

THE AMERICAN BATTLESHIP IN COMMISSION

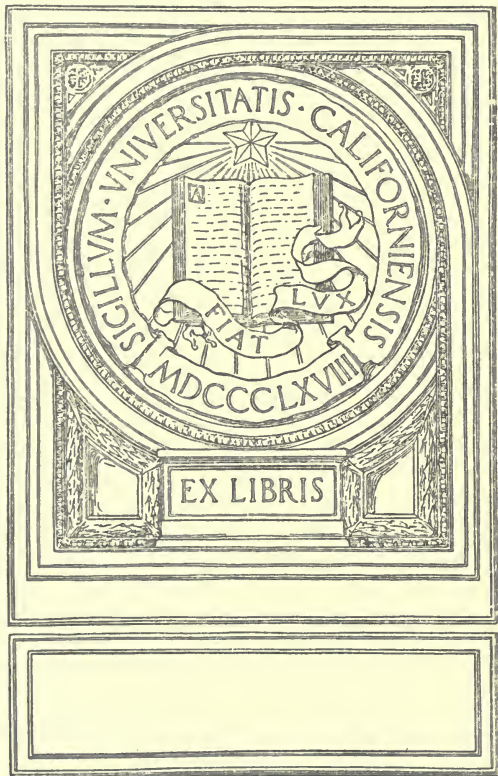
AS SEEN BY AN ENLISTED MAN



ALSO

MANY MAN-O'-WAR YARNS

GIFT OF
Miss Alice J. Farno





THE AMERICAN BATTLESHIP
IN COMMISSION



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1918



Thomas Deyer

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The American Battleship In Commission

AS SEEN BY AN ENLISTED MAN

ALSO

Many Man-o'-war Yarns

PUBLISHED BY THE AUTHOR



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Bluejacket, U. S. Navy

Gift
Miss Alice J. Faruo

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BROOKLYN, N. Y.

DEDICATION

This Book is Dedicated to the Relatives and Friends
of the

BLUEJACKETS of the UNITED STATES NAVY,

and all other "shore folks" who are interested in the
personnel of a great Navy.

M183208

PREFACE

THE entire contents of this book concern the Navy. I, the author, am an enlisted man. This preface is not to make excuses for my book ; the work speaks for itself. Many sailors keep a log in which all important events are recorded. Were it not for the log which I have kept, I would undoubtedly have been unable to write this book, since much of the contents were derived from this record. My main object is to furnish the general public with as much information about the Navy as possible, and by having a plain education it has caused me to write the contents in a style of my own, but the book, however, contains the material.

Although the book is entitled "The American Battleship in Commission," it does not signify that the contents pertain only to battleships. It has taken me two years of steady work to complete this book. I am writing about the Navy from an enlisted man's point of view, and not in a single instance have I intentionally misrepresented the service in any particular. What I have written represents the actual conditions as I have found them to be.

Upon completing the manuscript of this book I forwarded it to the Navy Department at Washington for approval to publish the same. I was then and still

am an enlisted man. With the manuscript I enclosed a letter stating my reasons for writing the book.

Two weeks later I received the following letter :

OFFICE OF NAVAL INTELLIGENCE,
WASHINGTON, D. C.

October 17, 1905.

SIR :

Replying further to your letter of October 5th, I am authorized by the Secretary of the Navy to inform you that the Department authorizes you to publish your book entitled "The American Battleship in Commission." I wish you all success with your book. Your manuscript is returned by registered mail.

Very respectfully,
(Signed) SEATON SCHROEDER,
Captain U. S. N.

Upon receiving permission to publish my book, I sat down and rewrote part of the manuscript, thus improving it in a great many ways. I have taken special pains to illustrate the book well, with the best illustrations obtainable, and to describe each view so that the reader will more readily understand the contents. Were I to explain about big guns, torpedoes, etc., in a technical manner, it would mean little or nothing to the average reader. Therefore, I have attempted to explain in a simple way the main rudiments, from which the reader can easily understand the general working principle.

Throughout the book the reader will notice the absence of "I's," and I am elated over the fact, because it has been my intention to write actual facts in an impersonal manner.

The book is divided into two parts. Part I deals mainly with the Navy proper, while Part II contains many man-o'-war yarns, sketches, etc., many of which are personal experiences.

Perhaps a brief account of myself would not be amiss. I was born in Oakland, California, in 1876, and enlisted in the Navy in 1898. Shortly after enlisting I was sent out to the Asiatic Station to join Admiral Dewey's fleet. I served on the following sea-going ships: U. S. S. *Baltimore*, U. S. S. *Bennington*, U. S. S. *Yosemite*, U. S. S. *Solace*, and the U. S. S. *Oregon*. My present term of enlistment expires in October, 1906.

Very respectfully,

THOMAS BEYER,

Ship-fitter, first-class, U. S. Navy.

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BOOK I

CHAPTER I

THE NAVY—BUILDING AND COMMISSIONING— OFFICERS OF THE SHIP—HOW OFFICERS ARE MADE

THE NAVY

GREAT pride and interest are taken in the Navy, particularly of late, as the results of the Japanese and Russian War have plainly demonstrated that a strong and efficient Navy is the most important factor in war time. Folks at home read about the achievements of a certain ship, while at the same time many people do not realize what a grand array of warships Uncle Sam owns.

A person may gaze at the photograph of a battleship or cruiser or he may see one lying at anchor. When it comes to defining the difference between their fighting qualities, etc., the average landsman would be at sea. It requires personal experience and study to enable one to comment truthfully upon the service.

A warship is a floating diplomat. Moving about

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singly or in fleets, they command, in many ways, respect for the country which they represent. Our interests in foreign ports are constantly on the increase, as the Export Statistics will show; and now that Uncle Sam is the legal guardian of the Philippines, Cuba, Porto Rico, Hawaii, and the Panama Canal, a large and efficient Navy is needed to protect American interests.

A large Navy alone does not signify a strong Navy. Should the personnel be lacking in training, skill, and discipline, the ships would be of very little value. In time of action they would be an easy prey to the enemy whose ships and men have a superior training.

Millions of dollars are spent annually to bring the fighting qualities of both ship and men up to the highest standard, and every dollar of this money is well invested.

The art of war is now carried out on a scientific basis, where superior tact, skill, training, and discipline have a decided advantage.

Washington, D. C., is the official headquarters of the United States Navy. There all movements of ships, stores, officers, enlisted men, etc., are directed, with the assistance of the many admirals and captains who are in command of the different fleets, squadrons, and divisions.

The duties of the Navy Department are divided

among different bureaus, such as Navigation, Construction and Repair, Equipment, Steam Engineering, etc. The duties aboard ship and at the different departments are thus divided in order to simplify matters in each department.

All ships of the Navy must be placed out of commission regularly at the different navy-yards maintained by the Navy. When a ship is placed out of commission she is thoroughly overhauled and equipped with the latest appliances. Ships are also built at the navy yards by the Government. The *Connecticut*, a sixteen-thousand-ton battleship, is one of them. This ship was built at the Brooklyn navy-yard.

Several of our warships have seen ten years' service before being placed out of commission. When a ship is recommissioned she is then better equipped than when she was new, for the reason that she is modern and equipped with improvements which have come into use only recently.

The entire Navy is conducted on the same principle. The Navy Department prints a book which contains the rules and regulations governing the U. S. Navy. From the color of its binding this book is known as the "Blue Book." Every little detail of the service is contained within its pages. From time to time, as the service may require, changes are made in the rules and regulations.

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Many people are inclined to think that naval officers have one continuous round of pleasure, with nothing to do but travel around the world at the expense of the Government. Such an erroneous impression could be entertained only by one unacquainted with the service. All naval officers have arduous tasks to perform before ships are intrusted to their command. After passing through six years of continuous studies, midshipmen are then commissioned ensigns, this being the lowest rank of a commissioned officer. Line officers are the regular commissioned officers of the Navy who have gone through the prescribed course at the Naval Academy. This also includes warrant officers who have passed the examination for ensign. Officers are gradually promoted, each in his turn, a special examination being taken for each grade.

A line officer must have been in charge of every department of the ship, such as Signal, Navigation, Ordnance, and Executive, before he can get command of a large ship. Many admirals in foreign Navies have seen far less service than our commanders.

In regard to the benefits that an enlisted man derives from service, there are a great many. A bluejacket is well taken care of, and, best of all, he is well paid. The opportunities for advancement in the Navy are far greater to-day than at any previous time.

Recently the rates of several different new petty officers have been created, and more will be added from time to time. These new rates, with the old ones, have promoted a great many of the crew to the rank of petty officers. The initial pay of a petty officer varies from thirty to seventy dollars a month. This, however, does not include his extra pay, such as gun-pointer, continuous service benefits, etc.

A large number of new battleships and cruisers are being rapidly completed and commissioned. The majority of these ships carry a complement of over eight hundred men, and there are a great many openings for advancement. When a member of the crew is rated a petty officer more work is not expected of him because his pay has been increased. He is rated a petty officer for the fact that he has acquired sufficient knowledge to enable him to command a more responsible position. As a general rule, the higher an enlisted man advances the less manual labor he is required to perform. A petty officer, however, is clothed with considerable authority, and many responsible duties are assigned him. Naval life is very congenial to the enlisted man, and he gains a vast fund of knowledge and experience in his travels. Most important of all, however, he is well disciplined.

Now and then a young man may enlist who turns

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out to be a very undesirable recruit; he may even cause discontent among the other members of the crew. Some of these write home to their parents condemning the service. In some instances their home papers may publish the contents of the letters, although the authors might have been entirely to blame in the matter.

The regular man-o'-war men soon grow tired of hearing a recruit continually growling. He is then told to "run away if you don't like it." Some young men join the service with false ideas of life on a ship. Some expect to be given a private room and even a servant to wait upon them. Cases of this kind are rare, however, as most of the recruits soon adapt themselves to the routine of the service. When a recruit persists in being obstinate he will either desert or be dishonorably discharged from the service. Under no circumstances does Uncle Sam wish to retain in the service men of this character.

Some men enlist in the Navy without the consent of their parents, though the recruiting officers use every effort to prevent such occurrences. This is due usually to objection on the part of the parents. It seems that the names of warships, big guns, etc., give some people the most peculiar notions about the service. This is particularly true of women. The greatest caution is exercised at all



LAUNCHING OF THE U. S. S. CONNECTICUT. This ship was built by the Government at the Brooklyn navy-yard.

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times, and with the many safety devices in use accidents are of rare occurrence.

When an accident occurs in the Navy it is looked upon as something awful by the "shore folks." Were it to be taken into consideration that there are over three hundred ships on the Navy register, the majority of them being in commission, it would be plainly seen that Navy life is no more dangerous than other vocations ashore.

The majority of the accidents in the Navy have occurred under unavoidable circumstances, and at the same time a great lesson is learned from them. The experience thus gained is utilized to prevent any such occurrences in the future. The warships that are in commission hold regular target practice, speed trials, etc., each year, all of which involves a certain amount of risk.

There are over one hundred different rates aboard a battleship. Members of the crew are constantly being transferred, discharged, etc., thus causing rapid promotion. During their first enlistment a majority of the enlisted men are rated petty officers. Not one, but many of the author's shipmates aboard the *Oregon* will verify this statement, for many of them are now petty officers on their first enlistment.

When the *Oregon* won the Gunnery Trophy many of the gun-pointers were on their first enlist-

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ment. A large number of them had never seen salt water until enlisting. Many naval officers can look back at the day they enlisted in the service with the lowest ratings on the paymaster's books. The Navy regulations allow a warrant officer to become a regular commissioned officer of the line, that is, provided he pass a successful examination. This examination is very severe, and it takes a large amount of practical and theoretical study to enable one to pass it. Several warrant officers have already passed the examination, and are now regular commissioned officers. Upon passing successfully, they are made ensign. They are then promoted gradually to the higher ranks. There is absolutely nothing to prevent an ambitious enlisted man from becoming a captain or admiral.

BUILDING AND COMMISSIONING

Drawing up the plans of a battleship is an exceptionally arduous task, as there are so many difficulties to be overcome.

The first thing to be considered is the displacement, which is equal, of course, to the weight of the vessel. When this has been determined, all plans and specifications are made out accordingly, as the armor, armament, speed, steaming radius, fuel and water supply, living quarters, and in fact every detail of the ship must be considered and provided for

The weights and spaces of all parts of the ship must be well equalized in proportion so that the ship will not exceed the displacement originally intended. From year to year battleships are constantly being increased in size, speed, armor, and armament. It requires a great deal of experience, skill, and money to acquire these valuable points of advantage. Speed alone is a very important factor in time of battle. Take, for instance, two opposing fleets in battle. One fleet has an average displacement of fourteen thousand tons and a speed of sixteen knots. The other fleet has the same displacement, but a speed of eighteen knots. The ship with a high rate of speed has a decided advantage over one of a low rate. The ship with a high rate of speed can keep the enemy at a distance and give or take battle at will, because it can maneuver about to gain an advantageous position.

To increase the speed of a battleship an extra knot; additional horse-power is required. This necessitates an increase of the powers of the boilers and engines, also the fuel and water supply. By all these increases other parts of the ship must be decreased, such as the armor, caliber of certain guns, etc.

As soon as Congress has appropriated the money to build the vessel, the final plans are drawn up, and the building of the ship is then let out by contract to the lowest bidder.

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Everything used in the construction of the ship must be of home manufacture, and the successful bidder agrees to build the ship strictly according to contract. The specifications, of course, contain all details regarding the construction of the ship.

The size and quality of all frames, plates, rivets, etc., are carefully specified. The builders are placed under heavy bonds, there being a heavy penalty imposed for any breach of contract on the part of the builders. Previously the Government paid a bonus for each knot or part thereof in excess of the speed specified in the contract, but the order has now been rescinded.

Piece by piece the huge fighting machine is assembled. Several thousand workmen are set to work on the ship itself or in the workshops near by. Every labor-saving device that can be utilized is taken advantage of by the builders. Only a short while back all riveting, drilling, etc., on the ship was performed by hand. Now most of it is done by automatic tools of different kinds. Riveters, chippers, etc., do most of their work with pneumatic tools which are operated by compressed air. Most of these tools are very light, so that they may be used in any part of the ship. An air-hose connects all these tools with the compressed-air-pipe system which is set up temporarily in and around the ship.

There is very small chance for any crooked work in the building of the ship, because the plans and specifications state precisely the quantity and quality of all materials used. In addition to this, naval officers are detailed as inspectors at the different ship-building plants where the warships are under construction.

When the ship is ready for launching, a great many preparations are necessary. The launching of a ship is a very pompous affair, and thousands of spectators gather around to witness the event. As a rule, all of our battleships are named after States.

When the day for launching arrives, a delegation is on hand to represent the State after which the vessel is named, and some fair daughter of the State has the honor of christening her. As the ship starts to move, the sponsor dashes the bottle against the ship's bow and exclaims: "I christen thee ——," at the same time giving the name.

A ship is launched at high tide, and when everything is ready all blocking is released and she starts to move. It is indeed a grand sight to see that huge hulk of steel rushing onward to the water which is to be her home. She strikes the water with a splash amid a din of cheers and whistles.

When the armored cruiser *Washington* was launched a new wrinkle was introduced. This ship

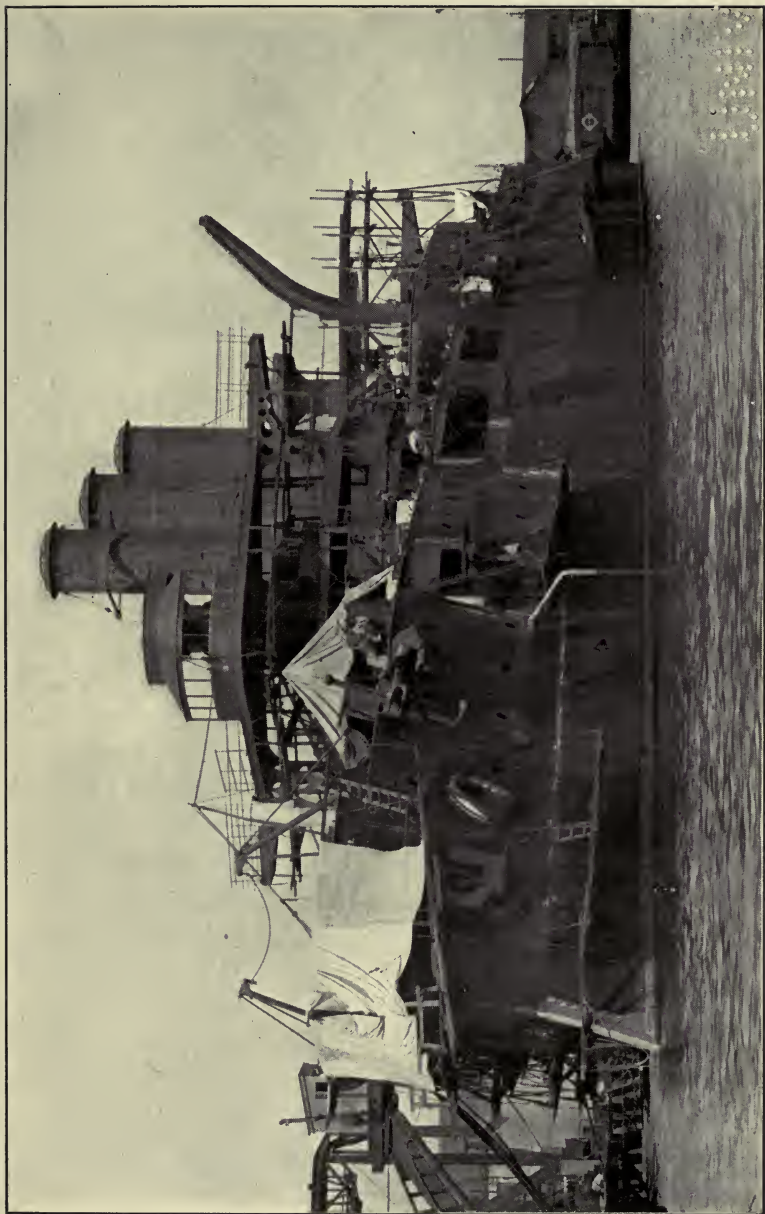
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was built in a building with a glass roof, thus enabling the builders to work in inclement weather. The ship was launched automatically. All blocking was released simultaneously, and the ship was given a start with hydraulic rams which were located at the head of the launching-ways.

When a ship is launched she generally represents a mere shell, though in some cases the builders may partly equip the ship before launching. As soon as she is launched, tugs stand by to tow her to the berth, where the ship is finished and made ready for the trial trip. The builders hold their own preliminary trial trip, when the ship is put through a series of severe tests. After all defects have been remedied and the ship fitted up to the "pink" of condition the Navy Department is notified that she is ready for the official trial trip.

A certain course is laid out and marked at intervals by the Government stake-boats. Several naval officers are detailed on the trial board to look after Uncle Sam's interests. The builders have everything in readiness, selected men are at the engines and in the fire-rooms, and in fact everything is done to increase the power and speed of the ship.

Everyone aboard is held in great suspense as the ship is throbbing and trembling from stem to stern as she rushes through the water like an animated



A BATTLESHIP UNDER CONSTRUCTION. After a battleship is launched, much work is required to complete her.

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thing. The stake-boats being set at intervals give the trial board an accurate idea of the ship's speed, etc.

Of late years a new method of holding trial trips has been introduced. It is known as the Standardized Screw method. Near the vicinity of the throttle of the main engines is a "counter," which is connected with the main engines. This counter registers accurately each revolution of the engines. The ship is then run carefully over a measured mile course, which enables the trial board to ascertain the exact number of turns that the engines must make in order to give the speed specified in the contract. The ship is then run for four consecutive hours, and should the engines average the desired number of turns throughout, the run of the ship is approved.

In most cases the ship exceeds the speed specified in the contract. After the trial trip she returns to the harbor with brooms flying from the masts. Sometimes the speed of the ship is painted on the smoke-stacks.

After the speed trial another series of tests are held. The ship is ordered ahead at different speeds and the engines are suddenly reversed to ascertain in what space and time the ship will stop, etc.

The steering-gear, water-tight doors, and in fact

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all parts of the ship, are carefully tested under different conditions. The results of all these different tests are of great value for future reference, because during the ship's career emergencies may arise where the information gained may be put to practical use.

After the ship has successfully passed the trial trip she then returns to the ship-yard, where all defects are remedied and the furnishings and all necessary equipments installed. When completed, the ship is then ready to be commissioned.

Placing a battleship in commission is a very quiet and simple affair. Shortly before the ship is placed in commission a small part of the crew is sent to the ship. These are mostly from the engineer's department, thus enabling them to become familiar with the machinery, etc. The balance of the ship's complement have been previously selected, and are held in readiness for the day when they are ordered to the ship.

The captain musters all hands aft on the quarter-deck and reads out his orders, which state that the Navy Department has ordered him to assume command of the ship, etc. The orders on the commissioning having been read and "Old Glory" hoisted, the ship is then entered upon the "active list" of naval vessels.

When a ship is commissioned she is taken in

hand by the officers and crew and "broken in" like a young colt. Fire, collision, and other drills are frequently held, and the ship is taken out for short cruises, to familiarize the crew with their new home.

The ship is again put through a series of severe tests, the most important being the firing of the ship's guns to ascertain the concussion, etc. The builders are held responsible for any defects that may arise within a specified period of time. After a short period of patience and toil the ship is finally "broken in" and ready to be assigned to duty.

OFFICERS OF THE SHIP

Admiral. The Navy ships in commission are divided into fleets. For instance, the ships attached to the Asiatic Fleet do duty in the vicinity of China, Japan, the Philippines, and all other countries near by. When the fleet consists of a large number of ships it is then divided into squadrons and divisions. Each squadron or division is generally under the command of an admiral, while the entire fleet is under the command of the senior admiral, who is known as the Commander-in-Chief of the fleet.

When at sea the admiral often puts the entire fleet through a series of maneuvers, all of which require great tact and skill. It is an imposing sight

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to witness a fleet of large ships maneuvering about with clockwork precision. In time of action prompt maneuvering is one of the most important factors. All orders are sent from the flag-ship, each ship of the fleet keeping a keen lookout, obeying all signals promptly, etc. The admiral has several officers attached to his staff, and they assist him in many ways, as the duties required of an admiral are of a varied nature.

The ships of the fleet are inspected regularly by the admiral and his staff; every nook and corner of the ship is thoroughly inspected, besides the personnel of the ship. In time of war the greatest responsibility rests upon the admiral. Should communication with Washington be impossible, the admiral would then have to use his own discretion according to the circumstances of the case. When more than one admiral are together in a fleet the senior admiral would display from his ship a blue flag and the other would use a red flag. Should there be three admirals together, the junior admiral would display a white flag. Upon being separated from the fleet the admiral in command of any fleet, squadron, or division would then hoist his senior flag.

Captain. The captain is in command of the ship to which he is assigned, and is responsible for the

ship in general. The captain and admiral both have their own private quarters, each having his own cook, steward, and mess attendants.

The captain is known as the Commanding Officer, and is clothed with a great deal of authority. Should two or more ships be together with no admiral among them, the senior captain would then be in command. Both the captain and admiral have their own boats, which are for their personal use. At the bow of the admiral's launch or oared boat are two gilt stars, which signify admiral's barge. At the bow of the captain's gig is a long gilt arrow, which signifies Commanding Officer's gig. All promotions of the enlisted men aboard the ship are made upon the captain's indorsement; the other officers in charge of the different departments and divisions do the recommending. During battle, important maneuvers, entering or leaving port, etc., the captain is on the bridge. The only real difference between a captain and a commander is that the former is of higher rank and has command of a larger ship.

Executive Officer. This officer is the right-hand man of the captain and has complete charge of the running of the ship. He is also the equipment and construction officer. All stores issued out and all repairs made on the ship, except those of the

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engineer's, navigator's, and ordnance departments, are under his supervision. The executive has to attend to an extensive correspondence, which includes quarterly reports, recommendations, ratings, and hundreds of other details required by the daily routine of the ship.

Three yeomen assist the executive: two for his office work, the other being assigned charge of the equipment stores. Stores, tools, and materials of every description are constantly needed for the ship. Each quarter a ship is allowed a certain amount of stores, which are served out when needed for use at different intervals. In this way the executive exercises great care that no stores, etc., are wasted. The executive attends to it that the ship is made ready for inspection and kept in good condition at all times.

Every Sunday morning the captain inspects the entire ship, including the crew. The executive officer of a ship generally ranks next to the captain. When dining in the ward-room the executive sits at the head of the table.

Engineer Officer. The senior engineer officer is in charge of the engineer's department and is responsible for all the machinery operated by steam power. All compartments, double bottoms, piping, valves, etc., within the boundaries of the engineer's de-



THREE REAR-ADMIRALS. Rear-Admiral R. D. Evans (seated), Commander-in-Chief of the great Atlantic Fleet. Rear-Admiral C. H. Davis (on right), commanding the second division of first squadron. Rear-Admiral W. H. Brownson (on left), commanding the second squadron of the Atlantic Fleet.

Photograph by Dawson-Rich Co , Philadelphia.

partment are kept in order by that department. The machinery of a battleship is no small item, and the labor, patience, and time occupied in keeping it in good shape are enormous. A large force of mechanics, firemen, and coal-passers are attached to this department. An accurate log is kept by the engineer's department, where an account is kept of all coal, water, etc., used; also every minor detail of the department is recorded. The senior engineer is assisted in his duties by one or more junior engineer officers and the regular warrant machinists.

These junior officers, with the warrant machinists, stand regular steaming watches at sea and perform the regular day's duty when in port.

Great care must be exercised with the machinery of the ship at all times, because when the ship has completed a voyage many repairs are made by the department. All our large ships are equipped with powerful machinery, and should any work be done carelessly or incompetently, a serious accident might be the result.

Navigator. This officer has charge of the navigation of the ship. All compasses, steering-gear, signaling apparatus, etc., must be kept in perfect condition. The navigator has a private office of his own, and also a yeoman to perform the clerical

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work, as the navigator has charge of the ship's log. Everything pertaining to the ship, such as the amount of coal and water on hand, ship's draught, speed made, position, etc., is entered in the log-book.

The smooth log is made up regularly and signed by the watch officers, navigator, and captain, and forwarded to Washington at intervals.

When the ship receives her sailing orders the navigator takes out his charts and lays out the course of the ship. All the electrical apparatus of the ship, such as search-lights, electrical machinery, etc., are in charge of the navigator. On the smaller types of ships the navigator is also the ordnance officer.

Ordnance Officer. This officer is in charge of all guns, ammunition, magazines, torpedoes, ammunition hoists, and their many appurtenances. The greatest caution is exercised with the ordnance of the ship. The guns must be kept in the best of condition, powder tested regularly, and in fact every detail is attended to. This is extremely necessary, because, should an emergency arise, the guns of the ship would be ready for instant use.

Target practice is held regularly with the ship's battery, and a good score at target practice is quite a feather in the ordnance officer's cap.

There is an enormous amount of ordnance paraphernalia required on board ship. Several of our ships have a battery consisting of seventy-four guns of varied calibers, and were all these guns to be fired simultaneously, nearly four tons of projectiles would be hurled through the air. Were the total weight of projectiles fired from a single ship in battle figured up, the weight would no doubt represent the tonnage of an average gunboat.

Medical Officer. A complete medical staff, consisting of one senior doctor, one junior, one hospital steward, and the hospital apprentices, is carried on every large ship. Special quarters are provided for the sick-bay, or ship's hospital. The sick-bay contains a number of bunks, dispensary, and operating-table.

Every morning the bugler sounds sick call, and those wishing to interview the doctor report at the sick-bay. Should the complaint be of a serious nature, the patient is put on the binnacle list and excused from all duties. Often during an emergency operations are performed aboard ship. When convenient a serious case is transferred ashore to some naval hospital for further treatment. When on a foreign station, the doctor can recommend that certain patients be sent home for further treatment should the circumstances of the case warrant it.

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Pay Officer. The pay department issues money, clothing, and rations to the crew. The crew are paid monthly, each member having a pay number.

On pay day the crew line up by the pay office, and as each person is paid, he signs for the money received. At the end of each quarter the crew sign their quarterly accounts, a duplicate of which is forwarded to Washington. Should it so happen that a member of the crew is short in his account, he can refuse to sign his account. In this way a mistake is seldom made.

It is quite a task to keep the accounts straight, owing to the fact that constant changes take place resulting from transfers, promotions, etc.

The crew are fed by the pay department, a commissary steward being in charge. A great amount of money is handled aboard a battleship, because the crew are paid regularly, and an enormous amount of stores, provisions, etc., are purchased ashore by "open purchase." Much of the money handled by the paymaster consists of Navy pay checks, which are as good as gold. The ship's canteen is also operated by the pay department.

The paymaster is placed under heavy bonds, he being responsible for everything pertaining to his department. Should a member of the crew wish to leave an allotment to his folks or to anyone else, he can do so. The allotment money would be de-

ducted from his accounts and sent regularly to the person in whose favor the allotment is made.

A pay clerk is appointed to assist the paymaster with his duties; a couple of yeomen and a Jack-of-the-dust are also assigned to that department.

Other Officers. There are a great many other officers aboard ship who stand regular watches besides being in charge of their respective divisions and batteries. The crew are divided into divisions, such as powder, engineer's, navigator's, and pay divisions, an officer being in charge of each department.

The deck force is divided into divisions, such as first, second, third, etc. Each division is in charge of a line officer, who is assisted by other officers of lower rank. A marine captain and lieutenant have charge of the marines aboard ship.

One or more officers are always on watch, whether the ship is at sea or in port.

On the large ships an officer, known as the signal officer, is in charge of the signaling of the ship. The wireless telegraph is now installed in most of our ships, and this is of great value in receiving and sending messages. Many secret codes are used when signaling. The captain has a secret-code signal-book, which is bound with sheet lead. The book is bound in metal so that in time of war the

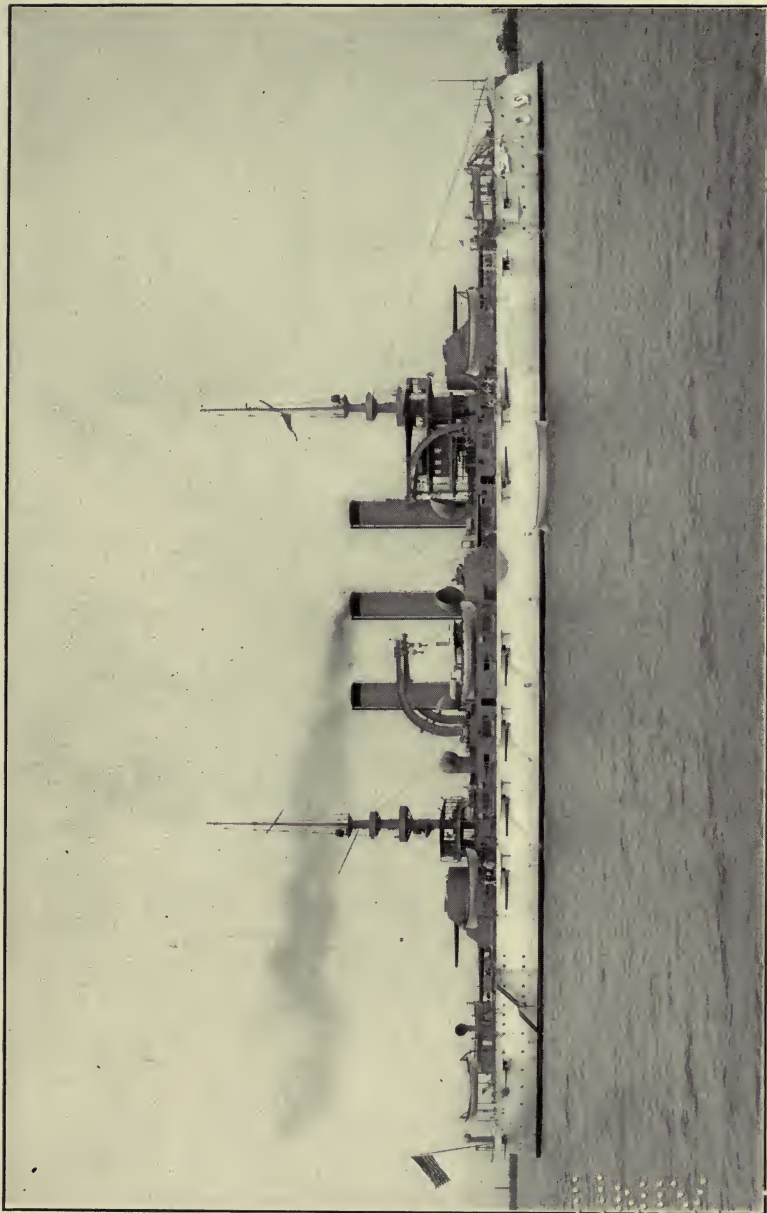
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book could be thrown overboard should the ship fall into the enemy's hands.

Warrant Officers. Several warrant officers act as assistants to the officer in charge of their respective departments. Nearly all of them are promoted from enlisted men, and their rank, pay, and general surroundings are very congenial. The Navy regulations allow a warrant officer to become a commissioned officer provided he can pass the examination, which is a very severe one. Upon passing successfully, the warrant officer is made an ensign and is gradually promoted in turn to the higher ranks, as his ability and service warrant.

Boatswain, gunner, carpenter, warrant machinist, sail-maker, and pharmacist represent the warrant officers of a ship. Some ships, however, do not carry a sail-maker or pharmacist. Pay clerks and mates have about the same status as the warrant officers; instead of being warranted they are appointed. Mates are appointed from the enlisted men, and the position is an honorary one, given to the men who have faithful service to their credit. Those who are too old or are unable to pass the examination for warrant officer find it quite easy to qualify for mate.

A warrant officer, after serving as such for a period of six years, is examined for promotion. If he



U. S. S. RHODE ISLAND. A beautiful view of one of our new type of battleship just commissioned.

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passes the examination successfully he is commissioned in his own respective corps, such as chief boatswains, chief gunners, etc.

HOW OFFICERS ARE MADE

Senators, Representatives, and delegates in Congress appoint the midshipmen from their respective districts. Upon being appointed the applicant must undergo a careful examination, both physical and mental. If the examination is successfully passed, the applicant is then admitted to the Naval Academy. Midshipmen are put through a six-year course, of which four years are spent at the academy and two in a sea-going ship. Upon completing the course a final examination takes place. Those who pass successfully are commissioned ensigns, each class being appointed in order of merit. For instance, the class of 1906 consisted of two hundred midshipmen. The one who made the lowest marks would be put at the bottom of the list. Each officer has a certain number.

When an officer is promoted, retired, etc., all those below him in numbers go up one notch.

CHAPTER II

PREPARING FOR A VOYAGE—AT SEA—IN PORT—
DAILY ROUTINE—DRILLS OF THE WEEK.—
DESCRIPTION OF DRILLS

PREPARING FOR A VOYAGE

THE flag-ship gives the order to get under way, due allowance being made for the ship to get steam up in the boilers and have everything in readiness for the voyage. Ships of the Navy in commission are ready for duty at all times. Immediately after arriving in port from a long voyage the coaling-gear is broken out and the ship coaled up.

The paymaster always has on hand a certain amount of provisions. Engines, boilers, and in fact every part of the ship is kept in perfect order, so that when the order is received to get "under way" at any specified time, there will be no delay. Shortly before sailing-time a large supply of fresh provisions arrive on board. The fresh meat is

stowed in the refrigerating rooms, the vegetables being stowed in the vegetable lockers.

When the anchor-gear is "broken out," it is a good sign that the ship is about to start on her journey. Everything in the engine-room is ready, a full head of steam is up, engines have been warmed up and tested, the steaming watch is on, and everything is in readiness for the speed-annunciator to give the signal.

On the bridge the steering-gear, speed-annunciators, etc., have been tested and the anchor-gear is ready. A few minutes before sailing-time the captain and executive make their appearance on the bridge. The boats and gangways have previously been taken in, and everyone awaits the word "up anchor." All eyes are fixed on the flag-ship: suddenly as the signal flutters to the breeze the executive gives the order "up anchor." The anchor-engine tugs at the mighty chains as they come quivering through the hawse-pipes. Slowly but surely that huge anchor is hoisted, and when it appears to view the catt-falls are hooked into the balancing-link of the anchor, which is then hoisted aboard and placed on the bill-board, a slanting receptacle to which the anchor is secured with large clamps. Many ships use a stockless anchor; the shank of this type of anchor is drawn into the hawse-pipe. The instant the anchor is sighted

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and found to be clear the flag-ship is signaled "all ready."

Each ship of the fleet strives to report first, though the case often happens that the anchor is badly fouled by having the chain entangled around the anchor-stock or flukes.

As soon as all of the ships of the fleet have reported "all ready," the signal "get under way" is given, and the ships steam in columns or in line, according to the program, the flag-ship leading.

AT SEA

As soon as the anchor is hoisted and secured all gear about the deck is restowed, boat covers put on, and should the sea be rough, all necessary hatches, air- and gun-ports are well secured. The ship is now ready to combat any storm that may arise. When a passenger steamer encounters a storm at sea the captain generally informs the passengers that it was the worst storm he ever experienced during his thirty years' sea experience, etc.

The last storm is always worse than the previous one. This is done for effect and also as a business proposition. In the Navy it is very different, as all storms look alike to a "man-o-war's" man.

A warship is always prepared for any emergency, whether it be to battle the elements or the enemy.

When at sea each division is divided into two

watches, port and starboard. When the port watch is on duty they do all their work in their part of the ship. When relieved by the starboard watch the duties are performed by those assigned to this task.

The general routine at sea is somewhat different than when in port. On the bridge are the regular watch officers, quartermasters, signal-men, and the helmsman standing their regular watches. A seaman is stationed at the wheel, assisted, if necessary, by the quartermaster. A certain course is designated should the ship be in fleet formation; the helmsman keeps the ship in line. On the lower decks is a member of the carpenter's gang on watch. He sounds all bilges regularly and keeps a sharp lookout for leaky ports, etc. At all times the life-boats hang ready for instant use.

These boats are kept well provisioned and watered. At night a lantern is kept lighted in the boat, and life-boat crews are constantly on watch. Should the cry of "man overboard" be heard, the boats are lowered instantly. Two patent life-buoys are suspended clear of the ship's sides. These are held in position by a trigger-like arrangement, and when the trigger is pulled the life-buoy then drops into the sea. Upon contact with the water two jets of flame spurt up, as there are two automatic torches fastened to the sides of the life-buoy. The person in the water heads for this buoy, and as

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soon as the life-boats get clear of the ship they also head for the life-buoy. It is a rare occurrence that the cry of "man overboard" is heard. In nearly every instance the person is promptly rescued.

All hands, except those on watch, turn in by eight in the evening. Throughout the day a lookout is stationed in the forward fighting top in order to keep a keen lookout for passing vessels, land, etc. Should a sailing-vessel, steamer, or land be sighted, the lookout would cry "sail ho," "smoke ho," or "land ho," as the case might be. The officer of the deck would in turn inquire "where away!" Whereupon the lookout would report to him the direction in which he sights the object.

At noon when the weather is fair the navigator observes the altitude of the sun with his sextant, from which he determines the exact position of the ship. Should the weather be inclement for several days, the position of the ship would then be judged by "dead reckoning," which is done by calculations from speed and courses steamed and plottings on the chart. The patent log, which is towed astern when the ship is under way, registers the speed made, and, allowing for currents, etc., the ship's position can be fairly judged.

As soon as the ship nears port both anchors are prepared for letting go, boats made ready for lowering, and the gangways made ready for shipping.



U. S. S. ALABAMA AT SEA. A large warship steaming through the water, creates a formidable scene,
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IN PORT

After a long voyage land is a very welcome sight. Upon entering a foreign port the ship steams in slowly, so as to allow the quarantine authorities and other officials to board and examine the ship's papers. An American warship can, in most every instance, show a clean bill of health, because the crews are a healthy body of men. Jack's health is well cared for. Every enlisted man carries a complete outfit of clothes which are adapted for both hot and cold climates.

After the papers have been examined and found to be satisfactory, the ship then proceeds into the harbor. On the port and starboard sides of the ship are two small extension platforms called chains. Seamen are detailed in the chains to heave the lead. At each heave of the lead the leadsman draws out the depth in a sea-going voice. When the ship has reached the anchorage spot the engines are ordered reversed, and when the ship commences to go astern the anchor is ordered let go. The anchor is released by a trigger arrangement. At its release a great splash is made, the anchor chain creating a great noise as it rattles through the hawse-pipe. The chain is marked at intervals, and the amount slacked out is regulated by the depth of the water, tides, position, etc. As the anchor drops lower, booms are rigged out, National Ensign hoisted at

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the stern, the Union Jack run up at the bow, all necessary boats lowered, gangways shipped, and once more the port routine is in evidence.

After completing a long voyage the ship is more or less disordered. Side-cleaners go over the side and scrub all paint-work with soap and water. The ship is soon coaled up and all other necessary stores laid in.

After coaling, the ship is given a thorough cleaning from stem to stern. All boat gear, movable articles about the deck, etc., are broken out and given a good scrubbing. When all these operations have been completed the ship is once more neat and clean, to the satisfaction and relief of all hands.

All bright work about the ship is shined up, clean bags and hammocks are given out to the men, the dirty ones being scrubbed and turned in. The ship is touched up with paint where needed. When the ship is clean and in good order the crew is given liberty.

The liberty party goes ashore in watches or sections, each member of the crew belonging to a certain watch and liberty section. The liberty sections are composed from different parts of the ship's crew, so as to equalize the work among the men left aboard. A party of bluejackets going ashore represent the picture of happiness, as each is togged

out in his best and is in for a good time. They do not disappoint themselves either.

After taps has gone the ship appears to be deserted, as everything is as quiet as a mouse, there being no one about the ship except the quartermaster, sentries, anchor watch, and the few men on watch in the engineer's department.

DAILY ROUTINE

The routine aboard ship is regulated as systematically as a clock. At 5:00 A.M. "reveille" is blown by the bugler, and all hands, except the few who have stood a night watch, turn out, dress, and lash and stow away the hammocks, which must be accomplished within ten minutes. Those who have stood a night watch sleep in until seven. From 5:10 A.M. to 5:30 A.M. hot coffee or cocoa is served out to the crew from their respective messes. At 5:30 A.M. "turn to" goes, and all hands go about their special duties. Decks, paint-work, boat gear, etc., are scrubbed and cleaned, all of which work is regulated by the morning order-book. At 6:45 A.M. the decks are washed down and dried and the gear about the decks stowed away in the proper places. At 7:00 A.M. the morning work is about completed and the crew commence to wash up and get ready for breakfast. At 7:20 A.M. "mess gear" is "piped," and the messmen lower the mess tables,

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set up benches, and lay out the breakfast. At 7:30 A.M. breakfast is ready, and each member of the crew goes to his respective mess and eats. No one ever forgets the number of his mess—it is too important.

At 7:50 A.M. first call to “colors” sounds; also band call. The band assembles aft on the quarter-deck. At 8:00 A.M. the band plays colors. Old Glory is then hoisted, and all hands on the upper decks stand at attention facing the flag. As the band finishes playing the salute is given.

At 8:30 A.M. sick call is sounded, and those wishing to visit the doctor go down to the sick-bay and tell their troubles.

At 9:00 A.M. the crew wind up their work and clear up the decks for quarters. All gear about the decks is carefully stowed away or made up, and the decks given a thorough sweeping. The crew now shift into clean clothes ready for quarters.

At 9:25 A.M. the officer's call to quarters is sounded, and the crew go to their respective divisions dressed neatly and cleanly.

At 9:30 A.M. quarters is sounded and the division officer inspects his division and reports to the executive officer.

Shortly after quarters retreat and drill call is sounded, the drills varying according to the order of the day.

At 10:30 A.M. retreat from the drill. The crew are now generally at leisure until 1:30 P.M.

At 11:00 A.M. band call is sounded and the band assembled for practice.

At 11:50 A.M. "mess gear" is piped, and at 12:00 M. dinner is piped, and crew sit down to eat.

At 1:00 P.M. "turn to" is piped and the decks are swept down. At 1:30 P.M. drill call is sounded, and at 2:30 P.M. retreat from drill.

But little work is done for the remainder of the day.

At 5:00 P.M. evening quarters is had. At 5:20 P.M. "mess gear" is piped, and 5:30 P.M. the supper is piped down.

Ten minutes before sundown first call to "colors" and band call is sounded. At 7:00 P.M. band call is sounded. On some evenings the band plays for the crew and on others for the officers.

At 7:30 P.M. the call "hammocks" is blown, and the crew line up alongside the hammock nettings where the hammocks are stowed, and when the boatswain's mates pipe down the hammocks are taken out of the nettings. Then the owners take them below and swing them on the hammock hooks, the number of the hook and that of the hammock corresponding.

At 8:00 P.M. the carpenter, gunner, sail-maker, master-at-arms, and captain of the hold report everything secure in their respective departments.

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At 8:50 P.M. first call is sounded, and all those who have not yet turned in do so. All unnecessary lights about the ship are extinguished.

At 9:00 P.M. taps are blown and all hands turn in their hammocks except those on watch. The master-at-arms goes through the ship reporting all secure. When with a fleet the senior ship fires a nine-o'clock gun.

DRILLS OF THE WEEK

The drills aboard ship vary considerably, according to the weather and other circumstances. As a general rule, the important drills occur on certain days of the week, and when these drills are taking place, nearly all other work is suspended.

Monday morning the quarters and small-arm drill takes place. Members of the crew are put through the manual of arms on the upper decks. In the afternoon boat drill is held and all boats are lowered, the crew going out for either sailing or rowing purposes.

Tuesday morning is devoted to quarters and battalion drill. All members of the battalion equip themselves for heavy marching order, where they all muster on the quarter-deck. In the afternoon signal drill is held, members of the crew practicing



SIGNALING FROM THE BRIDGE. Signaling in the Navy has been brought up to a high standard of efficiency.

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with each other. All members of the seamen branch must be proficient in signaling. Should the weather and other conditions be unfavorable, all minor drills are subject to change.

Wednesday morning the quarters and fire drill is held. From this drill no one is excused, although in the minor drills several are excused. These are principally artificers, engineer's force, etc.

Wednesday afternoon is sewing and mending day, and should the weather be fair, Jack breaks out his bag of clothes and gives them an airing and an overhauling.

Thursday morning, quarters and general quarters. Every person aboard ship has a station at this drill. In the afternoon sword exercise is held. Members of the crew are given single sticks or wooden swords, with which they learn to be on the offensive or defensive.

Friday morning quarters and collision drill is held. Great promptness is displayed in this drill, all compartments, etc., are closed, and the collision mat is thrown overboard and drawn over the imaginary hole. In the afternoon arm and away is held. The ship's boats leave the ship with an armed party for landing or boarding purposes.

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Saturday is a general field day, and no drills or routine of any kind excepting evening quarters is held. The ship is given a thorough cleaning up, so as to have her ready for the regular Sunday morning inspection. In the afternoon there is but little work going on. The ship is touched up with paint where needed, and the inclosed decks are freshly shellaced.

Sunday morning the ship is given an extra touching up, all bright work is highly polished, and at quarters the crew muster in their best clothes.

The captain and executive go through the entire ship, inspecting the crew, all store-rooms, compartments, etc.

After inspection the crew are at leisure until Monday morning. There are always a certain number of men on watch at all times, such as electricians, quartermasters, marines, and members of the engineer's force. Their watches are so regulated that each one has certain days off duty.

DESCRIPTION OF DRILLS

Fire Drill. Located in different parts of the ship are many fire-plugs, reels of hose, nozzles, and fire-axes. The instant the fire-alarm and location of the fire is given all hands rush to their allotted stations, each one being detailed to perform certain

duties. The smotherers run to the hammock nettings, each grabbing a hammock with which to smother the fire. Extra pressure is put on the fire-main, fire-hoses are coupled up, and in a short time there are several streams of water available. Down in the engine-room are huge fire-pumps which supply all the necessary water. Salt water is used for fire purposes. After "secure" is sounded, everything is restowed and secured. Electric gongs are placed throughout the ship to give the alarm about the decks. All our large ships are built of metal throughout, and what little woodwork is used in the interior is made fireproof by treating it with certain chemicals. In case of fire all unused compartments are promptly closed, thus confining the danger.

Abandoning Ship. Every person aboard ship is detailed to the ship's boats. These are small boats of which a sufficient number is carried to accommodate the entire crew in case it should be necessary for them to abandon the ship. No one is excused from this drill, except the few men on watch. Each one is detailed to assist and provide for his respective boat. Some get water, others provisions, cook-stove, arms, ammunition, mess gear, etc. Breakers of water are kept carefully stowed in the main hold, where they are in readiness for an emergency. The paymaster throws open his store-

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rooms, where all necessary provisions can be procured.

Each boat contains a boat-box, in which are tools, fishing-gear, nails, strips of lead, etc. Often when the boats are provided the crew get into them and row away from the ship, leaving only a few persons aboard.

Each boat is in charge of an officer, and when the boats return to the ship they are inspected so as to ascertain whether they have been properly provided.

General Quarters. This drill is one of the most important held aboard ship. It is generally held once a week, and the same maneuvers are practised as though the ship were in action. All magazine doors and hatches open up under the armored deck where the ammunition hoists are located. There is a complete system of trolleys which lead from the magazines to the different ammunition hoists. The ammunition is sent to the different ammunition hoists when needed for the guns.

The ship's largest guns, which are mounted in turrets, have the magazines facing the lower part of the turret, which is known as the handling-room.

The ammunition is trolleyed out from the magazines, put in the loading car, and sent up to the big guns. The instant general quarters is sounded all hands rush to their allotted stations.

“double time.” Everything seems to be in confusion, but such is not the case. In a few minutes there is a continuous stream of ammunition being forwarded to the guns. Battle-hatches are battered down, unused compartments closed, and everything is ready for action. Upon deck the guns are maneuvered as though in real action, torpedo attacks are repelled, and the imaginary enemy put out of commission.

At drill dummy cartridges are used in the smaller guns. Sometimes a wooden frame, with which the six, seven, and eight inch guns' crew drill, is put up. At one end a regulation breech-plug mechanism is attached. All loading maneuvers are practiced as if an actual battle were taking place. By using these different appliances the gun is saved much wear and tear.

Regular drills develop perfect team work, and when the guns are in action, either on the target range or in battle, perfect team work is essential, because if one man of the gun's crew should delay in performing his particular duty, the whole gun crew would be delayed.

After “secure” has sounded everything is restowed, magazines are secured, and the keys returned to the captain. The keys of the magazines can be secured only with the special permission of the captain.

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Battalion Drill. Many persons are unaware of the fact that members of the Navy are soldiers as well as sailors.

All ships have a battalion, which consists of every available man aboard. The battalion is used for landing purposes. Should any trouble arise ashore and Uncle Sam's interests are in jeopardy, the battalion is sent ashore fully armed and equipped and prepared for any emergencies that may arise.

A battleship can land three hundred men or more, and still have men enough left aboard to operate the ship. Where a fleet of warships is lying together a large force of men could be landed if necessary.

At drill the battalion musters on the quarter-deck fully equipped for marching order. Each man carries a haversack, canteen, arms, and ammunition. The haversack contains blankets, poncho, shifts of clothing, pair of shoes, toilet gear, and mess kit. The haversack and canteen are thrown over the shoulders. Each member of the battalion wears leggings.

In the battalion are the pioneers, consisting of the carpenter's gang; each member carries a set of tools.

The "color" guard march with the "color" bearers protecting Old Glory. A couple of three-inch field-pieces and other small machine guns are



ON THE QUARTEDECK. Sunday morning quarters, when the commanding officer inspects his ship.

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also attached to the battalion, so that in case of trouble ashore a formidable landing party can be sent.

A battalion can be kept ashore for a month or more if necessary. There have been several instances where a battalion has been landed for action, and it has always performed its duty.

It is a very imposing sight to witness a battalion of marines and bluejackets fully equipped marching around the decks to martial music.

The medical department is also represented in the battalion. When convenient, the battalion is taken ashore and drilled.

Clear Ship for Action. This drill involves a great deal of labor, as the ship is stripped as though in action. All stanchions, davits, awnings, chests, etc., are cleared away so as to give the guns a clear sweep. All chests, mess tables, and benches are marked "O. B." and stowed away. All articles marked "O. B." would be thrown overboard in time of action, thus reducing the danger of flying splinters, etc., during battle.

When the ship is stripped for action she looks somewhat like a bare tree, as there are no obstructions or gear of any kind about the decks.

After the drill is over the ship is rigged up again, and after several hours of toil she again displays a

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peaceful appearance. No battleship, however, could properly be termed peaceful when one realizes that within a few minutes she could be hurling several half-ton shells through the air. A thirteen-inch shell weighs eleven hundred pounds. -

When going on the range for target practice the ship is also cleared for action.

Target Practice. The good shooting records made by the ships of the Navy have been brought up to the highest standard of perfection. Gun-pointers of the Navy are appointed from the crew. In these appointments no favoritism is shown, and anyone is eligible, whether it be the ship's cook or the chief boatswain's mate. Men who can shoot straight are wanted, and Uncle Sam surely has them. By rating anyone who can shoot well a gun-pointer the Navy is benefited in many respects.

A large number of the crew are qualified to shoot the big guns. Should war occur, the gun-pointers and other enlisted men of the Navy who remain in civil life after the expiration of their service would come to the front if needed. With the large fleet of converted cruisers and other craft which would be commissioned, their services would be of great value owing to their previous training.

It is not only the gun-pointer alone who is valuable, but several hundred other men are stationed at

the different parts of the ship. Each of these has some specific duty to perform.

Official target practice is now held once a year. During this target practice the range, speed, etc., are carefully marked out. Much preliminary target practice is also held. This includes firing at long range, firing at night, etc.

The expense attached to target practice is enormous, as the wear and tear of the guns and the ship in general costs a great deal of money. This expense does not include, however, the actual cost of material used at target practice; still, the end justifies the means.

Preparation for target practice involves a great deal of labor and patience. A couple of months before the regular target practice, the guns are rigged up for subcaliber practice. Through a system of swinging targets, etc., the guns are manipulated and the subcaliber rifle fired. This particular form of target practice is known among the crew as "ping-pong." Those who make the best score at ping-pong are chosen to shoot the big guns at target practice. Those making the best score with the big guns are appointed gun-pointers. In some instances the score made by the "ping-pongers" has been so good that it was a difficult matter to appoint the gun-pointers from among them.

The target for the large guns is about fourteen by

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twenty feet, and the range is generally two thousand yards or more. The target is set up on a raft-like arrangement which is securely moored. The range is carefully marked off by three flags directly in line with each other, the center flag being in front of the target.

The ship speeds past the range at twelve knots, and just as the ship comes abreast of the first flag the whistle is blown. This is the signal to commence firing. Everything is in readiness for the guns to be fired, and as the whistle toots there is a great noise and roar heard as the shell speeds through the air. The gun is now fired continuously, the gun-pointers trying to make as many shots and hits as possible. When the whistle toots the firing must cease. This particular form of shooting is called "a string."

As the ship comes abreast the third flag the whistle toots again. This is the signal to cease firing. The ship always makes the same speed on the range, so the time occupied in passing is about the same at all times. The center flag informs the officers and crew when half the distance has been passed.

The admiral appoints a board of officers to take charge of the official target practice. They go aboard each ship which goes on the range and keep an accurate account of all shots, time, speed, etc., and thus no partiality is shown to any ship.

President Theodore Roosevelt presented to the Navy a prize known as the Gunnery Trophy. This prize goes to the ship making the best score at target practice each season. It is a perpetual prize. Should the ship holding it be beaten next target season, it would be transferred to the winner. Each ship winning it has her name inscribed on the trophy, a space being provided for the purpose. Great rivalry exists among the ships for the winning of this much-coveted prize.

It is a fascinating sight to see a twelve- or thirteen-inch gun spit out a great volume of fire and hurl the shell through the air. When the guns are fired the ship trembles as though she had run into a bank of dough and forced herself through. The shell seems to cut a great hole through the air as it is speeding toward the target. When the shell strikes the target there is an outburst of applause from all spectators.

When one batch of guns have ceased firing on the range, everything is restowed and the crews come up on deck to take in the excitement. It seems that the sporting blood of each man aboard ship is concentrated, for when a bull's-eye is made a great and mighty cheer is given simultaneously.

When in line of the target, shells from six-inch and up can be plainly discerned with the naked eye as they speed on their course.

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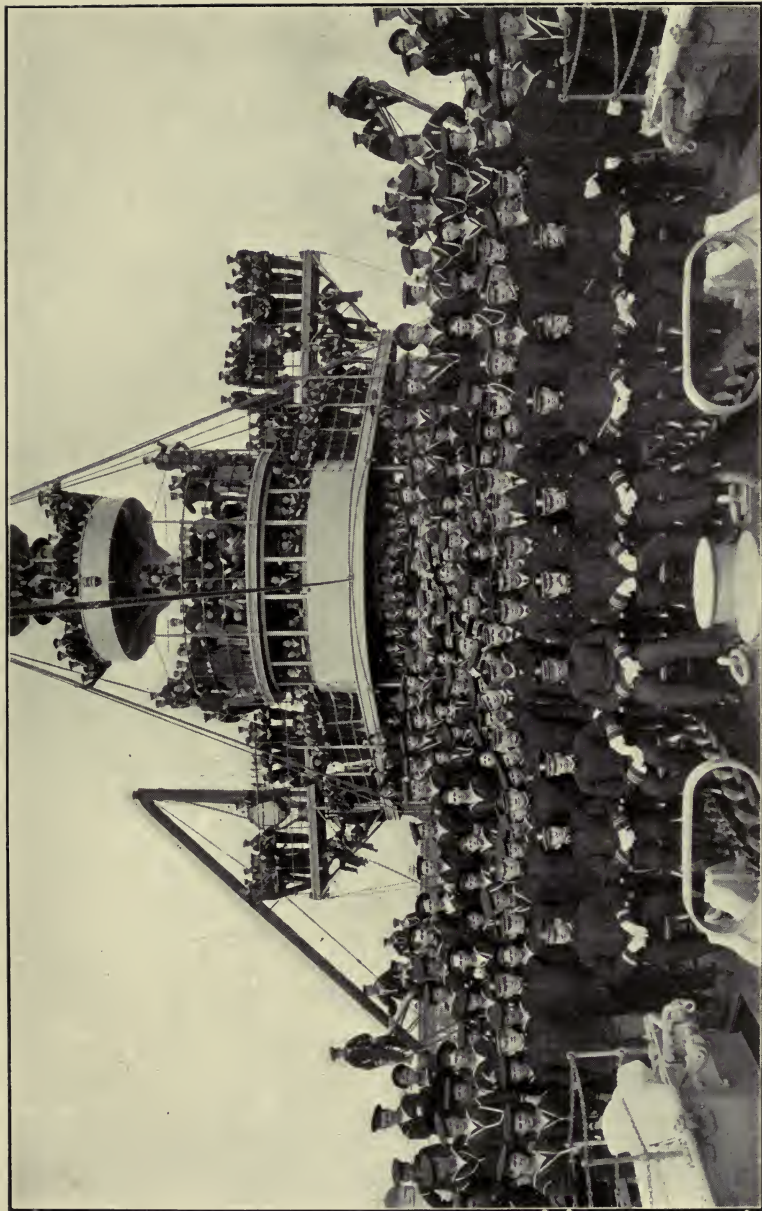
When a large-caliber gun has been fired, there is a tremendous roar as the shell strikes the water. It throws up a volume of water exactly like a large water-spout. A couple of miles distant another splash can be seen; then one or two more, and that is the wind-up.

Great precautions are exercised at target practice, as the magazines are open, ammunition is lying about, etc. Both officers and men take great pride in making a good score at target practice, as it is the result of many months of patience and toil.

The general motto of the Navy is "Only the shots that hit count." It surely takes a great number of hits to win the Gunnery Trophy.

Collision Drill. When the alarm is given, all hands rush to their allotted stations "double time." Compartments and water-tight doors are closed and hand-pumps rigged, etc. On our latest types of warships all the main water-tight doors are closed automatically; a whistle or bell gives the warning signal to stand clear of the doors. This gives the crew ample time to keep clear of the doors as they are closed.

Up on deck a collision mat is kept stowed in a handy place where it can be easily procured. This mat is thrown overboard, and through a system of ropes and chains it is hauled over the imaginary



SHIP'S COMPANY, U. S. S. CHARLESTON. When these group views are taken, each member of the crew sends one home.
Copyright, 1906, by Enrique Muller.

hole. Were there a real puncture the suction of the water would draw the mat over the hole and thus prevent the water from entering. The whole ship is a mass of bulkheads of all sizes and descriptions, and should a hole be made in the ship, the danger would be quickly confined. In addition to these bulkheads the ship has a complete double bottom, which extends along the entire length of the ship.

A collision mat is about sixteen feet square, and looks like a sheepskin. It is made of short rope tufts sewed closely together on heavy canvas.

Other Drills. Many other drills take place on board ship. These include arm and away, small arms, signal, battery, sword, and setting-up exercises. The deck force is drilled regularly with small arms, thus making them proficient. Often the entire crew are landed in sections, and participate in the small-arm target practice. Each member of the crew fires a certain number of rounds from a rifle and pistol.

Signal drill is often held. Members of the seamen branch must be well trained in signaling.

Battery drill is also often held, and the guns are trained and manipulated as though in action. The guns of a warship are always ready for action. Upon opening a couple of valves and starting the ammu-

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nition on its way, the guns are then ready for any emergency.

Setting-up exercises are given to the whole crew immediately after quarters, and it lasts for only about five minutes.

The most realistic drill of all is coaling ship. This is classed as a drill and reality combined. Coaling ship is the most disagreeable task in the Navy, because while the coaling is taking place the whole ship is half covered with coal-dust. Our new ships have many modern coaling devices which reduce the labor, time, and inconvenience of coaling. The large ships have a bunker capacity of from one to two thousand tons.

Many ships can take in over one hundred tons of coal an hour if the coaling conditions are favorable. The different coal-bunkers have large bunker-plates, which are removed, and the coal is dumped into them. Some of the bunkers have coaling-shutes which extend upward through the upper deck. This tends to greatly facilitate matters.

When the coaling is completed all coaling-gear is restored. The ship is then washed down and scrubbed thoroughly.

Most coaling is done from colliers or lighters which come alongside the ship. In many of the foreign ports the Navy has its own supply of coal, which is of the best quality. Should a ship be or-

dered home from a far-off port, the bunkers are filled to their utmost capacity and a deck-load of coal is carried. The deck coal is placed in bags and is the first to be used.

Generally when a warship is ordered to sea she takes the least traveled route, and should a derelict or disabled vessel be sighted, aid would be given promptly. In time of war the supplying of coal to the various warships is a problem. Many patent devices have been tried for coaling from a collier at sea, but the weather and other conditions must be favorable to transfer any great amount of coal. Should the day arrive when warships will use oil for fuel, there will be joy in the hearts of many bluejackets.

CHAPTER III

THE CREW AND THEIR DUTIES—RATE AND PAY
OF EVERY ENLISTED MAN—OPPORTUNI-
TIES—ENLISTMENT—SAILOR'S DUDS—
AMUSEMENTS AND PASTIMES—
MAN-O'-WAR LINGO

THE CREW AND THEIR DUTIES

THE following descriptions will give a good idea of the duties required of each member of the crew. Our armored cruisers and battleships carry a crew of from five to eight hundred and fifty men, according to the size of the ship, and the amount of work performed daily to keep the ship in trim is enormous.

The Navy regulations are such that each member of the crew is cognizant of the duties expected of him. The term "crew" refers to the enlisted men, the ship's complement including both men and officers. The list of rates given in these lists are sectioned off so as to enable the reader to ascertain to what department of the ship the men are assigned.

ENGINEER'S DEPARTMENT

Machinist's Mates stand regular watches at sea and work about the machinery of the ship when in port. A machinist with no previous sea service on first enlisting is rated second-class, and later on, when more proficient, is rated first-class, and thence to chief. A chief machinist's mate often stands a throttle watch and has other important duties to perform.

Water-tenders are in charge of the fire-room. At sea two or three are usually on watch. These see to it that the proper amount of steam is kept up, that the boilers are fed with water, and that other details are attended to. Water-tenders are promoted from firemen. There are two rates, first-class and chief.

Oilers stand a regular watch in the engine-room both at sea and in port. At sea they oil the machinery regularly and take care that no bearings run hot. Nearly all of the machinery is oiled automatically by self-feeders which are worked by a system of small tubes leading from the oil-reservoirs to the different bearings. In port oilers stand a regular auxiliary watch, attending to the pumping and assisting in general. There is but one rate of oiler, and he also is promoted from fireman.

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Boiler-makers perform all necessary work on the boilers. After a ship has arrived in port from a voyage considerable work is done on the boilers. Old grate-bars, bridge-walls, gaskets, etc., are replaced. Many of our ships with high-pressure boilers have a working pressure of two hundred and fifty pounds of steam. There is but one rate of boiler-maker.

Blacksmith. The engineer's department carries one blacksmith, who performs all the smithing work for that department. Many ships are equipped with a modern blacksmith shop. The forge-blast is operated by electrical power. The majority of the repairs aboard ship are done by the officers and the crew. Should all the repair work be done by private shipyards, the naval appropriation would no doubt have to be doubled.

Coppersmith. The coppersmith, blacksmith, and boiler-maker are enlisted first-class direct, as there is but one rate of each of these. The ship is one mass of copper pipes. All suction and supply pipes from the pumps, condensers, and other machinery are made of copper. This is because it is more suited to the purposes to which it is put on a ship, and also because it is more durable. Many of the pipes have salt water circulating through them,

and were they not made of copper they would soon deteriorate.

Firemen keep up steam in the boilers. At sea they, with the rest of the engineer's department, are divided into steaming watches. As a rule the men are divided into four watches, which give them more time off duty.

There are two rates of firemen, first-class and second-class. Firemen with experience are enlisted direct, but the majority are rated up from coal-passers.

Coal-passers trolley the coal from the bunkers to the fires, each one supplying a certain number of fires with coal. All bunkers are equipped with a complete trolley system, the coal being shoveled into iron buckets, which are trolleyed on to the firemen. At the end of each watch fires are cleaned, ashes hoisted and dumped, and everything in the fire-room is turned over to the relief watch in good shape.

CARPENTER'S GANG

Carpenter's Mates repair all the woodwork of the ship. There are four rates: chief, first-class, second-class, and third-class.

Each ship is allowed a certain number of men

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of each rate, and, with so many of the crew coming and going, there are many vacancies, which are generally filled by promoting members of the crew.

Shipfitters have a complete knowledge of the ship. They perform all riveting and other iron work on the ship outside of the engineer's department. Upon first enlisting they are rated second-class, and later on they are rated first-class.

Shipwrights perform duties similar to those of the carpenter's mates. When vacancies occur they are promoted to the higher rates. Many of the rates in the Navy are divided into three or four grades, thus creating many opportunities for advancement.

Painters also are employed on the ship. In the paint locker all necessary paints are stowed and mixed ready for use.

Uncle Sam takes great pride in having his ships kept scrupulously clean, both within and without. The painters mix and serve out all necessary paints, besides performing all skilled labor, such as retouching the figurehead, lettering, etc.

There are three rates of painters: first-class, second-class, and third-class.



OUTWARD BOUND. The U. S. S. *Des Moines* going to sea. The surroundings look quite natural.

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Plumber. There is enough piping aboard a modern battleship to install a water-works in a good sized city. The flanges and other joints of the various pipe-lines are painted in different colors, so as to enable one to quickly ascertain the different lines. The plumber performs all duties pertaining to his profession. There is but one rate of plumber.

DECK FORCE

Masters-at-Arms are to the ship what a police force is to a city. There are four rates: chief, first-class, second-class, and third-class. Masters-at-arms are responsible for mast-call, prisoners, and all parts of the enclosed decks where the crew eat. The master-at-arms is always on duty. After taps has sounded he makes the rounds of the ship and reports everything secure.

Boatswain's Mates do duty about the upper decks of the ship, each division having one or more. They carry long silver whistles, or pipes, which are blown according to a certain code of signals.

The deck hands are divided into divisions, which are assigned to certain sections of the ship. They are held responsible for their respective divisions. In this way each division supervises a certain part of the ship. There are three rates of boatswain's mates: chief, first-class, and second-class.

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Coxswains are detailed to take charge of the ship's boats, each boat having one. They, with the rest of the boats' crews, keep their respective boats neat and clean. The boats are used frequently when in port for drilling purposes, etc.

Coxswains are promoted from seamen, and the next advancement is to that of boatswain's mate. All the higher rates in the seamen branch are filled by promoting members of the crew holding lower ratings.

Quartermasters stand a regular watch on the bridge, both while at sea and when in port. At sea they keep a keen lookout, sending and receiving all signals promptly. In port they keep a sharp lookout and report all passing vessels, signals, etc. Their ability is displayed in sending and receiving signals.

All signal flags are placed in lockers on the bridge, and are ready for instant use. There are four rates of quartermasters: chief, first-class, second-class, and third-class. They are promoted from seamen.

Seamen: Ordinary Seamen and Apprentice Seamen are of three distinct rates. Upon first enlisting in the seamen branch a recruit who has no profession is rated apprentice seaman. After going through

several courses of training he is gradually promoted to the higher ranks.

Previous to 1905 apprentice seamen were known and enlisted as landsmen. At the same time their title was changed and the enlisting of apprentice boys was abolished.

Sail-maker's Mate has charge of all the canvas work of the ship. This includes bags, hammocks, awnings, steam-launch covers, etc. Twice a month clean bags and hammocks are served out to the crew, and the dirty ones are scrubbed and turned in to the sail-maker's mate. There is but one rate of sail-maker's mate.

ORDNANCE DEPARTMENT

Gunner's Mates are in charge of the different batteries, magazines, and other ordnance appliances to which they may be assigned. Members of the crew are detailed to the different guns just as the regular gun crews.

The guns and all the accessories are kept in perfect order. The interior of the guns, including all the breech mechanism, is kept perfectly bright. The gun's crew keep them in order. There are four rates of gunner's mate: chief, first-class, second-class, and third-class.

Turret Captains are detailed for duty in the tur-

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rets only. They have a thorough technical knowledge of the guns and are in charge of the turret. A turret captain is next in command to the turret officer. Should anything happen to the turret officer, the turret captain takes charge. They also act as drill instructors and drill the gun's crew when necessary.

There are two rates of turret captain, chief and first-class.

PAY DEPARTMENT

A *Commissary Steward* caters to the crew's mess. The crew have a general mess. The food is brought from the galley to the mess tables by the messmen. The commissary steward goes ashore daily when convenient and purchases the necessary provisions and supplies.

The proper amount of rations are served out to the cooks. Each member of the crew is allowed a certain amount of fresh bread, meat, etc., each day. The Navy ration is nine dollars per month, and all of this is spent for food only. All labor, cooking utensils, etc., are furnished gratis.

Ship's Cooks do the cooking for the crew only. The ship is equipped with a large modern galley. In the galley is a long row of continuous ranges and several large coppers which are used for boil-

ing and cooking purposes. All cooking in the coppers is done by steam.

A regular bill of fare is given the cooks by the commissary steward. Each mess lives on the same fare, and no one is allowed to contribute any mess money. In this way all of the crew fare alike. Should the meal be a poor one, improperly cooked, etc., members of the crew take a sample of it to the officer of the deck, where the complaint is attended to.

Bakers are also carried aboard the ship, and their services are very much in demand. In order to realize this, one needs but to consider the amount of fresh bread consumed in a single day by six hundred or more men.

The baker has a modern bake-oven and bake-shop for making bread and pastries. When in port the fresh bread is generally purchased ashore. There are two rates of bakers, first-class and second-class.

MEDICAL DEPARTMENT

Hospital Stewards have charge of the sick-bay, or ship's hospital. They carry out the doctor's orders appertaining to the treatment of the patients and other routine. Hospital stewards are well versed in pharmacy. There is only one rate of hospital steward.

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Hospital Apprentices attend to all minor details of the sick-bay, serve out medicine, take temperatures, and assist in general. Members of the medical department are sent ashore with the battalion with the necessary medical appliances. There are two rates of hospital apprentices, first-class and hospital apprentice.

CLERICAL FORCE

Yeomen are assigned to the different departments of the ship. Each department has one or more; this, however, does not include the medical department. All clerical duties of this department are performed by the hospital steward. Pay, equipment, engineer's department, admiral, captain, executive, and navigator each have one yeoman or more to perform all the necessary clerical work.

There are a great many log-books, accounts, records, etc., kept aboard ship.

There are four rates of yeomen: chief, first-class, second-class, and third-class. Members of the crew are often rated yeomen when found qualified.

Printers are carried mostly aboard flag-ships. They have a complete printing-press with which all necessary matter is printed. Band programs, fleet orders, etc., from the admiral are printed. Many of the big ships print a weekly or monthly



A GALLEY SCENE. The crew's galley, where the ship's cooks prepare the meals for the crew.
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paper aboard ship. This is devoted to the interests of the crew. There is but one rate of printer.

OTHER RATES

Electricians stand regular watches, because the dynamos are operated both day and night. On our latest ships blowers, cranes, gun turrets, etc., are operated by electric power. The dynamo-room is located in a separate compartment below the armored deck. The ship contains a mass of electrical appliances, all of which are kept in perfect condition. Members of the gang are assigned to repair work, while others stand regular watches.

There are four rates of electricians: chief, first-class, second-class, and third-class.

Buglers stand a regular watch, and blow all calls which are ordered by the officer on watch. Each drill is quickly recognized by the notes of the bugle. At sea the bugler's duties are very light, as but few calls are blown. There is but one rate of bugler.

Bandmaster is in charge of the ship's band. The ship carries a band of sixteen pieces. It plays part of the time for the crew and at other times for the officers. The bandmaster ranks as a chief petty officer, and is leader of the band.

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Bandsman. Many of the ships have a crack band, and particularly when the ship is at sea it is quite a treat to go up on deck and listen to the band concert. Members of the band are proficient with stringed instruments. There are two rates of bandsmen, first-class and second-class.

Marines, consisting of about sixty-five men, are carried aboard. They have their regular quota of sergeants and corporals. Marines stand sentry watches about the ship and are also assigned to several of the ship's intermediate guns. The Marine Corps is a distinct branch of the service, but is part of the Navy.

Cooks, Stewards, and Mess Attendants are of three separate rates. The admiral, captain, ward-room, junior officers', and warrant officers' mess have their regular allowance of cooks, stewards, and mess attendants. The officers' standard of living is regulated by the mess money subscribed.

EXTRA RATES

There are many extra rates in the Navy which entitle the holder thereof to extra pay in addition to his regular monthly pay.

Gun-pointers receive ten, eight, six, four, and two dollars a month extra. This is regulated according to the class of the gun-pointer. No doubt

the wonderful shooting records made by the ships of the Navy have been brought about by this rate.

Captains of the Hold are appointed from seamen and receive five dollars a month extra. They have charge of the ship's main hold, where anchor-gear, hawsers, and other nautical gear are stored. Should the boatswain send down for a certain article, the captain of the hold would be supposed to fill the order. The captain of the hold also keeps account of the water used outside of the engineer's department.

Lamplighters are appointed from apprentice seamen. A supply of spare lanterns, side lights, etc., is carried. This is to provide for an emergency should the electric lights fail, etc. Lamplighters also attend to the portable lamps on deck. Their extra pay is five dollars a month.

Signal-men first-class receive three dollars extra. Second-class signal-men receive two dollars extra. They are expert in sending and receiving signals quickly and accurately. They work on the bridge together with the quartermasters. They are appointed from ordinary and apprentice seamen.

Ship's Tailor and *Tailor's Helper* are also appointed from the crew. All clothing issued by the

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paymaster is altered and made up free of charge. In this way Jack's clothes are sure to fit. There are few men aboard ship who do tailoring work for themselves. The ship's tailor receives twenty dollars additional per month. The helper receives ten dollars extra per month.

Jacks-of-the-Dust are detailed from apprentice seamen. They are attached to the pay department and assist in issuing small stores, rations, etc. Their extra pay is five dollars a month.

Men detailed for submarine boat duty receive five dollars a month extra; also one dollar a day additional thereto when submerged.

RATE AND PAY OF EVERY ENLISTED MAN

The following tables give the rate and pay of every enlisted man in the Navy.

Previous to July 1, 1903, all chief petty officers received from \$50.00 to \$70.00 a month. This was regulated according to the rate of the chief petty officer. When an enlisted man gets promoted to a higher rate he is given an acting appointment. After the acting appointment has been in force one year, the owner is then recommended for a permanent appointment.

When a chief petty officer receives his permanent



A FEW MASCOTS. A ship without a mascot is like a sailor with a pipe and no tobacco.
Copyright, 1906, by Enrique Muller.

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appointment he is then entitled to the \$70.00 a month. With all the other rates the pay is the same regardless of appointments.

Under certain conditions petty officers can be promoted to a higher rate without a permanent appointment. This is done with the approval of the Commanding Officer and the Navy Department. All these pay tables signify initial pay, for the longer one remains in the service the greater is his pay.

CHIEF PETTY OFFICERS

Rate	Acting Appointment Pay per month	Permanent Appointment Pay per month
Chief Master-at-Arms.....	\$65.00	\$70.00
Chief Carpenter's Mate.....	50.00	70.00
Chief Boatswain's Mate.....	50.00	70.00
Chief Yeoman.....	60.00	70.00
Chief Gunner's Mate.....	50.00	70.00
Commissary Steward.....	60.00	70.00
Chief Commissary Steward ...	70.00	70.00
Chief Quartermaster.....	50.00	70.00
Bandmaster.....	52.00	70.00
Chief Machinist's Mate.....	70.00	70.00
* Hospital Steward.....	60.00	60.00
Chief Water-tender.....	50.00	70.00
Chief Electrician.....	60.00	70.00
Chief Turret Captain.....	60.00	70.00

* Hospital Steward's pay is regulated by Congress.

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FIRST-CLASS PETTY OFFICERS

	Rate	Pay per month
Machinist's Mate, first-class.....		\$55.00
Yeoman, first-class.....		40.00
Electrician, first-class.....		50.00
Master-at-Arms, first-class.....		40.00
Boatswain's Mate, first-class.....		40.00
Gunner's Mate, first-class.....		40.00
Quartermaster, first-class.....		40.00
Carpenter's Mate, first-class.....		40.00
Coppersmith.....		55.00
Ship-fitter, first-class.....		55.00
Painter, first-class.....		40.00
Turret Captain, first-class.....		50.00
Water-tender, first-class.....		40.00
Boiler-maker.....		65.00
Blacksmith.....		50.00
Plumber and Fitter.....		45.00
Sail-maker's Mate.....		40.00
First Musician.....		36.00

SECOND-CLASS PETTY OFFICERS

	Rate	Pay per month
Master-at-Arms, second-class.....		\$35.00
Machinist's Mate, second-class.....		40.00
Electrician, second-class.....		40.00
Boatswain's Mate, second-class.....		35.00
Gunner's Mate, second-class.....		35.00
Yeoman, second-class.....		35.00
Carpenter's Mate, second-class.....		35.00
Quartermaster, second-class.....		35.00

Rate and Pay of Every Enlisted Man 69

Rate	Pay per month
Ship-fitter, second-class	\$40.00
Painter, second-class	35.00
Oiler	37.00
Printer	35.00

THIRD-CLASS PETTY OFFICERS

Rate	Pay per mon
Carpenter's Mate, third-class	\$30.00
Master-at-Arms, third-class	30.00
Electrician, third-class	30.00
Gunner's Mate, third-class	30.00
Painter, third-class	30.00
Yeoman, third-class	30.00
Quartermaster, third-class	30.00
Coxswain	30.00
Hospital Apprentice, first-class	30.00

OTHER RATES

Rate	Pay per month
Seaman	\$24.00
Ordinary Seaman	19.00
Apprentice Seaman	16.00
Bugler	30.00
Fireman, first-class	35.00
Fireman, second-class	30.00
Coal-passer	22.00
Shipwright	25.00
Ship's Cook, first-class	55.00
Ship's Cook, second-class	40.00

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Rate	Pay per month
Ship's Cook, third-class	\$30.00
Ship's Cook, fourth-class.....	25.00
Musician, first-class	32.00
Musician, second-class.....	30.00
Baker, first-class	45.00
Baker, second-class.....	35.00
Hospital Apprentice	20.00
Admiral's Cook	50.00
Admiral's Steward.....	60.00
Cabin Steward	50.00
Cabin Cook.....	45.00
Ward-room Steward	50.00
Ward-room Cook	45.00
Warrant Officers' Steward.....	35.00
Warrant Officers' Cook	30.00
Mess Attendant, first-class	24.00
Mess Attendant, second-class.....	20.00
Mess Attendant, third-class.....	16.00

EXTRA RATES *

Rate	Pay per month
Captain of the Hold	\$ 5.00
Jack-of-the-Dust.....	5.00
Lamplighter.....	5.00

* There are many extra rates aboard ship that are given to the men holding the lower rates. The extra pay is given in addition to that of their regular rates. This extra pay demonstrates how liberal Uncle Sam is to the enlisted men. The men would have to perform these extra duties without any extra pay should the Navy Department see fit.

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Rate	Pay per month
Coxswain of Steam Launch	\$5.00
Messmen	5.00
Signal-man, first-class	3.00
Signal-man, second-class	2.00
Signal-man, third-class.....	1.00
Ship's Tailor (large ships).....	20.00
Men on submarine boat duty.....	5.00
Tailor's Helper (large ships).....	10.00
Heavy Gun-pointers, first-class.....	10.00
Heavy Gun-pointers, second-class.....	6.00
Intermediate Gun-pointers, first-class.....	8.00
Intermediate Gun-pointers, second-class...	4.00
Secondary Gun-pointers, first-class.....	4.00
Secondary Gun-pointers, second-class.....	2.00

THE MARINE CORPS *

Rate	Pay per month
Sergeant Major	\$34.00 to \$42.00
Quartermaster Sergeant.....	34.00 to 42.00
Drum Major.....	25.00 to 33.00
Gunnery Sergeant.....	35.00 to 43.00
First Sergeant.....	25.00 to 33.00
Sergeant.....	18.00 to 26.00
Corporal.....	15.00 to 23.00
Private	13.00 to 21.00

* Marines receive clothing allowance, and their pay increases according to length of service. A regular pay schedule is arranged for this purpose.

OPPORTUNITIES

It is very evident that there are many openings in the Navy for the enlisted man. The pay tables demonstrate the fact that there are over one hundred different positions aboard ship. To compare the pay of the various rates with those of vocations ashore would reveal the fact that those in the Navy receive far better pay. Take, for instance, a coal-passer or an apprentice seaman. These are the lowest paid men aboard ship, from the fact that when they enlist they are without trade or profession. These men need not hold these low ratings throughout their enlistment. Should they have the least ambition they would soon be given a higher rate and more pay. Should a person in civil life hire out as a laborer he can advance no higher. In the Navy it is quite different. The Navy enlists these raw recruits with the expectation of training them for the higher and better paid positions in the service.

Gunner's mates, quartermasters, masters-at-arms, boatswain's mates, and many others are gradually rated up from apprentice seamen. Firemen, oilers, and water-tenders are also rated up from coal-passers.

The chief petty officers of the ship receive seventy dollars a month. This pay is regular, and increases as long as the person remains in the service. Me-

chanics in the Navy make far better money than those in civil life. At least the author has found this to be the case, and he speaks from personal experience. There are no dues to pay, strikes, lay-offs, pay stopped if sick, looking for work, or any of the other hardships that are often encountered in civil life.

Any man can work himself up to the highest rates, provided he has the least ambition. Pay continues while sick; medicine and medical attendance are furnished gratis.

ENLISTMENT

The term of enlistment is four years. Sometimes, when on a foreign station, members of the crew are kept overtime for a month or two. When a bluejacket is kept overtime he is given twenty-five per cent. additional pay for each day held overtime. In most cases, however, "short-timers" are sent home before their enlistment expires. Recruiting officers are located in many of the large cities, where recruits are examined and enlisted.

In several of the inland States recruiting parties are sent out by the Navy Department to visit the smaller towns and cities. As soon as the draft of recruits are enlisted, they are sent to the many re-

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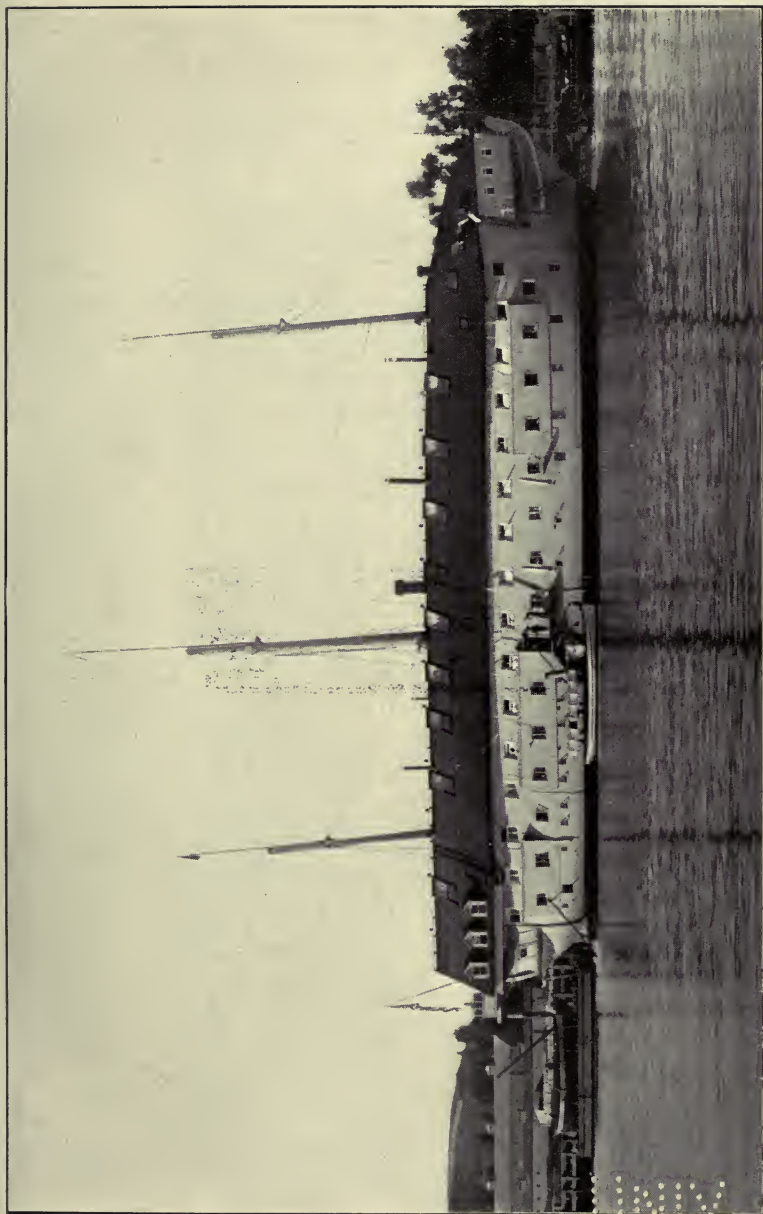
ceiving-ships and training-stations which are located at the different navy-yards.

A receiving-ship is known as the "guardo," and is nothing more nor less than a sailors' boarding-house. All unassigned bluejackets are kept on the "guardo" until sent to their respective ships. A "guardo" represents a busy scene, as the men are coming and going at all times. Short-timers who are about to be paid off are generally sent to the "guardo."

When a recruit arrives at the guardo or training-station, he is equipped with a complete outfit of Navy duds. He then takes these to the master-at-arms, who marks them with the owner's name. The new "salt" now shifts his civilian clothes for those of the Navy, and soon wears them just like one of the boys. As this is his first experience in naval life perhaps he feels rather strange. This feeling, however, soon departs, and the recruit soon gets used to the sea like the rest of the crew.

Most of the recruits take to the sea like a duck to water. There is seldom a case of chronic seasickness aboard the ship. When one stows away a couple of pounds of "salt horse" and plum-duff in his interior, it is a safe bet that it will not be wasted.

Members of the crew, upon being recommended by their superior officers, are sent to the different



THE WOODEN NAVY. This ship is the old *Independence*, used as a guardo at Mare Island, Cal.

naval schools so as to become more proficient in naval duties.

Upon graduation a certificate is given. While at the school members draw their regular pay and rations. Good-conduct medals are also given to members of the crew upon the recommendation of the commanding officer. The holder of each medal, or bar thereof, receives seventy-five cents a month additional pay.

Upon enlisting, the Shipping Articles are read out, while the recruit swears to obey all rules and regulations of the naval service. The enlistment record is made out in duplicate, one of which is forwarded to Washington; the other follows the owner wherever he goes for duty. The records are under the personal supervision of the executive officer. All offences committed, recommendations, etc., are carefully entered on the records.

To Washington is sent a quarterly report on sobriety, obedience, ordinance, and proficiency in rating. All recommendations, remarks, etc., are kept on file at Washington, and in this way every detail of an enlisted man's service is recorded.

When paid off the discharge is made out according to the enlistment record. Should the enlistment record be of a high average, the discharge would be marked accordingly.

When members of the crew are about to be se-

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lected for promotion, a good record is the most important factor. Upon the expiration of service meals and free transportation to the original place of enlistment are given.

When an honorable discharge is received and the person in question enlists within four months from date of discharge, he is given four months' pay gratis and one dollar and thirty-six cents a month additional increase of pay. Should a man re-enlist the same day his time expired, the bonus money would be given just the same.

The extra pay is quite an inducement for re-enlistments, as in a short time many weary of shore life and ship over again in the Navy. When in the Navy they are sure of the meal pennant being hoisted three times a day without fail. In civil life the pennant is sometimes hoisted irregularly. Anyone displaying an extraordinary act of bravery, such as saving life, etc., is presented with a medal by the Navy Department, and a note of this fact is made on the owner's enlistment record. One of these medals makes promotion easier.

SAILOR'S DUDS

The "togs" of old Jack are in a class by themselves. The quality of the materials used in making his clothes is unsurpassed.

The Navy manufactures a great deal of its own clothing, but some of it is let out by contract to outsiders. All goods are made of a special quality. As similar goods cannot be purchased on the outside, the Navy man has a suit which cannot be duplicated.

On first enlisting, a recruit is furnished with a complete outfit of clothing valued at forty-five dollars. The outfit consists of shoes, white and blue hats, white dress, blue dress, and working uniforms. Several suits of light and heavy underwear, leggings, soap, scrubbing-brush, shoe-shining gear, mess gear, neckerchief, and knife lanyard are also included. A hammock furnished complete is also given. In the hammock are a comfortable mattress and two blankets. Sleeping in a hammock is very comfortable. In warm weather the clews are so regulated that the hammock swings flat. In cold weather, if the center clews are slackened out the hammock will fit snugly to the occupant's body.

Every sailor has a ditty-box, which is a small box made of hard wood. The lid is very deep and

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contains letters, writing-paper, etc. The tray contains toilet gear and other trinkets, and the bottom contains towel, shoe-brush, and nicknacks which only a sailor can accumulate. Any bluejacket can pack up and be ready for transfer within ten minutes if necessary.

The Navy furnishes the first outfit of clothes; all clothing drawn thereafter is charged at cost price to the person to whom issued.

AMUSEMENTS AND PASTIMES

Many people who are unfamiliar with "man-o'-war" life have the opinion that life aboard a warship is very monotonous. Navy men who remain in the service do so from the fact that the service offers to them the best pay and general inducements. The amusements and pastimes aboard ship are of such a varied character that it is a difficult matter to enumerate all of them.

By making Navy life congenial to the enlisted men the service retains many of them. All flagships, battleships, and armored cruisers carry a band. Evening concerts are given for the crew, and they go up on deck to listen to the music. Sometimes the sailors dance with each other. Athletic sports are greatly encouraged by the Navy Department.

Each year a ship is allowed a certain amount of

money with which to purchase sporting goods. Each ship has its own baseball and football teams.

As nearly all of our ships travel around in fleets, a great deal of time is devoted to sporting events. A trophy is generally given to the winner when each ship plays a series of games.

Boat-racing is one of the most exciting sports in the service. When one ship wishes to challenge another for a boat race, the boat to be used is lowered; this crosses at full speed past the other ship's bow. Just as it crosses the bow the coxswain cries "toss oars." This is a direct challenge, and should the crew of the ship challenged wish to race, they would invite the racing boat's crew aboard and make arrangements for the same.

Boxing contests are also very popular, and there are a great many expert boxers in the service. When it comes to financial backing for the boat race or any other sporting event, the crew of the ships are always there with the money.

Plenty of shore-leave is given, and the crew go ashore in watches or sections. At meal-time the bumboat comes aboard the ship to peddle fruit, pastries, etc.

All forms of card games, checkers, etc., are played, but no gambling is allowed. If a member of the crew is caught gambling he is severely punished.

When members of the crew wish to visit other

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ships a visiting party is collected and a list of the crew given to the officer of the deck. He grants permission to the party to visit the other ship. The ship's boats are used to convey the visiting party to and from their destination.

Permission is granted to go in swimming from the side of the ship, should the weather permit. Any one wishing to go in swimming dons a bathing-suit, and the instant swimming call is sounded there is a mass of bluejackets in the water, swimming and splashing around like children. A small boat is detailed to lay off from the ship to give aid in case of an accident. The men are not allowed to remain in the water very long, and when "recall" is sounded all hands come out of the water.

Each ship has a fine up-to-date library which contains several hundred volumes. The most popular books are those on travel, etc. Many members of the crew are talented singers and musicians, and it is quite a treat to hear a quartette of singers by moonlight on the forecastle, with the assistance of several stringed instruments.

The dramatic talent of the crew has an opportunity to display itself at the various theatrical entertainments given aboard ship. Very little artificial scenery is required, as the big guns of the ship, the neat appearance of the officers and men, and the general surroundings furnish all the scenery neces-



BOXING ABOARD THE WEST VIRGINIA. This bout is no tame affair. Both parties are striving for the decision.

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sary. The stage is rigged up on deck. Officers and men of the fleet and sometimes people from shore are invited to the show.

No admittance fee is charged at this theatrical performance, as the officers and crew furnish everything needed. Programs are distributed and the members of the troupe given pseudonyms. The entertainments, of course, are more or less of a salty nature.

MAN-O'-WAR LINGO

The terms and expressions used by the men in the Navy are most peculiar. Should an outsider listen to two bluejackets conversing about the service, he would hear many terms which would certainly be incomprehensible to him. The following list will give a fair idea of the meanings of some of the expressions:

- “Going down hill”—over half the enlistment in.
- “Short-timer”—less than six months to serve.
- “Rookie”—a new recruit who has just enlisted.
- “Smoke-stack”—an imaginary jag.
- “Ship over”—to re-enlist.
- “Jimmy legs”—the master-at-arms of the ship.
- “Black gang”—all men belonging to the engineer's department.
- “Mailo”—the mail has arrived aboard the ship and is about to be distributed.

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“Blacky ”—the blacksmith.

“Chips ”—a carpenter’s mate.

“Coppers ”—the coppersmith.

“The chief ”—chief engineer of the ship.

“Lucky bag ”—a bag in which are placed all articles lost on the ship.

“Jumped ”—desertion by a sailor.

“Six months and a bob ” refers to one who has been court-martialed and sentenced to six months in prison and eventually given a dishonorable discharge.

“Up to the mast ”—all persons on the report for offences committed are lined up aft on the quarter-deck, where the captain acts as judge in each instance.

“Pipe down ”—shut up.

“Belay ”—hold on.

“Dog ”—a bottle of liquor.

“Tell it to a marine ”—a remark used when one person does not believe a statement another is telling him.

“Salt horse ”—salted beef.

“The ghost walking ”—pay day.

“Pot on ”—a person with a heavy list to port.

“Beach comber ”—one who hangs around saloons, etc., ashore and who has no desire to work.

“Hike ”—to go ashore on a heavy march.

“Sea-going”—traveling at sea.

“Mulligan”—a favorite dish of an unknown quantity.

“Charley Noble”—the galley stove-pipe.

“Sea dog”—an old sailor with several enlistment stripes on his arm.

“Run up”—brought to the mast for offences committed.

“Breaking it”—remaining overtime on shore.

“Down for a chance”—on the report for mast call.

“Canned Willie”—canned beef.

“On the books”—money due on the paymaster's books.

“Pie wagon”—the brig where prisoners are confined.

“Sea lawyer”—one who thinks he knows more about the Blue Book than the captain.

“Smoko! sailo!”—a vessel sighted.

“Hitch”—an enlistment.

“Cum shaw”—a rake-off.

“Big ticket”—an honorable discharge.

“Stone frigate”—prisons ashore.

“Sheeney”—a person having a sewing-machine and doing tailor work aboard ship.

“Gadget”—a make-shift name for any object.

“Jaw-bone”—credit.

“Busted”—disrated to a lower rating.

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“Mud hook”—the ship’s anchor.

“Berth deck slusher”—messmen who wait on the tables of the crew.

“Rope-yarn Sunday”—Wednesday afternoon, when the crew overhaul their bag of clothing.

“Dead soldier”—an empty bottle.

“Making knots”—hurrying.

“Bumboats”—shore boats containing articles to be sold to the crew.

“Micky”—nickname for the *Mohican*.

“Philly”—nickname for the *Philadelphia*.

“Show a leg”—when the master-at-arms wakes all hands in the morning, they call out, “Rise and shine, show a leg,” etc.

“Stand by”—be on hand.

“Draws more water”—receives more pay.

“Hurdy-gurdy”—a sewing-machine turned by hand.

“Paymaster’s bouquet”—salt-water soap issued by the paymaster.

“Blow off at a low pressure”—refers to a talkative person.

“Under the gun”—one sitting next to the dealer in a friendly game of draw.

“Got the wrinkles out”—sensation of hunger removed.

“God’s country”—any part of the United States.

“Put in his oar”—to intrude in a conversation.

“Under way”—a ship moving through the water.

“Sloper”—a person from the West coast of the United States.

“Snowdigger”—a person from the East coast of the United States.

“Batten down”—secure.

“Straight kick”—dishonorably discharged.

“Rig in your booms”—pull in your elbows.

“Red house”—insane asylum.

“Swallowed the Blue Book”—one who is continually quoting the Navy regulations.

“Caught a crab”—oar caught in the water.

“Field day”—day on which the ship is scrubbed and cleaned.

“Shove off, Jack”—a hint to move on.

“Straggler”—a deserter who voluntarily gives himself up within a period of six months after desertion.

“Heave to”—stop.

“Swing ship”—placing the ship in a position so that the navigator can adjust his compass.

“All night in and beans for breakfast”—a remark that is made by one who has had no night watch and enjoyed a good night's sleep.

CHAPTER IV

ORDNANCE—HOW ARMOR IS MADE—MAIN GUNS
—CREW OF A LARGE GUN—INTERMEDIATE
AND SECONDARY BATTERY GUNS—HOW
A LARGE GUN IS MADE—AMMUNI-
TION—WEIGHT OF PROJECTILES
—TORPEDOES
ORDNANCE

THE armor and armament with their many accessories constitute the main fighting strength of the ship.

No doubt all ships built in the future will be equipped with the heaviest armor and armament that their tonnage will allow. All of Uncle Sam's late warships, built and building, have all these important accessories. Therefore they will hold their own as modern warships for many years to come.

The *Oregon* and her sister ships, the *Indiana* and the *Massachusetts*, represent our first lot of first-class battleships. They were commissioned about two years before the Spanish-American war. The

Oregon has won the Gunnery Trophy twice in succession. This demonstrates the fact that our oldest battleships are still quite modern in many respects. To capture the much-coveted prize the *Oregon* had to compete with all the large type of ships in the Navy.

A warship is placed out of commission regularly. When this occurs the entire ship is overhauled and equipped with the latest appliances.

When a new type of gun, projectile, etc., is invented, the Navy Department tests the merits of each. Should the results of the test prove satisfactory, the gun, or other improvement, would be placed in use aboard ship. The Government never jumps at conclusions, as all improvements made are done after a long period of tests and experiments. In this way all of Uncle Sam's warships are kept up to the highest standard of efficiency.

HOW ARMOR IS MADE

After the ship is launched the armor is set up. In some cases, however, the builders may set part of the armor before launching. On the sides of the ship, a few feet below the water-line, there is a shelf-like arrangement on which the armor rests as it is secured to the sides of the ship.

This armor is very costly and is made by many processes, much of which is secret.

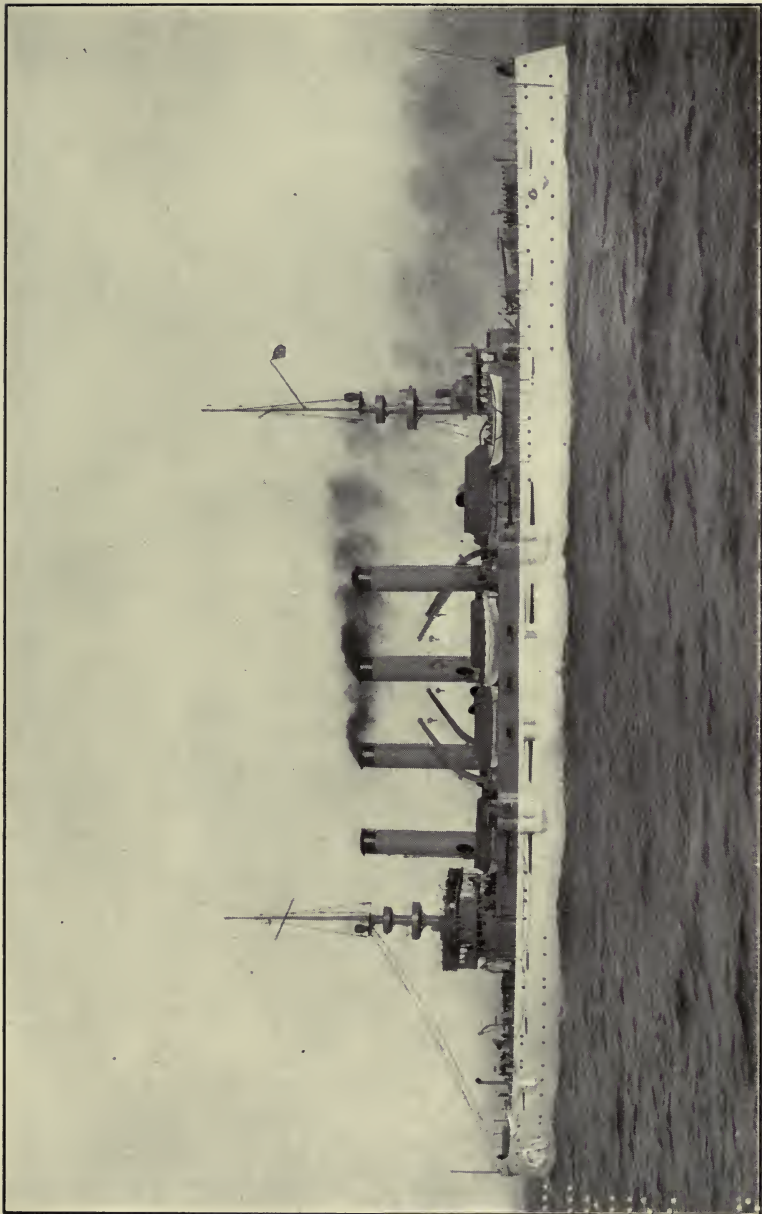
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All armor is subjected to rigid tests by the Government. When one lot of armor is made certain pieces are selected from it and sent to the proving-grounds. Here it is set up for the large-caliber guns to fire at. Should the armor fail to stand the various tests, the entire lot is condemned. The armor-plate manufacturers know by the blue-prints the exact size and shape of each section of armor, and also where all bolt-holes, etc., are to be made.

In making armor, first of all a batch of metal is smelted in the furnaces, and when ready this metal is poured into moulds which form the armor ingot. After forming, the ingot is then taken to a huge heating furnace; it is reheated and brought to a forging-press, where it soon works down to the size desired. After forging the plate it is face-hardened by many different processes, much of which is secret.

When the armor-plate is trimmed up, tempered, and all other work on it completed, the plate is then taken to a powerful hydraulic press, which soon forms the armor-plate into any shape desired.

When the armor arrives in its finished state, the ship's builders secure it in place. All bolt-holes and other machine work on the armor-plate must be perfect, because all joints, etc., must fit snugly. The size and quantity of armor varies according to the size and type of the ship. Armor is made to



U. S. S. CHARLESTON AT SEA. Note how natural the ship is as she steams through the water at half speed.

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prevent shells from injuring the ship, and the object in face-hardening the armor is to try to give it the resisting power necessary to deflect or break up all shells with which it comes in contact.

The main armor belt extends along the sides and runs the entire length of the ship. Above the main armor belt are the casements, which are also well armored in proportion. The casements are the upper sides of the ship behind which the intermediate and secondary guns are mounted.

The main guns are mounted in turrets which are heavily armored, and which revolve on top of the barbette. The barbette is similar to a circular fort, and is extremely heavily armored in order to protect the loading mechanism, etc., of the guns.

The conning-tower, military masts, sighting-hoods, ammunition-tubes, and the protective deck are also well armored in proportion.

Only the outer side of the armor is face-hardened, and this varies in resisting power according to the different processes to which the armor-plate is subjected.

MAIN GUNS

The guns of a battleship could be divided into three classes: main, intermediate, and secondary battery guns. The main guns consist of eight-, ten-, twelve-, or thirteen-inch guns. These are all mounted in turrets which revolve on top of the barbette. The two guns, mounts, and loading mechanism and turret revolve as one. The barbette extends a few feet above the deck, on top of which are rollers on which the turret revolves.

All our late ships have counterbalanced turrets which have the weights so adjusted that the ship would not list were all the main guns trained to one side. With the old-style turrets the ship was exposed to danger when the main guns were all trained to one side. This would give the ship a heavy list and thus expose the lower part of the armor-belt to the enemy.

Located at the bottom of the turret is the handling-room, where all ammunition is trolleyed from the magazines to the loading-car. A large rammer sends the shell home. When withdrawn, the bags of powder are put into the powder-chamber and the breech-plug is closed. Then the gun is ready to be fired.

When in action the guns are kept trained toward

the mark while the loading process is going on. Upon finishing loading the gun is depressed from the loading position and sighted on the target. When the gun-pointer has the gun sighted on the mark he fires.

On nearly all our ships the main guns are mounted in pairs in turrets. When mounted in pairs each gun has its own loading mechanism and they can be sighted and fired separately, although both fire toward the same mark.

The hoists, turrets, and rammers are operated by either hydraulic or electric power. The gun rests on the saddle and large steel bands and straps are used to secure it in place. The saddle rests on the slides and is held down with heavy clips and lugs. Attached to the outer end of the saddle are large pistons which lead into the recoil-cylinders.

There are two types of recoil-cylinders. One is filled with recoil-liquid and contains recoil-springs; the other type is worked by hydraulic power.

In hydraulic-power turrets, similar to the *Oregon* type, the recoil-cylinder contains a water-pressure of about six hundred pounds to the square inch. This pressure is supplied by huge hydraulic pumps, which are located well below the water-line. When firing, these pumps must be kept going in order to retain pressure for the recoil-cylinders.

The supply-pipe from the pumps is located at

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the back end of the cylinder and contains a check-valve. The front end of the recoil-cylinders contains relief-valves, which are set at a high pressure.

When the gun is fired a deafening roar is heard as the gun recoils backward over the slides. The instant the gun is fired the check-valve in the supply-pipe closes. Were this not so the pipes and the pumps down below would burst from the sudden pressure created.

The interior walls of the recoil-cylinders contain several grooves, and the piston enters the cylinder and forces the water through these grooves past the piston-head until the recoil is finally checked. There is no escape for the water displaced by the pistons entering the cylinders, except through the relief-valves, which are forced open by the enormous pressure created. This allows the necessary amount of water to escape. As soon as the gun ceases recoiling, the relief-valves close and the check-valve in the supply-pipe opens, and the pressure formed against the back end of the pistons quickly forces the gun out to battery.

Fresh water is used by the hydraulic pumps, and all water escaping from the recoil-cylinders is led back to the fresh-water tanks to be repumped.

Officers are stationed in the fighting-tops to ascertain the range, which is signaled down to the turrets.

In action the results of the firing can be better judged when taking observation from an elevated point of view. The range varies continually in battle, as both fleets are constantly maneuvering about to gain an advantageous position.

CREW OF A LARGE GUN

Several hundred men are connected, directly and indirectly, in operating the big guns. Coal-passers bring the coal to the firemen; the firemen keep up steam in the boilers with which to operate the machinery of the ship; and thus the division of labor continues all along the line until we come to the gun's crew proper.

A thirteen-inch shell weighs eleven hundred pounds. The powder-charge used to eject this shell from the gun weighs well over two hundred pounds.

A great number of men are required to handle the guns and ammunition of the ship. Extra men must also be available, because during a battle many men may be put out of action. The following will give a fair idea of the duties performed by a large gun's crew.

Turret Officer is in complete charge of the turret and gives all orders necessary. The turret contains

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speaking-tubes, etc., which enable the turret officer to be kept informed with regard to the movements of the enemy, range, how the shots are landing, etc.

Turret Captain is next in command to the turret officer. Should an accident befall the turret officer, the turret captain would then take charge. The turret captain also superintends all work in the turret.

Trainers keep the guns trained toward the target while the gun is being loaded and fired. When the gun is fired it is put into loading position, and upon being loaded the gun is quickly sighted on the mark.

Gun-pointers sight and fire the gun with the assistance of the trainers. Much responsibility rests on the gun-pointer, because while the gun is being sighted the firing-lanyard is in his hand. Upon sighting the gun properly, the gun-pointer fires it with either percussion or electric primer.

Gunner's Mate is in charge of the handling-room below, where all ammunition is loaded into the loading-car. This car brings the ammunition directly in front of the breech end of the gun when needed.

Rammer Man operates the rammer, which sends the shell home. This rammer pushes the shell off the car into the gun, and it is operated by either hydraulic or electric power.

Powder Men take the powder from the loading-car as soon as it arrives at the loading-platform. This powder is in bags, and when the rammer recoils home the powder is quickly put into the powder-chamber.

Plug Man operates the breech-plug mechanism. As soon as the gun is loaded the plug man quickly closes the breech-plug, which locks it into position.

Sight-setter adjusts the sights when ordered to do so by the turret officer. He also watches the sights, so that he may ascertain whether they have become deranged from the concussion of the guns.

Handling-room Crew work down in the handling-room, where all ammunition is trolleyed from the magazines to the loading-car. A large number of men are detailed to work in the magazines.

INTERMEDIATE AND SECONDARY BATTERY GUNS

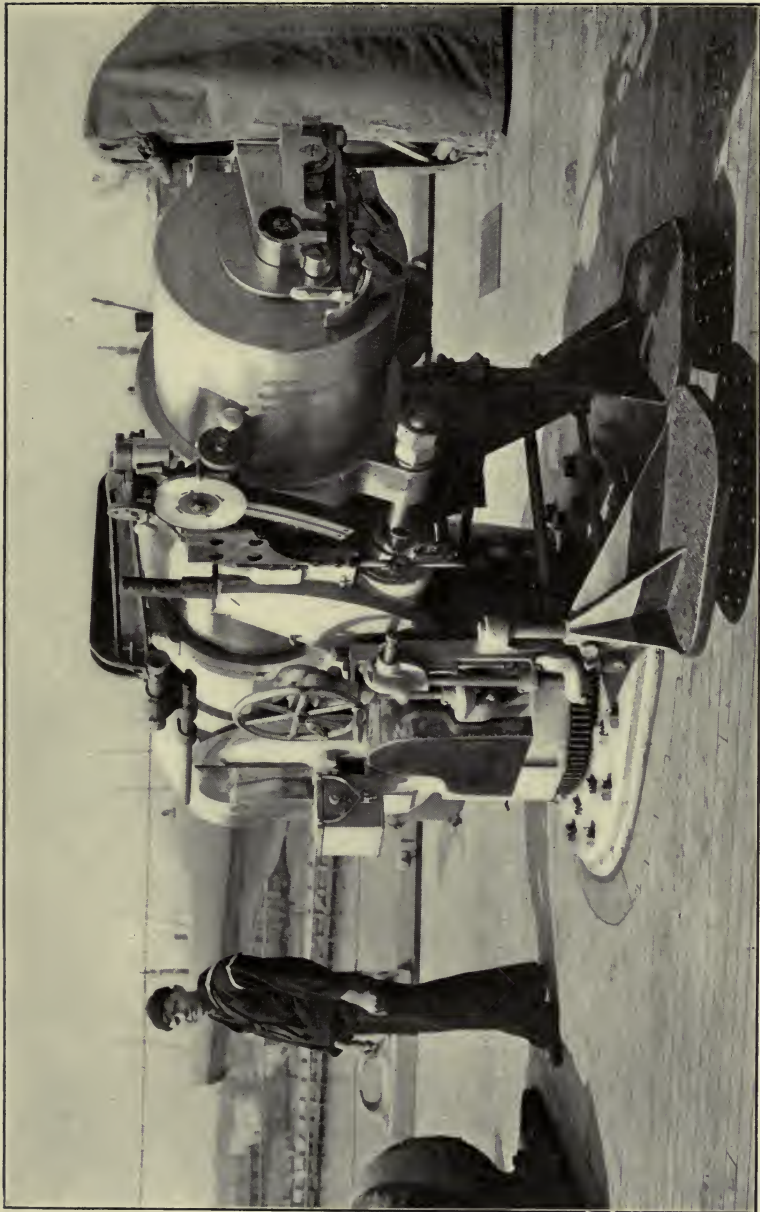
The intermediate guns of the battleship vary in caliber. Four-, five-, six-, and seven-inch guns are included in the intermediate battery, and they represent the broadside battery of the ship. Some ships are equipped with five-inch guns in the intermediate battery, and other ships may be equipped with guns of a larger caliber.

The guns are mounted on a permanent pedestal mount, and they recoil on about the same principle as the hydraulic-power recoil-guns. This, of course, excepts the fact that all guns of the intermediate battery are filled with recoil-liquid, consisting of glycerine and water.

The back end of these recoil-cylinders contains powerful steel springs. When the recoil-pistons meet these springs they help take up the recoil, and quickly the gun is forced out to battery.

On the larger caliber guns counter-recoil springs are used. These take up the jar as the guns return to the battery.

The intermediate guns are operated by hand-gear, and are easily manipulated, as the gun and its mechanism revolve on top of a series of small rollers, while the other parts are connected with cogs or worm-gear. These guns can be fired with



A SIX-INCH GUN. A typical broadside gun that is installed aboard many of our warships.

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Intermediate and Secondary Battery Guns 97

greater rapidity than the main guns, because of the fact that fixed or semi-fixed ammunition is used.

As soon as the gun is fired the gun-pointer and trainer keep it trained and sighted on the mark while the loading process is going on. Ammunition-hoists are placed conveniently at hand to supply the guns of the intermediate battery with ammunition.

Some of our new battleships are equipped with a broadside of twelve seven-inch guns, which are independent of the main guns. The main guns consist of four twelve-inch and eight eight-inch guns. The main guns, which are mounted in turrets, are protected by the heavily armored turrets and barbets. The guns of the intermediate battery are also well protected by the casemates or side armor, which extends up above the main armor belt.

The intermediate and main guns are sighted with telescopic sights, the outer end of which contains cross-wires. When the gun-pointer has the cross-wires on the mark he then fires the gun.

The guns of the secondary battery vary from three inches down to the smaller caliber machine-guns. One-, three-, and six-pounder guns, and also the three-inch guns are the largest caliber guns in the secondary battery. This battery is of great use in repelling torpedo-boat attacks, bombarding at close range, etc. All these guns work automat-

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ically or semi-automatically. When a semi-automatic gun is fired, the gases, etc., from each shot are utilized to eject the empty cartridge-case from the gun. All ammunition used by the secondary battery is fixed; the powder and shell is made up in a single cartridge-case similar to small rifle ammunition.

By using this ammunition the hail of the fire is terrific. The Colts automatic gun fires thirty-caliber service rifle ammunition. The first shot starts the gun in action, and the gun will keep firing as long as the trigger is held back and the ammunition holds out.

The ammunition is fed by a belt containing several hundred rounds, and as soon as one belt is used up another one is put in its place.

A Colts automatic in action sounds like a long row of large-size firecrackers going off. This gun is mounted on a small carriage, and is used mostly by the boarding and landing parties which may be sent from the ship. The barrel of this gun is detachable, because when one gets overheated it must be replaced with another barrel.

A machine-gun is one with more than one barrel. By turning a crank or lever the gun will fire several hundred shots a minute as long as the ammunition holds out. The ammunition is supplied by either a belt, hopper, or drum.

By having several barrels a machine-gun can fire a terrific hail of shot, since each barrel fires individually.

Each ship carries a couple of three-inch field-pieces, which are mounted on a wheeled truck. This gun with the machine and automatic guns are taken ashore with the landing party which may be sent from the ship. A small army of men could be kept at bay with a couple of these automatic guns.

HOW A LARGE GUN IS MADE

All guns on board a warship are so constructed and mounted that, should any accident occur to the gun proper, it could be easily replaced with a new one.

The labor, patience, and expense involved in manufacturing a large gun is enormous. In making a large gun the gun-metal is smelted in a huge ladle. It is then poured into a mould. When the mould is filled the top is securely closed and a pressure put on the molten metal by large hydraulic rams, which exert an enormous pressure on the mass. This causes it to form compactly, and forces out all the blow-holes. When the metal is cool it is removed from the mould and the ingot is roughly bored. After boring the tube is heated in the furnace and forged out on a mandrel. It is

then put through several processes of tempering, etc.

The tube is now set up in a huge lathe, where the outside of the tube is turned down to the size desired. This tube is very thick at the breech end of the gun, and gradually tapers down in size toward the muzzle.

Large steel jackets and hoops are heated in the furnace in order to expand them. These hoops and jackets are dropped over the gun while hot, and upon cooling they contract, thus greatly reinforcing the gun.

After the jackets and hoops are assembled the tube is set up on the lathe and rebored to the proper size. During these various operations the gun is carefully examined to detect flaws of any kind.

When the gun is rebored and turned to the right size, it is brought to the rifling-machine. This machine cuts a series of riflings in the bore of the gun. These commence at the back end of the powder-chamber and extend on throughout the bore of the gun. The riflings give the projectile a rotary motion, which causes the shell to go true on its course as it leaves the gun. This prevents the shell from tumbling or sagging. Each shell has a copper band around the base end of it. A groove is cut out of the shell, in which it is secured. This band

is called the rotary band, and is tapered on the end edge. It is slightly larger than the bore of the gun, and as the shell is rammed home it strikes up against the rifling and gives the shell a rotary motion when the gun is fired.

At the breech end of the gun all necessary slots, screw-holes, etc., are made. The breech-plug mechanism of a large gun looks a complicated affair, yet it is quite simple. By operating a single lever the breech-plug unlocks itself and swings open. Upon closing the breech-plug the movements are reversed.

After the gun is completed it is sent to the proving-grounds, where it is severely tested by firing it. After the gun has successfully passed through the tests it is sent to the ship designated, or it may be kept in stock until needed.

A gun must be of great strength, because the strain imposed upon it when being fired is enormous.

Previously the Government turned out all of its own guns, but of late many have been let by contract to outside firms. This has established many gun factories in this country. These will be of great service in time of war.

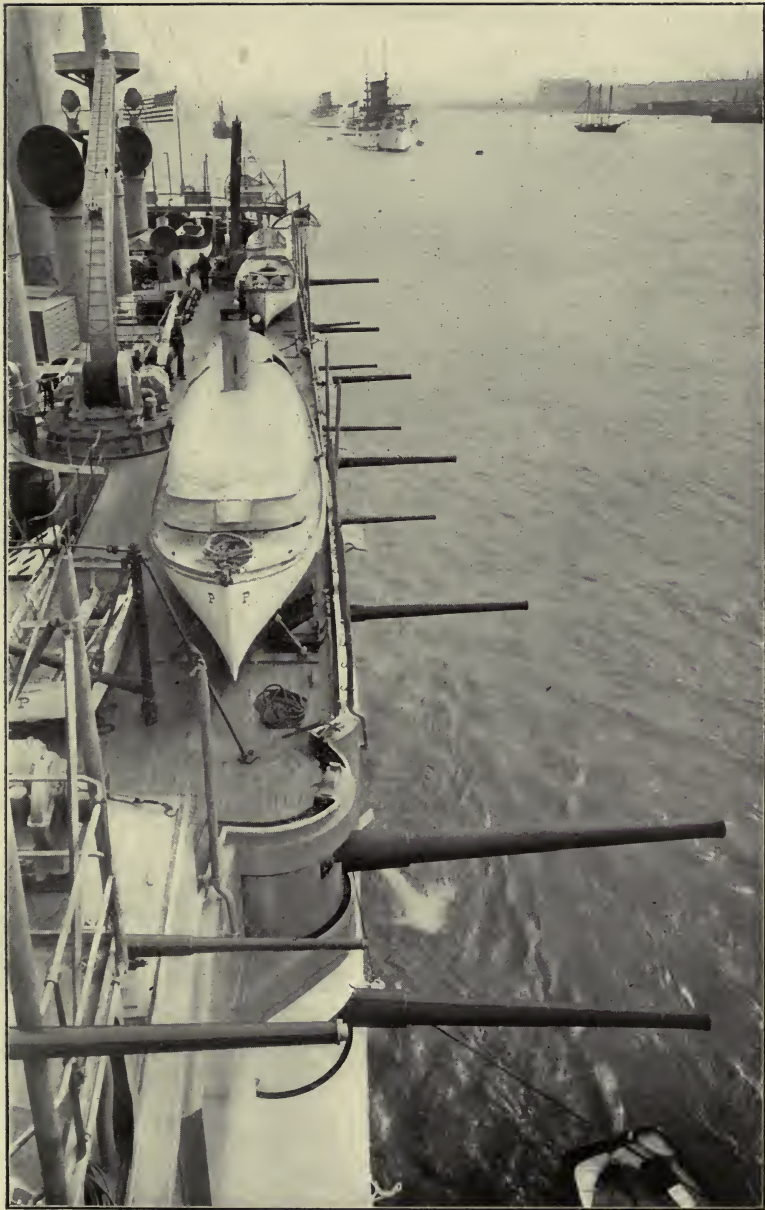
AMMUNITION

Smokeless powder is now used in the Navy. This powder is of great strength, and an ordinary powder-charge for a large modern gun requires a much smaller amount than powder of the old type. When a gun was fired with the old-style powder the ship was enveloped in a cloud of smoke, and should no breeze be blowing at the time, the smoke would hover about the ship for some time. This would prevent further firing until the smoke cleared away. The difficulty has been obviated, however, by the smokeless powder.

Three different types of shells are used in the Navy: armor-piercing, shrapnel, and common. These shells are formed in a mould and then forged down to the required size. After forging the shell is trimmed up on the lathe, interior hollowed out, and all other necessary machine-work is completed on it.

Armor-piercing shells are especially hardened at the nose, so that they may penetrate the armor of the ship. At the nose of an armor-piercing shell is a lubricating-cap, which is filled with a soft metal, which assists the shell to penetrate the armor. A great many armor-piercing shells contain a bursting-charge, which explodes similar to a common shell.

Common shells are made on about the same prin-



THE PENNSYLVANIA'S BROADSIDE. A few broadside guns of an armored cruiser.
The port side looking aft.

ciple as the armor-piercing shells, but the common shells contain larger bursting-charges.

Many shells are equipped with time-fuses, and by knowing the range, resistance of shell leaving gun, strength and weight of powder-charge, the time occupied by the shell in reaching the mark can be very easily figured out. The time-fuse is set accordingly, allowance being made for the shell to penetrate the ship before exploding.

Shrapnel shells have a large cavity bored out of the interior, and this is filled with several small metal balls. Among these balls is a small bursting-charge of powder. The walls of these shells are very thin, so that they will burst easily. The time-fuse is sometimes set so that the shell will explode just as it is about to strike the mark. The momentum of the shell will cause the many fragments and small balls to be hurled in many directions, thus causing great destruction about the decks of the enemy.

The larger size shells are equipped with base-fuses. These are set in the center of the bottom of the shell, and upon impact a plunger jumps forward and explodes the bursting-charge within the shell.

All ammunition is kept carefully stowed in the magazines. The powder-charge for the large-caliber guns is kept in large copper tanks or tubes, each of which contains one charge.

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This powder is put up in bags, and these fit snugly into the powder-chamber of the gun. At the base end of each bag is a small amount of black powder, which causes the smokeless powder to ignite more freely when the gun is fired. Each powder-charge is indexed with the date of manufacture, strength, etc.

The shells are kept stowed in the shell-rooms. All powder-charges and shells are piled in racks or bins, which are well secured so as to prevent them from breaking adrift when the ship is at sea. The larger powder-tanks stand on end.

All magazines are kept ventilated, and in case of fire they are quickly flooded, as each contains one or more flood-cocks which are connected with the sea. These cocks are operated from the upper decks, and upon being opened they let in an immense volume of water.

The ammunition for the smaller caliber guns of the intermediate and secondary battery guns is kept stowed in separate magazines. All guns of these two batteries from five-inch down use fixed ammunition. This is kept stowed in boxes containing one or more rounds, according to the caliber of the gun.

Much care and precaution are taken with the magazines at all times, because should one explode the greatest destruction would follow.

WEIGHT OF PROJECTILES

1-pounder gun.....	shell	1 lb.
3-pounder “	“	3 lb.
6-pounder “	“	6 lb.
3-inch “	“	14 lb.
4-inch “	“	33 lb.
5-inch “	“	50 lb.
6-inch “	“	100 lb.
7-inch “	“	165 lb.
8-inch “	“	250 lb.
10-inch “	“	500 lb.
12-inch “	“	850 lb.
13-inch “	“	1100 lb.

SHELL MEASURE, U. S. N.

2 thirteen-inch	1 long ton
12 seven-inch	1 short ton
8 eight-inch	1 ton
2 ten-inch	$\frac{1}{2}$ ton
1 six-inch	1 cwt.
1 five-inch.....	$\frac{1}{2}$ cwt.
1 one-pounder	1 lb.

TORPEDOES

A large fleet of torpedo-boats are maintained to fight with this deadly weapon—the torpedo. In addition to these craft most of our battleships and large cruisers are equipped with torpedo-tubes and all the necessary apparatus required for torpedo work.

Torpedoes are fired from a torpedo-tube. When

the torpedo is charged with the necessary pressure of compressed air, it is then ready to be fired.

There are two types of tube in use: one is submerged or below the water-line, the other is above the water-line.

The Whitehead torpedo has been the type which has been used for several years, but the Navy Department has recently adopted an entirely new type of torpedo. It is known as the Bliss-Leavitt turbine-torpedo. Its power is much greater than that of the Whitehead type. While the Whitehead is capable of making twenty-eight knots speed at a 900-yard range, and twenty-two knots at 1500 yards, the new turbine-torpedo makes a guaranteed speed of thirty-six knots at a 1200-yard range, and twenty-eight knots at 3500 yards.

The new torpedo is well adapted for use in submerged torpedo-tubes. This type of tube is much safer than the tubes above the water, because of the fact that the submerged type are below the water-line and thus protect the torpedo-room from the fire of the enemy. There are two sizes of torpedoes, eighteen-inch and twenty-one-inch. It is claimed that the eighteen-inch torpedo costs \$5000 and the twenty-one-inch a proportionate amount greater. This sum is really insignificant when one considers the battleship costing five or ten millions which it may put out of commission.

A few successful torpedo attacks on a fleet of large type of ships would soon decide the results of a naval battle. A torpedo is divided into three main sections. The forward end is known as the warhead; this contains 132 pounds of guncotton. The amidship or center section is the air-chamber, in which the compressed air is forced. Compressed air is the motive power. The after end of the torpedo contains the turbine-engine which operates the propellers. Two propellers are used, and they revolve in opposite directions at a high rate of speed. Located in these three main sections are other minor compartments, which contain the various devices which guide and regulate the torpedo when fired from the tube.

The torpedo contains horizontal and vertical rudders, which are so regulated by sensitive devices that they will cause the torpedo to go true on its course and keep it submerged the desired depth under the water. So sensitive is the steering and depth-regulating apparatus, that even though there be a sea running at the time the torpedo is fired from the tube, the torpedo will rise and fall with the swell overhead.

The depth of submersion is about eight feet, which is sufficient, since it is intended to strike the enemy below the armor belt.

Frequently torpedo practice is held. One form

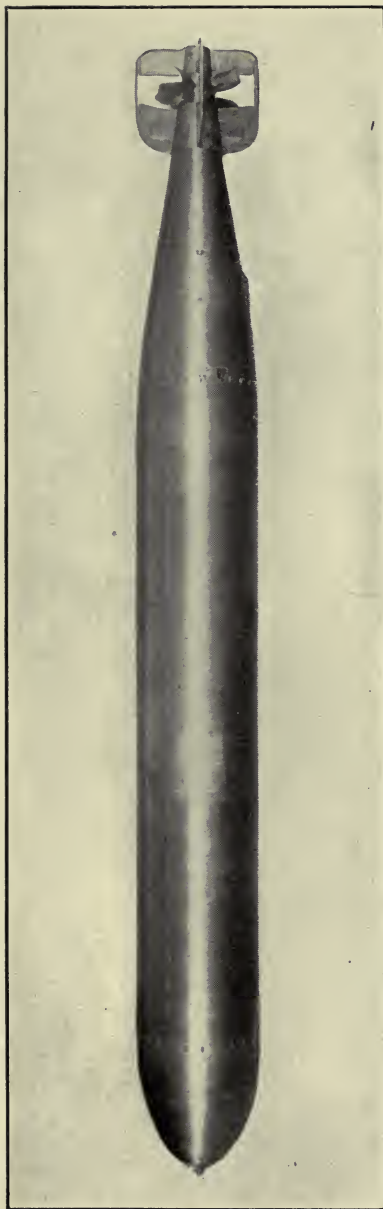
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of target practice is that with a floating target, which is towed full speed past the ship, which is speeding twelve knots or more in the opposite direction. In firing torpedoes from a battleship the methods vary somewhat. The range between the ship and the target varies according to the form of target practice.

The torpedo is charged with 2225 pounds of compressed air, which is furnished by powerful air-compressors. The outboard end of the tube turns in a ball joint; the inboard end revolves over a circular track. This track is marked with a set of figures. When the torpedoes are being fired the men stationed in the torpedo-rooms cannot see at what they are firing. The torpedo-room is located behind the armor belt, in which is a hole only large enough to admit the passage of a torpedo.

The officer in charge of the torpedo-firing ascertains the range from a sensitive instrument known as a torpedo-director. This instrument ascertains the range of the target or enemy, and the figures marked on the track on which the torpedo-tube passes over correspond with the figures of the torpedo-director. By this means the tube is kept trained, since the figures are given to the men stationed in the torpedo-room.

As both the target and the ship are moving in opposite directions, the tube is kept trained on



THE NEW BLISS-LEAVITT TURBINE TORPEDO. The new turbine torpedo, and some of the material trained to handle it.

the mark until the torpedo or the target is out of range. A sudden release of compressed air ejects the torpedo from the tube. As it leaves the tube the machinery starts in motion and an alcohol lamp is lighted automatically. This lamp superheats the compressed air, which gives it great expansive power and energy.

An automatic stop is so regulated that the torpedo will stop itself after it has traveled a certain distance. In time of war the torpedo could be regulated so that if it failed to strike the enemy it would sink to the bottom of the sea. A floating torpedo with a warhead attached is a menace to both opposing nations.

To prevent premature explosion another ingenious device is used. Located at the nose of the warhead is a small propeller-like arrangement. This propeller is caused to revolve by the friction of the water as the torpedo speeds through it. A small shaft is connected with this propeller and unscrews a locking-nut. After the shaft has made a certain number of turns the firing-pin is then effective; this will cause the torpedo to explode upon impact. This device allows the torpedo to get clear of the ship which fires the projectile.

The warhead is never used except in time of war. A drillhead is used during practice. This has the same weight and size as the warhead.

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The majority of the enlisted men detailed for torpedo work are gunner's mates, who are graduates from the Gunnery School, where torpedo work is made a special study.

CHAPTER V

NOMENCLATURE OF THE SHIP—DRAINAGE SYSTEM
—VENTILATION SYSTEM—FRESH AND SALT
WATER SYSTEMS—DESCRIPTION OF UNITED
STATES VESSELS—HOW THE NAVY HAS
GROWN IN TWELVE YEARS—VESSELS
UNDER CONSTRUCTION—SUMMARY
OF IMPORTANT VESSELS BUILT

NOMENCLATURE OF THE SHIP

MILITARY *Masts* is the name given to the steel masts of the ship. They are armored at the base and fighting-tops are attached to them. The fighting-tops are now used mostly for observation and range-finding.

Boat Cranes are used for hoisting and lowering boats. They have a large tapering arm which revolves. The cranes are also used while coaling, and they work mechanically.

Bridge. A long narrow bridge built up from the superstructure deck. The pilot-house, chart-house, steering-wheel, compass, speaking-tubes, speed-

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annunciator, and signaling apparatus are located on the forward end of the bridge.

Emergency Cabin. A small room located on the forward end of the bridge. It is used by the captain during a storm of long duration. In time of war, should an engagement be imminent, the captain would occupy the emergency cabin so as to be at hand.

Signal-yards. Near the top of the military masts is a small signal-yard, used to hoist signals from the bridge.

Conning-tower is located directly under the forward end of the bridge. It is made of heavy armor and contains many peep-holes; the interior contains all necessary apparatus for navigating the ship. The conning-tower is supposed to be used in time of action, but is seldom used, as the officers prefer to remain on the bridge.

Side Lights. When at sea a red light can be seen from the port side and a green light from the starboard side; these lights define the direction in which the ship is going at night.

Superstructure Deck. This deck is built up from the broad part of the main deck. Hammock-net-

tings, galley and engine-room hatches, ventilators, cranes, and most of the secondary battery are located on this deck.

Main Deck. On a majority of the ships this deck extends from bow to stern; the forward end is called the forecastle (pronounced "forxcl" by sailors); the rear end is known as the quarter-deck. The ship's largest caliber guns are located on the center line of this deck.

Hawse-pipes. This is a heavy casting through which the anchor-chain passes on its way to the sea.

Bitt. This is a heavy piece of metal securely fastened to the decks. A bitt has two upright arms to which lines or cables are fastened.

Sea-ladder. This consists of a series of small metal steps which are secured permanently against the ship's side.

Scuppers. These are heavy pipes or tubes which drain the water from the waterways to the sea.

Waterways. This is a channel on the outer edge of the decks which leads the water to the scuppers.

Davitts are heavy metal arms which extend over the sides of the ship, and are used for hoisting boats, stores, etc.

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Cleat is a small device with two small arms used for fastening small lines.

Winch is located about the decks and is used for hoisting purposes.

Tackle is a set of blocks and ropes used for hoisting purposes. The more sheaves in the blocks the greater the purchase.

Lower Booms are extended out from the ship's sides. As soon as the anchor is dropped these booms are rigged out, and all small boats in the water not in use are made fast to these booms.

Air-ports. On the lower decks are many air-ports used for ventilating and lighting purposes, and are made of heavy glass.

Battle-ports are attached overhead from the air-ports and are lowered and secured when the big guns are in action.

Grappling is a small anchor with several claws and is used by the small boats.

Harness Cask is an oval-shaped cask used for stowing salted meats.



A NAVY-YARD SCENE. A typical scene at the Brooklyn navy-yard, where warships are overhauled.

Scuttle Butt is a drinking-tank where the crew get their drinking-water. A cooling-pipe is placed inside.

Binnacle is a casing around the compass, and on the sides are two small lamps which reflect the light on the compass card.

Hatch Coamings are the parts of the hatch which extend above the decks. These prevent the water from getting below. The hatch is an opening in the decks used for traffic or cargo.

Well is a certain part of the main compartments where all the water gathers to be pumped out. A sounding-tube leads to the upper decks, through which the sounding-rod is dropped to ascertain whether the ship is leaking. The suction-pipes from the pumps are also located in the well.

Wildcat is a heavy slotted casting on the anchor-engine into which the links of the anchor-chain fit snugly as the anchor is being hoisted or dropped.

Stopper is a heavy hook with a long shank, one end being hooked into a ring-bolt and the balance lashed against the anchor-chain, thus helping to secure it.

The Lead is a heavy lead weight with a small line attached. The line has the fathoms marked

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on it at intervals. A hole in the bottom of the lead is filled with tallow to ascertain the nature of the bottom of the sea. If the bottom of the sea is muddy, the mud will stick to the tallow.

Armory is a place to store small arms, such as rifles and pistols. A gunner's mate is placed in charge of the armory.

Store-rooms on the ship are very necessary, and each department has several. They are kept closed with water-tight doors.

Double Bottoms. The ship has practically two bottoms, independent of each other, and the space between the two is called the double bottom. Fresh water can be carried in the double 'bottom if necessary.

Trimming-tanks are located at the extreme ends of the ship. When the ship is about to be docked, the trimming-tanks are filled with sea-water in order to make the ship set level in the water.

Berth Deck. This deck extends the whole length of the ship, and is used for living accommodations. On this deck are many mess tables and hammock hooks. A great many of the flood, sluice, and

drain valves are operated from this deck. It is also known as the armored or protective deck.

Battle-hatches are made of heavy steel plates which are set over the hatch coamings and securely fastened. Certain hatches are cut out of the armored deck, which are very heavy, and are operated by tackles or mechanism.

Orlop Deck is located below the armored or berth deck. Ammunition-hoists and the auxiliary magazines are located here. Ammunition-hatches for the intermediate and secondary battery guns open up on this deck, all ammunition being trolleyed to the different hoists. This deck is below the water-line, and is protected on the sides by the heavy belts of armor and by the armored deck overhead.

Bulkheads are steel walls which divide the ship into compartments and store-rooms. All bulkheads are water-tight. All water-tight doors and hatches fit against a rubber gasket.

Main Engines are those used for propelling the ship. The general type of engine in use is the triple-expansion upright type.

Twin Screws pertains to a vessel with two screws or propellers. This type of ship has two separate

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engines, which are located in separate compartments well below the water-line.

Throttle-valve is a valve of the steam-engine which regulates the amount of steam going into the steam-chest.

Reversing-engine is a small engine used to throw the reversing-links over on the main engines. When the engines are to be reversed, the steam is shut off and the reverse-links are thrown over. This changes the position of the cut-off in the steam-chest and causes the engines to revolve in the opposite direction when the steam is turned on.

Fire-rooms are located in separate compartments. The steam-pipes from the boilers connect with the main steam-pipe which leads the steam to the main engines.

Boilers of the ship are located below the water-line. The old-style marine boilers have many tubes through which the heat from the fires passes to heat the water. The new type of boiler is known as "water-tube boiler." The water is inside the tubes and the heat passes around them. Thus the steam is created more easily and is of a much higher pressure.

Main Shaft is made up in sections with solid flanges, which are securely bolted together. This shaft runs from the engines to the stern of the ship. The last section to which the propeller is attached is called the tail shaft.

Thrust-box. The first section of the main shaft from the engines has several large collars on it. These fit snugly into the thrust-box and thus prevent the shaft from working in and out. The thrust-box bearing is kept filled with oil when the engines are in motion.

Jacking-engine is a small engine that can be connected to the main shaft by worm-gear. When in port the jacking-engine is used to turn the main engines over for repairs, etc.

Auxiliary Machinery includes all the machinery about the ship, such as evaporators, ice-machines, winches, blower-engines, dynamo-engines, etc. When in port only one boiler or set of boilers is fired, and this supplies steam to the auxiliary machinery.

Steering-engine-room is located at the after end of the ship well below the water-line. At sea a watch is stationed in the steering-engine-room, and should anything go wrong it is immediately re-

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ported to the officer of the deck. The steering-engine is operated by moving the wheel up on the bridge.

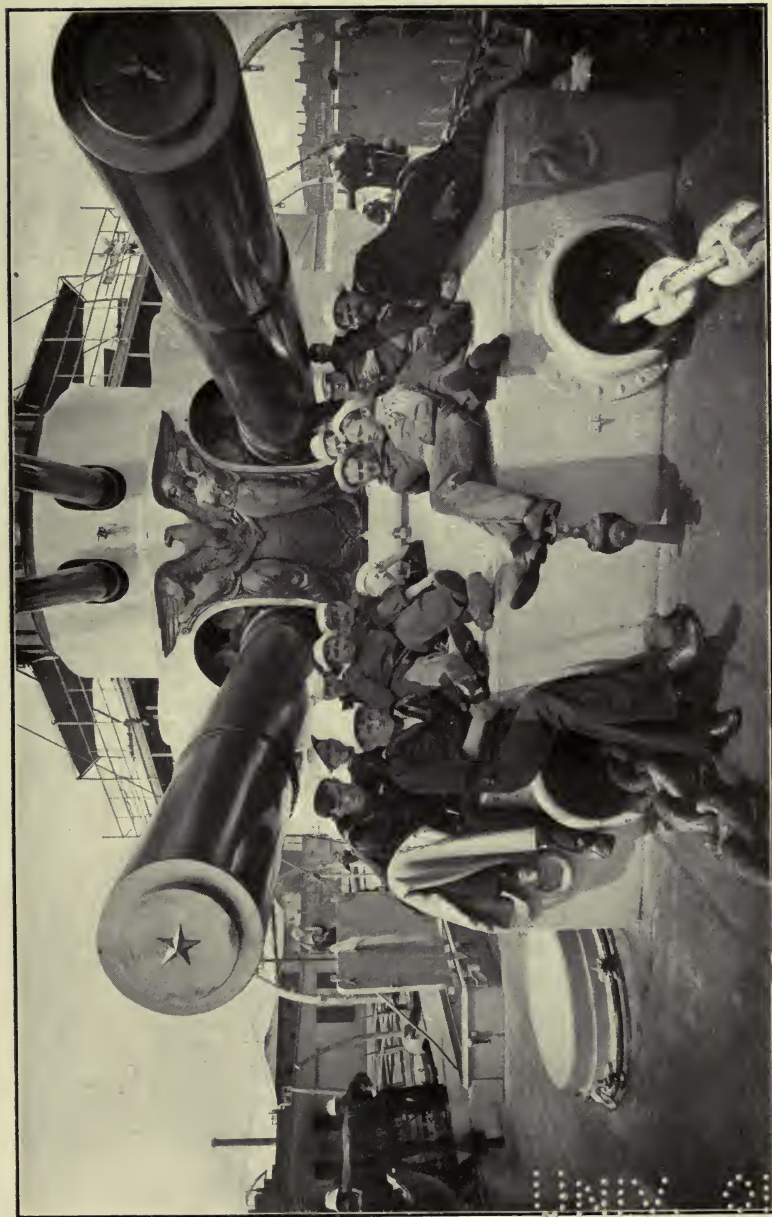
Ward-room is located on the after part of the berth deck. It is a spacious compartment where the senior officers dine. The admiral and captain have their quarters located at the extreme after end of the ship.

Chain-lockers are located directly under the anchor-engine, and as the anchors are being hoisted men are stationed in the lockers to stow away the anchor-chain. When the anchors are to be dropped the men are ordered to keep clear of the chain-lockers and anchor-chain.

Sand-locker is a compartment used to carry sand. The wooden decks, gratings, boat-gear, etc., are often scrubbed with sand and canvas.

Catfalls is a large set of tackles used to hoist and cat the anchors. Many ships use a patent anchor, the stock of which is housed in the hawse-pipes.

Mooring-swivel. When both the anchors are out the anchor-chains are secured to the mooring-swivel,



TAKING LIFE EASY. Forward turret of the U. S. S. *Kearsarge*. Note the superposed turrets.

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which prevents the chains from getting twisted as the ship swings with the tide.

Chain-plates are wide plates which are secured to the decks where the anchor-chains pass over, and thus protect the decks. The upper decks are of wood, which is bolted to the steel plating underneath.

Turn Buckle is a metallic device with threads at either end, which are used to set taut cables, rods, etc.

Boatswain's Chair is a short board with a line reeved through the ends. A line is secured to same, and this chair is used to lower a person over the side to overhaul the rigging, etc.

Marlinspike is a short piece of iron or steel, tapered at one end, and is used to pry open strands of a rope or cable for splicing.

Hammock Netting is a compartment about the superstructure deck where the crew stow their hammocks.

Palm is a leather band that fits over the palm of the hand and is used for sewing canvas. A small

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metallic disc is secured to the center of the band. The head of the sewing-needle rests against this disc as the needle is being forced through the canvas.

Siren is one of the ship's steam-whistles, and when blown creates a screeching noise.

Keelson is a heavy plating built over the ship's main keel. It is located at the very bottom of the ship, and is used to strengthen the keel and the bottom of the ship.

Uptake is a section of the boiler that leads the smoke to the smoke-stacks. Many of the large ships have smoke-stacks one hundred feet in height from their base.

Manhole is a space cut out of the boiler, tank, etc., large enough to admit a person to inspect or repair same.

Water-line is a horizontal line along the outside of a ship. It represents the ship's natural draught. A corresponding line is marked on the ship's interior.

Snatch-block is a block which is hinged on the side. This style of block saves much labor, for by

opening the block any part of a rope can be set in. With the old-style block the rope's end had to be reeved through.

Reel is a cylindrical drum used to coil large ropes or fire-hose on.

Shackle is a link with two eyes at one end; a pin is inserted through these eyes and thus a link is formed. Shackles are used to connect chains together, etc.

Sextant is an instrument used by the navigator to measure angular distances to ascertain the longitude and latitude.

Stud is a short brace in the center of each anchor-chain link, and is used mostly on large chains. These studs give the chain great strength.

Swab consists of canvas threads secured to a handle, and is used to dry the decks.

Refrigerating Rooms are used to store fresh meat and other perishable goods. The interior contains many coils of cooling-pipes which are connected with the ice-machines.

Figurehead is a design fastened to the stem of the ship. The styles of figureheads vary. Some

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consist of a shield, others of a seal of the State after which the ship is named, etc.

Stern-post is an upright piece of metal which constitutes the stern of the ship. The rudder of a twin-screw ship is hinged to the stern-post. The extreme opposite end of the ship is known as the stem or bow.

Frames are the steel ribs of the ship, and commence at the keel and curve upward to the extreme height of the ship. At the different decks deck-beams cross athwartship and are well secured to the frames.

Starboard. In facing toward the bow of the ship the right-hand side of the ship is called starboard; the left-hand side is known as the port side. Amidships pertains to the middle part of the ship; athwartships signifies across the ship.

DRAINAGE SYSTEM

The ship is one mass of compartments and storerooms. Each contains one or more sluice-gates or drain-valves. All the minor compartments contain drains which lead the water to the main compartments, where it is pumped out. The main compartments contain the suction-pipes. When water

is found in any of the compartments it is reported to the engine-room and is then pumped out. In the engine- and fire-rooms are several large pumps with a great many suction-pipes which lead to the many compartments.

By opening the main sluice-gates the water can be led into any compartment desired. All the sluice-gates and drain-valves are operated from the inclosed decks, the stem of each being connected with a long shaft. All these valves are made of heavy brass and are tested regularly.

A socket-wrench fits over the shaft-head, and a dial-plate gives the position of the valve, whether it is open or shut. The hand-pumps of the ship can also be connected up for pumping out compartments. These pumps are operated by cog-gear and manned by the crew. They may also be used for pumping sea-water for fire purposes, etc. There are several hundred drain- and sluice-valves aboard the ship, and to overhaul and test them requires several days.

When in tropical waters the ship's lower hull sweats a great deal. This, of course, causes water to form. When the ship is inspected by the admiral and his staff every nook and corner of the ship is thoroughly noted and a report of same is forwarded to Washington.

VENTILATION SYSTEM

This system is so perfect that all compartments, store-rooms, and magazines are kept cool and comfortable at all times. In some parts of the ship two systems are used: one supplies the fresh air and the other carries away the foul air.

Special care is taken to thoroughly ventilate the magazines and lower compartments, thus making the ship quite comfortable between decks.

Located in different parts of the ship are huge blowers, operated by steam or electricity. Each blower supplies certain sections of the ship with air. In case a compartment or magazine should become flooded with water, it could not back through the ventilating-pipes, because outside the bulkheads is a pocket containing a hollow ball or float which rises when the pocket becomes filled with water. The pressure forces the ball or float against the hole in the air-pipe, and thus prevents the water from passing through.

In time of action all battle-hatches are battened down, and the large amount of fresh air forced into the lower parts of the ship makes it quite comfortable for the men stationed below decks.

The fire-rooms and engine-rooms have many large ventilators extending up through the upper decks. On the tops of these ventilators are large



A GROUP OF YOUNG NAVAL OFFICERS. These midshipmen will eventually become captains or admirals some day.

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revolving hoods, which are faced toward the wind. This causes the heat to be lessened in the engine- and fire-rooms. When at sea these ventilators are "trimmed" by the watch on deck, should it be necessary.

FRESH AND SALT WATER SYSTEMS

A complete distilling plant is installed aboard the ship. Most of the fresh water used is made by the evaporators. Located in different parts of the ship are fresh-water tanks, where all the fresh water is stowed. On the superstructure deck is located the supply-tank, which supplies the different pipe-lines about the ship.

Salt water is pumped into the evaporators and comes out sweet and fresh. All foreign substances in the water are destroyed by the process of distillation and evaporation.

The drinking-tanks are cleaned and cemented regularly. Below are the main tanks, which supply the boilers with water. Several thousand gallons of water are used daily aboard ship, particularly when at sea.

All the exhaust steam from the machinery of the ship discharges into the condensers, which contain a large number of small tubes. Salt water in its cold state is circulated through the condensers. By this means all the exhaust steam is condensed.

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The water thus condensed is filtered and used again for feed-water. Were it not for the condensing process ships would be unable to make long voyages, as the water-supply would soon be exhausted.

The sanitary tank is also located on the superstructure deck. The salt water that has been used for cooling purposes by the ice-machines and evaporators empties into this tank. The water from the tank is used mostly for flushing purposes.

The piping system of the ship is a complicated affair, and connections are so made that by regulating certain valves the supply can be taken from any system desired.

DESCRIPTION OF UNITED STATES VESSELS

The following lists will give a good description of all vessels of 3000 tons displacement or more. Only vessels built for warships are included. The auxiliary cruisers, supply-ships, colliers, etc., are omitted. In time of war the battleships and armored cruisers will be looked upon as the most important factors. These craft are capable of going anywhere to give battle. Colliers, supply-ships, and other craft are used to perform the valuable services for which they are designed.

Take, for example, a fleet of warships in foreign waters. These vessels must be supplied with coal and other things without which they cannot get

along. In time of war each nation is thrown on its own resources to supply the ships with coal, stores, and other necessities. The neutrality laws do not allow vessels of either belligerent to stay in a port over a specified time. During this time the ships are allowed to take on only enough supplies to last them until they reach their nearest port.

As the monitors are of slow speed, poor sea-boats, and incapable of steaming a long distance with their coal-supply, they are therefore used for harbor and coast defence protection. They were originally built for this purpose. No more monitors are being built, since the powerful sea-going battleships and armored cruisers are taking their place.

A monthly report is made to the Navy Department regarding the percentage made on the progress of each ship under construction at the various shipbuilding yards.

All the lists and tables in this book are compiled from the data obtained from the "Annual Report of the Chief of Bureau of Construction and Repair for the Fiscal Year Ending June 30, 1905." The tables of the battleships, monitors, and the protected cruisers are brought up to January 1, 1907. A few of the vessels mentioned will not be commissioned until the latter part of the present year, 1906. Should any of these vessels fail to be commissioned by that date, it would matter but little,

for they could be considered as practically completed.

The data pertaining to the vessels mentioned may vary from previous or future lists, since the data alter in minor details from various causes. For example, the armored cruiser *Pennsylvania* had a contract speed of twenty-two knots, and the horse-power to be developed at the trial trip was not to be less than 23,000. This vessel made a speed of 22.44 knots, and her machinery developed 28,600 horse-power. This of course greatly exceeded the terms specified in the contract.

The data of several of the ships mentioned pertain to the terms specified in the contract. After the trial trip the data are sometimes changed in detail. In most instances the changes look favorable for the builders of the vessel.

The length of the ships is given in even feet. The shape and type of a vessel sometimes make vessels of the same length appear to be different.

The column marked "one shot" signifies the total weight in pounds of the projectiles fired from the main battery of each ship, each gun firing once.

The fighting qualities of a ship cannot be judged by the weight of projectiles only, although these represent a very important factor.

A twelve-inch shell weighs 250 pounds less than



U. S. S. VIRGINIA ON HER TRIAL TRIP. This photo was taken while the ship was steaming over nineteen knots.

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a thirteen-inch one. Still a twelve-inch gun is more powerful and destructive than a thirteen-inch gun. For this reason the newer types of ships are equipped with twelve-inch guns. The total number of guns in the secondary battery is given, which includes the small portable guns that are used by the battalion in landing-parties, etc.

The table entitled " Summary of Important Vessels Built " will give a good idea of the vessels which are built.

Gunboats under 500 tons, colliers, supply-ships, and other craft are omitted from the list. Were these included, their data would greatly increase the total of the other ships mentioned in the list.

All the ships mentioned in the lists are not actually in commission at the same time. Some of them may be out of commission temporarily; others may be at the navy-yard being overhauled; perhaps some are laid up with the reserve fleet. Vessels attached to the reserve fleet may be quickly utilized, since the skeleton crew are kept aboard to keep the ship in order. In time of war all available fighting craft would be quickly assembled and formed into fleets, squadrons, and divisions.

The object in compiling these lists and tables was to give the reader an accurate idea of the data pertaining to the important ships of the Navy. The data will no doubt prove to be of great value

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for reference. Through the courtesy of the Chief Constructor of the United States Navy, the author was allowed to forward all this data pertaining to vessels of the Navy to the Bureau of Construction and Repair for such revision as might be practicable. The data in general were found to be correct in all essentials, only a few minor corrections being noted.

BATTLESHIPS, BUILT.

Jan. 1, 1907 Battleships First-class Name	Length over all	Breadth	Rig and Funnels	Officers	Men	Displace- ment (Tons) (Normal)	Horse- power	Speed (Knots)	Year of Commission	Main Battery		No. of Guns in Secondary Battery	One Shot Battery (Lbs.) Main
										In Tur- rets	Broad- side		
1 Louisiana	456	77	2 masts 3 funnels	41	840	16,000	16,500	18.00	1906	4-12 in. 8-8 in.	12-7 in.	50 guns	7,380
	2 Connecticut	456	77	2 masts 3 funnels	41	840	16,000	16,500	18.00	1906	4-12 in. 8-8 in.	12-7 in.	50 guns
3 Georgia		441	76	2 masts 3 funnels	40	772	14,948	19,000	19.00	1906	4-12 in. 8-8 in.	12-6 in.	42 guns
	4 Nebraska	441	76	2 masts 3 funnels	40	772	14,948	19,000	19.00	1906	4-12 in. 8-8 in.	12-6 in.	42 guns
5 New Jersey		441	76	2 masts 3 funnels	40	772	14,948	19,000	19.00	1906	4-12 in. 8-8 in.	12-6 in.	42 guns
	6 Rhode Island	441	76	2 masts 3 funnels	40	772	14,948	19,000	19.00	1906	4-12 in. 8-8 in.	12-6 in.	42 guns
7 Virginia		441	76	2 masts 3 funnels	40	772	14,948	19,000	19.00	1906	4-12 in. 8-8 in.	12-6 in.	42 guns
	8 Indiana	351	69	1 mast 2 funnels	26	580	10,288	9,607	15.55	1895	4-13 in. 8-8 in.	4-6 in.	29 guns
9 Massachusetts		351	69	1 mast 2 funnels	35	580	10,288	10,240	16.21	1896	4-13 in. 8-8 in.	4-6 in.	32 guns
	10 Oregon	351	69	1 mast 2 funnels	35	580	10,288	11,037	16.79	1896	4-13 in. 8-8 in.	4-6 in.	29 guns

Brace indicates same type of vessel.

BATTLESHIPS, BUILT

No.	Name	Jan. 1, 1907 Battleships First-class	Length over all	Breadth	Rig and Funnels	Officers	Men	Displace- ment (Tons) (Normal)	Horse- power	Speed (Knots)	Year of Commission	Main Battery		No. of Guns in Secondary Battery	One Shot (Lbs.) Main Battery
												In Tur- rets	Broad- side		
{ 11	Alabama		374	72	2 masts 2 funnels	34	679	11,552	11,207	17.01	1900	4-13 in.	14-6 in.	29 guns	5,800
{ 12	Illinois		375	72	2 masts 2 funnels	34	656	11,552	12,757	17.45	1901	4-13 in.	14-6 in.	28 guns	5,800
{ 13	Wisconsin		374	72	2 masts 2 funnels	34	669	11,552	12,452	17.17	1901	4-13 in.	14-6 in.	28 guns	5,800
{ 14	Maine		394	72	2 masts 3 funnels	35	772	12,500	15,603	18.00	1902	4-12 in.	16-6 in.	24 guns	5,000
{ 15	Missouri		394	72	2 masts 3 funnels	40	740	12,500	15,845	18.15	1903	4-12 in.	16-6 in.	20 guns	5,000
{ 16	Ohio		394	72	2 masts 3 funnels	41	759	12,500	16,220	18.00	1904	4-12 in.	16-6 in.	24 guns	5,000
{ 17	Kentucky		375	72	2 masts 2 funnels	35	651	11,520	12,179	16.90	1900	4-13 in. 4-8 in.	14-5 in.	38 guns	6,100
{ 18	Kearsarge		375	72	2 masts 2 funnels	39	651	11,520	11,788	16.82	1900	4-13 in. 4-8 in.	14-5 in.	34 guns	6,100
19	Iowa		362	72	1 mast 2 funnels	35	617	11,346	11,933	17.09	1897	4-12 in. 8-8 in.	6-4 in.	30 guns	5,598
20	Second-class Texas		309	64	2 masts 1 funnel	30	473	6,315	8,507	17.80	1895	2-12 in.	6-6 in.	22 guns	2,300

Totals: 20 Battleships; 735 officers; 13,947 men; 350,461 tons displacement; 120,658 lbs. one shot.
Brace indicates same type of vessel.

ARMORED CRUISERS, BUILT

10 9 8 7 6 5 4 3 2 1	Jan. 1, 1907 Armored Cruisers	Name	Length over all	Breadth	Rig and Funnels	Officers	Men	Displace- ment (Tons) (Normal)	Horse- power	Speed (Knots)	Year of Commission	Main Battery		No. of Guns in Secondary Battery	One Shot (Lbs.) Main Battery
												In Tur- rets	Broad- side		
1	California	2 masts	504	70	4 funnels	41	791	13,680	23,000	22.00	1906	4-8 in.	14-6 in.	48 guns	2,400
		2 masts	504	70	4 funnels	41	791	13,680	26,837	22.24	1905	4-8 in.	14-6 in.	48 guns	2,400
2	Colorado	2 masts	504	70	4 funnels	41	791	13,680	28,059	22.41	1905	4-8 in.	14-6 in.	48 guns	2,400
		2 masts	504	70	4 funnels	41	791	13,680	28,600	22.44	1905	4-8 in.	14-6 in.	48 guns	2,400
3	Maryland	2 masts	504	70	4 funnels	41	791	13,680	23,000	22.00	1906	4-8 in.	14-6 in.	48 guns	2,400
		2 masts	504	70	4 funnels	41	791	13,680	26,135	22.15	1905	4-8 in.	14-6 in.	48 guns	2,400
4	Pennsylvania	2 masts	504	70	4 funnels	40	789	14,500	23,000	22.00	1906	4-10 in.	16-6 in.	48 guns	3,600
		2 masts	504	73	4 funnels	40	789	14,500	23,000	22.00	1906	4-10 in.	16-6 in.	48 guns	3,600
5	South Dakota	2 masts	504	73	4 funnels	41	791	13,680	18,425	21.91	1896	8-8 in.	12-5 in.	23 guns	2,600
		2 masts	504	65	3 funnels	41	550	9,215	18,425	21.91	1896	8-8 in.	12-5 in.	23 guns	2,600
6	West Virginia	2 masts	384	70	3 funnels	34	535	8,150	17,075	21.00	1893	4-8 in.	10-5 in.	10 guns	1,500
		2 masts	384	70	3 funnels	34	535	8,150	17,075	21.00	1893	4-8 in.	10-5 in.	10 guns	1,500

Totals: 10 Armored Cruisers; 401 officers; 7,499 men; 128,445 tons displacement; 25,700 lbs. one shot.
 Brace indicates same type of vessel.

MONITORS, BUILT

Jan. 1, 1907 Monitors Name	Length over all	Breadth	Rig and Funnel	Officers	Men	Displace- ment (Tons) (Normal)	Horse- power	Speed (Knots)	Year of Commission	Main Battery		No. of Guns in Secondary Battery	One Shot (Lbs.) Main Battery
										In Tur- rets	Broad- side		
1 Arkansas	255 50		1 mast 1 funnel	13 209	3,225	1,739	12.03	1902	2-12 in.	4-4 in.	13 guns	1,832	
2 Florida	255 50		1 mast 1 funnel	13 209	3,225	2,336	12.40	1903	2-12 in.	4-4 in.	13 guns	1,832	
3 Nevada	255 50		1 mast 1 funnel	13 209	3,225	1,970	13.04	1903	2-12 in.	4-4 in.	13 guns	1,832	
4 Wyoming	255 50		1 mast 1 funnel	13 209	3,225	2,359	11.80	1902	2-12 in.	4-4 in.	13 guns	1,832	
5 Amphitrite	263 55		1 mast 1 funnel	23 113	3,990	1,600	10.50	1895	4-10 in.	2-4 in.	13 guns	2,066	
6 Miantonomoh	263 55		1 mast 1 funnel	16 164	3,990	1,426	10.50	1891	4-10 in.		9 guns	2,000	
7 Monadnock	262 55		1 mast 1 funnel	14 205	3,990	3,000	12.00	1896	4-10 in.	2-4 in.	8 guns	2,066	
8 Terror	263 55		1 mast 1 funnel	14 164	3,990	1,600	10.50	1896	4-10 in.	4-4 in.	8 guns	2,132	
9 Monterey	261 59		1 mast 1 funnel	14 215	4,084	5,104	13.60	1893	2-12 in. 2-10 in.		12 guns	2,700	
10 Puritan	296 60		1 mast 1 funnel	22 248	6,060	3,700	12.40	1896	4-12 in.	6-4 in.	10 guns	3,598	

Totals: 20 Monitors; 155 officers; 1,945 men; 39,004 tons displacement; 21,890 lbs. one shot.
Brace indicates same type of vessel.

PROTECTED CRUISERS, BUILT

	Jan. 1, 1907 Protected Cruisers	Name	Length over all	Breadth	Rig and Funnels	Officers	Men	Displace- ment (Tons (Normal))	Horse- power	Speed (Knots)	Year of Commission	Main Battery	No. of Guns in Secondary Battery	One Shot (Lbs.) Main Battery
{	1	Albany	354	44	2 masts 2 funnels	19	329	3,430	7,400	20.50	1900	10-5 in.	15 guns	500
			354	44	2 masts 2 funnels	19	329	3,430	7,500	20.00	1898	10-5 in.	15 guns	500
{	3	Atlanta	288	42	2 masts 2 funnels	19	285	3,000	3,500	15.60	1886	2-8 in. 6-6 in.	13 guns	1,100
			288	42	2 masts 2 funnels	22	287	3,000	4,300	15.60	1887	2-8 in. 6-6 in.	13 guns	1,100
{	5	Charleston	426	66	2 masts 4 funnels	36	637	9,700	27,200	22.04	1905	14-6 in.	54 guns	1,400
			426	66	2 masts 4 funnels	36	637	9,700	21,000	22.00	1906	14-6 in.	54 guns	1,400
{	7	St. Louis	426	66	2 masts 4 funnels	36	637	9,700	21,000	22.00	1906	14-6 in.	54 guns	1,400
			309	44	2 masts 2 funnels	19	321	3,200	5,303	16.65	1904	10-5 in.	15 guns	500
{	9	Cleveland	309	44	2 masts 2 funnels	19	320	3,200	4,640	16.45	1903	10-5 in.	15 guns	500
			309	44	2 masts 2 funnels	19	320	3,200	6,135	16.75	1904	10-5 in.	15 guns	500
{	11	Des Moines	309	44	2 masts 2 funnels	19	320	3,200	5,340	16.65	1904	10-5 in.	15 guns	500
			309	44	2 masts 2 funnels	19	320	3,200	5,340	16.65	1904	10-5 in.	15 guns	500

Brace indicates same type of vessel.

PROTECTED CRUISERS, BUILT

	Jan. 1, 1907 Protected Cruisers	Name	Length over all	Breadth	Rig and Funnels	Officers	Men	Displace- ment (Tons)	(Normal)	Horse- power	Speed (Knots)	Year of Commission	Main Battery	No. of Guns in Secondary Battery	One Shot (Lbs.) Main Battery	
12	}	Galveston	309	44	2 masts 2 funnels	19	322	3,200	5,073	16.41	1905	10-5 in.	15	500	12	
			309	44	2 masts 2 funnels	19	320	3,200	5,288	16.58	1904	10-5 in.	15	500	13	
14	}	Cincinnati	306	42	1 mast 2 funnels	20	302	3,183	8,290	19.00	1894	11-5 in.	13	550	14	
			306	42	2 masts 2 funnels	20	302	3,183	8,500	19.00	1894	11-5 in.	13	550	15	
16	}	Columbia	413	58	2 masts 4 funnels	28	410	7,350	18,269	22.80	1894	1-8 in. 2-6 in.	8-4 in.	19	714	16
			413	58	2 masts 2 funnels	33	410	7,350	20,544	23.07	1894	1-8 in. 2-6 in.	8-4 in.	17	714	17
18	}	Newark	328	49	2 masts 2 funnels	35	363	4,083	8,727	19.00	1891	12-6 in.	21	1,200	18	
			325	49	2 masts 2 funnels	19	332	4,083	9,761	19.52	1890	12-6 in.	16	1,200	19	
20	}	Baltimore	335	49	2 masts 2 funnels	30	353	4,413	8,778	20.10	1890	12-6 in.	21	1,200	20	
			342	48	2 masts 2 funnels	32	446	4,500	9,000	18.00	1889	4-8 in. 14-5 in.	14	1,700	21	
22	}	Olympia	344	53	2 masts 2 funnels	30	454	5,865	17,080	21.69	1895	4-8 in. 10-5 in.	20	1,500	22	

Totals: 22 Protected Cruisers; 548 officers; 8,436 men; 105,179 tons displacement; 19,728 lbs. one shot.

Brace indicates same type of vessel.

How the Navy has Grown in Twelve Years 139

HOW THE NAVY HAS GROWN IN TWELVE YEARS

The following tables will demonstrate the growth of the Navy covering a period of twelve years. The first table includes all the armored cruisers, monitors, and protected cruisers that were in commission previous to December 31, 1894. Vessels of 3000 tons displacement or more are mentioned in the tables. Auxiliary cruisers, gunboats, and other less important craft are omitted from the tables. These were looked upon a dozen years ago as powerful fighting ships, but they cannot compare with modern vessels.

By referring to the weight of projectiles fired from one of our latest type of battleships, it will be seen to equal what the eleven large gunboats, three composite gunboats, three light-draught gunboats, three unprotected cruisers, and five auxiliary cruisers can fire from their main battery. The battleship has many other points of advantage besides that of firing projectiles.

When the expense of operating these thirty ships is compared with that of a battleship, the books will show a balance greatly in favor of the latter. This fact demonstrates that the battleship is not only the most valuable in war, but also cheaper.

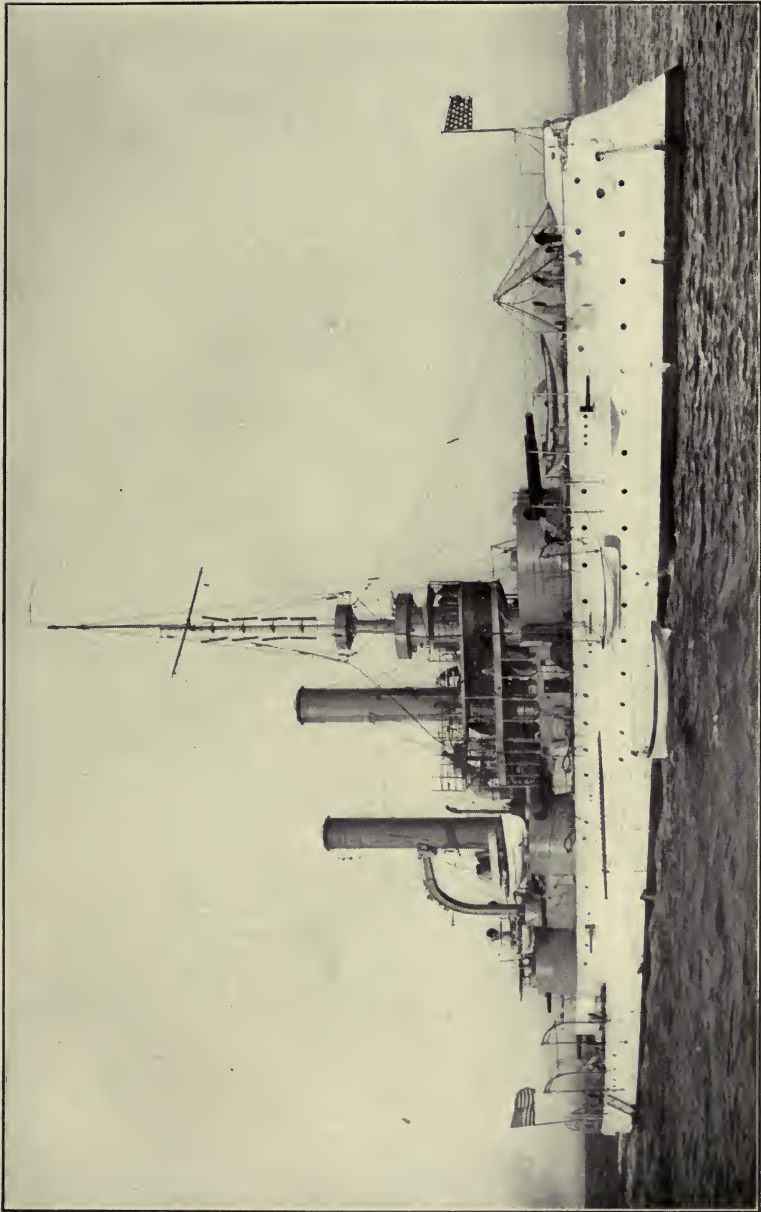
The aggregate tonnage of these thirty vessels

mentioned in the table under "Summary of Important Vessels Built" is 61,686 tons. The number of officers required is 410; men required, 5428. The tonnage of our latest type of battleship that is now in commission is 16,000, and the ship carries a complement of 41 officers and 840 men.

Previous to 1894 no battleships were in commission. When the second-class battleships, *Texas* and *Maine*, and the first-class battleships, *Oregon*, *Indiana*, and *Massachusetts*, were commissioned, they were regarded as great fighting-machines. Our latest type of battleship, however, greatly exceeds the older type of vessels in various ways.

In time of war the older type of ships would, perhaps, be put in a squadron by themselves. This would permit the larger and more powerful type to work to better advantage by themselves. Of course, should a battle be imminent, all the fighting units would be concentrated, since the Navy does not fight naval engagements on the instalment plan in these days.

The following changes have been made in the tables: The data pertaining to the *Maine* (old *Maine*) are included in the tables up to 1898. After this date the data are deducted, since the *Maine* was lost in the early part of 1898 in the harbor of Havana. The data of the protected cruiser *Charleston* (old *Charleston*) are included in the tables up to



U. S. S. Iowa. Pages 132 to 139 respectively contain valuable data of our warships.

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How the Navy has Grown in Twelve Years 141

1900. The *Charleston* was lost in the Philippines during the year 1899. The protected cruiser *Philadelphia* is also included in the tables up to 1902. After this date the data are deducted, since the *Philadelphia* is now used as a receiving-ship at the Puget Sound navy-yard.

Since only vessels on the active list are included in the tables, it would be misleading to carry on the data of vessels which were lost or not carried on the active list. Our older type of ships were rated in a higher class until a few years ago. At the present time only battleships and armored cruisers are classed as vessels of the first rate

(1894)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
1 Armored Cruiser	8,150	34	535	1,896
2 Monitors	8,074	30	379	4,700
11 Protected Cruisers	48,558	288	3,843	11,288
Total, 14 Ships	64,782	352	4,757	17,884

(1896)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
5 Battleships	43,861	157	2,556	25,300
2 Armored Cruisers	17,365	75	1,085	4,496
6 Monitors	26,104	103	1,109	14,562
13 Protected Cruisers	58,153	338	4,583	13,828
Total, 26 Ships	145,483	673	9,333	58,186

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(1898)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
5 Battleships	48,525	161	2,830	28,298
2 Armored Cruisers	17,365	75	1,085	4,496
6 Monitors	26,104	103	1,109	14,562
14 Protected Cruisers	61,583	357	4,912	14,328
Total, 27 Ships	153,577	696	9,936	61,684

(1900)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
8 Battleships	83,117	269	4,811	46,290
2 Armored Cruisers	17,365	75	1,085	4,496
6 Monitors	26,104	103	1,109	14,562
14 Protected Cruisers	61,283	356	4,955	13,728
Total, 30 Ships	187,869	803	11,960	79,076

(1902)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
11 Battleships	118,721	372	6,908	62,890
2 Armored Cruisers	17,365	75	1,085	4,496
8 Monitors	32,554	129	1,527	18,226
14 Protected Cruisers	61,283	356	4,955	13,728
Total, 35 Ships	229,923	932	14,475	99,340

(1904)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
13 Battleships	143,721	453	8,407	72,898
2 Armored Cruisers	17,365	75	1,085	4,496
10 Monitors	39,004	155	1,945	21,890
18 Protected Cruisers	72,870	421	6,203	15,028
Total, 43 Ships	272,960	1,104	17,640	114,312

Vessels Under Construction

143

(1906)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
20 Battleships	250,461	735	13,947	120,658
10 Armored Cruisers	128,445	401	7,409	26,096
10 Monitors	39,004	155	1,945	21,890
22 Protected Cruisers	105,170	548	8,436	19,728
Total, 62 Ships	523,080	1,839	31,737	188,372

VESSELS UNDER CONSTRUCTION *

(JAN. 1, 1907)

Name	Type	Displacement (Normal) (Tons)	Officers	Men	One Shot (Lbs.)
Idaho	Battleship	13,000	34	691	6,720
Mississippi	Battleship	13,000	34	691	6,720
Kansas	Battleship	16,000	41	840	7,380
Minnesota	Battleship	16,000	41	840	7,380
New Hampshire	Battleship	16,000	41	840	7,380
Vermont	Battleship	16,000	41	840	7,380
Michigan	Battleship	16,000	51	818	6,800
South Carolina	Battleship	16,000	51	818	6,800
Montana	Armored Cruiser	14,500	40	789	3,600
North Carolina	Armored Cruiser	14,500	40	789	3,600
Birmingham	Scout Cruiser	3,750	16	340	
Chester	Scout Cruiser	3,750	16	340	
Salem	Scout Cruiser	3,750	16	340	
Total, 13 Ships		162,250	462	8,976	63,760

* The majority of these ships are nearing completion, and will be commissioned during the years 1907 and 1908. Many of these vessels are sister ships to those already in commission.

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SUMMARY OF IMPORTANT VESSELS BUILT

(JAN. 1, 1907)

Number and Type of Ships	Displacement (Normal) (Tons)	Officers	Men	One Shot (Lbs.)
20 Battleships	250,461	735	13,947	120,658
10 Armored Cruisers	128,445	401	7,409	25,700
10 Monitors	39,004	155	1,945	21,890
22 Protected Cruisers	105,170	548	8,436	19,728
3 Unprotected Cruisers	6,216	45	738	1,000
11 Gunboats	14,554	119	1,682	2,566
3 Light-draught Gunboats	4,155	31	564	792
8 Composite Gunboats	8,422	80	1,199	1,584
5 Auxiliary Cruisers	28,339	135	1,245	2,198
16 Torpedo-boat Destroyers	6,957	48	1,184	
35 Torpedo-boats	5,707	67	935	
Total, 143 Ships	597,430	2,364	39,284	196,116

SUMMARY OF IMPORTANT VESSELS UNDER CONSTRUCTION

(JAN. 1, 1907)

Number and Type of Ships	Displacement (Tons)	Officers	Men	One Shot (Lbs.)
8 Battleships	122,000	334	6,378	56,560
2 Armored Cruisers	29,000	80	1,578	7,200
3 Scout Cruisers	11,250	48	1,020	
Total, 13 Ships	162,250	462	8,976	63,760

CHAPTER VI

DIFFERENT TYPES OF WARSHIPS—TWO YEARS ON
THE OREGON—HOW A BATTLESHIP IS DOCKED
—ADMIRAL DEWEY'S FLEET AT MANILA
BAY COMPARED WITH A MODERN
BATTLESHIP—HOW THE CREW IS
DIVIDED—NAVAL NOTES

DIFFERENT TYPES OF WARSHIPS

IT is a somewhat difficult task to define any set rules regarding the size and type of the different warships.

A "man-o'-war" is very deceiving in regard to strength and size. For example, take the small protected cruisers. Gazing at them from a distance, or looking at a photograph of one, they loom up like a battleship or an armored cruiser. A battleship or armored cruiser, however, could stand off a whole fleet of these.

By knowing the ship's displacement, weight of projectiles, and the size and number of guns in the main battery, one can easily ascertain the ship's strength and class. By referring to the "Descrip-

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tion of United States Vessels" in this book, the size and strength of any ship can be ascertained. This applies to ships of more than three thousand tons; the smaller vessels are not included in the list, owing to the great number of them.

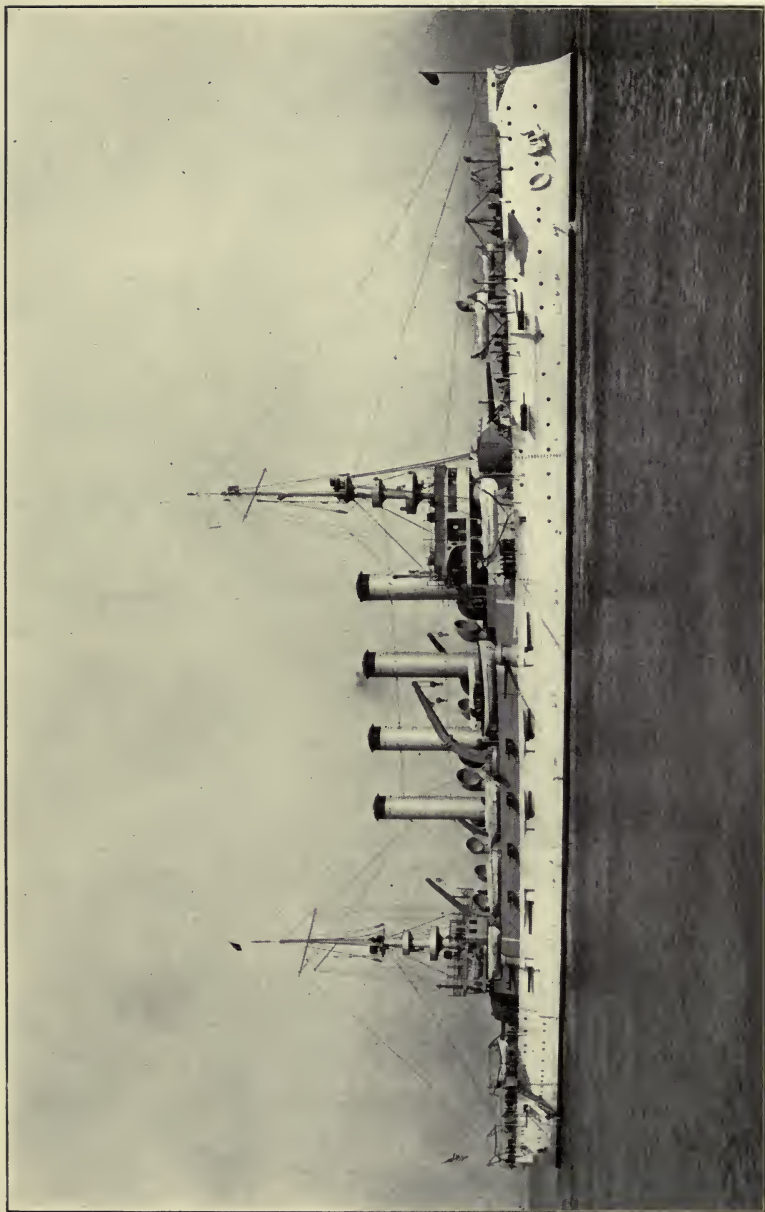
In time of battle the battleships and armored cruisers bear the brunt of the battle. The smaller ships are protected by the large ships when possible.

The figures given in the description of the different types of warships apply only to our Navy. Many foreign nations, of course, would rate ships of a similar size and type in a higher class.

Battleships are from ten thousand tons up, and they, with the armored cruisers, represent the backbone of our Navy. Running the entire length of the ship is a belt of armor, which protects the sides of the vessel. The thickest portion of this belt is amidships; it then tapers down toward the bow and the stern. The battleship's largest guns are twelve- or thirteen-inch, and are mounted in turrets which are located forward and aft on the center line of the main deck.

All guns mounted in turrets are in pairs. The turret revolves on top of the barbets, which extend down through the lower decks to the handling-room below.

The intermediate guns are four-, five-, six-, or



U. S. S. WEST VIRGINIA AT ANCHOR. This type of armored cruisers is designed after extremely graceful lines.
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seven-inch. These are mounted in broadsides and are worked by hand. The main guns, however, are operated automatically.

The ship has a heavy-armored deck which extends its whole length. This deck is up to three inches in thickness and protects the ship's vitals below. The ship with the best armor, armament, speed, and the largest steaming radius is the most valuable to the Navy. When one considers the power required to force a sixteen-thousand-ton ship through the water at a speed of eighteen knots an hour, one wonders how it is possible.

Armored Cruisers average fourteen thousand tons each. This does not include the *Brooklyn* or the *New York*. These average about nine thousand tons each.

The largest caliber guns of the armored cruiser are eight- or ten-inch guns, which are mounted in turrets similar to the ones used on the battleships.

The armor and armament of an armored cruiser are considerably less than that of a battleship. This is due to the fact that the armored cruiser is of considerably greater speed and also has a larger steaming radius.

Converted Cruisers are steamers which have been engaged in the merchant service. Several of these

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steamers were purchased previous to the war with Spain. Their tonnage varies according to size, but they will average six thousand tons each. Their largest caliber guns are five-inch. They serve various purposes, since they can be used for supply-boats, carrying troops, etc., besides assisting to form a tight blockade against any port.

Some of the foreign nations compel the ship-owners to have their vessels built under certain plans, so that in case of war the ships can be quickly converted into cruisers. By strengthening the ship in the proper places a battery of large-caliber guns can be quickly installed.

Gunboats vary from one hundred to two thousand tons. The expense attached to operating a gunboat is insignificant when compared with that of a large ship. Gunboats relieve the larger ships from running around. Should trouble arise anywhere, these small vessels or cruisers are sent to investigate. Should the trouble prove to be of a serious nature, the whole fleet would soon be in readiness for action.

The largest caliber guns are six-inch. These have a heavy shield over and around them. Many gunboats have coffer-dams, which are hollow compartments filled with cellulose. Should a shell penetrate the ship below the water-line, the water would

cause the cellulose to swell and thus the hole to be closed. The coal-bunkers are filled with coal and also act as a preventative against shells.

Gunboats are of great use in shallow water on account of being of light draught.

Torpedo-boats are in two classes. Torpedo-boat destroyers are long, narrow vessels about two hundred and fifty feet in length. The regular torpedo-boats are about half the size and strength of the destroyers. The construction of all torpedo-boats is very light, and their interior contains an enormous amount of machinery.

The destroyers make twenty-eight knots or more in speed, and their tonnage varies between four and five hundred tons. Their horse-power is as high as eight thousand. This, of course, is enormous when compared with the small tonnage. The armament consists of a few three-inch and six-pounder guns, and the boats are also equipped with several torpedo-tubes, through which the torpedoes are fired.

The destroyers make excellent despatch and patrol boats on account of their great speed.

The secondary battery of all ships is used mostly to repel torpedo-boat attacks, so that when these boats attempt to torpedo a ship the movements must be very rapid.

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Protected Cruisers could be divided into two classes: second-rate cruisers vary between four and nine thousand tons; third-rate cruisers vary between three and four thousand tons. Protected cruisers have a much smaller armor and armament than the armored cruisers. Their largest caliber guns are eight-inch, some of which are mounted in turrets on the larger type of protected cruisers.

This class of ships is of great value, because they perform a great deal of scout duty, commerce-deströying, etc. They have a protective deck, both sides of which slant in order to divert the course of a shell should one strike it. A protective deck performs much the same functions as an armored deck, although, of course, the protective deck is much smaller.

The average speed of the protected cruiser is about twenty knots, although several exceed that speed. Three scout cruisers are being built, and these will make twenty-four or more knots. They also have a large bunker capacity, which will give them a great steaming radius. These craft will be of great value in war-time, because they will be able to keep in touch with the enemy, overhaul fast merchant steamers, etc.

Monitors were built for coast defence purposes, and are kept around home ports. They are seldom



A MONITOR AT SEA. Battleships and armored cruisers are taking the place of the monitors.

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sent to sea for long voyages, although the *Monterey* and *Monadnock* made a successful voyage from San Francisco to Manila, a distance of about six thousand miles.

A monitor has very little freeboard—that is, the ship's sides do not extend very high out of the water. Their freeboard is about a foot, and in time of action the flooding-tanks could be filled so that only the ship's turrets and upper works would be exposed to fire.

The largest caliber guns on a monitor are ten- or twelve-inch, and these are mounted in turrets.

A monitor represents half a battleship in appearance. Should another deck be built on top of the monitor's main deck and be armored on the sides, the vessel would in reality be a regular battleship.

The tonnage of the monitors ranges between three and six thousand tons.

Some of the smaller monitors have only a single turret, in which two twelve-inch guns are mounted. The speed of a monitor varies from eleven to fourteen knots.

TWO YEARS ON THE OREGON

When a ship is commissioned and ready for service she is generally attached to some fleet or squadron.

Many opportunities are given an enlisted man to go ashore and visit the many sights and scenes that are to be encountered, particularly when in a foreign port. In time of peace a warship generally lingers a while in each port.

The *Oregon* set forth from San Francisco en route to the Asiatic station to join Rear-Admiral Evans's fleet on November 1, 1902. After leaving Honolulu, bound for Yokohama, the ship ran into a terrific typhoon, which carried away several of the small boats and caused considerable damage about the upper decks of the ship. About midnight of November 27, 1902, when the storm was at its worst, an enormous sea swept over the entire ship, crushing in the starboard side of the pilot-house. Good seamanship and a good ship came out ahead, for the *Oregon* escaped with a safe hull, and none of the main parts of the ship were injured. At the time the *Oregon* was built she was known as a coast-defence battleship, because of the fact that she had a small freeboard.

When the *Oregon* made her famous trip from San Francisco to Santiago, a run of about fourteen

thousand miles, her reputation as a sea-going ship was firmly established.

Upon reaching Yokohama the ship was taken to a Japanese shipyard, where all damages caused by the storm were repaired. Upon the completion of repairs the *Oregon* joined Rear-Admiral Evans's fleet.

The Japanese and Russian war caused all warships to leave and stay away from the ports of both belligerents. It is strictly against the neutrality laws for a warship of any nation to visit or stay in any port of either belligerent while a state of war exists. No doubt the *Oregon* would have visited many other ports were it not for this war.

The following is a complete list of the ports visited by the *Oregon*, covering a period of two years:

ITINERARY CRUISE OF THE OREGON

Departed from	Date of sailing	Length of stay
San Francisco, Cal.	Nov. 1, 1902	1 month, 11 days
Honolulu, H. I.	Nov. 23, 1902	13 days
Yokohama, Japan	Dec. 13, 1902	8 days
Uraga, Japan	Feb. 17, 1903	1 month, 17 days
Yokohama, Japan	Feb. 18, 1903	11 days
Woosung, China	Mar. 14, 1903	17 days
Hong Kong, China	Apr. 4, 1903	17 days
Amoy, China	Apr. 7, 1903	2 days
Yangtse River, China	Apr. 12, 1903	3 days
Nagasaki, Japan	Apr. 17, 1903	3 days
Yokohama, Japan	May 29, 1903	1 month, 9 days
Kobe, Japan	May 31, 1903	Hove to for pilot

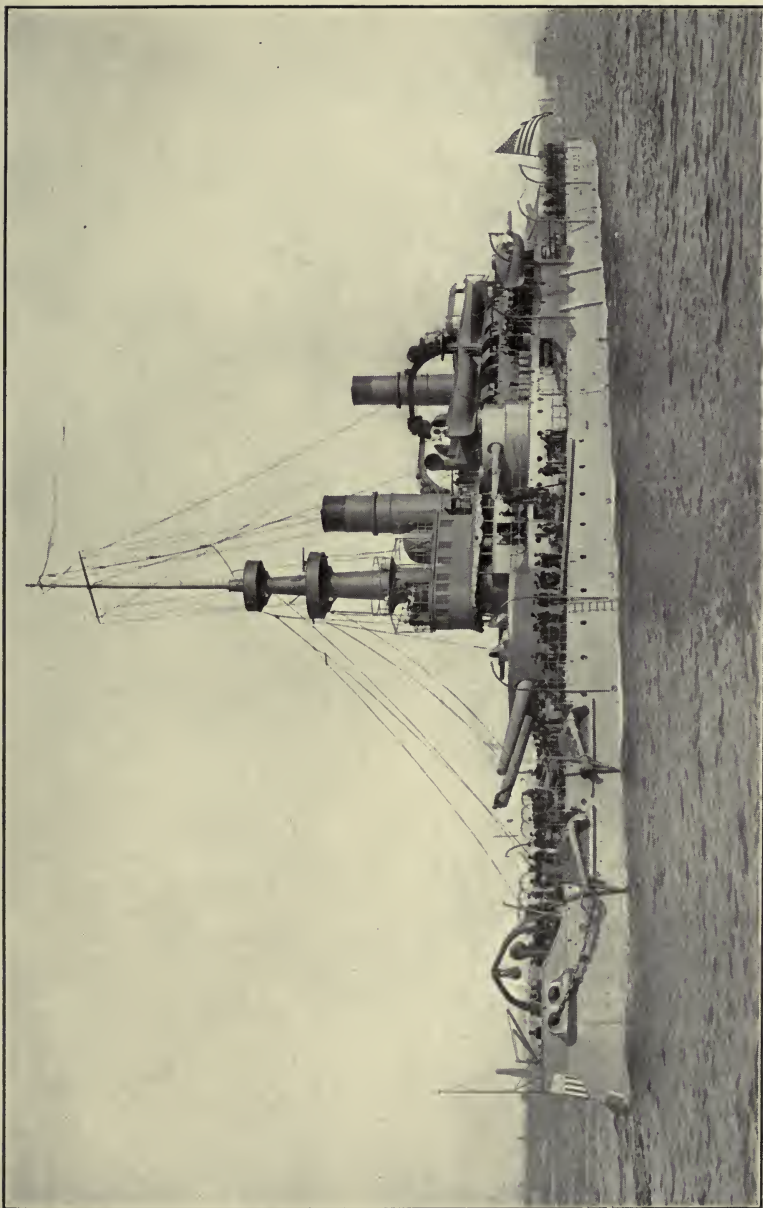
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Departed from	Date of sailing	Length of stay
Inland Sea, Japan	June 2, 1903	1 day en route
Cheefoo, China	June 11, 1903	6 days
Taku, China	June 17, 1903	5 days
Cheefoo, China	Sept. 20, 1903	3 months, 2 days
Tsnigtau, China	Sept. 26, 1903	5 days
Nagasaki, Japan	Oct. 20, 1903	22 days
Kobe, Japan	Oct. 27, 1903	5 days
Yokohama, Japan	Nov. 13, 1903	16 days
Yokosuka, Japan	Nov. 18, 1903	5 days
Yokohama, Japan	Dec. 5, 1903	17 days
Honolulu, H. I.	Dec. 29, 1903	13 days
Wake Island	Jan. 6, 1904	$\frac{1}{4}$ day
Guam, L. I.	Jan. 13, 1904	3 days
Cavite, P. I.	Jan. 20, 1904	2 days
Olongapo, P. I.	Feb. 8, 1904	19 days
Target Range, Manila Bay	Feb. 27, 1904	19 days
Cavite, P. I.	May 20, 1904	2 months, 23 days
Hong Kong, China	June 15, 1904	23 days
Cavite, P. I.	June 22, 1904	5 days
Woosung, China	Oct. 27, 1904	4 months

HOW A BATTLESHIP IS DOCKED

Located at the different navy-yards are one or more dry-docks. These are large enough to accommodate the largest size warship.

Battleships are docked every six months when practicable, and as a rule they are never allowed to go without docking longer than nine months. The naval constructor of the navy-yard, assisted as much as possible by the officers and crew of the ship, has charge of docking the ship. The captain



U. S. S. OREGON, OUTWARD BOUND. This photo was taken in 1898, shortly after the battle of Santiago.
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is in charge until the bow of his ship crosses the sill of the dock; the naval constructor then takes charge of the docking.

All ships carry a complete set of docking-plans, which give the exact dimensions of the ship, etc. The dock people take these plans and set up the blocking accordingly.

The majority of our battleships are well over twelve thousand tons, and when one considers the difficulties and obstacles to be overcome, he would quickly realize the magnitude of the task of docking a large warship. Should one set of blocking be out of place or out of form, it would perhaps ruin the ship.

A dry-dock is a large excavation dug out of the ground. One end of it borders on the sea. The sides and bottom of the dock are made up of huge blocks of stone, which are closely fitted and cemented together. The back end of the dock is called the sill, and is built up very strongly, so that the gate of the dock fits firmly against it. In the center line of the bottom of the dock is one continuous row of blocking, which is of uniform height and is known as the keel blocking, because the keel of the ship rests against it. Running out toward the sides of the dock are many large timbers, which are well blocked up underneath. The bilge blocking rests against these timbers when the ship settles and rests on the keel blocks. This

bilge blocking is slipped over these timbers until they fit snugly under the ship's bilges and thus help to support the ship. The bilges are the flat portions of the ship's bottom.

Bilge blocking is made up in various shapes and sizes because of the fact that the ship's bottom varies in form. The bilge blocking is slid over the timbers through a system of tracks and chains.

The dock-gate looks somewhat like a small barge. It is hollow, and when filled with water sinks into position and forms a tight joint, thus allowing the water to be pumped out of the dock. The dock-gate also contains several gate-valves. Upon opening these valves the sea-water enters the dock and floods it. When the dock is filled the gate is pumped out until it finally floats clear of the sill, and it is then taken to one side in order to allow the ship to enter or leave the dock. The ship is assisted to dock with tugs or else warped there with large hawsers.

All docking is done at high tide, and as soon as the ship's bow enters the dock she is warped into position with the assistance of many lines. When the ship passes over the sill of the dock the gate is brought into position and sunk. This gate has a large rubber gasket on the inner side, and the pressure of the sea without presses the gate into position, thus forming a water-tight joint. When

the gate is in position and the ship is properly placed, the naval constructor signals to the pump-house to commence pumping.

The pump-house contains large centrifugal pumps which send out an enormous stream of water. As the water lowers in the dock the ship lowers with it, until she finally settles on the keel blocks.

Great caution must be exercised in seeing that the ship is placed in the exact position designated. Should the ship be misplaced in the slightest degree, the other blocking would not fit. When the ship rests well on the keel blocks the pumps are stopped.

When the ship is well shored the pumps are started up again. As the water is lowering in the dock a small army of men are scraping the sea-growth off the ship's bottom, because this is more easily done when the ship is wet.

When the water in the dock is getting low, the bilge blocking is slipped under the ship's bilges, thus helping to hold the ship up. When the dock is nearly empty the ship is shored up with many timbers, because great care must be taken to avoid straining the ship. After the dock is pumped dry all necessary repairs are made; sea-valves, suction-pipes, rudder, propellers, etc., below the water-line are thoroughly overhauled.

When the ship's bottom is well scrubbed and

cleaned, it is given a couple of coats of paint, the latter of which is applied while the dock is being flooded. This paint gives better results when left to dry under water. The invention of a paint which would keep the ship free of marine growth would mean a fortune to the inventor.

The various nations often allow a warship of another nation to dock in their own navy-yards. This is done as an act of courtesy, because at times it is inconvenient to dock a ship at a private dock-yard.

After a ship is ready to be undocked all sea-valves, etc., are closed, and the valves in the dock-gate are opened. The dock is then slowly flooded. When the dock is nearly flooded the horizontal shores are knocked adrift, and when the dock fills the ship floats clear of all blocking on which she is resting. The dock-gate is then pumped out until it floats clear of the sill, when it is removed to one side and the ship taken out.

The ship is worked out of the dock with large hawsers; tugs stand by to tow her to her berth; or the ship may have steam up in the main boilers. This would dispense with the services of the tugs.

As the ship clears the dock the gate is brought into position and sunk, and the dock pumped out; all blocking, etc., is then rearranged for the next vessel on the docking list.

Often two or more small-size ships are docked

together. At the navy-yard docks is a large traveling crane which turns around the edge of the dock. This crane is of great use in dismounting guns, etc.

The Navy has a large floating dry-dock in the Philippines which is used by the ships on duty around that vicinity. This dock is of great capacity, and is able to dock the largest size cruiser or battleship. This dry-dock is worked on the pontoon principle. The dock is submerged deep enough to allow a ship to float over it. When the ship is properly placed the flooded pontoons are pumped out until the ship is raised clear of the water. Then the ship is cleaned and repaired.

By reflooding the pontoons the dock quickly settles, and when sunk sufficiently the ship floats clear.

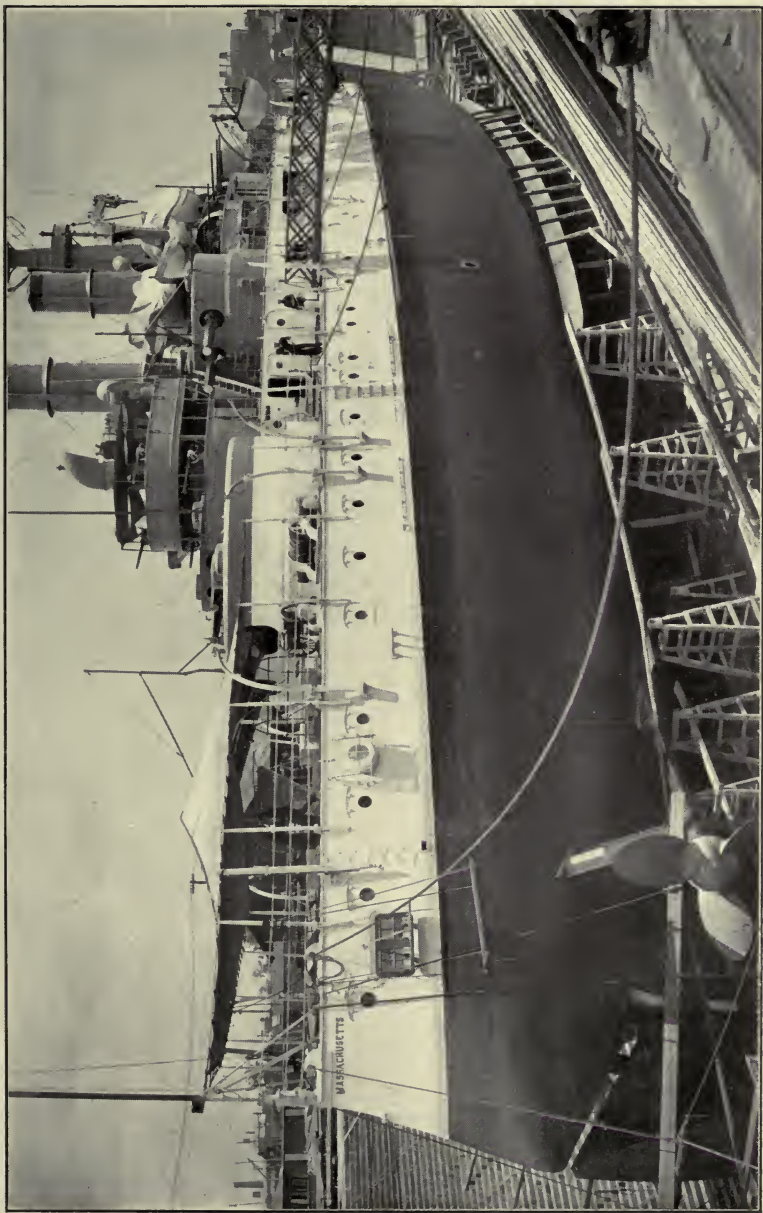
One valuable feature of this dock is that it can dock itself when necessary for repairs, etc. The pontoons are so arranged with connecting-bolts that they will lift each other clear of the water.

ADMIRAL DEWEY'S FLEET AT MANILA BAY
COMPARED WITH A MODERN BATTLESHIP

The following comparison will give a good idea of the fighting strength of a modern battleship compared with that of an average fleet of smaller size vessels. All the warships which participated in the battle of Manila Bay have since been placed out of commission. They were thoroughly overhauled and a different type and caliber of gun was installed.

The figures referring to the main battery are of 1898. The column marked "one shot" signifies the total weight of projectiles fired from each ship. Each gun of the main battery fired once or simultaneously. The secondary battery is omitted, as the total weight of projectiles fired would not amount to a great deal.

Six-pounder guns are generally the largest size guns in the secondary battery of medium-size ships. Ten guns of this caliber would fire only sixty pounds of metal, each gun firing once.



HOW A BATTLESHIP IS DOCKED. The *Massachusetts* in dry-dock. This ship is about ready to be undocked.

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Admiral Dewey's Fleet at Manila Bay 161

Name	Type	Displacement (Tons)	H.P.	Speed (Knots)	Main Battery	One Shot (Lbs.)
Olympia	Protected Cruiser	5,865	17,080	21.69	{ four 8" ten 5" }	1,500
Baltimore	Protected Cruiser	4,413	8,778	20.10	{ four 8" six 6" }	1,600
Raleigh	Protected Cruiser	3,183	8,500	19.00	{ ten 5" one 6" }	600
Boston	Protected Cruiser	3,000	4,300	15.6	{ two 8" six 6" }	1,100
Concord	Gunboat	1,620	3,359	16.8	{ six 6" }	600
Petrel	Gunboat	892	1,008	11.8	{ four 6" }	400
Total 6 Ships		18,973				5,800

U. S. S. CONNECTICUT

Name	Type	Displacement (Tons)	H.P.	Speed (Knots)	Main Battery	One Shot (Lbs.)
Connecticut	Battleship	16,000	16,500	18	{ four 12" eight 8" twelve 7" }	7,380

Admiral Dewey's fleet had a displacement of only 2973 tons more than the *Connecticut*. The *Connecticut* discharges 1580 pounds more metal than Admiral Dewey's fleet.

HOW THE CREW IS DIVIDED

It seems that naval literature never grows stale. A glance through the various periodicals and newspapers of the country is witness to the truth of this assertion. All of the statements which appear in print, however, are not true to fact. For instance: a periodical may refer to some magistrate who is not fully aware that the men of the Navy are all honorable men, having given some incorrigible the choice of joining the Navy or going to the reform school. An incident of this nature casts reflection on the enlisted personnel of the service; it also creates an unfavorable impression on the general public.

The Navy never has been, and never will be, the headquarters for men who should be in the penitentiary. The reader can judge the truth of same by referring to a quotation from "The Bluejacket," a naval magazine published by an enlisted man. The remark in question is as follows: "Every good man brought into the Navy is an invitation for some undesirable one to get out."

Now and then an "undesirable" may manage to enlist in the service. When his true character is discovered, however, he is then dishonorably discharged from the service. The naval regulations contain several clauses relating to the discharge of

any man who may turn out to be worthless. When a person of this character is "beached" (man-o'-war lingo) he is discharged for inaptitude, which, in plain English, means worthless. In this way the lower element is quickly weeded out of the Navy.

The term "sixteen-dollar-a-month-Jackie" once in a while appears in print. Regarding the title, there is not a bluejacket in the Navy to-day that likes to be called a Jackie. The name seems repulsive in every respect.

There are many other proper terms used when referring to the enlisted men, such as Jack, sailors, bluejackets, Jack-tar, man-o'-wars-man, etc. Any of these titles are quite appropriate, but the term "Jackie" is entirely out of place. In regard to the "sixteen-dollar-a-month-Jackie," the author has had the following table compiled. This shows in plain figures the average pay of the enlisted men of the Navy. The list is taken from the U. S. S. *Maryland*, one of our armored cruisers. The monthly pay is averaged up in the list. For instance, the monthly pay of the six chief machinist's mates averages \$72.11 each.

The list was compiled in 1906 and thus represents the pay received at that time. The wage scale is more apt to be underestimated than overestimated, from the fact that the pay of the extra rates is not included.

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When a person re-enlists his pay is greatly increased by averaging it up. Take, for instance, the chief master-at-arms of the *Maryland*: he averages \$73.50 a month. When he re-enlists he will be given four months' pay gratis, and \$1.36 a month additional. This would cause his pay to average \$80.98 a month during his four-year enlistment.

In averaging up the pay of the crew of the *Maryland* it will be seen that each man averages \$29.65 a month. The same could refer to the entire Navy, for all ships rate a certain allowance of men of each rate; which is, of course, regulated by the size and type of the ship. The complement of a ship may vary slightly, for various reasons. One ship may happen to have two plumbers aboard, but in reality only one is rated. The extra plumber would eventually be transferred to some other ship which might require him in her complement. It must also be taken into consideration that an enlisted man is fed and quartered by the Navy, all medical attendance is free, and they are furnished with the first outfit of clothing.

How the Crew is Divided

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U. S. S. MARYLAND

Seaman Branch:

	Pay per Mo. Each	Pay per Mo. Collectively
1 Chief Master-at-Arms.....	\$73.50	\$73.50
1 Chief Boatswain's Mate.....	73.50	73.50
1 Chief Gunner's Mate.....	75.50	75.50
2 Chief Quartermasters.....	73.50	147.00
2 Masters-at-Arms, 1st class.....	42.11	84.22
4 Boatswain's Mates, 1st class.....	42.11	168.44
4 Gunner's Mates, 1st class.....	44.11	176.44
2 Turret Captains.....	65.00	130.00
1 Quartermaster, 1st class.....	42.11	42.11
2 Masters-at-Arms, 2d class.....	35.00	70.00
6 Boatswain's Mates, 2d class.....	35.00	210.00
4 Gunner's Mates, 2d class.....	35.00	140.00
1 Quartermaster, 2d class.....	35.00	35.00
3 Masters-at-Arms, 3d class.....	31.36	94.08
15 Coxswains.....	36.36	545.40
5 Gunner's Mates, 3d class.....	33.36	166.80
2 Quartermasters, 3d class.....	31.36	62.72
119 Seamen.....	26.11	3107.09
180 Ordinary Seamen.....	19.00	3420.00
355 Men	Average monthly pay, \$24.81	\$8821.80

Engine-room Force:

6 Chief Machinist's Mates.....	\$72.11	\$432.66
4 Chief Water-tenders.....	72.11	288.44
6 Machinist's Mates, 1st class.....	57.11	342.66
2 Boiler-makers.....	67.11	134.22
3 Blacksmiths.....	51.36	154.08
2 Coppersmiths.....	56.36	112.72
14 Water-tenders, 1st class.....	41.36	579.04
8 Machinist's Mates, 2d class.....	42.75	342.00
14 Oilers.....	39.11	547.54
48 Firemen, 1st class.....	36.36	1745.28
48 Firemen, 2d class.....	30.00	1440.00
107 Coal-passers.....	22.00	2354.00
262 Men	Average monthly pay, \$32.38	\$8472.64

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Artificers' Branch:

	Pay per Mo. Each	Pay per Mo. Collectively
2 Chief Electricians (1 wireless).....	\$72.11	\$144.22
1 Chief Carpenter's Mate.....	72.11	72.11
9 Electricians, 1st class (1 wireless) .	52.11	468.99
1 Carpenter's Mate, 1st class.....	42.11	42.11
1 Ship-fitter, 1st class.....	56.36	56.36
1 Painter, 1st class.....	43.36	43.36
1 Sail-maker's Mate.....	41.36	41.36
2 Plumbers and Fitters.....	48.36	96.72
5 Electricians, 2d class (1 wireless) .	41.36	206.80
1 Carpenter's Mate, 2d class.....	36.36	36.36
1 Ship-fitter, 2d class.....	40.00	40.00
1 Painter, 2d class.....	35.00	35.00
5 Electricians, 3d class (1 wireless).	32.00	160.00
1 Carpenter's Mate, 3d class.....	32.00	32.00
1 Painter, 3d class.....	32.00	32.00
2 Shipwrights.....	25.00	50.00
<hr/>		
35 Men	Average monthly pay, \$44.50	\$1557.39

Special Branch:

5 Chief Yeomen.....	\$75.47	\$377.35
1 Chief Commissary Steward.....	75.47	75.47
1 Hospital Steward.....	61.36	61.36
1 Bandmaster.....	53.36	53.36
2 Yeomen, 1st class.....	43.36	86.72
1 First Musician.....	37.36	37.36
2 Yeomen, 2d class.....	37.00	74.00
3 Yeomen, 3d class.....	32.00	96.00
1 Printer.....	36.36	36.36
2 Hospital Apprentices, 1st class ...	31.36	62.72
2 Hospital Apprentices.....	20.00	40.00
6 Musicians, 1st class.....	32.00	192.00
8 Musicians, 2d class.....	30.00	240.00
2 Buglers.....	30.00	60.00
<hr/>		
37 Men	Average monthly pay, \$44.50	\$1492.70

How the Crew is Divided

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<i>Messmen Branch:</i>	Pay per Mo. Each	Pay per Mo. Collectively
1 Cabin Steward	\$52.11	\$52.11
1 Cabin Cook	47.11	47.11
1 Ward-room Steward	52.11	52.11
1 Ward-room Cook	47.11	47.11
1 Steerage Steward	37.11	37.11
1 Steerage Cook	32.11	32.11
1 Warrant Officers' Steward	37.11	37.11
1 Warrant Officers' Cook	32.11	32.11
1 Ship's Cook, 1st class	57.11	57.11
2 Ship's Cooks, 2d class	42.11	84.22
4 Ship's Cooks, 3d class	32.11	128.44
5 Ship's Cooks, 4th class	25.00	125.00
1 Baker, 1st class	47.11	47.11
3 Bakers, 2d class	35.00	105.00
18 Mess Attendants	25.00	450.00
42 Men	Average monthly pay, \$31.75	\$1333.76

GRAND TOTAL

Total number of enlisted men	731
The crew's wages for a month	\$21,678.29
The crew's wages for a year	\$260,139.48
Average monthly pay per man	\$29.65
Monthly ration money, at \$9.00 per man	\$6,579.00

NAVAL NOTES

When lying at anchor, particularly in the home ports, warships are thrown open to visitors when practicable. Sunday afternoon is generally visiting-day, and the visitors flock aboard the ship by the thousands. Nor are they satisfied until they have explored every nook and corner of the ship. Some would even walk right into the captain's cabin to

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see what kind of breakfast food he used if the orderly did not stop them.

The interior of the ship is all metal. When the interior is first painted a final coat of sticky paint is used. Before the paint dries ground bits of cork are sprayed over it. This prevents the ship from sweating. The living-quarters of the officers and the crew only are treated with this process. All pipes about the ship are covered with felt, asbestos, etc.

If a recruit were told to take the jackasses out of the manger he would think some one was trying to "jolly" him. Some ships have sections of rubber which fit over the anchor-chain links. One end is tapered, and when drawn into the hawse-pipes they form a tight joint and thus keep out the sea-water. These sections of rubber are called "jackasses." Many ships have a small partition running across the hawse-pipes. The space in front of this partition is called the "manger." So when the order is given to "take the jackasses out of the manger" it is strictly regulation.

Among the illustrations in this book is one of the Naval Y. M. C. A. building of Brooklyn, which cost half a million dollars, and it is for the exclusive use of Navy men. Here Jack can "drop



TAKING STORES ABOARD. Eight hundred men are quite a number to feed. Navy men have good appetites.

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anchor" when ashore and feel that he is at home and welcome. The building contains several hundred rooms, bowling-alleys, restaurant, laundry, swimming-pool, etc. The place is well patronized. Over three hundred thousand dollars was deposited for safe-keeping during the year 1905. There are several of these institutions in the different parts of the country, and the good that they accomplish can hardly be estimated.

Located about the decks are several leak-stopper boxes, each containing a set of canvas-covered plugs of assorted sizes. In time of battle should a shell penetrate the ship's side and leave a clean hole, a plug would be quickly inserted and set up with a special clamping device, which would readily stop the leak. These stoppers are filled with cellulose, which swells when wet.

As soon as the ship reaches her anchorage spot the engines are reversed, and when the ship commences to move astern the anchor is ordered let go. The leadsman leaves the lead resting on the bottom. When the ship goes astern the lead-line drags through his hand, and he then reports "ship is moving astern, sir!" This same method is used during stormy weather to tell whether or not the ship is dragging her anchors.

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The temperatures of the magazines are taken daily. Most of them contain thermostats, which are electrical devices for ringing an alarm when the temperature is rising too high. The alarm rings on deck, and by referring to the dial-board the exact location can be ascertained. The coal-bunkers are also equipped with thermostats.

Officers use the starboard gangway in coming and going from the ship, the crew using the port gangway. In returning to the ship after taps in a shore boat, an officer would reply "aye, aye," when hailed from the ship. An enlisted man would reply "hello." Should it be the captain, he would answer the name of his ship. All boats approaching the ship after taps are hailed by the sentries or quartermaster on watch.

When steaming in fleet formation each ship has a speed-cone displayed from the signal-yard. When hauled all the way up it signifies "engines are going at full speed ahead;" when half-way up, "half speed;" when quarter-way up, "quarter speed." Should the cone not be seen, the engines are stopped. In case the engines are reversing, the cone is turned upside down and hoisted as the above.

All ships carry one or two barbers, who are generally apprentice seamen. They are excused, how-

ever, from most of the routine work of the ship. The barbers furnish their own tools and equipment, and generally charge the crew fifty cents a month for all tonsorial work needed during that period. The majority of the "hot air" aboard ship originates from the vicinity of the barber-shop.

During a big storm oil is sometimes used with good effect to deaden the seas. An oil-bag secured with a stout line is filled with oil and thrown overboard. The continual swashing about causes the oil to ooze out, and as soon as the oil comes in contact with the water it quickly spreads over a large area, thus helping to deaden the seas.

There are several men aboard ship who own sewing-machines and do tailoring work for the crew. They are called "sheenies" and their sewing-machines are called "hurdy-gurdies," from the fact that they have to be turned by hand. These tailors make quite a sum of money. All clothes made by them have to be strictly regulation. For instance, a pair of trousers must have fourteen buttons on it, measure so wide at the bottom, etc.

Members of the crew take great pride in showing visitors around the ship. Nothing is more repulsive to a bluejacket, however, than to have a visi-

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tor whom he has been conducting around the ship insist on offering him money for his services. Some will accept a cigar as an act of courtesy, but nothing more. Should a bluejacket accept money and his shipmates learn of the fact, he would get a good calling down.

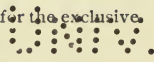
Once a month the crew are mustered aft on the quarter-deck, where all official matter appertaining to the crew is read out; also the rules and regulations governing the United States Navy. These are read out of the Blue Book by the executive officer.

December 1, 1904, the rate of apprentice boy was abolished. Those in the service had their rate changed. First-class apprentices were made seamen and given a three-dollar increase in pay; second-class apprentices were made ordinary seamen and given a four-dollar increase; third-class apprentices were made apprentice seamen and given a seven-dollar increase. At the same time the title of landsman was abolished. All landsmen are now known and enlisted as apprentice seamen.

The crew mess at swinging tables, about twenty men being assigned to each mess. After the meals all gear is cleaned and restowed, and tables and



NAVAL Y. M. C. A. BUILDING, BROOKLYN, N. Y. This building is for the exclusive use of the enlisted men when ashore.



benches are lifted overhead, where they are secured. At night the hammocks swing under the tables; hence Jack sleeps over where he eats and eats under where he sleeps.

Naval officers, from captain to ensign, wear the following gold stripes on their sleeves: a captain has four stripes; commander has three stripes; lieutenant-commander has two and one-half stripes; lieutenant, senior grade, has two stripes; lieutenant, junior grade, has one and one-half stripes; ensign has one stripe. Chief boatswains, chief gunners, chief carpenters, and chief sail-makers rank with but after an ensign, and wear one stripe, broken in places, on their coat-sleeves.

When an ex-bluejacket with an honorable discharge registers at any navy-yard for employment, he is put on the eligible list ahead of all others. In taking the Civil Service examination a certain percentage is allowed for an honorable discharge.

Should a shipmate die, his bag of clothes is sold at auction. If his folks are poor and the crew are aware of this fact, the bag of clothes will sometimes net a couple of hundred dollars. All the money derived from the sale is sent to the folks of the deceased.

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Uncle Sam's warships are always welcomed in a foreign port. This is because Jack is well paid and of a liberal disposition, and spends considerable money. Merchants of all classes receive a share of it.

When an "old salt" begins to imagine that he is getting tired of the sea he commences to talk about farming, a chicken ranch being a favorite theme. Some do actually start one, but that kind of life soon gets monotonous, and they soon sell out for whatever price they can get and go to sea again.

The ship's bell is struck every half-hour. At four, eight, and twelve o'clock eight bells are struck. Every half-hour after these three periods an additional bell is struck, starting in at one bell until eight bells are reached, it then being four, eight, or twelve o'clock, as the case may be.

During war-time the ships are painted war color, which is a dark green or slate color. It is a difficult matter to make out from a distance a ship that is painted in either of these colors.

Should one of the crew urgently need money before the regular pay day he can obtain the same by making a special money requisition, which must be approved of by the captain.

The paymaster issues small stores to the men once a month. Those wishing to draw clothing, soap, tobacco, etc., hand in a list shortly before issuing-day. The paymaster carries a stock of all necessary articles needed by the crew. Small articles can also be purchased from the ship's canteen.

When a man-o'-war arrives in a foreign port there is a great scramble among the bumboats to get aboard the ship with their wares to sell to the crew. A great mixture of languages is used in buying or selling. Should a Chinaman be selling, he would talk "pigeon" English. Jack would reply likewise.

On entering or leaving port seamen are stationed in the chains to heave the lead. The result is drawled out in a peculiar voice, thus: "Q-u-a-r-t-e-r less six, by the m-a-r-k five."

Several of the ship's boats have a gun-mount platform at the bow, and in case of a landing- or boarding-party being sent away from the ship, the small machine-guns are mounted on them.

All the larger types of ships are equipped with the wireless-telegraph system. Electricians are especially trained at the electrical school to make

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them proficient with the wireless system. The wireless telegraph was of great value in the Japanese and Russian war.

A "hang fire" pertains to a loaded gun that has failed to go off after the firing-lanyard or trigger has been pulled. Great caution is exercised in opening the breech-plug. On the large-caliber guns the breech-plug is not allowed to be opened till several minutes have elapsed.

Smokeless powder is tested regularly, as the gun-sights are regulated according to weight and strength of powder-charge used. The powder is sometimes sent back to the powder-works, where it is worked over again.

Chief petty officers are the highest enlisted men aboard ship. They have a mess and cook of their own, and their general surroundings and duties are very congenial. It is the ambition of every man to reach that rank, although there are several rates which rank no higher than a first-class petty officer.

The lower decks are of steel. Extra heavy linoleum, which is kept well shellaced at all times, is laid on these decks.

Bag inspection is often held. Jack brings out his bag of clothes and takes it to quarters, where his division officer inspects it. All clothes must be strictly regulation, and each member of the crew must have a certain amount of wearing apparel.

The little gunboat *Petrel*, which was with Admiral Dewey's fleet at Manila Bay, is called the baby battleship. She is under nine hundred tons displacement, but she has four six-inch guns in her main battery.

Every officer and enlisted man salutes as he steps aboard a warship. Should the officer of the deck be at hand, he returns the salute; otherwise Old Glory silently approves.

It is said that a sailor works like a horse for his money and spends it like a jackass; but if the amount of money which is sent home in allotments and deposited in the ship's bank was known, it would perhaps tell a different story.

All gingerbread work about the ship, such as the bridge, pilot-house, etc., could be shot away in time of a battle, and this would not impair the ship's usefulness as long as the machinery, magazines, and steering-gear remain intact. Several spare

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sets of steering-gear are located in different parts of the ship.

Target practice is sometimes held at night. The search-lights are thrown on the target as the ship speeds past the range, and the gun-pointers aim and fire the guns as though it were day-time.

When a person deserts from the Navy, his nearest of kin are generally notified; also the authorities of his home town. A deserter also forfeits his citizenship rights.

All ships of the world carry a set of international signals, which enable them to signal with each other at any time.

When a medal is given to an enlisted man he is called to the front at muster, and generally the captain himself pins it on the owner's breast, accompanied by an appropriate remark.

Some of the foreign Navies have torpedo-booms attached to their ships. Torpedo-booms consist of a series of poles which can be extended out from the ship's sides. A large steel net is attached to the outer ends; this protects the ship from torpedo attacks. None are in use on our ships, as their usefulness is in doubt.



A HOMEWARD-BOUND PENNANT. When ordered home from a foreign station, the crew buy a "homeward bounder."
Copyright, 1904, by Enrique Muller.

With modern warships an engagement is very different from one with old-style ships. Effective work can now be done by the large-caliber guns at a four-mile range.

The *Oregon* has the *Christopher Colon's* old gig, which was captured from the Spanish fleet at Santiago. It is still in good condition and is being used as the captain's gig.

Warships carry a complete diving outfit, because it is necessary at times to send down divers to examine the rudder, propellers, strainers, etc. Gunner's mates generally do the diving, and they are given extra pay for the work.

All ships rate a large fish- or drag-net, which is occasionally brought out by the crew and taken ashore to use. Should provisions run short at any time, the fish-net would be of great value.

Each ship has a bulletin-board, where all data, etc., pertaining to the crew are posted.

When the ship is handling powder the powder-flag is hoisted at the fore, and no one is allowed to smoke aboard ship.

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Many of the large ships carry chaplains, and while the services are being held the church flag is hoisted in a conspicuous place.

A mascot, in the shape of some tame animal, is generally carried aboard the ship. The *Kentucky* had a large tame bear, which would growl when poked in the ribs. When visiting bluejackets came aboard it was great fun to see them pet the bear. Suddenly, however, one of the crew would poke Bruin in the ribs. He would let out an awful roar, and the stranger petting him would make for the rigging.

No sulphur-end matches are allowed aboard ship. Only safety-matches in small boxes are used. Gasoline is also forbidden to be carried.

The decks of the ship are swept some six times each day. When at sea, particularly, one would wonder where the dust comes from.

During meal-hours the meal-pennant is hoisted to the yard-arm and lowered at turn-to.

Many of the foreign Navies have a conscript law, which compels their subjects to serve in the Army or Navy. All men in the different services of the

United States enlist of their own volition. Their pay, clothing, etc., are unequaled.

When a warship enters a foreign port she fires a salute in honor of the nation to which the port belongs. The salute is returned by the nation saluted. Should a fleet of ships enter the port together, the senior ship does the saluting.

If an enlisted man dies at sea his body is sewed in a canvas by the sail-maker's mate, and at the feet a heavy weight of iron is attached. The ship is hove to during the burial, and the colors lowered at half-mast. Burial services are conducted by the captain or the chaplain. At the conclusion of the services the body is committed to the deep. The firing-squad then fire three vollèys in honor of their departed comrade.

The engineer on watch seldom leaves the vicinity of the throttle-valve. Should the propeller drop off or any accident happen to the machinery, the steam must be shut off promptly in order to prevent a serious accident.

Slabs of zinc are placed inside the boilers regularly. The corrosive elements of the water attack the zinc first, and this protects the interior of the boilers. Rudder pivots, strainers, etc., on the

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ship's bottom also have small pieces of zinc placed around them in order to prevent corrosion.

When the fresh-water supply is getting short it is sometimes mixed with salt water. An accident of this kind seldom occurs, because there are a great many facilities for making and stowing fresh water.

While forced draught is being used the fire-rooms are closed up tightly, and blowers discharge the air into the fire-rooms, where it makes its exit through the ash-pits up through the furnaces and finally out past the smoke-stacks. This gives the fires an intense draught.

If a ship with twin screws should have her rudder disabled at sea, she could steam into port by steering with her propellers. One screw revolving faster than the other would swing the ship's bow accordingly.

The term "indicated horse-power" signifies the actual horse-power developed at the trial trip. In most instances the horse-power developed at the trial exceeds the amount required in the contract. An excess of horse-power insures more speed.

Engines and fire-rooms are kept neat at all times. Every member of the engineer's department has a

brightwork station to keep clean. Visitors always admire the neatness displayed in this department.

The ship has reserve-bunkers, which contain a couple of hundred tons of spare coal. This coal is not carried on the books. Should anything happen to the regular supply, the reserve coal would come in handy.

The engineer's department has a well-equipped machine-shop, which contains all the latest tools and machinery. Many mechanics are carried aboard the ship, and the repair-work performed by them saves the Government millions of dollars yearly.

All ships have powerful anchor-engines, which are very essential, because if the ship should run aground or the anchor should get stuck in the mud, great power would be required for heaving purposes.

Most of the main bearings of the main engines contain hollow compartments, which are connected with a system of water-pipes. Running water is turned on, which circulates around the bearings and prevents them from becoming too hot.

The engineers on watch on a twin-screw ship try to have both engines make the same number of

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revolutions. If one engine revolves faster than the other, it causes the ship's bow to swing in the opposite direction, and also makes extra work for the helmsman.

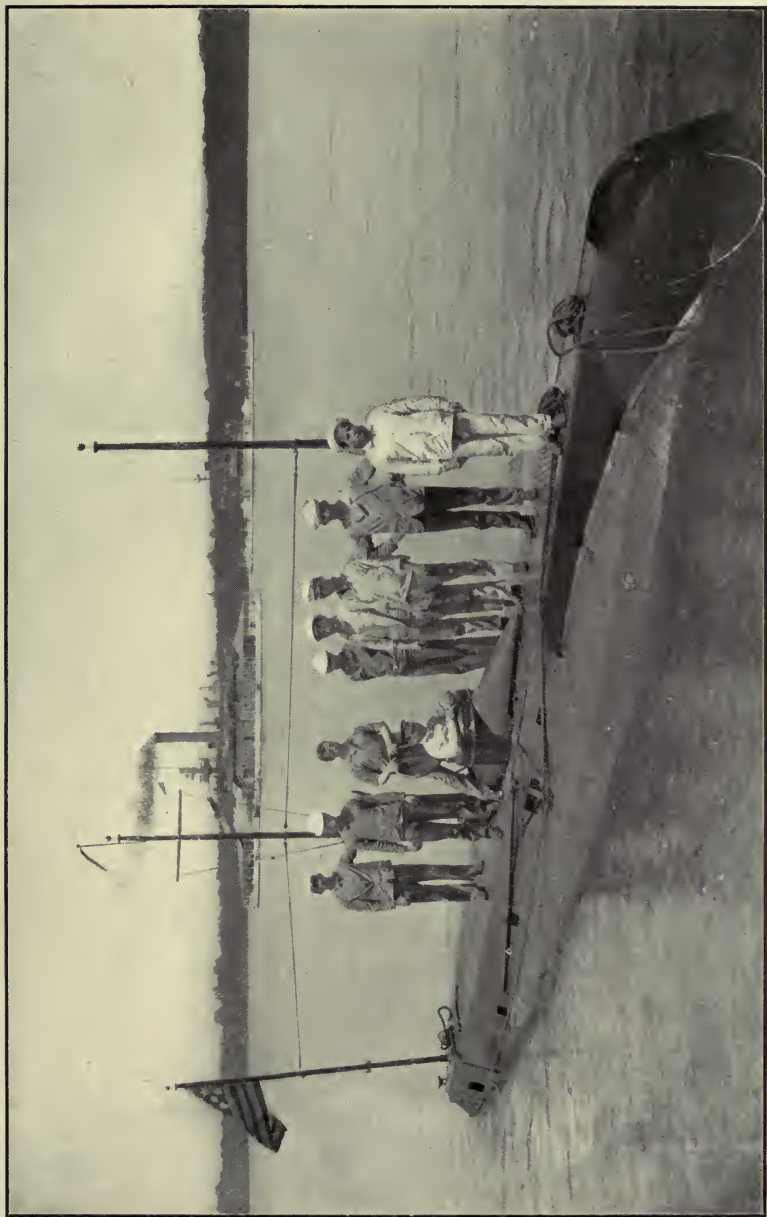
A midnight lunch is served out to the men on watch in the engineer's department. Oatmeal is also put in their drinking-water: this prevents the men from getting cramps from drinking the ice-water.

An accurate account is kept of all shots fired from each gun. It used to be that when a certain number of shots were fired from a gun it was then considered useless. If the gun is well built and taken care of, this limit is greatly exceeded.

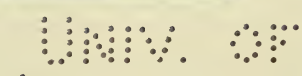
When the ship is about to go to sea the large guns are drawn in the full length of their recoil and blocked. The turrets are also keyed, to prevent them from rolling in a sea.

When a bluejacket goes aboard a new ship he is given a station-billet, which has marked on it the owner's number, station at drills, etc.

In port an anchor-watch, consisting of a few men, is detailed each night to be on duty in case



A SUBMARINE BOAT. A new "wrinkle" in warfare. These submarine boats fight under the water.



their services should be required. In case there should be duties to perform in the night the rest of the crew would not be disturbed.

Every ship and officer has a certain number when signaling or corresponding; this number system greatly facilitates matters.

The ship's compass is near the steering-wheel on the bridge. The helmsman must be careful not to have any metallic object, such as keys, etc., in his pocket, because these would act as magnets and might cause the compass to deviate.

Our large type of ships carry twenty boats, divided as follows: three steam-launches, four sailing-launches, five cutters, two whale-boats, one barge, one gig, four dingies, besides a couple of catamarans.

Old rags are seldom cast overboard from the ship, because they are useful for shining brightwork. Brightwork refers to all metal that is kept polished.

Admiral George Dewey has seen over fifty-two years of naval service.

BOOK II
MAN-O'-WAR YARNS

SYNOPSIS

Stand by the Pic.—How to tell the Weight of a Porker.
No Teeth, No Music.—A Contraband Bow-wow.—Tell it
to a Marine.—Wash-day.—A Sinking Ship.—Presto!
Change!—Dogs.—To-morrow is the Day After—Number-
One Kind Tea-set.—A Fowl Move.—Show Me.—A Personal
Story.—An Old Salt's Salty Saltings.—The Wreck of the
U. S. S. *Yosemite*.—Sea-going Smiles.—Good-morning.—A
Perpetual Reward.—Ingenuity.—Stormy Weather on the
Gulf.—A Dry Ship.—Frenzied Finance.—Full Rations.—
Ah Choy.—A Rookie's Letter.—Lost: a Ward-room Cake.
—Two Seadogs Growling.—A Few Salty Riddles.

MAN-O'-WAR YARNS

IN traveling around, particularly in foreign ports, a person may see a great many odd incidents, both comical and otherwise. Great knowledge is obtained in many ways, for there is nothing that broadens and educates the mind more than traveling. A good idea of human nature is also obtained, because one sees life in all its various and complicated phases. In many ports where the ship is lying at anchor there are several small squalid boats hovering around the ship that are standing by to pick up the slops thrown overboard.

Should a whole slice of bread be thrown away, it is carefully scooped up and laid out to dry. The same slice of bread, with others, is taken ashore and sold to people who are unaccustomed to such luxuries. By having a personal acquaintance with some of these incidents, it reminds one of the value of home, also of the day when he resented a piece of bread and butter unless it had a quarter-of-an-inch layer of "ma's jam" spread on it.

I will now proceed to relate some of the stories as I recall them.

"STAND BY THE PIC"

While the *Oregon* lay at anchor off Yokohama, Japan, a few months before the Japanese and Russian war, we had a drill called "aband ship." When the word is passed, all hands "aband ship." Each one rushes to his respective duty. Provisions, water, etc., are brought to the small boats, and the men detailed to them muster in front of their respective boats, and sometimes they are lowered and leave the ship with the crew.

There was an Italian bandsman named Joe, who played the piccolo, and during the drill he seemed bewildered, as he wandered about with his instrument in his hand. The division officer spotted him and asked him what were his duties on abandoning ship. Joe then seemed to understand, as he looked up and answered, "Me stand by the pic."

HOW TO TELL THE WEIGHT OF A PORKER

Guam is a tiny spot located somewhere in the Pacific Ocean. After the *Yosemite* was lost the crew were brought back to Guam and sent ashore to Agana, the capital.

Shortly afterward the *Solace* came in and took the crew to Manila, where they were distributed among the fleet. A few were kept for shore duty, I being one of the number.



GETTING THE LIBERTY BOATS READY. Liberty is given regularly. The ship's boats are used to take the men ashore.

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The natives there are called Cheemoores, and are a very kind and docile race. They speak a dialect of their own and have a great many quaint customs and ideas, one of which I will mention.

When a porker is to be killed, great ceremonies are performed in advance. First, the porker is brought forth and sized up mentally, or with a tape-measure. It is then figured out how many singers Mr. Porker will rate, as a certain number of children are invited to participate in the festivities. For a couple of weeks they gather each evening and sing.

Meanwhile the porker is fastened to a post under the house with about a thirteen-inch cord. When he is killed all hands who have participated in the ceremonies receive a piece pro rata. Great care must be exercised in measuring, because if too many singers are invited there might not be enough pork to go around.

Many Americans who have been on duty at Guam a long time claim they can tell the weight of the pig by listening to the chorus.

NO TEETH, NO MUSIC

On a certain ship we had a bugler who was an elderly person and very fond of his tea; so when on shore leave it was a matter of conjecture as to whether he would return on time or not. As the

ship rated but one bugler, his services were in regular demand. To make matters worse, Jack had a set of false teeth, and when on liberty he was in the habit of leaving them somewhere. The result was that we had no music until the teeth were found or a new set bought.

Finally things had come to such a pass that Jack used to leave his teeth aboard ship before going ashore. He figured out that a set of teeth in the mouth is worth twenty at the dentist's.

A CONTRABAND BOW-WOW

Shortly after the battle of Manila Bay the cruiser *Baltimore* came up to Hong Kong to dock the ship and also give the crew shore leave after months of strenuous service.

Most of the crew were short-timers, and all bought many curios ashore for the purpose of taking them home. One of the bluejackets came aboard with a little Chinese chow dog under one arm and a ditty-box, which he had purchased ashore, under the other.

As he stepped aboard the ship the officer of the deck stopped him, as the regulations do not allow dogs of any kind aboard without special permission.

The sailor did not know what to do, as he was ordered to send the dog ashore again. Suddenly

he picked the pup up, took it down the gangway as if he were going to give it to the shore boat-man who had brought him off to the ship. As soon as he was out of the officer's sight he pulled open his blouse, dropped in the puppy, stepped aboard the ship, put the ditty-box under his arm, and walked forward. When he had gone forward he hid the puppy, and a couple of weeks later we went back to Manila, and the puppy went too.

“TELL IT TO A MARINE”

A marine is at the bottom of this story, therefore there is some reason to doubt its veracity. I do not wish to insinuate anything against the marines. I simply state that the story is doubtful, from the fact that one from Missouri might say, “Aw, go tell it to a marine.”

The story in question made such a strong impression on some of the bluejackets of Admiral Evans's fleet that perhaps it may interest others. In the summer of 1903 the Asiatic fleet, with Admiral Evans in command, made Cheefoo its headquarters while target practice was being held in the vicinity. There were also several fine big Chinese cruisers lying at anchor there. On a certain ship a certain marine devised a wildcat scheme which he carried out to perfection.

Now the full-dress uniform of a marine is a gor-

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geous affair; it consists of much bright trimmings and other nicknacks. This marine smuggled his full-dress uniform ashore, and later on, when he went on liberty, he donned the uniform, hired a respectable-looking shore-boat, and paid a visit to one of the Chinese cruisers, which lay some distance away from the American fleet.

Mr. Marine was received with full honors aboard the cruiser, as he presented himself as Colonel Somebody, of the United States Marine Corps. As it was only a friendly visit the colonel was invited into the cabin, where the corkscrews began to get busy. The "colonel," not being accustomed to such a high grade of goods, soon began to feel the effects, and ere long he began to believe that he was a real colonel. The result was that he soon caved in, and the officers of the ship, thinking him ill, took him back to the ship to which he had said he belonged. In coming aboard his ship the "colonel" did not rate any side boys.

WASH-DAY

When the *Yosemite* was first stationed at Guam the food question was a hard nut to crack on account of Guam being in such an isolated place. The transports were few and far between. Now there is a cold-storage plant ashore and vessels call there regularly.



WAITING FOR THE ADMIRAL. The Admiral rates many honors, such as marine guard, the band, etc.
Copyright, 1905, by Enrique Muller.



The principal item on the bill-of-fare at that time was the old stand-by—beans. Now this particular batch of beans had no doubt made several voyages around the Horn before we got them, because it took three days of steady cooking to make them chewable.

In the galley are large coppers where beans are cooked by steam. Whenever a batch of beans was put into the coppers to cook, which was often, a persuader in the form of soda was also put in. The supply of soda, however, had run out, and as we were unable to get another supply for some time, salt-water soap was used instead. There is but little difference between the two, as the soap is made very strong.

I was somewhat skeptical when the cook said he used soap to soften the beans; but one day I happened to pass by the galley, and the cook called me in, lifted up the lid of the copper, and said, "See those beans in there?"

He then took a full half-bar of paymaster's bouquet, as the soap is called, and calmly shaved it into the copper; then he stirred the beans with a large paddle, which caused a heavy sea-foam to gather on top. After the cook had dissolved the soap thoroughly, he informed me that the beans would be ready for breakfast next morning.

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A SINKING SHIP

Several years ago, when one of our small ships was on duty around Alaska, a peculiar accident happened to one of the coal-passers on watch.

The floors of the coal-bunkers of this ship were made of wood, and being snugly fitted together, it was water-tight. The ship leaked a little, so the small space between the flooring and the hull of the ship gradually filled with water.

A coal-passer went into the bunker to get out some coal for the fires, and in trying to break up a large lump of coal with a heavy bar the bar crashed through the planking. This caused the water to spurt up. The coal-passer thought surely that the bar had gone through the ship's bottom.

He rushed up on deck to the chief engineer's office and reported that the ship was sinking. The matter was investigated, and it was found that only the confined water had come up through the aperture.

PRESTO! CHANGE!

One morning, while drinking my morning coffee, I sat near a chest on which Bill and Jack were seated. Bill jumps up, goes to his mess-locker, and brings a tin of condensed milk. He dips out a spoonful, puts it in his coffee, and as he goes to return the tin of milk, Jack asks, "How's chances?"

Bill replies, "It ain't mine." As Bill returns the tin of milk back to the locker, Jack calmly lifts the spoon out of Bill's cup and scrapes off the condensed milk into his own, and then returns the spoon. Bill sits down and stirs and stirs his coffee, with no results, and finally concludes that the milk is of a poor quality. Jack—he approves of it.

DOGS

When one of our new ships went into commission the crew got their heads together and decided that the ship must have a mascot. Dogs, cats, goats, etc., were recommended, but still they could not agree which to choose. Finally it was decided to consult old Billy Thompson, the ship's quartermaster, who could tell about mascots, etc., as far back as sixty-one.

The committee on mascots marched in a body to Billy's quarters and explained their predicament.

Leisurely lighting his pipe, Billy said: "Maties, they don't put er ship like this wun inter commishun every day, an' er ship widout er mascot is like er sailor wid er pipe and no terbaccur.

"Now, speakin' 'bout dorgs, I'm well 'sperienced wid 'em. I've been sick, bited, and even put in the pie wagon over 'em. There's enough dorgs aboard ship widout gettin' any more. Now, we often has dorgs [sausages] for breakfast, doors and

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hatchus has dorgs on 'em [clamps used for securing], then there's the dorg watch [a shift of watches to change the hours], and onct I got in ther pie wagon for fetchin' a live dorg orf [a full bottle of liquor], and dorg gast it, I got thurty days fer it.

"We's don't need er dorg. They ses er dead dorg tells no tales, so anything but er dog will fill ther billet."

Herman Ebenezer, who had been listening to the consultation, remarked to the committee on mascots: "I'll be dog gurneled if I don't send for Dad's mooley calf, if youse fellers will pay the freight."

P. S.—The mooley calf arrived O.K., but met its fate in the galley.

TO-MORROW IS THE DAY AFTER

In December, 1903, the battleship squadron, with Admiral Evans in command, left Yokohama for Honolulu. The fleet comprised three battleships and four cruisers. The battleships proceeded in a squadron by themselves.

Throughout the trip the weather was very fair. When we crossed the line of 180th meridian a comical incident occurred.

Should you cross the line on Tuesday going from Honolulu to Yokohama, the next day would be Thursday. In returning it is the reverse. Should

you cross it on Friday, next day would be Friday also. A full day of twenty-four hours is not gained. The day of the week is changed so as to make the date fall on the same day of the week on both sides of the line.

I was on the *Oregon* at the time, and in front of us was the *Wisconsin* and the flag-ship *Kentucky* in the lead.

When the squadron crossed the line it was Sunday; naturally the next day was also Sunday. There was a great deal of work to be done on the *Oregon* at the time, so it was figured out that we would not cross the line until Monday. This meant two working-days. There were two Mondays all right, but only aboard the *Oregon*. When we reached Honolulu we found out that the other ships had had two Sundays. We were not out anything, however, as we had the regular Sunday, anyway.

NUMBER-ONE KIND TEA-SET

While stationed at Guam the *Yosemite* made periodical trips to Japan, because the weather there was much pleasanter. On one of these trips many of the crew purchased tea-sets to take home to the dear ones. You have to be pretty smart to get the best of a Japanese in buying a tea-set. They say it is number-one kind, and praise up its merits

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in various other ways. Incidentally they ask a price much higher than it is worth; they expect to be Jewed down.

The *Yosemite* had a donkey-boiler which was used to keep steam up while lying in port. This was to preserve the main boilers. This boiler was located on the upper gratings directly over the main boilers, and was not in use at the time. While the *Yosemite* lay at Yokohama many of the crew, who were short-timers, purchased tea-sets, which they stored in and around the donkey-boiler.

Of course, lying at Yokohama, where the weather was nice and cool, all of the main boilers were not lit below. Everything around the donkey-boiler was cool.

It seems that when the main boilers were all lit and the ship put to sea, the heat around the donkey-boiler was terrific, particularly when we neared Guam and struck the tropical climate again. Many of the men on watch below were wondering where those little pieces of soft dough were coming from. The little pieces would drop down regularly through the gratings to the fire-rooms below. One of the men happened to pick up a piece of the dough. He found that it was decorated in bright colors. He at once concluded that the tea-sets had been melted by the intense heat from the fire-rooms. Several of the crew rushed up to the don-



U. S. S. Ohio. The Ohio was launched by our late beloved President, William McKinley.

Photo taken specially for this book.

key-boiler to examine the tea-sets. It was laughable to see them. Most of them had run together: where they had once been a set of sixty-two pieces, they now formed a trust, and consolidated. Since each tea-set was only worth about seventy-five cents, however, the loss to each man was not great.

A FOWL MOVE

In 1899, during the Philippine uprising, the gun-boats of the Navy were on the go continually, helping to prevent filibustering, assisting the Army in landing troops, etc. I was on the *Bennington* the larger part of that year. In the latter part of '99 we were ordered to proceed to Lingayen Gulf for patrol duty. Lingayen Gulf was more popularly known as Hungry Man's Gulf, on account of the hard living at that place during the period.

Daugapan was only a few miles from this place, which was in possession of the insurgents; also the majority of the rolling-stock of the Manila and Daugapan Railroad.

Our orders were to steam two days a week around the vicinity. After we were there awhile, all delicacies, such as sugar, flour, canned vegetables, etc., soon began to wane. The principal article left was the sixteen-hole regulationhardtack. All ships rate a large drag-net, which was used by the crew in earnest, as the fresh-meat boat did no vis-

iting in those days. Not many fish were caught, because that place is infested with sharks, which scare away the small fish.

Every one aboard who could produce a fishing-line did so. In most cases it was if the fish don't bite, you don't eat.

During one of our periodical trips in the vicinity we hove to off a small island. It was noticed that a couple of canoes were heading for the ship. We waited until they came near. We saw that the boats were loaded with chickens and fruit. The owners were eagerly requested to come aboard and sell their goods. The ward-room steward was "Johnny on the Spot," so he procured all the chickens.

The queer part of it all was that the poor natives wished old clothes instead of money for their goods. When this fact was learned, there was a great scouting around to scare up old clothes to buy from the natives.

The ward-room officers decided to keep the chickens alive until Sunday, so a temporary chicken-coop was rigged up on deck and the fowls put into it.

In the forward fire-room of the *Bennington* a conspiracy was formed by the firemen and coal-passers. So one dark night, about two A.M., a successful raid was made on the coop.

It was only a few minutes' work to scald, clean,

and prepare the ex-ward-room chickens for the grill. A coal-shovel was wiped clean, and the chickens were carefully laid out in sections, regulation Navy butter spread over them, and the shovel held over the hot coals by willing hands. Soon there was a royal chicken feast deep down in the bowels of the ship.

When the ward-room discovered their loss, they got mad and held a preliminary court of inquiry. The verdict was that the chickens yet left in the coop were worth treble the absentees, so the ward-room cook had to make a stew of what was left to have enough chicken to go around.

“SHOW ME”

While one of our battleships was in dry-dock, a farmer happened to pass by, and never having seen a ship before, he asked a bluejacket what those two windmills were for. By windmills he referred to the propellers.

Jack answered, “Why, them’s fans which keep the rudder-hinges cool.”

The farmer did not seem quite satisfied with the explanation, so he asked what moved the ship around.

“Why, the rudder, of course,” answered Jack.

A PERSONAL STORY

This story is my pride, and means more to me than this whole book, though it were of virgin gold. Many will doubt or be skeptical as to its truth, but I can only say it is true.

I vehemently deny, in advance, any thought of mentioning it for sympathy, as the story demonstrates happiness instead of sorrow.

My mother has been so good and kind to me that, in looking back at the days of darkness, I take great pride in allotting her this small space.

Many naval officers and enlisted men are married, and, when convenient, their wives follow the ship from port to port. When the occasion demands it during a conversation, the women-folks exclaim, "Why, I'm a sailor, too!" This is also true of an enlisted man's folks. They take pride in knowing that their son is in the Navy, and his letters are always read with the greatest interest. Of course, women are not as interested as men in the good points of a twelve- or thirteen-inch gun. They are apt to say, "Ain't war awful!" They do not stop to think that by having both quality and quantity of twelve- or thirteen-inch guns the prospects of ever having war would be like the North Pole—hard to find.

Several years ago my mother went to a small

country party where the guests remained over night. A pillow on my mother's bed had been used by a child which was suffering from some disease of the eyes. The result was that my mother contracted a disease of the eyes which caused her to gradually lose her sight.

Scores of remedies were tried, operations, medicines, etc., but of no avail. The lot of a blind person is a hard one. Still my mother made the best of it and seemed to become reconciled.

In 1898, when I enlisted, I came home often before I was sent to sea. The first day I came home in uniform mother had to feel me all over to tell how I looked. Sewed on my sleeve was my rating badge, at the top of which is a white eagle made of raised work with the wings spread out. She was able to tell that it was a bird by the sensitiveness of her touch. "Isn't that a pretty bird!" she said.

During my absence her sight returned naturally. When I came home she could stand a few feet away and see me. Since then she has steadily improved, and the day is not far distant when she will be able to read this book. For the above story I can only say, "Praise be to the One who can make the lame walk and the blind see."

AN OLD SALT'S SALTY SALTINGS

In signin' quarterly accounts say nothin' if yer got more money on ther books than yer thought. If short er nickel or more, say er mouthful.

If yer have dirty clothes, wash 'em ter-day; ter-morrow may be cloudy.

Never buy any terbaccur; it is too much trouble ter carry it. Shipmate Bill spells his name E-A-Z-E-Y.

Spare yer not ther elbow grease; Uncle Sam don't care fur expenses.

After ther wrinkles are out then's yer time ter tell 'bout ther fifteen dollars per week that yer made on ther outside.

When yer wants ter knock, tip yer hammers wid wireless rubber.

If yer could only sen' yer hammuck ashore ter ther wash, yer wouldn't have ter scrub it.

Don't holler 'bout not shippin' over. Ther lar-ger yer holler, ther quicker yer cum back.

When yer git ter rate er boiled shirt, be sure an' wear ther same size hat.

Don't tell ther fellers how yer did it; let others do it fer yer.

Never monkey wid dorgs. They sometimes bite.



RACE-BOAT AND CREW, U. S. S. ILLINOIS. Note the graceful lines of the boat, and the muscles of her crew.

Yer needn't git tattooed ter be er sailor; ther's others who like salt horse.

If yer want ter git er smoke-stack, use smokeless coal.

Write oftun ter yer mother. She don't fergit yer, even if yer are twenty-two.

Don't tell 'bout ther rich uncles yer got what's workin' on ther poor-furm.

Never be afraid of er big man. Er turpeder-boat can outrun er battleship.

When work's on han' cut out ther eddie-cut. 'Taint "Good-mornin', Bill, have yer used Pear's soap?" It's "Hey, there! Grab that scrubbin' brush."

Er enlistment is like ther tide: it runs out.

'Taint alwus ther man behind ther gun that does ther work. Most guns has sights on ther sides.

Don't throw water on any one ter make 'em believe it's raining.

When yer git home don't tell 'bout ther sea-serpents yer saw.

Alwus respect yer superior officer. Yer may be one yerself sum day.

Don't butt in wher' yer have ter butt out.

Many when bustin' their liberty say, "Oh, I don't care." But aftur the'r' punished they oftun rubber at ther bulletin-board ter see when they kin go ashore agin.

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Don't pour oil on troubled waters; it's bad fer ther eyes.

Many wonder why er sailor likes ther sea. Why does er duck swim?

Put yer money in ther ship's bank if yer 'tends ter git hitched up when yer git home.

Have ambishun! Don't be er sea-ladder fer those who has it.

An idear's like er dollar bill at er fair: it's easy changed.

Ther's many er slip 'tween cup and lip; so steady cummin' up ther port gangway.

Uncle Sam ain't greedy. He oftun calls twice six er baker's dozen.

Do unto others as yer would do when in debt an' couldn't pay.

Some call er sailor er flat-foot; people in Oregon are called web-footers.

Money's made roun' ter go roun', but we travel roun' fer ours.

Uncle Sam's ther opposite from whale huntin': he don't pay jaw-bone.

Don't tell how yer would do it, but butt in.

Never think ther ship can't get along widout yer. If yer does, don't think loud.

Mermaids are like sea-serpents—doubtful.

Don't say "can't." 'Tain't regulation.

Stocks are like er ship: they rise an' fall.

If we all thinked ther same, they'd be no boat races.

When yer git promoted don't think yer er whole school-house. Ther's other pupils 'board ship.

Don't judge people by ther gunboats on their feet. Some may have corns.

When yer clast and wanter go shore, wurk ther tooth-ache racket. Call early at ther sick-bay and have one of ther main chewers out er whack.

Ther days of "shiver yer timbers" is past. We now got iron ships wid petrified wood trimmin's.

Some people only drinks liccur when in agony. Lot's has pains all ther time.

Wid ther wireless telegraph in use, turpeders will be run wid hot air 'stead of comprest air.

'Tain't all gold that glitters. Ther's enuf bright-wurk 'board ship ter start er brass-mine.

THE WRECK OF THE U. S. S. YOSEMITE

At the time of this wreck Guam was a lonesome place where vessels called irregularly. But little was known of the island because it was so isolated. Of late years many changes have taken place. Transports and other vessels now call at Guam regularly.

Guam is the main island of the Marianas, or Ladronne group. When Magellan, the great explorer, discovered these islands, he landed at Guam

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to replenish his food and water-supply. While stopping there the natives stole all the iron-work which they could lay their hands on. For this reason Magellan named the islands the Ladrões.

Guam is about thirty miles long and twelve miles wide. The population is about eleven thousand. The natives are called Cheemoores, and they are a very quiet and peaceable race of people.

Since the United States has had control Guam has made great progress in many ways. In 1898, when the *Charleston* was ordered to Manila, Captain Glass was ordered to capture Guam while en route.

On entering the harbor the *Charleston* cleared ship for action. Subsequent events, however, proved that the victory was a bloodless one. The inhabitants of Guam were ignorant of the fact that war existed between the two countries.

Rumor has it that the *Charleston* fired a few shots, and the governor of Guam, thinking it was a salute, paid an official visit to the ship and tendered his apologies for not being able to return the salute, because he was out of powder.

When informed that Guam was to be taken in the name of the United States, the governor was dismayed. Final arrangements were, however, made for the surrender.

All the Spanish subjects were taken to Manila

and given transportation to Spain. Meanwhile, a native of Guam, who could speak English fluently, was appointed temporary governor until Captain R. P. Leary arrived. He was the first American governor of Guam. The cruiser *Yosemite* brought Captain Leary to Guam. The ship was ordered to be detained there as station-ship.

The *Yosemite* was a converted cruiser of about 6000 tons displacement, 3800 horse-power, and her battery consisted of six five-inch guns and six six-pounders.

San Luis de Apra is the main harbor, where all ships lie at anchor. This harbor is seven miles from Agana, the capital of Guam. About two thirds of the population live at Agana. The palace, marine barracks, etc., are also located here.

Running parallel with the harbor is a long, continuous reef, which acts as a natural breakwater.

On the morning of November 13, 1900, while the *Yosemite* lay quietly at anchor in this harbor, a terrific typhoon arose with such suddenness that the ship was unable to get steam up in the main boilers and put out to sea. Some of the ship's boats were away from the ship when the storm commenced, and they were signaled to return at once. They were all hoisted and secured in time, with the exception of the steam-launch. The wind and sea were then so strong that the

launch was unable to approach the ship. The officer of the deck cried through the megaphone, "Beach the launch anywhere."

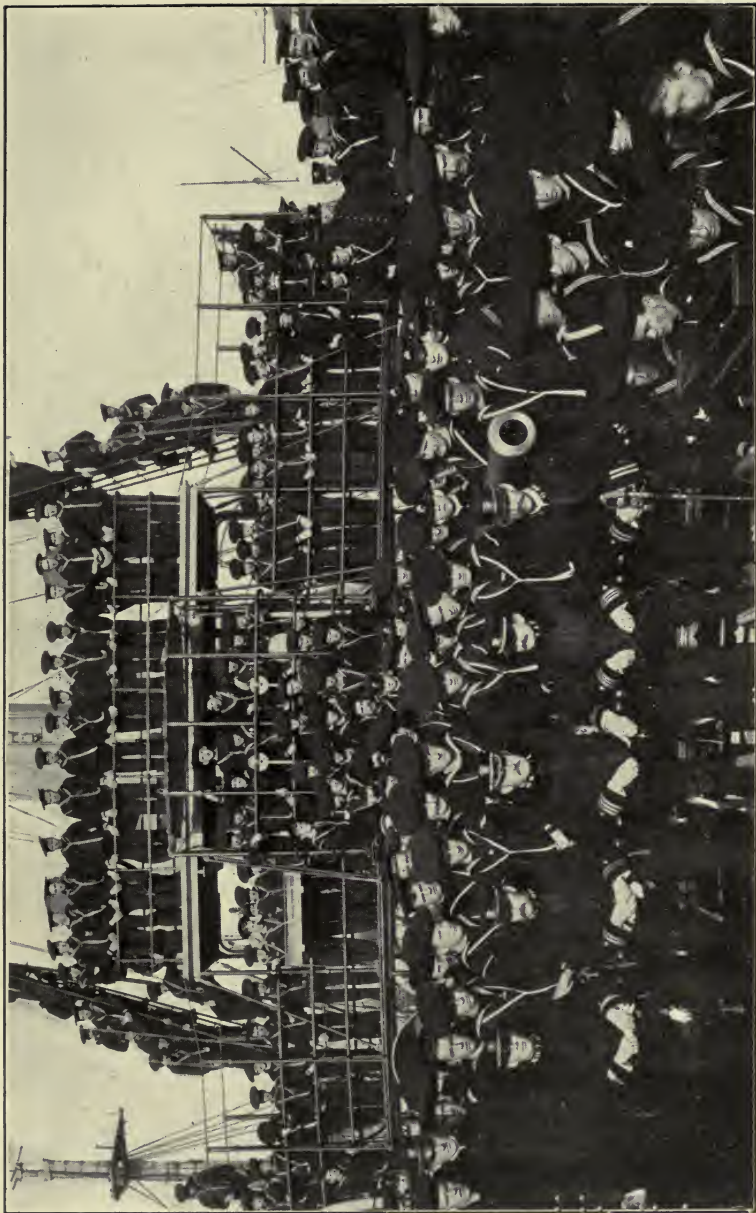
The steam-launch and her crew of five were lost. It seems the launch was ground to pieces over the sharp coral-beds. Later on three of the bodies were recovered.

Our troubles were now beginning in earnest. The ship started to drag over the coral-reefs toward Sumay, a small town facing the harbor. By this time steam was up in the main boilers, both anchors were out, and the engines were going full speed ahead. Still the big ship kept on dragging. There were soon several holes in her bottom forward. A life-boat was now lowered, manned by a volunteer crew; the boat attempted to tow a small line to the beach with which a large hawser was to be hauled ashore. This would enable the crew to abandon the ship.

The reefs soon cut the line in two, and the life-boat was dashed to pieces as it neared the beach; but, luckily, the crew escaped with but slight injuries.

The storm, which seemed to increase in velocity, now suddenly shifted its course, and caught the *Yosemite* off the starboard beam.

The sick-bay was located on the forward berth deck, but the ship sunk so rapidly by the bow



SHIP'S COMPANY, U. S. S. CHATTANOOGA. The crew of a warship know how to form themselves to make a good picture.

Copyright, 1905, by Enrique Muller.

upon reaching deep water that it was with great difficulty that the patients were removed in time to the ward-room. While the sick were being removed, other members of the crew were closing the water-tight doors. By closing these doors the crew's lives were saved. This confined the water and kept the ship afloat.

Now the ship was blown out of the harbor. How it cleared the narrow entrance and reached the open sea will never be known. The wind and sea were terrible to behold. Life-boats, spud-lockers, etc., which had been well secured, were blown bodily off the ship.

Before reaching the open sea the *Yosemite* struck a rock, stern first. This completely carried away the rudder, snapped two blades off the propeller, and bent up the rudder-shoe so badly that when the propeller revolved the good blade would strike it and could turn no farther.

The atmosphere was a mass of spray, and it was impossible to see a hundred feet ahead. Finally the ship did clear the narrow harbor entrance and reached the open sea. Should the ship have struck that main reef, the ship and crew would have been lost forever.

At this period there was but little water in the main and after holds, so the ship's stern was high up in the air. Bulkheads were braced and bucket-lines

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formed. In fact, everything was done to try to outlive the storm.

No one will forget that first night out. At times the ship would get in the trough of the sea and roll on her very beam ends; often she would lie on her side and stagger as if in doubt whether to come back on her keel or not. Toward morning both main pumps broke down, and the water began to gain rapidly in the other holds.

It was no easy task to overhaul these huge pumps, because the engine-room was in a horrible mess. The *Yosemite* was a single-screw vessel. On the upper gratings over the engine-room were several oil-tanks which were bolted to the bulk-heads. During the early stage of the storm these tanks broke adrift and their contents spilled over the pumps, machinery, ladders, etc., below, and made it dangerous to move about.

After several hours of patience and toil the pumps were put in order again and the water lowered in the main and after holds. Nothing could be done with the forward hold, as one might as well have attempted to pump the ocean dry.

When daylight came we were in a sad predicament: no rudder, the propeller useless, nearly all of the life-boats blown away, and the ship's back gradually breaking. This caused the water to gain in the other holds, and to make matters worse there were

a large number of man-eating sharks gathering around the ship.

Throughout the night rockets were fired at intervals, in the hope of attracting help.

At the foremast was a large American flag which was reversed to signify distress.

All hands worked with that dogged determination that is never found lacking in the Navy. Later events demonstrated that the good work of both officers and crew kept the ship afloat long enough for all hands to be rescued.

I forgot to mention that the ship's mascot, which was a black goat, was lost. This goat was in the sick-bay when the patients were rescued, but the water rose so rapidly that the goat and a great many valuables were lost.

In the afternoon of the fourth day out one of the lookouts cried, "Smoke-ho!" All hands rushed up on deck in a body to see where away. Sure enough, there was a small steamer several miles away. The steamer was going in the wrong direction to see us, so several of the guns were loaded and fired simultaneously. Our appeal was answered, as the *Justin* changed her course and came to our rescue. What a welcome sight she was as she hove to off our beam!

The *Justin* was a Navy collier which was stationed at Guam with the *Yosemite*. At the time of

the storm she was well laden with coal, so that only a small portion of the ship was exposed to the wind. As it was, she dragged a long distance and narrowly escaped destruction.

Captain Seaton Schroeder, who was governor of Guam at the time, ordered the *Justin* to go out and look for us. The *Justin* lowered some boats, and tow-lines were run from ship to ship. When a strain was put on them they snapped like twine. The *Yosemite* by this time was setting very low in the water.

When it began to get dark the word was passed, "All hands abandon ship." This time it was not a drill; it was a reality.

The pay-clerk, who was acting-paymaster, stood by the boat-falls and mustered the crew into the life-boats. As each name was called the owner stepped forward and slid down the boat-falls into the life-boats.

When the life-boat was filled it was rowed over to the *Justin*, where the crew were transferred.

Men were called up from the engine- and fire-rooms, where they had been on watch; they left the ship with only the clothes on their backs, but their lives spared them.

As soon as the crew reached the *Justin* they lay about the iron decks with a ring-bolt or an anchor-chain link for a pillow. They slept like innocent

children when they realized that their troubles were over.

The *Yosemite* kept afloat that night, so the *Justin* stood by. Next morning the paymaster went aboard and saved several thousand Mexican dollars.

At three o'clock that afternoon the good ship *Yosemite* went down. She had been our home, and all who witnessed it will say, "It was a sad and solemn sight." The ship began to stagger, and then suddenly she steadied herself. Then she made three plunges, bow first; at the third plunge she failed to recover herself, but kept sinking by the bow until an angle of forty-five degrees was reached. With a final plunge she sank to the bottom of the ocean.

The *Justin* then returned to Guam, and the next day we entered the harbor. We dropped anchor just where the *Yosemite* once lay.

The day before the storm Guam was a beautiful picture of nature; but now all the foliage had been turned a yellow color by the salt water which had blown over it.

A small shore-boat came off to the ship to communicate the latest news. We then found out that the steam-launch and the crew had been lost.

Governor Schroeder had his hands full ashore because of the great destruction which had been caused. Several hundred native houses had been

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blown down, all the Government buildings were damaged, and several natives drowned. All the food-crops of the natives were destroyed. The Government issued food rations to the natives for several months after the storm. When the crops were replanted and harvested, the natives were again able to take care of themselves.

When the Navy Department received the official reports of the wreck and the loss of the ship, they were so pleased and gratified with the bravery and heroism displayed by the entire crew that an official letter was forwarded to Guam. Upon its receipt Governor Schroeder mustered the crew together and read it to them.

Had the *Yosemite* been out in the open sea uncrippled, she would have fought that typhoon to a finish and conquered it.

SEA-GOING SMILES

DEAD ON IT

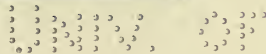
Navigator (from Kentucky): I hope we get some sunshine to-morrow so I can get my true bearings.

Executive (also from Kentucky): It looks like to-morrow will be cloudy. Would a little moonshine do?

Navigator (who tumbles): Well, a couple of fingers would steady me on my course.



A NEW RACE-HORSE. The new scout cruiser *Chester*, fitted with turbine engines of high power.



SEAMAN, SIR

Pat (heaving the lead for the first time):
H-e-e-e-haw, h- - -a- - -w- - -he.

Officer (from the bridge): What's the matter there? Don't you know how to read the lead-line yet?

Pat: Oi knows the tune of it, sir; by and by Oi'll lurn the wurd.

A NEW HAND

Rookie: Well, I reckon you can tell me where the ship's cook be at.

Old-timer: Sure, Johnny. You'll find him down in the forward magazine frying fish.

CHEAP GUY

Hot-air Bill: Gee! I'd like to be pilot. They get three hundred a month.

Wireless Pete: Funny world, this. I always pays a nickel to pilot a schooner across the bar.

DREAMING

Master-at-Arms (waking up over-sleeping blue-jacket): Hey, there! Come out of it. It's after reveille.

Bluejacket (who is having a pipe-dream): I don't want any breakfast, ma.

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WELL POSTED

Recruiting Officer: So you would like to enlist as a bandsman, hey?

Italian Musician: Yes, sir, me like.

Recruiting Officer: Who is the greatest man in America?

Italian Musician: Georgie - - - der - - - Wash - -

Recruiting Officer: You'll do.

OUT OF COMMISSION

Stormy: Say, Mickey, what must a man be to rate a military funeral?

Mickey: You got me. I don't know.

Stormy: He must be dead.

CANNIBALS

Little Child (who has been visiting a warship with its ma at meal-time): O mamma!

Mamma: What is it, dear?

Little Child: Ain't it funny, the sailors eat just like we do!

EXTRA STARS

Recruit (to paymaster of flag-ship): Why are there fifteen buttons on my trousers?

Paymaster: Why, don't you know? America's first flag contained thirteen stars.

Recruit: Where does the extra two come in at?

Paymaster: Oh, they represent the stars in the Admiral's flag.

CANTEENS RESTORED

Jack: Say, Bill, what do you think? There's a doctor in Germany who got up a pill that will turn a glass of water into beer.

Bill (greatly excited): What's his address?

A DEEP DRAUGHT

Captain (joking Naval Constructor): Why, I draw twice as much water as you do.

Naval Constructor: If I put you in dry-dock you won't draw any.

ON DUTY

Foreign Monarch (admiring thirteen-inch guns): How do those big guns work, Admiral?

Admiral: I could show you better when they are in action.

STORMS AHEAD

Mike (to tattooed Jimmy, who is a "short-timer" and intends to get married): Going to ship over, Jimmy?

Jimmy: Sure, Mike, on the matrimony sea.

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RELIGIOUS

Chaplain: Your face is not familiar at church, my good man.

Unreformed Sailor: I practice my religion every morning before breakfast.

Chaplain: I do not understand your meaning.

Unreformed Sailor: It's me that works the holy-stone on deck.

A LEG BAROMETER

Naval Doctor: You should not be so anxious for a discharge. Your rheumatism is improving wonderfully of late.

Rheumatic Patient: I've been offered a good billet in a weather-bureau office, sir, and me leg will help to keep me my job.

Naval Doctor: Very well, I'll recommend you for a discharge.

LIQUID REFRESHMENTS

Old Lady (pointing to Jack's canteen): What do you carry in that thing?

Jack: We carry water in the canteen, ma'am.

Old Lady: Well, I do declare! That must be the canteen question I hear so much about.

A MONEY-MAKER

Hickey: Next hitch, Windy, I'm going to ship over as a baker.

Windy: You are foolish. You draw more money than a baker.

Hickey: Come off. A baker makes more dough.

POOR SOUP

Officer (sampling contents of pot): How dare you issue such soup as that to the crew?

Ship's Cook (who was about to dump contents of pot into the ash-chute): This is not soup, sir. It is the dish-water.

AIRY SAILORS

Submarine Jack: Say, Willie, Uncle Sam's going to put submarine and torpedo-boat sailors on that new air-ship that's about to be commissioned.

Torpedo-boat Willie: I knew that a month ago. I'm studying up for a good billet on her.

Submarine Jack: What you going to be—a bal-last-shifter?

Torpedo-boat Willie: Why, no. I'm studying up to be a sky-pilot.

LIGHTNING CALCULATOR

Division Officer (to rookie): What weight projectile does a six-pounder gun fire?

Rookie (who is in doubt): I believe eleven pounds, sir.

Division Officer: You are wrong. What's the

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difference between a pound of feathers and a pound of lead?

Rookie (who tumbles): A six-pounder gun fires a six-pound shell.

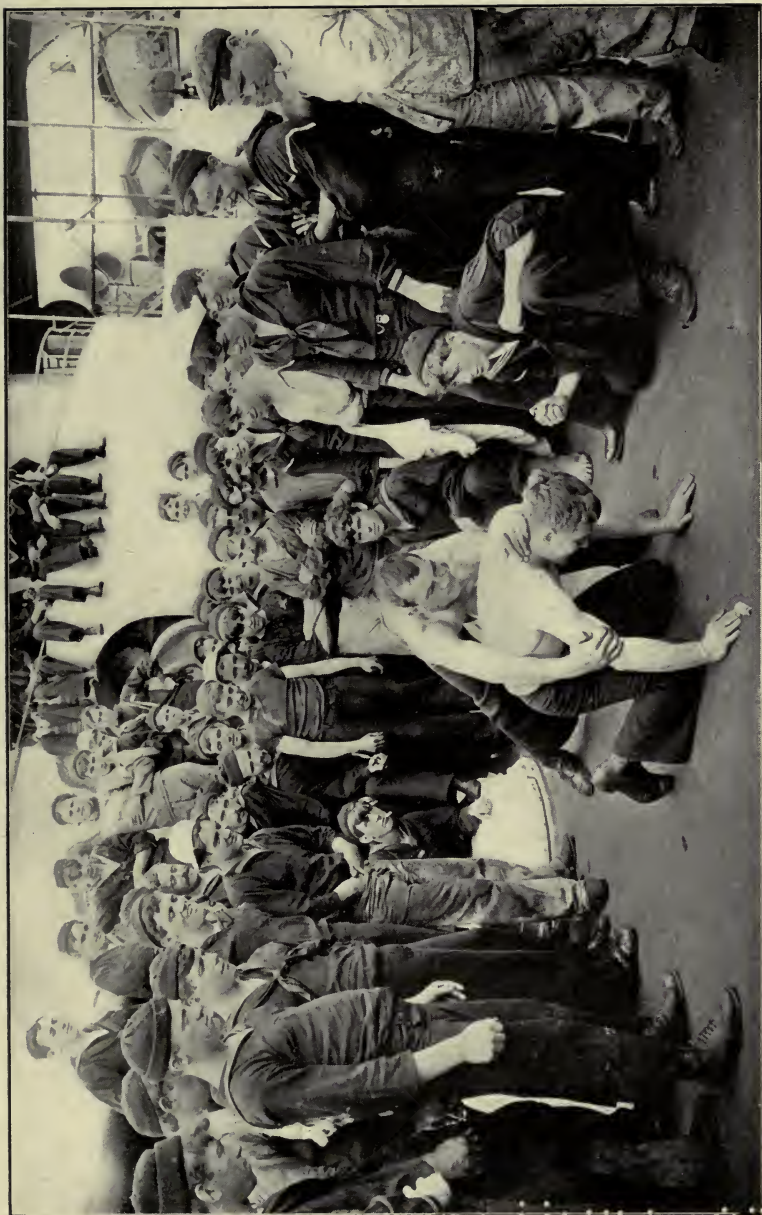
GOOD-MORNING

In Japan the word "ohio" (spelled ohayo) means "good-morning." So when the crew of a warship are ashore on liberty they are greeted with many polite bows and "ohios."

On board the battleship *Wisconsin* were two chums who were born and brought up together in the State of Ohio. When the ship entered the harbor of Yokohama, both of the young men were very anxious to go ashore and see the country of which they had heard so much.

Shore-leave was granted the young men, and they started ashore. They traveled all over the city, and saw all they could of beautiful Japan.

The next morning they arose to make preparations to return to the ship. On all sides they were greeted by polite bows and "ohios." After hearing the word for about the thousandth time, Bill turned around to Jim and said, "I wonder how they knew that we were from Ohio."



A W RESTLING-MATCH. Athletic sports of every nature are greatly encouraged by the Navy Department.

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A PERPETUAL REWARD

A certain marine officer, when on shore duty in charge of a body of marines, had quite an ingenious system for studying human nature. Office hours are held about ten o'clock every morning; all marines on the report for offences committed are brought before the commanding officer to have their cases looked into and punishments administered.

All offences committed are mostly of a petty nature, and when the offenders are brought before the commanding officer, they put up the most ingenious defences ever known.

The punishment is generally fatigue duty, which means that the offender must perform extra work about the barracks while the rest of the marines are at leisure. Many old-time marines claim that work is a lost art with them, so extra duty is not welcomed.

The first thing this commanding officer did upon entering his office of a morning was to take out his pocket-book and take out a nice-looking five-dollar bill, straighten out all the kinks, and lay it on the edge of his desk. One half hung over the table, so that the V could be plainly seen, and a heavy paper-weight was also used to anchor it down. The court is then opened up, and the offenders are brought in and tried, one at a time.

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As each offender is brought before the commanding officer, he points to the five-dollar bill hanging so conspicuously on the desk, and says to the offender, "You see that five-dollar bill on my desk? Well, that's for the man who can tell me a story I never heard before."

Many a marine had spent a sleepless night scheming up some new yarn. Still the bill remained a permanent fixture on the officer's desk. When the commanding officer was told a story which he had never heard before, he would burst into laughter and exclaim, "Why, my good fellow, I heard that story twenty-five years ago." If the story seemed to be original, the offender would generally escape punishment.

Bill Johnson, the official hot-air merchant of the camp, had often boasted to his chums how he would butt in and cop the V. Shortly afterward, one pay-day, Bill became tangled up with some tangle-foot, and was locked up in the guard-house for safe-keeping.

The next morning Bill, with a big head, was brought before the commanding officer at the regular time. After being introduced to the V and charged with being top-heavy, Bill, who was quite a sea-lawyer, put up the following defence:

"We got paid yesterday, sir, and when I came off guard last night I started down town to see the

moonlight ascension of Professor Aguadentes' air-ship. It seems my watch was wrong, sir. When the air-ship business was all over I arrived.

“ Then I decided to return home. I started to do so, but all of a sudden I was knocked down. I looked upward to see what had struck me. I looked around, and there was the air-ship passing over my head. It seems that some one in the air-ship was distributing bags of sand on the heads of pedestrians in order to lighten the weight of the air-ship. Unfortunately it was my destiny to be hit with two of them. The second one put me out of commission, as I remembered no more until I woke up this morning and found myself locked up in the guard-house.”

The commanding officer, who had never before heard such a plausible story, gave a few outbursts of laughter, and then exclaimed, “ Why, my good fellow, I heard that story twenty-five years ago! I'll let you go this time, but don't do it again!”

Bill was in great distress, as he thought he had a mortgage on the V-spot. Suddenly he was seized with an idea. Looking straight into the eyes of the commanding officer, he exclaimed, “ Air-ships were not in existence twenty-five years ago.”

Bill is now the hero of the camp—he won the prize.

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INGENUITY

The Navy collier *Brutus* was manned with a naval crew for a long period. The *Brutus*, being a collier, did not carry a steam-launch. Often the ship lay far off from shore, so when anyone went ashore there was a hard pull ahead for the small-boat's crew.

The members of the engineer's department contrived to convert the ship's dingey into a steam-launch. On board the *Brutus* was an old Whitehead torpedo-engine; so with the help of a large sheet of steel, piping, etc., a serviceable boiler was manufactured, also a home-made propeller. The dingey was fitted up to receive the machinery, and when completed, the trial trip took place.

A dingey is the smallest boat carried aboard ship, so the launch's capacity was somewhat limited. At the trial trip the launch could do five knots under forced draught. Four knots was the maximum speed under normal conditions.

The launch proved a success, since she saved the crew much manual labor. The coxswain of the boat was a ship's company all by himself: he was captain, engineer, fireman, deck force, and everything else.

A torpedo-engine runs in only one direction, so all eccentrics, valves, reversing-levers, etc., were missing. When the coxswain, etc., etc., wished

to get under way steam was turned on the engine, and the coxswain then leaned over the stern and gave the propeller a turn to start the engine in motion. Upon making a landing great seamanship was displayed, because the engine had to be stopped at the proper distance from the landing; otherwise the engine could not be reversed. A small hand-pump was used to supply the boiler with feed-water.

STORMY WEATHER ON THE GULF

Rusty Ryan had served Uncle Sam twenty-odd years. At last he decided to ship over on the matrimonial sea. Rusty had often told his ship-mates that he would get hitched up when his enlistment expired. Being more familiar with sea-going knots than those matrimonial, Rusty often sought advice from his mates as to how to make love to a "gal." All hands advised him to butt right in to the gal he liked best and tell her all about it.

Upon being paid off, Rusty put up at a comfortable boarding-house which was managed by an old lady who had a daughter.

As soon as Rusty was introduced to the daughter he immediately decided to drop anchor. After making what he thought was love to the daughter for several weeks, Rusty could stand the suspense no longer.

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One evening, as Maggie was playing the piano in the parlor, Rusty waltzed up to her and popped the question.

Maggie became very indignant, as she was heard to reply: "Go away, you lobster! I have a parrot that swears, a monkey who chews tobacco, a cat that scratches, and I don't intend to have an old sea-dog growling at me."

Rusty upped anchor and headed for the guardo, a sadder but a wiser salt.

A DRY SHIP

Characters { ADMIRAL TWOSTARS,
CAPTAIN TIGHTGLOVES,
CABIN STEWARD,
CABIN BOY.

Captain: Steward, the Admiral is coming to visit me to-day. As there is no champagne in stock [he never did have any], I've got up this little schéme. When I invite the Admiral into the cabin I'll ring the bell and order a nice quart of Mumm's put on ice. You will take the order and return in a couple of minutes and reply: "Captain, I'm very sorry to report that we are all out of champagne. There's some nice Pabst beer left." In reply I will call you down (make believe) for being negligent, etc.

Admiral (who just arrived aboard): How do you



Nobody works but Uncle. A happy pair snoozing. Bluejackets are very kind to all dumb animals.
Copyright, 1905, by Enrique Muller.

do, Captain. Your ship is looking spick and span. It's awfully warm to-day, isn't it? It must be cooler down in your cabin.

Captain (brings the Admiral into the cabin): It's the hottest day I have ever experienced on this station, Admiral. Why, even the pitch on the deck is melting. [Captain rings bell and steward enters.] Steward, put a nice quart bottle of Mumm's on ice right away. The Admiral's stay is limited.

Steward (returning a couple of minutes later): Captain, I'm very sorry to report that we are just out of champagne. I ordered some yesterday, sir, and it has not come aboard yet. There's some nice Pabst beer on ice.

Captain (making a grand stand): No more champagne left? What became of the case I bought two weeks ago? [Never bought a bottle in his life.] I'm going to disrate you for incompetency. Here I have a distinguished guest for company, and you make such a report as that. Get out of here and send the cabin boy in.

Admiral (who doesn't tumble): Oh, that's all right, Captain. I would just as soon have a glass of beer. Mistakes will happen, you know. That reminds me of a little story. When my dad used to go fishing he always took along a little jug that was marked "Bait." One day when dad went to town I played hookey and went fishing. I took dad's

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jug along with me. When I went to bait my hook I found that the jug contained hard cider.

Captain (boy enters as Captain is laughing at joke): Boy, bring in a couple of bottles of beer right away.

(As Admiral leaves the ship, sighs and murmurs): I'm three dollars in, anyway.

FRENZIED FINANCE

I have stated in the article entitled "Naval Notes" of this book, that when a sailor begins to imagine that he is getting tired of the sea he begins to talk about starting a chicken ranch or a farm. I myself have had a little personal experience in that line, and I shall proceed to relate it.

After being shipwrecked on the cruiser *Yosemite* I was detained ashore at Agana, the capital of Guam, for shore duty. One of the bluejackets there owned a small piece of land located on a small hill which overlooked the town. As this bluejacket was going home soon, he sold the land to me at a nominal sum. I purchased the land with the intention of starting a chicken ranch. This I did to my sorrow.

I put the chicken ranch in commission with a complement of sixty chickens, and my troubles and misfortunes then commenced in earnest. St. Patrick must have visited Guam, for there were no

snakes there. There are some lizards, however, about three feet long and capable of swallowing a two-months-old chicken without the least inconvenience.

The lizards acquired the habit of visiting my hen-house regularly and sucking every egg they could find. As I was unable to procure glass eggs, I had to put up with the lizards.

The hens would become greatly frightened at the appearance of these lizards, and ere long the hens commenced to lay in the brush, which made matters just as bad. No sooner was an egg laid than the rats would eat it. When the hens went to the brush I thought that they had quit laying. One of my shipmates told me that meat was a great egg producer, and I therefore changed the diet of the chickens.

The paymaster's store-rooms were near my place, and whenever a lot of tinned meats were condemned I managed to get some of it to feed to my fowls. The chickens were fed canned "Willie" straight, and the results were magical. The hens even laid while they roosted in the trees at night. Still the early bird got the worm. Should I be on hand before the lizards or rats, I would then get my share of the eggs. This state of affairs was too good to last, as some kind of chicken disease broke out among my flock and many died. Those that

survived quit laying, so I sold the chickens for what I could get, and later on when I came home I re-enlisted aboard the *Oregon*.

About two years after the failure of the chicken ranch Guam was visited by a terrific earthquake, which did considerable damage to the island. Many claim that the island rose six inches out of the water as the result of the earthquake.

Many of my shipmates used to make fun of the land I owned in Guam by saying that they would not give seven dollars for the whole island. I, in return, would demonstrate to them how my land had gone up (by inches) during my absence.

FULL RATIONS

Two bluejackets were arguing one day over the wages, etc., paid for common help in a certain State. As the argument became very bitter, they decided to have a third party settle it. Upon being asked for his opinion, the third party expressed himself as follows: "When we lay at the Brooklyn navy-yard on the old *Lancaster*, a draft of rookies came aboard, and among them were two brothers who came from the State of ———. Both of these brothers were as green as grass. Later on I became acquainted with one of them, and he told me how they came to enlist. He said that he and his brother had worked five years for

a farmer in the State of ———. They had never received a cent of money. So one Fourth of July they asked for two dollars in order to go to town and see the circus. They were refused the money, so they left and joined the Navy.

“ When they first came to the ship they used to call the fresh bread ‘white cake,’ as that was what it was called down in the State of ———. They used to get ‘white cake’ twice a year—Christmas and Fourth of July.”

AH CHOY

Ah Choy, mess attendant first-class, had often heard how easy it was to fake the sick-list, and, therefore, be excused from all work. So one day Ah Choy decided to take a trial shot.

Promptly at 8:30 next morning Ah Choy reported to the doctor, and exclaimed: “ Me cachee lomeytism in lef’ legee; all samee hurtee.”

The patient was put on the sick-list so as to enable the doctor to get the run of the case. Ah Choy was in all his glory, as three square meals a day with nothing to do just suited him. So he decided to stay on the sick-list until his enlistment expired.

After enjoying the rest cure for about a week at Uncle Sam’s expense, the doctor began to get suspicious, so a close watch was kept on Ah Choy.

One day Ah Choy forgot himself and limped on the wrong leg. The next morning the doctor had Ah Choy laid out on the operating-table and broke out his amputating instruments.

Upon sighting the highly polished knives and saws Ah Choy turned deathly pale, because he felt sure that they were going to amputate his leg. He could stand the suspense no longer, so he jumped off the operating-table and rushed out on deck crying, "You no can cuttee legee." Ah Choy is now a cured case.

A ROOKIE'S LETTER

U. S. S. SANSALITO, Oct. 9, 1906.

DEER MA AN PA:

Well, I do be a real sailur at las'. Ther doctur at ther reckrutin' orfice looked me over right pert an' said I wuz cut out to be a flatfoot. I wuz sint hear with a gang of fellers frum Kalamazoo to this ship. Thoze suspendurs that Aunt Mirandy sint me be of no ust as we uns do not be alowed to ust them az we ust buttuns insted. I askt a feller hear what be ther best fur to study up fur, an Admirul or Kaptin. He saz that a wize un like me oughter lurn to be kaptin of ther poop deck.

This boat be four storys hi and ther flors are not painted. Gee, ma, its hard wurk scrubin' thoz flors with san' and kanvas. I was mutch scart las'

night as when I wint to git in mi hammuck I felled out. A feller sazs get a hammuck laddur which I did. Whin I wint to sleap I dremt Pa's mule wuz chastin' me an' I felled out and waked up. Ther cook saz if I'll help peal spuds he'll give me sum pie checks.

I nearly broked mi kneck yisterday as I wuz gorn up stairs I slipt an' I dont ketch ther banster in time so I hit ther flor with a whing. I wuz out in a real boat ther other day an' I dint get seasick one whit. Oh! Ma, tell me ther best way to git durt frum dirty klothos without washin' 'em. Mine gits durty owful eazy. When I gits to sea I'm gorn to shoot them big guns you herd tell about. Gee whilikins youz outhar see one of 'em ripsnorters they be as big as Hesry Hakins win'mill. We dont hav eny lamp lits hear like at home, all lits hear turn on and orf. I tried to blow one out, but a feller saz turn it out which I did. Dont tell eny one, I'm gorn to be kaptin of ther poop deck, az I wanter cum home and surprize 'em.

I'll klose fur this time, Reckuning you all be ther same.

Your Lovin' sun,

HIRAM.

LOST—A WARD-ROOM CAKE

When the armored cruiser *New York* was on a certain cruise the ward-room cook made a delicious cake. The ship had then been at sea several days, so a cake was quite a treat. As the cook was somewhat late in making the cake, the steward set it to cool in the air-port of the pantry.

At the time one of the ship's electricians happened to be repairing a fan in the pantry. The instant he set his eyes on the cake, his stomach got the best of his conscience. Repairing the fan as quickly as possible, the electrician went up on deck, and hunted up his chum, who was an A. B. (seaman), and as agile as a cat, especially when it came to climbing ropes, etc.

A conspiracy was soon formed, with the innocent cake as the "key" to the plot. As the ward-room officers do not dine until about 7 P.M., it was therefore quite dark on deck. The two conspirators got a short line, and headed for that part of the ship which was located directly over the pantry air-port where the cake was cooling.

A bow-line was soon rigged, and the A. B. was lowered over the ship's side to the air-port. As luck would have it, the pantry force was busy with the first courses of the evening meal, so it took only the fraction of a minute to capture the cake.

Should that line have slipped or broken, the cry of "man overboard" would soon have been echoed from one end of the deck to the other. But a ward-room cake is not to be got every day by old Jack, so the thought of any danger was not considered as long as the raid turned out a success.

The A. B. took cake, pan, and all up forward and hid it. Then both conspirators agreed to meet when the mid-watch was called and eat the cake. When the steward went to get the cake for the ward-room dessert it was not to be found. As the steward was sure that no one entered the pantry, he at once decided that the cake had rolled overboard. All the steward got for his pains was a rebuke from the ward-room for being careless in not securing the cake for sea.

TWO SEA-DOGS GROWLING

Time: Summer, 1903.

Place: On board the U. S. S. *Oregon*, at anchor off Cheefoo, China.

Characters: William Brown, *alias* Stormy, on account of being quite windy.

James Murphy, *alias* Spud. There are many Spuds, but this is the original.

Enlistment Record: James Murphy, boatswain's mate, first-class; age forty-five; standard height; vocation previous to joining Navy, policeman. Full-

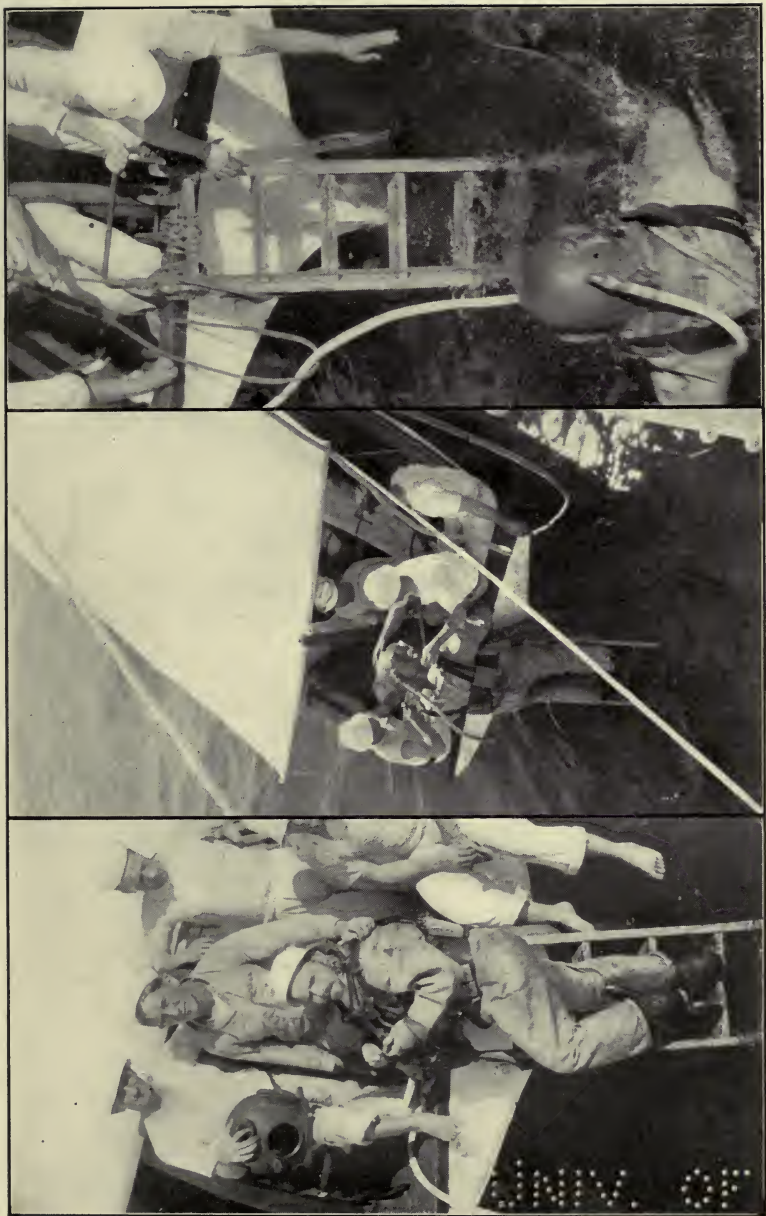
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rigged ship, tattooed on breast, deep voice, also has decided list to starboard. Was born in Shamrockville; twenty years' honorable service; disposition cheerful; a competent man, well liked by officers and crew; was nicknamed Spud on general principles. Spud is the boatswain's mate of the first division of the *Oregon*, and has just lately shipped over.

William Brown, gunner's mate; age thirty-five; vocation previous to joining Navy, gas-man. Has several pimples under both arm-pits; they are either moles or barnacles. Seventeen years' honorable service; height, five feet five inches; large displacement, also large beam. Was born in Missouri. Disposition cheerful. Stormy has been shipmate with Spud on three different occasions. Stormy has just arrived aboard the *Oregon* and is ignorant of the fact that Spud is also aboard. After stowing away his luggage he strolls about the ship meeting old shipmates. As he steps out on the forecastle he runs into Spud, who is sitting on a chest filling his woodstock pipe with Navy plug.

Stormy: Hello, Spud, old boy! [They shake hands.] I thought you said you wasn't going to ship over again? I knew the meal pennant would fetch you back. You did right by coming back, as there are pretty hard times ashore.

Spud: Well, I'll be torpedoed! Where did you



A DIVER AT WORK. This diver is inspecting the ship's rudder, propellers, strainers, etc.

Views furnished by a shipmate.



come from? I did intend to stay out last time, for I bought a chicken farm and run it three months. The chickens wouldn't lay, so I sold the whole shebang and shipped over. No more farming for me, Stormy. I thought it would take an act of Congress to take the political job away from you that you had on the *Philly*.

Stormy: Haw, haw, haw! You old fogie, you must have looked pretty piping all the chickens to muster. I lost my job when the *Philly* went out of commission, so they sent me out here on the *Solace*, and I caught the old *Bulldog*. You remember the Jimmy Legs that used to be with us on the *Philly* at Panama? Well, he jumped, and they caught him in 'Frisco and gave him six months.

Spud: I heard about Jimmy Legs, but I thought he only got busted. Say, Stormy, the ship's a regular home, and we live like fighting-cocks, as the commissary steward is certainly a peach. Who do you think is our executive officer? It's Mr. Carrol that used to be with us on the old *Mickey* in eighty-nine.

Stormy: I met Mr. Carrol at the gangway as I came aboard, and shook hands with him. He remembers me well, as he once caught me fetching a dog off. They are going to make another dozen warrant gunners, and I'm going up for it. Do you think I'll make it, Spud?

Spud: Sure, Mike, you'll make it if you will learn all about spontaneous combustion and all that rigermore stuff. You got a great knob on you and have had a good learning, and I hope you make it. I'm going out with a pay-day this time, as I'm stowing it away on edges in the ship's bank. I intend to get hitched up when I get back, as I've got a dandy dame on the string.

Stormy: Hee-haw, hee-haw, is the gal's name Maud? You would certainly look sea-going, going down the line with Missus Spud on your port beam. Come out of it, man. You got the love-lit in the wrong blinker. Soon as she gets your dough she would cut the tow-line and you would then head for the guardo. Better look out. You may fail as you did with the chicken farm.

Spud: They ain't no use guying me, Stormy; I haven't forgot the time you got tangled up with that mermaid in Oakland. She mooched your whole pay-day, and you didn't see the inside of a church, either. So you had better pipe down. There goes mess gear. We had better get ready for dinner.

P.S.—Both make their exit to their respective messes.

A FEW SALTY RIDDLES

In Manila Bay, May, '98, what was the question
not a question?

Do we did it?

What parts of the ship are farmish?

Jackasses, hawsers, and crow's-nest.

Why are there no labor strikes or walking dele-
gates in the Navy?

Because all have to belong to the same Union
before Uncle Sam will ship them.

Why do battleships make better watch-dogs than
cruisers?

They bark louder and their skin is thicker.

Why are women-folks so anxious to get a sailor-
cap ribbon?

Because a ship is called "she."

What part of Jack's uniform reminds you of an
Admiral?

His blue collar: it has two stars.

What well-known Nation has no Navy?

Why, Carrie.

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Where is the dryest place aboard ship?

The brig: there are bars all around, but not a drink.

What would make the best wife for an old sea-dog?

A mermaid: she couldn't kick.

Who could outsleep Rip Van Winkle if only given the opportunity?

A marine.

What did the *Oregon* make that famous trip for in '98?

To get on the other side.

When does a bluejacket think number thirteen unlucky?

When there are thirteen men at his table and only twelve pieces of pie.

Why is a submarine mine like a salted mine?

It takes water to float them both.

What parts of a battleship are like the army?

Her masts: they are both military.

Why is it mermaids do not believe in Santa Claus?

Because they do not wear stockings.

Why is a very seasick man like a man caught bluffing in a big jack-pot?

They both have to come up.

What is the difference between a good ship and a man's red nose?

First-class goods are used to make a good ship, but any old goods will make a red nose.

What is the difference between a greyhound (ocean steamer) and a bulldog (the *Oregon*)?

The greyhound knows how to run; the bulldog knows how to fight.

Why is it that the sword is mightier than the pen in the Navy?

Officers draw more salary than yeomen.

When does an old salt get salted?

When he gets married.

Why is a man-o'-war like a placer mine?

She gets cleaned up often.

When the ship is at sea what does her rudder remind you of?

A poor man: it is always working.

Where are Uncle Sam's initials seen the plainest?

On the sailors' caps.

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What is the difference between an admiral and a policeman?

The policeman carries his one star, and the admiral has a big ship to carry his, too.

Why are ships, sailors, clergymen, and lovers all in the same boat?

Because they all make knots.

What parts of the machinery remind a married man of his mother-in-law?

Crank, cross-head, and jacking-over engine.

What is the nearest thing to a ship without a rudder?

A saloon without a side door.

Why is the line below the last one in this book?

Because it is the End.

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