat told him much about the sea. The wind he could feel. Thoroughly familiar with the routine handling of a sailboat, he could do everything that Nat required of him provided it was within his reach. But for shortening sail at quick notice, for keeping a sharp lookout for squalls, currents and channel markers, he was no help.

Nat, like any experienced sailor, enjoyed the challenge, while Lewis was too pleased to be a part once more of the buoyant rush of a fast boat to care what happened. He was an expert swimmer anyway.

The *Riviera* soon vindicated her light, narrow hull and huge mainsail. She raced past everything they met under sail, from big coasting vessels to fishing smacks,



Sloop *Riviera* **in France**

"beating them shamefully," Nat boasted in his diary. Her run one day alone was seventy miles. At Marseilles the method of travel changed. Through inland waters, with occasional short trips by rail to connect with other rivers or canals, they eventually reached Rotterdam. On the way, Nat inspected industrial plants, studied local shipping and visited naval yards. Lewis's gift for languages came in handy on this leg of their journey and it was at this time too that Nat first saw screws instead of nails and rivets used in boatbuilding — a European method he was to introduce in America.

In provincial villages Nat and Lewis caused almost as much astonishment as a traveling circus. Curious peasants, their sabot-shod feet clattering on the rough roads, ran after them, begging for a closer look at the mysterious rubber-soled tennis shoes in which the strangers padded so silently. Contrary to the experience of most Americans traveling then in Europe, Nat and Lewis were never overcharged or pestered by beggars. The populace decided rightly that they were something special — a kind of aborigines. Like nomads they ate and slept outdoors in their small uncomfortable boat. Their luggage was nonexistent. They ordered no wine but drank water with their meals — a sign of poverty which provoked pity. And "Nom de Dieu!" one of them was blind! If the natives hadn't been poor themselves they would have taken up a collection.

Transporting the *Riviera* on a channel boat to England, the two young men next explored the Thames, between hours of sightseeing in London. The happiest

incident of Nat's entire vacation was the purchase in London of Scott Russell's work on naval architecture. In London he also had made a special logarithmic slide rule. These he shipped back to the United States. At Liverpool they boarded the *City of Brussels* for home, rowing out to the liner and superintending the hoisting of their boat and its stowage on deck.

On September 22 the *Riviera* was lowered into the waters of New York harbor. It took them only a few minutes to board her, raise their sails and be off, but not before an outraged customs official became aware that two passengers had eluded him.

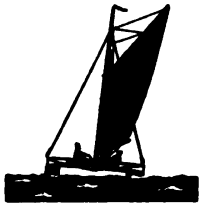
"He called to us from the dock to come back," said Nat on the final page of his diary, "but we didn't."

They were in a hurry to get back to Bristol. In the East River they found the tide fair and the wind light, so they passed their line to a friendly towboat which quickly pulled them through.

Now the loved, familiar waters of Long Island Sound lay ahead of them, chalk-blue in the hazy autumn sunlight. They grew terribly impatient during the next two days because light airs continued, slowing their journey home. Then suddenly, on the third day, "off Hatchett's Reef," wrote Nat, "we saw several little puffs of smoke to Eastward and presently made out a little steamer which proved to be '*Vision*,' built by John and having James's first practical coil boiler and a single 3 1/2 x 7 engine designed by me." It was the coil boiler James had been working on when Nat left.

Like shipwrecked waifs the returned travelers waved

their jackets and shouted frantically. Half an hour later they were being heartily slapped on the back by John and James who had come to meet them. The *Riviera's* sails were lowered and she was taken in tow as they headed east again. In Fishers Island Sound, where they sighted the *Julia,* there was a second hilarious family reunion. Lewis transferred to his father's boat and the Herreshoff flotilla continued up the coast to Bristol. Nat's vacation — his first and his last for many a year — had been full of interest. Just the same, he was glad it was over.



CHAPTER 9

THE BROTHERS and sisters to whom Nat returned after his trip abroad were grown men and women now. Caroline and James were married and Charles had been living for some time with his uncles on Popasquash Neck. Of the six who remained in the home circle four were blind and two were extraordinarily gifted. Francis Herreshoff, Nathanael's junior by two years, was just beginning to make his reputation.

When he was eighteen, Francis had become Assistant Professor of Chemistry at Brown University. But big industry, needing young men of his caliber, offered him greater fields of usefulness. He was to win high honors in metallurgy and chemistry, running Nathanael a close race in achievement in his chosen profession.

Nat's three blind brothers and a blind sister were all talented and resourceful. Sally had by this time made a life for herself corresponding with other blind people, inspiring them with the example of her own courage and initiative. She had taught herself to write on the typewriter and the Braille Writer with facility; she

knitted constantly for friends and for charity and found rich rewards in music study. Julia Herreshoff's valiant efforts to educate her blind children were yielding returns.

John's boatbuilding had grown from very modest beginnings into a continually expanding enterprise. He had more business acumen than any of his brothers. Lewis sought outlets for his great physical energy in long-distance rowing (while others steered). Loss of sight never stopped his interests. He was a good linguist and pianist and his knowledge of yachting enabled him to become a regular contributor to a well-known sports magazine.

Julian, like Lewis, showed a marked aptitude for music and languages. After studying at the University of Berlin, he established a successful music and language school in Providence and was active in real estate besides. Julian's amazing competence, and John's, were largely responsible for the Bristol legend that the feats of the blind Herreshoffs were more notable than those of their brothers.

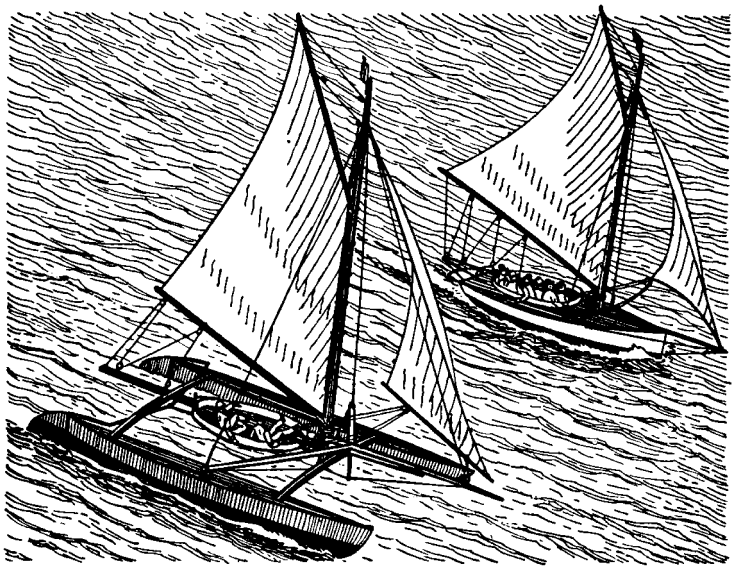
Nat had returned to the Corliss Engine Company. They allowed him long vacations now which he spent in John's yard, developing better methods of construction. He was the first to build boats upside down. Profiting from what he had seen abroad, he began to use screws for plank fastenings instead of rivets and nails. He obtained leave from business also to race John's newly built boats. Rapidly increasing orders for steam launches and steam yachts kept John's yard very busy.

It was a new trend which could not be disregarded. The number of sailboats he built dropped proportionately.

Nat not only did all the modeling and designing for John but found time to entertain himself on the side by experimenting with catamarans. These double-hulled boats, fast, and tricky to sail, were a fascinating problem in nautical design. His mind had been playing with the idea all during his European trip.

His first catamaran he called *Amaryllis.* Her twenty-five foot hulls were fastened together by light cross-beams and a skeleton framework into which the mast was stepped. One rudder controlled both hulls. A shallow cockpit, called a "car," extended about sixteen feet aft from the mast. She was sloop-rigged and carried an exceptionally big jib. Her designer had discovered that in a stiff breeze, when she heeled, the pull of her submerged hull prevented Amaryllis from coming up into the wind as obediently as she should. By using an oversized jib and slacking it suddenly at such times, he offset her tendency to a lee helm. After *Amaryllis* was well tested he entered her in the big Centennial Regatta staged on "Centennial Year," when the country celebrated one hundred years of American independence.

Amaryllis created quite a stir when she appeared off the Battery in New York harbor where the race was to start. The course lay downstream to the Lower Bay and back. The Racing Committee found it difficult to classify Nat's strange-looking boat. They assigned her finally to a mixed group consisting mostly of "sandbaggers," the fastest boats for their length in the world.



Catamaran racing "sandbagger"

The race started in light airs, which was a disadvantage to a catamaran. Two hulls offered more than normal resistance. *Amaryllis* was soon passed by a number of fast boats in Nat's class. The crews on "sandbaggers" were notoriously a tough set, and these were no exception. Their joy over his predicament was unrestrained.

"Get off the course!"

"Didn't you know — this race is for boats!"

"That crate'll fall to pieces, if she ever gets to moving."

They were gone finally. Nat had a weather-wise instinct that was as reliable as a barometer. What the weather signs foretold he never divulged to competitors. He sat poker-faced now and waited. After a while, dark ripples appeared on the horizon, where he had been ex¬

pecting them. They were the advance guard of a real breeze. When the wind struck *Amaryllis* on her quarter, just where Nat had figured it would, she leaped to the chase like a hound unleashed. Streaking after her class, she overtook it. Then she sped on. Passing boat after boat, she ran through the entire fleet. Skippers swore and crews gaped. The Centennial Regatta was won by Nat in his "crate," to the discomfiture of some ninety contestants.

Nat went on experimenting with catamarans, changing their rigs and lengthening their hulls. While they could be very wet in certain types of weather, when waves struck the cross braces, he demonstrated that it was possible to cruise in a catamaran with comfort. In order to enter one of them in a regatta at Newburgh, he sailed it down the Sound, through Hell Gate and into the Hudson River. At night he raised a tent over the "car" or cockpit, thus providing dry sleeping quarters.

Nat wrote an account of this cruise in 1877 for the sports magazine *The Spirit of the Times*. In his article he described the *Tarantella's* seaworthy qualities, including her ability to ride high seas. "... the sails are so large compared with the whole weight," he explained, "that I really believe '*Tarantella*' would climb the side of a mountain if her element would only arrange itself in the position of one."

Tarantella's passage through turbulent Hell Gate currents, never easy to negotiate under the best conditions, was a feat for both catamaran and helmsman. "Found ourselves at Hell Gate at 10 a.m.," wrote Nat,

"with the lightest and most untrustworthy of breezes from the S.E. and the tide at half flood. However, we put her to it, and by good luck, and that ability of hers to go upstairs, we got through and finally anchored in Gowanus Basin."

Nat's catamarans sailed very well to windward, although in what he called "headlong free wind sailing" (wind aft of the beam) they attained a spectacular speed. Given a good whole-sail breeze, *Tarantella* could beat to windward faster, by a mile an hour at least, than any sailing vessel afloat, he claimed.

Other boatbuilders began to experiment with catamarans. Some of them put cabins on them, an innovation Nat had no use for. "The catamaran," he insisted, "should be preserved always in its pure form, 'tis a light, airy, fantastic machine for flying and floating, and if one attempts to inflict a cabin on her all the lightness is gone."

It was, in fact, sometimes difficult to keep a catamaran from soaring into the sky. On his homeward trip from the Newburgh Regatta, the wind at one time freshened so sharply that Nat had to reef both jib and mainsail. Even under this shortened rig, he said, "the '*Tarantella*' flew along at more than steamboat speed. Now and then a more than usually strong flaw would strike her, upon which her bows would be lifted in air, like the taking flight of a great bird who was uncertain which to make her favorite element, the sea or sky."

Nat felt deeply the poetry inherent in his craft, though he never spoke of it. While he appeared

to be engrossed with engineering technicalities, his artist's senses were drinking in the swift, invisible flow of wind and water that speeds a boat onward. To all his models he gave the beautiful fluidity of line he discerned in moving currents of sea and air.

He seized every chance to pit his catamarans against the fastest water transportation. Given the breeze he needed, a quartering wind, he had beaten the Fall River steamboat more than once. But the Providence boat, *Richard Borden*, was the fastest on Narragansett Bay. One afternoon in late September, the wind chanced to blow exactly right in strength and direction and there was time to catch the *Richard Borden* on her way up the bay.

"I lay in wait for her," Nat wrote, "as she was making her daily trip to Providence, and pounced on her off Popasquash Point. I passed her with the greatest ease, and at Rocky Point I was full half a mile ahead, notwithstanding the breeze, which over the last part of the course became quite moderate."

These unheralded races between Nat's catamarans and Narragansett steamboats became local legend. Captains accepted his challenge with a blast from their whistles and signalled "Full speed ahead," while passengers, leaning over the rail, thought it worth the fare just to see the phenomenal speed at which these queer Herreshoff boats flew before the wind. News of them traveled beyond Bristol, and news about John Herreshoff's yard was always worth hearing. There was, for

example, the Herreshoff-built boat *Estelle*, which posed a problem for the United States government.

On a May morning in 1877, there was delivered to John a letter from a New York lawyer, containing an order for a steamboat larger than any John had yet built. The vessel was to be a fast cargo boat, one hundred and twenty feet in length. She must be equipped with a swift and powerful engine. The lawyer was in great haste to get her. In fact, he offered a sizable bonus for quick delivery.

"I can't afford to turn this down, it's the biggest thing that's come my way," John discussed his difficulty with Nat, "but I simply haven't a shed large enough, nor the machinery to construct so big an engine."

"Don't turn it down." Nat was immediately as eager as John. "The construction work can be let out to other people. Let Job Terry's yard in Fall River build the hull under our supervision. The Rhode Island Locomotive Works will build the engine. We'll have her finished by October."

"October! You're clean out of your mind. Why, no building can start even, till you've completed the models and drawings."

"I'll get leave from the Corliss Company for the summer and hire a draftsman to do the final paperwork. Begin work on the contract — there's no time to lose."

Nat was probably the only young engineer in Rhode Island who blithely told his employers goodbye — not to expect him back for six months. But the Corliss Company were glad to have him on any terms. He began

modeling *Estelle* right away. Once model and plans for the hull were completed, he started designing a special boiler and engine for her. Within one hundred and eighty days *Estelle* was finished and launched. This is an unmatched record for assembling a vessel of that size when parts have not been previously designed and manufactured. John's bonus was assured and he gloated over the profit which was to provide a comfortable backlog for his business. He was unprepared for what happened next.

One morning, shortly after *Estelle* was launched, the revenue cutter *Dexter* put into Bristol. Her commanding officer came to the Herreshoff yard and showed John his written orders not to let *Estelle* leave the dock. The New York lawyer was a false front. Secret revolution was already simmering in Cuba against Spain. The boat's real owners were Cuban insurgents.

Final payments on a boat were due after her trial run, when her builder had proved her performance satisfactory. *Estelle's* trial had not yet taken place. Not only had John and Nat burned up enough energy, initiative and skill to build three boats, but there was also the not insignificant matter of money John had advanced to the Fall River yard and the locomotive works.

The commander of the *Dexter,* amazed to find a blind man operating a successful boatyard, listened with interest to John's story of his transactions with the New York lawyer.

"Write an account of it to Washington," he advised. "Under the circumstances they may give you permis¬

sion to make your trial run and receive payment." Accordingly, parleys with Washington began immediately and John was allowed his trial run.

Estelle had her official tryout under naval guard, although the *Dexter's* commander and the men he took aboard with him were ostensibly friends and guests of the Herreshoffs. Used to trial runs, and quite prepared to see something break down or go wrong, the Navy watched the Herreshoff engine hit sixteen miles an hour for six consecutive hours without faltering. The commanding officer grinned as he congratulated Nat and John. "There won't be any argument about her performance, I guess," he said.

The pleased lawyer handed over a certified check without a word. But before *Estelle* could be delivered she was seized by the *Dexter* acting for the United States government. Eventually released for sale, she became a towboat operating between the mouth of the Mississippi and New Orleans. Like all Herreshoff boats, *Estelle* increased the reputation of her designer, by proving herself the fastest and most powerful tug in that area.

Nat had reached his thirtieth year. Up to now, he had devoted part of his time to the Corliss Engine Company and part to John's business. The division of labor limited him in both directions. His future required him to make a decision either to be a steam engineer or a yacht designer. In the field of commerce, steam engine prospects were brilliant and Nat was too much of an inventor not to be strongly drawn to the opportunities constantly

opening there. Even should he give up boatbuilding as a profession, the knowledge and experience he had gained need not be lost. Like his father before him, he could design and build his own boats as a hobby.

Julia Herreshoff was aware that he stood at a crossroads. She both anticipated and feared a choice which would be calamitous for a blind brother. Since Nat's return from Europe he had channeled most of his productiveness into John's business. John and his yard had been floated on the tide of Nat's successes to a position of prominence he could never have achieved alone. That tide was bound to recede abruptly once Nat's talents were directed elsewhere. Julia Herreshoff tried not to picture the consequences.

There were moments when, remembering Nat's inherited love of the sea and boats, she felt sure he would never choose any other occupation. But she must wait for him to choose and the waiting was difficult. She was glad when at last he brought up the subject himself, at a moment when the two of them were alone. He showed her a letter he had received recently.

"I've turned down other good offers. Perhaps I shouldn't do so again. The time has come for me to decide whether to go into industry."

His mother read the letter, then folded it slowly and returned it. She had detected a note of excitement in Nat's voice. It made her suddenly as concerned for him as for John. She was silent for so long that Nat studied her face.

"I'm glad for you, Nat, if this is what you want."

Overwhelmed by what his decision would mean, yet determined to be fair, she could say no more.

"What is it then — Ma?"

Now her chance had come, she could not tell him. She put her hand in his. They sat together without speaking. Julia Herreshoff kept her eyes on the sewing in her lap.

"You're crying, Ma," Nat said at last. "It's because of John."

She did not answer and he said no more. More was unnecessary between Nat and his mother. Of all her sons in that strongly knit family clan, he was the one closest to her. Nat made his decision then and there. Not many months afterwards, in the year 1878, he and John became partners and sole owners of the famous Herreshoff Manufacturing Company.

They called it a manufacturing company because they intended to build steam engines and boilers as well as boats. Steam yachts were in greater public demand than sailboats, for the time being. They were the fastest means of private transportation then available, automobiles being still unknown. With the exception of a few racing catboats and other small craft, the Herreshoff yard was to concentrate almost exclusively for the next twelve years on power-driven boats.

The partnership between Nat and John required a coming to terms that was not easy. John's ambitions had lured him into some admittedly rash practices. He had built a number of boats on speculation. However, they had all been bought, he reminded Nat. "When you

have no capital you *have* to take chances. No business would expand if you didn't."

But the narrow escape from heavy loss in the incident of *Estelle,* although not the result of recklessness, had given Nat a jolt not to be forgotten.

He shook his head. "If we go into this together it will be only under these conditions. All the company's bills must be paid promptly. There'll be no borrowing for expansion. The capital necessary for any undertaking will be in the bank first."

He saw disappointment shadow John's face.

Taking a chance and then making it succeed — that's about all the excitement left him, Nat thought. But the risks entailed never stopped John, once a project interested him. He might be reckless once too often.

"I can't do my best work if I have to worry, or even to think about finances," Nat told him. "That will be your end of it. I must know the business is founded on sound principles and you'll have to give me your word."

John nodded. "In your shoes, I suppose I'd feel the same way. Running the business is all I can do. I try to get more out of it than keeping the books straight." It was the only reference he had made in many years to the frustrations of being blind. There was nothing more to say. Each remembered a vanished boyhood, when it was John, the older brother, who made decisions and delivered ultimatums, and Nat who meekly yielded.

Nat reached across the table. "Is it a deal then?"

His strong grip comforted John.

"It's a deal."

John kept his word. He even went further. His contracts with yachtsmen required full payment before the sailboat was delivered. The price of a Herreshoff boat was high and some people thought the clause arbitrary. It undoubtedly alienated certain types of client who didn't know the Herreshoff reliability. But by now John and Nathanael could afford to be selective. Incorruptible standards of workmanship were for those who understood the value of what they were getting and had the money to pay for it. The enterprise throve on the prudent rules Nat laid down. They were rigidly adhered to. And as firms which supplied the two brothers with basic materials found they were paid promptly, they in turn sent them only the best. The financial success of the Herreshoff yard has been summed up by a son of Nathaniel in nine words: "They always made a dollar before they spent it."

Once incorporated, Nat and John plunged into the manufacture of steam engines and pumps for all sorts of purposes besides boats. Nat designed them and they were good. One engine, made for a chemical company in New York, ran night and day without stopping for an entire year.

Their first boat order, after they became a company, was the largest yet undertaken and came, strangely enough, from the Spanish government, as a direct result of *Estelle's* excellent performance, which Spanish agents were aware of. Only this time it was Spain ordering a swift gunboat capable of chasing and capturing Cuban smugglers.

John's yard had been from the first a place of interest to Bristol, because a blind boy was making good there and because the town had affection for the Herreshoff family and respect for their way of fighting affliction.

Now that same yard, with Nathanael pouring his skill into it, began to attract international customers. Strange new naval vessels called spar torpedo boats were being launched there. These early torpedo boats, designed by Nat for foreign governments, were fifty-eight feet long and six and a half feet in beam. They were light enough to be carried on board a man-of-war. The boats were double-ended — capable of being driven bow first or stern first. This meant they could be backed away quickly from their target. Added to that they were able to come to a dead stop within a few boat lengths and resume a speed of twenty miles an hour in a matter of seconds. Such maneuverability had never been heard of before. Designed to sneak up to an anchored enemy ship, they hurled their bombs, attached to long spars or poles, by hand at a vulnerable point below the ship's armored plates. The resulting explosion, close to the vessel's side, and given added power by reason of the pressure of surrounding water, was tremendous. Bristol was agog.

Of all the Bristol neighbors who watched Nat's achievements grow, Clara DeWolf was the most deeply interested, though she was careful to hide it. Nathanael Herreshoff was a talented but singular young man. She had about decided, since he so obviously preferred his work to her, to let him remain on his self-made island.

But Julia Herreshoff knew Clara's feeling could change to something warmer. She managed in her gentle unobtrusive way to bring the two frequently together. Nat was a source of worry to her. Nearing his middle thirties, he was becoming more withdrawn and self-sufficient every year. The acquaintance with Clara ripened gradually into friendship. Understanding Nat's fundamental shyness, his mother at last suggested that he ask Clara DeWolf to marry him. As she had foreseen, the proposal terrified him.

"Matrimony isn't as dangerous, you know, as those trial runs in your torpedo boats," she laughed.

Little by little, Nat got used to the idea. It seemed a very natural thing, finally, to tell Clara he hoped she would be his wife. Clara looked at him with her honest brown eyes, and said simply: "I've loved you, Nat—ever since I was six."

CHAPTER 10

NAT GAVE TIME and thought now to a very different sort of design — that of a home for Clara and himself. The site he chose on the Bristol shorefront was a rocky point situated near the boatyard which so completely absorbed him. He built his house as close to salt water as he could get it without planting it on stilts, and since it was not a boat, the architectural sins of 1883 were more visible in it than Nat's infallible eye for proportion. He gave his three-story wooden structure three gables, the inevitable square tower so much in vogue then, and an encircling veranda. It was painted a deep red — a favorite but unalluring Victorian shade, twice removed from magenta. On the tower Nat placed a metal weathervane — a replica of his private signal, which showed a red Maltese cross on a blue background. This cross had a connection with ancient maritime history. In their wars against the Mediterranean pirates, the Knights of Malta had always been the protectors of sailors.

Nat called his home by the old local name given the

point on which it stood — "Love Rocks." In time the house changed its color and expanded to make room for six children. On its treeless grounds Clara planted young elms. They grew tall, hid the stark outlines of the house and shaded it from the pitiless glare of the water. This planting was a symbol of the comfort she brought into Nat's life. Her even disposition and her smooth-running household with its contented inmates relaxed the tensions of high achievement.

Nat was hardly ever as sharply aware of his home, his wife or his children as he was of the work going on at the yard, or of some new model or design engrossing his attention. The habit of long and incessant labors was never really shaken off. This was an unalterable fact which those who lived with him had to accept. In his house two rooms were sacred to work. One was for drafting, the other was lined with his models and equipped with workbenches, lathes and every variety of tool.

His days varied not at all — or so it seemed to other people. To Nathanael Herreshoff they were packed with interest and excitement. He was up with the sun each morning, modeling or drafting in his rooms during the hours when his mind was most alert and his hands most obedient to his mind. After an eight o'clock breakfast he glanced through a newspaper or read an engineering magazine. Promptly at nine, or sooner, he went to his yard. Each department there had its own competent overseer, to whom Nat delegated authority but never the final word.

His first visit was to the big drafting room where three or four draftsmen were inking in his drawings or making larger working plans from his original penciled ones. The next visit was to John's office to find out what orders had come in and to discuss the morning's mail and the day's business. After that he inspected each part of the yard where work was going on: sail lofts, rigging lofts, blacksmith shops, foundries, lumber mill, machine shops and construction sheds.

The day was past when John's hands, with their blind magic, could travel over the work of a small yard and feel out the right or the wrong of what was being done. The Herreshoff Manufacturing Company was a plant now. It took at least a mile of walking and climbing stairs to cover its area. Only a pair of keen and knowing eyes could verify the precise performance of an engine, guarantee the correct cut and sewing of many hundreds of square feet of sail, vouch for each step in the building of many boats. Whether a big sum of money was involved or very little, Nat inspected each piece of work, answered countless questions and corrected faults and omissions before they were apparent to the less expert eyes of his workmen. He could tell at a glance whether the work was being done right.

Returning to "Love Rocks," he resumed his designing or modeling until lunch time. Again he took a half hour's relaxation, after which he repeated his meticulous inspection of the yard work. Not until five or six, when the yard closed, was the task of supervision finished. Nat went back to his own work for a short spell before

supper, after which came his usual brief rest and a final three-hour stretch in his work rooms. Then, and then only, Nat went to bed. For almost sixty years there was to be no let-up in this schedule, even on holidays or Sundays — except in summer.

To Nat's children, their father was a preoccupied quiet man whom they saw chiefly at meals. In summer, they sailed with him in the light cat yawls he designed specially for his family's use. The yawls were comfortable and safe, graceful as sea swallows and kept in the pink of condition by the yardmen. Only gradually could it have dawned on Nat's sons that these family boats which they took for granted, which he modeled with such affectionate skill, were the beautiful and rare playthings of a master.

As the children grew it must have been obvious to Clara that her husband's habits of concentration were going to impose constraints on the young in her family. In summers, and as time went on for longer periods, she and the children stayed at her old family place, the DeWolf farm, leaving Nat in contented possession of "Love Rocks," where he could smell the salt tides and hear their murmur on the ledge outside his windows. Away from water Nat was restless and unhappy. Many nights he escaped from the house to sleep on one of his boats.

But the farm was within easy bicycling distance of Bristol and Nat pedaled out there for the family meals which Clara planned and supervised as carefully and expertly as he did the building of his boats. There were

sure to be at least twelve people sharing the evening meal, mostly relatives and sometimes young friends of the children. Occasionally there were distinguished callers, drawn to the Herreshoff home by the achievements of their host and Clara's warm hospitality.

Edward Burgess was one of these. The Boston yacht designer was then at the peak of his profession. His Cup defenders, *Puritan, Mayflower* and *Volunteer,* were beating the British challengers from 1885 through 1887, when Nat was still concentrating on steam yachts. Burgess was born the same year as Nat, but while Nathanael was at M.I.T. he had gone to Harvard. He was a close friend of the Herreshoffs — an acknowledged peer, for whose work Nat had great respect.

Nat's real modesty was for his equals. It was not on display for clients who had the temerity to suggest changes in his models. These misguided gentlemen were told either to accept the Herreshoff model or leave it. One of them was the German Emperor. In 1904, Kaiser Wilhelm, although he already had a perfectly satisfactory schooner, coveted one made by the famous Herreshoff yard. The order was placed, but the Emperor, used to having his own way, suddenly demanded an alteration in the design. The change was unsuitable. Nat refused and explained why in language unadorned by diplomacy. Receiving no prompt reply indicating that the demand was withdrawn he then dropped the project. His Imperial Majesty was astounded when he discovered a few weeks later that he was now without

a Herreshoff yacht. No subsequent overtures availed him a thing.

By 1885, seven years after the formation of the partnership between Nat and John, both brothers were enjoying a good income and the yard was operating on a comfortable margin. Even Nat admitted that it was safe to speculate on a boat neither of them needed and which no one had ordered. In building fast craft for foreign navies, Nat's torpedo and vedette boats had outstripped all others. Such speeds were not available to private owners yet, nor to the general public, and Nat decided to design a high-speed yacht.

The Herreshoff yard had greatly increased its facilities and its employees at this time. Despite commitments it was possible to sandwich in a purely speculative project like *Stiletto,* ninety-four feet overall and eleven and a half feet beam. Her name suited her. She was long, very low in the water and slim as a blade. Nat was his own keenest competitor, constantly bettering his designs. Each new boat had an improved engine. *Stiletto's* enabled her to make a memorable trial run of eight hours' duration, going at an unbroken pace of twenty-six and a half miles an hour.

This was better than the *Mary Powell's* record. The side-wheel river boat had been operating on the Hudson for the past five years. She was known as the fastest boat in the country, and had earned herself the titles "Peerless Mary" and "Queen of the Hudson."

Very soon rumors leaked out from Bristol that the

Herreshoff brothers had launched a yacht which could equal the *Mary Powell's* speed. Word got around that *Stiletto* would come to Manhattan to race the three-hundred-foot river boat on June 10. Yachtsmen greeted the news with cheers. The general public thought the idea incredible but it captured everyone's imagination.

On *Stiletto's* trip down from Bristol, everyone on board but her designer grew restless. With Nat were one or two friends and a picked group of men from the yard. On the afternoon of June 9, *Stiletto* steamed unobtrusively up the Hudson and anchored off Twenty-second Street where the *Mary Powell* docked. The crews of the battleships *Omaha* and *Minnesota* eyed her as curiously as did the men on all the other river craft. Word of the coming race had spread and so had the most sensational rumor of all — that *Stiletto's* designer and builder was a blind man.

The crew of the *Omaha* saw *Stiletto* dwarfed by the huge *Mary Powell,* which lay complacently at her pier. They decided there was no use betting on the yacht.

"She ain't got a chance of winning. The *Mary's* three times her size."

"Great Scott and huckleberries — size don't mean everything!"

"Yeah gob — but if her engine's three times bigger, it's three times faster — see?"

"She'll split herself wide open just trying to keep up. There won't be any finish."

They fell silent, looking at *Stiletto* sadly but with admiration. The lower half of her topsides was painted

black, her topsides, in which fourteen gleaming portholes were set, shone a dazzling white. The contrasting colors cut her in two and emphasized her tapering shape. Brass rails and fittings flashed in the sun. The slight rake Nat had given her funnel and masts added a racy note. The Navy's sympathies were all for the yacht which floated like a toy on the broad river.

Next day, people began lining the New York and New Jersey shores. Boats were anchored all along the thirty-mile course to Sing Sing. Half an hour before two-thirty, when the *Mary Powell* was scheduled to leave her pier, *Stiletto* pulled up anchor and moved slowly upstream. At Thirty-fourth Street she idled, waiting for her rival.

"I suppose you're ready for the race?" a reporter on the dock shouted to a mate on board the "Peerless Mary."

"What race?" the man called back disdainfully.

Soon after that the "Queen of the Hudson" backed majestically into midstream. Her crew went about their business indifferently. Officers ignored the fact that numbers of passengers had bought tickets just to see the contest.

"When does the race begin?" asked one of them.

The purser feigned surprise. "Haven't heard anything about it, sir."

A few minutes later, however, he peered over the *Mary's* rail.

"Where is that durned little boat they're talking about — anyway?"

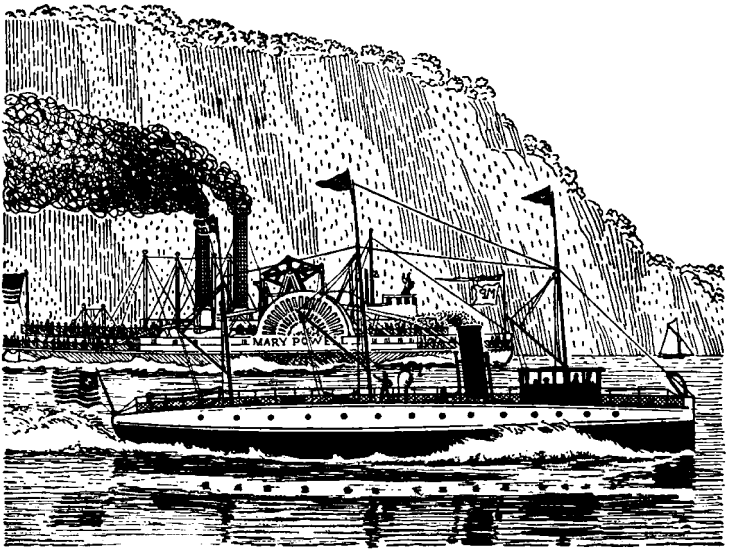
"Take a look," a grinning passenger advised, "she's right under your starboard bow."

Almost at the same instant the *Stiletto's* whistle shrilled. Nat had waited for the *Mary* to get well underway. It was his signal that the race had started.

The watching crowds heard. Field glasses were glued to a thousand eyes. For some miles the two contestants ran bow to bow. The river boat's engine thundered. Her mighty pistons rose and fell. Her wake was a foaming Niagara of churned water. *Stiletto* glided smoothly through the water, her bow wave a dainty translucent curve, the commotion at her stern barely visible. Spectators, waiting to see the yacht drop back gradually, thought it amazing that the two boats so unequal in size were so matched in speed.

In *Stiletto's* wheelhouse Nat steered impassively, his face expressionless, his eyes alert for every river buoy and twist in the current. One or two of his men stood by. No one spoke.

At last Nat's hand reached out and touched a brass handle. Below decks a bell jangled. He had signaled full speed ahead. People in other boats saw a silver jet spout suddenly and high from *Stiletto's* stern. She darted forward as though shot from a gun. Spurting ahead of the big river boat, Nat crossed her bow and then slowed down on the other side. He let the *Mary Powell* pass him. Yachtsmen who had begun to stamp and yell subsided with a groan. Those extra pounds of steam must have cracked *Stiletto's* boiler! Why hadn't Herreshoff waited for the final stretch?



Stiletto **beats** *Mary Powell*

But even as they asked the question, *Stiletto* started going again, like a thing possessed. This time she never paused. Crossing under the *Mary's* stern, she turned in a wide graceful arc, frolicked back to the big steamer just to say goodbye, passed her and was gone before the "Queen of the Hudson's" crew could shut their wide-open mouths.

For the next twenty miles the *Mary Powell* plowed up the water angrily in the rear. *Stiletto* was five minutes ahead when she reached Sing Sing. The *Mary's* Captain had the grace to whistle a salute.

Nat's race had been a magnificent piece of impudence and the New York papers joyfully recorded it on their front pages. In each story the "blind designer" was

given credit for having created the fast yacht. If Nat knew how often this error was made and spread, he never made any personal effort to correct it. Time and fact eventually catch up with rumor. It was beneath his dignity to care and he was too busy with his next project. Probably John and others who knew the truth denied the fable when they heard it. But a sensational legend dies hard.

Stiletto's victory was one more advertisement for the yard, and the Navy, always alert now to what Nathanael and John Herreshoff were launching from their ways, cast possessive eyes in the direction of this, their latest success. Not to be outdone by foreign governments, the United States had already bought *Lightning*, a spar torpedo boat, from the Bristol yard. She was America's first torpedo boat. By the time the Navy made overtures to buy *Stiletto*, Nat and John had had their fun with her. Nat redesigned her interior, fitted her out with a built-in torpedo tube, and she became the first boat to launch a self-propelled torpedo.

Each of Nat's achievements increased the pride of the workmen who shared his triumphs. The close to three hundred Herreshoff employees were a unique and congenial group. Most of them were either Masons or Odd Fellows. The yard had become more of a fraternity or guild than a business. It was usual for the men to team up after a yacht had reached the planking stage, both teams seeking to finish their side the sooner and the more expertly. Where several boats were being built from the same model they always competed in this way.

Shirking on the job was unheard of. So was the stealing of valuable tools from one another — a common practice in yards.

Forty years with the Herreshoffs was an average term of employment. Some of the men stayed longer. John and Nat were paying the highest wages of any boatbuilders. This fact, added to the master rating accorded those who had worked in the famous yard, was enough to attract and hold the best men.

"Captain Nat" was neither amiable nor easy to work for. Half the fascination he exercised over his force was his demand for perfection, the other half was his superior knowledge — the unfailing way he surmounted every engineering and boat construction problem. His accuracy had an element of the supernatural. At the Herreshoff launchings every yacht floated exactly as her designer had calculated her waterline. Herreshoff engines were built and installed without previous trial and performed exactly as intended. Proofs of infallibility multiplied month by month and year by year. The men had worked in other yards. They needed no one to tell them they were working under a genius. Watching Nat operate at close quarters was spellbinding.

John's gift to the organization was incalculable. His warm human relationship with the men was as important a contribution as his business acumen. Had he not been tragically handicapped in youth his ambition and ability might have made him as inhuman as Nat. But he had known the destruction of vaulting hopes, learned the futility of rebellion and faced a future of unrelieved

darkness. It was a continuing ordeal which taught him compassion.

In trouble, the men in the yard turned to John. Their family griefs, at worst, were easier to bear than his affliction. With John, the workmen knew they had an understanding friend. It was he who made them feel indispensable to the Herreshoff achievements.

And John understood far better than Nat the value of their loyalty and the importance of keeping the force together, come what might. During slack periods, rather than let most of them go he set them to work painting and repairing the great sheds and the many other buildings. For no one else, on the other hand, would they have done such menial work. It meant that Nat was never without skilled men when projects cropped up at a moment's notice.

The office clerks who worked under John knew him best and were not slow to advertise his feats of memory. He was a storehouse of hoarded information. Without referring to files he could quote the price of several hundred Herreshoff yachts, and without checking he could give the correct price of yard products over the phone — a stunt no one else dared attempt.

When a client wanted the estimated cost of a newly designed yacht, Nat gave his brother a verbal description of its dimensions, both hull and sail area, and listed the materials to be used in its construction, fittings and rigging included. John assimilated the facts quickly from long practice and knowledge of boatbuilding. That night he would remain awake, figuring out all the

complex and detailed arithmetic involved. By morning he was able to name a sum which always proved to be close to the final cost.

A new source of distraction and amusement became available to John now that the yard was making money and he had the means to indulge himself. In the nineteenth century, every well-to-do man took pride in his horses and carriages. Of a summer afternoon, residents of nearby Newport drove abroad in elegant landaus, Victorias and phaetons. High-stepping pairs, whose varnished hoofs and well-brushed coats were as polished as the carriages they drew, and smartly uniformed coachmen and footmen, were part of fashionable Rhode Island life.

Boats John loved with an undying passion, but they revived an old incurable grief. On a boat it was Nat — the fellow with the eyes — who had all the fun. John could not share in the running of a steamboat, even in a small way. The most he could do was to guess, by means of his repeater watch and the rate of speed at which he knew the boat traveled, just what landmarks they were passing.

"We're out of the West Passage and approaching Narragansett Pier," he would tell guests, or: "Now we're halfway between Point Judith and Watch Hill." To people who did not know how he calculated, such divining was little less than miraculous. It was indeed a feat, since he always knew approximately where the boat was, even in a fog.

But in a smart rig of his own, driven by a coachman

and drawn by a fine pair of horses, of which John was the master, he really enjoyed himself. His carriages were the best that money could buy and his animals were spirited. He could hear the beautiful rhythm of their hoofbeats. As with everything they touched, his hands could tell him all he needed to know about the horses he bought. He prided himself on never having been cheated in a transaction. And that was more than some of his neighbors could claim.

A friend once invited him in to admire a recently purchased and rare antique chair.

"I didn't know they used buzz planes in those days," said John, his hands taking a swift inventory while his friend stood complacently by.

"Oh, no — they didn't. It's all handwork."

"Better look inside the facings of the seat frames," John advised. "You'll see they were turned out by a buzz planer."

He was right.

If John's sense of touch betrayed him occasionally, as was possible, his mistake was soon forgotten, wiped off the record by the hundreds of times a blind man was right. But Nat had no handicap that could serve as a cushion for miscalculations. He had only a self-imposed and unbroken record of perfection. The rare occasions when something went wrong were correspondingly difficult to bear.

By 1887 he was at the peak of his steamboat output. Perhaps only those who have had some experience in boatbuilding can realize how great were Nathanael Her¬

reshoff's single achievements in the field of power-driven boats alone. The modeling of both engine and hull involved an immense amount of calculating. Although Nat was by no means the only designer in this field, each of his new models represented an advance. He was breaking ground for future engineers as well as teaching himself, and he had been driving himself enthusiastically but at an inhuman pace for more than ten years. It is well authenticated that Nat designed more models and sizes of light steam engines than anyone else in the world.

Now there came a disappointment or two and an accident to break the even flow of success. Others would have thought them the not uncommon setbacks of their profession. But they touched Nat's pride.

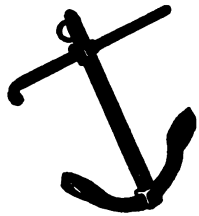
The United States' first steel torpedo boat was designed and built by the Herreshoffs. The *Cushing's* engine was yet another of Nat's inventions. Many of its features were to be copied by later engineers. Still, Nat was disappointed in his new steam engine. It had a great many cylinders — too many. They were a source of trouble from steam condensation. The *Cushing* exceeded her contract speed as all the Herreshoff boats did, but by only half a knot. By Herreshoff standards this was not enough.

In quick succession after that, he built four high-speed, engine-powered yachts, to which were given the picturesque names: *Ballymena, Say When, Vamoose,* and *Now Then.* The hull of the *Now Then* was remarkably streamlined for its day. Instead of having the

usual rounded stern, *Now Then* had what is called in shipping terminology a "tumble home" or slant away from the deck into the water. One day, in backing her against heavy seas, the water climbed up the slant into the cockpit where Clara and her guests sat. Everyone was soaked and Nat was more than disgusted that a design less than completely seaworthy had issued from the Herreshoff yard.

The third mishap was more serious and affected Nat's outlook and satisfaction in steam yacht designing more deeply than he was willing to admit. Experiments with steam engines could be hazardous. In those first days of their development the metals available could not always withstand the pressures to which they were subjected. Men were occasionally killed. The Herreshoff plant had never had any dangerous accidents, and perhaps this immunity, due to superior skill in handling and constructing, made everyone a bit too confident that the unforeseeable would not occur. It did occur one day, during a trial of Nat's fast steam yacht *Say When.* The first trial had not satisfied her designer, who demanded maximum performance from his engines.

The usual precautions were taken, preparatory to getting up steam for a second try, but in spite of this a boiler tube burst just as the fire door was opened to throw on more coal. One of the firemen was asphyxiated. There was an investigation, and Nat's license to operate steamboats was revoked forever.



CHAPTER 11

THE DIFFICULTIES which had arisen during the past months were never to recur in Nathanael Herreshoff's career. Nevertheless they were a sore memory. To a man so consistently accurate and successful, errors or mishaps were intolerable. For him, the *Cushing's* engine trouble and the *Now Then's* unsatisfactory stern, climaxed by the tragic accident on board the *Say When*, had been a sequence of galling incidents connected with steamboats. Nat continued to design the fastest and best engine-powered yachts of his day, but his joy in the work was never so keen again.

Without being aware of it he was ready for a shift in interest, and as so often happens when a man is ready for change, events prepare the way. His father's death occurred at this time, awakening nostalgia for the past. "Pa" Herreshoff had taught his sons to revere all that was finest in Bristol's ancient shipping tradition. He had passed on to them high standards of craftsmanship which had molded the character and destinies of two master boatbuilders.

Nat's memory dwelt more and more frequently on the vanished days of boyhood, when whalers, coastal schooners and occasional clippers had sailed up Narra¬ gansett Bay, leaving indelible pictures of the glory of wind-driven ships.

The passing of Charles Frederick Herreshoff was the first break in the family circle. The sloops he had built and named with unfailing loyalty after his wife re- mained cherished family possessions until time and weather took their toll of them. Julia Herreshoff met the shock of this new sorrow with a courage born of old necessity — that of providing a home for her blind chil- dren. John had married. Julian had also married and gone to live in Providence where he had established a school of languages, but Lewis and Sally would need her always.

Life in Bristol still held many rewards for her, not the least of which was the extraordinary output of the Her- reshoff yard. Its success was the more close to her heart because for her sake and that of a blind brother, Nat had once given up a chance to devote all his engineering skills to industry. Since then the phenomenal growth of the boat yard, within sight of her windows, had been a proof that he had not lost by the sacrifice.

On Hope Street, facing the sparkling harbor waters, stood her rambling colonial frame house, as generously hospitable as it had always been when it was bursting with energetic young Herreshoffs. Opposite, on the water's edge, loomed the great construction sheds of the boat yard. Behind them were scattered sail lofts,

machine shops and forges. Extending up Burnside Street stood the big storage sheds, holding vast accumulations of rope, lumber and all the various metals from which the platings of boats, their keels, anchors, winches and rigging were made. The Herreshoff plant, unrivaled in its equipment, would never have developed to its present size and importance if the genius of two sons had not been fused by a mother's affection into an enduring partnership.

The friendly, unhurried way of life in old Bristol brought neighbors daily to Julia Herreshoffs door. Sally and Lewis, more widely educated than many of their friends who could see, and endowed with the strong family intellect, were never to feel the terrible isolation of the blind. People were always dropping in to read to them and to talk. All the Herreshoffs were interesting. Those who were sightless had the added quality of being lovable.

Besides being a pianist, a writer of authoritative articles on yachting and a linguist, Lewis was an expert swimmer. To many Bristol youngsters besides his nephews and nieces he was "Uncle Lewis," a big, jovial man who could swim beside a rowboat for miles, and who had taught most of them not to be afraid of the water.

Some of these children were Nat's. During the early years of family life Nat found time to make toy yachts for his sons, who never realized till much later that they would become museum pieces. He gave his boys their own workroom and supplied them with all the tools he

had himself ached to use as a small boy. Nat never forgot those planes, gouges and chisels which John had bought with his earnings and in the terrible frustration of sudden blindness had forbidden a younger brother to touch.

The Herreshoff yard was in itself a boy's paradise. "Captain Nat's" sons were permitted to "watch." They grew up absorbing the intricate and beautiful craft of boat making from master builders.

Though the demands of his work detached him from it, the affectionate, happy family life surrounding Nat insulated him from loneliness. Outside that circle, which included his mother's household, he had little time or inclination for people. But among the many yachtsmen he knew casually, one stood out as a friend. His growing association with Edwin D. Morgan was the last spur needed to turn Nat with renewed eagerness back to sail.

Morgan was a wealthy New Yorker. Often confused with the banker, John Pierpont Morgan, who owned the famous steam yacht *Corsair,* he was a fellow member of the New York Yacht Club and had also served as its commodore. But while John Pierpont acquired vast financial interests, Edwin D. was content to be America's most prominent yachtsman. Much as other millionaires bought art treasures, this Morgan bought yachts. Most of them were Burgess and Herreshoff models, the best that money and skill could build.

The largest he moored in a natural ocean anchorage — a safe, deep indentation in the rocky coast bounding

his Newport estate, called Brenton's Cove. His smaller boats bobbed in protected waters behind Brenton's Point.

Edwin Morgan's summer home was the replica of one of those coastal fortresses from which the Knights of Malta sailed out to defend Mediterranean sailors from marauding pirates. By this time (1890), the quaintness of old Newport was well buried beneath a pretentious way of life. Along the ocean shorefront stood the immense residences of its wealthy summer colony, many of them even more out of place in the New England scene than Mr. Morgan's medieval castle. Not unnaturally he had chosen the Maltese cross as his yachting emblem. It happened to be on Nat's private signal too, a coincidence which the two friends enjoyed.

The fast power boats being launched at Bristol fascinated Edwin Morgan. It became a favorite pastime of his to sail over from Newport to the Bristol yard to see what new experiments were hatching in Nat Herreshoff's big sheds. He was eventually to own three of the Herreshoff high-speed yachts — *Javelin, Daisy* and *Vanish.* From bow to stern, *Javelin* measured ninety-eight feet of glistening varnished mahogany. She was double ended and narrow and shot through the water like a flying missile. She repeated *Stiletto's* feat of running circles around the Hudson River steamboat *Mary Powell.*

Nat's versatility in designing different engines and hulls for each of his new steam yachts was undiminished. Recent difficulties had, if anything, widened his knowledge and experience. *Vamoose,* built for Randolph

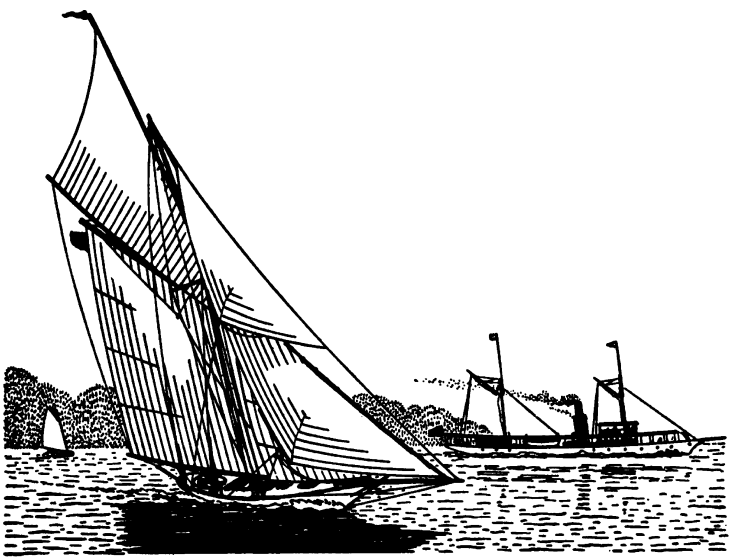
Hearst at the same time as *Javelin,* was heralded as the fastest power boat yet launched in America. When the claim was challenged, as it soon was, the American Yacht Club announced that it would stage a race for speed boats on a straight, ninety-mile course up Long Island Sound. The prize was to be $500.

Vamoose arrived at the starting place on the day set and waited near the Committee Boat, her underbody and topsides coated with the slickest Herreshoff racing paint, her polished brasswork ablaze, her engine tuned down to a wicked purr. One hour passed and then another, but no other boats appeared. That Nathanael Herreshoff's engines could run for ninety miles without breaking down was too well known. Nothing more was heard from competitors.

On one of Edwin Morgan's trips to Bristol he was invited to sail the *Clara,* one of Nat's family boats. In all Morgan's flotilla of yachts there wasn't one as dainty, swift and biddable as this little cat yawl made to Nat's taste. Morgan fell in love with the *Clara* and ordered two Herreshoff yawls as a collector of fine glass might order two matching vases. However, the boats did not turn out to be replicas. Nat's original mind lost interest in repetition. He played with the idea of building both yawls from the same molds and lengthening the lines of one of them by three feet. It was an experiment in proportion to which Morgan agreed enthusiastically. Morgan was a stimulating client. Nat could talk shop with him as to an equal — almost as he talked with Edward Burgess, whom he saw only too rarely.

The two cat yawls, *Pelican* and *Gannet,* became the jewels of Morgan's collection of smaller yachts. *Gannet* was well known in Newport for forty years. *Pelican,* the smaller, was the original model. Nat considered her the most advanced sailboat he had yet designed and the most scientifically built. Sixty per cent of her weight was in her keel. It was from the model of the *Pelican* that he developed his famous *Gloriana,* a yacht so different from those of her period that she marked the passing of the straight-stem or cutter bow.

Gloriana was one of a dozen or more large sloops built early in the 1890's and known as the "forty-six footers." They measured forty-six feet on the water line and were an open class in which the only requirement



The *Gloriana* **and steam yacht** *Ballymena*

was that the designer conform to the Seawanhaka-Corin¬ thian Rule: that is, length of waterline, plus the square root of the sail area, divided by two. This formula did not shape the boat, it merely presented a challenge to the skill and ingenuity of designers. More than half the class were Burgess designed.

In his *Gloriana,* Nat had a bold idea. From keel to bow, her stem shot upward in one long, straight diagonal — a radical departure from previous bows. The other "forty-six footers" were all cutters or compromise cutters, whose straight or curved bows plunged into the waves, causing the boats to pitch. The clean slant of *Gloriana's* bow slid up the waves with buoyancy, while her long, full overhang at both ends gave her unusual stability. Like *Pelican,* most of her ballast was in her keel. Because of her shorter waterline she was allowed more sail area than any of the other boats. She proceeded to win every race.

The *Gloriana's* bow was revolutionary in design. Even landlubbers could see that, so it was generally assumed to be the sole cause of her success. But there were other reasons, hidden from the eyes of all but shipbuilders and naval architects who had the good fortune to get aboard her. Her whole structure above the water line was unusually light. Hatches, companionways and skylights had been reduced in size. Every bit of that saving in weight was thrown into the lead fastened to her keel. Undoubtedly only Nat and his workmen could have achieved such structural lightness without

sacrificing strength. In her long career, *Gloriana* never developed any weaknesses.

In addition, all her fittings, winches, turnbuckles, gaff jaws and goosenecks — even her topmast cap iron, were especially designed by Nat and made under his supervision on his own forges. No other yacht designer in the world had such an advantage over competitors. Other shipyards relied for marine hardware on items already on the market, turned out by the gross and as inferior as most mass products are. While it was impossible to duplicate the artistry and perfection of gear which went into the making of a Herreshoff - built yacht, *Gloriana's* bow could be imitated and was. It appeared for the next ten years on everything but scows.

Edwin Morgan was the proud owner of *Gloriana.* He won all of the eight races in which he entered her, sailing her to victory himself during the first. The other seven were sailed with Nat at the helm. When it became obvious that *Gloriana* would always win, Morgan withdrew her from the class to let other boats have a chance.

Just before she made her sensational record, Edward Burgess, who had designed six of the other "forty-six footers," died. Nat was thankful that his friend had not seen *Gloriana* outclass his own boats. There had never been any rivalry between them. Nat had not only reached the peak of his powers at this period, but now that Burgess was gone, the eyes of the yachting world

were focused on him. His achievements had long overshadowed those of any other naval architect, but Burgess had stuck to sail while Nathanael Herreshoff was known mainly as a builder of steam engines and high-speed boats. As for his many inventions in boat construction and sail, only a few people were aware of them.

The fin keeler was one of these. A fin keel is a long, straight sheet of metal attached to a boat's underside and weighted at its lower edge with lead. Because the lead was so far below the water line it meant greater sail-carrying capacity. The heavy ballast concentrated in that one spot acted as a pivot. Fin keelers could turn on a dime without loss of headway. For a while they were the craze and were copied abroad. English yachtsmen found them perfect for their land-bound waters. The famous fin keelers, called the "Newport thirties," racing among the ledges and islands of Narragansett Bay, were noted for their ability to clear obstacles by a hair's-breadth and to race in close formation.

Nevertheless, those built elsewhere than in the Herreshoff yard developed leaks. The great weight amidships put a big strain on the rest of the hull. Even a few of Nat's fin keelers leaked, although out of the hundred which left the yard, most of them remained sound.

It was during this immensely productive period, while Nat was designing a great many large sailboats as well as steam yachts, that he was constantly inventing every sort of boat accessory. This did not slow up Nat's other work. To him boat fittings were a side issue. He made no attempt to market them. The Herreshoff yard

was his private laboratory. His inventions, big and small, appeared on all the Herreshoff boats and promptly proved their superiority over other products. Gradually, in this way, his ideas permeated the whole field of yachting. It has been said that there is hardly a block, turnbuckle, winch or any other casting and yacht fitting today which was not originated, improved or perfected by Nat. A case in point is the famous Herreshoff anchor, beautifully balanced with rather wide flukes and a fairly short shank. It is highly prized by yachtsmen.

In 1892 his genius was in its full stride, and in that year came the assignment which was to make the Herreshoff name and the Herreshoff yard known to every American at the turn of the twentieth century. Edward Burgess had been the designer of the last four defenders of the America's Cup. Now Nathanael Greene Herreshoff stepped into the international limelight as the naval architect best qualified to design the next champion.

To learn how Anglo-American rivalry for the America's Cup began, it is necessary to go back over forty years, when Nathanael Herreshoff was only a small child. At that period, the skill and audacity of American shipbuilders had reached its highest expression in the clipper ships. These swift merchant vessels with their breath-taking spread of canvas and shapely hulls were winning pre-eminence for American ships and seamen on every ocean. But yachting or pleasure sailing (long a British sport) had scarcely started in the United States.

In the summer of 1851 it was planned to hold a World's Fair in England. Yacht racing was to be a feature, and Exposition officials decided to ask Americans to send over a representative yacht. The idea was broached to the New York Yacht Club, the most prominent American yacht club then in existence. When Commodore Stevens of New York received a cordial letter from the commodore of the Royal Yacht Squadron, offering the hospitality of the clubhouse at Cowes to visiting American yachtsmen, the invitation was accepted and no time was lost in organizing a syndicate to back a suitable American boat. The country's best skill and much national pride went into the plan of the *America,* as the challenger was to be called.

The decision of the syndicate was for an able fast schooner, modeled after existing American pilot boats which were renowned for their speed and trim lines. George Steers, the talented son of a shipwright who had recently modeled the famous *Mary Taylor,* the fastest pilot boat afloat, was engaged as designer and builder. Steers was an artist as well as a shipbuilder, and he was young. In the clean sweep of the *America's* lines there was grace and zest expressive of youth. Her two masts, almost as high as her length, were stepped at a rakish angle. A long, daintily tapered bowsprit balanced the slender main boom which extended well beyond her taffrail. A racier looking, more sweetly proportioned schooner had not been launched from American ways.

She was no empty racing machine either. The ocean¬

going vessel, approximately 110 feet overall, was planked with sturdy three-inch white oak. Below decks were a saloon, four staterooms, ample locker space, a galley, a pantry and accommodations in her forecastle for fifteen men. She made the crossing in twenty days, arriving at Le Havre in excellent condition. There a new suit of sails was bent on and several weeks were spent putting her in racing trim.

When she left the French coast for Cowes she was met by a large cutter, obviously one of the crack boats of the English yachting fleet. What seemed at first like a courteous gesture of welcome turned out to be a desire on the part of the cutter's owner for an informal brush with the visiting Americans before they reached English shores. Commodore Stevens, in command of the *America,* was reluctant to reveal the qualities of his boat before any official racing took place, but it was difficult to refuse a friendly challenge without discourtesy, so he trimmed his sheets down, let the *America* have all the wind there was, and arrived at Cowes well in advance of the English boat. Next day the British yachting world knew that the American schooner could travel faster to windward than any English yacht — an advance piece of information that was valuable.

No racing between the *America* and her British rivals had been scheduled, but Commodore Stevens had been given to understand that there would be no difficulty in arranging contests after his arrival. He was to be disillusioned. After waiting in vain for his hosts to make the first overtures, he put up a purse as prize money three

times, each offer being more tempting than the last. There was no response. The London *Times* wrote a scathing article on the timidity of English yachtsmen.

At last the Royal Yacht Squadron invited Stevens to enter his boat in their regular club regatta. Every sort of boat was eligible and there was no time allowance. This meant that instead of racing against one picked competitor, the *America* would be pitted against the entire fleet of English yachts. Moreover, the course was to be around the Isle of Wight, where home knowledge of currents, tides and wind would count heavily against a foreigner. This "sporting" arrangement elicited further sarcasm from *The Times.*

Commodore Stevens and his syndicate had come over hoping to win back some of the money invested in their boat. Disgusted by the turn of events they were about ready to go home, but decided to chance it.

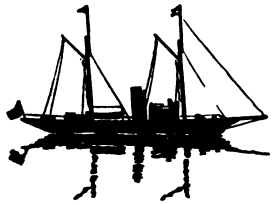
The start of a race was very different then from what it is today. Competing yachts anchored in a line, raised their sails as fast as possible after the gun sounded, and made off. The *America's* crew were novices in the technique of race getaways. As they hauled up their canvas their boat kept riding over her anchor and swinging around. They were the last to get underway.

At first the wind was too light for her, but when a good following breeze came up she began to walk through the fleet. It was wing-and-wing sailing, especially tricky when the last four British yachts combined against her, blocking her path by keeping in close formation, forcing her to sail around them and risk jibing.

Finally the wind shifted and *America* was able to set a windward course. She drew away so rapidly that most of her chagrined opponents never saw her again. The distance gained on this leg of the race was a great advantage when, later on, baffling tidal currents slowed her down. They slowed everyone else too, however, and in spite of her handicaps as a stranger, unfamiliar with local waters, there was only one boat of the British fleet in sight when *America* finished the victor.

One competitor protested that she had passed Nab Lightship on the wrong side, but as Commodore Stevens had been given no instructions in regard to it, the protest was ruled out.

The trophy won at this time was a large, ornate silver pitcher which tradition has insisted upon calling the *America's* Cup. Commodore Stevens and his syndicate presented it later to the New York Yacht Club with an accompanying deed of gift stipulating that it must remain "perpetually a Challenge Cup for friendly competition between foreign nations." Since that first race in 1851 sixteen British attempts to recapture it have failed. It has remained in the possession of the New York Yacht Club.



CHAPTER 12

BY THE TIME Nathanael Herreshoff was drawn into the National Cup Defense contests, forty-one years had elapsed since the race around the Isle of Wight. In the interim, Britain alone had tried to recapture the cup, but without success. The year 1892, however, was to revive hope in British yachting circles.

England had launched that year four of the largest racing sloops ever built. Their deck measurement was approximately 117 feet. Of the four, *Britannia,* owned by the Prince of Wales, and *Valkyrie II,* built for Lord Dunraven, were practically sister ships. The Royal Yacht Squadron had such faith in *Valkyrie* that it issued a formal challenge for the *America's* Cup in behalf of Lord Dunraven.

The response in America was enthusiastic. William K. Vanderbilt, John Pierpont Morgan and other wealthy members of the New York Yacht Club immediately formed a syndicate and placed an order with Nathanael Herreshoff for a new Cup defender to be named *Colonia.*

However, some members of the club did not approve *Colonics* dimensions. She was to be 126 feet overall and have a 14-foot draft. Many thought this too shallow to counteract the tremendous weight of sail she must carry. The fact was that the Herreshoff yard, having specialized in steam yachts, had no ways at that period capable of launching deeper boats.

The opposing group in the New York Yacht Club, headed by C. Oliver Iselin, included Nat's friend Edwin D. Morgan. These two organized a second syndicate and they too placed their order with the Herreshoff yard. For them Nat agreed to build the 124-foot sloop *Vigilant.* A centerboard was to drop through the keel, giving her ten feet of added depth. No one but Nat would have undertaken to design and build two Cup defenders at the same time, and this on top of work on a third big sloop called *Navahoe,* to which he was already committed. But Nathanael Herreshoff was one of those paradoxes which only New England could have produced — a slight, spare man, dry mannered and frugal of speech, whose native shyness concealed a Titan.

Meantime, two other candidates for the honor of defending the *America's* Cup were being built in Massachusetts. They were the fin keelers, *Jubilee* and *Pilgrim.* A year ago, the fin keel had been one of Nat's sensational inventions. Now other men were beginning to use it while its inventor, whose ideas were constantly on the march, was trying out newer models. It was hard for the profession to keep up with him.

Early in the trial races which were to determine which of the candidates would be national defender, the Herreshoff boats were judged the most reliable and the fastest. *Vigilant* was the final and unanimous choice.

The original deed of gift drawn up by Commodore Stevens and his syndicate had required that the Cup brought home in 1851 be recaptured under most of the unfavorable conditions imposed on the *America.* But with the years, the deed was altered to meet changing conditions. In their present form challengers had to give ten months' notice in writing, naming the dates of the proposed race and stating the name, rig, load water-line, beam measurements and draft of their vessel. This information gave away no secret features of the challenging yacht but enabled those picking up the gauntlet to build a boat of an approximate size and type.

One clause in the deed has always provoked cries of "Unfair!" from both British and Americans. It was that compelling challengers to "proceed under sail on their own bottoms to the port where the contest is to take place."

It cannot be denied that the British Cup boats had to be built to withstand an ocean crossing. They made the journey under greatly reduced sail or "jury rig" and were conditioned and rerigged for racing after they reached these shores. No one seemed to remember that the *America* had met all those conditions when she sailed to England and won the trophy. However public feeling on the subject was so persistent that with the entry

of Sir Thomas Lipton into the contests, British challengers were towed across the Atlantic.

Rules governing the actual Cup series were no longer fixed by the participants holding the Cup, but were drawn up by mutual consent. It had become the invariable rule that the victor must win three out of five races. Every effort was made to equalize the chances. Nevertheless disputes marked the Cup Defense events from the beginning. Complaints usually came from the defeated, as was perhaps natural. Enormous sums of money were invested in both challenger and defender. This financial stake, added to national pride, heightened the tension.

The first encounter between *Vigilant* and *Valkyrie II* was an example of the unpredictable changes in weather which could favor one boat and defeat the other. The race was more than half run when the wind flattened out, making it impossible for either contestant to finish within the allotted time. For the English it was a maddening piece of ill luck. *Valkyrie II* had caught all the favorable slants of a skittish breeze and was far in the lead when the race was called off. It had to be resailed two days later.

As usual, at this sort of international event, hundreds of spectators in excursion boats and private yachts were milling around the starting line off Sandy Hook. Americans were not too hopeful of the outcome. Herreshoff was a new name in Cup Defense history. It was doubtful to many whether a steam engine expert knew as

much about sail as Burgess had and word had preceded the British challenger that she could travel fast in light or heavy weather, as she had demonstrated two days ago.

The great black sloop looked an impressive rival as she drifted lazily back and forth behind the starting line. The white ensign of the Royal Navy, which bore both the Union Jack and the crimson Cross of St. George, flew proudly from her gaff. Ten thousand square feet of snowy canvas soared above her dark topsides. Her topsail raked the sky. Three triangular jibs floated like graceful kites over her bow.

"You will note," bellowed a yachting fan, hired by one excursion boat to impart items of interest through a megaphone, "that *Valkyrie* flies the white ensign of the Royal Navy. This is a unique privilege bestowed only on yachts belonging to the Royal Yacht Squadron — Britain's leading yacht club."

"Hear that?" a girl on one of the excursion boats teased her escort. "The English have so much style! *Valkyrie* looks like a queen. I almost hope she wins."

"Style — that's all a woman cares about. I didn't bring you here to cheer the wrong boat."

A man near the couple was studying the big English cutter through his binoculars. *"Valkyrie* had rotten luck the other day," he said, "but there's plenty of power in that black hull. She may still win, though I'll lay my last dollar on Nat Herreshoff."

"Ladies and gentlemen — look to starboard!" roared the megaphone. "The United States' Cup defender, *Vigilant,* is moving slowly down wind. Launched from

the Herreshoff ways in Bristol, Rhode Island, she's the latest thing in boat construction. Her hull is metal — the first to be coated with Tobin bronze."

"They tell me," said the man with the binoculars to the couple, "that *Vigilant's* syndicate bought up all the available Tobin bronze in the country to keep competitors from getting it."

"Ah!" the girl was not listening. She caught her breath as the *Vigilant* swept silently by. The lines of the white Cup defender had been refined down to such ethereal proportions that her hull seemed hardly able to support the great pyramid of her sail. Under its massive splendor she moved like a disembodied cloud.

"She's unearthly — a mirage — " whispered the girl.

"Note *Vigilant's* amazing spread of canvas," the megaphone broke in with statistical facts. "The Herreshoff defender carries one thousand more square feet of sail than *Valkyrie.* To offset all that weight above decks she has a centerboard weighing four tons which drops through a slot in her keel. Her crew numbers seventy men. You'll have a chance to see them used as live ballast in a freshening breeze. They lie flat on the windward deck to cut wind resistance and hold her down."

"Is that fair — to have so big a crew? *Valkyrie* seems to have only half that number," said someone.

"No limit is set on crews — and the amount of sail carried is up to the designer," answered the megaphone. "However, greater sail area is one of the points on which a boat must give her opponent time allowance."

It was obvious now, from the maneuvers of the two

yachts, that they were jockeying for position. The start was at hand. Spectators, watches in hand, counted the minutes.

"There will be only one gun — at exactly 11.25," the voice on the megaphone quickened sharply. "As you can see for yourselves, the first leg of the race will be run dead before the wind. This start should be exciting. Both yachts have professional crews trained to split-second performance. Their captains are professional sailors too."

"Rats!" said the man with the binoculars, giving *Vigilant* a careful scrutiny, "the man at *Vigilant's* wheel happens to be her designer — Nat Herreshoff. I understand *Vigilant* didn't do so well under her professional captain, so they asked Herreshoff to take the helm. I'd stake him — "

The crack of a pistol drowned the rest of his sentence and a puff of white smoke hovered over the starting line.

"They're off!" the shout went up.

During the next tense seconds watchers hardly breathed, though here and there a groan of dissatisfaction rose. *Valkyrie II* had crossed the line first.

The following wind was very light and the British yacht immediately broke out a light muslin jib that resembled a balloon. Close on her heels came *Vigilant,* raising a spinnaker of gossamer weight. For the better part of seven miles there was little change in the position of either boat. But suddenly the breeze freshened. The American boat, being in the rear, caught it first. No

momentum was ever lost with Nat Herreshoff at a wheel. The defender began to move fast. In a matter of minutes she was abreast of *Valkyrie II,* then she had passed her. When she rounded the outer mark *Vigilant* was eight minutes and six seconds ahead.

The course home, due to a shift in wind, was one long windward tack. This was the challenger's opportunity and she made the most of it. Letting her sails take the full weight of the wind, *Valkyrie II* dug her lee rail under and settled down to eating up the distance between herself and *Vigilant.* Her advance was steady and dangerous.

But Nat, with his instinct for keeping on the edge of air currents, kept moving too. Like a jockey coaxing his mount to the inner side of the track, he nosed the Cup defender higher and a little closer to the wind with every favoring puff.

"He's pinching her!" An overtense excursion passenger thumped the rail in protest.

The man with the binoculars gave him a glance of withering scorn and moved away toward more knowledgeable-looking company.

When there were but three miles left to go the British yacht was still gaining, but *Vigilant* was in a safe dominating windward position. It was now Nat gave the order to ease sheets and the foam under *Vigilant's* bow whitened as she surged suddenly forward. The race was hers now, no doubt about it. Boat whistles shrilled triumphantly as she crossed the line. They blew again

7 minutes and 36 seconds later for *Valkyrie II* who had sailed a game race. But this was only the opening one of the series.

The second race took place two days later, a day's interval being customary to allow crews to rest up and make needed adjustments or repairs.

This time the course was triangular and the wind fresh, and this time on the American defender the after guard, a small advisory group made up of some members of the syndicate and other racing experts, were too alert for the British challenger. It was nip and tuck over the line, but Nat pinned *Valkyrie II* under his lee quarter right at the beginning, and there he kept her no matter how hard her captain tried to extricate her. It was a swift, hard race on all three legs and a close victory for *Vigilant.* Americans, with two races to their credit, began to think Herreshoff might, after all, be a worthy successor to Burgess.

The next encounter would decide that burning question. It was scheduled for Friday, October 13. Superstitious sailors looked for anything on such a date, and sure enough, when the fleet of spectators arrived off Sandy Hook, storm warnings had been hoisted. Landlubbers wrapped comfortably in warm overcoats talked optimistically about the reported "gale" and hoped something sensational would happen.

The wind obliged early in the proceedings by carrying off one of *Vigilant's* throat halyard blocks. It lacked about half an hour of the start. Since the mainsail had to be lowered anyway to make repairs and the

weather was worsening, the crew put a reef in the big sail. Working with dispatch, they were ready and behind the line at the required time, although the men were still struggling to lower the centerboard which had chosen this moment to become balky.

Lord Dunraven had been rather high-handed in his demand that each race start on the dot of 11.25, no matter what happened. Late contestants must take their chances — or default. So the ruling was made. He must have regretted it later, because at 11.25 on this day *Vigilant* was ready and *Valkyrie II* was three miles away still shortening sail. The Race Committee concealed their amusement behind a polite gesture. A launch was sent out to tell Lord Dunraven they would wait for him. As it turned out, the delay of an hour gave *Vigilant* time to get her centerboard pried loose.

The course for this third race was set for two legs. Wind and sea were making up at a great rate and the two big sloops were a magnificent sight as they raced full tilt for the line at the crack of the gun. The American Cup defender stole the windward position and Captain Cranfield of the *Valkyrie II,* fearing his boat would be trapped again under *Vigilant's* lee, acted quickly. He shoved his helm suddenly hard over. The push shot *Valkyrie II* into the wind and her way carried her forward. When she fell off again it was she who was to windward of *Vigilant.* It was a quick-witted maneuver, skillfully executed.

During the whole of that first leg — a grueling thrash to windward, with lee rails buried in suds and *Vigilant's*

crew stretched flat on her windward deck — *Valkyrie II* outfooted the American boat. She had to fight every inch of the long, fifteen-mile stretch, however, and rounded the outer mark 1 minute and 55 seconds ahead only.

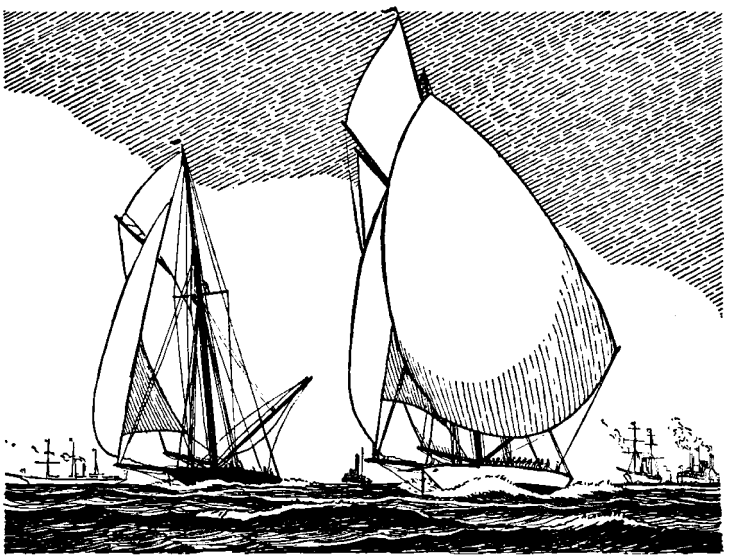
The race back was the most thrilling in Cup Defense annals. *Vigilant's* crew now faced the most disheartening of all racing tests — a stern chase after a powerful opponent streaking down wind like a witch pursued by furies. The British challenger had raised two light spinnakers one after the other as soon as she rounded the mark, only to have each torn to shreds. To shake out her reef during that mad run before a strong easterly wind was to court disaster. As a last hope of holding the gains they had made, her crew hoisted all they had left — a small balloon jib topsail.

Behind the challenger sped *Vigilant,* her vast white wings outspread like those of an albatross. The slight, alert man at her wheel began to give quiet orders that were carried out with mathematical precision. One of these orders was to hoist the spinnaker. *Vigilant's* was tied in stops after the American fashion. Once broken out, it was sheeted quickly home without tearing. Heaving seas and decks drenched with spray made every maneuver difficult.

Her balloon jib topsail was hoisted next but the wet halyard fouled. Instead of cutting the sail down, a man went aloft to clear it. Watchers gasped. Could that overloaded swaying mast carry one more pound of weight? Being Herreshoff-built, it did.

And now came a display of seamanship while the great American sloop was in full pursuit that made even old sailors shake their heads. A life line was rigged from the masthead and made fast to a volunteer who began inching his way out on the plunging, outspread boom. As he went he cut the reef points one by one. Meanwhile, clinging to gaff and mast, two other men lashed and lowered the working topsail and cleared the upper rigging of all unneeded gear. Then the mainsail, its loosened folds bulging with wind, was sweated up to its entire height. It took the man power of all hands. After that, they triumphantly raised the last bit of rag they had — a small club topsail.

A great many spectators had perspired freely during



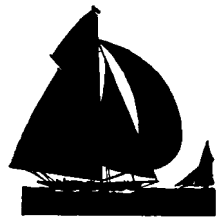
Vigilant **defeats** *Valkyrie II*

this performance, expecting momentarily to see mast and men go overboard. They breathed deeply when it was over.

"You've just seen something that will go down in racing history," a veteran yachtsman said to his wife. "The slightest miscalculation in steering would have tumbled those boys into the sea and snapped *Vigilant's* mast. No one but Nat Herreshoff could have done it. Dunraven has lost the race and it's rather a pity. One would like to see the English get at least one."

Many Americans felt that way, though to look at them one would never have guessed it. Hundreds of them were on their feet in their rocking boats, yelling themselves hoarse, flinging sanity to the winds along with their caps, tin horns and red, white and blue paper streamers.

The two yachts were now parallel to each other, boiling over the last half mile of water wing and wing. *Valkyrie II,* minus a spinnaker to balance the weight of her heavy boom and mainsail, yawed dangerously in the lumpy seas. She held her own precariously for a while, and then, unable to match the driving onrush of her pursuer, she began to fall back. The end was near. Propelled by the mighty push behind her spectacular wingspread, *Vigilant* soared rather than sailed over the finish line, winning by the narrow margin of forty seconds. The eighth British attempt for the famous trophy had failed.



CHAPTER 13

ONLY A FEW people were near enough to *Vigilant* during the final stretch of her race against *Valkyrie II* to watch the remarkable performance of the men who handled her. Many boats followed the course, but most of them were in charge of yachtsmen who knew enough about racing to keep their distance from the contestants. It was the excursion boats which gave Lord Dunraven grounds for his complaint that spectators came too close.

Nat was not at *Vigilant's* wheel when she crossed the line at the finish. He was too exhausted. No one knew better than he the risks of driving a large Cup defender under full sail, before half a gale. Every halyard and stay had been strained to the breaking point. The crew, trusting to his skill as a helmsman, had taken perilous chances in the rigging. The slightest mistake at the wheel could have sent men, spars and sails hurtling to the deck. Two men would have had their hands full steering against the tug of a powerful wind and thousands of square yards of taut canvas. Nat was only one, and he was a man nagged by rheumatic pain, besides.

When the finish was in sight and victory certain, it was a relief to be able to surrender the wheel to *Vigilant's* captain.

As usual, after the race, the British claimed that *Vigilant* could not have won had she been built to withstand an ocean crossing. George Gould, a wealthy New Yorker, thought it high time to disprove this ancient assertion. He bought *Vigilant* for the purpose of racing her in England, and asked Nat to make what alterations were necessary on the big sloop for her ocean journey.

Nat rerigged her as a yawl and built living quarters below decks for a crew. Extra bulkheads were installed and two well-known professional yacht captains were engaged, one, an experienced deep-sea sailor and navigator to sail her over, and the other to captain her during the races. Nat went also, but with the Gould party, on board his host's yacht *Atalanta.* He was to supervise the work of reconditioning her as a racing vessel on the other side.

Good weather and a favoring wind enabled *Vigilant* to make the fastest ocean crossing on record for any yacht under jury rig. She had to tack only twice during the entire voyage; once to avoid icebergs off the Banks, and the second time to swing back on her course. Her crew found her remarkably stable and dry, even in heavy cross seas.

"She climbs on top of the water like a big can buoy," one of them told her designer. "Not a drop comes aboard."

Nat's answer was a half smile and a nod. He squirmed

under spoken praise and was touched to the quick when any doubts were cast on the seaworthiness of his boats.

The former Cup defender's arrival abroad was eagerly awaited. Her first visit was to Scotland, where she was to enter the races on the Clyde. All the way up the big estuary *Vigilant* was hailed by welcoming yachtsmen in their boats. When she docked, several hundred visitors crowded aboard. The novel features in the newest Herreshoff gear, her wide beam and the great centerboard which dropped through her keel, aroused keen interest.

Restored to racing trim, she and her designer were now ready for the anticipated test. But Nat was to find foreign racing quite unlike the sport in America. The Scottish contests were staged in a narrow landlocked portion of the Clyde, a very cramped area in which to maneuver big sailing craft and especially dangerous when yachtsmen were ignorant of local conditions on a twisting body of water. No such handicaps had ever confronted British challengers off Sandy Hook, where the waters were open and deep.

Competitors on the Clyde were the English single-stickers of *Vigilant's* size — the Prince of Wales's yacht *Britannia, Satanita* and the recent challenger, *Valkyrie II.*

On the eve of the first race, George Gould was informed that only amateurs would be permitted as skippers. This ruled out his professional captain. Gould appealed to Nat, and once more, as in the case of the Cup Defense races, *Vigilant's* designer was persuaded

to take her helm. He was not eager for the honor. He knew well that local knowledge of air currents, depths and tides could make all the difference between losing or winning a race on the Clyde, but there was no one as able to get the most speed out of *Vigilant* as himself.

The wind was high on the day of the race. Mindful that he had a powerful boat and a small amount of space in which to maneuver her, Nat raised only the mainsail and one jib. Shortly before the start a violent rain squall cut visibility so low that he decided not to be caught in any crowded dash for the line. *Britannia* held back too, following *Vigilant's* every move so closely that it was evident she intended to block her if possible.

As soon as the squall abated, Nat waited no longer but swung away for the start, *Britannia* boiling along beside him. The other two yachts, *Satanita* and *Valkyrie II* were ahead, nearing the line together and going full tilt. Just as the gun was fired a small boat full of people got directly in *Satanita's* path.

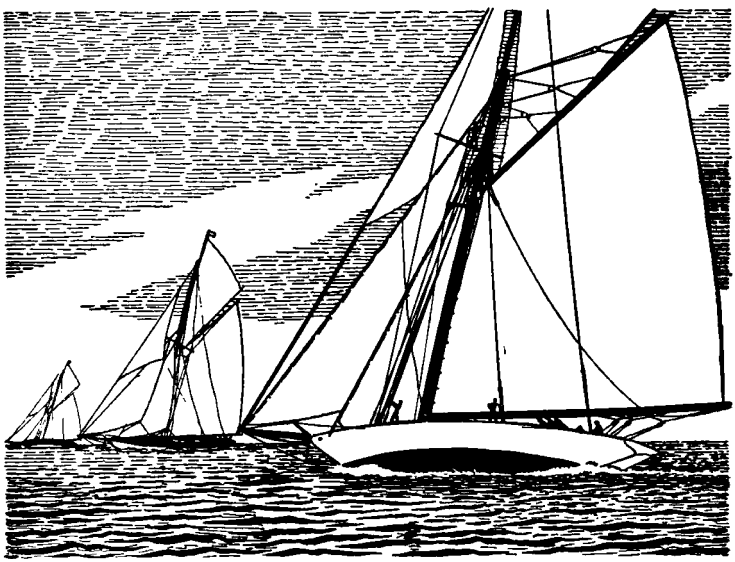
In a last-minute attempt to avoid running them down, the big cutter luffed and crashed into *Valkyrie II* with terrible force. An appalling sound of splintering wood, falling gear and shouts echoed over the water. The oncoming *Vigilant* and *Britannia* had just time to veer out of the way as they tore by.

Unable to free themselves, the two stricken yachts slewed around in circles. But *Valkyrie II* was practically cut in two. She soon fell away and sank in a matter of seconds. One life was lost in the accident. Many

boats were rushing to the scene, and since there was nothing *Britannia* and *Vigilant* could do, they were signaled to go on with the race.

Sea collisions are a horror not easily shaken off. Shocked into more than his usual taciturnity during a race, Nat kept a wary eye on his sails and on *Britannia,* lest the latter profit by his inattention and slip past him. He let his mind dwell on the accident only long enough to remember that *Valkyrie II's* owner had complained caustically of American spectators during Cup Defense races. On the Clyde it was apparently the custom for watchers to plant themselves on the course.

Because of American unfamiliarity with local waters, *Vigilant* carried an English pilot. It was a courtesy



Vigilant **racing** *Britannia*

granted all foreign yachts, and one she might better have done without, in this case. Nat was ahead on the first mark by nearly two minutes and could have won the race. But on the reach home, the pilot declared that there was not enough water for *Vigilant* on the inshore stretch Nat wanted to take. Accordingly, he steered offshore, only to watch *Britannia* — a deeper boat — sail up the forbidden course. Benefiting by a favoring slant of wind there (known only to local sailors), the big sloop owned by the Prince of Wales won the race by thirty-six seconds.

"After this, I do no more racing yachts for others," Nat wrote tersely in his notes on *Vigilant's* performance.

Although the Prince was of course unaware of what went on, Americans soon learned that English pilots were often untrustworthy whenever foreigners were likely to win against one of his boats. The discovery did not dignify the institution of royalty, nor did it lessen Nat's Yankee indifference to being "presented."

When the future Edward VII intimated that he would like to meet the designer of the American Cup defender, George Gould invited him on board his yacht *Atalanta,* when he knew Nat was there. But the royal launch was easily recognizable as it approached. Nat beat an agile retreat to the engine room.

"Sorry, sir, we're unable to find Mr, Herreshoff," members of *Atalanta's* crew reported with blank faces each time they returned from a fresh search.

Nat had a Yankee's distaste for pomp, and since his

brush with the Kaiser he was not eager to do business with foreign princes. His method of forestalling possible future embarrassments was characteristic — he simply kept out of their way.

Out of the eighteen races *Vigilant* entered that summer in England, she won only six. All other times but one she came in second.

"Short courses, light winds and green crew all contributed to her lack of success abroad," wrote Nat. He went home long before the English racing season was over. Important commitments in Bristol drew him back and he was badly disillusioned. A yacht designer's racing creed was: "Let the best boat win." In the United States, where races were held on open coastal waters, conditions were fairer. The fastest boat had an equal chance with others.

On his way home Nat pondered the engrossing problem of *Vigilant's* handicaps, determined to avoid them in his next model. Members of her syndicate had persuaded him against his better judgment to give her that tremendous centerboard. It had jammed and proved undependable. Another difficulty had been her sails, which had stretched badly. All Nat's later defenders were to have the cross-cut sails he invented after this summer's experience.

Up to this time, sails had had seams parallel to the leach or up-and-down seams. The sails had hung on their seams and this developed pockets and necessitated constant alterations in the canvas of racing yachts. Nat therefore determined to experiment with cross-cut sails

whose seams and weave would be at right angles to the leach or after edge of the sail. The idea had been tried years before without success. It presented many problems, but Nat plunged into the project with his usual scientific thoroughness. Enlarging the Herreshoff sail lofts, he tried out new methods of roping and stitching and persuaded a big manufacturer of sailcloth to make special duck woven to the Herreshoff formula. The modern sail hangs on its cloth and the wind flows along the seams instead of against them, thanks to Nathanael Herreshoff.

The trend in Cup defenders was going to be one of increasing size and sail area. This was plain to Nat now that centerboards were out of the question. He must rebuild the Herreshoff ways to handle boats with very deep keels.

The ways were finished, when, not many months later, Lord Dunraven notified the New York Yacht Club that he had a new challenger for the *America's* Cup — *Valkyrie III*. Whereupon Oliver Iselin, W. K. Vanderbilt and Nat's old friend E. D. Morgan ordered a second Cup defender from the Herreshoff yard.

Dunraven's British yacht designer, expecting perhaps that Herreshoffs next defender would be very like his previous one, gave the third *Valkyrie Vigilant's* wide beam and vast sail area. But Nat never did the expected thing. *Defender*, as his new boat was christened, emerged from her Bristol shed a totally different model. Narrower, deeper and with considerably less

overhang and a smaller sail plan, she was a return to the English cutter type, while her British competitor looked more like the flat skimming dish seen in American waters.

Striving always for increased lightness and strength, Nat had incorporated into *Defender's* framework many new ideas. Aluminum figured largely in her deck construction. Her topsides, under their white paint, were made of aluminum and her hull below the waterline was unpainted and plated with bronze. Before a race it was scoured and buffed till it gleamed like the smoothest gold plate. No expensive jewels in Tiffany's showcases were prepared for display with more meticulous pride and care than the Herreshoff Cup defenders were groomed for a race.

Defender's sheer strake had a lyric curve which belied her tough construction. Critics looked at her doubtfully and concluded Nathanael Herreshoff must have sacrificed strength to obtain an appearance of such lightness. *Defender,* in fact, provoked suspicion from the moment she refused to budge halfway down the Herreshoff ways at her launching. A diver, sent down to investigate, found a protruding bolt which some worker had neglected to file down when the new ways were being built.

The obstruction was quickly removed but it was unusual at the Herreshoff yard for anything to go wrong. When *Defender's* mast settled during her trial runs and newspapermen made a drama out of it, the

launching incident was remembered. It strengthened public belief that the new Cup defender had structural weaknesses.

The trouble with her mast was finally located deep under the mast step, where two or three rivets had been omitted. Nat had been ill and unable to make his daily thorough inspections during that stage of her building. It was a simple matter to correct it and it showed that even Herreshoff workmen could slip up when their keen-eyed chief was not there to check.

The Cup Defense races for that year of 1895 began early in September. *Defender* easily captured the first race and although the series was barely begun and it was too early to decide which was the faster boat, Lord Dunraven appeared to be deeply discouraged. He had placed great hopes in his new challenger, which he supposed was an improvement on *Vigilant,* only to be confronted now with the latest Herreshoff design. The Americans seemed always a jump ahead. *Defender* carried newly designed Herreshoff cross-cut sails that were flat as boards, enabling her to point higher, and her polished-bronze bottom was more slippery than any racing paint yet devised.

A disappointed man is very open to suggestion, especially if it is directed against his opponents. In this case Dunraven accepted hearsay.

Both challenger and defender were always measured before the Cup Races began for their waterline length. These recorded measurements helped determine the time allowance given each boat. *Defender's* accusers

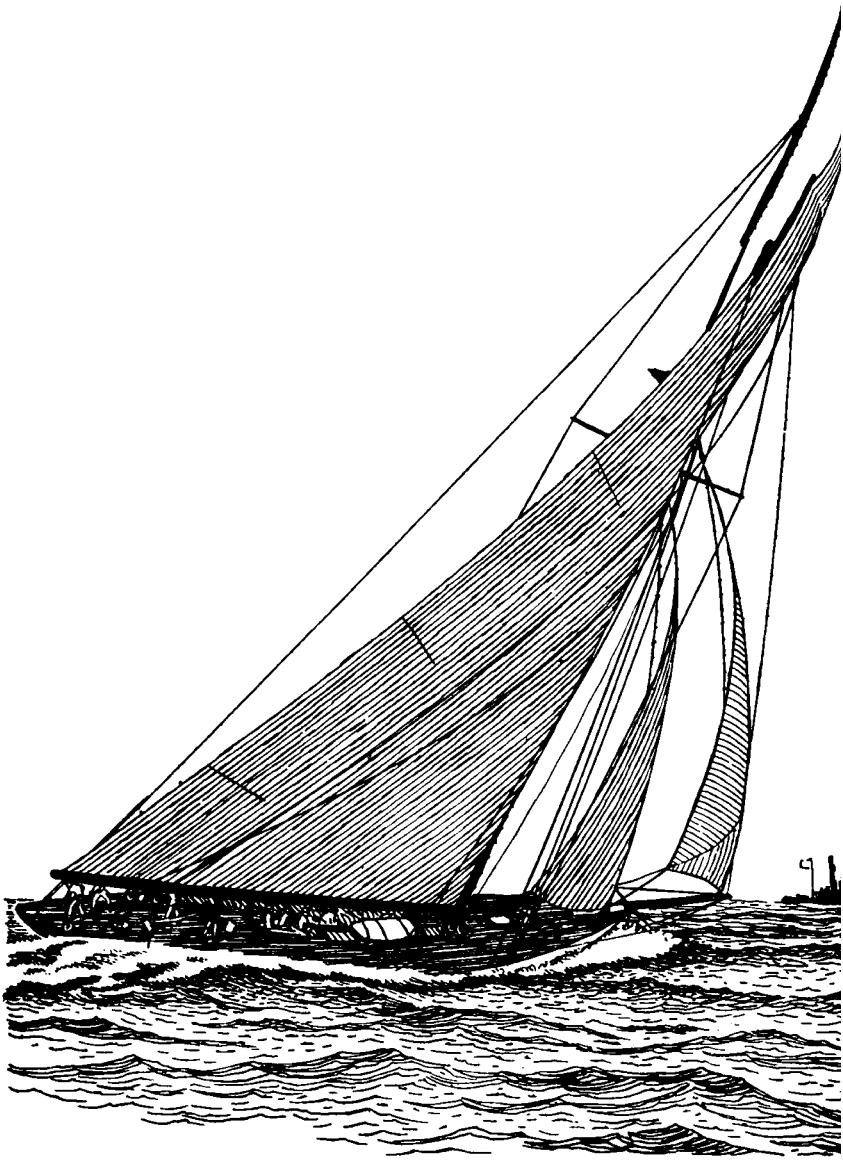
claimed they had seen her taking on more ballast after the measurement date, thus lengthening her waterline.

The mistaken assumption arose from the fact that her crew had shifted ballast one night, to stow it more compactly. In doing so they had carried pigs of lead from *Defender* to her steamboat tender, to saw them into shorter, more convenient lengths. The work had been done entirely in the open, which should have proved that no deception was intended.

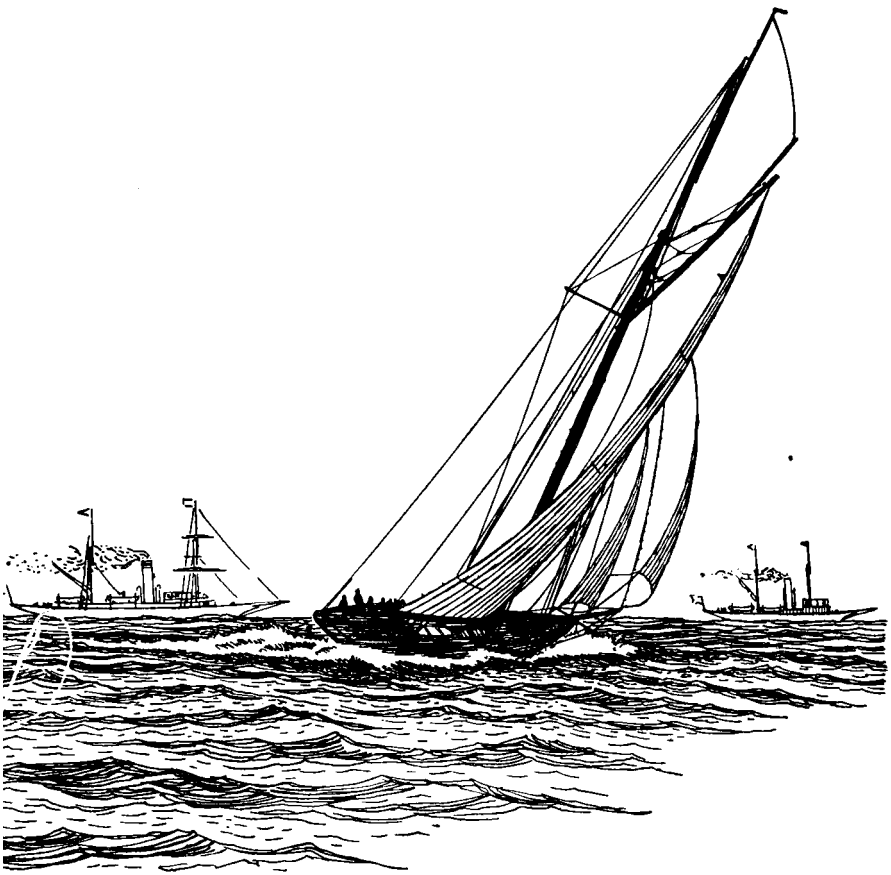
Lord Dunraven credited the accusation and immediately sent a protest to the New York Yacht Club. *Defender* was remeasured. Her waterline length was found unchanged. The incident was then temporarily closed, although the resentment it caused on both sides still rankled. And now it was time for the second race.

During the start, the British challenger found herself crossing the line too soon. She changed her course somewhat to use up time and came down on *Defender* who had the right of way. *Valkyrie III's* boom scraped her opponent's topmast shroud and broke it. Courtesy demanded that Dunraven show proper concern over the accident, but he ignored it. The American yacht, unable to use her jib topsail on any weather tacks, was now crippled, and lost the race by 47 seconds. However, a boat which has been fouled may protest.

In calling the foul to the attention of the Race Committee, Mr. Iselin, who managed *Defender,* pointed out that section 11 of racing rule 16 had been violated. Upon investigation his protest was sustained and the race then went to *Defender.*



The race between *Defender* and *Valkyrie III*



Iselin now wrote a courteous note to Dunraven, offering to resail the race, but the latter with equal punctiliousness declined.

> . . . The Regatta Committee has decided [he answered], for reasons according to their best judgment, but which, I confess, are beyond my comprehension, that she *[Valkyrie III]* did break the rules. I made no protest, and because I thought the foul was probably accidental; but I consider that *Defender* caused it. You consider that *Valkyrie III* was to blame. The Committee have decided that you are right and I am wrong and there the matter ends.

In spite of the undoubted justice of the decision, Dunraven felt ill used. He next lodged a bitter complaint against the excursion boats which, he said, had forced *Valkyrie III* to sail through lumpy waters raised by their wash. He refused to race under such conditions again. If, however, the Committee judged that either boat had been interfered with and agreed to prevent a recurrence of such conditions, he would be willing to resail the race.

The Committee was forced to answer that both boats raced under identical conditions and the interference, while admittedly annoying, had been equal and not really serious. A Regatta Committee's authority, they reminded their British guest, did not extend to the banishment of the public from the race, therefore they could not guarantee that boats would not follow the course. This second controversy was dropped and the date of the next race set.

Nat was on board *Defender* during this series, as second captain. With the afterguard, comprised of members of her syndicate who acted in an advisory capacity, he watched *Valkyrie III* curiously as she drifted slowly back and forth behind the line before the start. There was very little activity on deck.

"Dunraven has threatened to quit as soon as he crosses the line and the race becomes official," remarked someone. "I believe he will. Look — the course will be down wind and he hasn't yet raised a spinnaker. The time left is short."

"He wouldn't be so unsportsmanlike," Nat refused to believe the rumor.

"It is to be hoped he won't."

Because the breeze was gentle, *Defender* had broken out all her light sails while *Valkyrie III's* still remained furled when the gun was fired. *Defender* crossed the line first. The British challenger followed, but as soon as she was over the line, she lowered her racing ensign and headed back toward her anchorage.

A murmur of surprise and disappointment swept the spectator fleet. The public had followed the disputes in the newspapers. Excursion boats, aware that they had caused some of the trouble, were keeping at a discreet distance this time. Passengers had paid a high price for their tickets and everyone had come expecting to witness a great yachting event. Puzzlement and disgust were general.

Defender sailed over the course alone, her crew going through the necessary maneuvers mechanically, her

afterguard almost completely silent. If Dunraven, in a spirit of pique, chose to default, it was his affair, but his action had cast a shadow over the high purpose of the Cup Defense races to promote "friendly competition between foreign countries."

Reluctant to claim victory under such circumstances, Iselin hailed the Regatta Committee through his megaphone as *Defender* approached the finish line.

"Shall I cross?" he shouted, almost hoping the race would be declared void.

"Yes!" the answer came back uncompromisingly.

On Lord Dunraven's return to England, he made public charges against the American syndicate, accusing them of having added ballast under cover of the dark. The matter now involved the national honor.

In the ensuing legal proceedings the Royal Yacht Squadron refused to support Dunraven. It was a personal controversy, said the English club, between himself and the New York Yacht Club. Prominent attorneys represented both sides. Dunraven lost the case. His testimony was based entirely on rumor and could not be accepted as proof.

The committee appointed to conduct the inquiry closed their report with the following conciliating statement:

> . . . the committee is not willing to doubt that if Lord Dunraven had remained present throughout the investigation, so as to have heard all the evidence that was introduced, he would of his own motion have withdrawn a charge that was so

> plainly founded upon mistakes, and that has been so unfortunate in the publicity it has attained, and the feeling to which it has given rise.

It should perhaps be mentioned as an extenuating circumstance in Lord Dunraven's case that whereas American Cup defenders were jointly owned by a syndicate of wealthy men who shared the large risks and appointed one of their number as business manager, Dunraven had no equivalent financial or moral backing. His challengers were his private undertaking. When the certainty of a second failure confronted him early in the races against *Defender,* the strain proved too much.

Nat, constantly involved as he was in great creative projects for which he took sole responsibility, refused, when queried, to make any comments on Dunraven's behavior. The regrettable incidents of the Cup Defense races of 1895 were soon forgotten by him anyway in the crowding events of the Spanish War. Yacht building once more stopped while the Herreshoff Company was drawn back into torpedo boat construction and steam engine design.

Not until four years later, in 1899, did Great Britain renew her efforts to regain the *America's* Cup. This time the challenges were issued in behalf of a greatly loved little Irishman, Sir Thomas Lipton, whose sportsmanship never faltered.

CHAPTER 14

THE PAST seven or eight years of increased attention to sail had been as packed with enjoyment as any Nathanael Herreshoff was to know. Steam engines were an absorbing challenge but sail had an elemental poetic appeal which liberated all his gifts. Because he was essentially an artist he never abandoned the old instinctive method of boat design.

While other naval architects were developing their shapes on paper, by means of carefully calculated line drawings, Nat still shaped his boats with gouge and plane, from half-models. It was an all-but-vanished art, the quickest and most natural way — provided one had the skill. Model making as taught by his father had been Nat's favorite pastime in childhood, the happiest recreation he knew. Through constant use of this manual craft his eye and hand had become well nigh infallible now he was fifty.

The head draftsman for the Herreshoff yard once saw an example of this. He was in charge of drawings for a new steam engine of Nat's.

"How about the size and taper of the connecting rods we are to draw up full size?" he asked his chief, who had entered the drafting room on his daily inspection of work.

Fumbling in his pocket, Nat brought out one of the sharp-pointed stubby pencils he always carried and swiftly drew a profile of the required part on a piece of paper.

"There — " he pushed it toward the man, "that ought to do."

Any layman watching this casual performance would have supposed it to be simple. The draftsman's jaw dropped, but he said nothing. A connecting rod has a complicated function. The upper end moves backward and forward in what is called reciprocating motion, while the lower end revolves. If the chief chose to make a freehand drawing of so vital a part of his steam engine it was not up to a draftsman to question it — not if the chief was Nathanael Herreshoff.

Nor was it his job to do the mathematics involved. But this particular draftsman happened to have had prior training in engineering. The more he thought about that sketch the more it worried him, until he decided to check before using the drawing. After much figure work, which included computing all the strains to which this part would be subjected, he drew a rod based on his findings, only to discover that Nat's freehand sketch was exactly the size and shape of the one he had evolved by mathematical analysis.

It was his unlabored mystifying accuracy which

earned Nathanael the title "Wizard of Bristol" — a name he rejected with characteristic annoyance because it implied an unworkmanlike approach to his profession. If eye and hand responded magically, through long practice, to what was in the boatbuilder's mind, eliminating steps other men must take, no Herreshoff called it "magic." When necessary, he could at a moment's notice reduce the trick to a diagram and the diagram to a forest of figures.

It was not unnatural, considering Nathanael Herreshoffs previous distinguished work in developing fast torpedo boats, that the war clouds now gathering over Cuba drew the Herreshoff yard back into work for the navy. In wartime, yachting was a luxury few men could afford. Boatyards often went bankrupt. From necessity as well as patriotism John and Nathanael welcomed this fresh activity which would keep their yard prosperous and busy.

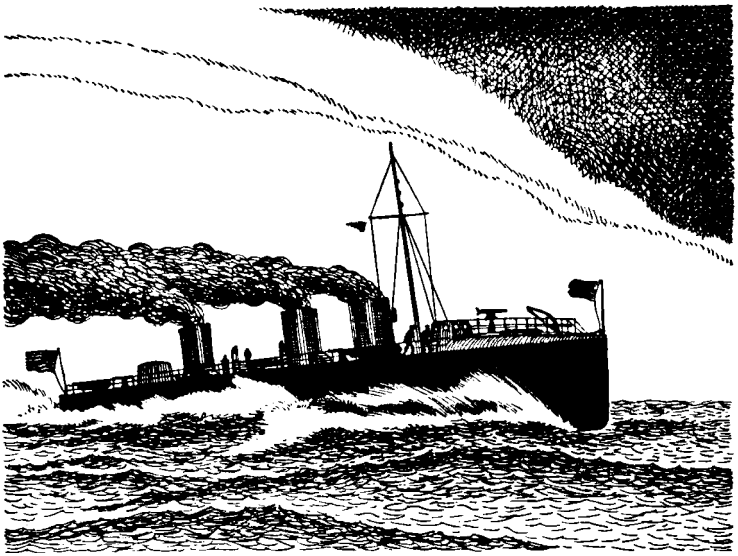
Building for the Navy however, had its drawbacks. Full payment for work done had sometimes to be compelled through litigation, since funds had a way of being diverted to other creditors by politicians. Then, too, production costs always exceeded the contract price. However, the navy paid a very substantial bonus on every quarter of a mile a boat exceeded her contract speed, and on this basis the Herreshoff boats were always certain to pay for themselves and make a profit for the company.

The *Dupont* and the *Porter*, the torpedo boats built by Nat in 1895, played an active part in the Spanish War,

the first named being entrusted with the dispatch to the mainland announcing the destruction of the Spanish fleet. The engines of both boats were especially designed to eliminate the strong vibration which at that time was the plague of all torpedo boats. Both ran for twenty years without any major repairs, a record unmatched by other designers and shipbuilders for the navy.

Competitors, in fact, were only too well aware of their rival in Bristol and much better versed in the game of politics. Since, by dint of a little persuasive treatment, navy inspectors passed a good deal of imperfect work, it was the practice to lighten their tours of inspection with drink, expensive cigars and a variety of other entertainment. The Herreshoff yard was barren as the Sahara of such amenities. The two "wizards" of Bristol, one blind, the other an uncommunicative genius, were not only teetotalers but hated the very smell of tobacco. They were also incorruptible. Bribery in the guise of hospitality never entered their heads. Nat found most navy inspectors scandalously ignorant and their visits unendurable.

Bolstered by patriotism, plus the backlog of profits that no shrewd New Englander overlooks, his patience stood up miraculously until the day two inspectors presumed to instruct the foremost authority on light steam engines in the United States. The piston guides on the *Dupont* were made of the wrong kind of steel, they said, whereupon Nat's men glanced at him and stepped carefully out of the engine room. It seemed suddenly healthier on deck.



Torpedo boat *Dupont*

However, nothing came of the incident except an order for more piston guides made of the metal recommended by the Navy. When the order reached the metalworkers, blatant and disrespectful laughter issued from the forge shops.

The new guides were installed. They heated up so badly during the *Dupont's* trial run that she had to turn around and come back. This time Nat's men swore audibly and the inspectors looked foolish. With bland politeness Nat suggested that the *Dupont* complete her trials with the original piston guides. There were no objections and no more difficulties with the *Dupont.*

But Nat had had enough interference. Behind the closed doors of the yard office he and John talked the

matter out. It was a wrench for John to relinquish any business which increased the importance and profits of the Herreshoff Manufacturing Company. His ambitions had nothing to feed on but schemes for expansion. Nevertheless, at the end of their talk he and Nat agreed to complete the contract for two more torpedo boats. After that they would do no more work for Uncle Sam.

Later, John regretted this sweeping decision. He sympathized with Nat's annoyance at having to deal with petty and ignorant government officials, but for him the prestige of navy orders, the big figures they placed on his ledger books — even the costly expenditures — were a drama that compensated him for darkness.

As for Nat, building for the navy had kept him too busy for his own good. Saturday and Sunday sailing, his only recreation, had had to be abandoned. Besides torpedo boat construction there were always one or two large yachts in the sheds, ordered by wealthy clients who let the Herreshoff genius work unimpeded.

The complicated details of boat design made transactions with clients lengthy. With the navy, they were endless. With millionaires they were more apt to be as Nat liked them — short and to the point. Morton F. Plant, an old and well-liked client, but an autocrat in business, once phoned the Herreshoff yard an order for a large schooner which for brevity has remained a classic — even among Herreshoff records for terse speech.

"Is this N. G. Herreshoff?" The query was peremptory.

"Yes — I guess so." Nat's admission was anything but cordial.

"I want a schooner for Class B, and I want her to be *good."*

"Humph!" Nat debated whether this insult should be swallowed. "All right," he said at last, and hung up.

Mr. Plant did not bother him again and the *Elena,* which was delivered promptly, won notable honors in transatlantic racing.

Nat's clients — that is, those who wished to remain his clients — never dickered about costs. The Herreshoff yard had only one quality of workmanship. Men who owned Herreshoff yachts told remarkable tales of it, as did the master of *Spalpeen.*

Spalpeen, a 73-foot steel cruiser, was once run down by a steamer. It appeared impossible for her to float since she was bent out of shape, so her crew and passengers clambered up the ladder of the bigger vessel. After a while however, it became evident that *Spalpeen* was not leaking. Her crew sailed her back to Bristol and there it was decided that she would have to be taken apart. Some of her deck had been removed and other sections were in process of being loosened when suddenly the whole boat sprang back into perfect alignment. The only real damage was to the spot where she had made contact.

The war with Spain was barely over when the Royal Ulster Yacht Club issued a challenge for the *America's* Cup on behalf of Sir Thomas Lipton. Beginning his career as a grocer's clerk, Lipton had become immensely

wealthy and been knighted for his philanthropies. The kindly Irishman who was to set the world such a fine example of sportsmanship became very popular here.

J. Pierpont Morgan and Oliver Iselin sponsored the new defender *Columbia* and again engaged Nathanael Herreshoff as designer and builder. By this time the launchings of the great single-stickers in Bristol had become a public spectacle. For *Columbia's,* which took place at night because a high tide was necessary to float a boat of such great depth, spectators poured into the little Rhode Island town, jamming every inch of available space on the shore.

A marine railway was now in use at the Herreshoff yard. *Columbia's* cradle stood on it, mounted on wheels. Her journey down the track to the water was controlled by a steel cable geared to an engine and could be stopped at an instant's notice if anything went wrong. There were to be no more hitches in the launching of Herreshoff Cup boats, as in the case of *Defender.* Nat, hidden in the cavernous shadows of the big shed, tested and checked the smallest details. It was a responsibility he assigned to no one but himself.

At last he gave the signal. Very slowly his latest masterpiece rolled out. Strong calcium lights were trained on the marine railway. Against the backdrop of the night, the new Cup defender took her bow, spotlighted like a prima donna. The light, playing on her long, tapering hull, made it look dazzling white, her polished bronze bottom shone like gold. She seemed fashioned by a jeweler's art.

A murmur of admiration swept the shorefront, swelling and growing into a mighty cheer that carried across the harbor to Nathanael Herreshoff's birthplace on Popasquash Neck. As she took the water and sailors raised the national red, white and blue yachting ensign, a group of watchers started singing, "Oh! Columbia, the gem of the ocean." From that moment she became the mascot of the nation. It made no difference that a few moments later the Morgan and Iselin private signals were broken out from a jury mast. She belonged to everyone.

Like all her predecessors, *Columbia* had to be tested before being actually named the defender. This time, Nat's previous Cup boat was her only competitor and *Columbia* quickly proved herself the faster.

The races were held in October 1899. Interest was at a high pitch. Lipton's graceful *Shamrock,* painted green to honor her Irish origin, was reputed to be the fastest so far of all the challengers. She was designed by one of England's foremost naval architects and built by the renowned Thorneycroft shipyard. In accordance with the new ruling designed to make fairer conditions for the challenging yacht, *Shamrock* was towed across the Atlantic instead of sailing over. Both American and English yachts were skippered by skilled professional captains who selected and trained their own crews.

It was customary for Cup boats to carry two captains while racing, the second being on hand mainly to give advice. This had been Nat's function on *Vigilant* and *Defender,* although he had been at the helm a good part

of the time. He was now asked to act in the same capacity for *Columbia,* and as he and Charlie Barr, her professional captain, were well matched in skill and racing knowledge, they made a fairly unbeatable combination.

Columbia won the first race of the 1899 series easily. But after that initial defeat, *Shamrock* hit her stride. There was a brisk breeze for the second race. *Shamrock's* captain, more alert now to the caliber of his competitors, quickly seized the windward position and held it, with *Columbia* footing very fast right under *Shamrock's* lee. For a long time they stayed that way, bows lapping, neither boat able to pull ahead of the other, but finally *Columbia* inched ahead. She had advanced barely half a length when *Shamrock's* topmast snapped with a report like a pistol shot. Spar and gear fell into the water just where the American defender had been a few seconds earlier.

The crippled *Shamrock* was forced to withdraw from the race, to the deep chagrin of her crew. *Columbia* finished, and was therefore declared winner. The contestants had previously signed an agreement that since the Cup Races were "no less a test of the construction of the competing vessels than of their sailing qualities," each yacht would "stand by the consequences of any accident happening to her and that the uninjured vessel" would sail out the race.

The third and deciding race was sailed without topsails in a strong blow. *Shamrock* beat *Columbia* to the starting line by more than a minute, which in such a

wind meant a quarter of a mile lead. Betting among the spectators was mostly in favor of *Shamrock* and on board the English boat hopes soared. This first leg was a leeward one. It would be a hard stern chase for *Columbia.*

But the crew of the American boat — all of them Deer Island boys from Maine — were putting on a typically Yankee show of seamanship. With *Columbia* careening down wind like a runaway kite they proceeded to hoist a spinnaker and a working topsail. The spinnaker behaved like a demon. The pole buckled and kicked skyward and the sail alternately flapped, ballooned and collapsed. The fight was finally won by the crew. With her extra canvas now pulling hard enough to split the seams, *Columbia* caught up with *Shamrock,* passed her and rounded the leeward mark 17 seconds ahead.

The beat home was a windward thrash, a grueling, disappointing battle for *Shamrock.* Near the end she sent up a club topsail in a despairing last-minute attempt to make up the distance, but the added sail only made her heel more sharply without increasing her speed.

As *Columbia* sped across the finish line, excursion boat bands struck up with emphasis *"Columbia,* the gem of the ocean." A thousand voices joined in. Tug whistles blew a deafening fanfare. The biggest yachting event of the season was over.

But not the fun. It had become a tradition after each Cup Race for all the steam yachts to race back to Manhattan. Leading the entire fleet this time, streaked *Vamoose,* the beautiful little Herreshoff speed boat

which had once dared challenge competitors to a ninety-mile race down Long Island Sound. The day ended in a double victory for Nathanael Herreshoff.

When the news reached Rhode Island, Bristol became delirious. Next day the townspeople planned a celebration. Friends of Clara Herreshoff, knowing that a wife would like to be warned ahead of time, drove out to the farm a mile beyond the town where she and the children always summered. After they left, Clara ordered a barrel of cider and sent her carriage for Julia Herreshoff, Nat's aging mother, and his blind brother and sister, Lewis and Sally.

Shortly after sundown all of Bristol was collected in front of John's house, opposite Burnside Street. When John appeared on his stoop there was an uproar and cries of "Speech — speech!" John waved his blind man's cane for silence and obliged, though his voice was a trifle choked.

He'd had something on his mind to say these many years, he told them. He remembered when Bristol people had refused to let a blind boy lose courage. There had been a steady flow of orders for the articles his groping hands turned out on a lathe. The next step had been the boatyard started when he was nineteen. It, too, had needed the good will of neighbors. If the yard was now bringing some prosperity to the town it was because the town had first made an investment in friendship.

"So now — " John ended his speech, "hurrah for Nat Herreshoff!"

Memory had quieted the crowd but now they cheered, joining John's name to Nat's as they marched away.

It was like Nat not to notice that Clara had lit the house as if in preparation for guests. When the jubilant throng poured onto his lawn he started to his feet in dismay. Clara had to push him toward the door.

"Now Nat — you *must* go out to them," she laughed in answer to that look of his, sheepish and acutely embarrassed, which she knew so well.

Outside they were beginning to sing "Columbia, the gem of the ocean." The name of his boat released Nat. He seized his youngest boy, swung him to his shoulder and stepped out of the door. As soon as he was silhouetted against the house light a pandemonium of cheering broke out. Nat stood there, waving back at his fellow townsmen, touched, smiling — and tongue-tied. They knew better than to ask for a speech. They could see he was pleased, so they shouted a lot of things themselves and laughed because they had him cornered where he couldn't get away.

Presently Clara sent the older children out to say there were refreshments for everybody. Old friends streamed through the house to pay their respects to Nat's mother and congratulate the family. The cider barrel was drained to the last drop. No one expected it to be hard cider — wouldn't the yard open as usual next morning? And wouldn't every man have to be fit and able to carry on the standard of work Captain Nat required of him?

The yardmen were proud to be members of that

unique organization and to be associated with a man publicly recognized as the world's most renowned naval architect. They decided there could be no more fitting time to express their loyalty than at the end of this memorable year.

On Christmas day they gave Nat a silver loving cup with this inscription: "As a token of good will from the employees of the Herreshoff Manufacturing Company."

Engraved on one side of the cup were the names and dates of ten of his best-known steamboats, on the other side, beginning with *Fanchon,* modeled when he was only seventeen, were the names of eleven of his most famous sailboats. *Vigilant, Defender* and *Columbia* closed the illustrious list. But ahead of Nat lay many more years and boats. The number would come close to a thousand.

Columbia, Nat's third Cup defender, was not soon forgotten by the American public, partly because her name was symbolic of the nation and also because she was chosen to race again in 1901.

To have a boat of his twice picked as national champion was a distinction achieved by no other naval architect, yet the choice involved a keen disappointment for Nat, who modeled a fourth, and in his judgment a worthier candidate for the honor.

When Sir Thomas Lipton issued his second challenge to the New York Yacht Club, a new syndicate of American yachtsmen ordered *Constitution* from the Herreshoff yard. Nat was always to claim she was a better boat than *Columbia.* He gave *Constitution* a radically

different kind of construction — the lightest and strongest he had ever devised. She was the first vessel to be built with longitudinal framing. Fifty years afterwards this system of boat construction was to be generally accepted and used in building large steamboats.

Each of Nat's big single-stickers had especially designed winches below decks which greatly increased their efficiency. *Constitution* was full of newer and better working gear. She was an intricate machine as well as a magnificent racing yacht. But the professional captain the syndicate had engaged to handle her, though a fine seaman, was never at home with the complex running gear of Herreshoff Cup defenders.

Columbia, on the other hand, was still skippered by Charlie Barr. Besides being a wonderful helmsman, Captain Barr made intelligent use of all Nat's mechanical equipment and found it more dependable than man power in maneuvering a huge yacht with an immense area of sail. In the trials between *Columbia* and *Constitution* both boats won an equal number of races, but under Barr's superior handling and with his expertly trained crew, *Columbia* performed with a precision and smoothness which earned her the title.

Nevertheless she won no easy victory over Lipton's swift new challenger *Shamrock II.* Americans had begun to expect their Cup defenders to capture the series in three straight races, and in this new contest *Columbia* did not fail them, but she won all three by a very narrow margin. In spite of the fact that light winds slowed the pace of the boats, each contest was close enough to

keep spectators in a frenzy of suspense. At the end of the last race *Shamrock II* and *Columbia* were actually lapped as they crossed the finish line. *Shamrock II* was even two seconds ahead, but owing to her measurements she had to give the American boat a time allowance. It was sufficient to give the race to *Columbia.* The cup remained on this side of the Atlantic.

Nat was not consoled for the slight to his fourth Cup boat by *Columbia's* meager victory. Had *Constitution* been provided with as good a captain as Charlie Barr she would have beaten *Shamrock* without time allowance.

"I wish I had never built her," he said bitterly to Julia Herreshoff the day the committee definitely rejected *Constitution* as Cup defender. "She has never been given a fair chance — and now what will become of her? She'll never be anything but a trial horse for other Cup boats!"

Julia Herreshoff was silent for a time. She lay on her bed watching day fade from the window facing the water. She had lain there many days in feebleness, waiting for a tide she could neither hurry nor arrest. It would carry her soon beyond Bristol and her long life of devotion to three blind sons and a blind daughter. Four of her children had been tragically handicapped, five had been gifted, and now Nat, the most richly endowed of all, had come to her with a trouble — a very small trouble compared with that of Julian, Lewis, Sally and John. She had something to tell him before she left.

"I used to grieve over unfulfillment too, Nat — for

John and the others — but who can say they haven't lived usefully and courageously? Do you remember refusing a tempting opportunity which came your way, in order to stick to John and his small yard? That act of self-denial is still your biggest achievement, Nat — not a boat called *Constitution."*

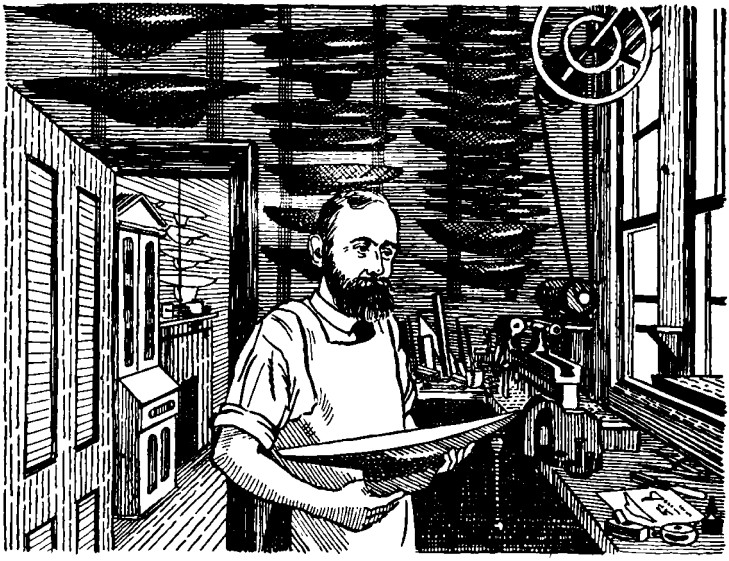
How could a woman understand how a man felt about a boat he had created? Nat had no answer that would satisfy her, so he reached for her hand and sat quietly by her side until the room grew dark.

CHAPTER 15

ONE EVENING in late October of the following year, a ten-year-old boy watched in fascinated silence while his father placed a block of wood in a vise on his bench and began modeling his fifth and largest Cup defender — *Reliance.* No hesitancy marred the work. Each stroke of gouge and plane was executed with precision and assurance. The lines of his boat were clear in the designer's mind.

It was customary for Nathanael Herreshoff to do his modeling at night, after his active day overseeing work in the shipyard was over. The model of *Reliance* was virtually completed in two evenings and the youngster who witnessed this display of craftsmanship was not to understand till years later, when he himself became a yacht designer, how remarkable it was.

By contrast the eminent British naval architect employed by Sir Thomas Lipton had experimented for weeks and made sixty alterations in his plan while developing his design for the second *Shamrock.*



Captain Nat in his workroom

Lipton's third challenge for the *America's* Cup, issued barely one year after the defeat of *Shamrock II,* took American yachtsmen by surprise — especially those who had helped finance Herreshoff defenders. The plucky Irishman must have limitless wealth. British labor was much cheaper of course, than American, and there was the added fact that John and Nathanael Herreshoff, employing only skilled labor, paid higher wages than any other shipbuilders.

Over and above the cost of construction were the salaries of a captain and very large crew, plus the practically unlimited amounts spent in maintaining a Cup defender. *Reliance's* syndicate was composed of ten men, among whom were a Rockefeller and a Vanderbilt.

Her building alone came to $175,000. To duplicate and operate her in these days would require well over a million.

With the launching of *Reliance* in the spring of 1903 a new pinnacle in size and sail-carrying capacity was reached, beyond which single-masted racing yachts could not go without becoming impractical and unsafe. There were limits to the height of a mast and to the weight it could support. The gigantic single-stickers of Nathanael Herreshoff's day were an impressive sight under full sail, but two unhappy accidents occurring at this time taught men not to race them in strong winds. Even in a fresh breeze they could be dangerous.

During the trials in English waters between Lipton's *Shamrocks,* a sudden puff of wind broke the huge club topsail of the new challenger. Canvas and gear were hurled to the deck. A number of the crew were injured. One man was knocked into the sea and lost.

Not long afterwards, in America, a trial race between *Reliance* and *Columbia* in heavy weather resulted in a second tragedy. Racing craft are built without bulwarks. Every bit of unessential weight is eliminated. Decks are flush with the topsides, and as a consequence there is no protection from boarding seas. Digging her nose into green water while going at top speed, *Columbia* swamped her forward deck, washing four men overboard. The big yacht's momentum carried her well beyond the scene of the accident before the helmsman could maneuver her about and return to pick up his men. By that time one of them had disappeared.

Reliance went through the same heavy weather without accident to her rigging or her crew, and considering her excess of sail this was a triumph for her designer and her helmsman. If she lacked *Columbia's* perfection of symmetry, she was the most spectacular and the fastest of the Herreshoff Cup boats. Nat had greatly increased the sail area of each one of his defenders, but *Reliance,* with a record-breaking 16,160 square feet of canvas, towered above the others, including her opponent *Shamrock III.* The weight of all that driving power aloft had to be compensated for in the hull. Nat gave *Reliance* extremely long, flat overhangs, reminiscent of the old skimming-dish type of racing boat. She had a broad mid-body and a twenty-foot keel to which was attached an enormous piece of lead.

These were her stabilizing factors. The world had come to expect original features in Nathanael Herreshoff's boats and *Reliance* was an extreme type. Modeled by anyone else her lines might have been eccentric. *Reliance* was taller and more regal than her predecessors. In the trial races she passed them like a proud queen, eclipsing them in speed and stateliness. Her record in the trials left no doubt but that she would be chosen official champion for the cup series of 1903.

To the intense satisfaction of both men, Charlie Barr was engaged by *Reliance's* syndicate to captain Nat's latest defender. Charlie had hung around Bristol like an ardent lover, waiting for his new command to be launched. While she was being built he haunted the South construction shed and the forge shops, watching

each bronze plate being hammered out by hand and then riveted in place. He studied the mechanism of nine complicated winches that were to be installed below decks. He learned when and how to use them and familiarized himself with all the mechanical devices Nat had invented to make the handling of a 143-foot sloop and her soaring canvas safer and easier to manipulate.

From the hollow steel mast in which *Reliance's* topmast was ingeniously housed when not in use to her keel, she was a masterpiece of engineering. After getting the hang of her running gear, Barr lost no time transferring his knowledge to his crew. The men under him were so well trained that by the third week in August, when the first Cup Race was scheduled, they were obeying, orders with machinelike precision.

In Charlie Barr there burned a perfectionist's zeal and a feel for the personality of the boats he commanded which set him apart from the usual run of professional seamen. It created an affinity between him and Nat.

"I often used to turn the helm over to Captain Nat," he said once, "just to see what would happen when his hand touched the wheel. His boats responded to him, No one else got the same amount of speed out of them."

There had never been a larger, more interested fleet of spectators than that which assembled off Sandy Hook on the morning of the opening race. A naval vessel and a revenue cutter patrolled constantly to keep the course free.

Anchored not far from the Regatta Committee's boat

lay Nat's steam yacht *Roamer* and living aboard her with him for the duration of the races were Clara and the children, old enough now to understand their father's prominent role in a great yachting event. The presence of his family, and especially of a wife used to the constant tensions of Nat's career, was a great help this year in relieving the strain of waiting, for the Cup Races of 1903, repeatedly postponed because of the weather, were to stretch over a period of fourteen days. The delays were trying to the spectators and nerve-racking to the afterguard and crews of the two contending boats, all of them keyed to a high pitch of performance.

At the beginning of the twentieth century, when neither automobiles nor airplanes were yet invented, the *America's* Cup Races were the major sporting event in the world.

The fact that two men had been drowned in the early trials on both sides of the Atlantic was generally known. When *Shamrock III* and *Reliance* were towed out to the starting line from their anchorage in the Horseshoe behind Sandy Hook, on August 20, people looked with admiration mixed with uneasy wonderment at their immense spread of canvas. Only a few weeks ago, during her tuning-up exercises after her ocean crossing, *Shamrock III's* steel racing mast had buckled under all that weight. She had a new mast now and fortunately no one had been injured, but who could be certain the second wouldn't break, given sufficient strain?

Meanwhile *Reliance,* carrying with superb nonchalance 2000 more square feet of sail than her rival, excited even more amazement and speculation. The prospect of seeing a great yacht dismasted was discussed with some relish by sensation mongers who had come mainly for excitement.

However, the Regatta Committee, composed of responsible yachtsmen, took every precaution to avoid the sort of accident which might entail injury or loss of life. The rules governing the present event empowered the Committee to postpone a race, if at the time of the start the weather threatened to grow so severe as to make a fair test of speed between the two vessels impossible. The trend away from able, seagoing yachts to powerful racing shells had already eliminated much of the sporting element from the *America's* Cup Races.

As challenger and defender floated majestically behind the line, waiting for the starting gun, their sky-raking topsails spread to catch the least breath of light August wind, there was a feeling among most onlookers that the Cup Races of 1903 were being staged earlier than usual with good reason this time. Those big racing machines were not designed for heavy weather in the open seas off Sandy Hook. Yachtsmen were suddenly and sharply aware that a chapter in boat racing was closing.

Because of the vagaries of the weather, the series of 1903 was the longest drawn out of any in the history of Cup Defense. It had been usual for Nathanael Her¬

reshoff's defenders to win the match in three successive races, but the opening race on August 20 had to be called off when lack of wind made it impossible for the contestants to finish within the time limit.

Two days later, disgruntled spectators felt amply repaid for the postponement when they saw the great Herreshoff defender heel well down to her racing lines in a brisk sixteen-mile-an-hour breeze. *Reliance* quickly established and held a lead and on the final leg home put on a magnificent show. Adding spinnaker and balloon jib to an already towering display of canvas, she made a spectacular dash for the line, winning by a good margin.

The next race, sailed in light airs, was also won by *Reliance.* There were no thrills. The closeness of the finish provided the only suspense, for owing to her greater measurements and sail area, an American defender was having, for the first time, to give time allowance to a British challenger.

A little bored by their continued victories over so many years, Americans were now eager to see *Shamrock III* capture the third race. It would add greatly to the excitement and give Sir Thomas, who was so much liked in this country, some satisfaction for his persistent efforts.

However, the next race had also to be postponed because of a dying wind. Directly afterwards an easterly storm struck, leaving in its wake fog and heavy ground swells. These conditions continued for more than a week, except for one day when there was too much

wind — or so the Regatta Committee ruled. Newspapers became caustic, and called attention to the fact that previous Cup Races had been sailed in winds of near gale force. What was happening to American racing tradition?

Finally on the third of September visibility was fair. The two yachts were towed out to the line, their crews more sick of the delay than the public. Not until just one hour before the customary starting time did a leisurely southwest breeze finally put in an appearance. Signals were hastily raised. The first leg would be a fifteen-mile beat to windward, the last a homeward run before the wind.

Spectators on excursion boats were by this time reduced to die-hards whose enthusiasm was unquenchable. They gave a rousing cheer when the preparatory gun went off. It was worth their money just to watch sixty-four white-clad sailors on *Reliance* spring into action.

With the precision of automatons, they cleared the decks and prepared spinnakers and jib topsail for instant use, while their captain, Charlie Barr, began maneuvering the great sloop in a duel of wits with the *Shamrock III's* captain. The period before the start, when each helmsman displays his skill at jockeying for position, is often the most interesting part of a race. Barr was famous for his bold tactics in outwitting competitors. The British captain knew it and was wary. He kept his distance, judging it better to cross tardily than get blanketed by *Reliance* or be caught in the back draft from her massive expanse of sail.

When the final gun sounded, both boats were some distance from the line. *Reliance* got over first. The sea was lumpy — a disadvantage to a boat with her long overhang — and this is probably the reason Charlie Barr chose not to kill her momentum by tacking across. Instead he succeeded in eating up to windward without losing the lead he had established. In such light airs it was the accomplishment of a master helmsman. By the time *Reliance* rounded the outer mark she was far ahead of *Shamrock III*. The race was practically decided, barring some unexpected slant or change of wind which might favor the British challenger. It seemed a disappointingly tame finale to an international series.

But the vacillating weather managed to make the last minutes unforgettable. Before the finish, a thick fog rolled in completely obliterating the course. Groans of exasperation from spectators were added to the sour protest of foghorns. When last seen, *Reliance* had been leading by several miles. During the next hour excursion boats and yachts, drifting in a disconsolate group, tried to avoid collisions among themselves.

The repeated wailing of horns and the hoarse blast of the big lightship near the Committee boat, sounding regularly to guide the contestants back to the finish line, effectively squelched high spirits usually engendered by a Cup Race.

Fog is a yachtsman's major worry. Time passed. Anxiety communicated itself from boat to boat. People stopped talking to watch and listen. Nothing could be seen through the impenetrable mist, nor could anything

be heard but the mournful cry of gulls and the moan of the horns. The wait grew more and more filled with suspense.

At last a suggestion of sound, ghostly and remote, became faintly audible. Watchers on the Committee boat heard it first.

It was the slatting of an immense sail on a swaying boat.

As *Reliance* emerged slowly from the fog, people caught their breath. Her hull was completely hidden in low-lying mist. All that could be seen was tier upon lofty tier of floating white canvas. She drifted down course like a moving phantom.

With Nathanael Herreshoff on board in the afterguard, it was hardly surprising that *Reliance* found her way home, nosing out the exact center of the finish line, where his instinct knew it was.

Immediately her crew broke out three United States yachting ensigns, one at her truck and two at her masthead spreaders. Flying these emblems of victory and wildly cheered by every ship she passed, she was towed slowly through the narrows into New York City waters.

Tenders searching for the defeated *Shamrock III* found her at last, well off the course but otherwise unharmed.

CHAPTER 16

PROMPTLY at a quarter before six on a late November afternoon in 1905, Nathanael Herreshoff left the shipyard. For the past several weeks he had been careful to take his departure before closing time. But the night watchman who had just come on duty recognized the slightly stooped figure of his Chief in the dim lantern light of the yard.

"Good night, sir," he said touching his cap.

An unaccustomed note of affection tinged the deference of the yardmen these days. The sympathy of his employees hurt Nat savagely, though they could hardly be expected to know it. It was to avoid any personal contact with them that he left early.

He answered the man's greeting with a quick lift of the hand and hastened his step. Walking down darkened Hope Street toward his house he breathed more freely, relieved to be alone at last, but only momentarily relieved. The final ordeal of the day was still to come, when he would open the door of the house on Love Rocks which Clara would never enter again.

In spite of all that doctors could do and the care money could buy, Clara had died not many weeks ago. At first Nat had hoped that the unbearable thing which had happened might be eased if he shut himself up in his work rooms. The best of life for him had always been his hours of work at Love Rocks. But no matter how work might detach him from other troubles it could not insulate him from the bitter realization of Clara's absence.

For twenty-two years the presence of his wife had been just beyond those rooms. Her open and gracious hospitality had made friends of his clients, her warm-hearted concern for the families of the yardmen had done much to earn him their deep loyalty, her good humor had eased his own tensions. Clara had both shielded him from the anxieties and crises of family life and protected her children from Nat's intense moods and isolating silences.

Shocked by their mother's death and their first experience with sorrow, the young people drew away from their father. They had always been shy of him and were as embarrassed as he by any awkward efforts now to approach them. It was Clara who had been their close companion. Nat had lived in their midst, but like an onlooker. He was a stranger to youth, having scarcely had time to be young himself. From the time he was eight, a blind brother almost twice his age had forced upon him a man's interests and occupations.

Nat's attempts to change himself at this late date

were fruitless, soon abandoned and equally soon forgotten by all concerned.

Clara's sister and her mother, both of them long-time members of the household, now took over the management of his family and home. Nat provided generously for everyone. He had supported these two relatives of his wife for many years and would continue to do so until their deaths.

Meantime family rifts widened the distance between himself and those nearest him. Nat was too immersed in work to notice much, and what he did notice he was helpless to alter, but he did what he could.

His sons, all of whom possessed the Herreshoff bent for boatbuilding and engineering, had unequalled opportunities to learn in the family shipyard. There, too, they had the finest lathes and tools procurable to satisfy their love for wood- and metalworking. As they grew to manhood they had motorcycles and automobiles, for although Nat cared nothing for land-bound contraptions and felt only disgust for the new, evil-smelling gasoline engine, he was willing that his sons experiment with them as much as they liked.

The years passed, and although there was no lessening of Nat's skills his manner became sterner and his speech more curt. His severity estranged his family.

The young Herreshoffs adjusted themselves to their changed home as youth always will, by seeking and finding compensations outside it. No one realized that Nat was a sick man — as sick at heart as he was with the rheumatism which grew worse and added to his irrita¬

bility. His closest associates were as uncomprehending of his physical and mental misery as he was unwilling to acknowledge it. They only knew he had become very difficult to live with.

During the next eight years Nat's professional life moved, if possible, at even more than its customary driving pace. His Cup Defense boats had advertised the Herreshoff name widely. Americans felt a national pride in their "Wizard of Bristol." There were, they understood, two of these fabulous Herreshoffs. One was blind and managed the business end of the yard through a combination of shrewd bargaining ability and miraculous feats of memory. The sixth sense most blind people develop in their fingers amounted in John Herreshoff's case to wizardry. Stories about John grew with the years. The latest circulated was vouched for by Thomas Asten, a friend of the Herreshoffs, who invited John one day on board his schooner *Montauk.*

A little incredulous himself of the abilities attributed to John, Mr. Asten nevertheless courteously asked him to take the helm.

After the wheel was in his hands a few minutes John remarked, "The flying jib is too flat."

To humor a blind man, the sailing master sent the mate — always in charge of headsails — forward to check.

The mate could see nothing wrong and shook his head. "It's all right," he reported.

"It's too flat," insisted John.

This time the sailing master went forward himself, discovered that all the draft had been pulled out of the sail and ordered the sheet slacked.

Immediately John sang out, "Now she's right!" and the schooner's speed increased perceptibly.

Meticulous attention to every detail of sailing was characteristic of the Herreshoffs. Even John, who sailed by the feel of the wind on his face and the swing of the wheel under his hand, was a better sailor than most men.

The beautifully grained wood which John bought from lumber dealers and which distinguished Herreshoff yachts from others was selected by touch. It didn't pay dealers to fool him by throwing in inferior wood. The dishonesty was sooner or later detected and an excellent customer lost. The Herreshoffs alone bought such high grade material. Lumbermen put it aside for them, knowing they willingly paid the higher price it was worth.

Newspapers were largely responsible for the confusion about the two heads of the Herreshoff Manufacturing Company. The public generally had no concept of the functions of a naval architect and because Nathan¬ael's name was well known it was assumed that he was the blind one. Yachtsmen were better informed.

At this time, racing classes of one-design boats began to come into favor. When all the yachts in a class were built from the same model and to identical measurements the always complex question of time allowance was eliminated. The winner was the boat which finished first.

Many prominent yacht clubs organizing these one-design classes hoped to persuade Nathanael Herreshoff to be their designer and builder. Nat had indeed to be persuaded. One-design boats smacked too much of the production line in a factory. However, they were profitable to build and he did originate a few such classes, one of the most famous being the sloops designed for the New York Yacht Club and known as "The New York Thirties." Today, after fifty years, most of them have changed hands. Though disbanded as a class they are still prized for their soundness and splendid sailing qualities.

But such projects were merely the by-product of a fertile genius. Nat's important output continued to multiply in a succession of fast power boats, steam yachts and sailing vessels of great size and beauty. There was a demand in the early 1900's for large private yachts. Fortunes had mushroomed with the country's phenomenal industrial growth and wealthy clients were plentiful.

Abroad, yacht racing was the sport of aristocrats. Many an American millionaire found it gave him added prestige to own a big boat. It was a sure way of calling attention to his financial status as though he flaunted his bank account from the masthead instead of his private signal. The query once put to J. Pierpont Morgan by a would-be yachtsman concerning the cost of maintaining a boat like the Morgan *Corsair* had elicited the caustic reply, "If you have to think of the expense, you can't afford one."

Nathanael Herreshoff had been born opportunely,

when limitless private resources were available to back his finest achievements, and before the automobile and the airplane diverted public interest to other fields.

Some of Nat's most important experiments in boat construction were worked out in his Cup boats. His ability to combine maximum lightness with strength was one of the factors that made his great racing hulls so successful.

Asked one day how he did it, he replied casually, "You just build lighter and lighter until something carries away. Then you know when to stop." This statement, coming from a man whose scientifically devised methods of framing were later incorporated in airplane bodies and whose meticulous testing of every part of his hulls and rigging was notorious, amounted to a joke. His methods may not have been consciously imitated (since it is possible for designers to discover for themselves the principles upon which their predecessors built) but Nat was the first to use them.

His innovations in engine design were equally significant to that field. All these and many other smaller contributions such as the invention of sail tracks and sail slides in common use today, were worked out in the solitude of his workrooms at Love Rocks and developed in the Herreshoff yard. Once produced, he gave them little further thought. Because he was so habitually absorbed and taciturn, it was not generally understood, even in his lifetime, how much he originated.

Since Nat was now the recognized authority on all yachting matters, he was asked by the New York Yacht

Club to work out a measurement rule for competing boats which would correct the exaggerations of length and sail area recently pushed to the extreme limit. *Re¬liance* had carried on her single mast as much canvas as the combined sail area of *Puritan* and *Mayflower,* Edward Burgess's two Cup defenders.

Another reason for a return to smaller, more able-bodied yachts was the steadily increasing cost of immense Cup boats. Each one had to have several suits of sail so the replacements could be immediate in case of accident. One mainsail for *Reliance* came to nearly $7,000. Today the cost would be triple that amount — enough to build a house.

Nat did not need persuading. As a yacht designer it had not been up to him to call a halt. When he modeled a Cup defender he accepted the measurement rules established by the racing officials on both sides. These rules governed certain proportions but not the overall length or the shape of a boat.

Nat worked out a new formula in which the two speed-giving dimensions of a boat — its length and sail area — were multiplied together and then divided by a linear dimension representing the displacement. This rule produced boats of more wholesome proportions that stood an equal chance against the long narrow racing hulls then in vogue. Because it was adopted by all yacht clubs Nat's formula was called the Universal Rule. It proved a lasting contribution to racing and earned him honorary memberships in the New York and several other prominent yacht clubs.

Naval architecture and engineering were not overcrowded professions in Nathanael Herreshoffs time. Unhappily for his colleagues, whatever Nat undertook was done with a thoroughness and competence that left no room for betterment in his generation. But the gasoline engine was a contraption he left to others.

More automobiles were now on the roads. The earliest ones had been driven by steam or electricity. Now, however, the gasoline engine was here to stay. Nat regarded this rival of his beloved steam engine as an offensive upstart. He installed a few gasoline engines in the launches his clients ordered, but only at their request. The last one he designed, in 1904, was smoother, quieter and faster than others on the market but its cylinder block cracked twice near the exhaust valve, and a twice-repeated weakness was enough for him to wash his hands of anything he disliked so heartily anyway.

Nathanael Herreshoff was a fastidious man. This trait was at the bottom of his distaste for tobacco and liquor. His insistence that a fine boat merited the same care as a valuable work of art was more than a yachtsman's creed and his objection to gasoline engines was founded on the same hypersensitivity. Its fumes revolted him. He was irritated by its noise and provoked to something like fury when a gasoline launch, trailing a plume of nauseous blue vapor and spreading its oily film over the clean salt water, came close to his own exquisitely kept yachts.

Years later, when the Herreshoff yard was on the decline, he was to wish he had conquered this feeling of

revulsion long enough to have designed as superior a gasoline motor as he had a steam engine. The end of the steam engine was plainly in sight but Nat could not recognize it. It had perhaps been too long a sure financial backlog of the Herreshoff Manufacturing Company.

A tocsin was about to ring on luxurious pleasure yachts also, but no one in America — much less Bristol, Rhode Island — was aware of the threat.

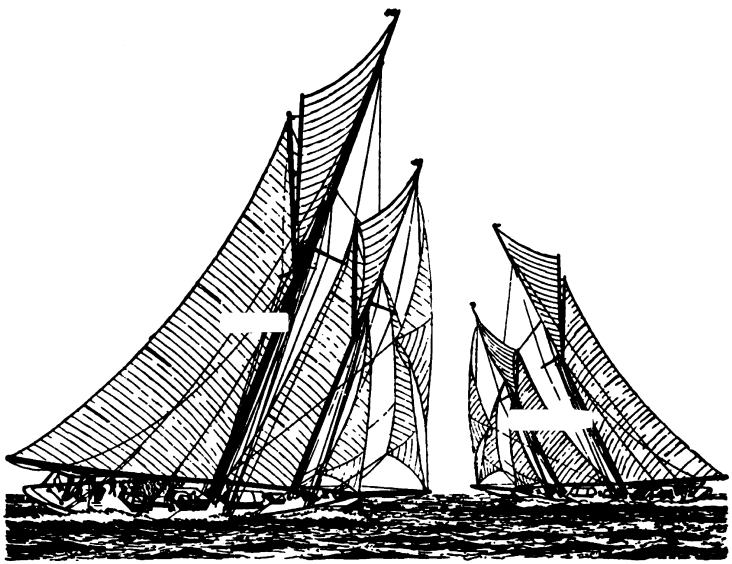
While events in Europe were pushing the world slowly and inevitably toward total war, Nat was producing one of his culminating triumphs as a yacht designer. He had up to this time had no interest in schooners. As a specialist in the design of fast yachts his prejudice against the schooner was well founded. Its rig was not only costly and complicated but offered too much wind resistance. He yielded however to the persuasion of a well-liked client, and built him the 122-foot steel schooner *Ingomar.*

At her launching on greased ways, *Ingomar* took the water stern first, as was customary, but at quite a rate. Her momentum carrying her on without a pause, she described a wide half circle in the harbor and came back to her launching spot still running stern first. Giving the North Wharf a good-humored smack with her stern, she finally came to a stop, having done no real harm either to the wharf or herself.

It was a unique piece of clowning, watched with a good deal more concern than amusement by her designer and the yardmen, and so neatly executed that

Ingomar won everyone's affection. Her racing successes abroad under the skillful handling of Charlie Barr must have softened Nat's feeling about schooners for he was to produce nine more before a moratorium was called on steel and large pleasure craft. These yachts, all of them well over a hundred feet in over-all length, were a wonderful sight under full sail.

A number of them were in the New York Yacht Club fleet which set off on its annual cruise in the summer of 1923. The first rendezvous was at Block Island, and Nathanael Herreshoff, who was at that time seventy-five, had already anchored his steam yacht in the harbor. Like numbers of other yachtsmen, he had come



Large schooners racing

to watch the always stirring spectacle provided by this annual event when the big fleet of yachts made port at the end of each day's sail. He was visiting on board a friend's boat when the sails of his big schooner *Enchantress* appeared on the horizon. She was the first yacht in.

A murmur of appreciation traveled round the harbor as she entered, her lower sails and tall topsails gleaming white in the afternoon sun, her jibs etched in graceful arcs against the sky. Behind her in stately procession came her proud sister schooners, *Elena, Queen, Ohonkara, Vagrant* and *Karma.*

It was a pageant that drew everyone to their feet. Turning to the elderly yacht designer at her side, Mrs. Harry Curtis, one of Nat's fellow guests, said, "You must be very proud and happy, Mr. Herreshoff. They are all your children — "

Interrupted by a short masculine grunt, she stopped and stole a glance in his direction. His face wore a look of acute discomfort. Replying gracefully to compliments was not among Nathanael Herreshoffs accomplishments.

"I'll be getting back to my 'bot' now," he said shortly afterwards in his clipped Rhode Island vernacular.

A rowboat drew up to take him off. Nat made the considerable leap down unaided. A sure sense of balance landed the elder statesman of the yachting world squarely on his feet in the center of the dinghy. No one there would have dared proffer him a hand.

CHAPTER 17

THE YEARS since Clara Herreshoffs passing, though difficult as far as Nat's personal life and health counted, had been rich in crowded achievement. There had been serious illness among DeWolf relatives which had necessitated the return of the trained nurse, Ann Roebuck, to the Herreshoff house. This warmhearted Englishwoman who had taken such excellent care of Clara was greatly loved by all the family. With her return, a serenity which had been sorely missed entered the home again.

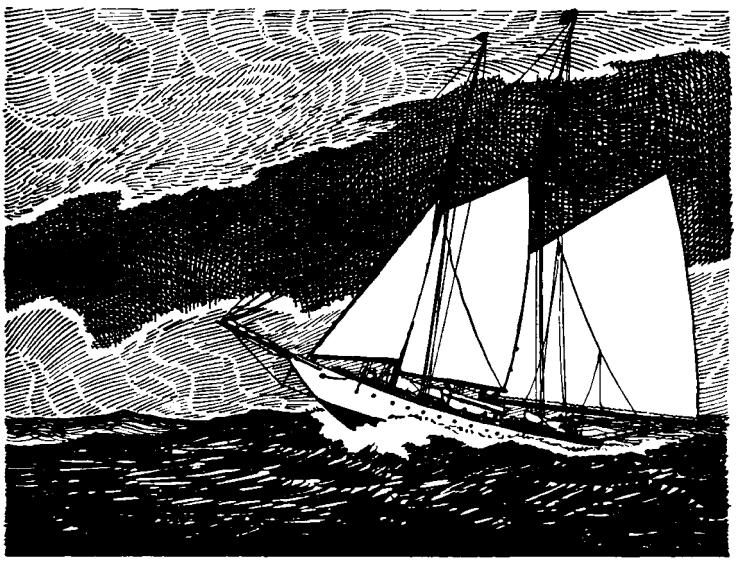
Meanwhile, the world outside Bristol seemed secure, on the surface anyway, and the economy of the country was still stable. The prosperous era which had created a large leisure class in America seemed likely to last forever. In quiet Narragansett Bay, that yachtsman's paradise rarely disturbed by political portents, the year 1913 marked a climax in the prosperity of the Herreshoff yard.

Two events made it notable. The building of the 162-foot steel schooner *Katoura* — the largest yacht

ever contracted for by the Herreshoffs — and the launching of Nat's sixth and last Cup defender, *Resolute.*

For any other naval architect, the designing of a nation's Cup boat would have been a task of sufficient magnitude to exclude any other major work for the time, but not so Nathanael Herreshoff. When Sir Thomas Lipton renewed his challenge for the Cup in the autumn of 1913, Nat's schedule already included the building of *Katoura* and a number of power yachts, to say nothing of a class of Newport 29-footers and several smaller sailboats. He accepted the order for *Resolute* as just an added assignment.

Katoura was one of Nat's most notable yachts. More



The *Katoura*

would have been heard of her had she not been launched just before a world upheaval.

The Cup events planned for the summer of 1914, in which *Resolute* was to figure, had to be abruptly canceled with the sudden outbreak of World War I in August. The English challenger, *Shamrock IV,* had already been towed to these shores. She and *Resolute* had to be laid up for an indefinite period, as were most large yachts. *Katoura's* unhappy fate was inevitable because of her large size. Sold, after the war, her new owner cut down her towering masts and installed a Diesel engine in her. Shorn of her glory as a racing yacht she became a bitter memory to her designer, who had cherished great hopes for her.

But Nat had by this time been compelled to accept a number of harsh changes in his life. The first occurred at the end of that busy year of 1913 when his health broke down. He was forced to stop working — a shattering experience in itself — and go to a New York hospital for lengthy treatment.

His oldest son, A. Sidney DeWolf Herreshoff took his place in the yard as engineer and designer while John Herreshoff continued as manager. Although the United States had not yet entered the war, yachting activities were much reduced, and since under the circumstances the Herreshoff Manufacturing Company could carry on without him, Nat took the doctors' advice and spent two winters in Bermuda. But in 1915, before he was entirely restored to health, there fell the blow from which the yard never fully recovered.

While Nat had been in Bermuda that winter, John had negotiated with the Russian government for a number of motor torpedo boats. It was the biggest piece of business he had ever put through. John's astonishing feats as a blind man were no real compensation for having been robbed in youth of a career.

Of all the Herreshoff sons, he had been the most ambitious. What might he not have accomplished but for the accident that had deprived him of his sight? It was a question he pondered in hours of dark discouragement.

But his deal with Russia gave him immense satisfaction. It would plainly lead to orders of the same sort from other governments now that nations had to arm themselves against the German submarine. The Herreshoff yard might acquire naval importance that would give his talent for management unlimited scope. His chance had come late — he was seventy-two. But it had come.

"The transaction is practically completed," he told Nat happily when the two brothers were alone in his office. "It only needs your signature."

They discussed the matter at length and John went on to say more than was wise. His imagination painted larger construction sheds, more wharves, a forest of cranes, an army of employees.

He couldn't see his brother's face as he talked, and for once the keen intuitions of a blind man were silenced in the rush of his enthusiasm. He paid scant attention even to the tone of Nat's voice when he asked questions.

The whole story was finally told, but when the con-

tract was placed in front of Nat, he refused to sign it.

Stunned, John demanded why not. "Money has been deposited in the bank. We can start tomorrow."

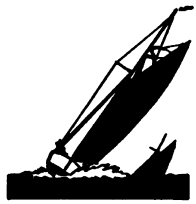
Nat said little in reply. What he said John never repeated. Nat had put a stop to the whole project when he came home. John was too heartsick to say more.

And yet it is easy to imagine the other side — Nat's side.

The fulfilling of the contract with the Russians called for a bold outlay of money and bold planning if John's hopes were to be consummated. They also involved doing business with foreigners — and here Nat's New England caution saw difficulties. Moreover, John's dreams of expansion had a very familiar sound. In boyhood he had listened and been the butt of his older brother's unending drive.

The two had gone into partnership with the clear understanding that the overhead costs of the business must never exceed the money in hand. It was John's nature to overextend himself. It was Nat's to test as he went along. The brothers had made a perfect balance until now. During the months Nat had been away a blind man had been the nominal head of the yard. The taste of independence and power after a lifetime's dependence had been sweet.

John left the office that day a broken man. Inside of a few weeks he was dead. His going was the first tragedy in the closing chapter of a great enterprise.



CHAPTER 18

WITH THE DEATH of John Herreshoff, Bristol lost one of its best-loved figures and the Herreshoff Company a vital spark which was never to be rekindled. Captain Nat's genius drew to itself skilled workers who liked tough assignments and uncompromising demands, but blind John, out of the warmth and wealth of his personality, fused the yard and its men into a community of artisans working together for a common goal. He made each man feel indispensable to the success of the business. In slack times, rather than be laid off they rallied to the support of their employers, repairing buildings, turning their hands to any work that was required.

When, in the weeks following Nat's return from Bermuda, John had been forced to drop the contract with the Russian government, it was the employees who first detected a difference in him. They missed the ring of bluff authority in his voice. He began to fall into absent-minded despondent silences. Unlike most blind people his movements had been confident. Now the pitiful signs of his handicap were suddenly apparent in a shuf¬

fling walk and hands that fumbled.

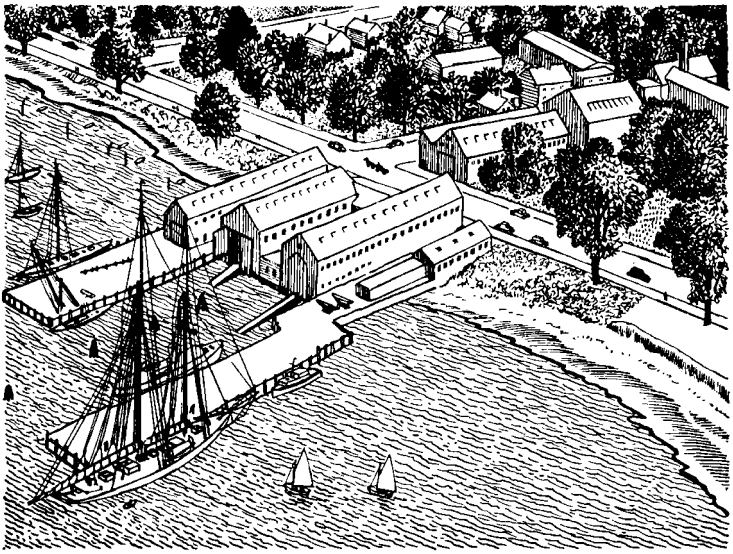
"You'd better check that figure I just gave you."

The first time he said this to a startled stenographer the office force looked at one another in silent concern. John's memory had been more reliable than their files. His waning abilities grew more and more noticeable, even to himself, and from then on he sank rapidly like a ship foundering. The employees loved him too well to grieve. To have remained a derelict was a fate John Herreshoff could not have borne.

What John's death meant to Nat no one saw as clearly as the Englishwoman, Ann Roebuck, who had come back into his household to nurse Clara's sister. Insight, born of deep friendship with Nat's wife, enabled Ann Roebuck to discern what he felt and would never be able to say, and like Clara she had the quality of compassion.

Since childhood Nat's career had been inseparably linked to John, first in the role of a worshiping younger brother, later in a life partnership in work they both loved. The severing of such a deep and lasting tie left a hidden wound. It was not eased by Nat's harassment over the necessity to manage the business of the Herreshoff plant himself. Neither the treasurer, the purchasing agents nor the office force had the knowledge to answer questions arising daily by mail or telephone in regard to new yacht work. This had been John's function as well as his particular accomplishment, in which he took pride.

Now it became a heavy load which fell on Nat, car¬



The Herreshoff Manufacturing Company

ried on top of his pressing assignments as designer and engineer. There was also his duty to look after John's half share in the business. The trustees of his brother's estate had to be consulted and kept informed concerning yard transactions. All these responsibilities would have overwhelmed Nat but for one factor.

His household was much depleted now that his sons were men, becoming involved in affairs of their own. In this year of 1915, Clara's mother died, leaving Nat with only a daughter for companion. Ann Roebuck who had helped the Herreshoffs through so many domestic crises was persuaded to stay on. The friendship between herself and Nat was long and tested. It seemed natural to everyone who knew them that it should lead

to the more enduring relationship of marriage. His children welcomed it as a right and happy solution for themselves as well as their father.

Meantime, as each month increased the violence of the European struggle against Germany, it grew more doubtful how much longer the United States could remain uninvolved. Fearful that yacht building would decline, John's trustees decided to liquidate all his stock. Wealthy owners of Herreshoff boats became eager buyers. They anticipated a great boom in naval building should the country be drawn into the war. The famous Herreshoff yard, which was geared for such work from its previous production of torpedo boats, was sure to get more work than it could handle.

Nat saw that no more favorable time for him to withdraw from the management of the business might ever recur. He sold out at the same time and remained affiliated with the yard only as its designer and engineer.

The new owners, all men of financial prominence, used to the practices of big business, formed themselves into a syndicate and appointed high-powered executives to run the Herreshoff Manufacturing Company. It retained its name and lost its character. Love for a craft which had been its ruling incentive was replaced by a more modern and enticing spur to industry — the spirit of gain.

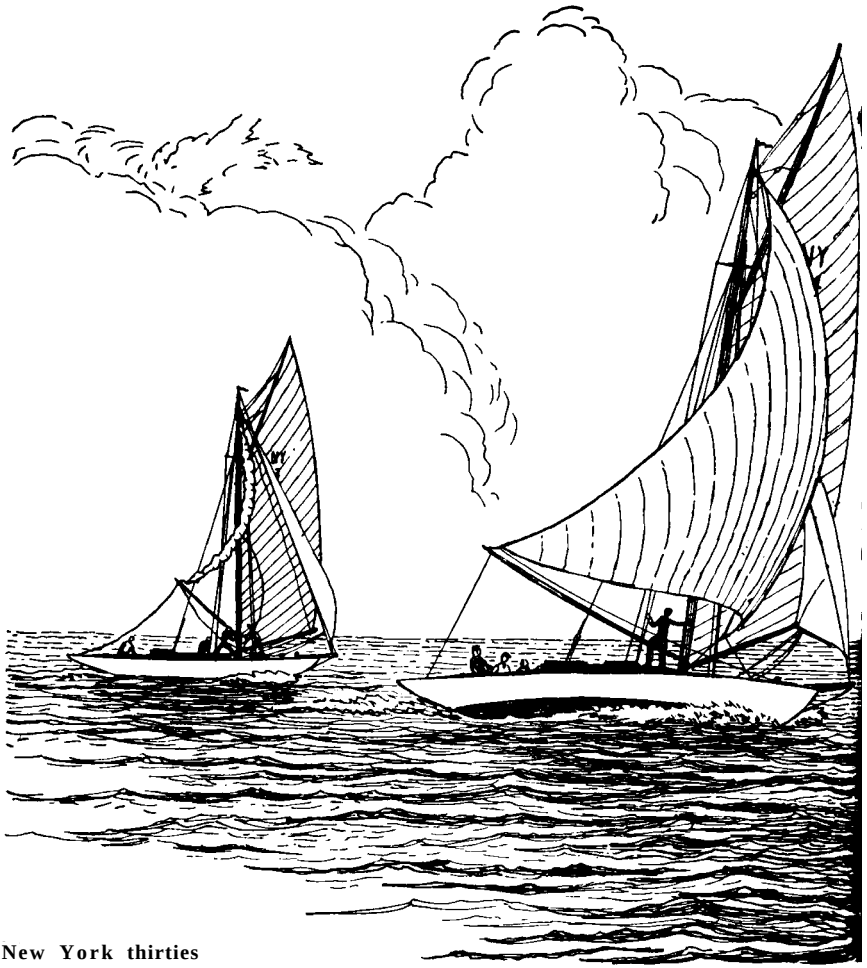
While Nat was still actively connected with it, however, the Herreshoff name and all it stood for maintained the prestige of the company.

CHAPTER 19

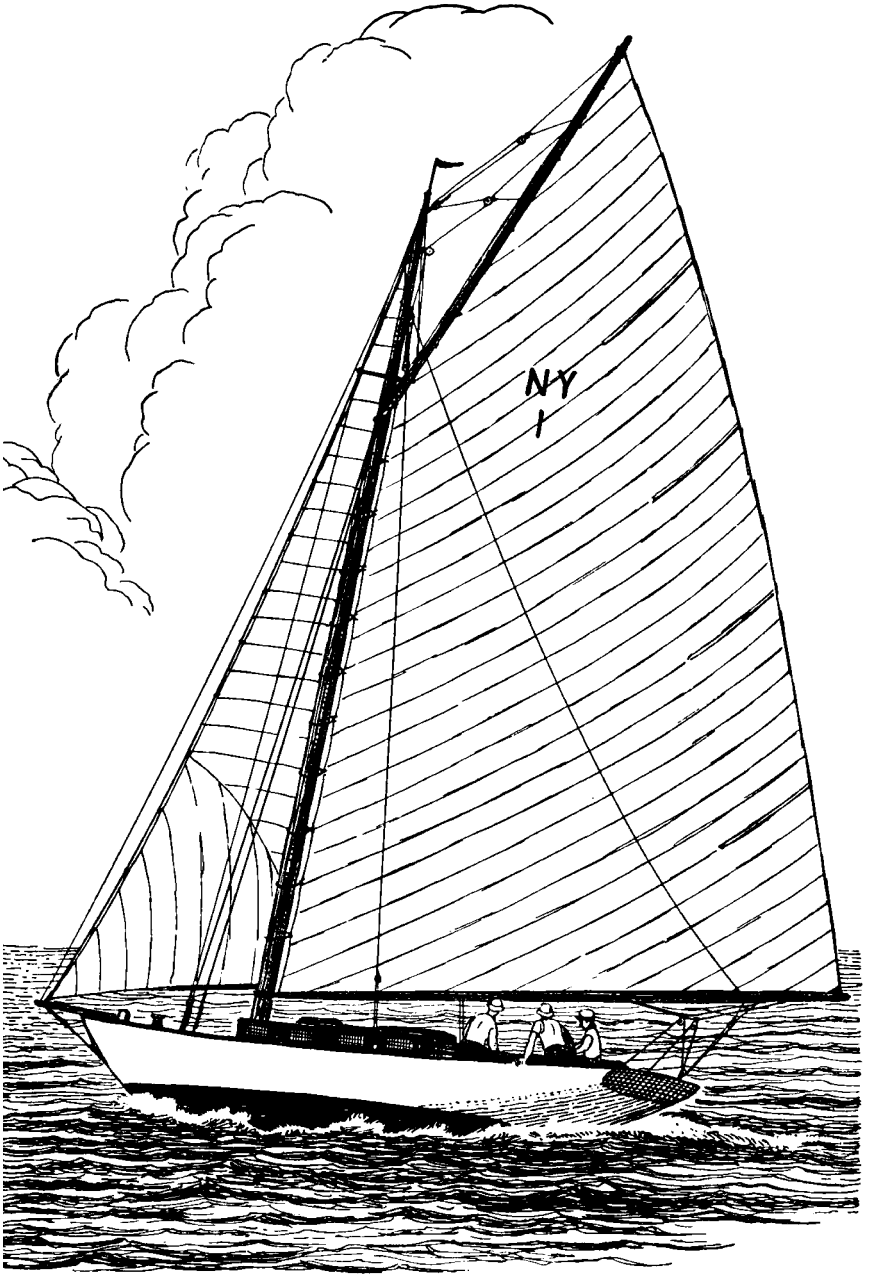
THE ENTRANCE of America into the war a year later did not result as had been hoped in profitable orders for the Herreshoff Company. It was known to be a Republican firm. A Democratic administration did business first with Democrats. The Republicans got what was left. Then too the public suddenly remembered that Herreshoff was a Prussian name. It was enough to be suspected (in the days of World War I) of pro-German sympathies.

Occasional repair work on destroyers and coast guard vessels, and some orders for sea-plane hulls and steel pontoons, did come in from the government, but nothing else. By the time peace was declared in 1918, yard finances were pretty low. It was fully a year before mine-infested waters were declared safe and the yachting industry began to recover.

Soon thereafter, Sir Thomas Lipton issued his fourth challenge to the New York Yacht Club, and the *America's* Cup Races, indefinitely postponed at the out-



New York thirties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break of the war, were revived. The races were scheduled for the summer of 1920, beginning July 15.

Shamrock IV had been laid up on this side of the Atlantic for the duration of the war. All the Cup boats were in American waters and were launched and reconditioned in time for their tuning-up exercises.

There were a number of trial races between the Herreshoff boat *Resolute* and *Vanitie,* the other candidate for the title of Cup defender, designed by William Gardner of New York. During one of them *Resolute* met with a startling accident. Rumors were afterwards circulated that Captain Nat had really gone too far this time with light construction, but the truth was that although *Resolute* was in the hands of very able yachtsmen, no one on board knew enough about mechanically controlled rigging.

Charlie Barr had carefully trained both himself and his crews in the use of the Herreshoff winches, but he was dead now, and moreover the employment of professional racing captains for the Cup series was ruled out now that the Universal Rule was producing Cup boats of a size amateurs could handle.

Just prior to her mishap, *Resolute's* mainsheet had been slacked away during a heavy squall, to relieve pressure. The leeward backstay should have been slacked off at the same time but this was not done, possibly because the winches controlling them were below decks and whoever was responsible forgot to give the order.

The full weight of *Resolute's* heavy mainsail and gaff now pressed against the taut back-stay. They were

of steel and held for a few minutes, but watchers who understood the terrific strain centered on the mast, which was of hollow wood, were in an agony of suspense.

Suddenly a curious thing happened. The big stick exploded, strewing the sea with hundreds of pieces of splintered wood. A ton of canvas fell to the deck. No one was hurt. *Resolute* was promptly refitted with a steel mast and the trials were resumed. In her races against *Vanitie* before the war, the Herreshoff boat had proved herself by far the more consistent winner. In the present trials her record was seven firsts to *Vanitie's* four. The choice for defender went to *Resolute.*

As usual, the opening race found an enormous fleet of spectator boats gathered off Sandy Hook. This time, the American yacht, lovely in her proportions but considerably smaller than any previous Herreshoff defender and carrying about half *Reliance's* sail area, did not capture the spotlight. *Shamrock IV* was the object of fascinated curiosity and comment. According to Herbert Stone, historian of the *America's* Cup Races, she was "the homeliest yacht that ever challenged for the Cup."

C. E. Nicholson, her distinguished English designer, himself dubbed her "the ugly duckling." Her long green hull was flat and blunt at both ends. Her only redeeming grace above water was her dazzling expanse of sail, in which she exceeded *Resolute* by two thousand square feet. No one discounted her ability to move fast, however. Americans, tired of their successive victories, gazed at her with positive hope. Something so

homely might have unguessed capacities — secrets of construction that made for speed.

Resolute's immediate failure to win the first race encouraged the hope. A drenching rain had fallen during the first leg of the course. When it was over, those in command ordered the defender's halliards slacked away. This is a necessary precaution when halliards are made of rope, to offset the shrinkage caused by the wetting. But *Resolute's* halliards were made of steel wire which doesn't shrink, and the incident which followed might have been avoided if her afterguard had only remembered this fact.

The sailor sent below to loosen the throat halliard started the mechanical winch which controlled it, and receiving no order from the deck to halt, paid out the wire to the last inch. The end was not fastened to the drum, whereupon the whole halliard went aloft and the throat of *Resolute's* mainsail came down.

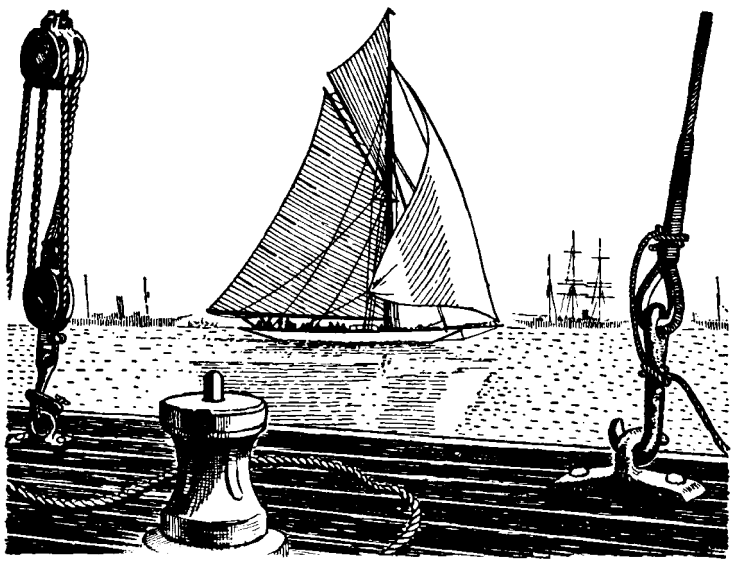
As the defender was practically on the first mark, she rounded it, despite her flapping sail. But after that she lowered her canvas and withdrew from the race. She had been well in advance of *Shamrock IV*. It was an ignominious way to lose a race. *Shamrock IV* had won the first round.

The next race, a windward and leeward one, was sailed in light fluky airs. The breeze, favoring first one boat then the other, became a contest of wits rather than a test of the qualities of each yacht. Both skippers were the most skilled amateur helmsmen in England and America. On this occasion the Englishman outmaneu¬

vered *Resolute's* skipper and captured the second race. The spectator fleet roared its approval.

The English boat now had two of the three races she needed to walk off with the trophy. Spectators jammed the water lanes on the day of the third race, again a windward and leeward course. This time, however, the wind was fresh and steady, a factor which favored *Resolute* on the first leg when she showed the ability of all Herreshoff boats to point high and hold their position.

It was the closest race ever sailed for the *America's* Cup. *Shamrock IV* got over the line first, but *Resolute* was hard on her heels. She followed the challenger relentlessly on the windward leg, planting herself on her opponent's weather side each time she tacked. *Sham¬*



Resolute **from the deck of** *Shamrock IV*

rock IV was slower in stays than *Resolute* and lost a few seconds every time she came about. The American yacht rounded the mark almost two minutes ahead.

The run home before a constantly freshening breeze had the onlookers in a frenzy. With spinnakers set, both yachts were "going like steamboats." *Resolute* was in the lead at first, but *Shamrock IV,* being astern, got the benefit of the oncoming gusts before her rival, and gained steadily. When she was two boat lengths from *Resolute* her big sails began to blanket the American yacht. It was a gamble now which would win, although the challenger was burdened with a heavy handicap because of those larger sails.

Then *Shamrock IV* was seen to inch ahead. She began pulling away, one boat length, then two, and at last three. To the accompaniment of an uproar of cheering and whistling the English yacht went across the finish line first.

The din soon hushed however, as the crowd realized the Committee had yet to determine the winner. It was customary to clock each boat around the course. After careful checking it was found that they had made exactly the same time, but because of the 7 minutes and 1 second owing to *Resolute* by the English yacht, because of her greater sail area, *Resolute* was the victor.

The score now stood *Shamrock IV* two, *Resolute* one. Each race from now on could be the crucial one, for the challenger only needed one more to win the series. The crews of both yachts needed, and were granted, a

respite. *Shamrock IV* hauled out the next day to have her bottom cleaned and polished.

Everyone who could beg, borrow or steal a ride on a boat headed for Sandy Hook to watch the fourth race. The air was sultry and thunderheads hung on the horizon. It looked as though excitement might climax the day. Instead, whatever thrills there were came at the start. For the two big yachts staged a wonderfully pretty show of seamanship as they jockeyed for first place.

A few seconds before the starting signal *Shamrock IV* seized the position she had been sparring for, but *Resolute* jibed instantly, planting herself between her opponent and the line. They went over almost together. *Shamrock IV*'s skipper then tacked toward the New Jersey shore, hoping to find wind there, but the search was unrewarded and lost him some valuable time.

After the first mark was rounded both boats broke out jib topsails. In this maneuver *Resolute's* crew redeemed their previous record by raising and sheeting home the sail in thirty seconds, while on board *Shamrock IV* the same task took over two minutes.

The sky, which had been darkening all the time, kept everyone on tenterhooks. It suddenly ripened into a squall. Anxious watchers saw the big sails flap violently as the two yachts were luffed sharply into the wind, then rain blotted out the course. When the brief storm lifted, *Resolute* was seen heading westward with *Shamrock IV* drifting astern. The downpour had emptied

the sky of wind as well as water. *Shamrock IV* lagged behind during the remainder of the race. Like all other English challengers she was not at her best in a "drift." *Resolute* won with several minutes to spare.

And now, at last, the deciding and final contest was at hand, or would have been, had not the wind next day set in from the southwest at 25 knots. After consulting with the skippers of both yachts the Regatta Committee hoisted the signal which meant postponement of the race. The fact was that even with their present reduction in size and sail area, Cup boats were still too lightly constructed and too overrigged to be risked in heavy winds.

Newspapermen called attention to the fact next day that while the decision to call off the race was being made, a small 30-foot schooner was sailing comfortably under full sail in full view of the Committee. Public patience with large racing machines was beginning to wear thin.

As if the wind itself was disgusted, it absented itself on the following day — the only day on which Nathanael Herreshoff was on board *Resolute.* The American syndicate had become uneasy over amateur blunders in handling the highly mechanized gear on the defender and urgently requested his presence.

The race was sailed in light, shifting winds which are the acid test of a helmsman's skill. It ended in just another heartbreak for Sir Thomas Lipton. Large yachts equipped with tall sails of very light fabric can "ghost" along over flat waters, propelled by the upper airs. Such conditions, frequently encountered on this side of the

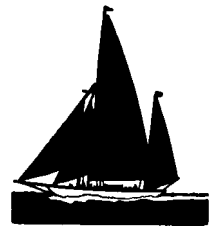
Atlantic, are, however, rare in English waters. They require ceaseless vigilance and a feel for air currents developed by long practice.

English yachtsmen, inexperienced in the art, were baffled by this sort of weather. *Shamrock IV* had dropped miles behind *Resolute* when the latter crossed the line.

In spite of bitter disappointment felt by the British over their failure to lift the Cup, when for the first time in history it was within their grasp, the races of 1920 did much to foster a greater feeling of amity between English and American yachtsmen. It demonstrated the value of keeping the Cup Races on a purely amateur footing. Under hired captains the events had been marred by the oversharp competition of professional sailors.

This time, in a friendly meeting before the series, the rival skippers had talked over the different racing rules of their separate countries and come to a gentleman's agreement on what each considered fair or unfair in racing practices. It was the only Cup series in which no one afterwards voiced any dissatisfaction with the way the race had been sailed.

Nathanael Herreshoffs last defender, as the forerunner of more moderate-seized yachts which could be handled by amateurs, ushered in a return to a more generous spirit of competition between yachtsmen of different nations.



CHAPTER 20

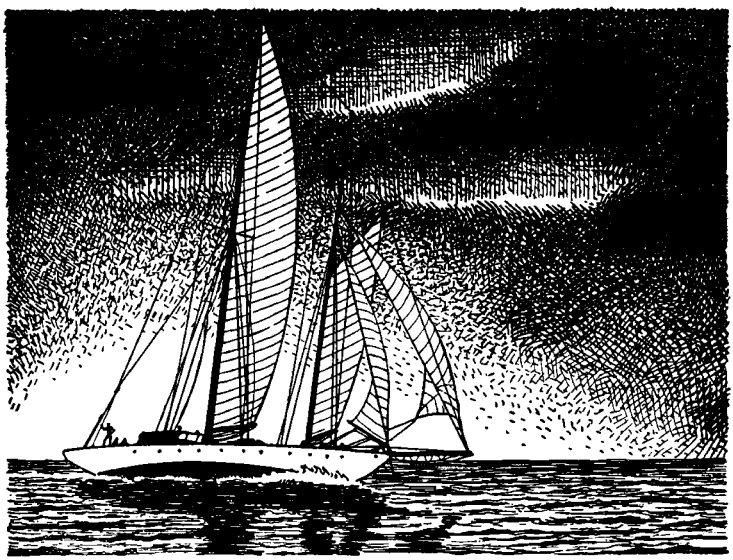
IN SPITE OF the stimulation the revived Cup events had given yachting, orders for large pleasure boats which had once made yacht building such a profitable enterprise for the Herreshoff brothers remained spasmodic. With the termination of World War I money no longer flowed as freely as it had. People had been slow to believe that a revolution was underway but now they were forced to recognize the signs of economic change.

The finances of the Herreshoff Company had been going downhill too gradually for Nat to be much disturbed by the ominous portents. Many of the stockholders were his old clients and consequently old friends, men of wealth, who talked of keeping the yard in operation not only for themselves but as a service to American yachting. For the first time in his life he was enjoying a period which, in comparison to his former habits of work, might have been called leisure. His happy environment, close to the construction sheds and workshops of the yard, where he could watch and supervise all that went on, was still unchanged. He went to

Florida every winter, leaving the overseeing in the capable hands of his oldest son. Herreshoff standards of work continued.

In 1923 Nat designed his last big schooner, *Wildfire*. In giving her the short full ends of an able-bodied fishing schooner Nat was departing from the patrician elegance of his earlier models for large yachts. The popular trend since the war was for a simpler life. In yachting the demand was for the greater comfort of sturdy seagoing boats. Nat acquiesced with something like relief. In his present mood the old coastal ships he had loved in youth had enduring qualities to which as a naval architect he was glad to return.

Nathanael Herreshoff had been a long time at the



The schooner *Wildfire*

top of the ladder in his profession. He had explored the secrets of speed and reached the highest points attainable in his period. He was aware that the science of engineering was opening fresh fields which, because of his advancing age, would not be his to develop. They were for a generation trained in new skills. In his own life he was content to let the pendulum swing back to fundamentals of ship design.

This new philosophy had been the more easily arrived at because he was in good health these days, happy and comforted in his personal life as he had not been since Clara's death, more relaxed, mellower and consequently less the autocrat.

Wildfire had not been launched many months before the stockholders of the Herreshoff yard began to take a more serious view of its dwindling prospects. The new management had been unable in six years to get the business back on its old footing. Yacht building was profitable when times were stable but not in a postwar economy. The present owners felt the only sensible course was to liquidate before losses were disastrous. Something indeed resembling panic may already have seized them, for they decided to auction off the Herreshoff plant.

To the town of Bristol, still feeling the loss of John Herreshoff, the announcement was like that of a second death. Most of the townspeople stayed away from the waterfront on the day of the auction.

A good number of the yardmen had been dismissed when the business changed hands and some had left of

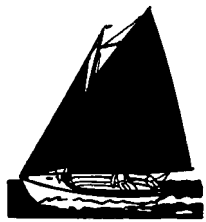
their own accord. But the employees who had been boys when they started working for the Herreshoff brothers, and were now men, had stayed on. They would sooner have seen their own homes auctioned off than the old gray sheds by the harbor where, learning their trade in a stern school, disciplined by master craftsmen, they had discovered the deep excitement of pride in workmanship. The Herreshoff Manufacturing Company had offered them more than a livelihood. It had taught them a way of life.

To this remnant of the old force the collapse of the yard was a personal tragedy. They stood around grim faced, in small, silent groups, watching priceless items of yard stock — the accumulation of years of expert knowledge of shipbuilding — sold for a song. Thousands of feet of the best hard pine, mahogany and oak were carried out to the ironic tune of "Going — going — gone." Quantities of brass, copper and bronze in sheets and in tubes went the same way and bales of the finest sailcloth and hundreds of pounds of rope. It had been the proud tradition of the yard that no work undertaken by the Herreshoffs was ever held up for lack of materials.

As, one after another, buildings which the employees had themselves helped raise in slack times fell to the auctioneer's hammer, the men swore feelingly. But one sight made them more sick than angry.

A solitary figure wandered aimlessly from construction sheds to forge shops, from forge shops to machine shops, from machine shops to storage lofts. It was Cap¬

tain Nat, lost in a wordless and agonized kind of abstraction. A few people milling around the yard recognized him and instinctively refrained from speaking to him. The yardmen turned away, unable to bear the look on his face. For them, too, the place was haunted with memories.



CHAPTER 21

WHEN THE DAY of the auction was over, it was found that a totally unexpected happening had saved the Herreshoff Manufacturing Company from complete extinction.

A man by the name of Rudolph F. Haffenreffer, who owned a country house on the outskirts of Bristol, attended the auction out of curiosity. Like many other local people he joined in the bidding, unable to resist the low prices, and found himself at the end of the day in possession of the construction sheds and the workshops.

With these as a nucleus to work on, Mr. Haffenreffer talked with a number of still interested yachtsmen and very quickly formed a new organization. They were able to buy back about one third of the machinery and special tools from other bidders and a few of the buildings on Burnside Street. But the building which had been the heart and life of the old plant remained in the possession of an old friend of the Herreshoff family. In it were the drafting rooms and the business offices

and one small, private room which had contained a world of work and usefulness for John Herreshoff. The building still bore on its door in modest gold letters the word OFFICE — the only sign the Herreshoff brothers had ever displayed in the yard.

Since the name of the old firm was of even more value to the new concern than the equipment they had bought, they reached an agreement with Nat which allowed them to retain it. Whereupon the words "Herreshoff Manufacturing Company" were painted in large letters where everyone could see them.

Nat did not affiliate himself with the new owners of the yard. The time had come for him to work as an independent yacht designer. But as long as the old yard remained (in outward form if not in essence) at his door, it was a familiar and perhaps dimly comforting landmark, symbol of memorable achievements.

His son, A. Sidney DeWolf Herreshoff, who had become chief engineer of the yard in 1918, agreed to stay on with the Haffenreffer group. A number of the yardmen who had been faithful to the Herreshoffs to the end also stayed on. The new management was careful to stress this in their advertising, together with the assurance that the Herreshoff name meant superior standards of shipbuilding that would remain unchanged. The work was maintained at a high level, certainly for as long as Nat lived and used its facilities himself for the construction of boats he designed.

These days when he entered the construction sheds to inspect work being done for him it was very clear that

to his men, Nathanael Herreshoff was still Chief.

For the past four years Nat had cruised to Florida in his gasoline-powered yacht *Helianthus III.* Time, and the fact that a steam yacht required an engineer on board, had reconciled him to the gasoline engine which was much easier to operate.

Nat's cruises to Florida with his wife demanded much vigilance and long hours at the wheel without relief, particularly when he took a sailboat in tow, as he sometimes did. Anyone else would have engaged a captain to share the responsibilities of the trip, but Nathanael Herreshoffs sailing habits were too rigid and exacting. He trusted no one but himself at the helm. At the age of seventy-six he began to feel his strength inadequate for the emergencies that can occur on a cruise and sold his power boat rather than let someone else handle her for him.

As time and changed ownership of the yard removed all the old pressures of work, Nat was content to do a limited amount of yacht designing. In the leisure of advancing years and unhurried winters at Coconut Grove, Florida, he turned back with a renewal of love to an old Bristol craft taught him in boyhood, the building of model or miniature yachts.

Omitting no detail of ship construction, Nat "framed out" and "planked up" his miniature boats just as yachts were built in the Herreshoff yard. Their stems, keels, deadwood and floor timbers were put together exactly like the real ones, with the same professional care and skill. A crowning pleasure, once they were finished,

was to sail them. They steered themselves by means of a weathervane attached to the rudder.

In this amusing sport, as in all his recreation on the Florida waters, Nat had the congenial companionship of a yachting enthusiast, Commodore R. M. Munroe, of Coconut Grove. The two men became fast friends. Commodore Munroe was himself a boat designer in a modest way, being the originator of a shallow draft boat resembling a sharpie, which was particularly well adapted to Florida waters and very popular there.

All the carefree relationships and fun Nat had missed as a boy were embodied in his intimacy with Commodore Munroe. Life seemed to have reserved this comfort for the time of his greatest need, for one by one, now, activities he loved demanding agility and endurance had to be curtailed.

When his cruising days were over, he designed *Pleasure,* a 30-foot yawl, for winter sailing in Florida. For two years he enjoyed the new boat and then, at the age of eighty, he suddenly found her too large for a man whose footing was growing unsteady. Each relinquishment was a private tragedy to a yachtsman who had always been a solitary and independent sailor.

"After selling *Pleasure* I still had a longing to sail," was Nat's brief comment in the notes he kept on each of his boats, but it reveals an inner struggle to resist infirmities. Determined not to yield without another try, he now took one of his recently designed smaller models and altered her to suit his needs. The little sloop which he shipped to Florida the following autumn was called

Captain Nat sailing *Pleasure* in Florida

Water Lily and could be handled entirely from her deep, roomy cockpit. She was larger but quite similar to the seaworthy little Herreshoff 12 1/2 footers Nat had designed in 1914 for the youngsters of Buzzards Bay. They remain unmatched today for safety and sailing qualities.

Two winters later the moment came when even *Water Lily* had to be given up. The saddest and the last of Nat's entries in his notes concerns her.

"In the following fall I was not reliable on my feet and decided to give up using boats entirely. So I turned over *Water Lily* to Miss Pattie Munroe who still has her. The End."

Those two words, which write "finis" to a great

yachtsman's career, were prompted perhaps more by his wife's concern than his own acceptance of defeat, for on his return to Bristol that autumn Nat could not resist going out in his 26-foot sloop *Alerion,* which had been moored as usual off his private dock. She too had been rigged for easy handling. But when out alone in her one day, Nat fainted. After that he never again risked sailing by himself.

As the years lengthened they brought him compensating wisdom for the things he could no longer do. Pride lessened and a good deal of his gruff manner dropped away. Nat found there was still some enjoyment for him on the water, even if someone else less expert than himself was at the helm.

In any gathering of sailing men he was still the foremost yachtsman of the world as well as the greatest yacht designer. At the New York Yacht Club where he was an honorary member, a corner of the club library was set apart for his special use. It was equipped with a drawing table and all the instruments a naval architect might need. Anyone peering into the library and discovering "Mr. Nat" already installed there made himself very small.

The club members loved their honorary member and were scared to death of him. To be caught by "Mr. Nat" in even a trivial error of seamanship was an embarrassment second to none.

A few still remember a heated discussion which occurred one afternoon in a room off the library. The issue was: What — technically — is the bow of a boat? One

member stoutly maintained that all space forward of the foremast was the bow. He gave this loose definition in support of his claim that an anchor might properly be lashed there.

At the height of the argument some uneasy sense that he was wrong made the man look up. "Mr. Nat" stood silently in the doorway, listening. The group stood up like sheepish schoolboys caught in some mischief by the Headmaster. After a short, petrifying silence, Nat said with mild sarcasm: "The bow of a boat is at the chock — and nowhere else."

"Yes, sir," agreed everyone hastily.

Nat retired without further comment.

The chock — a metal casting through which the anchor rope passes — is always at the extreme forward end of a vessel. The unlucky member who had been so vocal looked at his watch and suddenly remembered an engagement.

During the next four years Nat grew more frail. There were no more trips to Florida. He was very content to remain at "Love Rocks" by the harbor waters that had befriended him all his life and shaped his destiny. Although forced to spend an increasing amount of time in bed, he still worked in his model room, fashioning small gifts for his family on his Rivett lathe. For his sons who were yacht designers like himself, he made tools of tempered steel as beautiful as the hand-wrought implements of a master silversmith.

Nat kept himself abreast of scientific and engineering

news too, following with keen interest what others were doing in the fields in which he had worked. He had never belittled the accomplishments of others in his profession. While he had never concerned himself much with politics he had time to think about it now. He had no use for the New Deal which shortened working hours and retired men from their trades and professions at their highest point of usefulness. His own happiness had been forged out of hard work and long hours.

The year 1937 saw the last of the great international yachting events called the *America's* Cup series. Nat was permanently bedridden now, but he had a mirror installed near his bed so that he could see what was going on at the yard. The latest American Cup defender was built there and about to be launched and made ready for her trials.

It seemed that Nat had but one longing left in life, and that was to meet C. E. Nicholson, the English designer of *Shamrock IV,* defeated ten years ago by Nat's own Cup defender, *Resolute.* Nicholson had gained increasing eminence since then, so much so that many referred to him as a second Nathanael Herreshoff. He was the designer of the present British challenger, *Endeavor II.*

Harold Vanderbilt knew of Nat's great desire to meet Nicholson and brought the English designer to call on him at "Love Rocks."

Deeply moved that Nicholson should have troubled to come to him, and too weak to do more than hold his visitor's hand, Nat managed to convey in a few whis¬

pered words his hope for Nicholson's success in the coming series. "Let the best boat win" was the traditional wish of every true yachtsman, whether the boat was British or American.

After Nicholson's visit Nat seemed more content to let the days slip by uneventfully. The last scene in the drama of yachting had been played for him. He was ready to embark for uncharted seas. For some time he had been putting his affairs in order.

Among the possessions he bequeathed to members of his family was the beloved jackknife marked "For New England Whalers." This, he designated, was to go to his grandson Nathanael Greene Herreshoff 2nd. The whole incident of its bestowal by Mr. Greene in the hour of a small boy's grief was written out by Nat for his grandson, and the following note added:

"This story was penciled particularly for my namesake, Sidney's son, Nathanael Greene Herreshoff 2nd, — with a hope that some time in the future a properly written or typed copy be given him along with the knife. And a wish from his old Grandpa that he try to keep it and honor and cherish it as long as he did."

Nathanael Herreshoff had been a shrewd investor in his last years, playing the market with skill and greatly increasing the fortune his share of the Herreshoff business had earned him.

His will was to provide liberally for Ann Roebuck, whose devotion and constant presence at his side during this period of his enfeeblement made it one of companionable serenity. He had often waited in his boats

for sundown, on just such placid waters, drifting peacefully in the afterglow of a fine day's end, while twilight crept closer.

His sons dropped in casually to see him, some of them coming from long distances at the call of Ann Roebuck. These last visits were carefully concealed farewells which did not fool Nat. He summoned for his boys a little of his old tart and testy self, to rout any danger of their thinking him weakened in mind or will.

On his ninetieth birthday Nat's mail was crowded with letters of congratulation from admirers and friends. Once he might have brushed such attentions aside. Now they pleased and touched him. The tribute which gave him the deepest pleasure came from home. The Town Council of Bristol sent a great bouquet of flowers and a note, thanking him for the employment and the fame he had brought the town of his birth over a period of sixty years.

A few weeks later, on June 2, 1938, like one of those slowly falling Bristol tides he had so often watched making its quiet passage out to sea, Nathanael Greene Herreshoff passed peacefully away at "Love Rocks."

For his fellow townsmen his going hastened a fast vanishing way of life. Three months afterwards, the great hurricane of that year wrought terrible havoc in the Narragansett Bay area, damaged the Herreshoff yard and swept away the boathouse on Nat's property which sheltered his best-loved yachts. Those who loved him were glad he left before the end.