CHAPTER IV--FINDING ONE'S WAY ABOUT

"But," our friends objected, "how dare you go to sea without a navigator on board? You're not a navigator, are you?"

I had to confess that I was not a navigator, that I had never looked through a sextant in my life, and that I doubted if I could tell a sextant from a nautical almanac. And when they asked if Roscoe was a navigator, I shook my head. Roscoe resented this. He had glanced at the "Epitome," bought for our voyage, knew how to use logarithm tables, had seen a sextant at some time, and, what of this and of his seafaring ancestry, he concluded that he did know navigation. But Roscoe was wrong, I still insist. When a young boy he came from Maine to California by way of the Isthmus of Panama, and that was the only time in his life that he was out of sight of land. He had never gone to a school of navigation, nor passed an examination in the same; nor had he sailed the deep sea and learned the art from some other navigator. He was a San Francisco Bay yachtsman, where land is always only several miles away and the art of navigation is never employed.

So the Snark started on her long voyage without a navigator. We beat through the Golden Gate on April 23, and headed for the Hawaiian Islands, twenty-one hundred sea-miles away as the gull flies. And the outcome was our justification. We arrived. And we

arrived, furthermore, without any trouble, as you shall see; that is, without any trouble to amount to anything. To begin with, Roscoe tackled the navigating. He had the theory all right, but it was the first time he had ever applied it, as was evidenced by the erratic behaviour of the Snark. Not but what the Snark was perfectly steady on the sea; the pranks she cut were on the chart. On a day with a light breeze she would make a jump on the chart that advertised "a wet sail and a flowing sheet," and on a day when she just raced over the ocean, she scarcely changed her position on the chart. Now when one's boat has logged six knots for twenty-four consecutive hours, it is incontestable that she has covered one hundred and forty-four miles of ocean. The ocean was all right, and so was the patent log; as for speed, one saw it with his own eyes. Therefore the thing that was not all right was the figuring that refused to boost the Snark along over the chart. Not that this happened every day, but that it did happen. And it was perfectly proper and no more than was to be expected from a first attempt at applying a theory.

The acquisition of the knowledge of navigation has a strange effect on the minds of men. The average navigator speaks of navigation with deep respect. To the layman navigation is a deed and awful mystery, which feeling has been generated in him by the deep and awful respect for navigation that the layman has seen displayed by navigators. I have known frank, ingenuous, and modest young men, open as the day, to learn navigation and at once betray secretiveness, reserve, and self-importance as if they had achieved

some tremendous intellectual attainment. The average navigator impresses the layman as a priest of some holy rite. With bated breath, the amateur yachtsman navigator invites one in to look at his chronometer. And so it was that our friends suffered such apprehension at our sailing without a navigator.

During the building of the Snark, Roscoe and I had an agreement, something like this: "I'll furnish the books and instruments," I said, "and do you study up navigation now. I'll be too busy to do any studying. Then, when we get to sea, you can teach me what you have learned." Roscoe was delighted. Furthermore, Roscoe was as frank and ingenuous and modest as the young men I have described. But when we got out to sea and he began to practise the holy rite, while I looked on admiringly, a change, subtle and distinctive, marked his bearing. When he shot the sun at noon, the glow of achievement wrapped him in lambent flame. When he went below, figured out his observation, and then returned on deck and announced our latitude and longitude, there was an authoritative ring in his voice that was new to all of us. But that was not the worst of it. He became filled with incommunicable information. And the more he discovered the reasons for the erratic jumps of the Snark over the chart, and the less the Snark jumped, the more incommunicable and holy and awful became his information. My mild suggestions that it was about time that I began to learn, met with no hearty response, with no offers on his part to help me. He displayed not the slightest intention of living up to our agreement.

Now this was not Roscoe's fault; he could not help it. He had merely gone the way of all the men who learned navigation before him. By an understandable and forgivable confusion of values, plus a loss of orientation, he felt weighted by responsibility, and experienced the possession of power that was like unto that of a god. All his life Roscoe had lived on land, and therefore in sight of land. Being constantly in sight of land, with landmarks to guide him, he had managed, with occasional difficulties, to steer his body around and about the earth. Now he found himself on the sea, wide-stretching, bounded only by the eternal circle of the sky. This circle looked always the same. There were no landmarks. The sun rose to the east and set to the west and the stars wheeled through the night. But who may look at the sun or the stars and say, "My place on the face of the earth at the present moment is four and three-quarter miles to the west of Jones's Cash Store of Smithersville"? or "I know where I am now, for the Little Dipper informs me that Boston is three miles away on the second turning to the right"? And yet that was precisely what Roscoe did. That he was astounded by the achievement, is putting it mildly. He stood in reverential awe of himself; he had performed a miraculous feat. The act of finding himself on the face of the waters became a rite, and he felt himself a superior being to the rest of us who knew not this rite and were dependent on him for being shepherded across the heaving and limitless waste, the briny highroad that connects the continents and whereon there are no mile-stones. So, with the sextant he made obeisance to the sun-god, he consulted ancient tomes and tables of magic characters, muttered prayers in a strange tongue

that sounded like INDEXERRORPARALLAXREFRACTION, made cabalistic signs on paper, added and carried one, and then, on a piece of holy script called the Grail--I mean the Chart--he placed his finger on a certain space conspicuous for its blankness and said, "Here we are." When we looked at the blank space and asked, "And where is that?" he answered in the cipher-code of the higher priesthood, "31-15-47 north, 133-5-30 west." And we said "Oh," and felt mighty small.

So I aver, it was not Roscoe's fault. He was like unto a god, and he carried us in the hollow of his hand across the blank spaces on the chart. I experienced a great respect for Roscoe; this respect grew so profound that had he commanded, "Kneel down and worship me," I know that I should have flopped down on the deck and yammered. But, one day, there came a still small thought to me that said: "This is not a god; this is Roscoe, a mere man like myself. What he has done, I can do. Who taught him? Himself. Go you and do likewise--be your own teacher." And right there Roscoe crashed, and he was high priest of the Snark no longer. I invaded the sanctuary and demanded the ancient tomes and magic tables, also the prayer-wheel--the sextant, I mean.

And now, in simple language. I shall describe how I taught myself navigation. One whole afternoon I sat in the cockpit, steering with one hand and studying logarithms with the other. Two afternoons, two hours each, I studied the general theory of navigation and the particular process of taking a meridian altitude. Then I took the sextant, worked out the index error, and shot the sun. The figuring

from the data of this observation was child's play. In the "Epitome" and the "Nautical Almanac" were scores of cunning tables, all worked out by mathematicians and astronomers. It was like using interest tables and lightning-calculator tables such as you all know. The mystery was mystery no longer. I put my finger on the chart and announced that that was where we were. I was right too, or at least I was as right as Roscoe, who selected a spot a quarter of a mile away from mine. Even he was willing to split the distance with me. I had exploded the mystery, and yet, such was the miracle of it, I was conscious of new power in me, and I felt the thrill and tickle of pride. And when Martin asked me, in the same humble and respectful way I had previously asked Roscoe, as to where we were, it was with exaltation and spiritual chest-throwing that I answered in the cipher-code of the higher priesthood and heard Martin's self-abasing and worshipful "Oh." As for Charmian, I felt that in a new way I had proved my right to her; and I was aware of another feeling, namely, that she was a most fortunate woman to have a man like me.

I couldn't help it. I tell it as a vindication of Roscoe and all the other navigators. The poison of power was working in me. I was not as other men--most other men; I knew what they did not know,--the mystery of the heavens, that pointed out the way across the deep. And the taste of power I had received drove me on. I steered at the wheel long hours with one hand, and studied mystery with the other. By the end of the week, teaching myself, I was able to do divers things. For instance, I shot the North Star, at night, of

course; got its altitude, corrected for index error, dip, etc., and found our latitude. And this latitude agreed with the latitude of the previous noon corrected by dead reckoning up to that moment. Proud? Well, I was even prouder with my next miracle. I was going to turn in at nine o'clock. I worked out the problem, self-instructed, and learned what star of the first magnitude would be passing the meridian around half-past eight. This star proved to be Alpha Crucis. I had never heard of the star before. I looked it up on the star map. It was one of the stars of the Southern Cross. What! thought I; have we been sailing with the Southern Cross in the sky of nights and never known it? Dolts that we are! Gudgeons and moles! I couldn't believe it. I went over the problem again, and verified it. Charmian had the wheel from eight till ten that evening. I told her to keep her eyes open and look due south for the Southern Cross. And when the stars came out, there shone the Southern Cross low on the horizon. Proud? No medicine man nor high priest was ever prouder. Furthermore, with the prayer-wheel I shot Alpha Crucis and from its altitude worked out our latitude. And still furthermore, I shot the North Star, too, and it agreed with what had been told me by the Southern Cross. Proud? Why, the language of the stars was mine, and I listened and heard them telling me my way over the deep.

Proud? I was a worker of miracles. I forgot how easily I had taught myself from the printed page. I forgot that all the work (and a tremendous work, too) had been done by the masterminds before me, the astronomers and mathematicians, who had discovered and

elaborated the whole science of navigation and made the tables in the "Epitome." I remembered only the everlasting miracle of it--that I had listened to the voices of the stars and been told my place upon the highway of the sea. Charmian did not know, Martin did not know, Tochigi, the cabin-boy, did not know. But I told them. I was God's messenger. I stood between them and infinity. I translated the high celestial speech into terms of their ordinary understanding. We were heaven-directed, and it was I who could read the sign-post of the sky!--I! I!

And now, in a cooler moment, I hasten to blab the whole simplicity of it, to blab on Roscoe and the other navigators and the rest of the priesthood, all for fear that I may become even as they, secretive, immodest, and inflated with self-esteem. And I want to say this now: any young fellow with ordinary gray matter, ordinary education, and with the slightest trace of the student-mind, can get the books, and charts, and instruments and teach himself navigation. Now I must not be misunderstood. Seamanship is an entirely different matter. It is not learned in a day, nor in many days; it requires years. Also, navigating by dead reckoning requires long study and practice. But navigating by observations of the sun, moon, and stars, thanks to the astronomers and mathematicians, is child's play. Any average young fellow can teach himself in a week. And yet again I must not be misunderstood. I do not mean to say that at the end of a week a young fellow could take charge of a fifteen-thousand-ton steamer, driving twenty knots an hour through the brine, racing from land to land, fair weather and foul, clear

sky or cloudy, steering by degrees on the compass card and making landfalls with most amazing precision. But what I do mean is just this: the average young fellow I have described can get into a staunch sail-boat and put out across the ocean, without knowing anything about navigation, and at the end of the week he will know enough to know where he is on the chart. He will be able to take a meridian observation with fair accuracy, and from that observation, with ten minutes of figuring, work out his latitude and longitude. And, carrying neither freight nor passengers, being under no press to reach his destination, he can jog comfortably along, and if at any time he doubts his own navigation and fears an imminent landfall, he can heave to all night and proceed in the morning.

Joshua Slocum sailed around the world a few years ago in a thirty-seven-foot boat all by himself. I shall never forget, in his narrative of the voyage, where he heartily indorsed the idea of young men, in similar small boats, making similar voyage. I promptly indorsed his idea, and so heartily that I took my wife along. While it certainly makes a Cook's tour look like thirty cents, on top of that, amid on top of the fun and pleasure, it is a splendid education for a young man--oh, not a mere education in the things of the world outside, of lands, and peoples, and climates, but an education in the world inside, an education in one's self, a chance to learn one's own self, to get on speaking terms with one's soul. Then there is the training and the disciplining of it. First, naturally, the young fellow will learn his limitations; and next, inevitably, he will proceed to press back those limitations.

And he cannot escape returning from such a voyage a bigger and better man. And as for sport, it is a king's sport, taking one's self around the world, doing it with one's own hands, depending on no one but one's self, and at the end, back at the starting-point, contemplating with inner vision the planet rushing through space, and saying, "I did it; with my own hands I did it. I went clear around that whirling sphere, and I can travel alone, without any nurse of a sea-captain to guide my steps across the seas. I may not fly to other stars, but of this star I myself am master."

As I write these lines I lift my eyes and look seaward. I am on the beach of Waikiki on the island of Oahu. Far, in the azure sky, the trade-wind clouds drift low over the blue-green turquoise of the deep sea. Nearer, the sea is emerald and light olive-green. Then comes the reef, where the water is all slaty purple flecked with red. Still nearer are brighter greens and tans, lying in alternate stripes and showing where sandbeds lie between the living coral banks. Through and over and out of these wonderful colours tumbles and thunders a magnificent surf. As I say, I lift my eyes to all this, and through the white crest of a breaker suddenly appears a dark figure, erect, a man-fish or a sea-god, on the very forward face of the crest where the top falls over and down, driving in toward shore, buried to his loins in smoking spray, caught up by the sea and flung landward, bodily, a quarter of a mile. It is a Kanaka on a surf-board. And I know that when I have finished these lines I shall be out in that riot of colour and pounding surf, trying to bit those breakers even as he, and failing as he never failed, but

living life as the best of us may live it. And the picture of that coloured sea and that flying sea-god Kanaka becomes another reason for the young man to go west, and farther west, beyond the Baths of Sunset, and still west till he arrives home again.

But to return. Please do not think that I already know it all. I know only the rudiments of navigation. There is a vast deal yet for me to learn. On the Snark there is a score of fascinating books on navigation waiting for me. There is the danger-angle of Lecky, there is the line of Sumner, which, when you know least of all where you are, shows most conclusively where you are, and where you are not. There are dozens and dozens of methods of finding one's location on the deep, and one can work years before he masters it all in all its fineness.

Even in the little we did learn there were slips that accounted for the apparently antic behaviour of the Snark. On Thursday, May 16, for instance, the trade wind failed us. During the twenty-four hours that ended Friday at noon, by dead reckoning we had not sailed twenty miles. Yet here are our positions, at noon, for the two days, worked out from our observations:

Thursday 20 degrees 57 minutes 9 seconds N
152 degrees 40 minutes 30 seconds W
Friday 21 degrees 15 minutes 33 seconds N
154 degrees 12 minutes W

The difference between the two positions was something like eighty miles. Yet we knew we had not travelled twenty miles. Now our figuring was all right. We went over it several times. What was wrong was the observations we had taken. To take a correct observation requires practice and skill, and especially so on a small craft like the Snark. The violently moving boat and the closeness of the observer's eye to the surface of the water are to blame. A big wave that lifts up a mile off is liable to steal the horizon away.

But in our particular case there was another perturbing factor. The sun, in its annual march north through the heavens, was increasing its declination. On the 19th parallel of north latitude in the middle of May the sun is nearly overhead. The angle of arc was between eighty-eight and eighty-nine degrees. Had it been ninety degrees it would have been straight overhead. It was on another day that we learned a few things about taking the altitude of the almost perpendicular sun. Roscoe started in drawing the sun down to the eastern horizon, and he stayed by that point of the compass despite the fact that the sun would pass the meridian to the south. I, on the other hand, started in to draw the sun down to south-east and strayed away to the south-west. You see, we were teaching ourselves. As a result, at twenty-five minutes past twelve by the ship's time, I called twelve o'clock by the sun. Now this signified that we had changed our location on the face of the world by twenty-five minutes, which was equal to something like six degrees of longitude, or three hundred and fifty miles. This showed the Snark

had travelled fifteen knots per hour for twenty-four consecutive hours--and we had never noticed it! It was absurd and grotesque. But Roscoe, still looking east, averred that it was not yet twelve o'clock. He was bent on giving us a twenty-knot clip. Then we began to train our sextants rather wildly all around the horizon, and wherever we looked, there was the sun, puzzlingly close to the sky-line, sometimes above it and sometimes below it. In one direction the sun was proclaiming morning, in another direction it was proclaiming afternoon. The sun was all right--we knew that; therefore we were all wrong. And the rest of the afternoon we spent in the cockpit reading up the matter in the books and finding out what was wrong. We missed the observation that day, but we didn't the next. We had learned.

And we learned well, better than for a while we thought we had. At the beginning of the second dog-watch one evening, Charmian and I sat down on the forecastle-head for a rubber of cribbage. Chancing to glance ahead, I saw cloud-capped mountains rising from the sea. We were rejoiced at the sight of land, but I was in despair over our navigation. I thought we had learned something, yet our position at noon, plus what we had run since, did not put us within a hundred miles of land. But there was the land, fading away before our eyes in the fires of sunset. The land was all right. There was no disputing it. Therefore our navigation was all wrong. But it wasn't. That land we saw was the summit of Haleakala, the House of the Sun, the greatest extinct volcano in the world. It towered ten thousand feet above the sea, and it was all of a hundred miles away.

We sailed all night at a seven-knot clip, and in the morning the House of the Sun was still before us, and it took a few more hours of sailing to bring it abreast of us. "That island is Maui," we said, verifying by the chart. "That next island sticking out is Molokai, where the lepers are. And the island next to that is Oahu. There is Makapuu Head now. We'll be in Honolulu to-morrow. Our navigation is all right."