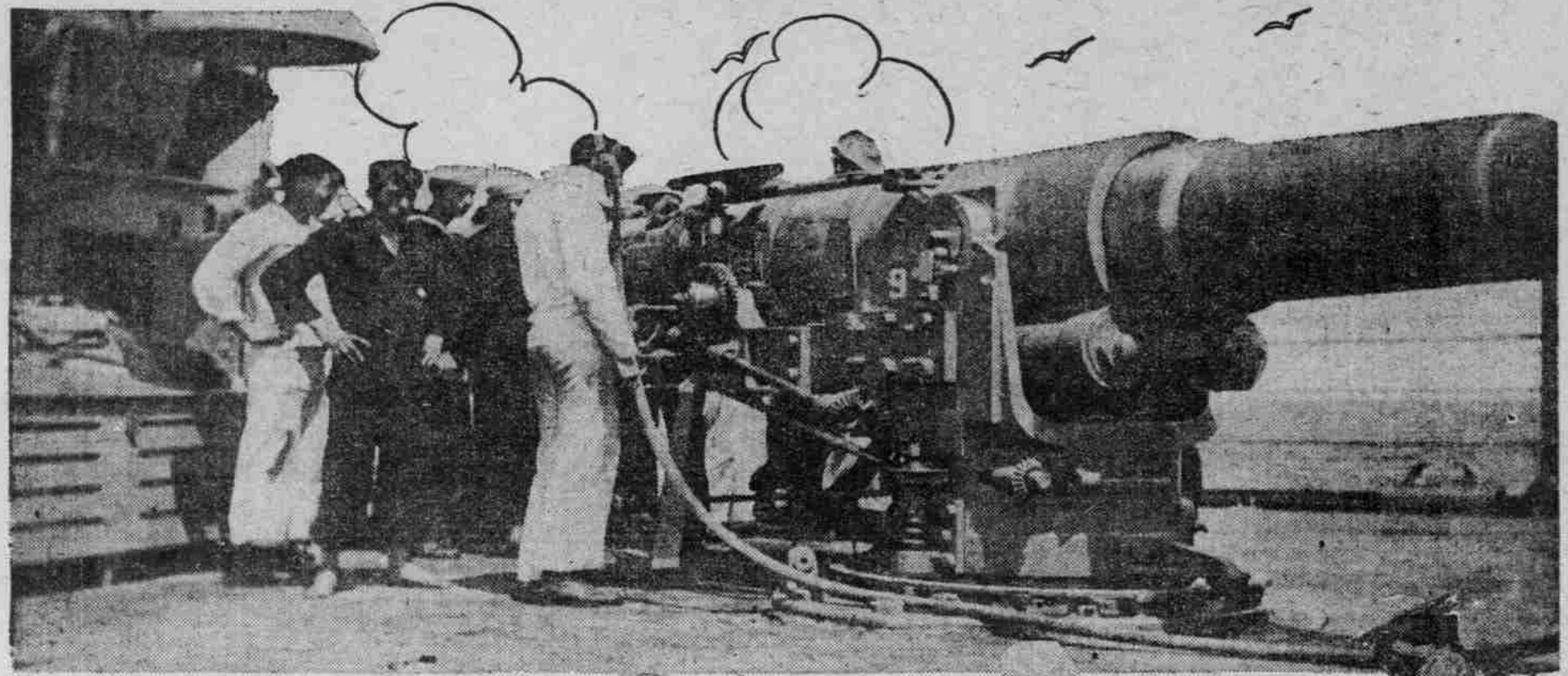


LEARNING THE NAVAL WAR GAME

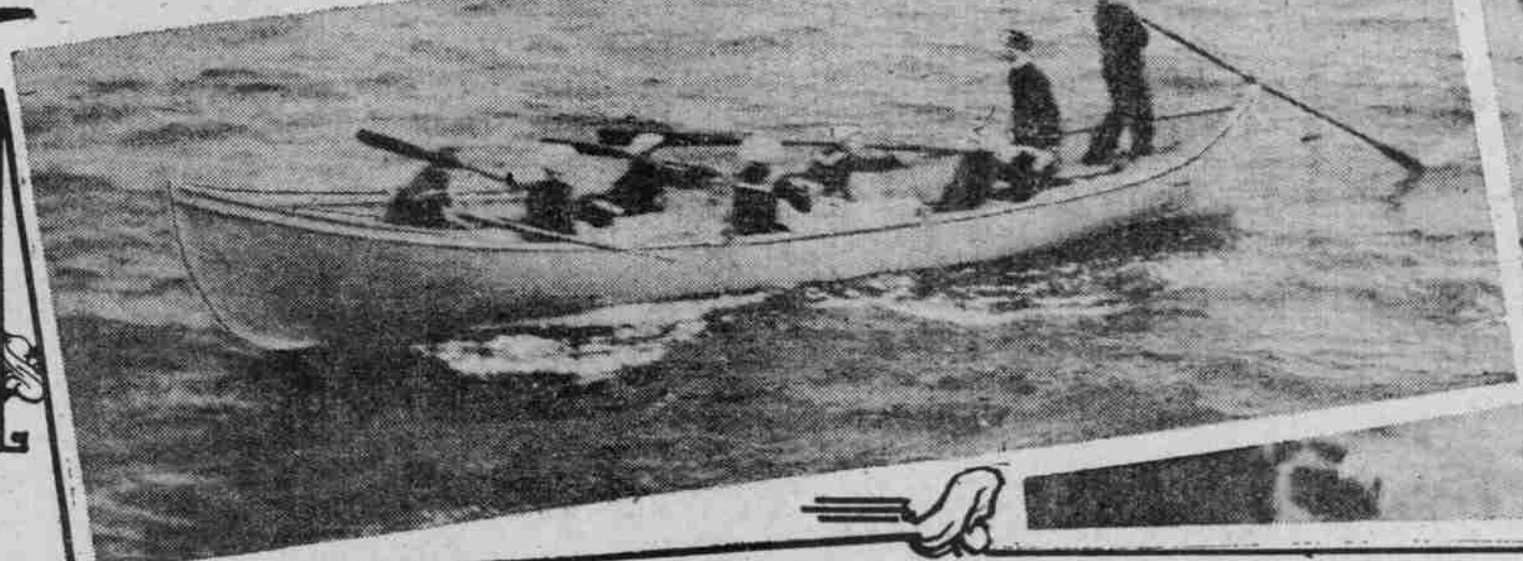
Lively Scenes on Cruiser Boston in Portland Harbor, Where Young Men Are Taught the Complex Details of Modern Sea Fighting and Seamanship.



AC Work With Big Guns



Tying Knots and Splicing



Life Boat Drilling

Making Soundings



Building Up Physique

THEORETICALLY, Portland is bombarded by a battleship regularly twice a week. Buildings are shattered, bridges are destroyed, the populace is slain and devastation spreads out in every direction before the huge shells of powerful naval guns.

But it is only theoretical. While nearly every motion of a genuine bombardment is gone through on real guns and on a real warship and by real jackets, there is no powder and no real devastation. The devastation takes place only theoretically. It is only mimic warfare, but from it about 300 young Portland men are learning the real war game. They are members of the Oregon Naval Militia, with headquarters on the cruiser Boston, a battleship of Spanish-American War fame, which has been turned over to the Oregon Militia as a training ship.

Learning to man a battleship as these young men learn it is extremely interesting as well as instructive and invigorating. Nothing in the way of naval training is neglected by the men or by their instructors, who are selected from the regular United States Naval service.

Should occasion arise the Oregon Naval Militia could take the cruiser Boston or almost any other warship down the Columbia and into the sea to take up an active campaign. A call would find men here trained in every feature of the ship's operation in every phase of modern sea-fighting.

There would be men to fire the battery of boilers, operate the engines and the machinery, repair any parts of the ship that might get out of order, pilot the ship, operate the powerful wireless, handle the guns of all kinds and, in short, do everything that would be necessary to take the ship through a fight.

Men between 18 and 45 years of age are permitted to join the militia. Enlistment is for two years, during which time the men are required to attend drills and to learn the war game by actual operation of the various parts of the ship's machinery, the guns or the other features of the Naval service.

The Boston has 14 powerful guns which are used for training. Two are eight-inch guns of the long-range type. Three others shoot six-inch projectiles, one four-inch, six six-pounders and two automatic 30-millimeter guns. All of these are in working order and saw service in the Spanish-American War.

The young man who gets into the service has to be excellent physically. Application of the recruit is made the same as for the regular Navy. An exacting physical examination and test is given by experts in that line of work, and a man must measure up to minute requirements regarding health and physique.

The recruit upon finishing his examinations is then assigned to a room, shown every part of the ship. He is then assigned a locker-room in which to keep the uniform which is given him. He is instructed in the marking, folding and stowing of clothes, in naval etiquette and customs, and is examined as to personal cleanliness.

His second lesson comprises a half-hour lecture on organization, routine and drills, salutes and first aid medical work. Then comes the learning of setting up drilling without arms and the learning of the semaphore. He is then given instructions in the types of sailing vessels, classes of men-of-war, ventilation, drainage, fire mains, flushing system, compartments, double bottoms, fresh water (now carried), water tight doors, hatches, bulkheads, names of decks, fittings, mooring staples, davits, derricks, winches, ladders, bits, chocks, fair leaders, pin rails, cleats, eye bolts, ring bolts, chain bolts, bollards, camels, leek stoppers.

He is then drilled in facings, march-

ings and manual of arms. This is followed by instructions and lessons in navigation, including explanations of the use of the compass, marking by points and degrees, modern method of steering and bearings, pelorus and theodolite in connection with compass; wheel, where located, reasons for more than one, how connected to rudder, how it controls rudder (hand, steam, electric); terms used in handling, steering, rudder, reading thermometers, barometers, records entered in log, wind and sea, force and direction of; clouds, storms, current, tide, set, drift.

The recruit then learns the interesting art of tying knots, splicing, sewing, parcelling, use of palm and needle, standing and running rigging. This is followed by instructions on types of guns, shellrooms, handling-rooms, handling charges, testing powder, flooding magazines, hoists, parts of guns, shells, powder, primers, fuses and torpedoes. Instructions in seamanship follow this. These instructions include lessons on leads, hand, deep sea, machine, marks, heaving, character of bottom, use for location of ship's position, measuring distance, revolutions, ship log and sand glasses, patent log, ground tackle, kinds and uses of anchors, chains, links,

shackles, swivels, marks, stoppers, drills, stations, loading and firing. Last in the way of instruction is the use of lifeboats. Every phase of this feature of the service is gone into carefully. By the time the recruit finishes his well first term of enlistment he is well

versed in every phase of the business. He has had actual experience with every part of the ship from the rigging down to the rudder, omitting nothing in between. The cruiser Boston is the scene of much life and activity on drill nights, when the men are at work with the machinery and the guns. Here and there are lines of men going through drills with arms. Other rows are taking exercises. Groups of busy blue-

jackets are seen tying knots, splicing rope, parcelling, using the palm and needle and standing and running rigging.

About the guns are men hard at work putting in dummy shells, training the guns and firing them. They are fired in different directions and at different ranges. Were they loaded they would plow great holes through the city.

In the pilot-house men are at work with the wheels and the various complex instruments used in steering and finding bearings. In other parts of the ship men are at work learning the wig wag signaling and use of the light signals.

Down in the bottom of the ship men are at work keeping the boilers in operation and at another point men are at work with the wireless apparatus. The Boston has a modern radio station aboard and catches messages from great distances. The course in the militia includes instructions in wireless.

Each year the Naval Militia takes a cruise in one of the naval vessels in active service. Last year a cruise was taken to Honolulu. This year the trip will be to San Francisco and San Diego. On these trips the militiamen have complete charge of the ship, attending to its operation throughout the cruise.

In addition to having all expenses paid on these trips the militiamen receive the same salary for their work as is paid for men of like class in the regular Navy. On board they live the same as regular sailors, being under strict orders and having their regular work to do. They live the lives of regular sailors in Uncle Sam's service. The big guns are actually worked occasionally and practice on the targets. Many of them become expert marksmen.

The militiamen are also given instructions during their term of enlistment in the handling of rifles. They go out to the rifle range at Clackamas occasionally and practice on the targets. Many of them become expert marksmen.

The men who join the service enjoy their work. The drilling is not hard and it is extremely interesting. Except upon drill nights the members of the militia are not required to give their time, but the cruise nights are held at all times. Drills are held on Tuesday and Friday nights, and generally there is an almost complete attendance of the members. Attendance is compulsory, the officers of the militia being empowered to force the men to report at all times. But those in charge report that they do not have to exercise this power very much. The men, they say, are so greatly interested in the work that they do not have to be forced to report for drills.

“Well, this. Electrolysis of water is easy, as we all know, and the product of oxygen and hydrogen, which can be breathed for a time but it is an explosive mixture that would have blown him to eternity had enough of it touched a spark from either of those three fans.”

“But he had inclosed the communication.”

“Yes, but that was his chance, nevertheless. Here is another: He turned both wires into the pipe leading into his fan system. He was evolving large quantities of chlorine gas from the salt in the water, and this is equally explosive when in contact with hydrogen, not only from sparks but from strong light. Now, he was in pitch darkness of course, and every pipe feed led directly in front of the next fan, so that the mixed gases did not touch the sparks and explode. But what he risked was the poisoning effect of that free chlorine before he made his discovery.”

“And it did poison him,” said the

surgeon. “Ripped his mucous membrane to shreds and smothered. But what did he discover?”

“That hydrogen and chlorine gas, mixed in utter darkness and violently agitated, will combine without explosion into hydrochloric acid gas. Water takes up 450 volumes of this gas, but only 2 1/2 volumes of free chlorine, and less of hydrogen. His discovery saved his life.”

“But,” said the Captain dryly, “he made a much greater practical demonstration. He has proved that men may safely be ejected from torpedo tubes, that a Whitehead will support two men in the water and that the man left to die can turn into gas and expel by the bilge pumps the weight of water that holds down the boat. How much—in this case? Did you figure it out?”

“About a pint,” said the engineer; “I must ask Breen, though, about the new reaction. It's not quite clear.”

But Breen did not enlighten him. (Copyright, 1905, by Harper & Bros.)

FIFTY FATHOMS DOWN

(Continued From Page 3.)

when he fell down near the motor and lay there.

Years later, as it seemed, he awakened in pitchblack darkness with an irritating pungent odor in his nostrils, a burning sensation in his throat, a clattering, rushing, roaring sound in his ears and a pain in his head such as he had never felt before. Only one sensation could he place—the odor in his nostrils, the astringent action that he knew so well. Then his position and plight came back to him by degrees. His last light had burned out. His air plant was still working, but the poisonous gas was escaping. How and why?

He reached out, felt the supporting column of the engine and located himself; then he crawled to the different parts of his pipe and fan system, inspecting them by the sense of touch. Everything was as he had left it—the wires still fed bubbles into the pipe to the upper fan, the last fan still caught the air as it rose from the acid and sent it over the motor.

Perhaps the motor would now work the pump. He found the switch and controller in the darkness, turned on the current and felt his way back. The armature was turning—just a little faster than before. Shutting off the current he coupled on the pump and again gave power to the motor, only to find that the pump stopped it. The solid, inert, incompressible water in the induction pipe could not be stirred.

Yet there was power in the motor; he had tried to stop the armature with his hands, but could not. Two men could not—nor three by the way it felt. If he could multiply that power? If he could give it purchase. If the water were more yielding—compressible—so that the motor, once started, would go on? Compressible, like air? Air—compressible air. He had too much air—bad air, too. It gave him the pain in his head and the roaring in his ears. Crawling forward as far as he could go, he found a sweeter atmosphere and thought it out. There was little logic or coherence in his thoughts; he only wanted to devise means to get rid of that poisonous flow of gas, which came from he knew not what defect in his apparatus but which

he could only stop by stopping the supply of oxygen.

The air compressor motor was burned out, otherwise he could pump air into any of the tanks and outboard when the pressure was great enough. Could he turn that rotary bilge pump into an air pump? Could he make an aperture in the induction pipe above the water.

Crawling aft into the stifling atmosphere near the motor he found an elbow in the induction pipe made up of a T-joint and a pipe. Securing a wrench that fitted he removed the plug and laid it on the motor-bed. Then he turned on the current, assured himself that the motor was turning over and crawled forward out of the fumes.

Here he remained and after a long time when a new sound as of the clapping of an outlet valve came to his burdened ears over the uproar he shouted approval and again was happy. He was pumping bad air out of the boat, and all was well with him. He was not even hungry or thirsty but after a time, when the clapping of that valve in the outlet pipe had become a familiar sound and his head had stopped aching, he felt somewhat sleepy, and as the pile of machinery on which he lay was a hard bed he crawled aft a little, where the greasy oilcloth floor was softer. He went to sleep there, face upward, directly beneath the conning tower hatch.

Years, generations, centuries passed while he lay there, and he awakened once or twice in a decade, listened to a far away, roaring sound punctuated by the clapping of a valve and went to sleep again. He wasted no energy in thinking about these sounds; they were the only sounds in the universe, and beyond his care and control.

But at last a new sensation came to him, one that affected not his ears or his organs of taste or smell; these were dead, killed long ago by that terrible, blistering gas. The sense of touch was lost in the all pervading pain that saturated his whole body. The sense of light was but a memory, lost in the darkness that had engulfed him with the burning out of the last bulb. But now, as he lay there on his back the sense of light and sight seemed returning.

Through his half-closed eyelids—a

dim glimmer of yellow and gray came into his brain. He opened them wide and took in the details of the conning tower ladder, the circular tower just above, and an occasional flickering image of the starboard deadlight moving up and down, back and forth, on the port inner surface of the tower. Light! Where did it come from?

He arose painfully to his feet, and fell down. The boat was in motion, pitching somewhat and rolling—over so slowly—while water still washed around among the battery jars. He arose again, supporting himself by the ladder. The motor, dimly showing in the gray light, was spinning rapidly, the fans were still buzzing, the outlet valve still clapping at regular and more frequent intervals. The boat was afloat.

He slowly climbed the ladder, found the hatch unscrewed—unfastened from within—exactly as he had left it ages before, when he had fallen, half drowned from the ladder. Exerting all his strength he pushed upward, but could not budge it. The outlook was gray through the deadlights, and only as the craft rolled did the occasional glimmer of yellow light come in from the starboard.

She was on the surface, but with the top of her conning tower awash—all below it buried. Even had he succeeded in opening the hatch against the slight weight of water sliding over it he would only have swamped the boat and gone down again to another eternity. He looked at the motor, buzzing noisily and working a rotary pump that pumped—air.

Weakly and painfully he descended and crawled aft into the blistering fumes to where he had left the T-joint plug and the wrench, and without waiting to stop the motor he turned that air pump back into a bilge pump, heard the gurgling sound of water in the pipe that accompanied the last few heaves he gave to the wrench and crawled forward to where the air burned and choked him—just a little less. Here he waited, listening to the new cadence and slower rhythm of that clapping outlet valve in the pipe, while the light above grew stronger and the growing hope of life in his heaving breast strove valdly to formulate itself

into words of prayer to pass his cracked and bleeding lips.

Then the buzzing of fans and motor softened, the rhythmic cadence of the clapping valve lessened and lowered, the surging sound of water ceased, and, though the fans still whirled slowly, the pumping came to an end. The 3,600 ampere hour batteries was exhausted, but the work was done.

Breen again climbed the ladder and pushed upward on the hatch. It yielded, and when the jiffing spring was past the center it flew upright. Raising his head and shoulders through the opening, he looked across a dark, heaving sea at a full moon hanging above the horizon. He had seen it last a month before.

And the air that he took into his poisoned lungs cut like myriad knives of ice.

Three members of the board of inquiry that later exonerated Breen from misuse of Government property met at the Army and Navy Club long before he was able to answer questions and unofficially discussed him. One was a captain, another a surgeon and a third an engineer, who was also a naval instructor and an electrical expert.

“One thing we'll have to find, surely,” said the captain; “that is, that the course in chemistry at Annapolis is not thorough. I passed in the subject but what did I know? What do I know now? Who but a specialist like Breen could save the boat and his life in that manner—if he did save his life. How about that, doctor?”

“He'll pass through,” said the doctor. “His hair will turn dark again and the wrinkles will go in time. Lord, how he looked!—60 years old, gray-haired and emaciated. Shows what an excess of oxygen will do, even diluted with all those poisonous gases. His lungs and throat are just so much raw meat.”

“But it's funny,” said the engineer. “No one can deny Breen's knowledge of chemistry—that's understood. Yet he was in my class, you know—Breen just pulled through his exams by the skin of his teeth. Chemical symbols were worse than Greek to him, and he permitted no blare of trumpets, no demonstration of any kind, when the Gamboa dike was blown up on October 10, 1913, and the water was let into Culebra cut; none when the first vessel passed through the Gatun locks on September 26, 1913; none when the canal was thrown open on August 15, 1914, to the commerce of the world. On none of these epoch-marking occasions was he visible in the forefront of things. He was not on the forefoot of the first tug that passed the locks, but on and within the lock-walls studying closely the working of the machinery of the gates and valves. He was not

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GOETHALS—THE BUILDER

(Continued From Page 2.)

other foremen were doing in building the canal, repeatedly referring to the Colonel as the “old man.” When he had finished, the other said: “But what does the old man, as you call him, do?”

“Oh, he just comes around and looks over what we've done!”

His dislike of “fuss” of all kinds, official or other, amounts to a passion. There is never any parade or demonstration about anything he does, and he suffers it visibly acute when anything of the sort is thrust upon him. The proceedings in Washington and New York in 1914, when various societies conferred medals of honor upon him, caused him an amount of genuine anguish which he described as “awful.”

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on the bridge of the first ship to pass from ocean to ocean, but on the lock-walls and along the banks of Gaun Lake and the slides of Culebra cut, watching both the operating machinery and the wave-action created by the moving vessel.

What other man in his position would have been capable of this complete self-effacement? An English diplomat, official, who was a passenger on the first ship to go through the entire canal from the Atlantic to the Pacific, wrote of it to a friend: “Colonel Goethals did not go through. He saw us off at Cristobal, and then appeared on the locks at Gatun and Pedro Miguel. At the latter point John Barrett made arrangements to raise three cheers for Colonel Goethals, but, directly it started, the Colonel, who was in shirt-sleeves, turned his back and ran. John was left cheering.”

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Saving of Time and Worry.

Washington (D. C.) Star.

“What is your reason for believing in the nebular hypothesis?” asked the man who is always seeking information. “I don't know that I exactly believe in it,” replied the scientist. “But after a man has gone to the trouble of finding out what it is, it seems a shame to contradict it.”