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, by Rufus Rockwell Wilson**

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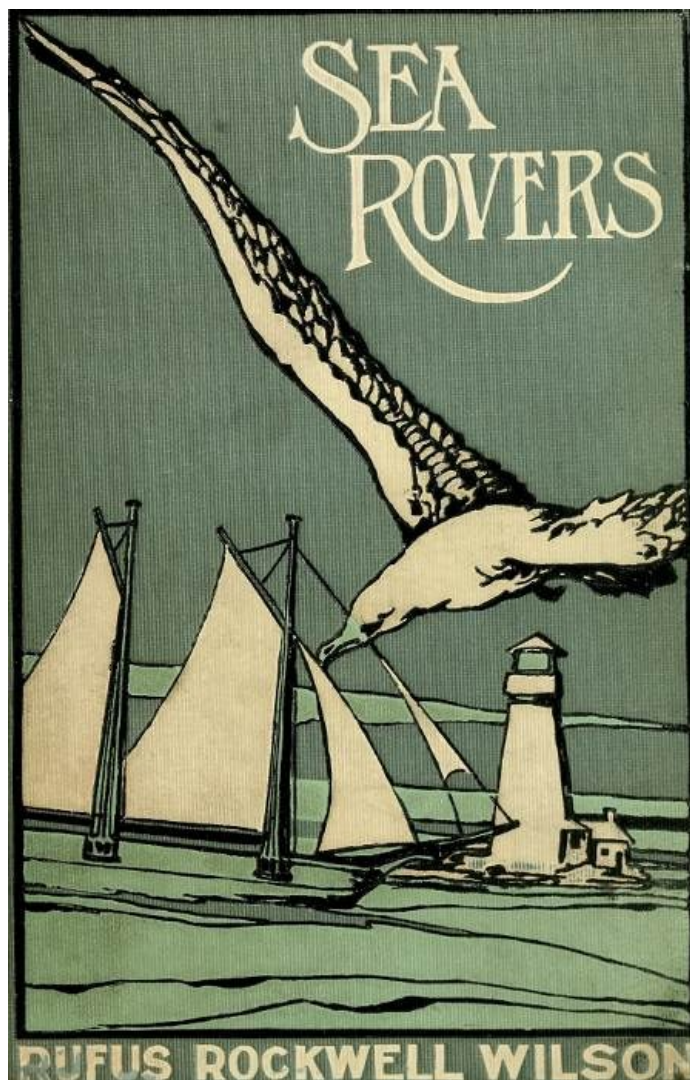
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*** START OF THE PROJECT GUTENBERG EBOOK THE SEA ROVERS ***



THE SEA ROVERS



A GLOUCESTER FISHERMAN

THE SEA ROVERS

By
RUFUS ROCKWELL WILSON
Author of "Rambles in Colonial
Byways," etc.

ILLUSTRATED BY MAY FRATZ

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THE SEA ROVERS

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CHAPTER I GLOUCESTER FISHER FOLK

A glorious vision is Gloucester harbor, whether seen under the radiant sun of a clear June morning or through the haze and smoke of a mellow October afternoon. Gloucester town lies on a range of hills around the harbor, and fortunate is the man who chances to see it as the background to a stirring marine picture when on a still summer's morning a fleet of two or three hundred schooners is putting to sea after a storm, spreading their white duck against the blue sky and fanning gently hither and thither, singly or in picturesque groups, before the catspaws or idly drifting to eastward, stretching in a long line beyond Thatcher's Island and catching the fresh breeze that darkens the distant offing. Here the green of their graceful hulls, the gilt scrollwork on the bows and the canvas on the tall, tapering masts are reflected as in a mirror on the calm surface; or beyond they are seen heeling over to the first breath of the incoming sea wind that ruffles the glinting steel of the sheeny swell, forming as a whole a scene of inexhaustible variety and beauty.

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Such a spectacle gives the stranger fitting introduction to Gloucester, for from earliest times the men of the gray old town have been followers of the sea. It was three years after the landing of the Pilgrims at Plymouth that the first Englishman settled on Cape Ann, at the place now called Gloucester, which took its name from the old English cathedral city whence many of its settlers had come. America's Gloucester doubtless seems young to the mother town, which is of British origin and was built before the Romans crossed from Gaul; but, despite the great cathedral in the English town and the importance in the clerical world of the prelates and church dignitaries who found livings there, the Yankee town was for many years a place of more consequence in the world of trade and profit than the English Gloucester has ever been.

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Founded as a rendezvous where fishermen could cure their fish and fit out for their trips, in the old days Gloucester in Massachusetts had fishing and whaling fleets, and her boats not only went out on the Banks in search of cod, but to the far limits of the North and South Seas they sailed to bring back rich cargoes of whale oil. Her fleets ventured into every sea from which profit could be brought, and boys born in the town or its neighbors three or four generations ago all looked forward to a half dozen cruises as a matter of course, just as the modern boy knows that he must go to school and learn to read and write. It was a rough school to which the youth of Gloucester and Cape Ann went, but it was a good one. They learned there to be brave and manly, and seafaring broadened the minds of men who had they stayed at home would have been sadly provincial and narrow.

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Thus the history of Gloucester centers in the fisheries. The yarns most often told at her firesides are of hairbreadth escapes at sea; her legends and romances have a flavor of the salt waves about them; her rugged granite shore is marked with the scenes of memorable shipwrecks and storms; her town records are the records of fleets that have gone down on the Banks, of pinks and schooners that have foundered on the Georges, of heroes that have toiled for their families and fought the grim battle of life with the fogs, the lightning and the swooping billows of the sou'wester, and with the ice, the hail and the short, savage cross seas and terrible blast of the raging nor'wester, while their children have cried for their absent fathers and their wives have lain awake through long, dreary nights, burning the light in the window and straining their eyes to see through the gloom of the storm the long expected vessel and the beloved forms that perhaps have already gone down at sea.

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The discovery of petroleum struck the Gloucester whaling industry a blow from which it has never recovered, but the town's fisheries are still in thriving condition. Four hundred fishing vessels of sufficient consequence to be registered hail at the present time from Gloucester. The number of men employed in these vessels, the majority of which are as speedy and well built as pleasure yachts, is upward of 5,000. Many of the fishermen are from the British provinces and make excellent skippers and sailors, while Sweden, Norway and the Azore Islands contribute a large number, who are, as a rule, orderly, capable and industrious. They fare well as compared with the fishermen of other days or with men now before the mast of the merchant service, and fresh pies, biscuits, fowls, eggs and like delicacies are frequently seen in the forecabin of a Gloucester banker.

The mackerel fishermen bound for the Georges Banks usually leave Gloucester as early as the last of February, but those bound to other waters with the cod, halibut and haddock fishermen do not start until later. The cod are caught chiefly on the Grand Banks of Newfoundland, where the watch lights of the Gloucester men twinkle in the midnight gloom in company with those of the French fishers of Miquelon and St. Pierre. Mackerel are also caught in the Bay of St. Lawrence, off Cape North, Sidney and the Magdalen Islands, where the fishermen often linger until late in the fall and are sometimes assailed by heavy gales among those inhospitable shores, without sea room, on a lee shore and no safe port to run to. The haddock and halibut are oftener caught on Brown's Bank and within the waters of New England. There are several modes of fitting out for the fisheries, but the one most often followed is for the owner of a vessel to charter her to ten or fifteen men on shares, he finding the stores and the nets and the men paying for the provisions, hooks and lines and for the salt necessary to cure their proportion of the fish.

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The crew of a banker is usually composed of a dozen to eighteen men, including the skipper, or captain, who exercises no direct control over the others, but is recognized by them as the principal personage on board. The average Gloucester fisherman is a splendid though rough specimen of an American. You may know him by his free-and-easy manner and his swinging gait. His costume when at work is a red or blue flannel shirt of the thickest material, admirably adapted to absorb and exclude the chilling fogs in which he passes so much of his time, a heavy tarpaulin or sou'wester, generally his own handiwork, pilot-cloth trousers and heavy cowhide boots completing his attire. His face bespeaks a serious but cheerful and contented spirit, the result of a philosophical, half careless dependence upon luck.

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Generous and fearless in his address, he is of simple and economical habits and, like most men of large stature, almost peculiar in a placid good humor which seldom leaves him. Always ready for any fortune, the fisherman tries to look upon the bright side of life and draw whatever there may be of pleasure from his hazardous calling. But among the bankers are occasional roystering, devil-may-care fellows, whose never ending practical jokes and offhand manner serve to enliven the little vessel and dispel the tedium of the voyage to the Banks.

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The Grand Bank extends north and south about six hundred miles and east and west some two hundred, lying to the southeast of Newfoundland. Its shape cannot be easily defined, but the form denoted by the soundings give it somewhat the resemblance of New Holland. To the southward it narrows to a point, presenting abrupt edges, which in some places drop into almost fathomless water. This, as well as the adjacent banks of St. Pierre, Bank Querau and the Flemish Cap, abound with fish of various kinds, which at stated seasons adopt this as a shoaling place or grand rendezvous. The most numerous of these are the cod, which thrive here so amazingly that the unceasing industry of many hundreds of vessels through two centuries has in no way diminished their numbers. The fishery is not confined to the Banks, but extends to the shores and harbors of Newfoundland, Nova Scotia, and Cape Breton. The fish affect sandy bottom. In winter they retire into deep water, but in March and April reappear and fatten rapidly from the time of their arrival on the Banks.

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Fishing begins as soon as the smacks reach the Banks. In other years all cod were caught by means of handlines, and some fish are still taken that way. The most, however, are now taken by trawls, which were introduced about 1860 and were first used by the French. A trawl consists of a line some 3,000 feet in length, to which are attached short ones about a yard long, on each of which is a hook. The short lines are placed about six feet apart, so that each trawl has about 500 hooks. Attached to each end of the line by a rope is a buoy, sometimes only an empty powder keg or a mackerel kit. In the head of the buoy is a pole three feet long, upon which is a small flag to attract the attention of the owner when in search of it. To each end of the line is fastened a small anchor.

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The hooks are baited with squid, herring or other small fish, if they can be secured. To bait a

trawl requires from an hour and a half to two hours. When it is ready it is placed in a tub made of a half barrel. The long line is coiled up in the center and the bait lies next to the sides of the tub. One man uses from two to six trawls, which are usually visited in a dory very early each morning and once or twice during the day. When one buoy is reached the end of the trawl to which it is attached is drawn up, the hooks examined and the fish taken off. By means of trawls a man may catch more in a single night than by a week's hard work with hand lines.

Each man keeps tally of his fish as he hauls them in to the dory by cutting out the tongues—the number of tongues giving the account of the fish taken. As soon as the day's catch has been taken aboard the schooner the crew divide themselves into throaters, headers, splitters, salters and packers, and the operation known as splitting and salting begins. The business of the throater is to cut with a sharp pointed knife across the throat of the fish to the bone and rip open the bowels. He then passes it quickly to the header, who with a sudden wrench pulls off the head and tears out the entrails, passing the fish instantly to the splitter. At the same time separating the liver, he throws the entrails overboard. The splitter with one cut lays the fish open from head to tail and with another cut takes out the backbone. After separating the sounds, which are placed with the tongues and packed in barrels as a great delicacy, the backbone follows the entrails overboard. Such is the amazing quickness of the operations of heading and splitting that a good workman will often decapitate and take out the entrails and backbone of six fish in a minute. After the catch has been washed off with buckets of pure water from the ocean the fish are passed to the salters and thence to the packers in the hold. The task of the salters is a most important one, as the value of the voyage depends upon their care and judgment. They take the fish one by one, spread them, back uppermost, in layers, distributing a proper quantity of salt between each. Packing in bulk, or "kench," as the fishermen term it, is intrusted only to the most experienced hands.

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When the day's catch has been cared for in the manner just described the watch is set and all but two men turn in. These watches are regulated in such a manner that every man is on deck his part of the night hours. Breakfast is served at 3 o'clock in the morning, and off the men go again to their trawls. If it is foggy dinner is announced by the report of a ten-pound gun from the schooner. It is then about 10 o'clock. After dinner the fishers are away again and back about 4, when the fish which have been caught are split and salted as on the previous day. The only thing that relieves the monotony on board a Gloucester fishing smack is stormy weather or the coming of Sunday. This day is kept holy.

Leaving the Grand Banks, let us cross over to the Georges Banks, where in the months of spring and summer we shall find Gloucester hand-liners, with crews of from eight to ten men fishing for mackerel. Every man is at the rail, as he fishes from the deck of the vessel. The tide runs so strong that nine-pound leads are necessary. Attached to each lead is a horse, a slingding, or spreader, and a pair of large hooks. Sometimes when fishing in thirty fathoms of water the great strength of the tide forces the men to pay out from sixty to ninety fathoms of line before the lead touches bottom. In front of each man, driven into the rail, is a wooden pin. This is termed the soldier, and it has an important duty. Every inch of the line is hauled across it. Were it not for these rail pins the lines would continually be fouled with one another.

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When a smack's crew chance upon a fresh school of mackerel their hooks have only to touch the water to be seized and swallowed. No time is lost in unhooking, but each fisherman hauls as fast as his hands can move until the fish appears in sight, when with one motion he is swung quickly over the rail into a barrel or heap and so dexterously that the hook disengages itself. When the fish continue plentiful the scene is a most exciting one. The long, lithe bodies of the fishermen eagerly bending over their work, the quick, nervous twitching at the line, followed by the steady strain, the rapid hand-over-hand haul that brings the prize to the surface, the easy swing with which he describes a circle in the air as the victor slaps him into his barrel and the flapping of the captives about deck, mingling with the merry laughter of the excited crew, make it a sport to which the efforts of the trout angler or the fowler with his double-barreled shotgun are but puny and insignificant in comparison.

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Time was when the use of the hook and line made mackerel catching the very poetry of fishing, but in recent years the purse seine has come into general use. Mackerel seining, however, is an interesting process. A large seine is two hundred and fifty fathoms in length and about fifteen or twenty fathoms deep. The school is sighted from the masthead and the direction in which the fish are swimming is noted. A boat is manned and sets out to head off the school. Two men in a dory hold one end of the purse line which runs through rings at the bottom of the seine. A circle is described by the boat, the seine being thrown out at the same time. When the boat meets the dory the other end of the line is taken into the boat. Then the seines are drawn together, forming a large bag. The fish are inside and it is necessary to gather as much of the net into the boat as possible. The fish are then in what is termed the bunt. This is the strongest part of the seine. The vessel sails up close to the boat, picks up the outside corks and the bailing begins, a dip net that will hold a barrel being used for this purpose, after which the fish are cleaned, salted and stowed in the hold. Vessels have been known to take 300 barrels in one haul, but the average catch nowadays is about twenty-five barrels.

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When the mackerel fleet fished with hand lines the pursuit of this industry was exciting in the extreme. Often when massed together in great fleets the vessels carried away their mainbooms, bowsprits, jibbooms and sails by collision in what was really a hand-to-hand encounter and when the maneuver of lee-bowing was the order of the day. A fleet of sixty odd sail descry a schooner whose crew are heaving and pulling their lines. The glistening scales of the fish sparkle in the

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sunlight. The fleet as one vessel turns quickly on its heel and there is a neck-and-neck race for the school. The first that arrives rounds to under the lee of the fortunate craft, the crew heaving the toll bait with lavish hands.

The new arrival now shakes up into the wind close under the lee bow of the fish-catching vessel. The fish forsake the latter and fly at the lines of the newcomer. Now comes up the balance of the fleet, and each vessel on its arrival performs the same maneuver and lee-bows its predecessor. Those to windward, forsaken by the fish, push their way through their neighbors, fill away and round to under the bows of those to leeward. The hoarse bawling of the skippers to their crews, the imprecations of those who have been run down and left disabled, rend the air, while the crews, setting and lowering sail and hauling fish, freely exchange with each other language not to be found in any current religious work. In these latter days, however, seines, as before stated, have taken the place of line, and lee-bowing, with its attendant excitement and danger, has passed to the limbo of forgotten things.

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Fishing smacks bound for the Georges, the Western, or Banks of Newfoundland may be gone three or four weeks, bringing their fish to market on ice, or they may be absent from four to six months, dressing and salting their fish on board. But, be the voyage long or short, it is a joyous and moving spectacle to see a schooner come into Gloucester from the Banks loaded to the scuppers and packed to the beams with codfish. The wharf is lined with eager spectators as she glides up to her dock with a leading wind. The foresail comes in and the mainsail is lowered and handed by a crew weatherbeaten and clumsily limber in heavy Cape Cod seaboots, sou'westers and oiljackets. Then the jib downhaul is manned and a number of boys, longing for the day when they can go to the Banks, catch the hawsers and make her fast to the pier fore and aft.

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Amidst a storm of questions asked and answered on both sides, the crew range themselves on board and on shore with one-tined pitchforks and proceed to unload with the rapidity and regularity of machinery. The men in the hold heave the fish on deck, whence they are tossed to the wharf. Another turn of the pitchfork lands them under the knife, their heads and tails come off and they are split open in a second and are then salted and spread upon flakes to dry. These flakes are frames covered with triangular slats and are about seven feet wide and raised three feet above the ground. At Gloucester they may be seen not only upon the wharves, but also in all vacant places between the houses and even in the front dooryards, so that at every turn the smell of codfish regales the passerby.

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But there is a sadder, sterner side to the life of the Gloucester fishermen than which I have been describing. Danger is their constant, death their familiar, companion, and each season has its sorrowful story of storm, wreck and disaster. Truth to tell, the perils of the trawler are even greater than those of the soldier in battle. He is often four or five miles from his vessel, when suddenly the thick fog closes in upon him and he is lost, perhaps to row for days in hopeless search, without food, drink or compass. He may die of exhaustion or perhaps be picked up at length by a passing vessel and taken to some distant port. More than thirty lives were lost in this way in the summer of 1894. Although horns are blown in warning, a whole crew is sometimes sunk in an instant by some steamer on its way across the ocean. Of all the men lost on the Banks during the last twenty years more than two-thirds have been out in dories attending trawls.

Fierce, too, are the storms which sweep the Banks in winter. Then the wind is bitter cold, deck and mast and sails are clad in ice, and many a crew are never heard of more. The Georges in fair weather is not dangerous fishing ground, but in a gale it defies both skill and strength. The shallow water is churned into rolling mountain waves which almost sweep the ocean bed. At such times the 125-ton fishing vessels, which usually anchor close together when fishing, are at the mercy of the elements. It is impossible for the anchors to get a firm grip and they are sometimes dragged for miles. This, in fact, is the greatest danger of the business. Not infrequently in a heavy gale two or three vessels will drift together, their cables become tangled until they are unmanageable and in short order vessels and crew will be engulfed. Some years ago thirty schooners, with 150 sailors aboard, were lost in this manner in a single gale on the Georges.

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Since 1830 nearly 700 fishing vessels sailing from Gloucester have been lost and upward of 2,700 men have perished. The winter of 1882 was one long to be remembered in Gloucester, for in less than two months more than a hundred fishermen were lost on the Banks. One of these was Angus McCloud, than whom no braver man ever found a grave at the ocean's bottom. Three years before he had been on the Banks in the same vessel with his brothers, Malcolm and John McCloud. Among their shipmates were the McDonalds—William, Donald, John and Neal. Their vessel was in the gale of 1879 on the Banks—a gale the like of which had rarely before been experienced by the fleet. Thrown over on its beam ends, the little bark still held to its anchor and finally rode out the gale with her crew lashed in the rigging. Nearby was another vessel in the same position, and others were being tossed about to windward and to leeward. Two poor fellows, washed from one of the former, were swept between the two vessels that had been knocked down and were not one hundred feet from either. The crews of these vessels, clinging to the icy rigging, looked anxiously from one to another to see if any one was bold enough to attempt a rescue. Angus McCloud cast off the lashings which bound him, seized a lanyard, made it fast about his waist and stood for a moment poised on the shroud lashings. Then he sprang boldly into an advancing wave and was carried toward one of the struggling men. Soon he had him by his oilskin coat and soon the crew were hauling them in. Angus assisted in the rescue of another comrade before the gale was spent and his vessel righted.

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Time and again other members of the Gloucester fishing fleet have proved themselves worthy

comrades of Angus McCloud. Several years ago Captain Mark Lane, now dead, but then skipper of the schooner Edwin, while homeward bound from the Banks discovered two shipwrecked men on a half-submerged rock near the Fox Islands, on the Maine coast. It was midwinter and a heavy gale was blowing, but Captain Lane put his wheel hard down, brought his vessel up into the wind, hove to under a close-reefed foresail and told his men they must rescue the sailors on the rock. It was a perilous undertaking and, as there appeared to be no chance of a boat living in the sea then running, the crew protested. "Then I'll go myself," said the skipper. "Stand by, there, lads, to lower away a boat from the davits!" But the crew relented when they saw that their captain was determined and two stout fellows drove a dory over the huge waves to the rock. The men were saved, and a certificate of the Humane Society of Massachusetts, still treasured by Captain Lane's family, attests that a careful examination into his conduct had proved him worthy the recognition of that admirable body.

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The experience of the Gloucester fishermen in the winter of 1882 was by no means an unusual one. In the last twenty years over a thousand of them have laid their bones on the drifting sands of the fishing banks. During a hurricane in 1876 on the Banks almost an entire fleet was disabled or lost and 200 men were drowned. The wind, which had been blowing a gale from the southeast, veered suddenly to west-northwest. Skipper Collins of the schooner Howard, one of the vessels that escaped, had a remarkable experience. His vessel was "hawsed" up by the current, which set strongly to the southward and nearly at right angles to the hurricane. He had just time to tie up the clew of his riding sail—a sort of storm trysail—and lash the bottom hoops together, thus making a "bag reef," when the hurricane burst with terrific force upon the little vessel. A heavy sea boarded the schooner and carried off one of the sailors. Later on, while standing on the bit head of the fife rail and grasping the riding-sail halyards ready to let it run if necessary, a ball of lightning burst between the masts and knocked the captain insensible to the deck, whence he was dragged below by his crew. The lightning severely burned his right arm and leg and disappeared through his boots.

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During the same storm the schooner Burnham was struck so suddenly and with such violence by a sea as to turn her bottom up and throw her skipper, James Nickerson, and his crew, who were below, upon the ceiling, where they lay sprawling for a moment until the vessel righted herself. There was one man on deck when she was struck, Hector McIsaac. He saw the wave coming and leapt into the shrouds. With his legs locked in the ratlines he went down into the foaming sea, and when the crew came on deck there was Hector McIsaac still clinging to the shrouds. Captain Nickerson was subsequently lost in a dory from the Bellerophon on the Banks, and Hector McIsaac went down in the Nathaniel Webster in 1881, together with his brother.

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Everybody who lives in Gloucester is interested in the fishing industry, and so it falls out that the city's life is about equally made up of intervals of joy and sorrow. When summer opens the general tone of public feeling is bright and hopeful, but at the end of the season, as the fishers come in, some with flags at half-mast, others bearing fateful news, the whole town is depressed. All the residents show a concern in the sailors who are lost and in the welfare of their families. Even citizens of fortune who suffer no personal bereavement have been brought closely into touch with the poor fishing families through repeated tragedies at sea. The scenes in the fishing quarters during the late fall and winter months when news of death is brought by almost every returning boat are most pathetic. Sometimes the news comes with a shock, at others wives and children wait for weeks in anxiety and never know the details of the fate of their loved ones.

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The immediate wants of the families of lost sailors are looked after by the Gloucester Relief Association. Almost everybody in the town subscribes to this, rich and poor alike, as well as the sailors living along the shore and in Nova Scotia, all of whom sail in the Gloucester vessels. When there is a disaster the nearest relatives of the men lost receive a sum proportionate to the amount which the subscribers have paid into the association. In addition, voluntary subscriptions are made by churches and societies in Gloucester and Boston once a year and distributed at the time of the annual memorial service in February.

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This service held in the city hall of Gloucester is unique in its way. Everybody in the city takes an interest in it and, with shops closed and business suspended, the day is one of general mourning. But neither death nor its solemn reminders can rob the boy born and bred in Gloucester of hunger for the time when he, too, may hazard life and fortune on the distant fishing grounds; and gray Mother Ocean, kindly and cruel by turns, claims him for her own, singing to-day of his hardihood and to-morrow—chanting his requiem.

CHAPTER II

AN OCEAN FLYER'S CREW

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Work on an ocean steamship never ends, for no sooner does she reach her moorings in New York, Liverpool or Hamburg than preparations begin for the next voyage. Her decks are holystoned, sprinkled with sand and made beautifully clean; the outside of her hull, from deck to water line, is repainted and, if it be the end of a round trip or voyage, all the exterior paint work receives a new coat, while her sanitary and plumbing arrangements, her smokestacks, woodwork, spars and rigging are all carefully examined and overhauled. All this is done by the sailors under the direction of the boatswain, who reports each day to the officer on duty and receives instruction

as to the work to be performed.

Meanwhile an overhauling equally minute and thorough is going on in the engineer's department, which includes not only the engines and boilers, but also the electric-lighting plant of the ship. The work of this department, however, is so arduous while at sea that officers and men receive liberty for the entire time the ship remains in port, their places being taken by a special shore force which remains aboard until sailing day. One boiler is left untouched to supply power for the engines that work the electric and refrigerating apparatus, the pumps and the machinery used in shipping cargo, but all the others as soon as they have cooled are entered, examined and, if need be, repaired. Each tube, combustion chamber and furnace receives careful attention; cylinders, pistons, crankpins and crossheads are gone over one by one, while the engines are generally overhauled and all the arrangements of the fireroom inspected. Nor is the steward's department less busy while in port. All the bed and table linen used during the voyage, many thousands of pieces, is collected and sent to the company's laundry, after which all the staterooms are cleaned and put in order and the fresh supply of linen made ready for the coming voyage.

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During a steamship's stay in port the three chief divisions, sailing, engineer's and steward's, are under the jurisdiction of shore officials whose officers are on the deck. The sailing department is responsible to the marine superintendent, the engineer's to the superintending engineer and the steward's to the port steward. Thus the vessel while in port has no direct communication with the company's office, the dock superintendents acting as intermediaries. When stores are sent to the ship they are addressed to the department for which they are intended. The port steward controls the direct purchasing of provisions and is supposed to buy in the cheapest and best market. The marine superintendent and superintending engineer furnish the other materials required. Should provisions be found unsatisfactory when received the chief steward sends them back, and in such action is always upheld by the port steward. The cargo is in charge of the sailing department and is received and stowed under the direction of a boss stevedore selected by the dock superintendent.

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Even the fleetest ocean steamships carry considerable cargoes, and to those unfamiliar with it the process of loading a vessel is a sight full of interest. On the wharf assorted merchandise by the carload is being lifted from vans and piled near the ship, and teams by the score are adding their quota to the immense mass, while on the water side lighters laden with more merchandise are either fastened to the vessel's side or anchored close at hand waiting to hoist their contents aboard. Engines are puffing, ropes are tugging and derricks lifting heavy freight of every kind to the ship's deck, the orders of the stevedore and the answers of his men mingling with the general din. Large vessels have four or five holds and much skill is required to properly stow the cargo in them, grain, from its compact and dead weight, being mostly reserved for the center of the vessel, while cured provisions are packed as far forward and aft as possible for their better preservation from the heat of the ship's fires. In many vessels carrying passengers as well as freight the heaviest weight is stowed in the lowest hold; this is to steady the ship and is called in the argot of the stevedore "stiffening" the ship. It requires about 1,500 tons to "stiffen" an ocean steamship of the largest size, and when this is done the hold is battened down and work begun on the next.

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An important feature in the loading of a steamship is her coal. It is customary to take as high as 200 tons of a surplus over the actual needs of the voyage, and the bunkers of the vessel are in charge of a special gang of men. Some vessels load their coal over all, but a majority receive it through openings at the sides. Large V-shaped pockets, running direct to the bunkers, are let down on each side and around them are built stagings on which a couple of men are stationed to dump the coal from huge buckets hoisted by engines from lighters. On the wharf side the coal is wheeled in barrows up a shelving gangway and turned into the bunkers direct. To load a great vessel requires the services for several days of 125 men, including a boss stevedore and a couple of foremen and with all the appliances of steam and gearing to assist their operations. The force is divided into half a dozen or more gangs, each having its head, who is in communication with the boss stevedore. As the work is intermittent the men are paid by the hour, and there is a keeper who does nothing else but take down the time each one is employed. Certain gangs of longshoremen stick to certain lines, and many of them have worked nearly all their lives for the same company. When the loading of a ship is completed a detailed inspection of cargo is made by one of the officers, and for this reason the boss stevedore is always careful to prevent slovenly methods on the part of his men, being aware that in the end he will be the one held responsible for haste or error.

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While the cargo is being received and loaded stores for the coming voyage are also being taken aboard. The supplies for the physical comfort and necessities of 1,500 persons on a ship can be measured only by the ton, 30,000 pounds of beef, for instance, being often used on a single voyage. About 150 tons of water are required for cooking and drinking, an additional fifty tons being made daily on board by the evaporators from sea water and used for cleaning purposes. When it comes to food and drink the ingenuity of the port and ship's stewards is put fairly to the test. A day or two before the ship leaves port the number of passengers who will probably sail on it is figured up and the ship's steward makes up and hands to the port steward a tabulated list of the supplies needed for the trip, nearly 1,000 articles being named in the requisition, which includes food and drink in every conceivable form. The port steward sends his orders to the firms that supply the line and arranges for the delivery of the goods at certain hours, care being taken that they shall arrive when the pier is not blocked with wagons unloading freight. The meats come at a certain hour, the groceries at another and the spices and so on at another, everything

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being weighed on scales at the pier and counted as it goes on board.

The variety of the food supplies required for one of these huge floating hotels is bewildering. For example, no less than fifteen kinds of cheese are used, while fish in fully a hundred grades and forms is stowed away. In the list of fruits, fresh, dried and canned, there are at least 125 varieties, and the same is true of vegetables. The list of supplies, moreover, must be scanned by the steward again and again, for it will not do to overlook a single article that may be needed. Here is part of what is required in the way of supplies when a ship like the *Carmania* is crowded: 25,000 to 30,000 pounds of beef, 5,000 pounds of mutton, 2,600 pounds of veal, pork and corned beef; 8,000 pounds of sausage, tripe, calves' head, calves' feet, sweetbreads and kidneys; 2,000 pounds of fresh fish, 10,000 clams and oysters, 250 tins of preserved fruit, 200 tins of jam and marmalade, 100 large bottles of pickles and sauces, 500 pounds of coffee, 250 pounds of tea, 250 pounds of potted fish, 300 fresh lobsters, 3,000 pounds of moist sugar, 600 pounds of lump sugar, 500 quarts of ice cream, 3,000 pounds of butter of various grades, 16 tons of potatoes, 5 tons of other vegetables, 15,000 eggs, 1,000 chickens and ducks, and 2,000 birds of different kinds. Lard by the ton is used and often as many as 140 barrels of flour are consumed.

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The departure of an ocean liner from port is a critical moment for each member of the ship's company. All leaves of absence expire twenty-four hours before the time for sailing, and this precaution makes it certain that every man shall be at his post. At 8 o'clock on the morning of leaving the sea-watches are formally set. The lower fires in the many-lunged furnaces have been started at 10 o'clock on the previous night; six hours later the top fires are lighted, and at 6 A. M. the operation of getting up steam begins, it being always necessary to have a full pressure of steam at least one hour before sailing time. As the moment of departure draws nearer, an air of suppressed excitement pervades the waiting throng, but there is no confusion among those charged with the ship's conduct and safety. Each officer is at his post, and knows his duty. The chief officer is stationed on the forward deck in full view of the captain on the bridge, where the latter with a wave of his hand indicates just what he wants done. The senior and junior second officers are on the after deck; the extra second with the captain on the bridge, and the third and fourth officers at the forward and after gangways.

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Meanwhile, as the minutes wax and wane, winches chatter noisily; windlasses clink musically; capstans rattle with slacking cables; and the shrill chanty songs of the docking gang working the warps, answer the cheery "Yo-heave-oho" of the sailors on the deck. On the bridge with the silent yet impatient captain lingers a representative of the company. By and by, after the final instructions have been given, this person departs, and as he goes over the side the captain, saluting him with a wave of the hand, gives a quiet order to the first officer. The wheel is shifted, the capstan reels noisily, and link by link the chain comes home. At last, after a vicious tug or two on the cable, the ground is broken, and, dripping with cleansing water from the hose, the anchor, ring and stock, appears above the foam-streams rippling at the bow. When the catfall is hooked, the ship swings easily around the jutting pier, the engines increase their speed, the ensign dips in answer to salutes, and a long blast from the whistle claims the right of the channel. Slowly and carefully she picks her way through the shipping that crowds the harbor, drops her pilot and heads for the open. The voyage has begun.

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With the dropping of the pilot, sea routine is promptly taken up, and thereafter on the shoulders of the commander rests the preservation of the ship and the safety of the passengers and crew. Every captain of an Atlantic liner embodies in his person a shining example of the law of the survival of the fittest, for there is no short cut to the bridge, and none but a master seaman ever reaches it. The man who would be captain cannot crawl through the cabin window. He must fight his way over the bows, and struggle out of the ruck and smother of the forecastle, by sturdy buffeting and hard knocks, by the persistent edging of stout shoulders backed by a strong heart and an active brain. There is probably not a commander of an ocean liner who has not been around the world as a common sailor, a mate, and finally a master of a ship. In fact, it would be difficult if not impossible to get the command of a transatlantic ship without having first been the captain of a large sailing vessel. Some of the companies like the Cunard, have a rule requiring that a candidate for a captaincy shall have served as a captain somewhere; and only a few years ago a sailor on one of the largest steamships plying between New York and Liverpool, who had climbed from the bottom to the high rank of first officer, left the company with which he had made his progress solely that he might take a place as captain on a smaller and less important vessel. If he succeeds in his new berth—and his old employers will watch his course—it is more than likely that he will be called back in a few years and have a command given him.

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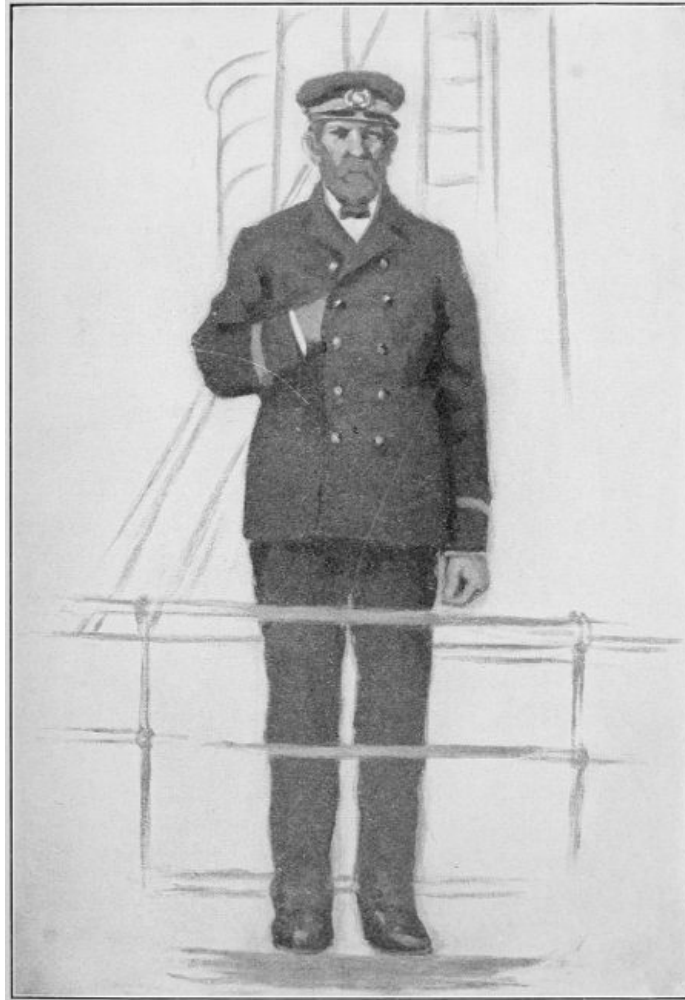
It is the man who knows his business who makes his way to the bridge. No matter how gruff or unpopular he may be, or what are any of his personal peculiarities, if he understands his business and knows how to get smoothly over the sea, he is pretty sure of promotion. A captain, however, does not obtain on shipboard all the education which makes him capable of commanding a *Lucania* or a *Paris*. There must be much study of books as well. He must know something of the art of shipbuilding, of engineering; he must be familiar with the science of meteorology; he must be a master of the moods of the ocean, the currents and lanes as discovery has set them forth; he must have the mathematics of navigation completely under control, and he must have a general knowledge of the politics and laws of the high seas. Most important of all, he must be a man of courage and good judgment, for he must govern his crew more wisely, shrewdly and sternly than a general controls his army, and be prepared to withstand the attacks of nature's forces with as much skill and alertness as the leader of an army must show against a surrounding enemy. His responsibility never ends, not even when he is asleep. Sometimes the dangers which beset him

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forbid any attempt at sleep, and hour after hour the captain must stand upon his high bridge, exposed to all manner of storms. Often does a commander come into port from a perilous voyage, during which for two days and nights he has not left his bridge, except four or five times, and then only for a few minutes at a time.

There was a time when the captain was a prominent social figure on all ocean steamships, but this is no longer the case. He may be seen at his table in the saloon, when the weather is fine, or may be met on deck occasionally when he is looking over the ship, but at other times he is generally out of sight, except when he may appear on the bridge. The chief officer is seen most of all by the passengers. His principal duty is to look after the daily work of the crew, and he is about the deck constantly when not inspecting various parts of the ship. He takes an observation on the bridge with the other officers every day at twenty minutes before noon, but with that exception is seldom seen there. The other officers are in sight only when one looks up at the bridge. Indeed, on some of the newer ships they sleep and mess in quarters of their own on the shade deck, and, thus are rarely if ever brought in contact with the passengers.

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THE CAPTAIN OF AN OCEAN LINER

On all the largest steamships there are besides a captain and chief officer, three second officers, one third and one fourth officer. The second officers are known as senior second, junior second and extra second, and each, like the chief officer, is a duly qualified master, capable of taking the ship around the world if need be. The general duty of the second officer is the navigation of the ship under the captain's directions. Each of these officers stands a four hours' watch on the bridge, and each during his tour of duty has, as the captain's representative, direct charge of the ship. The third and fourth officers stand a watch of six hours, alternating with each other, and, there are, therefore, always a second and third or fourth officer on watch at the same time. Although in rough weather it is work that tests the strength and tries the nerves of the strongest man, no officer can leave the bridge while on watch, and should he violate this rule, he would be dismissed at once. In addition to his watch the third officer has charge of all the flags and signals by night and day, and he also keeps the compass book, while the fourth officer, besides his work on the bridge, has charge of the condition of the boats.

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Observations are taken every two hours, as on an ocean greyhound, rushing over the course between America and Europe at the rate of twenty miles an hour, it is of the first importance that the ship's position should be known at all times. Fog may come down at any moment, and observations not to be obtainable for several hours. The positions of more than one hundred stars are known, and by observing any of these the ship's whereabouts can be ascertained in a few minutes. Of course, the "road" becomes more or less familiar to a man who crosses the ocean along the same route year after year, yet this familiarity never breeds contempt or carelessness, for no man knows all the influences that affect the currents of the ocean, and while you will find the current in a given place the same forty times in succession, on the forty-first trip it may be

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entirely changed. Now and then a big storm that has ended four or five hours before a liner passes a certain point may give the surface current a strong set in one direction, and there is no means of telling when these influences may have been at work save by taking the ship's position at frequent intervals.

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The ship's crew stand watch and watch, and in each watch there are three quartermasters who have charge of the wheel. Steering in the old days before the introduction of steam gear, was an arduous and too often perilous duty, but to-day, even in the roughest weather, a lad of twelve can easily manage the wheel, which is merely the purchasing end of a mechanical system that opens and shuts the valve governing the steam admitted to the steering cylinders. First-class ships number from twelve to fifteen men in each watch. A certain number of these must be able seamen, and none are allowed many idle moments. In the middle watches the decks are scrubbed; in the morning watches the paint work is overhauled and cleaned; and finally, when the weather permits, the brass work is polished until it is made as radiant as the midday sun. This scrubbing, burnishing and cleansing runs through every department, and in no perfunctory way, for each day the ship is inspected thoroughly, and upon the result hangs the possible promotion of the subordinates.

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Once in every twenty-four hours the captain receives a written report from the first officer, the chief engineer and the chief steward, and at eleven o'clock in the forenoon of each day, accompanied by the doctor, he inspects all parts of the ship. Let us follow him, if he is gracious enough to give permission, in this daily visit to the underground realm ruled over by the chief engineer and steward. In the fleetest of the liners the engineer force numbers nearly two hundred men, divided, as a rule, into three crews, with a double allowance of officers for duty. An engineer keeps watch in each fire-room, and two are stationed on each engine-room platform. Watches depend upon the weather. In most cases, the force, officers and men, serve four out of twelve hours, but in foggy or stormy weather officers stand at the throttles with peremptory orders to do no other work. In relieving each other great care is taken; those going on the platforms feeling the warmth of the bearings, examining the condition of the pins and shafting, testing the valves, locating the position of the throttle, counting the revolutions, and by every technical trial satisfying themselves before assuming charge that all is right.

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Distressing at all times is the lot of the poor fellows who man the stoke hole. On the Fürst Bismarck, for instance, there are twenty-four furnaces, manned by thirty-six brawny and half-naked stokers. Suddenly from somewhere in the darkness comes three shrill calls upon a whistle, and instantly each furnace door flies open, and out dart hungry tongues of fire. With averted heads and steaming bodies, four stokers begin to shovel furiously, while two others thrust their slice-bars through each door and into the mass of fire and flame. Burying their lances deep in the coals, they throw their weights full upon the ends as levers, and lift the whole bank of fire several inches. Then they draw out the lances, leaving a black hole through the fire into which the draft is sucked with an increasing roar. Three times they thrust and withdraw the lances, pausing after each charge to plunge their heads in buckets of water, and take deep draughts from bottles of red wine. But this cooling respite lasts only a moment at best, for their taskmasters watch and drive them, and each furnace must do its stint. It is fair, however, to say that everything that can be done to lessen the hardships of the stoke-hole has been done by the steamship companies. The best quality of food is given the stokers, and they are allowed double rations of wine and kummel four times a day, practically all they care to drink.

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The chief engineer of an ocean steamship is fairly well paid, and he deserves to be, for fidelity and merit lead to the engine-room as they do to the bridge, and mastery of the former presupposes long years of exacting service in subordinate positions. Indeed, many of these officers have given their best years to one employ, and, like the hardy McAndrews sung by Kipling, deserve much of it in every way. Some of the old chiefs are the greatest travelers in the world, so far as miles may count. One of whom I was told has traversed in the service of one company more than 900,000 shore miles, a distance four times that between the earth and the moon; and still higher is the record of another, who completed before his retirement 154 round trips, making in distance over 1,000,000 statute miles.

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The captain in his daily tour scrutinizes every nook and corner of the engineer's department, and not less scrupulous is his inspection of the domain in which the chief steward holds sway. There is good reason for this, since, as far as the comfort of the passengers is concerned, the chief steward is the most important person on board a liner, having charge of the staterooms, dining-room, storerooms and kitchen. Like the engine-room the ship's kitchen, located amidships, is an unknown world to most of the passengers. There are, as a matter of fact, three kitchens, besides a serving-room. The soups, fish, meats and vegetables are prepared and cooked in one room and the bread and pastry in another, while the steerage has a kitchen to itself in which all the cooking is done by steam. Space being valuable, all these rooms are small, and meals for 500 or 1,000 people are cooked in an apartment no larger than the kitchen in a low-priced flat, or the pantry in a country house. This makes it necessary to keep everything in its place, and it amazes one to see how compactly the ship's supplies can be arranged. Nothing is left down on shelves or in drawers which may be hung on hooks, and even the platters and serving dishes are made to hang, there being a loophole at one end for this purpose.

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Moreover, what the ship's kitchen loses in size is made up in the number of storerooms. Far aft is the main storeroom, which, with its bins reaching from floor to ceiling, and its racks overhead, looks like a wholesale grocery store.

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Close at hand is the wine locker, a long place, lined with narrow shelves, which have an upward tilt and are crowded with all sorts and kinds of bottled liquors. Down deeper, most often where the stern rolls in from the counter, is a big compartment, where are stored barrels of flour, potatoes, vinegar and beer, which when needed are hoisted up under the direction of the storekeeper. Pretty well forward is the refrigerating plant, a zinc-lined chamber, where the choicest sides of beef, joints of mutton, chickens and turkeys are kept frozen. All the liners, it may be noted in passing, carry a butcher, whose duty it is to cut the steaks and chops, and to see that no good material goes to waste through unskillful hacking.

Adjoining the kitchen is the serving-room or pantry, frescoed with silver coffee-pots and cream-mugs and lined with shelves filled with crockery, while the hook-dotted ceiling glitters with an hundred other pieces of silverware which swing and scintillate with every motion of the ship. The shelves are really wooden pockets, faced with strips of wood, which keep the dishes from rolling out, and stowed away there are cups and plates by the hundred. Along the side of the room is a big hot press, having on its top all manner of indentations for the trenchers, saucepans and soup pots which are sent in from the kitchen laden with food at mealtime. This is flanked by a line of glistening tea and coffee urns, while in a convenient corner is a roomy icebox for the cold meats and butter.

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To the kitchen and the pantry the storeroom is always sending tribute, and they send it to the glass-doored dining-room which, with its long tables, its dazzling white cloths, and its glittering array of silver and glass, looks at night like an enchanted realm. Seats at table are assigned by the steward or the purser, who gives out the seats to those who ask for them first. Each seat is numbered and the passenger receives a billet with his seat number on it when he goes to his first meal on board. Formerly there was a struggle for seats at the captain's table, but now the wise and wary ones rally about the purser and the doctor, for the commander's duties seldom permit him to go below save at dinnertime. Still, wherever his place at table may be fixed, the cabin passenger finds that no opportunity is neglected to serve his comfort and lighten the tedium of the voyage. On the German lines a band accompanies every vessel, and plays through the long first-cabin dinner, and again on deck in the evening. All German and American holidays are observed on these boats, and when Christmas comes to the travelers at sea, they find themselves in the midst of a Fatherland festival, the chief feature of which is a brightly adorned and illuminated tree. Nor are the steerage passengers forgotten on these occasions, amusements, and a special feast being provided for them.

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On the boats of the Compagnie Generale Transatlantique French festivals and American holidays are celebrated by concerts, balls, dinner parties and extra luxuries at the regular meals. Entertainment is provided for the steerage passengers and a special menu is furnished for the festal days. On such occasions, too, the ships are gayly decorated with bunting from stem to stern. The "captain's dinner" is another pleasant feature of the voyage on a French liner. This takes place just before the end of the voyage and is regarded as a token of good will between the passengers and the ship's company. Champagne is furnished without extra charge at this dinner and toasts and speechmaking follow. On a British liner on Sunday morning the captain, in full uniform, supported by his officers, reads the Church of England service, to which all are invited, while American and British holidays are observed in a fitting manner, the ship being always "dressed" for the occasion. The boats of the British lines have also a concert for the exploitation of the talent on board and a parting dinner given an evening or two before arrival in port.

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Meantime how do the steerage folk get on when voyaging over the western ocean? Here there is another and different story to tell. In a ship like the Britannic of the White Star line, picture to yourself a barn-like apartment some seventy feet long and thirty feet wide, but tapering almost to a point at the forward end. It is dimly lighted and badly ventilated by means of a shaft, through which the mainmast enters, and by portholes which are too near the water ever to be opened except in harbor and are well nigh submerged when the vessel lies over or rolls. Lined along the three sides of this rude triangle are large skeleton frames, each upholding two tiers of coffin-like bunks, one above the other, the beds being placed side to side in rows of eight and end to end two deep. Thus each of these structures holds thirty-two bunks, whose sides and bottoms are of rough boards. A narrow passageway runs across ship between the pens, of which there are seven in all, making a total of 224 souls who are crowded into these sordid quarters. Picture this to yourself and you have before you the men's cabin of the steerage of the Britannic. The room being lighted at night by gasoline lamps, smoking is forbidden, while all relaxation must be taken on that small portion of the lower deck beyond which no steerage passenger is allowed to roam, for there is no means of amusement or recreation in the cabin.

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Still there is a brighter side to the picture. All the companies provide ample and wholesome fare for their steerage passengers. No captain ever fails to include in his daily tour a personal and painstaking inspection of this department and he is always approachable in the event of complaints arising on the part of the humblest and poorest traveler. It is related of one old-time commander, Captain John Mirehouse, that in order to assure himself of the proper quality and preparation of the steerage food he invariably had his lunch served from the steerage galley at the dinner hour; and he used to declare that his lunches were as wholesome and palatable as he could desire. Nor is it to be supposed that steerage passengers are all immigrants, for, odd as it may seem, there are many world wanderers who cross and recross in the steerage, who travel over great parts of the world and who in their class are as independent as the men and women lodged in the first cabin. Besides these curious characters there are Scottish carpenters and other mechanics who come to America for a few months at a time to take advantage of higher

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wages and who return as they came when the Christmas holidays draw nigh. Often a liner leaving New York in the early days of December carries more than 1,000 passengers in the steerage.

Whether you travel in the cabin or the steerage, the closing days of a voyage are always sure to be the shortest and the pleasantest ones. The routine of marine life ceases to be a burden, and with the disappearance of the last lingering cases of sea sickness life on the fleet greyhound of the waters becomes a source of joy. Newly found friends and glimpses of passing vessels cheer and break the solitude, while the tonic of the sea air courses like an elixir in the blood. Young couples flirt demurely in shady corners of the deck, whence issue now and again sudden bursts of rippling laughter; nor is there lack of jollity in the smoking room, whence eddy the flotsam and jetsam of the ship and cards rule the hour from early forenoon until the lights are turned out at night. If it be summer and the passage a westward one you may count, as a rule, upon skirting the Grand Banks without mishap and upon rounding the Georges in the same lucky manner. Then, after long and eager waiting, comes the happy hour when there is a cry of "Sail, ho," and a few minutes later a yawl emerges from the gathering darkness and a bluff, black-garbed pilot climbs to the ship's deck, bringing news from the outer world and the glad assurance that land and home are just beyond the horizon line.

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Soon comes the welcome cry, "There she is, Fire Island light, right over the starboard bow." The watcher in the lighthouse telegraphs the steamer's arrival to the quarantine station and the ship news office, and long before noon the vessel reaches quarantine. Here the health officer boards her, and if it is found that she has no case of contagious disease on board she is permitted to proceed to her dock, which she reaches in about one hour and a half, including the time of examination. Meanwhile she has been met down the bay by a revenue cutter having a squad of customs officers on board and declarations have been made and signed by the cabin passengers as to the contents of their trunks, which are searched as soon as the vessel arrives at her dock. Here, also, an officer of the Immigration Bureau takes charge of the steerage passengers and has folk and baggage conveyed to the Barge Office for the examination which will impel their return to the place from which they came or end in the granting of permission for them to enter the land of mystery and promise.

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Within the hour in which the liner reaches her moorings on the New York or Jersey shore the last passenger has taken his departure, shore leave has been granted to the majority of the ship's company and waiting hands have promptly taken in hand the task of making ready for the leviathan's next ocean pilgrimage, since, as I said at the outset, one voyage is no sooner ended than preparations for another are begun.

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CHAPTER III

THE MAN-OF-WARSMAN

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It is by no means an easy task to secure admission to the United States Navy, and of those who present themselves for enlistment in ordinary times about one man in a dozen is accepted. Landsmen furnish a great majority of recruits, and of these more come, it is said, from New York than any other city in the country. The candidate who presents himself on board of any one of the receiving ships constantly in commission for enlistment purposes is first put through a rigid oral examination designed to prove his mental and moral makeup. If he passes this test the recruiting officer turns him over to the examining surgeon, by whom the discovery of the slightest physical defect is counted as sufficient ground for the candidate's rejection. If, however, he passes the doctor he is vaccinated and sent back to the recruiting officer, who swears him in for a three years' cruise, after which he is turned over to the paymaster's clerk to draw his uniforms and small stores.

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A month of preliminary training on the receiving ship follows. Here he is put through the well-known "setting-up drill," which is designed to give the full use of the muscles and feet and to develop the agility and endurance necessary to the performance of ship duty. This exercise is of daily occurrence while the recruit is in the early stage of his enlistment and is practiced frequently during the entire period of service, being part of the drill of every ship's company. The recruit is also given practice in what is known as "the boat drill," and when opportunity offers in the manning and manipulation of the guns.

At the end of his first month comes the newly enlisted man's assignment to a vessel in active cruising service. Here, with a goodly batch of other landsmen, he is taken in hand by the master-at-arms, gets a ship's number and a mess kit, learns where to stow his clothing and hammock, and is part and parcel of the life on a man-of-war.

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The recruit's first days on shipboard are apt to put his nerves and temper to the test, for the old-timers among the ship's company are sure to let pass no opportunity to bedevil and confound him. Calking mat is the name given to the piece of matting which the bluejacket spreads upon the deck when he wants to take a nap and which protects his uniform from being soiled. He buys it himself, but never a landsman went aboard his first ship that he was not told to go to the master-at-arms for a calking mat. Now, the average master-at-arms on a man-of-war is a man who, having been in the navy for half a lifetime, has ceased to find amusement in the calking-mat request preferred to him by several thousand recruits, and as a consequence the reception the

newcomer gets when he approaches Jimmy Legs on this matter is liable to be a badly mixed affair of boots and language. Again, recruits are often sent to the officer of the deck to prefer absurd questions or questions on matters in which they have no concern. When one of these recruits walks up to the officer of the deck and, after a bow, innocently asks when the ship is to sail he is in for a speedy if disgraceful scramble forward. Or on his first day aboard a man-of-war the recruit is often told that in order to go below to his locker he must first get permission from the officer of the deck. "To my locker below, sir, may I go, sir?" he is told to say when he goes to the mast to ask for the desired permission. If the officer of the deck happens to be in good humor he will turn away to preserve his dignity by not smiling, but if his temper is on edge the recruit is in for a lesson in directness of language that will make him wish he had not thrown over his job ashore. Trials of this sort, however, soon have an ending. The average recruit quickly masters the marine ropes, and instances are not uncommon of clever landsmen who have finished their first three years' cruise as chief petty officers, drawing from \$50 to \$75 a month.

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Besides the receiving ships regularly devoted to the enlistment of naval recruits on the Atlantic and Pacific coasts American warships are constantly shipping men, both in home and foreign ports, to fill gaps in crews. In this way many peculiar geniuses, men of really remarkable attainments along certain lines, gain admission into the navy as enlisted men. At Bangkok a few years ago an American man-of-war shipped a German as a messroom attendant. He was a fine-looking man of thirty and had little to say to his mates. One morning at sea soon after the German's enlistment a knot of officers gathered in the wardroom were discussing a difficult point in ordnance. The messroom attendant, who was watching out for the officers' needs, ventured to enter into the discussion. He did it, however, so quietly and respectfully and at once showed such perfect knowledge of the topic in hand that the officers found themselves listening to him with much interest. In five minutes the German had shown that there was no detail of the armament of the world's navies with which he was not familiar and that he was a past master in all matters pertaining to modern great guns. His proficiency in this respect being reported to the commanding officer, he was made a chief gunner's mate and was about to be a gunner when his time expired and he went to Germany, where he was employed by the Krupps as an ordnance expert. It came out that he had spent his life in the ordnance branch of the Krupp works and that he had been compelled to leave Germany suddenly on account of some trouble in which he had become involved. He had gone to Siam in the hope of getting an opportunity to rearrange the Siamese fortifications. Failing in this, and discouraged and penniless, he had shipped in the American navy.

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"Once a sailor always a sailor" is not strictly true of men-of-warriors of the American navy. Less than one-half of the men who complete one enlistment ship for a second three years' cruise, but a majority of the men who put in two cruises settle down to a lifelong continuance in the service, for when a bluejacket has passed one or two summers in the latitude of the North Cape and a couple of winters among the West Indies or in the South Pacific he is pretty sure to acquire a dislike for the climate of the United States that keeps him in the navy for good and all. Moreover, after a few years in the navy a bluejacket becomes possessed of the idea that he is really doing nothing aboard ship to earn his \$16 a month and board.

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Herein, however, he unconsciously proves himself a humorist, for the routine of life on a man-of-war is in reality a hard and laborious one. Reveille is sounded at daybreak, and the men who have not been on watch during the night turn out of their hammocks, lash and stow their bedding and get early coffee and biscuit. Then clothes are scrubbed, decks washed down and dried and the ship's side and boats cleaned, so that when the breakfast call is sounded at 7:30 o'clock most of her morning toilet has been made.

Breakfast over, the men light their pipes and loll at ease until the uniform of the day is announced, whereupon they array themselves in the garb prescribed and when the "turn-to" call has been sounded proceed to their several tasks. The days and even the hours and minutes of men-of-warriors are allotted to special duties. Every day they are put through drill, sometimes with great guns, sometimes with cutlasses, sometimes with small boats and in many other ways. Moreover, arms and accoutrements have to be cleaned daily, the ordnance freed from rust and stain and the brasswork kept polished. While this is going on the bugle sounds the sick call and all who feel the need of the surgeon's care repair to the sick bay, after which a list of those unfit for service is furnished the officer of the deck, so that their duties can be attended to by their mates.

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The morning is still young when the order comes, "Clear up the decks for inspection." Cleaning rags are put away, hands washed, an extra hitch given to the trousers, and then the call to quarters is sounded. The men go to their stations at the various guns, their officers appear and a swift inspection of their appearance is made, after which the several divisional officers report to the executive officer. The last named is armed with a list of those who are legitimately absent and checks off the absentees reported by the division officers. When this task is finished the executive reports to the captain, who is standing near and who then makes a tour of the ship, inspecting battery and crew. Following inspection comes some of the drills already referred to, dinner at noon, an hour for its discussion and smoking, and more drills during the afternoon, ending with the setting-up drill just before the bugle sounds for supper.

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After that meal the men are at liberty to do very much as they please unless a searchlight or night signal drill happens to be scheduled for the evening. With 9 o'clock comes taps and the cry of the master-at-arms, "Turn in your hammocks and keep silence"—an order that must be obeyed, for on a man-of-war the sleep of the crew when the hour comes is a sacred thing and not to be

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disturbed.

The modern battleship is first of all a fighting machine, and that being the chief purpose for which it is created it is natural that the drill of "clearing ship for action" is one to which particular attention should be given. Following it always is a mimic encounter with an imaginary foe. Not the slightest detail in preparation is ever neglected and only blood and shrieks and wounds are lacking to make the imaginary battle as realistic as an actual one would be.

As soon as the cry of the boatswain's mate echoes from the main deck the bugle sounds the "assembly" on the gun and berth decks and the officers and men at once hurry to their allotted stations. Quiet is insisted upon; there is little confusion, and the swirling tide set in motion by the boatswain's call has no conflicting currents. So far as is possible each of the squads into which the ship's company is divided is berthed and messes in that section of the ship in which its duties will lie in the hour of battle. Thus on a battleship like the Virginia a portion of the first division improvises as soon as the call is sounded a breastwork for sharpshooters, using hammocks and awnings.

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Meanwhile others of the same division rig collision mats, unship the railing around the forecastle, lower anchor davits in cradles and carry below and secure levers and tackles. At the same time other divisions lower and unship awning stanchions and railing in wake of the guns, close water-tight compartments, rig in and secure danger booms, unship ladders and supply fresh water for drinking purposes. Magazines are opened and lanterns trimmed, battle bucklers are fitted to air ports, and those detailed to attend speaking tubes in the wake of torpedo tubes go to their stations and receive and respond to the signals sent out from the central station. Nor is the surgeon's division less busy at this critical hour; its members convert the wardroom into a temporary operating room, remove rugs and curtains and see that the adjoining staterooms are made ready for the reception of the wounded. There is an enormous amount of work to be done before a ship can be got in readiness, but in little more than a half hour after the order is given the captain hears from his executive officer the report, "Ship is ready for action, sir." The gun crews, stripped to the waist, with their knotty muscles standing out in high relief, wait for the order to begin the fighting; and when it comes the great guns are elevated, depressed, concentrated and put through all the maneuvers possible in an actual battle. After this there is a moment's rest, and then, last of all, the order is given to repel boarders. The enemy is alongside and swarming over the bulwarks. The men in the tops pour down a murderous fire with rifles and Maxim and Gatling guns; headed by their officers, the men on deck, cutlass in one hand and revolver in the other, slash and hew, shoot and hack until the enemy turn tail and flee as fast as their imaginary legs can carry them. The ship is saved.

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When at sea half of the crew of a man-of-war is always on duty and the other half taking a rest. The latter court their ease in many ways. Some stretch out on the hard deck and take a nap, others play checkers, spin yarns, write letters or read novels. Some are lost in reverie; all of them look careless and happy and nearly all of them smoke or chew tobacco. Music often claims a group of them at any hour of the day, and at night dancing is sometimes indulged in, always with wild delight. A stranger who strays into the forecastle observes that a few of its inhabitants wear double-breasted coats and linen collars. These are the men of rank before the mast and they are known as petty officers. The master-at-arms, the machinists and the yeoman are among the chief of these, and other petty officers are the boatswain's mates, gunner's mates and carpenter's mates. They are, comparatively speaking, high in rank above the rest of the crew and are treated accordingly by the latter. They have a mess table by themselves, presided over by the master-at-arms and adorned by glassware, crockery and napkins. All mess tables on a ship are large enough for ten or fifteen men to sit at and one of the company is selected by his mates to act as caterer. Meals are always well-behaved affairs, particularly at the tables of the petty officers, for the sense of rank is as keen before the mast as it is abaft among the commissioned officers. Every officer and man on a ship is subordinate or superior to somebody else and he cannot forget that his official relations even with his bosom companions are among the laws of the land. Nor do the exigencies of confined space interfere with this sense of rank. A bluejacket may have to dodge around an admiral and give orders under his nose, but there is still a gulf between them not to be bridged by any man.

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In a visit to the forecastle among all the crowd there the youngest sailors and the apprentice boys are those that attract one the most. Their alert, intelligent faces give one a pleasant idea of the coming American man-of-warman and attest the efficacy of the method employed to fit them for their future career. The present naval apprenticeship system of the United States has been in force since 1875. The candidate for an apprenticeship must be from fourteen to eighteen years of age, of robust frame, intelligent, of sound and healthy constitution and able to read and write. The boy who is found to be qualified signs an agreement to serve continuously until he is twenty-one years of age and is sent to the training station at Coaster's Harbor Island, near Newport, where is anchored a receiving ship capable of comfortably accommodating 500 apprentices. The boys sleep in hammocks, assist in keeping the ship clean and in various ways are gradually accustomed to a nautical life. The daily routine begins at 5:30, when reveille is sounded and all hammocks are lashed and stowed. After an early breakfast the boys wash their clothes, scrub decks and bathe, and then for about six hours are daily occupied with drills and studies, the course of instruction including gunnery, seamanship and English. The hours after supper until 9 o'clock, when all must be in their hammocks, and Saturday afternoons are given up to recreation. Many kinds of games are furnished the boys, and they have also free access to a good library.

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Each apprentice on leaving Coaster's Harbor Island spends a year on a training ship and is then

transferred to a regular man-of-war. Here his education is still continued, and the end of his enlistment generally finds him thoroughly acquainted with a modern ship and her armament and fitted to take the billet of a petty officer. Many of the apprentices who re-enlist are sent to the Washington Navy Yard for a six months' course of instruction in gunnery, a limited number being afterward detailed to the Naval War College at Newport for an equal length of time to be given a practical knowledge of electricity and torpedoes. They then graduate into the service with the rank and pay of seamen-gunners, and that the training they have received warrants its cost is proved by the assertion of experts that American gunners have not their superior in any navy of the world. The making of an American man-of-warman is a process worth while.

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A MAN-OF-WARSMAN

In peaceful times one day is very much like another on an American man-of-war, but there are four days of special importance in the calendar of the bluejacket serving thereon. These are general muster day, general inspection day and Thanksgiving and Christmas days. The first-named marks the observance of a ceremony of great importance to the participants—the reading of the articles of war or rules which have been framed for the government of the navy. Unlike other musters and routine drills which take place day after day with the utmost regularity, this function is observed not oftener than once a month. On most ships the first Sunday of each month is reserved for this purpose, but it frequently happens that two or three months elapse between one general muster and the next. Shortly before 10 o'clock in the morning of the day selected the chief boatswain's mate passes the order through the ship of "All hands to muster." At once every soul on the vessel except the sick and, if at sea, half a dozen others who cannot be spared from the wheel and engine room repairs aft to the quarterdeck, where the members of the crew range themselves in long ranks on the port side of the deck, facing the officers, who stand in a line on the starboard side, where they are placed according to rank, with the senior officer aft. All the officers are in full dress, with cocked hat and epaulettes and gold lace on coats and trousers, while the men must appear in their best, with shoes polished and clothes well brushed.

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When the last straggler has taken his place the senior lieutenant, raising a white-gloved hand to his cocked hat, salutes the captain and informs him that all his officers and men are "up and aft." After this, by order of the officer of the deck, silence reigns. At a word from the commander the senior lieutenant begins to read the articles of war, and as he does so all heads are uncovered. Simple yet eloquent is this expression of the faith in which every naval officer must live. "The commanders of all fleets, squadrons, naval stations and vessels belonging to the navy," runs the wording of the first article, "are required to show in themselves a good example of virtue, honor, patriotism and subordination." The second article earnestly recommends all officers and seamen in the naval service diligently to attend on every performance of the worship of Almighty God. Further on is another article which informs every listener—and every one of the hundreds assembled is an intent listener—that "the punishment of death or such other punishment as a

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court-martial may adjudge may be inflicted on any person in the naval service who enters into a mutiny or who disobeys the lawful orders of his superior officer or who strikes the flag to an enemy or rebel." The same penalty awaits any one who in time of war deserts or who sleeps upon his watch, or who when in battle "displays cowardice, negligence or disaffection or keeps out of danger to which he should expose himself." These offenses are only a few of the many which all wearers of the uniform are enjoined not to commit. Some of the others are "profane swearing, falsehood, drunkenness, gambling, fraud, theft or any other scandalous conduct tending to the destruction of good morals;" and it also is forbidden to any one to be guilty of cruelty toward any person subject to his orders. Other parts of the articles contain similar injunctions to all in the navy to maintain the honor of the flag and the integrity of their lives.

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As a fructifier of patriotism the importance of this ceremony cannot be easily overestimated. Lukewarmness has no place in its presence, and any one who witnesses it cannot fail to be impressed by its disclosure of a faith that one feels sure could remove mountains. In remote lands it is a rite which borrows added seriousness from its foreign surroundings. Its words have often echoed against the walls of foreign forts while a Sabbath calm has brooded over the latter and robbed them of their threatening aspect, and many a time during its performance American sailors have been able to look up from their quarter-decks to the cottages and fields of some other land where a different creed is held and with just as strong a faith as their own. No one can doubt that while this ceremony lives the country is stronger and safer than it would be without it.

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The reading of the articles of war consumes a scant quarter hour. When it is finished the order is given and repeated by the boatswain's mate for all petty officers to muster in the starboard gangway. They form in two long ranks. At the end nearest the quarter-deck stands the master-at-arms and then come yeoman, writers, machinists, the apothecary, printer, painter, electrician, bandmaster, boatswain's mate, gunner's mates, quartermasters, oilers, water tenders and ship's corporals. The paymaster or his clerk starts to muster the crew, calling out each man's full name, and the latter answers with his rating. When the petty officers are all mustered they are allowed to leave and go forward—always being cautioned to keep quiet. Then follows a scene that reminds one of the early days of the navy—a custom more than a century old and borrowed originally from the English. It is called "going around the mast." When each man's name is called he answers with his rating, removes his cap, walks around the mast to the starboard side and goes forward. This is kept up until all seamen, ordinary seamen, landsmen, coal heavers, firemen and bandsmen have passed under the inspection of the captain, who stands near the mainmast intently watching and forming an opinion of each man as he passes before him. When all have gone forward the order is given by the executive officer to "pipe down," the shrill whistles sound and general muster is over.

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General inspection day on a man-of-war usually follows close upon the termination of a foreign cruise and involves no end of labor on the part of officers and crew. In the early morning of the day appointed the last touches are given to the ship's bright metal work, the last rubs to its great brown guns. The decks are scrubbed and holystoned, so that the keen eye of the executive officer cannot find a spot. The bluejackets give a last turn to their hammocks and a last pat to their kits, for not a thing will escape the scrutiny of the board of inspection and survey. When the members of that body appear they find waiting for them on the main deck the whole crew, spick and span, with their kits, long canvas bags containing their white and blue clothing done up in neat rolls. While a part of the board examines these to see if any of the men have failed to roll them properly the other members go below to inspect the ship. They visit the wardroom, staterooms and forecabin; examine the water-tight compartments, the boilers, engines, bunkers and magazines and the wood and metal work, passing over no dark corner in gallery or pantry in which may lurk dirt or other signs of neglect.

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All this, however, is preliminary to the real labors of the day, for when the members of the board of inspection have again assembled on deck comes the eagerly expected order, "Clear the ship for action!" Instantly the long roll is beaten, the boatswain's whistle sounds, and from the bowels of the ship the members of the crew come tumbling out, swarming over the deck in what seems the wildest confusion, but is in reality perfect order. Every man has certain duties and much drilling has taught him how to perform them in the simplest, readiest and easiest manner. The whole deck crew is organized into divisions and each division has its separate and particular work. One division lashes fast the big anchors and makes them as secure as possible. Another takes care of the boats. The spare spars are got out and lashed together. The boats are lashed into a nest, plugs pulled out so that they will fill with water and float with gunwales awash. The nest is lashed to the spars that will serve as a drag and a buoy to mark their location, and then spars and boats are put over the side and left to drift as they will.

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While this is going on other divisions are at work with the rail and awning stanchions. Every thing comes down. The pegs are knocked out of the davit hinges and the big iron bars are folded over to the deck. Everything movable that can be put out of the way is stowed in its proper place swiftly and silently. The battle gratings are brought out and fitted over the hatches. Any thing that might be knocked to pieces by a shell or shot to splinters by small fire is carried below, and when the work is finished not a superfluous bar or beam, not an extra rod, box, implement or article of any sort stands on the deck to cumber the desperate work of the ship in her life and death struggle.

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At the same time the powder magazines are opened and the great guns swing around for action, shot and shell piled up about them. The tops are manned; every small gun is ready with its crew to hurl a deluge of missiles of all shapes and sizes; rifles, pistols and cutlasses are served out to

the men, and in the space of time it costs to write these lines the ship lies at anchor ready to blow an adversary off the face of the water or to be blown off herself.

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With the ship cleared for action, there is drill at the great guns and execution of the order to repel boarders. After this the ship is again put in condition and the bugle sounds to quarters. The ship's bell has struck the alarm for fire. In a trice long lines of hose are laid and men hurry around with their extinguishers on their backs. The "smotherers," with their hammocks, are ready for work, axmen are stationed to cut away woodwork and sentinels are posted prepared to flood the magazines. There is neither hitch nor break in the drill, and at its conclusion the men go to their well-earned noonday meal.

After dinner the marines are ordered to land and attack a distant fort. The boats are lowered away and provisioned for several days. Water, beef, beans, cartridges, rifles, guns and boxes of tools are stowed away in them, and then the men pile into them until it seems as if they must sink under their load. Many colored flags flutter from the mainyard of the big ship, the launches take the boats in tow and off they start. They do not go far, however, for soon a signal from the ship countermands the order to attack and they return and are hauled on board. Then comes a drill that is looked upon with regretful pride by the old tars who still love the shapely ships of the past and cannot overcome their dislike for the modern "teakettles;" it is a sail drill. The sailors scamper aloft, lay out on the big yards and soon the ship, with all sails set, is tugging at her anchors. Again the boatswain's whistle sounds. The executive officer, trumpet in hand, shouts his orders and the yards gradually come down until the ship is under close-reefed topsails. Then the sails are furled, the yards squared and the men wait for the next command. They do not have to wait long. A luckless man—imaginary, of course—falls overboard. There is another hurry and scurry, a life buoy is thrown to the drowning man, the cutter is lowered away and under the powerful strokes of six oars sweeps past the ship to the rescue. The man is saved and the cutter again hoisted on board. This ends the work of the day and all hands are piped to supper. Soon the sunset gun booms, once more the bugle sounds and the great striped flag at the stern comes down. General inspection day is over.

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The crew of an American warship celebrate Thanksgiving day in the good old-fashioned style, which means that the dinner is made the chief incident. About this all the interest of the holiday gathers, and the feast is enjoyed in anticipation, in realization and in reminiscence. The expense of the extras which supplement the ordinary rations on that occasion is borne entirely by the men. Ordinarily Jack is a most improvident creature who sees no reason for worrying himself about what he is to eat to-morrow so long as he has enough for to-day, but for Thanksgiving and Christmas he makes unusual effort to save something to put into the common fund for the occasion. His comrades are generous, however, and if, as often happens, his pockets are light when the contributions are being taken up he is not allowed to miss the feast, but may have his share charged up against him, to be paid at a more convenient season.

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One way in which the men save their money is by commuting their rations. The amount of food furnished by the government is extremely liberal, so that the daily ration provided for each sailor is more than he can eat under ordinary circumstances. The value of a daily ration is put at 30 cents. A common practice is for ten men to draw rations for only seven. If the mess consists of thirty men the value of the commuted rations would thus amount to \$2.70 a day. This is multiplied by the time pay day comes around to a considerable sum and is paid back to the men with their wages. Part of it at a time like Thanksgiving is devoted to buying the luxuries of the dinner.

The fund kept or raised for this purpose has always been known as the "slush fund." The term dates back to the early days of the navy when the men were allowed to save the pork drippings and other grease, odd ends of rope and all kinds of waste about the ship and sell them to junk dealers for whatever they could get. "Slush" was the general name given to the waste stuff and the money which it brought in was the "slush fund." This disposition of the refuse is now taken out of the mens' hands, but they still continue to call their dinner fund by its ancient title.

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A Thanksgiving dinner among the men-of-warsmen is a festivity well worth seeing. Nothing is done by halves, and the messroom decorations and the table furnishings would do credit to many a more pretentious assembly. The messrooms are brightly lighted up and their usually bare walls are gayly draped with American flags. Instead of the every-day enamel cloth the tables are covered with spotless white linen. If the ship is in port the celebration can be much more elaborate, because the men are then able to buy, beg or borrow from their friends on shore any number of ornamental articles with which to beautify the tables. Vases of flowers are artistically arranged about, and a great cake with a fanciful superstructure of icing is a favorite adornment. Enormous turkeys stand watch at each end of the tables at the beginning of the feast, but they disappear early in the action and their places are taken later by relays of mince and pumpkin pies. "Spuds," as all sailors call potatoes, are plentiful, affording ample proof of Jack's traditional fondness for this vegetable. Besides tea and coffee the only drink is beer. The men are allowed to have this not only on special occasions, by the way, but at any time when they have money to pay for it at the general canteen. At dinner time on almost any day a few of the men may be seen with open bottles of beer before their places at the table.

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However, after all is said and done, Christmas is the rarest day in the naval calendar, the celebration in American fashion being never neglected on a United States man-of-war in port or at sea. The ship is dressed fore and aft with banners, and in port her decks are piled with green stuff. In any of the ports in low latitudes, like Callao or Montevideo, the mass of palms and ferns

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distributed on Christmas on the spar deck of a warship gives the vessel a lovely holiday appearance. Bluejackets always hang up their socks on Christmas eve. Each takes a new pair out of his ditty bag and strings it to the foot last of his hammock. Examined in the morning, they are commonly found filled with fine, dusty coal, lumps of salt-water soap or pieces of broken candle, but their owners hang them up from year to year, willing to sacrifice a pair of socks to the perpetuation of the custom. On Christmas day there are all manner of games on the spar deck. They are for the most part humorous games and are devised chiefly for the amusement of the men who through misconduct are not permitted to spend the day ashore. In the evening there is always some good music in the fore-castle or on the berth deck. On some ships the bluejackets essay the most ambitious airs, and if the bandmaster takes care to put the singers of the crew on the right path one of their Christmas night concerts is worth going a long way to hear.

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CHAPTER IV SOLDIERS WHO SERVE AFLOAT

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Soldiers who serve afloat—such are the men composing the United States Marine Corps. Lack of military qualities in the sailor led to the corps' formation in the first days of the navy, nor has the passing of the years wrought any material change in the character of Jack Tar. Formidable in impetuous assaults, he lacks the steadiness and discipline necessary in sustained conflicts and in the effective use of the rifle, and so with the navy's growth the Marine Corps has come to constitute one of its most important branches.

The marines are useful in times of peace for police duty in the navy yards and on shipboard, but it is when the country is engaged in war that they most fully justify their existence. Then it is their duty to man the rapid-firing guns of our warships, fill vacancies at the other guns, with their rifles scour the decks of the enemy from the tops, the poop and the fore-castle, cover boarding parties with their fire and repel boarders with fixed bayonets. Should the enemy gain a foothold they must gather at the mainmast, so as to command the deck. They must make the small arms effective and disable the enemy's men while the great guns, with which the marines have nothing to do save in case of emergency, play havoc with his ship.

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However, all naval fighting, as recent events have proved, is not done on the decks of men-of-war; the surprise of camps or posts and the escalade of forts frequently render shore operations necessary, and at such times picked men are sent with the attacking sailors, known as pioneers, while the rest of the marines form a supporting column to cover the retreat and embarkation of the sailors in case the undertaking fails. In times of fire on shipboard the marines guard the boats' falls and officers' quarters, prevent panic or pillage, compel compliance with orders of officers and allow no one to throw overboard any property or fitting or abandon the ship until duly authorized. Finally a frequent duty of the marines abroad is to guard the American legations and consulates and the interests of American citizens in times of revolution or public disorder.

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With duties so varied and exacting ahead of him, the making of a marine is a process well worth studying. Recruits for the corps come from all stations of life. In its ranks may be found well-educated men, now and then a college graduate among them, who have become reduced by misfortune or bibulous habits, country boys who have left the farm for the city to seek their fortunes and found want instead, and men who have lost their occupations. All find a refuge in the corps, provided they are physically and mentally sound, at least five feet six inches in height, between the ages of eighteen and thirty-five, unmarried and of good habits.

The recruit as an essential part of his training must learn how to do well many different things. He begins, if a stranger to military science, by mastering the drills and manual of arms and every evolution possible to a body of men on foot, since he must leave the ship when there is work to be done and be able to move quickly and with precision under the most galling fire. The ax, the shovel and the pick must also become familiar tools in his hands, and that he may fight to the best possible advantage he is taught to delve and heap until a breastwork is built. After that he must accustom himself to the dragging straps of a light artillery piece and learn how to haul it at a breakneck pace down into the ditch he has dug and up on the other side to the crown of the intrenchment. Then, as no one else comes up to load, aim and fire it for him, he must learn all that a field artilleryman knows and become skillful in the handling and quick and sure in the aim of his howitzer.

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When so much of his apprenticeship has been accomplished the marine climbs the ship's side and makes acquaintance with his duties as a marine policeman. The end of the first month afloat finds him on guard at every post in the ship. He knows each compartment and gangway; has been instructed in the working of the guns from the heavy turret pieces to the six-pounders; has watched the magazines and carried messages to the officers, and has even gone down to the coal bunkers, if the ship happens to be coaling in a hurry, and taken his turn at passing coal.

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However, he is still only a marine in the making, and this fact is brought home to him when the ship goes out for target practice and, with a bluejacket for a teacher, he learns to handle and supply ammunition to the lifts in the magazines and to work the lifts themselves, so that when the need comes he can take Jack's place and do his work. In the old days of sailing ships the marines had to know how to splice a rope or furl a sail; nowadays he does not need to, but he must learn

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to make his way quickly and nimbly to the fighting tops. In doing so he does not have to climb to a ratline, one minute almost in the sea and the next at the very top of the heavens, but he gets painfully dizzy when for the first time he feels the ship sinking away from under him as he looks down. In the end he masters that also and, with practice, is soon able to make the little guns in the fighting tops talk as fast as the best of the jackies. When he has learned to descend from his aerial nest to the deck at a dignified pace and to land safely upon his feet, his education is practically completed, and it has taken him from six months to a year to get it.

Every navy yard in the country has its detachment of marines, but the barracks at the Brooklyn yard are the most popular, and as the marines have their choice of stations when they return from a cruise, the largest number, seldom less than three hundred, are usually quartered there. In the part of the yard set aside for the marines is a long and narrow building of gray brick, with a piazza running its entire length, shaded by a line of trees. This is the barracks, the living quarters of the men. A roomy parade ground stretches out in front, and in a group of trees to the left, with a garden behind, is the house of the commandant of marines, while at about the same distance to the right are the quarters of the other officers, each approached by a stone walk canopied and shaded by rows of pear trees.

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Visit the Brooklyn barracks of a summer morning and you will find the marine there in every condition known to the corps and in every stage of his development. Out on the parade ground is a squad of raw recruits being commanded and marched about in the effort to trim off their individuality of motion, and here comes Private Dougherty, with his wheelbarrow and sickle, a bronze-faced old man who was retired awhile back because his thirty years of service had been completed. There is hardly a seaport in the world that Dougherty is not familiar with, and he will tell you, when in the mood, how he killed the Korean general. The Colorado, flagship of Rear Admiral Rodgers, steamed up the Salee river, in Corea, for the purpose of effecting a treaty with the Koreans for the protection of shipwrecked American sailors and to make surveys and soundings. Her survey boats were treacherously fired upon by the forts in the river and a fight began. After one of the forts had been captured and its former occupants driven out, Dougherty jumped over the parapet, ran down to where the Korean leader was rallying his forces and shot him dead. For this service to his country Congress voted Dougherty a medal of honor. And well he had earned it.

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Ashore or afloat, the daily life of the marine is one of hard work and plenty of it. At 6:30 in the morning, when in barracks, the men must be out of bed and ready fifteen minutes later for the "setting-up" drill, which is gymnastic exercise without apparatus. Then the mess call is sounded and they file into the long messroom, furnished with two tables extending the whole length, and breakfast on hash, pork and beans or beef stew, according to the day in the week, and bread and coffee. After breakfast the order is given, "To the colors!" and the flag is raised on the pole in front of the guardhouse. Then the guards take their posts and the routine of the day begins, reaching a climax at 10:30 o'clock, the hour of dress parade, when the marines are out in full force.

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Each remaining hour of the day has its allotted duty, but every marine with a clean record has twenty hours out of every forty-eight to himself. Many of the marines stationed at the Brooklyn yard spend their idle hours in the library, a light, airy room on the second floor of the barracks, furnished with a goodly collection of books and with a number of the weekly and monthly magazines. But as to the books, some of the most assiduous readers know the contents of them all, and long for more. Nor need the private of marines end his life in the ranks unless he be so minded. A school is provided for him where, if he elects to do so, he may conquer fractions and cube root, and in time, after his studies have raised him to the grade of sergeant-major in the ranks, should there chance to come a war the line is open to him, and once his ivory-hilted officer's sword and gold lace are worn he has the entree to any officers' mess and a place that no man but one of his own line can fill. That the men in the ranks who choose to employ their leisure hours in study get their reward was proven in the war with Spain, which raised no less than thirty sergeant-majors to the dignity of shoulder straps.

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The dominant desire of the ambitious young marine is, of course, to get to sea. The work there is harder than in the barracks, but he does not consider that when he thinks of life afloat and the foreign ports to which it will take him. During his five years' enlistment in the corps each capable marine makes two sea voyages, extending over a period of three years. On shipboard the shore drills are continued as far as practicable and to them, as already hinted, is added target practice. His time off duty the marine spends in the forecabin and amidships reading, sleeping, writing up his diary or twanging the strings of his favorite instrument, the guitar.

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The things which chiefly occupy his thoughts, however, are rations and going ashore. As to the former, they are considerably better than he gets at the barracks and may be augmented from the bumboats—a genuine boon to the luxury-loving marines. These bumboats approach the men-of-war at every port with articles of utility and food in great profusion, and the American marine has a worldwide reputation among their proprietors for his generosity. Ah Sam, of the port of Hong Kong, the greatest man in the world in his line, whose boats are fifty and sixty ton junks, is said to have made his fortune from sales to American men-of-war. At any rate, when one enters or leaves the harbor he fires a salute of twenty-one guns.

And it is only fair that the marine should have a salute fired on his own account now and then, for he is a leading and important figure in all the pomp and ceremony of man-of-war life. Indeed, it is an interesting and pretty sight to watch the ceremonies which take place on board ship on the

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arrival of a high official, such as an ambassador, an admiral, a general or a consul. As the cutter dashes up to the side with spray flying from the oars the ship's bugle sounds "Attention." The side boys offer the man ropes as the official steps on the gangway and the captain receives him as he steps on the quarterdeck. As the two walk aft the marine officer, in quick, sharp tones, commands, "Present arms," and the whole marine guard, drawn up in line on the port side of the quarterdeck, bring their rifles up in salute, while the bugle sounds a flourish and the drum a roll, two for an admiral, three for an ambassador and four for the President. The marines on a ship are collectively called the guard; the ceremony is called parading the guard. It takes place on the arrival or departure of any official of rank. If the official does not visit the ship it takes place when his flag passes by, and it also takes place when two ships of war pass each other.

The landsman visiting an American warship finds the marine everywhere in evidence. At the door of the captain's cabin stands a marine, doing duty as an orderly, and no one can enter that officer's presence until he has first taken in the name. Down below a marine guards the storage rooms, and up on the berth deck another stands sentry over the torpedoes, while still farther along on the same deck is the "sentry over the brig," for the brig, be it known, is the ship's prison, where, in complete solitude and on a bread and water diet, an offender can meditate and see the error of his ways. Finally in the crowded forecabin the marine keeps order among the crew and an occasional eye on that fishing boat floating down with the tide, for Jack sometimes goes fishing and makes queer hauls. With a coin as a bait, he drops over his line, gets a nibble, hauls in a little brown bottle—and does not show his catch to the sentry.

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The marines, in a word, do the sentry duty of the ship, but this does not prevent these sea soldiers and the sailors from getting on well together. Occasionally, a marine recruit, just assigned to a ship, will develop symptoms of a disease known as "duty struck," and blindly lay the foundation for years of unpopularity for himself by taking advantage of his authority to make it as warm as he can for the blue jackets, but such a recruit is quickly called to order by the older men of the guard. As a rule, the marines and blue jackets are on the most friendly terms, and there are few liberty parties of blue jackets bound for a good time ashore that are not accompanied by a favorite marine or two, invited along to help the sailormen dispose of their money, for, out of his \$13 a month, the marine does not have a deal for shore use.

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The guard duty performed by marines on American ships is of an arduous and exacting kind. On some vessels, usually the smaller gunboats, the marine guard soldier is on post for two hours, and then gets only two hours off before buckling on his belt again, month in and month out. This sort of thing involves a breaking up of sleep that tells severely on marines serving on small ships, and it is for this reason that sea soldiers are so partial to flagships, and exhaust all the means in their power to be assigned to such large vessels of war. However, on every warship, no matter what its size, there is at least one first-rate billet for the private marine; that is the mail orderly's job. The mail orderly is the messenger between the ship and the shore, attends to all sorts of errands for officers and men, and is a general buyer of trinkets for all hands. A good deal of money passes through his hands, and his commissions are good, not to speak of the tips which are given to him for performing little diplomatic tasks ashore for the men forward. A marine mail orderly usually leaves the service at the expiration of a cruise with a snug sum tucked away.

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The first sergeant of a marine guard on a ship too small to rate one or more marine officers fills a responsible and exacting place, and is treated with great consideration by the officers, since, to all intents and purposes, he is an officer himself. He may go ashore when he chooses without putting his name down on the liberty list, and when he comes back to the ship from shore leave, he is not searched for liquor, an immunity which he enjoys in common only with the ship's chief master-at-arms. The first sergeant is responsible for the conduct of his men, and, if they do wrong, he is reprov'd much as if he were an officer. For the preservation of discipline, he is required to hold himself aloof from the members of his guard as much as possible, and he associates and frequently messes with the ship's chief petty officers.

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Semper fidelis—always faithful—is the legend worn upon the flags, guidons and insignia of the Marine Corps, and, in its hundred years of existence, it has never been false to its motto. It was one of the orderlies of the corps, Corporal Anthony, who, when the *Maine* was sinking, and nearly all who could do so were hastily leaving, made his way toward Captain Sigsbee's cabin, and, on meeting him, calmly gave the report the duty of the occasion required of him. And this quiet performance of duty in the face of impending death, has had a hundred parallels in the history of the Marine Corps.

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During the bombardment of Tripoli, in 1803, and the desperate hand-to-hand fighting which occurred between the vessels on both sides, Decatur boarded one of the Tripolitan gunboats and engaged the captain in a duel with swords. One of the enemy coming up from behind was about to cleave Decatur's skull with his sword, when a marine interposed his arm. The arm saved Decatur, but it was severed to the skin. In the same battle, Lieutenant Trippe, of the *Vixen*, boarded a Tripolitan gunboat and singled out the commander for a personal combat. A Turk aimed a blow at the lieutenant, but before he could strike, Sergeant Meredith, of the marines, ran him through the body with his bayonet. It was also an officer of marines, Lieutenant O'Bannon, who, with Midshipman Mann, hauled down the Tripolitan ensign, after having stormed the principal defense of Derne, and planted the flag of the Republic on that ancient fortress.

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The marines participated gallantly in the War of 1812, and in the expedition against Quallah Battoo, a few years later, formed the van of the attacking party, and were in the thickest of the fight with the Malays. This Quallah Battoo expedition furnished a stirring passage for our naval

history that is well worth recalling. In February, 1831, the American ship Friendship was loading on the coast of Sumatra. While the captain, two officers and four of the crew were on shore the Friendship was attacked by the crew of a Malay pepper boat, who, after killing the first officer and several of the seamen, succeeded in cutting off the ship and plundering her of every article of value on board. The attack was clearly concerted, and the Achense rajah, Chute Dulah, received the spoils, refusing the restoration even of the ship.

Time moved with leisure steps in those days, but as soon as news of this wanton outrage reached the United States, prompt measures were taken to punish its authors. On February 5, 1832, the frigate Potomac, commanded by Commodore John Downes, anchored off Quallah Battoo and landed a force of 250 men to attack the town. The assaulting party, composed mainly of marines, did its work in a thorough and practical manner. The town and the four forts defending it were captured and destroyed, and several hundred Malays killed, including the rajah chiefly concerned in the plunder of the Friendship and the massacre of its crew. The surviving rajahs begged for peace, and this was finally granted by Commodore Downes, but the lesson taught at the cannon's mouth is still remembered on the Sumatran coast.

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The Marine Corps participated with brilliant results in the Florida Indian War, and in the siege of Vera Cruz and the march to the City of Mexico their services were of the first order. In fact, General Scott is authority for the statement that at all times during the Mexican War they were placed where the hardest work was to be done. At the storming of Chapultepec, Major Levi Twiggs, of the marines, led the assaulting party and was killed. This fortress having been captured, the marines in General Quitman's division moved directly on the City of Mexico, and were accorded the honor of first entering the palace and hoisting the American flag.

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The marines who accompanied Commodore Perry to Japan, in 1852, took an important part in that expedition. A force of a hundred marines was landed, and, together with a like number of soldiers and two brass bands, marched through Yeddo to the palace of the Mikado, creating a most favorable impression on the foreign officials. A similar display was made by Perry when he returned to Japan in 1854, to receive the answer of the Japanese Government to his representations previously made regarding the advantages of foreign trade.

It was a force of marines who captured John Brown at Harper's Ferry, in 1859. While the militia of Virginia was assembling by the thousand to attack the little band of abolitionists, a force of one hundred marines was sent from Washington, and a squad of eight of them battered down the door of John Brown's fort, and captured his party, to the chagrin of the hundreds of other military men near by who hoped to have a hand in the affair.

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Again and again during the Civil War the marines proved themselves brave and stubborn fighters. In the encounter between the Merrimac and the Cumberland, the marine division was under Lieutenant Charles Heywood, later commander of the corps. The first shot from the Merrimac killed nine marines, yet the division was so little demoralized by the loss that it not only continued fighting, but actually fired the last shot discharged from the Cumberland at the Merrimac. For services rendered between 1861 and 1865, thirty-seven officers and men of the Marine Corps received the thanks of Congress, medals or swords, and twenty-eight were brevetted for gallantry.

In the brush with Corea in 1871, the marines, as before stated, were in the assault on the Salee forts, and Lieutenant McKee, in carrying the works, fell, as his father fell in Mexico, at the head of his men, and first inside the stormed works.

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Commander, afterward Admiral, Kimberly stated in his report that to the marines belonged the honor of "first landing and last leaving the shore. Chosen as the advance guard on account of their steadiness and discipline, their whole behavior on the march and in the assault proved that the confidence in them had not been misplaced."

The marines again distinguished themselves in 1885, when an insurrection in Panama compelled the landing there of a force, which stayed until all danger was over, and several times, in more recent years, the officers and men of the corps have plucked a fresh branch for their laurels. When the big railroad strike in California was in progress in the summer of 1894 the marine guard stationed at the Mare Island Navy Yard was called out to serve with the regular troops at Sacramento, Truckee, Stockton and other towns. In alertness, activity and general soldierliness they showed themselves quite the equals of the army troops, and the colonel of artillery who commanded the entire brigade, did not fail to dwell upon this fact in his report to the War Department. One of the marines at Truckee bent the stock of his rifle in clubbing a violent rioter, who afterward was convicted as an accessory in ditching a train and causing the deaths of four soldiers. The marine was reproved by his company commander, and narrowly escaped a court-martial, on the charge of destroying government property. "Bullets," said the commander, "are cheaper than rifles."

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The American marine has never been known to show the white feather, no matter what the odds against him. When, some years ago, Antonio Ezeta, the Central American agitator, was being chased by the government authorities of the Republic of Salvador, he took refuge in the residence of the American consul at La Libertad. The populace raged around the consulate, and word was sent to the garrison on the outskirts of La Libertad of Ezeta's hiding-place. An American gunboat was lying in the harbor, and the marine guard of twenty men, under command of a sergeant, was sent ashore by the commanding officer at the request of the consul, to protect the latter's residence and the refugee within it, for Ezeta was a citizen of the United States. The

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marine guard reached the consulate at the same moment with a battalion of 250 Salvadorean soldiers. The marines, not a whit dismayed, surrounded the consulate, and for eight hours stood off the swarthy Salvadoreans. Then, by a ruse, Ezeta, in disguise, was slipped to the beach and taken to the warship, which carried him to San Francisco to stand trial in the United States courts for violation of the neutrality laws. He would have been torn limb from limb by the citizens and soldiers of La Libertad, had it not been for the score of marines. The captain of one of the Salvadorean companies was an American free-lance from Western New York. He raved over the cowardice of the dark skinned soldiers he commanded, and profanely declared that, with half a dozen marines of the United States at his back, he would undertake to whip the entire Salvadorean army. His men, it may be stated in passing, did not understand English.

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Finally, in the war with Spain and the more recent operations in China, the Marine Corps added another moving and glorious chapter to its history. At Guantanamo the marine battalion, commanded by Colonel R. W. Huntingdon, fought the first serious land engagement of United States forces on foreign soil since the Mexican War. The fact that this battalion was attacked by the enemy in overwhelming numbers, and for over three days and nights was under constant fire, and that on the fourth day a portion of the battalion attacked and repulsed a superior force of Spaniards, shows, to quote the words of their chief, "that Colonel Huntingdon and his officers and men displayed great gallantry, and that all were well drilled and under the most effective discipline." One of the men under Huntingdon's command was Sergeant Thomas Quick, a lithe and fearless native of the mountains of West Virginia. At a critical stage of the operations, while the marines were engaged with the enemy firing from ambush, it became necessary to dislodge them, and it was desired that the Dolphin should shell the woods in which they were concealed. Quick volunteered to signal her, and standing on a hill wigwagged her, while bullets backed the dust about him. For his action, described as "beautiful" by his commander, he, in due time, received a medal of honor and a lieutenant's commission.

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The headquarters of the Marine Corps are at the barracks in the City of Washington, where are located the commandant and his staff. Besides those previously mentioned, there are marine barracks at Portsmouth, Boston, League Island, Norfolk and Annapolis. But the fouled anchor running through a hemisphere traced with the outlines of the two American continents, which adorns the front of the marine's fatigue cap, tells that he is at home both on sea and land, and when on either, shrewd, sharp blows are to be struck he is ready for them. Nowhere in the world, size taken into account, is there a more efficient organization than this corps of 6,000 brave fighting men.

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CHAPTER V

THE POLICE OF THE COAST

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The revenue cutter, though perhaps the least known, is one of the most useful branches of the Federal service. Its creation antedates by several years that of the navy, and it boasts a glorious history. It polices the coast as the navy polices the ocean, and its duties are as varied as they are weighty and important. It cruises constantly from the fever infected regions of the Gulf to the icebound shores of the Arctic Sea. It is the terror and constant menace of the smuggler and poacher. It sees to it that the quarantine is strictly maintained, and that the neutrality laws are not violated by the greedy and lawless of our own and other lands. It is prompt in the prevention of piracy, and suppresses mutiny with a heavy hand. It looks after emigrant ships and enforces the license and registry statutes. Last, but not least, it gives timely succor to the shipwrecked and annually preserves hundreds of lives and millions of dollars' worth of property. And so, wherever one familiar with its history falls in with its trim white cutters, whether in the sunny courses of the Gulf, or on the borders of the great Atlantic highway, off the bleak New England coast, in the crowded harbors of our lake ports, or in the still waters of the Pacific, he is sure to give them glad, respectful greeting, as modest, graceful emblems not alone of our country's greatness, but better still, of duty bravely and nobly done.

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The Revenue Cutter Service celebrated the centennial anniversary of its existence sixteen years ago, having been organized in 1790. The credit for its creation belongs to Alexander Hamilton, that great first Secretary of the Treasury, to whom we owe so much, and whose memory in these days of self-vaunting mediocrity we too often neglect to honor. His was a vision that saw clearly all the needs of the future, and as early as 1789 he earnestly advised the employment of "boats for the security of the revenue against contraband." A little later he submitted to Congress a bill providing for a fleet of ten boats, to be thus distributed along the seaboard: Two for the Massachusetts and New Hampshire coast, one for Long Island Sound, one for New York, one for the waters of the Delaware Bay, two for the Chesapeake and its environs and one each for North Carolina, South Carolina and Georgia. Congress accepted the Secretary's recommendations, and in a few months ten swift cutters were built, armed and equipped, each vessel being manned by a crew of ten men.

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Thus was born the Revenue Cutter Service, a modest fleet of small, speedy vessels only a little larger than the yawls of the present time. In addition to their pay, the officers and crews received a part of the amounts derived from fines, penalties and forfeitures collected in case of seizures and for breaches of the navigation and customs laws, but later the officers were given larger salaries and the payment of prize money abolished. At first only a small force was required to

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adequately protect the commerce of an extensive yet thinly populated coast, but our foreign trade grew so rapidly, and the importance of our shipping interests increased so steadily, that it soon became clear that a strong cordon of well equipped and speedy cruisers would be necessary for their effective protection. For this reason, Congress, in 1799, gave the President authority to equip and maintain as many revenue cutters as he should deem necessary for the proper policing of our coast-line.

And thus the Revenue Cutter Service grew in size and became more efficient with each passing year. During the first quarter century of its existence, it was almost constantly in the eyes of the public, and its daring deeds frequently afforded welcome material to the novelists of the period. Among its duties it was charged with the suppression of piracy, even so late as the opening of the last century, a serious menace to commerce; and it also waged a constant and relentless war against smugglers and smuggling. Those were the palmy days of the smuggler, who often made reckless hazard of his life in the illegal race for gain. Steam vessels had not yet come into use, and speed and safety then lay in trim lines and mighty spreads of canvas. Smugglers' schooners, sharp built, light of draught, and with enormous sails, were constantly hovering in the offing, biding some favorable opportunity to discharge cargoes upon which no duty had been paid.

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It was the business of the Revenue Cutter Service to keep watch upon these vultures of the sea, spoiling them of their quarry, and in this way sprang up hand-to-hand encounters both by sea and land, sudden, sharp and terrible, in which many a gallant life was lost and fame and honor won. Now, however, the pirate and the smuggler, at least of the bold life-risking sort, have passed to the limbo of forgotten things, and the officers and men of the Revenue Cutter Service no longer win glory and a reputation for bullet-chasing courage in their suppression. The new field which they have built up for themselves, is daring and full of danger, but it has not the same interest for the general public, and so their deeds of heroism are now performed in out-of-the-way corners, with no herald present to trumpet them to the world, and with the pleasant consciousness of duty well done as their only reward.

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The Revenue Cutter Service in time of war has always co-operated promptly and effectively with the navy against the foe. Indeed, the cutters belonging to the Revenue Cutter Service have taken a gallant and active part in all the wars of the United States save one. In 1797, when war with France threatened, the Revenue Cutter Service was placed on a war footing, and by its promptness and vigilance, did much to uphold the dignity and prestige of the Federal Government. In the following year a number of cutters cruised with diligence and daring in West Indian waters, and the record of the Revenue Cutter Service in guarding the seaboard and preventing the departure of unauthorized merchant ships, while the embargo act of 1807 was in force, was also a fine one.

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Its services during the War of 1812 were as varied as they were brilliant. Not only did its vessels successfully essay perilous missions, but they also took a gallant part in many of the most hotly contested naval actions of the war. In fact, to the cutter Jefferson and its gallant crew belong the credit for the first marine capture of that contest, for within a week of the proclamation of war the Jefferson fell in with and captured the British schooner Patriot, with a valuable cargo, while on her way from Guadeloupe to Halifax. And this proved only a fitting prelude to a hundred illustrious deeds performed by the officers and crews of the Revenue Cutter Service during the following three years. In the second year of the war the revenue cutter Vigilance overhauled and after a sharp engagement captured the British privateer Dart, off Newport, while the cutters Madison and Gallatin carried many rich prizes into the ports of Charleston and Savannah.

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When in 1832 South Carolina threatened to secede from the Union, several cutters cruised off the Carolina coast, ready to assert by force the supremacy of the Federal Government. During the Seminole War revenue cutters were not only actively engaged in transporting troops and munitions, but were also of great service in protecting the settlements along the Florida coast. During the Mexican War eight revenue cutters formed a part of the naval squadron operating against the southern republic and participated gallantly in the assault on Alvarado and Tobasco, while the revenue cutters McLane and Forward contributed materially to the success of Commodore Perry's expedition against Tobasco and Frontera in October, 1846.



AN OFFICER IN THE REVENUE CUTTER SERVICE

Finally, a volume would be required to adequately record the work of the Revenue Cutter Service during the Civil War. Its cutters were employed as despatch boats, joined in the pursuit of blockade runners, did guard and scouting duty, and often shared in engagements with Confederate batteries and vessels. In truth, it was a revenue cutter, the Harriet Lane, which, in Charleston Harbor, in April, 1861, fired on the Union side, the first shot of the Civil War. The Harriet Lane was long the pride of the Revenue Cutter Service, and had a notable career. Named after the beautiful and gracious niece of President Buchanan, she participated in the naval expedition to Paraguay, and during the Civil War was often under fire. Again, during the war with Spain, the Revenue Cutter Service achieved an enviable and heroic record.

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The proper patrol of our long coast line requires a large number of vessels, and the Revenue Cutter Service at the present time has a complement of thirty-seven vessels, all splendidly adapted to the work in hand. During the last sixty years steamers have slowly but steadily replaced the top-sail schooners of the old days, and the vessels now employed by the Revenue Cutter Service are, with one or two exceptions, small, compact, well-built steamers, which, save for the guns they carry, might easily be mistaken for swift steam yachts. In size they range from 130 to 500 tons burden. The majority of them have been built under the direct supervision of officers of the service and are perfectly adapted to the varying wants of the several stations. Nearly all of them are armed with from two to four breech-loading rifled cannon and carry small arms for the use of their crews. Most of the vessels bear the names of former secretaries and assistant secretaries of the Treasury, but the Andrew Johnson, the William H. Seward and U. S. Grant are also among the names to be found on the list. The U. S. Grant, which does duty at Port Townsend, is a bark-rigged steam propeller, and a model of its size and type. Strange to say, it is the only ship of the United States that bears the name of the greatest captain of his age.

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The vessels of the Revenue Cutter Service are always ready for instant duty in the most distant quarters. When, in 1867, Alaska became a part of the United States, within a week after the ratification of the treaty, the revenue cutter Lincoln was steaming northward, and was the first to obtain accurate information regarding the geography, resources and climate of our new possession. Three or more revenue cutters now cruise every year in Alaskan waters, guarding the seal fisheries and often giving much needed relief to the whaling fleet that yearly sails from San Francisco for a cruise in the waters above the Behring Sea.

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Officers and crews of the cutters doing service in the waters of Alaska have remarkable stories to tell, and the log-books of the cutters Corwin and Bear have been filled during the last twenty-five years with a record all too brief, of many thrilling adventures in the frozen North. The Corwin left San Francisco for the Polar Sea in May, 1881, charged with ascertaining, if possible, the fate of two missing whalers, and to establish communication with the exploring steamer Jeanette. Five times during the previous year the Corwin had attempted to reach Herald Island, and failed each

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time. On this voyage better success attended, and after braving the perils of the drift ice, a landing was made, while at the same time the bleak coast of Wrangel Land was sighted to the westward. On August 12, 1881, the Corwin having pushed its way through great masses of floating and grounded ice, into an open space near the island, effected a landing on Wrangel Land, this being the first time that white men had ever succeeded in reaching that remote corner of the Arctic waste.

The cruises of the Corwin in 1880 and 1881 covered over 12,000 miles, and the officers and crew, while carefully preventing illegal raids upon the sealing interests, also found time to prosecute important surveys and soundings, to make a careful study of the natives of Alaska, and to collect a great mass of important data relative to the natural features and mineral wealth of the country. The cruises of the Corwin in the succeeding years of 1882, 1883, 1884 and 1885, were of scarcely less importance. One of these cruises was to St. Lawrence Bay, Siberia, where timely succor was given to the officers and crew of the burned naval relief steamer Rogers, which had gone north in the spring of 1881 in search of the Jeanette. During the Corwin's cruise in 1883 a considerable portion of the interior of Alaska was carefully explored and an outbreak among the natives on the mainland promptly quelled. During its two succeeding cruises the Corwin saved from death nearly 100 shipwrecked whalers and destitute miners.

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Since 1885 the cutter Bear has patrolled the Alaskan waters, making a record equal to that of its predecessor. Its work in protecting the sealing fisheries is well known, and it has also suppressed in large measure the illegal sale to the natives of firearms and spirits. Its record as a life saver is also a long one, and some of its experiences have been more thrilling than those to be found in the pages of any romance.

When the Bear reached Alaskan waters in 1887 the captain of the whaling ship Hunter handed its commander a most remarkable message, which had been delivered to him a few days before by the natives of Cape Behring. This message consisted of a piece of wood, on one side of which was rudely carved: "1887 J. B. V. Bk. Nap. Tobacco give," and on the other "S. W. C. Nav. M 10 help come."

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The riddle offered by the message was speedily solved by the officers of the Bear. The bark Napoleon had been wrecked in 1885 off Cape Navarin, and only fourteen of the crew of thirty-six men had been rescued. Of the unlucky twenty-two a few reached the Siberian shore, but nothing had been heard of their subsequent fate. The officers of the Bear reasoned that the sender of the message was a member of the Napoleon's crew who had found refuge with the natives to the southwest of Cape Navarin and was now anxiously awaiting rescue. This reasoning proved correct, and a few weeks later the weary two years' exile of James B. Vincent, of Edgartown, Mass., boatswain of the Napoleon, had a happy termination.

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The story Vincent told his rescuers, was of tragic and absorbing interest. The Napoleon, caught in a storm, had been wedged in the ice and its crew compelled to take to the boats. The boats, four in number, were soon separated, and thirty-six days of fearful suffering passed before the one containing Vincent and his companions reached shore. In the meantime nine of the eighteen men in the boat had died and several others had been driven insane by their sufferings. Vincent was the only one who could walk when they reached land. Five more soon died and three of the survivors were helpless from frost bites and exhaustion when they fell in with a party of natives. A portion of the latter lived inland, and these took Vincent with them when they returned to their homes. The following Spring when the natives visited the shore to fish, Vincent found his three shipmates barely alive, and they died soon after.

When the fishing was over Vincent went back to the mountains with his new-found friends, and during the following winter carved and entrusted to wandering natives from Cape Behring the message which later brought about his rescue. When spring of the second year opened Vincent, with the natives, again started for the seashore to fish. Great was his joy a few weeks later when he was attracted by the shouting of the natives and looked up to see a white man and to find himself rescued at last. The Bear conveyed him to San Francisco, whence he made his way to his home in Massachusetts.

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While among the Eskimo, Vincent was kindly cared for by an old native, whose wife received him as her son. After a year the husband died, but his last instructions to his wife were to care for and keep their guest until he was rescued. When relief at last came the old woman with tears in her eyes, said that she was ready to die, for she had done as her husband wished. Warm and tender hearts can be found even in Siberian wastes.

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The Revenue Cutter Service is part of the Treasury Department, and comes under the direct jurisdiction of the Secretary of the Treasury. Subordinate to him are a chief and assistant chief of division. Each vessel of the service patrols the district to which it is assigned, and forms a picket line at the outer edge of government jurisdiction, which extends four leagues from the coast. Every vessel arriving in United States waters is boarded and examined, and its papers certified. If a vessel liable to seizure or examination does not bring to when requested to do so, the commander of a cutter, after discharging a warning gun, has authority to fire into such a vessel, and all acting under his orders are indemnified from any penalties or action from damages. On each cutter there are a captain, three lieutenants, a cadet, an engineer and two assistants, and a crew of a dozen or more men.

The service includes in its several grades about one thousand men. Strict discipline is maintained, and its crews receive constant instruction and exercise in the use of great guns,

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rifles, carbines, pistols, cutlasses and the like. An officer of the Revenue Cutter Service must not only possess considerable executive ability, but must also be a man of varied and accurate information, having a knowledge of gunnery and military drills, and be thoroughly familiar with the customs and navigation laws of the country.

Rank is obtained by promotion, the latter being governed by written competitive examinations, from three to five of the senior officers of a lower grade being selected for any vacancy occurring in the higher grade. A young man wishing to join the service as an officer undergoes a rigid examination held annually at Washington, and then serves for several years aboard the revenue schoolship, where he learns sea mathematics, sea law and seamanship. His period of apprenticeship ended, he joins a regular cutter as a junior officer and waits for promotion at a salary of \$85 per month.

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Life on board a revenue cutter during the months of summer is usually an easy and pleasant one, but in the winter there is another and different story to tell. From December to April of each year the cutters cruise constantly on their stations to give aid to vessels in distress, and are, in most cases, forbidden to put into port unless under stress of weather or other unforeseen conditions arise.

Few stormy winter days pass without the revenue cutter seeing a signal from some vessel in distress, and aid is never sought in vain. The cutter steers straight for the signal as soon as it is sighted, and when a quarter of a mile distant lowers a boat. Often a boat is launched into a sea where death seems certain, but officers and men never shrink from their duty. When the boat gains the side of the vessel seeking aid, the master whom misfortune has overtaken, requests, as a rule, to be towed into port. When such a request is made, a line must be got to the distressed vessel and from the boat to the cutter, a task often performed with infinite difficulty and at the risk of life and limb.

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When a vessel is found drifting helplessly and about to dash itself upon rocks, the peril is even greater. Then the cutter must stand further away, and its boat is in constant danger of being dashed upon the rocks. But, thanks to the skill, experience and coolness of the officers and crew of the cutter, a line is generally got into the boat and to the steamer, and the imperilled vessel hauled away to safety.

One of the finest feats of life-saving ever performed by the Revenue Cutter Service was that credited to the cutter Dexter, some years ago. On January 17, 1884, the iron-built steamer City of Columbus left Boston for the port of Savannah, carrying eighty-one passengers and a ship's company of forty-five persons. Her commander was a capable and experienced seaman, and though by nightfall the wind, which had been blowing all day, had increased to a hurricane, and a heavy sea was running, he had no serious apprehension of danger. The vessel, following her usual course through Vineyard Sound, had left behind nearly all the dangerous points which thickly bestrew those waters, and would soon be safely in the open ocean. It was at that luckless moment that the captain left the bridge and went below, first directing the helmsman how to steer.

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Within an hour the steamer struck on Devil's Bridge, and an awful fate was upon the hapless passengers and crew, who were sleeping soundly, all unconscious of danger. The weather was bitter cold, the darkness intense, the wind blowing a hurricane and the waves rolling mountain high. In the twinkling of an eye a hundred poor creatures were swept to their death in the icy waters. A few of the stronger ones took refuge in the rigging, but many of these, benumbed by the cold, dropped one by one from their supports and disappeared in the sea, while such boats as were cleared away were either dashed to pieces or instantly swamped.

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The wreck occurred about four o'clock in the morning, and soon after daylight the Dexter reached the scene of the disaster. Her commander at once dispatched two boats to the rescue of those still clinging to the rigging of the Columbus, and thirteen men, jumping from their refuge into the sea, were picked up as they came to the surface, and conveyed to the Dexter. To reach the wreck in small boats through an angry sea was an undertaking so perilous as to make even the boldest pause, and called for courage of the highest order. However, the Dexter's crew proved equal to the test, and Lieutenant John U. Rhodes made himself famous by an act of the noblest heroism. Two men, rendered helpless by cold and exposure, still clung to the rigging of the Columbus after all their companions had been taken off. To board the ill-fated vessel was impossible; Rhodes essayed to reach it by swimming. He gained the side of the vessel after a gallant battle with the waves, but was struck by a piece of floating timber, and had to abandon the attempt. Bruised and half fainting, he insisted upon making another trial, reached the vessel and brought away the two men, both of whom died a few hours later. The Legislature of Connecticut, Rhodes' native State, passed a resolution thanking him for his gallant conduct, and he received many medals and testimonials.

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Rhodes has since died, but the Revenue Cutter Service still numbers among its officers scores of men endowed with the flawless bravery of which he gave such shining proof at the wreck of the City of Columbus. One of these is Lieutenant James H. Scott. This brilliant young officer—I cite his case as a typical one—was born in Pennsylvania thirty-seven years ago, and while still in his teens shipped as a boy on a merchant vessel in commerce between Philadelphia and Antwerp. Tiring of this trade, he sailed as an able seaman from New York to Bombay and other East Indian ports, making the last voyage as boatswain of the good ship Ridgeway, after which, declining proffer of a second mate's berth, he entered the Revenue Cutter Service as a cadet.

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Graduated in 1890, and made acting third lieutenant on the cutter Woodbury, it was then that young Scott, who while attached to the revenue schoolship had jumped overboard in Lisbon harbor and rescued the quartermaster of his vessel, again gave proof of the sterling stuff that was in him. On a cold, clear day in January, 1891, the Woodbury, which is stationed at Portland, Me., was cruising to the eastward of that port, the thermometer below zero, and the rigging covered with ice. The Woodbury was about half-way over her cruising ground when the officer of the deck discovered a large three-masted schooner hard aground on a ledge of rocks which stood well out from the shore. A high sea was running at the time, though the cutter rose and fell to every wave with apparent unconcern, and breaking clean over the schooner, the crew of which had taken refuge on the rocks and were now frantically signalling for help. It was clear that unless help reached them they would quickly perish from the cold.

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Captain Fengar, commanding the Woodbury, ran in as close as he could without peril to his vessel, and carefully surveyed the ground before giving an order. His practiced eye told him in a moment that to send in a boat of the cutter type would mean its certain destruction against the rocks, even if it could live in the sea then running. However, the captain suddenly recalled that a fisherman's village was only a few miles distant, and that there he could obtain a couple of dories admirably adapted to the task in hand. Shouting to the men on the rocks to hold on and not lose hope, the cutter, at a word from its commander, headed about, and went plunging and rolling at top speed in the direction of the village. Two hours later the Woodbury was again on the scene, with a good-sized dory on one of her davits.

Closing in on the wreck, Captain Fengar called for volunteers. Almost to a man the crew responded, but among the foremost were Cadets Scott and W. S. Van Cott. Captain Fengar allowed the two young men to go, but not without some misgivings. Both insisted on pulling oars, the dory being in charge of Lieutenant W. L. Howland, an experienced and capable officer. As the dory left the ship it was observed that a life-saving crew from a station well down the coast was approaching. It would never do to let the Woodbury be beaten, and her dory crew pulled with all the vim they could command. The race was to be a close one, but at the outset the Woodbury's boat gained the lead, and such a run, in such a sea, was never perhaps pulled by opposing boats.

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Lieutenant Howland in getting close in, dared not run up too close to the rocks, and after a couple of ineffectual attempts to heave a line was about to despair of success, when suddenly Cadet (now Lieutenant) Scott, securing the line around his waist, sprang overboard, before any one in the boat knew what he was about. Shouting to Lieutenant Howland to pay the line out, young Scott was dashed upon the rocks and seized by the imprisoned sailors. The brave young fellow was badly stunned, but he had gained his point by getting the line to the rocks. Communication was now effected with the dory, which all this time was riding the seas at a safe distance. Another line was hauled up from the boat, and one by one the sailors jumped clear of the rocks and were hauled to the dory, whence they were conveyed without delay to the deck of the cutter. When rescued they had been fourteen hours on the rock. Since the incident just related, Lieutenant Scott, though still one of its youngest officers, has held every position in the Revenue Cutter Service.

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The present chief of the Revenue Cutter Service is Captain C. F. Shoemaker. He has climbed to this position from the lowest rung of the ladder, and is a man whose success would have been notable in almost any calling. Many of the other captains of the service are men of mark and achievement, for the Government has no nobler, better, braver servants than those who officer and man its revenue cutters.

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CHAPTER VI THE OCEAN PILOT

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The ocean pilots and deep sea divers of New York have one thing in common; both object to taking apprentices, and in the case of the former, at least, there is good reason for this, since they have been, for generations, the aristocrats of their calling. The pilots who sail out of Sandy Hook are no hardier than their rugged and fearless fellows of the North Sea, but they subject themselves to greater dangers by their long cruises, and rough, indeed, must be the weather that can keep them in port. They cruise night and day, in search of incoming craft; their torches' flare lights up the snow and sleet of winter storms and contends with the darkness of summer fogs; and they speak and board in all sorts of weather and at all seasons the fleet liners that cross the western ocean in less than a week. And these pilots of the New York and New Jersey shores are a revelation to the tourist, who, having never heard of them, sees them for the first time. The latter, in most cases, expects to watch a rough-and-ready sort of fellow in homespun, with a swaggering air and a boisterous manner, climb from the pilot's yawl up the black hull's towering side. Instead, he sees a man of modest and pleasing address, about whom there is little to indicate his calling, and much that bespeaks the merchant or clerk one meets of a morning on lower Broadway. There was a time when our pilots indulged in the luxury of a high silk hat when boarding vessels in sunny weather, but they are not so fastidious nowadays, and use derbies instead.

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Prosperous as a class, the pilots of New York pay dearly for their prosperity by the most arduous sea labor. Since 1853 more than thirty-five boats have been sunk and wrecked in various ways,

and twice that number of pilots have lost their lives. There are at the present time upward of 160 pilots cruising from the port of New York. They are subject to the supervision of a pilots' commission of five members, named by the Governor of New York, and each pilot is appointed after a long and severe apprenticeship. He must first serve, boy and man, before the mast until he masters every problem in the management of every form of rig. Then he must contrive to obtain the position of boat-keeper or pilot's mate. In that capacity he must serve three full years before he can be admitted for his examination for a license. After this he must pass a most rigid examination on all points of seamanship and navigation before the Board of Pilot Commissioners, and show complete and exact knowledge of the tides, rips and sands and all other phenomena for many miles out from the piers of the East and North Rivers.

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But even after the candidate has received his license, he is sometimes forced to wait years, until some pilot happens to die and leave a vacancy for him. The first year of pilotage he is granted a license to pilot vessels drawing less than sixteen feet. If he gives satisfaction, the following year he is permitted to take charge of vessels drawing eighteen feet. If he passes a satisfactory examination the third year, he then receives a full license, entitling him to pilot vessels of any draught, and is then first called a branch or full pilot. On receiving his license, the pilot must give bonds for the proper discharge of his duty, and he is liable to heavy fines if he declines to fill a vacancy or board a vessel making signals for a pilot. Pilots are paid for their work by the foot, the charges varying according to the draught. For a ship drawing from twenty-one to twenty-eight feet they receive \$4.88 a foot, and for one drawing six to thirteen and one-half feet \$2.78 a foot, these rates being slightly increased in winter.

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A cruise on a New York pilot-boat, however brief, is an experience sure to be remembered. When a pilot-boat starts out on a hunt for ships, it is decided in what order its half-dozen pilots shall take the prizes, and the man who is to board the first one is placed in command. The other pilots, meanwhile, take their ease as best suits their taste, the seaman's work being done by a crew of sailors hired for the purpose. One pilot, however, is always on the lookout for sails, and a landsman is compelled to marvel at the certainty with which these ocean scouts discharge the task of sighting vessels, for often they are able to tell the name of a steamship before unaccustomed eyes can discern aught but a waste of waters and a wide expanse of sky. Still, a part of this skill may be due to the fact that pilots are always posted before going out as to what vessels are expected, and from what direction they are coming, the watch being made all the keener by the fact that the bigger the ship the bigger is the pilot's pay. A ship, moreover, must take a pilot going out from the same boat that furnishes the pilot going into port, while if a captain refuses a pilot he must pay full pilotage, and thus contribute his tithe to the support of the system. This latter rule seems, at first glance, a curious provision, but it is defended on the ground that without it the business would not be remunerative enough for really competent men to engage in it, and that with unskilled pilots the annual losses would be greatly in excess of what they are at present.

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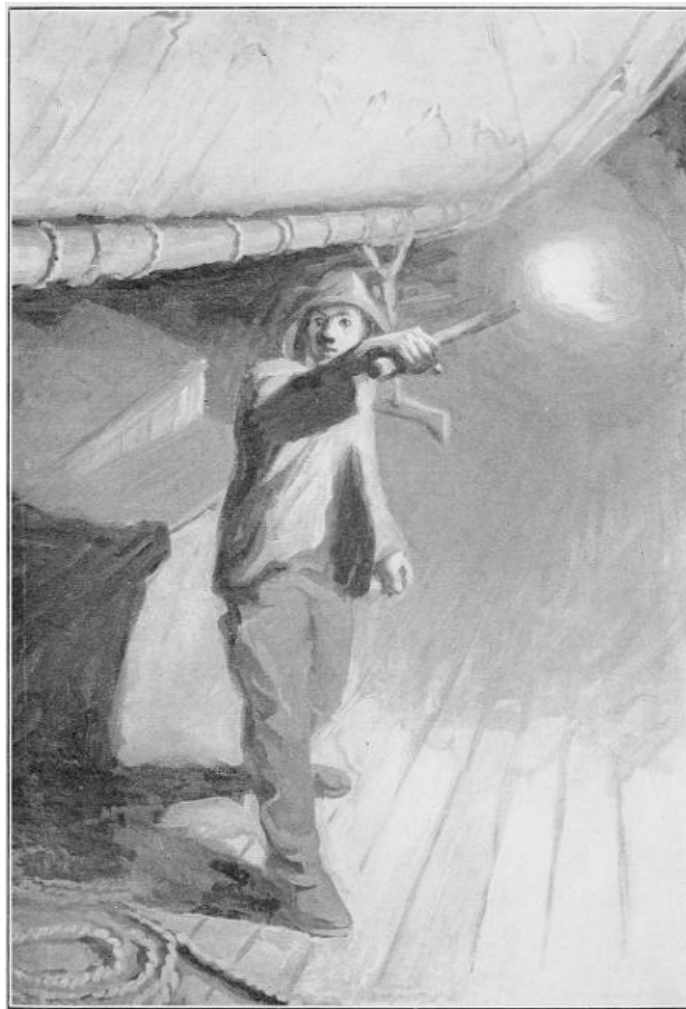
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When a ship is sighted by daylight, a long blue burgee is hoisted to the peak of the pilot-boat, which means, "Do you want a pilot?" If there is no responsive signal, it is taken for granted that the answer is "Yes," but if a jack is hoisted the watchers know that the vessel has already been boarded by a pilot from some boat that has sailed farther away from port in the hunt for a ship. When a ship is sighted at night she is signalled by means of a torch charged with benzine and giving forth an intense light. Seen from the other vessel the effect is startling, the white light illuminating every sail and spar of the pilot-boat, so that it stands out, its number clearly visible upon the mainsail, a gray specter against the night's background.

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Should the answering signal be favorable, there follows a scene of great excitement on the deck of the pilot-boat. At first sight of the ship, the pilot due to take the prize dives down to the cabin, sheds his working clothes and dons a suit of sober black, and by the time it is known he is wanted, he is ready to be transferred to his charge. Taking on a pilot is not without its perils. The yawl nearly always pitches and tumbles in most uncomfortable fashion, while the ship is rarely if ever brought to a full stop, and the pilot, watching his chance, must grasp the rope ladder let down its side, and scramble aboard as best he can. Sometimes he gets a ducking, and if the weather is tempestuous he is pretty certain to be drenched, but for that he cares not a jot, and he is sure to show a smiling face to captain and passengers when finally he sets foot on deck. Dropping a pilot from an outgoing vessel is often more hazardous, especially in stormy weather, than his transfer the other way. Then he must descend the rope ladder and jump for the boat in the nick of time, for to miscalculate in the least the position of the little shell means a ducking almost certainly, and possibly a watery grave.

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PILOT SIGNALING A VESSEL

A peril, however, more feared by pilots than the one I have been describing, is the dreaded lee shore; and with reason, as a story told by a veteran ocean pathfinder will show. On a still afternoon in midsummer the crew of a pilot-boat sighted a ship off Fire Island, some five miles away. In the dead calm prevailing the only way to board her was to row over the distance. There would be little danger in doing this if the wind did not spring up and the ship sail away, so the yawl was lowered and headed for the distant merchantman. But as night was closing in, and ere the yawl had come within hailing distance of the ship, of a sudden the breeze sprang up, and the vessel making sail, glided slowly over the horizon line. The breeze grew into a gale, and in the gathering storm and gloom the men could no longer discern the whereabouts of the pilot-boat. Nor, there being no compass on board the yawl, could they determine the direction in which they were being blown. The nearest land was miles away and the only thing that could be done was to keep the boat's head to the wind and wait. Thus the minutes lengthened into hours. Toward dawn, when the night was darkest, they heard the thunder of surf on the reefs, and a little later felt the yawl lifted up on the crest of a mighty breaker rushing swiftly toward the land. There was a deafening roar, a crash, a whirl, and a torrent of foam. In a twinkling the boat was capsized and the poor fellows were struggling in the surf. One struck a rock and was killed. The others, freed from the receding wave, ran up the beach, and by digging their hands into the sand to escape the deadly undertow, finally got ashore, drenched and exhausted.

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In the main, however, the system I have been describing has now become a thing of the past. Potent causes have contributed to this result. Formerly pilot-boats had no particular stations assigned to them, and boats have been known to cruise as far north as Sable Island, a distance of six hundred miles, in order to get steamers taking the northern courses. In the same way pilot-boats cruised long distances to the southward and straight out to sea to meet the incoming steamers and sailing vessels. Thus, unrestrained in its movements and left to seek out its own salvation, each boat sought to outdo the other in securing work, and all sorts of strategic devices were brought into play in order to first gain the side of an incoming vessel. Pilots took advantage of fog and night in order to slip by a rival, while jockeying for winds and position was indulged in to an extent that would be counted extraordinary in a yacht race.

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Competition, however, cut down earnings to such an extent that there came a time when many of the boats were no longer able to pay expenses. Then it was that some of the long-headed among the pilots, casting about for a remedy for this evil, came to the conclusion that one steam pilot-boat would be able to do the work of three or four sailboats. It was accordingly decided some years ago that steamboats should gradually replace the existing fleet of sail. With this innovation came restrictions regulating the cruising grounds of the boats. Instead of cruising about indiscriminately as formerly, each boat is now assigned a certain beat. An imaginary arc has been described extending from Barnegat to Fire Island, a distance of seventy-five miles, and all pilot

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boats are expected to confine themselves within this line. Four pilot-boats patrol this line, each covering a beat of about nineteen miles. Inside of the circle are stationed two more pilot-boats, while still further in is a boat known as the inner pilot-boat. Just off the bar another boat is stationed to receive the pilots dropped by outward-bound vessels. When a boat in the outer circle becomes unmanned or disabled, a boat from the inner circle takes its place, while a reserve boat occupies the beat left vacant on the inner circle. In this way all the beats are constantly patrolled in an efficient and economical way. Each pilot takes his turn at the service, and is on board a boat cruising on the stations three days in seven, a moving contrast to the offshore service of other years, when a boat and crew were frequently compelled to remain at sea for weeks at a time.

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Indeed, under the new system of pilotage, battles with cross-seas and gales and exposures to snow, cold and sleet, while cruising for vessels hundreds of miles off coast, are fast becoming things of the past, and for stories of collisions, wrecks, narrow escapes and strange mishaps, one must now hark back to the records of former days. Here, however, he is sure to encounter many a tale that quickens the pulse and stirs the blood. Take the case of the Columbia, run down by the steamship Alaska, off Fire Island. When the Alaska was sighted, the pilot-boat was head-reaching to the north on the port tack. The wind was blowing a gale from the northwest, and an ugly sea was running, with the weather clear, but cold. She plunged deeply into the heavy sea, and heeled to the force of the wind until her lee rail was awash. The wind whipped off the top of the waves and filled the air with spray. When the steamship sighted the boat off Fire Island, her course was changed to make a lee for the boat's yawl. She seemed to stop when the yawl was launched and two men and a pilot went over the side of the boat and dropped into her, but ere the yawl had fairly started on her way the liner, of a sudden, and without warning, forged ahead. The surge from the port bow of the Alaska, as she pitched into a big wave, capsized the boat, and threw the men into the water. Before anything could be done to save them the bows of the steamship rose and fell again, and, hitting the pilot-boat, cut it in two and crushed the decks and beams to bits, the broken timbers being swept under the bows and along the sides as the steamship again forged ahead and passed over the spot. Not a man on the Columbia was saved.

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The Sandy Hook pilot, however, never quails in the face of danger or even death, as was proved at the stranding of the packet boat, John Minturn, almost within a stone's throw of the New Jersey beach during a frightful hurricane in February, 1846. There were fifty-one souls on board the Minturn, and of that number only thirteen escaped to tell the story of that fearful night. Its hero, according to the evidences of all, was Pilot Thomas Freeborn, who to the very last struggled manfully to succor the hapless women and children who clung to the deck around him. It was bitter cold, and every wave that washed over the stranded ship left its coating of ice on deck, rigging, passengers and crew. Freeborn and brave Captain Stark, who was forced to see his wife and children freeze to death without being able to render them assistance, gave up their own clothing in a vain attempt to protect the weaker sufferers, and when days afterward the pilot's body was found washed up on the beach it was almost naked, while that of a woman, which lay near-by, was carefully wrapped in his pea-jacket.

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It has been three-score years since the wreck of the Minturn, but in every year since then there has been numbered among the members of the Sandy Hook Pilot's Association scores of hardy men, who, should need come to them, stood ready to risk their lives and die as bravely as did Thomas Freeborn. Pilot Henry Devere proved that he had the same heroic fiber in his makeup when he sailed in the James Funck, before the Civil War. A brig under shortened sails was sighted one day, and when the yawl of the pilot-boat drew alongside, Devere hailed a boy at the wheel. The boy seemed to be stupefied, and the pilot was obliged to hail him several times before he started up, leaned forward into the companionway, and called feebly to somebody below. Then a gaunt man came on deck and said that the crew had been stricken by fever. Most people in the face of a menace of this sort would have turned back, but Devere was not that kind of man. Instead, he went on board, and, with the help of the mate, headed the vessel toward Sandy Hook. The captain was ill in his stateroom. The body of a dead sailor found on deck was tied in mosquito netting and dropped overboard. The boy died in the lower bay, and the captain off the Battery, leaving the mate as the sole survivor of the crew. The pilot helped to furl the sails and make the lines fast, and only left the stricken vessel when she had reached her moorings.

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The stranding of the Jesse Carll in 1889, illustrates another of the dangers with which pilots sometimes have to contend. The boat, having discharged one of her five pilots, was standing off shore near Fire Island, when she began to feel the force of an advancing southern cyclone, and early in the evening was in what sailors call "nasty weather." At midnight a violent thunder-storm burst overhead, and the increasing wind raised a furious sea, but Pilot Gideon Mapes, in charge of the vessel, had her under double-reefed sails, and standing up against the wind and waves in fine shape. Then came a deluge of rain, and the wind increased to hurricane force. Soon a thick mist covered the water and shut out everything in sight. The boat reached off and on, expecting to keep out of shoal water, but all efforts failed. Her signals of distress were seen by the life-saving crew on the beach, and before daylight the ten men on board were taken ashore in boats. When morning came an effort was made to pull the boat off, but as she shifted into deeper water she filled, a hole having been made in her bottom. Then the pilots abandoned her, but she was raised and repaired a few weeks later.

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Stories like these are what the pilots tell in their idle hours. Searching for them at such a time, one is most likely to find them at the Pilots' Club, a flourishing social organization, which has roomy quarters just under the roof of a big office building within hailing distance of the Battery. Here at all hours of the day a score or more of pilots are sure to be sitting about spinning yarns,

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playing cards and checkers and reading the newspapers and magazines. Their well-furnished clubrooms contain a great number of precious curios—relics from all quarters of the globe. There are firearms of curious antique pattern; autograph letters by such famous sea-dogs as Macdonough and Porter; a tiny chest of drawers carved from one of the timbers of John Paul Jones' ship, the Bon Homme Richard; a portrait of Washington by Stuart, surrounded by two large American flags, and a model of the pilot-boat Stingaree, which was built in 1810, and was one of the most famous crafts of her day.

This model shows that the years have wrought great changes in the building and rigging of pilot-boats. In old times the boats simply carried mainsail, foresail, and forestaysail and jib. They had no foretopmast, and on their maintopmast carried a flying gaff-topsail, which was hoisted from the deck. Now the boats have both fore and maintopmasts, and each carries a mainsail, foresail, forestaysail, jib, jib-topsail, maintopsail and staysail and fore and main standing-gaff topsails, which give them an immense spread of sail, compared with that used by the boats of earlier times. A schooner-rigged pilot-boat costs from \$15,000 to \$16,000. That was about the cost of the Caldwell H. Colt, a good example of the typical pilot-boat. She is eighty-five feet long with twenty-one feet beam, 61.43 tons, custom-house register, and a rig as trim and jaunty as that of an ordinary yacht. The pride, however, at present writing, of the New York Sandy Hook fleet is the New York, built of steel, propelled by steam, and able to stand as much buffeting in cyclonic seas as the stanchest of the liners. She was built on the Delaware from designs by A. Cary Smith, is 155 feet long, 28 feet beam, 19 feet 7 inches deep, and is driven by a compound surface-condensing engine of 100 horse-power. Her pole masts are of steel, and she spreads on them enough canvas to steady her. The New York has accommodations for twenty-four pilots, who fare more luxuriously than they ever did on any of the old sailing craft. They have a smoking-room in a separate steel deckhouse, aft of the engine-room, fitted up like a similar room on an ocean steamship, while the lifeboats in which they leave the New York to board incoming vessels are hoisted and lowered by a steam derrick in less than a minute. It is intended that in a few years the entire fleet shall be made up of vessels equal if not superior to the New York.

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CHAPTER VII THE DEEP-SEA DIVER

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There is something about the occupation of the diver that strongly appeals to the imagination, and with reason, for working fathoms below the surface of the water, in semi-darkness, dependent upon a rickety pump for the breath of life, his trade is at best a perilous and precarious one. Perhaps, that is why divers as a class are opposed to taking apprentices, and that a majority of the men who drift into the calling do so by accident. Most divers, if you question them, will tell you that the best, if not the only way to acquire their art is to put on a diving suit, go down into the depths, and learn the business for yourself.

That was what a diver who was preparing for work in the East River said to me, and, fitting the action to the word, I asked him to loan me his suit, and permit me to try my 'prentice hand at the business. He protested goodnaturedly, but finally yielding, brought out his suit, and helped me to put it on. The outfit in which I speedily found myself accoutred, consists of two suits, one within the other, and both of india-rubber. The stockings, trousers and shirt are all made together as one garment, which the wearer enters at the neck, feet first. The hands are left bare, the wristbands of the rubber shirtsleeves tightly compressing the wrists. There is a copper breastplate, bearing upon its outer convex surface small screws adjusted to holes in the neck of the shirt, which by means of nuts fastened upon the screws, is held so securely in place as to render the entire dress from the neck downward absolutely air and water-tight. Fitting with equal closeness to the breastplate is a helmet, completely inclosing the head and supplied with three glasses, one in front and one on each side, to enable the diver to look in any direction. Finally, for his feet there is a pair of very thick leather shoes, made to lace up the front, and supplied with heavy leaden soles to prevent him from turning feet uppermost in the water.

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When, with my friend's aid, I had donned this curious-looking dress, he placed across my shoulders ropes sustaining two leaden weights, one hanging at my breast and the other at my back. Sometimes in very strong currents it is necessary to make the weights which the diver carries extraordinarily heavy. Such was the case with those hanging over my shoulders on the occasion of my first dive. While the diving dress I wore weighed of itself nearly two hundred pounds, yet, much to my surprise, when once below the surface, I did not find the burden I sustained in wearing it any more than I did that of my ordinary clothing when out of the water. It also seemed marvelous to me, after daylight had swiftly merged into the twilight of the depths, that though I was several fathoms under water my breathing was free and unconstrained, for an air-pump worked by two men supplies the diver with air, which passes into his helmet through a hose at the back. Near the place of its entrance is a spring valve for its escape. This can be controlled by the diver, but he usually sets it before going into the water and seldom disturbs it afterward, since the pressure of the air being greater than that of the water a surplus of the former readily escapes.

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When the valve proves insufficient to permit the escape of all the dead air the diver can open in his breast-plate a similar spring valve intended only for such an emergency. He can also regulate the amount of air pumped to him by signals on the air-hose to the men engaged in pumping, one

pull meaning more and two pulls less air. These signals by means of the air-hose are generally used by all divers, but each diver has also his own private code of signals upon the life-line, which is always fastened to his waist, and by which he is drawn up out of the water. These signals each diver writes down very carefully and gives to the man in charge of the life-line. By means of these he can, without coming to the surface, send for tools, material or anything needed for the work he has in hand. When a lengthy communication is to be made the diver often sends up for a slate and writes what he wishes to say. Old divers declare that it is just as easy to read and write under the water as it is out of it, all objects being greatly magnified.

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The only unpleasant sensation of my stay below was a slight drumming in the ears—walking under the water I found an easy matter—and when hauled to the surface I declared my first attempt at diving a wholly successful one. However, the man whose suit I had borrowed, smiled at my enthusiasm, and declared with something akin to contempt that there was a good deal of difference between deep-sea diving and grubbing about the East River for a lost anchor. I learned before we parted that he was a deep-sea diver forced for the moment to accept whatever task came to hand, but there was truth in what he said; and I am also convinced, after talks with a dozen members of his fraternity, that neither a single descent nor even many descents into the depths, can give one an adequate idea of the weird strangeness of a diver's life. That can come only from the cumulative experience of a lifetime.

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Almost all the submarine work on the Atlantic coast is done by divers living in New York or Boston. There are about as many skilled divers in Boston as New York—perhaps twenty in each city. The pay of a skilled diver is five dollars a day of four hours or less. In that time a man may descend half a dozen times, or he may descend once and stay four hours, but be his period of labor long or short, it counts as a day. If at the end of four hours he descends again that descent counts as another day's labor. The diver's assistant receives three dollars. He is a skilled man, whose business it is to manage the life-line and the hose, and who sometimes becomes a diver. The pumpers, who run the pump that keeps the diver supplied with air, are each paid two dollars a day. They are not skilled workmen and seldom develop into divers.

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Probably a third of the New York divers do not work for wages. These are men who own their outfits and prefer to work by the job. Some of the self-employing divers enjoy good incomes from their labors. As a rule, a diver of this class goes down, looks at a sunken vessel, and then states what he will charge to raise her. Diver Victor Hinston was paid \$150 a day for locating the sunken steamship City of Chester, and Captain Anthony Williams, having raised the schooner Dauntless in two days, received \$750 for his time and trouble. The same diver, having repaired with iron plates and raised in four days the steamer Meredith, ashore near Jeremie, in Hayti, demanded and was paid \$7,500 for his work. The divers of New York live much as other citizens of the metropolis. A majority of them are native Americans, with homes, wives and children. They are, of course, absent from home a great deal and on short notice, for divers from New York are not only sent all over the eastern coast of the continent, but even to the Great Lakes and the interior rivers, most of their work lying beyond the city.

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Abram Onderdonk, when he died not long ago, was the oldest deep-sea diver in this country. During forty of the nearly seventy years of his life he was continuously engaged in the pursuit of his calling, and it carried him to nearly every part of the globe. Captain Abe, as his friends called him, counted the swordfish as the gravest danger members of his craft have to fear. This fish, which has a short bony sword almost as strong as steel, protruding from its head, speeds along through the water, charging dead ahead and never veering from its course for anything save a rocky ledge or the iron hull of a steamship. If it strikes a wooden craft, its sword seldom fails to cut clean through the vessel's side. Should a man be attacked by it certain death awaits him. Diver Onderdonk himself never encountered but one of these creatures, and that was a young one whose sword had not yet hardened. He was at work on the deck of a sunken vessel, when he saw the fish coming from a distance, and heading straight toward him. He took a tighter grip upon the ax which he held in his hand, and made ready for attack, but, to his surprise and relief, the fish, never swerving from its course, glided past him out of his guard's range, and a moment later disappeared.

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Captain Abe often encountered sharks under water, but declared that, as a rule, there is little to be feared from them. A former mate of his named March, however, once had an ugly experience with these creatures. The diver in question was at work in a wreck which had been loaded with live cattle. When she had been at the bottom for a month or so the cattle became light and began rising to the surface. The locality was infested with sharks, which quickly gathered round the hatchway, seizing the carcasses as they came out and following them to the surface. Some of the cattle had been tied, and these floating out to their ropes' end, were torn to pieces by the sharks, which soon began to fight among themselves, with the diver an unwilling witness to their struggles. March, hesitating to ascend for fear he might be attacked, and afraid to remain below lest the snap of a shark's mouth should sever his air hose, in the end gave the signal to be hauled up, and the next instant was jerked into and through the school of sharks. He came out of the water maimed for life, as in his upward passage a shark snapped at him and took off his right hand, thus rendering him incapable of further service as a diver.

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Another of Captain Abe's old mates, McGavern by name, while at work in New Zealand waters, had an equally harrowing, although fortunately less harmful, encounter with that most formidable of all marine monsters, the devil fish. The diver was laying some wharf-blocks when suddenly surprised by his uncanny foe. Despite his struggles—and he was a giant in stature and strength—the monster quickly and completely overpowered him. He was locked in the

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tremendous claws of the devil fish, and fastened helpless against a submerged pile. McGavern realized his peril, and kept quiet until his assailant, whose arms measured nearly nine feet, loosened his hold. Then he signalled to be drawn up, and came to the surface with the writhing creature still clinging to his back.

Captain Abe served before the mast in his youth, and I find that, other things being equal, sailors make the best divers of all. Their former experience is apt to render them cool and quick-witted in the presence of danger, and their knowledge of a ship's rigging and construction proves of untold value to them in their work. To his training as a sailor Captain Charles Smith, a well-known Boston diver, probably owed his truly marvelous escape from death when overtaken by accident while at work on the sunken hull of the Clara Post, in the harbor of Bridgeport, Conn., a few years ago. The wreck lay sixteen fathoms deep, and when Captain Smith descended to examine it, he found that the masts had gone by the board, and that the deck had been torn off by the waves, while the cross timbers strewed with the wreckage, hung over the decks and into the hold. Captain Smith began to cut them away, when suddenly the tangled mass shifted and fell part way in the hold, catching him with it and imprisoning him as in a vise. The diver could not see far in the deep water in which he was at work, and finding himself pinned in, how he could not tell, he pulled the life-line three times—the signal that his life was in peril. He felt himself rising a few feet; then all the wreckage fell in upon him, pinning him more securely than before. Worse still, when he tried to free himself, he found that the air-pipe had encountered some unseen obstruction, and that to attempt to move about would shut off his supply of air. The peril was one that made each moment seem like eternity.

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A DIVER READY TO DESCEND

Meanwhile the diver's assistants were trying to discover what had happened to him. It seemed to them that the signal to haul up had been instantly followed by one to lower, and then by one to stop. The men at the life-line, confused at these apparently contradictory commands, ordered the derrick to haul on the blocks. Nothing yielded to the strain, and the men at the pumps labored until they were exhausted, and had to give way to others, but still no signs of release. A new danger now threatened the imprisoned man. In catching hold of some iron bolts he had cut a small hole in the valve of one of his rubber gloves, and water, filling the glove, was slowly oozing past the clamps at the wrist, and creeping up the arm. It seemed to the helpless diver, held fast in the tide-swept mass, that he would soon be strangled or crushed to death. Confused by the great air pressure in his helmet, he had about concluded that his end had come, when—unlooked for relief—the wreckage gave a lurch, and he found that he could climb up to one of the deck timbers. He grasped his ax, and was hewing desperately for freedom, when suddenly the whole mass broke away, and began to rise rapidly, carrying the diver, now head downward, with it. His queer ascent did not consume more than ten seconds, but it was long enough for him to live over in memory all the events of a lifetime of two-score years. At first his comrades failed to discover him in the mass of tangled material, and their surprise can be imagined when he shot up through

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the wreckage, feet first. Captain Smith described this as his closest call to death's door, "and" he added, "I have peeped through the keyhole pretty often."

Captain Smith's adventure reminded a brother diver, in whose presence it was told, of a narrow escape of his own. It occurred while he was putting some copper on the bottom of a steamer in dock. "I took some plate down with me," he said, "and worked for a while on one side of the hull, after which I started in to put some plates on the other side. The vessel was about three feet off the bottom, and I crawled underneath, dragging the plates behind me. After I had been at work for an hour or so I noticed that my air was getting short, but when I tried to get under the keel again to be hauled up, I found the steamer on the bottom and squeezing my air-hose between its keel and the ground. The tide was ebbing and the hull had gradually sunk until it was almost aground. I had forgotten all about the tide, and when I pulled the hose it refused to move an inch. If the bottom had been soft it would not have mattered so much, but it was rock, and the hose was gripped like a vise. There was nothing to do but wait; if she fell any lower the air would be entirely shut off and I would have to die. Not till my last hour shall I forget the torture of those few minutes while I waited to see whether it rose or fell. My head felt as though it was bursting, and my nose and ears were bleeding. I took heart, however, when the air began to freshen, for I knew then that the tide had turned, and that the hull was rising. There was plenty of time for me to recover my nerve before it was high enough off the bottom for me to crawl under, but I did not get it back. Instead, I stood there shaking like one stricken with palsy until I could squeeze under the bottom and give the signal to be hauled up. I reached the surface in a half-fainting condition, and was sick for weeks afterward. When I did recover it was with hearing permanently impaired."

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Diving in the Great Lakes is attended with even greater perils than those I have just been describing. In Lake Huron, opposite the entrance of Thunder Bay, a large buoy marks the spot where, nearly twenty-five fathoms deep, lies the wreck of a once famous lake vessel, which sank while sixty of its passengers were still in their berths, not one of whom evermore made sign. The steamer took down with it when it sank not only that precious human freight, but \$300,000 in gold coin and five hundred tons of copper. The sunken steamer was the Pewabic. Bound down the lakes from Copper Island, then the richest known deposit of pure copper in the world, it collided with the steamer Meteor, bound up the lakes, and sank almost instantly.

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Diving apparatus was at that time somewhat crude upon the lakes, and the great depth of water in which the Pewabic went down made it out of the question to attempt to raise it or to recover any of its valuable cargo. Twenty-five years after the wreck the sunken vessel was located by means of grappling irons, and a Toledo diver ventured to go down and inspect it. He was hauled up dead. In spite of his fate, two other divers, tempted by the price offered, went down at different times. Neither survived the venture, and until 1892 nothing further was done toward recovering the wealth lying in the wrecked Pewabic. Then a noted diver, Oliver Peliky by name, who had with apparatus of his own devising done safer work in deeper water than any other diver on the lakes had ever been able to withstand, announced his willingness to go down to the wreck. He was taken to the spot, the wreck was located by grapples and Peliky went down. He was below twenty minutes and then signalled to be drawn up. When he reached the surface he said he had experienced no great inconvenience, had gone into the wreck, and was enthusiastic in his belief that he could do the work that was necessary to recover the cargo. He went down again, and for a quarter of an hour answered every signal. Then he failed to respond. The men on the tender pulled on the life-line. It had plainly caught on some obstruction. The crew, believing that Peliky was dead, backed the steamer. The jerk loosened the life-line. They hauled the diver to the surface. His armor was opened, as if burst by some great force. The diver, of course, was dead. Since then, though handsome inducements have been held out to various divers, no further attempt has been made to recover the treasure that has lain for more than a generation in the Pewabic's hold.

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One of the divers with whom I have talked told me that somehow diving took the life out of a man, and that he had never known a diver who did much smiling. "I have an impression myself," he added, "that I shall go down one of these days without coming up again." In truth, before my wanderings among them were ended, I came to the conclusion that divers, as a class, are taciturn, grave, sober-faced men, but I also found that the calling they follow has its humorous as well as its serious side, although too often the humor has a dash of the grewsome to it, as was the case with a diver who went down to work on the steamship Viscaya, sunk in a collision off Barnegat Light. It was a difficult job, so two divers were sent down—one of them to remain on deck in sixty feet of water, to act as second tender to the other diver who went below. The latter had been at work but a few minutes when three jerks came over the life-line. He was so unnerved when hauled up to the deck that he forgot that he was still in sixty feet of water, and signalled to have his helmet removed. When both divers had been hauled to the surface, he said that while he was working through a gangway, he had seen two huge objects coming toward him; and nothing could dissuade him from the belief that he had encountered two submarine ghosts—until the other diver went down and discovered that there was a mirror at the end of the gangway, and that the diver had seen the reflection of his own legs, vastly enlarged, coming toward him.

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The veteran from whom I had this story told me also of the amusing mistake made by a diver, who, much against his will, had been sent down to recover a body from a wreck. Some divers have an ineradicable dread of the dead, and never handle them when they can possibly avoid it. He was one of this kind, and the water being very thick, he went groping gingerly about in the cabin. After a lengthy search he found a body, and fastening a line around it, gave the signal to haul it up. When he followed and took off his helmet a large hog lay on the deck. He had tied the

line around it, thinking it was the body he was looking for. After that he was always called the "pork" diver. His former comrades have likewise many amusing stories to relate of a diver of other days, Tom Brintley by name, who, though a competent man and a good fellow, was a little too fond of stimulants. On one occasion he went down while in his cups, and the men above not knowing his condition, became seriously alarmed when several hours passed by without their receiving any signals from him or any response to those they made to him. Another diver, sent down to look for him, found him lying on his back at the bottom of the ocean, sixty feet below the surface, fast asleep!

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The bed of the ocean would seem to most people an exceedingly strange place in which to take a nap, but divers live in a world of their own—a world of which their fellows know little or nothing, yet abounding at every turn with curious, beautiful, and indeed, almost incredible sights. Sometimes, especially in tropical waters, the bottom of the sea is a lovely spectacle, and divers grow enthusiastic when they describe its forests of kelp and seaweed gently waving in the tide, which look like fairyland, in dim light, and the bright-colored fish making them all the more beautiful. Along the coast of the Island of Margueretta, and in many parts of the Caribbean Sea, there are submarine scenes of surpassing beauty. Often the bed of the ocean is as smooth and firm as a house floor, and the water as transparent as crystal, while the white sandy bottom acts as a reflector to the bright sunshine above the surface. In some places there are widespread pastures of stumpy, scrubby marine vegetation, a growth not unlike seaweed, and of a bluish gray tinge. There are also clumps of fan-shaped fungi, of a spongy consistency, which when dried in the sun are exceedingly beautiful. But the most wonderful growths in these gardens of Neptune are the long kelp tubas, resembling our fresh-water pond-lilies, only of much larger size. Their stems are tough and hollow, and put forth pretty blossoms on the surface, although their roots are in the bed of the ocean, many fathoms below.

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In the West Indies and the Spanish Main the water is so clear and transparent that the bottom is visible at a depth of from sixty to a hundred feet below the surface, and the scope of the diver's vision is seldom less than an eighth of a mile. In Northern seas, however, especially in the harbors of towns and cities, the water is so discolored and murky that nothing can be seen at about twenty feet from the surface, a disadvantage which calls for the exercise of the gift of which all divers are most boastful—their delicacy of touch. Indeed, most frequently the diver must do his work under water by means of touch only, and when one considers the varied tasks he is called upon to perform, pipe laying, building, drilling holes in rocks and charging them with dynamite in darkness, looking for treasure, recovering dead bodies and sunken cargoes, or inspecting all parts of a wrecked vessel, buried in water a hundred feet deep, it is not to be wondered at that he should be proud of any special skill in this direction with which nature and practice have favored him. With some, this delicacy of touch becomes in time almost a sixth sense. Diver C. P. Everett, of New York, is one of these. Four or five years ago, he laid a submarine timber foundation of twenty-eight feet long 12 x 12 yellow pine, handling it alone. First, the pieces were weighted to sink; and then Everett went down and weighted them for handling, for without weights they would, of course, have immediately risen to the surface.

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Only a strong man can become or, at least, long remain a successful diver. No one is fit for the calling who suffers from headache, neuralgia, deafness, palpitation of the heart, intemperance, or a languid circulation. The pressure of the atmosphere increases the lower one descends, until a point is reached where life could not be maintained. The greatest depth, perhaps, ever reached, was 201 feet, with an atmosphere pressure of 87 pounds to the square inch. A diver named Green worked in 145 feet in Lake Ontario, but he was paralyzed, and never did a day's work afterward. Most divers do not care to work much deeper than 120 feet, and even for 30 or 40 feet, a moderate depth, considerable nerve and practice are requisite. The lower the depth, the more acute the pains felt in the ears and about the eyes, and symptoms of paralysis become more pronounced. An asthmatic man, on the other hand, may be cured by diving, the constant supply of fresh air, and the pressure which drives the blood so rapidly opening up the lungs. Divers as a rule cannot stand close rooms, being so accustomed to a copious supply of fresh air that they must have plenty of it, even when they are above water. In diving, the supply of air is increased according to the depth. At thirty feet below the surface fifteen pounds of air to the square inch is used, at sixty feet thirty pounds, and so on. Still, much depends on the man, and some divers work in eighty feet of water with only forty-five pounds.

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In the laying of masonry under the water and other work of the kind, the diving dress is usually replaced by the diving bell. This is a large vessel full of air, but open at the bottom, fresh air being pumped into it by air pumps. It is furnished with seats, and a chain passes through the center, by which weights can be raised or lowered. The diving bell has this advantage over the dress, that several men can work in company; on the other hand, should an accident happen, more lives are involved. Some years ago the chain of a diving bell in use at a pier in Dover, England, got fouled in some way and its occupants found themselves in a most alarming predicament. However, a diver named William Wharlow, donning his suit, descended, crowbar in hand, and after several hours of hard work, succeeded in freeing the chain, when the diving bell was hauled up in safety.

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It was stated a little while ago that some divers have an ineradicable dread of the dead; many will not have anything to do with them, when they come upon them by accident they will be unnerved and useless for the rest of the day, and those who make a virtue of necessity, when on a wreck generally insist upon getting the bodies out first. The temperature of the water always tells the diver where to look for bodies in a wreck; if it is cold they will be on the floor or lying in the

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berths; if warm they rise to the ceiling or against the bottom of the berth above.

The diver who raised the tugboat Bronx from the East River found the fireman sitting in a chair in the fire-room, staring into a wave-quenched furnace, with the weird, lifelike expression often seen in the wide-open eyes of the drowned, and which those who have encountered it declare never fails to strain the nerves of the strongest man. Other divers relate even more gruesome experiences. When the diver, employed to locate and examine the steamship City of Chester, entered the steerage, the first object that met his gaze was the figure of a man standing upright, entangled in a pile of ropes. The face was terribly distorted and the tongue, protruding, hung from the mouth, while the body was swollen to twice its natural size. Going a little further aft he found another victim of the wreck, who had fallen on his knees and grasped a third man around the waist. The spectacle so affected him that he signaled to be hauled to the surface, where he reported what he had seen, and refused to again go below until accompanied by another diver.

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Captain Abram Onderdonk, already referred to, once brought up a dozen bodies from the wreck of the steamer Albatross, sunk in the Caribbean Sea. Some of these were in their staterooms, and the last corpse was that of a young woman. He found her in the bed lying on her side, her eyes wide open and staring straight ahead. One of her arms was thrust through the bed slats, with the hand clutching the berth frame. As he loosened her grasp the body turned, then floated to an almost erect position, and leaned over toward him with a repelling look. The expression of the face and eyes, as well as the attitude, almost unmanned him, but in a moment he regained his nerve, clasped her about the waist and brought her to the surface. The same diver was employed to bring the dead from the wrecked Sound steamer Stonington. Groping about one of the staterooms, for he had to feel his way in the darkness, his hand came in contact with a corpse, which he took and carried to the surface. It proved to be a woman, and clasped to her bosom so firmly that no effort could separate them, was a beautiful babe. Perfect peace and rest were on their faces, and they had evidently died in sleep. Mother and child were buried as they were found—together.

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CHAPTER VIII THE LIGHTHOUSE KEEPER

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Heroes, also, are the men who build and tend our lighthouses, and there are few finer stories than that which tells of the erection of Tillamook Rock lighthouse, probably the most exposed structure in the world. Tillamook is a basaltic rock, rising abruptly from the deep waters of the Pacific a mile off the Oregon coast, and eighteen miles south of the mouth of the Columbia River. Projecting to seaward, it receives the full force of the stormiest waves of the Pacific, which often break with appalling violence on its summit, ninety feet above the level of the sea, boats being able to reach it only when the sea is calm.

Four workmen in October, 1879, were landed on the rock with their tools, fuel, provisions, a stove, and canvas for a tent. They were in a few days joined by five others, who brought with them a small derrick. The foreman of the party lost his life in attempting to land, and the lot of the survivors was one of great discomfort and constant danger. To prevent being blown or washed away, they tied the canvas to ring-bolts driven into holes drilled in the rocks, and then quarried out a nook in which they built a shanty, which they also bolted to the rocks. Next a flight of steps was quarried up the steep side of the cliff, and the work of cutting down and leveling the summit began.

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The weather often compelled a suspension of work for days at a time, and in January came a tornado which lasted for nearly a week. During this storm the shanty of the workmen was repeatedly flooded with water and their supplies were swept into the sea. They were able at the end of a fortnight to make those on the mainland acquainted with their condition, and fresh supplies were passed to them over a line cast from the rocks to the deck of a schooner, which had come as near as safety would permit.

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When May, 1880, came, the dome of the rock had been cut down to a height of eighty-eight feet from the surface of the sea, and a spot leveled for the lighthouse. A small engine and more derricks were now landed, and with them came three masons, who in June laid the corner-stone of the lighthouse. The stones were made ready for laying on the mainland, and a fresh supply conveyed to the rock whenever the weather would permit. First, a square, one-story house for the keepers was built, and above this was raised a tower forty-eight feet high, raising the light 136 feet above the sea level. Sixteen months after work was begun the lamp was lighted for the first time, and has since prevented scores of wrecks. Over the beacon raised amid such difficulties, three keepers stand sentinel, and their lot is an exciting as well as a lonely one. A few winters ago a terrific storm broke upon the rock, and the water poured in torrents through the holes cut in the dome of the lighthouse to give ventilation to the lamps. Stout wire screen shutters protected the lantern and broke the force of the water hurled against the glass. But for this it would have been battered in, and the heavy plates might have killed the man attending the lamps.

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Tillamook is known in the service and to mariners as a light of the first class, since lighthouses are roughly divided into three classes: First, those on outlying headlands and deep-sea rocks, the

distinguishing features of a country's coastline, and the first to give the mariner warning of his nearness to land. The second grade of lights show him his way through the secondary shoals and rocks, and the third grade, or harbor lights, take him safely into port. There are fifty-two first-class lights on the coasts of the United States. New Jersey and Massachusetts have each a double light; and Florida, by reason of the treacherous reefs which girt its coast, has as many first-class lights as any other two States put together.

A majority of the lights of the first-class are housed in tall stone or brick towers, and a number of them stand upon very high ground. The light on Cape Mendocino glows from an eminence of 423 feet above the level of the sea, and is visible for twenty-eight miles. There are ten other lights whose elevation averages from 204 to 360 feet above sea level, and which are visible from twenty-one to twenty-six miles. The light at St. Augustine, Fla., is a fine example of its class. The strong and massive tower of brick rises 150 feet from the ground, and the light is reached by winding stairs. The apparatus for the light is twelve feet high and six feet through, and the lenses alone cost thousands of dollars. A powerful lamp in the centre of the apparatus sends its rays in all directions, the lenses being arranged at such angles as to gather the light and to send it out in parallel rays in the course desired. The cost of the St. Augustine lighthouse was \$100,000.

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Each lighthouse must have peculiarities of its own, so that both by night and by day the mariner can distinguish it from its neighbors, and thus guard against the mistakes that might otherwise prove fatal. The first result desired is accomplished by the use of fixed, revolving, blended, flash and intermittent lights, and as the timing of the second and the two latter classes is capable of great variety, it will be seen that the elasticity of the system is ample to meet all possible needs. To secure the second result desired the lighthouses are painted in different colors, and the application of the colors is varied in each instance. Some retain their natural colors, while others are painted black and white, or red and white; here broad horizontal bands alternating, and there slender spiral ones setting off the background of a sharply contrasting color. Again, the shape of the houses is varied, some being circular and others cone-shaped, some tall and others short, some square and others octagonal, while in many cases the shape and color of the keeper's dwelling nearby also help to make distinction easy. Thus the character of the light guides the sailor by night, and by day the form and color of the lighthouse give him welcome knowledge of his whereabouts.

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The first lighthouses in this country were beacons, made by piling up stones, from the summit of which "firebales of pitch and ocum" were burned in iron baskets at night. It is a far cry from that time to this, and the construction of the lighthouse of the present day is, as has already been shown, a task demanding mechanical skill and engineering ability of the first order. A lighthouse on the mainland has few difficulties involved in its construction, but where the foundation is an isolated rock, a submerged reef, or a sandy shoal, the best resources of the engineer and mechanic are called into full play.

The lighthouse most difficult to build is that on the submerged rock or partly submerged rock. Race Rock Light, in Long Island Sound, belongs to this class. Portions of Race Rock are three and others thirteen feet under water. Diving-bells were used to level the foundations for the lighthouse, and the masonry and concrete under water were laid in the same way. The United States has two other lighthouses built on submerged rocks, Minot's Ledge in Boston harbor, and Spectacle Reef, on Lake Huron. The first lighthouse on Minot's Ledge was built above stout iron rods driven into the rocks. In April, 1851, there was a severe gale which lasted five days. On the third night of the storm the house was blown down and light and keeper went out together. Four years later a second structure was begun, this time with a foundation of masonry and concrete. Minot's is barely awash with the lowest tide, and so rare were the opportunities for work that three years were required to prepare the rock for the first course of stone, which was laid in 1857. In 1860 the structure was completed and has ever since stood proof against wind and storm.

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Spectacle Reef lighthouse, near Mackinac, was built with the aid of a coffer-dam. A large wooden cylinder was constructed by banding long staves tightly together and towed out to the rock, where it was set up on the surface and the stones driven down into the uneven places. Then the crevices were filled with cement and the water pumped out. After this the rock was leveled and the limestone courses rapidly raised one above another. Spectacle Reef light stands eleven miles from land, and its base is seven feet under water.

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Where there is a shifting shoal, whose unstable character no degree of mechanical or engineering skill can overcome, resort is had to the lightship. The United States has twenty-five of these vessels. Seven of them are employed off Massachusetts Bay to mark the Vineyard and Nantucket shoals, and a line of equal number lies along Long Island Sound stretching from Brenton's Reef to Sandy Hook. Four more are stationed off the New Jersey and Delaware coasts, one off Cape Charles, three off North Carolina, South Carolina and Georgia, and two off Louisiana and Texas. The life of a lightship crew, as will be told in another place, is a laborious and often a dangerous one.

The United States is divided into sixteen lighthouse districts, each one with its inspector and engineer. The former, drawn from the navy, inspects the lights under his jurisdiction at least every three months; the latter, a member of the Corps of Engineers, superintends the building, removal or renovation of the towers. Both are responsible to the Lighthouse Board, a body appointed by the President and composed of veteran naval officers of high rank, who are no longer fitted for active duty at sea.

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The station of the third lighthouse district is on Staten Island, between St. George and Tompkinsville. Here over a hundred men are constantly employed and half a million dollars annually expended. From this station one hundred and eighty-nine lighthouses and beacon lights and seven lightships are maintained and supplied, while thirty-six day or unlighted beacons, thirteen steam fog signals, six electric light buoys, and five hundred and seven other buoys are looked after and kept in repair by the inspector and his assistants.

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Fog often obscures the rays of the most powerful light, and it is then that the fog signal and the whistling buoy come into play. The most effective fog signal is the American siren, a steam machine worked under seventy pounds pressure, and from which a series of noises come forth that can be heard from two to four miles. Certain intervals in the sounds designate the nearest light and afford a welcome and often much-needed guide to the mariner enveloped in a cloak of fog. This system of fog signals extends along the entire seaboard, extra precautions being taken on the Northern Atlantic coast.

Mineral oil is the principal illuminant used in our lighthouses. It is selected with the greatest care, and is subjected to three several tests before being accepted. Gas has been tried as a lighthouse illuminant, but with inferior success, and there are at the present time only three lighthouses in which it is used. Experiments with electricity have also been only fairly successful, its light blinding instead of giving aid to the pilot. The lighthouse station on Staten Island is a busy place, and much work is done there, but the wheels of industry are so well oiled and run so smoothly, that a deep peace seems always to brood over the establishment. Day after day and year after year the work, moving in well-marked channels, goes on with quiet and certainty. Everywhere the neatness and order prevail that mark all departments of the lighthouse service.

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Indeed, in no branch of the government service is stricter discipline and closer attention to duty insisted upon than is demanded from the brave and devoted men who tend our lighthouses. The pay of these keepers ranges from \$1,000 to \$100, the average, by an Act of Congress passed some years ago, being \$600. The Lighthouse Board, which controls the service, selects as keepers the best men obtainable, preference being always given to men who have served for lengthy periods in the army and navy.

Members of this class know what discipline means, and hard experience has taught them that orders are to be obeyed to the letter. Many an old veteran, whose scars tell of valiant service in the Civil War or on the Western frontier, and many an old shipmaster or mate, whose weather-beaten face bespeaks long years spent on the quarter-deck, as lighthouse keepers now do duty on solitary and barren beacon rocks, where for months at a time, aside from their own voices and those of their families, the roar and moan of the ocean, as it beats against the breakers below, are the only sounds that are heard.

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The life of the keeper—though many who follow it seem wholly contented with it, and doubtless would not leave it for any other calling—is thus a lonely and arduous one. Two breaches of the rules which govern the keeper's conduct bring as a penalty immediate dismissal from the service. The absence of a light for a single moment may bring disaster to life and property on the seas, and neither excuse nor previous good conduct can save from instant dismissal the keeper who allows his light to go out. He may plead that his wife or child was dying, but he is told that he must subordinate his light to nothing. And he must not only keep his light burning, but stay by it so long as the lighthouse stands. Some years ago an ice pack lifted from its foundations, overturned and carried away the Sharp's Island lighthouse in Chesapeake Bay. The two keepers had a staunch boat and could have made their way to shore. Instead, they bravely chose to remain at their post of duty, and for sixteen hours, without food or fire, drifted with the wreck at the mercy of the ice cakes. When the wreck finally grounded the keepers carried ashore all the movable portions of the light, the oil, and everything else they could take with them.

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At the same time the keepers of another light, fearing danger, left their post and went ashore. They pleaded that the ice had rendered the light useless for the time being, but this excuse had no weight with their superiors. They had proven recreant to their trust and were dismissed from the service, the places they had filled being given to the two keepers who had refused to leave their post of duty, even when to remain seemed certain death. Drunkenness, when detected, also leads to removal from the service. That and allowing one's light to go out are the two unpardonable sins in the eyes of the lighthouse inspector.

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Aside from his duties at night, the keeper finds plenty of work to do. Promptly at a given hour in the morning the lights must be extinguished; and during the day all put in order for the coming night. In the lantern room the lenses must be kept free from speck or tarnish, and the reflectors, the brass railings and the gun metal carefully burnished and polished to the last degree of brightness. The oil tanks must also be filled and the wick trimmed. Carelessness or negligence in any of these particulars is dangerous, for the visits of the inspectors are always unannounced, and may occur at any moment.

Most important of all, the lamp must be lighted on time, for a delay of even a few minutes will not escape notice. Each keeper is required to record the time the lights appear in the stations within his range, and tardiness in this particular is noted by watchful eyes, and at once reported. At inaccessible stations, as a rule, from three to four keepers are employed. In stormy months, when communication with the mainland is impossible, one or more of the keepers may die or be disabled, and experience has taught that, to insure safety, three men at least must be posted at every dangerous station.

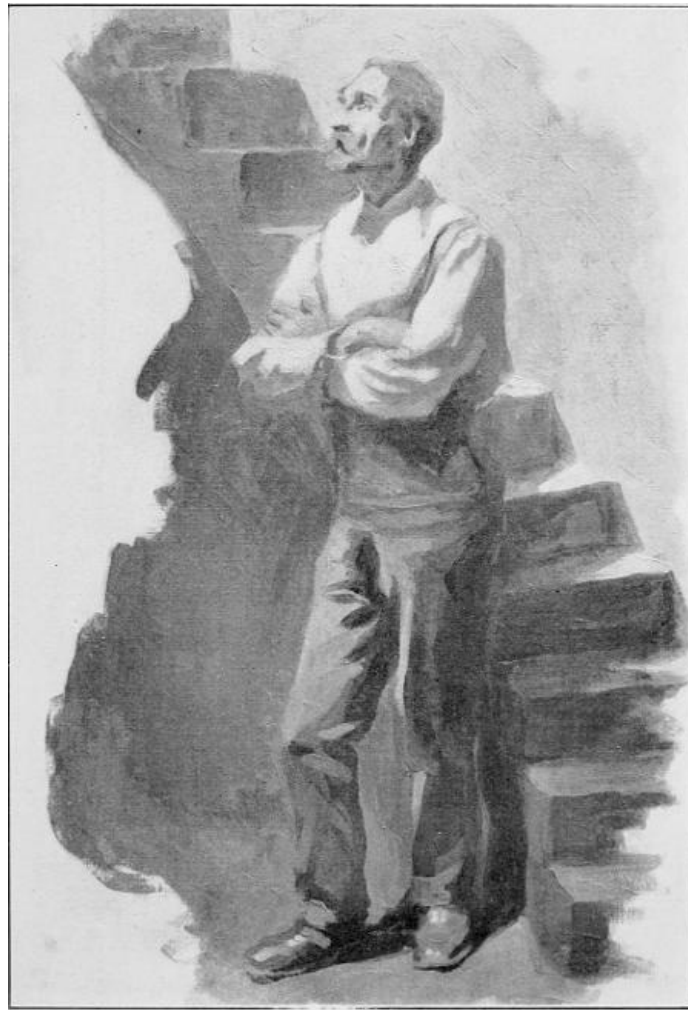
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No keeper is allowed to engage in any business which may interfere with his presence at the lighthouse. However, there are some keepers who work at tailoring, shoemaking, and similar trades; and there are others who are preachers, school-teachers and justices of the peace. The keeper whose lighthouse is located on land is encouraged to keep a garden, and a barn is provided for his horses and cattle. Until a few years ago many keepers greatly increased their incomes by taking boarders in the summer—life in a lighthouse has a strong attraction for those fond of the romantic—but the Lighthouse Board finally prohibited the renting of quarters to outsiders in buildings owned and constructed by the Government, and this pleasant and convenient source of revenue was cut off.

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Whenever keepers are located at stations where the cost of carriage exceeds the cost of fuel and rations, they are furnished at the expense of the Government. This applies to the keeper of the lighthouse on a big rock near Cape Ann. No sea-going vessel can come within a quarter of a mile of his home, and it is impossible for a loaded boat to reach his abiding-place in safety. The coal he uses is shipped in bags from Boston to as near the lighthouse as the vessel can approach. The bags are then loaded into small boats and taken to the edge of the shoal water, inside of which it is dangerous to enter. From the boats the bags are carried ashore on the backs of the crew, who wade through the shoals, clamber up the rocks with their burdens and empty the coal in the lighthouse bin. Coal is worth thirty dollars a ton at Cape Ann lighthouse. The keeper's other bulky supplies are delivered in the same manner as his coal.

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A LIGHTHOUSE KEEPER

At all the lighthouses built on rocks and ledges the keepers have to be supplied with fresh water from the mainland, that collected from rains in cisterns and tanks being generally insufficient for their needs. Each lighthouse keeper is supplied by the Government with a well-selected library of fifty volumes. There are five hundred and fifty of these libraries, and they are continually kept moving from station to station, the inspector, when he makes his quarterly visit, bringing a fresh library, and taking the old one with him, to his next stopping-place.

Captain Oliver Brooks, now living in honored and well-earned retirement, besides being for thirty years keeper of the great light on Faulkner's Island, five miles off the Connecticut coast in Long Island Sound, was also one of the most remarkable men ever connected with the lighthouse service. He had been a sea captain before he became a lighthouse keeper and was a man of signal mechanical skill and marked inventive genius. His knowledge of electricity, and of light and sound was thorough and exact, and the results of many of his experiments, adopted by the Lighthouse Board, have contributed greatly to the improvement of the service. All the apparatus with which he conducted his experiments was constructed by him in a little workshop he had fitted up in the lighthouse tower.

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But his fondness for the theoretical never caused him to neglect in the slightest detail the

practical side of his work, and he was, indeed, a model keeper. Faulkner's Island lies directly in the path of all vessels passing either in or out of the Sound, and its light is one of the most important ones on our coasts, but there has not been a night in more than a hundred years that it has not flashed out its warning to sailors. The island was a barren and desolate spot when Captain Brooks settled there, but he and his family turned it into a paradise. All of his large family of boys and girls were born there, and there grew up to sturdy manhood and splendid womanhood. One daughter was an authority on ornithology; another, a gifted water-color artist, and every one of the children was a skilled musician, their family concerts, in which not less than five different instruments were brought into play, being treats to hear. All of the children had noble records as life-savers, and many were the men, women and children they saved from death in the treacherous waters surrounding their island home. It was not until his youngest child had left the island that the captain gave up his place as keeper to spend his last days on shore.

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Even better known than Captain Brooks is the keeper of Lime Rock light in Newport harbor. Should you chance to be in Newport on some pleasant summer afternoon, walk out on the long wharf that runs from the mainland into the west side of the harbor, and when you have reached its end, wave your handkerchief toward the lighthouse opposite. Soon a woman will appear in the door of the tall gray tower, and running down to the boat moored to the stone wall, step into it, take the oars, and with graceful yet powerful strokes, pull rapidly toward the wharf. As she approaches her erect back and evident strength give the impression of youth, but as she turns the boat about to receive you for a visit to the lighthouse you discover to your surprise that she is a woman of middle age.

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Your hostess is Ida Lewis, keeper of Lime Rock light and famous as the American Grace Darling, a modest and kindly hearted heroine, whose skill and daring have saved nearly as many lives as there are years in her own. In fact, it was due in part to her record as a life-saver, that she was given the place she now fills. Besides attending to her duties as keeper, there are other cares that keep her busy; she is a careful housewife, keeps abreast of current literature; and is a devoted churchwoman, spending her Sundays on shore whenever possible. To her credit, no light in her district is as regularly or perfectly attended to, nor does any other gain from the inspector so high a report as Lime Rock light.

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There are several other women light-keepers, but none of them has ever had to face an experience as trying as that which a few years ago befell the wife of Angus Campbell, keeper of the light on Great Bird Rock, a lonely islet in the Gulf of St. Lawrence, and the farthest beacon to the harbors of Nova Scotia. When the late fall comes and the tardy fishermen hasten away to the mainland, the gulf turns to ice and hems the rock in with a clutch that only the returning summer can loosen. There, in the autumn of 1896, Angus Campbell took his newly wedded wife to share his loneliness. During the winter James Duncan and George Bryson, two of Campbell's friends, journeyed to Great Bird Rock to remain until spring. They were professional seal hunters, and a great many seals play around on the ice and rocks at the foot of the big cliff.

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The men landed on the rock early in February. At that time there was no open water within five or six miles of the lighthouse in any direction. The men were landed on the ice and made their way up to where Campbell was waiting for them. On February 27, Campbell and his visitors left the rock to go in pursuit of the seals they had noticed on the ice the day before. His wife saw them start across the ice and then returned to her household duties. They had not been gone more than four hours, when the wind, which had been growing colder and blowing steadily from the eastward, shifted to the southwest. The southwest wind is the agency that dashes the ice fields against the cliff and breaks them up. She thought that the men, being so much lower, might not have noticed the wind, and she hoisted the danger signal. They must have seen it, for she soon caught sight of them hurrying over the ice toward the rock.

They were within gunshot of the lighthouse, when the ice cracked with a sound like thunder, and a long, blue line appeared, running east and west, parallel with the lighthouse rock and with North Bird Rock, about five miles to the westward. The big crack was followed by a general splitting up of the ice floe. She saw the men standing just the other side of the open water. She saw her husband wave his hands at her and she waved back. Then the darkness came, like a great blanket dropped from the wintry skies, and men and ice were blotted from her vision. But even in her sore distress she did not forget the duty incumbent on the lighthouse keeper. She clambered up into the lantern and lighted the great oil lamp, saw that it was filled, and attended to the other duties she had seen her husband perform.

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Morning, when it came, gave no glimpse of her husband and his companions, nor did the third or the fourth day bring them back to her. After that the days grew into weeks, and the worse than widowed woman found herself confined to lonely and racking imprisonment on the ice-locked rock. But not for a single night did she fail to fill and light the lamp that had been her hapless husband's charge. When the Government steamer touched at Great Bird Rock, on May 5, 1897, the captain looked long and earnestly at the lighthouse perched far above him, and wondered why there was not the customary greeting. He saw no sign of life. There was the derrick rope swinging in the wind, but no moving figures at the top of the cliff, as there were wont to be.

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Closely scanning the rock, he saw at last a white, gaunt face at the window. In a little while a thin, tottering figure crept to the brow of the ledge, but it was some minutes before the tender's captain could recognize in that wasted being the comely woman whom he had known as Angus Campbell's wife.

"Where is your husband?" he shouted.

"Angus is dead," came the answer, in a faint, palsied voice, "and so are Jim Duncan and George Bryson."

An instant later the captain had swung himself into the derrick ropes and was making his way up the rocks. When he reached the woman she burst into tears and fell at his feet. Calmed at last, she told her story. [Pg 223]

"How did you stand it?" asked the captain when she had finished.

"God knows," was the reply. "I knew I had to keep that light burning, and that I think kept me alive. That was all I had to do, except watch the sea through my husband's glass. I got up night after night, and I do not think I ever slept two hours at a time. There were plenty of provisions, but I could not eat more than one meal a day, and sometimes I did not eat that. I had some hope on the morning after the boys were carried out on the ice floe, that they might be in sight and might be saved some way. But that morning there was nothing to be seen but water and ice. Then hope was gone. I knew there was nothing to do but wait for the spring. And I have done it. Every day I have swept the horizon with the aid of the glasses. It was merely a formality, after a while, but I kept on doing it. I do not know why. At last life got to be like being buried alive. I had no interest in living. I had no appetite, no thought of sleep. In all the time I do not suppose I have slept two hours in succession, nor at any time eaten more than one scanty meal a day. I was going crazy, and should have killed myself or died of starvation in another week." [Pg 224]

A few days later Mrs. Campbell was removed from the rock to her former home in Prince Edward Island.

Many of the most picturesque lighthouses in the United States establishment are on the rocks and islands off the coast of Maine. Notable for its beauty is the one on Matinicus Rock. The first lighthouse thereon, erected in 1827, was a cobblestone dwelling with a wooden tower at each end. Twenty years later this was replaced by a granite dwelling with semicircular towers, which has since developed into an establishment requiring the services of a keeper and three assistants. Matinicus Rock rises fifty feet above the sea, and presents what seems a precipitous front to the ocean, but there is no more rugged, dangerous coast along the seaboard of Maine than here, and when a gale rages the waves pound the rock as if bent upon washing it away, the thunder of the green-gray wall that beats against it, sounding, at such times, like the cannonade of a hundred heavy guns. Life on Matinicus for years past has been a never ending struggle between man and the elements, and this lends peculiar interest to the history of the light and its watchers, bound up with which is a love story at once tender, wholesome, and true. Captain Burgess, keeper of the rock from 1853 to 1861, had a daughter Abby, a maiden as comely as she was brave, whom he often left in charge of the lights while he crossed to Matinicus Island. On one occasion rough weather for three weeks barred his return to the rock, and during all that time, Abby, then a girl of seventeen, not only tended the lights, but cared for her invalid mother and her younger brothers and sisters. [Pg 225]

In 1861 Captain Grant succeeded Captain Burgess on Matinicus, taking his son with him as assistant. The old keeper left Abby on the rock to instruct the newcomers in their duties, and she performed the task so well that young Grant fell in love with her, and asked her to become his wife. Soon after their marriage she was appointed an assistant keeper. A few years later the husband was made keeper and the wife assistant keeper of White Head, another light on the Maine coast. There they remained until the spring of 1890, when they removed to Middleborough, Mass., intending to pass the balance of their days beyond sight and hearing of the rocks and the waves. But the hunger which the sea breeds in its adopted children was still strong within them, and the fall of 1892 found them again on the coast of Maine, this time at Portland, where the husband again entered the lighthouse establishment, working in the engineers' department of the first lighthouse district. With them until his death lived Captain Grant, who in the closing months of 1890, being then aged eighty-five, retired from the position of keeper of Matinicus light, which he had held for nearly thirty years. [Pg 226]

Not less lonely, but far more perilous than the life of the keepers of a light like that on Matinicus is the lot of the crew of the South Shoal lightship, whose position twenty-six miles off Sankaty Head, Nantucket Island, makes it the most exposed light-station in the world. Anchored so far out at sea, it is only during the months of summer and autumn that the lighthouse tender ventures to visit it, and its crew from December to May of each year are wholly cut off from communication with the land. It is this, however, that makes the South Shoal lightship a veritable protecting angel of the deep, for it stands guard not only over the treacherous New South Shoal, near which it is anchored, but over twenty-six miles of rips and reefs between it and the Nantucket shore—a wide-reaching ocean graveyard, where bleach the bones of more than a half thousand wrecked and forgotten vessels. [Pg 227]

The lightship is a stanchly built two-hulled schooner of 275 tons burden, 103 feet long over all, equipped with fore-and-aft lantern masts 71 feet high, and with two masts for sails, each 42 feet high. The lanterns are octagons of glass in copper frames, so arranged that they can be lowered into houses built around the masts. In the forward part of the ship is a huge fog bell, swung ten feet above the deck, which, when foggy weather prevails, as it frequently does for weeks at a time, is kept tolling day and night. A two-inch chain fastened to a "mushroom" anchor weighing upward of three tons holds the vessel in eighteen fathoms of water, but this, so fiercely do the waves beat against it in winter, has not prevented her from going adrift many times. She was two weeks at sea on one of these occasions, and on another she came to anchor in New York Harbor. [Pg 228]

Life on the South Shoal lightship is at all times a hard and trying one, and, as a matter of fact, the crew are instructed not to expose themselves to danger outside their special line of duty. This, however, does not deter them from frequently risking their lives in rescuing others, and when, several years ago, the City of Newcastle went ashore on one of the shoals near the lightship, all hands, twenty-seven in number, were saved by the South Shoal crew and kept aboard of her over two weeks, until the story of the wreck was signalled to a passing vessel.

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Nor are the South Shoal crew alone among lighthouse keepers in displays of heroism outside the duties required of them. Isaac H. Grant holds a silver medal given him by the Government for rescuing two men from drowning while he was keeper at White Head; and Keeper Marcus Hanna, of the Cape Elizabeth station, Maine, received a gold medal for the daring rescue of two sailors from a wreck during a severe storm, while Frederick Hatch, keeper of the Breakwater station at Cleveland was awarded the gold bar. The last mentioned badge of honor is granted only to one who has twice distinguished himself by a special act of bravery. It was given Hatch in the winter of 1898. A wreck occurred at night, just outside the breakwater. The eight people aboard made their way to the breakwater pier, but the heavy seas swept several of them back, and one lost his life. Pulling to the pier in a small boat, Keeper Hatch took off the captain's wife; but she was hardly in the boat before it was swamped and capsized. The woman was utterly exhausted and almost a dead weight; but though nearly overcome himself, Hatch, at the risk of his life, maintained his hold upon her until he could reach a line thrown from the light-station, with which he and his helpless burden were drawn to the lighthouse steps. Before that, and while a member of the life-saving crew at Cleveland, Hatch had helped to rescue twenty-nine persons from two vessels on two successive days during a terrific gale.

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CHAPTER IX LIFE-SAVING ALONG SHORE

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With each recurring autumn at nearly 300 points on our 8,000 miles of seacoast, careful preparations begin for the winter campaign of the life-saving service. Conducted in the face of constant peril and hardship, this annual battle with disaster, storm and death is a peaceful, yet always glorious one. During the year 1905 alone it resulted in the saving of more than 4,000 lives and the rescue of nearly \$8,000,000 worth of property, imperilled by wreck and storm, all of which would otherwise have been lost. The United States Life-saving Service is now the most complete and effective organization of its kind in the world, furnishing a model and pattern for those of other countries. The story of its rapid development during the last thirty-five years is also the inspiring record of the life work of one of our most sagacious and devoted public servants, Sumner I. Kimball, a modest, blue-eyed, kindly-faced man of middle age, whose untiring labors in this field long since gave him a foremost place among the great benefactors of his time.

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When in 1871, Mr. Kimball was made Chief of the Revenue Marine Bureau of the Treasury Department, the life-saving service had slender existence, save on paper. He found the station-houses sadly neglected and dilapidated, the apparatus rusty or broken, and many of the salaried keepers disabled by age or incompetent and neglectful of their duties. The outlook would have discouraged a man less resolute and determined than the new chief, but he had conceived the splendid idea of guarding the entire coast of the nation with a chain of fortresses garrisoned by disciplined conquerors of the sea, and he set about the accomplishment of his self-imposed task with patience, sagacity and skill.

He reorganized the service and prepared a code of regulations for its control, in which the duties of every member were carefully defined. Politics, the bane of the service in former years, was rigidly eliminated. Lazy, careless and incompetent employees were promptly dismissed, and their places filled with capable and faithful surfmen. The station-houses were repaired and increased, and equipped with the best life-saving devices human skill and ingenuity had thus far brought forth. Last and most important of all, a thorough and effective system of inspection and patrol was inaugurated, and so successful did it prove that during the first year's operation of the new system every person imperilled by shipwreck was saved. The service has been wisely extended from year to year, until now it has 270 stations, three-fourths of which are along the Atlantic coast, while others are on the lakes; a board of life-saving appliances; telephone lines for prompt operations and a splendid corps of assistant superintendents, experts, inspectors, station-keepers and mariners. The yearly cost of the service at the present time is slightly less than \$1,800,000, a sum ridiculously small when the saving of life and property is taken into consideration.

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Life at a life-saving station is never an idle one. The routine followed at the Avalon, New Jersey station, as I have observed it, in essential details, is the same as that practiced at all of the stations of the service. Four days of every week are devoted to drill. On Tuesdays the keeper orders out the surfboat and drills the crew in riding breakers and landing through heavy surf. On Wednesday he gives the men practical instruction in the working of the international signal code. On Thursday the Lyle gun is ordered out, and one of the crew, taking up a position some distance down the shore near a post stuck in the sand, personates a seaman on a stranded vessel. The other members of the crew plant the gun and fire a line which the watcher pulls in and rigs to the post. Then the men at the other end of the line dispatch the breeches-buoy and gallantly effect the rescue of their comrade. On Friday the recovery drill is carefully gone through. One of the crew assumes the role of a half-drowned sailor, and his comrades resuscitate him by rolling him

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on the sand and producing artificial breathing, according to the rules laid down for the purpose. Saturday is general cleaning day. The discipline of the crew is never relaxed and none of its members can go out of sight of the station save by special permission or when off duty.

The night hours at a life-saving station afford a much more thrilling story than the one I have just been relating. Each crew is divided into three night watches. The first watch goes on duty at sundown and patrols the beach until eight o'clock, at which hour the second watch relieves it and patrols until midnight, when the third watch sallies out and does duty until four o'clock in the morning. Then the first watch again goes on patrol and keeps watch until sunrise. During the day a surfman is constantly on the lookout in the watch-tower of the station. If the weather be clear, this precaution suffices, but if it is cloudy and storms threaten, the beach patrols are continued through the day. Each watch consists of two men, who, upon leaving the station, separate and follow their beats to the right and left until they meet the patrolmen from the neighboring stations on either side, with whom they exchange checks—this to show the keeper they have covered their respective beats. On the Atlantic seaboard, stations are now within an average distance of five miles of each other, but often the beats of the surfmen are six and seven miles long. It is a part of the surfman's duties to keep a constant watch of the sea and to note the vessels by the lights displayed, and, if they approach too close to the shore or outlying sandbars, give them timely warning. For this purpose he always carries a Coston signal, which, when exploded by percussion, emits a red flame that flashes far out over the water and warns the unwary ship of its peril. Last year more than two hundred vessels, warned in this way, at once changed course and ran out of danger. If the surfman observes a vessel that is stationary, he must determine whether she is at anchor or in distress, and if the latter proves to be the case, he displays his Coston signal, to assure the shipwrecked that aid is close at hand, and then hastens to the station to give the alarm to the keeper.

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The work of the patrolmen involves frequent danger and almost constant hardship. Imagine, if you can, and that is impossible, the lot of a surfman on the Jersey coast during one of the great storms sure to occur once or twice in every winter. A fearful night has followed a stormy and lowering day. Inky darkness shrouds sea and land, and the wind, blowing at the rate of fifty miles an hour, pipes and roars defiance to the patrolmen as they struggle along their lonely beats. The driving snow freezes on their cheeks and chins; wet sand is flung into their faces and cuts with the keenness of a razor, while great masses of icy foam beat fiercely on the head and face and body at every dozen steps. Huge waves break at the foot of the sand dunes along which they painfully labor, and drench them again and again, often felling them to the ground. Every twenty or thirty yards they pause, and, baring their faces to the pelting snow and foam, search the ocean for lights. In this way hours pass before the prescribed beat is traversed, and the surfmen, wet, half-frozen, bruised and exhausted, seek for a brief season the warmth and shelter of the station-house. Sometimes weakness overcomes them and they are unable to reach this refuge.

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When the patrolman descries a vessel among the breakers, he displays his Coston signal, to give assurance that aid is at hand, and then hurries to the station and arouses his comrades. From the report of the patrolman the keeper makes quick decision as to the best methods to be employed in effecting a rescue. If the surfboat is to be used, the doors of the boat-room are instantly thrown open and the boat-carriage drawn out and hauled by the crew to a point opposite the wreck. Then the boat is launched and the surfmen depart upon their errand of mercy. The surfboat is usually of cedar, with white oak frame, without keel, and provided with air cases, which render it insubmergible. Comparatively light, it can be hauled long distances, and is the only boat that has been found suitable for launching from flat beaches through the shoaling waters of the Atlantic and Gulf coasts. Handled by expert oarsmen, its action is often marvelous, and, although easily capsized, there are few recorded instances of its having been upset with fatal results while passing through the surf. Often repeated attempts have to be made before a wreck can be reached, and even then the greatest care must be exercised to avoid collision with the plunging hull or injury from floating wreckage and falling spars. When the benumbed and exhausted crew and passengers, who have usually sought refuge in the rigging from the overwhelming seas, have been taken off, the difficult return to shore yet remains. Sometimes the boat is run in behind a roller, and by quick and clever work kept out of the way of the following one, and the shore is gained in safety. At other times the boat is backed in, the oars being used now and then to keep it upon its course, and again, when the sea is unusually high, a drag is employed to check the force of the incoming breakers and prevent the boat from being capsized. In the manner described, boat and crew make repeated trips through the breakers until all have been taken off the stranded vessel, and the work of rescue is at last completed.

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When the condition of the sea prevents the use of the surfboat the mortar cart, equipped with a small bronze, smooth-bore gun, named for the inventor, Captain Lyle, of the army, is ordered out. Its destination reached, the gun is placed in position and loaded by members of the crew trained to the work, while others adjust the shot-line box, arrange the hauling lines and hawser, connect the breeches-buoy, prepare the tackles for hauling, and with pick and spade dig a trench for the sand-anchor. With these preparations completed, comes the firing of the gun. The shot speeds over the wreck and into the sea beyond, while the crew of the imperilled vessel seize and make fast the line attached. The surfmen next attach to the short-line the whip (an endless line), the tail-block and tallyboard, and these are in turn hauled in by the sailors. And then by means of the whip, the surfmen dispatch the hawser and a second tallyboard, which directs how and where the end of the hawser shall be fastened to the wreck. When the tackle connecting the sand anchor and the shore end of the hawser is straight and taut, it is lifted several feet in the air and further tightened by the erection of a wooden crotch, which does duty as a temporary pier, while the

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wreck answers for another. Finally the breeches-buoy is drawn back and forth on the hawser, and the shipwrecked brought safely to shore. On this occasion there have been no delays, but at other times there are numerous obstacles to be overcome. The ropes may snarl or tangle or be snapped asunder by the rolling of the vessel, and again, the imperilled crew may perform their share of the work in a bungling manner, or unexpected accidents befall, which tax to the utmost the patience, resources and courage of the surfmen. In many cases people held suspended in the breakers or ensnarled in the floating cordage and debris of the vessel, have only been rescued by the most daring exploits of the surfmen, who, at the greatest risk of life and limb, have worked their way through the surf, released the helpless victims of the wreck, and brought them to shore.

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A LIFE-SAVER ON PATROL

The breeches-buoy, to which reference has been made, is a circular life-preserver of cork, to which short canvas breeches are attached, and will hold two persons. But when a large number of people are to be rescued, the life-car, invented by Joseph Francis and connected with the hawser by a simple device to prevent it from drifting, is used. This is a water-tight, covered boat of galvanized sheet iron and will carry five or six adults at a time. At its first trial more than two hundred persons were rescued from the wreck of the Ayrshire on the New Jersey coast, when no other means could have availed. Silks, jewels and other valuables have often been saved by its use and from one vessel the car took ashore a large sum of gold bullion belonging to the United States, together with the mails. On the lake and Pacific coasts, where the shores are steep and the water deep, the self-righting and self-bailing lifeboat is in general use. This, the best lifeboat yet devised, is the result of more than a century of study and experiment, following the first model designed in 1780 by an English coachman, Lionel Lukin. It possesses great stability, is rarely upset, and when this happens instantly rights itself, while when full of water it empties itself in from fifteen to twenty seconds.

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The work of the life-savers seldom ends with the rescue. After all have been brought ashore from a wreck, the benumbed and helpless sufferers are quickly conveyed to the station-house, transferred for the moment into a hospital, where an abundance of dry clothing is instantly applied; the prostrated ones put to bed; lint, plasters and bandages supplied to the bruised and wounded, and stimulants from the medicine chest, never absent from any station, given to those who need them. At the same time the mess-cook prepares and serves out hot coffee alike to rescued and rescuers. When this has been partaken of, the keeper assigns a portion of the crew to look after the needs of the strangers and the others retire to rest until called to relieve the patrol.

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After what has been written one would expect to find rich material for true stories of peril,

adventure and heroism; and for romances in real life among the records of the life-saving service—stories that never fail to stir the blood and quicken the pulse of those to whom they are told. And such is the case. The annals of the service are replete with splendid deeds of daring, and each month's record adds to the roll of honor. Often the surfmen know they are going forth to almost certain death,' and yet never a moment do they falter. A year or so ago a crew that rescued four sailors from a stranded vessel under the most trying conditions, before launching their boat, left their slender effects in the charge of a comrade for the benefit of their families—not one of them believing that they would return alive! And when the life-savers went off through the violent sea to rescue those on board the German ship Elizabeth, stranded on the Virginia coast, in January, 1887, all but two of the crew perished, together with the entire ship's company. The brave fellows' doom was sealed from the first, but this did not swerve them from their duty.

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One of the saddest chapters in the annals of the service deals with the death of the keeper and two of the surfmen of the Peaked Hill Bar Station, on the Massachusetts coast. In the waning hours of a stormy November night, fifteen years ago, the sloop Trumbull was descried by the patrol on the inner bar, and a few moments later the lifeboat, manned by Keeper Atkins and Surfmen Mayo, Taylor, Kelly, Young and Fisher, was on the way to the rescue. The crew, save two who, refusing assistance, remained on board the vessel, were speedily brought to land. The gale was now increasing and the sea running mountain high, but Keeper Atkins and his crew again essayed the rescue of the two men, who still remained on the Trumbull. It was very dark, and the lifeboat in approaching the ship was struck by a swinging boom and capsized. After clinging for a time to the upturned boat, the surfmen released their hold and attempted to swim to shore. Surfmen Kelly, Young and Fisher reached the beach barely alive, and were picked up and tenderly cared for by a comrade, but Keeper Atkins and Surfmen Mayo and Taylor, although strong swimmers, were finally overcome and vanished in the storm and darkness. The sea gave up their bodies many hours later, and there were few dry eyes among the hundreds who followed to their graves three heroes as dauntless as ever were sung in song or story.

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One of the most gallant rescues performed within the scope of the service stands to the credit of the Dam Neck Mills crew, on the coast of Virginia. The schooner Jennie Hall, bound from Trinidad to Baltimore, sailing in a dense fog, struck bottom a few miles south of Cape Henry. A tempest was blowing, and a deluge of sleet blinded and benumbed the crew as they clung to the mizzenmast, on which they had taken refuge. The captain had been swept away while attempting to cross the deck, and it seemed certain that the almost helpless sailors must soon follow him. Blind desperation alone gave them strength to endure until the morning. Then, in the dawning of the day, through the lifting curtain of mist, they saw the life-savers preparing to attempt their rescue. The sea was still too high to warrant the launching of the lifeboat. What must be done was to get a hawser to the schooner, and then, by means of the breeches-buoy, haul off the wrecked men.

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The gun was, therefore, placed in position, and the shot-line coiled properly, so as to follow without fouling. The ship was about three hundred yards off shore. The shot was fired, and the line carried just over the rigging at the necessary spot. All would have gone well had not the block of the whip-line become fouled. The men on the mast were too exhausted to extricate it, so the whip-line was hauled to shore, and the shot-line cut away. Another shot was fired. This time it landed out of the reach of the wrecked men, now almost insensible from cold and exhaustion. Still another shot was fired, this time fairly in the hands of the unfortunates. The whip-line was painfully drawn to the mast and properly made fast. Then the hawser was drawn slowly from shore, and also properly fixed around the mast. Just as the breeches-buoy was being sent out to make the rescue at last, just as safety and warmth and life were within their grasp, two of the six fell to the deck, struck like lead, and were washed overboard, never more to be seen. The breeches-buoy had now reached the mast. Two of the men managed to get in, and were hauled ashore, unconscious, very nearly dead. Again the buoy went on its errand of mercy, and the mate was brought to safety. There was still one man left on the mast. The buoy was sent back for him. But he made no sign of life.

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Somebody must go out for him. A surfman by the name of O'Neal put himself in the buoy and was hauled to the wreck. He found that the man, now unconscious, had so firmly lashed himself to the crosstrees that it was not in his power to extricate him without help. So he returned to the shore for an assistant. An ex-surfman, Drinkwater by name, volunteered to go back with him. The sea having gone down a trifle, the keeper decided to place them on board the wreck by the lifeboat. A crew was called, and the rescuers rowed out through a still tremendous sea to the Jennie Hall. The two men skilfully got aboard, and climbed the mast, the lifeboat in the meanwhile, after nearly a fatal accident, returning to the beach. Even with help, O'Neal had great difficulty in getting the remaining sailor out of the rigging. But it was finally done, and the well-nigh frozen man sent ashore. Then the two life-savers returned in the buoy.

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The records of the live-saving crews of the Great Lakes also abound with thrilling and heroic incidents. These vast inland seas, with 2,500 miles of American coast-line, are subject to sudden and violent gales, in which anchored vessels are swept fore and aft, often causing their total destruction, while others seeking shelter in harbors are driven helplessly upon jutting piers or the still more dangerous beach; and frequently just before winter suspends navigation on the lakes, a single life-saving crew is employed upon several wrecks at a time. Again, the lifeboats often go under sail and oar many miles from their station to aid vessels in distress. When the steamer Bestchey was wrecked near Grindstone City, seven miles from the Point aux Barques station, on Lake Huron, a few years ago, the crew hurried to the rescue, and found several

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hundred people watching the breaking up of the wreck, but powerless to aid the passengers and crew, who, for ten hours, had been face to face with suffering and death. When the lifeboat had been launched and the ship's side gained, two of the surfmen leaped into the water, and by the aid of ropes, after a desperate struggle gained the steamer's deck and directed the difficult and dangerous task of transferring those on board to the boat. Eleven women and a small boy were lowered over the bulwarks, and the boat, shoving off, gained the pier in safety. Four trips were made within an hour, and all on board, more than forty persons, brought ashore. A few months later the Point aux Barques crew responded to signals of distress displayed by a vessel three miles away, and in the fearful storm that was raging, their boat was capsized. The men tried to cling to it, but the cold overcame them, and one after another perished until six were gone. Only the keeper, bruised and insensible, was washed ashore, and he was so badly injured that he was forced to resign his position. Thus in one day, the service lost all the members of one of its most skilful and gallant crews. During the same year the men at the Point aux Barques Station had been the means of saving more than a hundred lives.

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Still the life of the surfmen has its merry, as well as its serious moods. Each station is provided with a small but well selected library, and the men find it a constant source of instruction and delight. Then there is always in every crew one or two who can play a violin, flute or accordion, and often when the weather is fine and the wind off shore, the surfmen gather in the messroom and listen to the music of their companions or sing songs and spin yarns, the latter couched in a quaint and awkward vernacular, yet full of life and spirit, and redolent of the sea and the waves. Often on clear, moonlit nights there are "surprise parties" at the station, made up of the wives, sisters' and sweethearts of the crew, who always bring with them a generous store of household dainties for those they love, sure to prove a welcome addition to the surfmen's plain, but substantial fare. On such occasions the boat-room is quickly cleared for the dance, and joy and merriment hold unfettered sway. And, yet, never is the patrol relaxed, nor do the surfmen forget the stern call to duty that may come to them at any moment. "When I see a man clinging to a wreck," said a sturdy surf man, not long ago, "I see nothing else in the world, nor think of family and friends until I have saved him." And it is but simple truth to say that this heroic spirit animates every member of the life-saving service.

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CHAPTER X WHALERS OF THE ARCTIC SEA

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In the streets and hotels, or more often the smoking-room of the custom-house of the beautiful old town of New Bedford, Massachusetts, one meets in these latter times certain quiet, elderly men who, save for their weather-beaten faces, an occasional scar, the deference shown them, and the title of "captain," give no sign of the stormy and adventurous lives they have led. These men belong to a most interesting class, and one which promises to soon become extinct. They are the whaling captains of the old days, when, with whaling still one of the most prosperous and important of our national industries, the New Bedford whalers carried the American flag to the most distant parts of the globe, and yearly poured a golden stream into the strong-boxes of their shrewd and venturesome owners. Cabin-boys at twelve, captains before they were twenty-five, at fifty, stranded hulks—having often made and lost great fortunes, made them for others, lost them for themselves—in such quiet havens as chance or fortune affords, they now peacefully and with perfect contentment await the end that sooner or later comes to us all.

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For more than a century, New Bedford has been the centre in this country of the industry of which these old captains are pathetic reminders; but in recent years it has made San Francisco the headquarters of its ships. They all carry the name of New Bedford on their sterns, and are owned and commanded by New Bedford men; but, as whaling is now mainly carried on in Alaskan waters, San Francisco has become the principal point of arrival and departure. Only the Atlantic whalers, dwindled now to less than a dozen, still headquarter in the old capital of the trade. The ships engaged in the whale trade are clumsy in appearance, and much smaller than most people would imagine, being rarely as large as the three-masted schooners used in the coasting trade. They are strongly built, wide amidships, and as broad as Dutch galleons at the bow. They are so treated with pitch and tar as to last for generations, and are constantly repaired, a part at a time. Some of the stanchest vessels in the trade are more than half a century old, and promise to do duty for many years to come.

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The fleet sailing from San Francisco numbers between forty and fifty vessels. Some of the captains sail in November, and spend the winter in sperm whaling, putting into Honolulu for fresh supplies at the approach of spring, but the majority leave in March. The whales are fast being driven from the Pacific, and every year the whalers are forced to go farther and farther north for them. Only a few years ago, whales were plentiful in the Northern Pacific and Behring and Okhotsk Seas, but now the whalers have to push far into the Arctic to find their game. To make a voyage profitable, a ship must often spend several seasons in the north, and last year the San Francisco fleet sailed prepared for a three years' cruise. Many of the captains took their wives and children with them. They reached Herschel Island late in August, spending last winter as they will the next two, in comfortable quarters at Pauline Cove, returning to the United States in the fall of 1909. Pianos and pool and billiard tables were taken along to help while away the long winters, and the members of the fleet, when they return, are sure to have many an

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interesting and stirring story to tell.

In order to complete the preparations for its Arctic work, each whaler, after leaving San Francisco, cruises for a few weeks in the central Pacific. During this cruise the crow's nest, or lookout, is put in place, the boats are scrubbed, painted and fitted with sails, steering-gear and oars and the whaling apparatus thoroughly overhauled. Then the ship's rigging receives careful attention, weak spots being made strong, and old sails patched or replaced, and finally, the hold is restowed and put in shape for the long voyage. The crew of a whaler includes, besides the captain, four mates, one boat-leader, four boat-steerers, a steward, cook, carpenter, cooper, steerage and cabin boys, and from twelve to twenty able seamen. The men instead of being paid regular wages, receive a portion of the profits of the cruise. The captain receives a twelfth, the first mate a twentieth, the second mate and boat-leader each a twenty-fifth, the third mate a thirtieth, the carpenter, cooper and steward each a fiftieth, and the sailors each a hundred and seventy-fifth. The captain's portion ranges from nothing to \$7,000 or \$8,000, according to the number of whales taken during a cruise. If a ship secures twelve whales during a cruise, the captain will receive about \$3,000 and a sailor \$200. The sailors usually receive an advance of \$60 each, and during a cruise are allowed to draw tobacco, clothing and the like, from the ship's supplies, to the amount of \$60 or \$80. Both officers and men keenly appreciate this co-operative system, and toil with great zeal in the hope of extra reward. Formerly whales were valued chiefly for the oil, but the discovery of petroleum worked a change, and the whalebone is now the main thing sought. This product is worth from \$4 to \$5 a pound, and the average whale contains a little less than a ton of bone.

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The officers of an Arctic whaler are generally Yankees, but all countries are represented in the fore-castle. Americans, Britons, Swedes, Portuguese, Germans, Spaniards, Kanakas, a few stray cowboys, and three or four 'Frisco hoodlums are often found in the same crew. Now and then desperate criminals seek an Arctic cruise to escape punishment for their misdeeds, and sometimes induce a crew to mutiny. Such an experience befell Captain Edmund Kelly, now living in retirement in New Bedford, when he was master of the *Lucretia*. His crew, prompted by three ruffians, who had crept in among them, refused duty soon after the ship entered Behring Sea, and retreated to the fore-castle, but not before the captain had emptied it of such food as it contained. When asked to state their grievances they demanded the release of one of their shipmates who had been put in irons for disobedience. This demand Kelly refused to grant, and locked them in the fore-castle, determined, if possible, to starve them into submission.

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On the third morning the crew, who were all armed with knives and revolvers, broke out of this improvised prison and demanded "bread or blood." The captain appealed to them to return to duty, but the three ring-leaders threatened to shoot the first man who wavered, and none responded. It was a critical moment, but Kelly, sprung from a race of fighting men, proved equal to it. Picking up a rifle, he walked in among the mutineers, and singling out the leader, ordered him to surrender. The man refused, and the captain raised his rifle to his shoulder, but before he could fire, the mutineer snapped a revolver twice in his face, and then took refuge among his companions. Kelly tried to follow him, but his progress was impeded by the crew, and the rascal he was seeking now stole up behind him, took careful aim, and fired. The officers, who were standing aft in a group, thinking their captain had been killed, fired upon the mutineer, wounding him in the leg. Happily, however, Kelly had only received a slight scalp wound. He regained his feet in an instant, and facing the mutineer, who was now crawling towards him with cocked revolver in hand, took aim and fired, whereat the man fell back dead with a bullet in his heart. The others, begging for mercy, threw down their arms, and the mutiny was at an end. During the rest of the voyage they proved a most obedient and tractable crew. When Captain Kelly returned to San Francisco, he reported the affair to the federal courts. The judge who heard the evidence discharged him, and at the same time reproved him for failing to shoot the other leaders of the mutiny.

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When all is in readiness for the Arctic cruise, the captain of a whaler changes the southwesterly course he has followed since leaving port, and heads for the north. The passage through Behring Sea, on account of the great fields of floating ice which fill that body at all seasons, is always a trying and often a dangerous one, and the whaling masters must of necessity be most skilful navigators. Pushing a ship in safety from lead to lead, and among the threatening cakes of an ice-floe, calls for the most consummate skill, and it is a lesson mastered by sailors only after a long and hard experience. In addition to the highest skill, the captain—or disaster surely awaits him—must possess a resolute will that falters not, even in the face of death. For weeks his ship is seldom out of peril, and he must be ready at all times to make his escape from a threatening pack or an approaching floe.

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Some years ago, the ship *Hunter*, Captain Cogan, when off St. Lawrence Island, was caught in a whirlpool and seriously disabled. He patched up his ship as best he could and made a fresh start. Off Icy Cape, bottom ice was struck, causing a serious leak, and the captain was forced to seek refuge in the nearest haven. Here every movable object was taken out of the ship and carried on shore. Then the spars were unshipped and converted into a raft, which was anchored at both ends and steadied with water casks. Using the raft as a wharf, and in the face of a blinding storm, the ship was hove down, the keel raised above the surface of the water, and the leak repaired. Captain Cogan's cruise up to that time had been a fruitless one, but three months later he sailed safely into port with a valuable cargo. Similar experiences befall the whalers every year.

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During the long and toilsome passage through Behring Sea, a sharp lookout is kept for whales, but few are now caught south of Cape Navarin, and whaling does not commence in earnest until

the ships are well out into the Arctic. Each ship has five whaleboats, and when the lookout in the crow's nest reports a whale in sight, the crews spring into them and are off in an instant. The captain, however, remains on the ship, and from the crow's nest directs the boats by a code of signals.

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The boats always approach their prey under sail, as the use of paddle or oar would startle the whale and cause it to beat a hasty retreat. The old method of whaling with harpoons and lances thrown by hand has been superseded during the last twenty years by the whale-gun, and as a consequence what was once a royal sport has now sadly degenerated. The new weapon is a heavy metallic shoulder-gun fastened to a pole about six feet long. As the boat nears its intended victim, a harpoon attached to several hundred fathoms of line is shot from the gun, and having been "made fast," a bomb, filled with an explosive equal to about ten pounds of giant powder, is fired into the huge body near the head. The missile, exploding as it buries itself in the flesh, blows a great hole almost in the vitals of the monster, and death quickly follows. When the bomb fails to cause instant death or inflict a mortal wound, a second harpoon with a dynamite attachment is thrown, the needle point of the spear, as it sinks into the flesh, exploding the bomb. The second wound nearly always causes instant death; but if not, the harpoons cling to the whale, and with lines attached, the whalers quietly await the reappearance of the whale—which seeks relief by plunging beneath the surface—for another shot at it from the gun, which has in the meantime been reloaded. There is small chance for escape, and another bomb or harpoon from the gun speedily ends the most desperate struggle for life. The sperm whale, the favorite game of the old-time whalers, always puts up a stout battle, but the bow-head whale, found in polar waters, is timid, and dies meekly.

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When the whale, its struggles ended, rolls over dead, the vessel gets up sail and makes its way to the body, taking it on the starboard side, in front of the gangway. A stage is rigged over the side and just above the floating carcass, which is secured fore and aft by chains. Then the process of taking the bone and blubber from the body commences. First a cut is made through the deep layer of fat beginning at the nose, and, if all the blubber is to be taken off, running back to the flukes or tail. Next cross-incisions are made every four or five feet, and strips of the fat encircling the whale are marked out. After this, tackle is attached to one end of these strips, and men on the stage sever the strip of blubber from the body, as it is then being hoisted on board. Each strip, as it is taken off, rolls the whale around in the water.

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The most difficult part of the operation I am describing is cutting off the head, which contains all the whalebone. A single false move may destroy hundreds of dollars' worth of bone, or perhaps entail the loss of the entire head. Axes are used, and it takes a great deal of hard and skilful chopping to pierce the mountain of flesh. When the backbone has been chopped nearly through, a jerk of the tackle breaks the remainder, and the head is then hauled on deck. As a large whale's head frequently contains several thousand dollars worth of bone, the suspense and anxiety of the whaler while it is being taken off can be readily understood. When the head has been secured, the work of taking off the remainder of the blubber is resumed. Some vessels save only the bone, and cast the body adrift after the head has been cut off, but these are usually ships without the needed apparatus for trying out the oil. When the blubber has all been stripped from the carcass, it is cut up into small pieces, and for several days thereafter the crew is briskly employed "trying out" the oil and stowing it away in casks. A large cube of bricks amidships contains two great iron kettles with fireplaces beneath, and in these the oil is boiled from the blubber. Black smoke and foul smell attend this operation, and only an old whaler will go to the leeward of the great pots when it is in progress.

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There is little to break the monotony of the whaler's life while at work. Day after day the same routine is repeated, broken only by an occasional storm, or visits in leisure hours to neighboring vessels. But about the whaler there is always the glamor of the Arctic, which those who have once felt its spell say can never be forgotten—by day its marvellous mirages, weirdly reflecting distant ships, or the ice piled in huge, fantastic masses; at night the sombre glory of the aurora borealis, and always the cold, serene purity of ice and water and sky. When winter approaches, if one or more ships are to spend a second season in polar waters, quarters are built in some sheltered spot on land, and there, early in October, all the vessels rendezvous. On each ship the space between-decks is cleared, stoves set up, and bunks arranged along the middle, away from the sides, so that the cold will not so quickly reach the men through the vessel's timbers. When the ice forms around the ship, high banks of snow are piled about it to break the force of the piercing winds, and snow is also piled upon the roof built over the decks. This snow soon freezes and will not drift with the fiercest of gales. Thus prepared for, a winter in the Arctic has lost many of its former terrors.

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The whaler's homeward passage through Behring Sea is often more difficult and dangerous than the outward voyage. With sudden gales, treacherous currents, blinding snowstorms, and long, dark nights, each master must literally feel his way with the lead, getting such aid as he can from log and lookout. Every captain breathes a sigh of relief when he has passed the Straits and is once more in the Pacific, southward bound. There is plenty of work on the return passage. The crow's nest must be taken down and stowed away for another cruise; the masts scraped and varnished; the ship scoured and cleaned above and below; and finally, if it is a steam vessel, the sails unbent and stowed away. Just before entering port, the crew discard their skin clothing. A few hours later the voyage is at an end, and the men are tasting, perhaps for the first time in years, the delights and comforts of life on shore, and spending with open hand the money they have worked so long and so hard to earn.

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Whaling in the Arctic saw its best days in 1852, when the fleet numbered 250 vessels and the value of the catch exceeded \$14,000,000. Its gradual decline began a little later, but it received its first serious set-back in June, 1865, when the Confederate cruiser Shenandoah, making its way without warning into the Arctic, burned thirty and captured four other whalers. New Bedford's loss alone was twenty-three vessels, which, with their outfits, were valued at more than a million dollars. Since then, wind and ice, the ever-present perils of the whaler, have caused two appalling disasters, and further hastened the decline of the trade. The first of these disasters occurred in 1871. Between August 11th and 29th of that year, the ice closed in upon the whaling fleet at work near Wainright Inlet, and at the end of the month thirty-three vessels were helpless prisoners. During the next week three vessels were crushed or carried off by the ice, the crew in each instance narrowly escaping with their lives. Each day the ice packed closer and it became apparent to the captains, who held daily meetings to discuss the situation, that for their ships at least, escape was hopeless. There was not the time nor material to build winter quarters on land, and even had this been possible, the scanty stock of provisions could only postpone certain starvation, or death by scurvy and disease, during the eleven months that must elapse before they could hope for relief to reach them from the outer world. And so it became clear that the crews must be got away before winter came or all would perish.

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Captain David Frazer, who, with two whaleboats, had been sent to the south to see what could be done, returned on September 12th and reported that he had found the rest of the fleet, seven ships, off Icy Cape, ninety miles to the south. They were also, he said, fast in the ice, but would be able to work their way out and would lie by to aid their distressed companions. On the receipt of this news, the captains, some of whom were accompanied by their wives and children, met to decide upon a final course of action. Three million dollars' worth of property and 1,200 lives were at stake, and to save the latter all else must be sacrificed. It was then resolved, unless the weather moderated, to abandon the fleet next day. Morning brought no change and the most daring were convinced that nothing but flight remained. The 200 whaleboats of the fleet were manned by their crews and the southward journey begun. There was a narrow strip of water between the ice and shore, and through this the sad procession made its way.

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At night a camp was made on shore, and on the second day the boats reached Blossom Shoals, and came in sight of the refuge vessels. They were lying five miles out from shore and behind a tongue of ice which stretched ten miles farther down the coast. Around this obstruction the crews were forced to make their way before they could get on board. On the outer side of this icy peninsula a fearful gale was encountered and the boats were tossed about like corks; but by four in the afternoon all dangers were safely passed and the 1,200 refugees distributed among the several vessels of the fleet. Sail was made at once, and on October 24th the first of the ships reached Honolulu, the others following speedily. Of the splendid fleet of forty vessels that had sailed northward less than a year before, only these seven returned; but not a life was lost. When in the following year some of the captains visited the locality where the ships were lost, they found that with one or two exceptions they had all been carried away by the ice, ground to pieces, or burned by the people of a near-by Eskimo village. The value of the wrecked vessels sailing from New Bedford exceeded, with their cargoes, a million dollars. Some of the city's wealthiest whaling-masters were ruined and many more badly crippled by the disaster.

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Compared with the disaster of 1871, that of 1876 was much less destructive to property, but vastly more appalling by reason of the great loss of life with which it was attended. The whaling fleet reached Point Barrow early in August, 1876, and began whaling. Strong currents and constantly moving ice made work difficult from the first, and in the end the pack suddenly closed in upon the fleet. Four vessels made their escape, but the rest were carried slowly away towards the northward, great jams at the same time choking up every avenue leading to the south. With cold weather fast approaching, it was plainly impossible to release the ships from their icy prison. A majority of the masters resolved to take to the boats as the only chance for escape, but five of the captains, with their crews, hoping against hope, refused to leave their ships. Progress over the ice was slow and painful. With infinite labor the boats would be hauled for a mile or so over the ice and then the men would return for the provisions and clothing they had taken from the ships. At night they crawled under the upturned boats and slept as best they could on the ice. Late in the evening of the third day land was reached, and after resting and drying their clothes the captains decided to push on at once to the ships lying below Point Barrow.

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At the end of a week, exhausted, half-frozen and starving, they reached this refuge, and were kindly received by their fellow captains. The men were divided among the several ships, and as soon as the wind opened the ice the return voyage began. When the Golden Gate was reached, the last piece of meat was in the copper and the last loaf of bread in the oven. Out of a fleet of twenty vessels, twelve had been sunk or abandoned, with a loss of over \$800,000. On the southward journey over the ice, two of the captains bethought them of some valuable furs they had left behind, and decided to return for them. They made the trip in safety and had a warm welcome from those who had remained on the ships, but the latter turned a deaf ear to their earnest appeals to return with them, and the two captains again pushed southward alone. Since that hour nothing has been seen or heard of the ships or of the 150 men who refused to leave them. In the silence and darkness of the long Arctic winter they perished and gave no sign. How passed their final hours? A grisly and gruesome story which all whalers tell offers a partial answer to this question. Many years ago Captain Warrens, of the whaler Greenland, while lying becalmed among icebergs, sighted a dismantled and apparently deserted vessel. The boat's crew sent off to the stranger found the deck deserted; but seated at a table in the cabin was the corpse of a man covered with green, damp mould. A pen was still clutched in the stiffened hand, and on

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the table lay a log-book containing this last entry:

"We have now been enclosed in the ice seventeen days. The fire went out yesterday and our master has been trying ever since to kindle it again, without success. His wife died this morning. There is no relief."

The corpse of another man was found on the floor, and in one of the cabin berths lay the dead body of a woman. The corpse of the cabin-boy crouched at the foot of the gangway. Scattered about the forecabin lay the dead bodies of the crew. The ship was barren of fuel or food. It had been frozen in the ice thirteen years. Perhaps in similar manner this later Arctic mystery may yet find startling solution.

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There have been few whalers lost during the last twenty years. This has been due to the gradual introduction, since 1880, of steam-whalers, which act as tugs to the sailing ships when in danger, and to the constant presence in the Arctic of one or more revenue cutters, which render efficient aid every season, and convey to San Francisco the crews of such vessels as are lost—the *Corwin* on one of its cruises saving an entire fleet from destruction. With these extra safeguards, the trade would doubtless have speedily recovered from the disasters I have described, but for the gradual disappearance of the whale itself. Each year, the whales, to escape pursuit, push still farther into the polar ice-caps, and each year the number caught decreases. The annual product of bone and oil has now fallen to less than a million and a half of dollars, and new whaling grounds must soon be found or a great industry abandoned. Already the British whalers are turning their attention to the south polar region. Should whales prove plentiful there, the Yankees will be sure to follow in the footsteps of the English, and the energy and capital long expended in the far north will be diverted, for a term of years at least, to the other end of the world.

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THE END

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