It Is Fourth of July All Over the World

By ALOYSIUS COLL

I

When the muskets flashed at Lexington
With an ominous boom and bang,
When the ancient bell of Liberty
With the chimes of Freedom rang,
Their tidings faintly reached the ears
Of a faithful little band,
But now the Fourth of July is heard
In every peopled land!

II

Each mount and knoll in Columbia
Is another Bunker Hill,
Where bombs explode and cannon roar
And pennants flutter still,
And up and down the smoky green,
In a chaos of fire and noise,
Are Freedom's rampant flying squads
Of charging men and boys.

III

From the isles of the Caribbean main
The screaming rockets rise,
Like an eagle that seeks a pride of place
For Liberty in the skies,
An eagle whose wings are fluttering flags,
The flags of the free unfurled,
His tail a burning sheaf of stars
That shine for all the world.

IV

In old Manila's footworn streets,
Across her glittering bay,
The patriotic fires are lit
For Independence day.
The thundering memories are kept,
And the blazing signs unfurled,
For now indeed it is Fourth of July
In every nook of the world!

V

Some day, when every tribe shall see
The light of the magic done,
The fiery breath of Tyranny
Shall sink with the setting sun,
And then to proud Columbia,
Where Freedom first unfurled
Her flag, shall rise the glad acclaim
Of a liberated world.

In the Stokehole of the Modern Battleship

NO writer of sea stories has had occasion thus far to make his hero a stoker. In spite of the fact that steam navigation has provided less picturesque material for fiction than was furnished by the sailing craft of long ago, the dearth is not yet so complete that any novelist has been driven to the stokehole for a proper setting.

Nevertheless the stokehole and its presiding genius are as essential to the success of steam navigation as was the humble blower to the old fashioned pipe organ. The human beings who delve at the very bottom of the great transatlantic carryalls, which have been not inaptly characterized as "heaven above and hades below," may not be subjects fit for idealization, but they are prime necessities in steam navigation.

It is on the warship, however, that a stoker becomes a person of acknowledged consequence. It depends upon him to a great extent whether his vessel is to cut through the waves at the speed that was intended by her designers or whether she shall crawl along at three or four knots under that speed. Bad work or neglect in the stokehole means disappointment and invites disaster of many kinds. It means primarily that the fires are not going to burn properly and that as a consequence the amount of steam generated will be less than is required. It means also that all the plans so carefully formulated by the experts above decks are likely to miscarry through the inefficiency or carelessness of the men who feed the fires.

Battleships, cruisers or torpedo boats carrying badly trained or reckless stokers become what are termed "wasters." In other words, they eat too much, drink too much and as a consequence sleep too much. The food which they consume too voraciously is coal, the drink which they imbibe too freely is water, and the consequent somnolence is decreased speed. Such a ship could not be depended upon in a critical moment. If the admiral of the fleet should ask for a burst of speed she would not be ready to respond. It must be remembered also that the speed of the squadron is the speed of the slowest ship. The vessels of a squadron must not be widely separated for any great length of time, for it would not do to leave a straggler to the mercy of the enemy. So it is upon the capability of a single stoker that the movements of an entire squadron sometimes depend.

From this will be seen the necessity for discrimination in the selection of the men who manage the furnaces of a warship. This is so well understood by naval officials that provision has been made by all countries possessed of navies worthy of the name to instruct men in the duties of this important calling. Russia built a special vessel, the Okean, for the purpose of training her stokers. England has followed her example and fitted up the old Nelson as a training ship for this class of seamen. In Germany, France and Italy special instruction is given at the various navy yards.

In the United States the matter has received proper attention. Naval firemen, as they are known in America, are recognized members of one of the five branches which constitute the enlisted naval force. A fireman is classed as seaman and is rated with seamen, gunners and musicians. He is paid more for his services than any other man of his rating, receiving, if of the first class, $35 per month, while the gunner has $26 and the musician $32. Any ablebodied man of good character between the ages of eighteen and twenty-eight may enlist as fireman in the United States navy. He will not be assigned to active duty, however, until he has been instructed in his new business. Before he has finished his course of training he is quite likely to realize that he might easily have chosen a less exacting occupation. It is not an easy task to train young firemen. Many have attempted the feat, but few have been notably successful. It is reputed to be one of the most thankless offices in naval life—to be detailed to teach young firemen how to shovel coal. Every man, of course, can shovel coal, but exceedingly few can shovel it to the satisfaction of a naval instructor.

A young fellow brought suddenly under naval discipline after having lived a free life ashore will find most things not at all to his liking and will also find it remarkably easy to get into difficulty. He is quite likely to forget that the critical individual who is finding fault with his method of grasping a shovel handle and is no purist in his use of the mother tongue is an officer—petty, no doubt, but an officer in the navy notwithstanding. In such an environment and in such a temperature it does not require an act of violence on the part of the novice to constitute actual offense. An impatient exclamation or a rash movement may precipitate disaster.

The coal must be spread over the fire in a manner calculated to get from it all the heat it is capable of giving in the shortest possible time. Not a shovelful must be wasted. The novice is inclined to rail at Uncle Sam's parsimony. Before he has learned how to do the trick properly—long before he wins a grunt of approval from his instructor—he discovers that it is not stinginess, but prudence. Knowing how to obtain a maximum of steam pressure from a minimum expenditure of fuel has bridged many a yawning chasm and turned more than one impending disaster into victory.

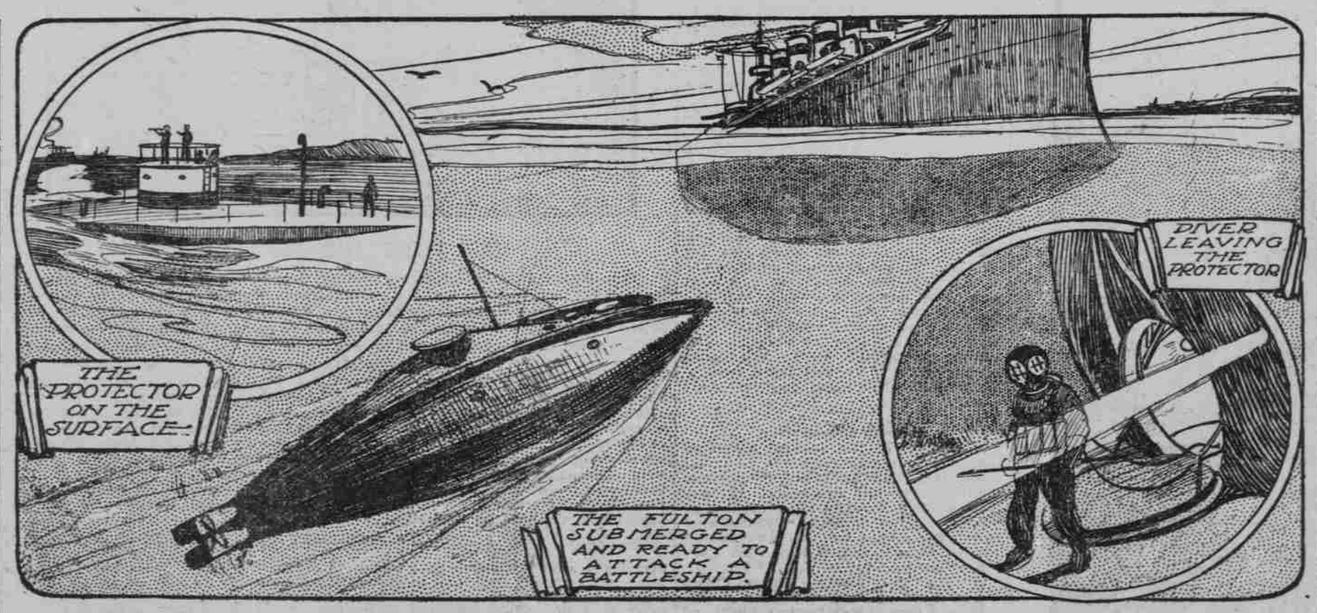
If this scientific manipulation of coal were all, the would be fireman might look forward cheerfully to the near prospect of relief from his taskmaster, but this is only a beginning. He must now learn to keep his fire clean and free from everything that will interfere with the heat making process. This seems to be a simple matter, but one who has tried it and failed would say otherwise. Like so much else that must be learned, there is but one right way to do it. By the time the novice has become accustomed to that way he has probably moderated his disposition to resent his teacher's criticism. Besides that, he is very weary and hot. In time, of course, he will become better able to work in a temperature of 110 degrees, but before he arrives at that stage of immunity he will often think of the superior quality of the air of the upper deck, and if he is a trifle sentimental he may even dream of green fields and brooks.

There is little theory about his training. He actually handles the tools of his trade as he will have to do when he goes to sea. A well prepared fireman is a man of vast knowledge concerning fires, boilers and engines, and nowadays he is expected to have a bowing acquaintance with electricity. Most firemen in the course of time pick up much knowledge about boilers, and some of them become expert engineers. In the early days of steam navigation a fireman's opportunity for advancement was practically wanting. Now it is entirely different. Not only may a fireman's ability obtain for him any one of a number of petty offices in his own branch, but he actually enjoys all the chances of promotion that are open to any other enlisted man in the navy. There are cases on record in the British navy of men who have risen from the stokehole to be commanders of vessels.

Besides his pay of $35 a month, the fireman of a United States ship of war is entitled to all the outfit and rations of the seaman gunner of the same grade. He is provided with an ample supply of clothing and is allowed a ration of 30 cents a day during his enlistment. If he serves thirty years he is pensioned and is given three-fourths of the highest pay he has ever received. In spite of the hardship attendant upon the calling, there is no lack of candidates. It is possible that this is due in a measure to the fact that the physical requirements are not so rigidly insisted upon as in the case of the naval seaman.

JAMES W. OLDHAM.

The Development of the Submarine In Naval Warfare



AT the present time there is much activity among naval experts over the matter of submarine navigation. This is due in part, but not wholly, to the almost frantic efforts both of the Japanese and their opponents to secure any submarine craft which is likely to prove effective. For upward of a quarter of a century the interest in this branch of naval equipment has been subject to periodical stimulation. Until recently, however, the interest aroused by the heralding of some coming submarine wonder has not survived a test; failure in some essential has relegated the project to the realm of the improbable. The performance of the submarine torpedo boat Fulton, constructed by the Holland company and exploited off Newport for the benefit of the navy board of inspection and survey, goes far to re-establish public faith in this species of war agent. The recent tests, which were made by a board composed of six of the leading submarine experts of the navy, were for the purpose of establishing the fact as to whether or not any existing type of submarine boat showed sufficient merit to warrant the department in expending the $850,000 appropriated by congress for that purpose. It was expected that Captain Simon F. Lake's Protector would enter the competition, but a few weeks ago the Lake boat was taken away from Newport, and it is now thought that the Japanese government has purchased her.

There is no doubt that the Fulton is the most perfect specimen of the Holland type of submarine craft in existence. The most untiring pains were taken during its construction to avoid structural complications, and for a year after completion the stanch little vessel was subjected to a variety of tests designed to prove her trustworthiness. According to the examining board, the Fulton possesses all of the merits of her predecessors, the Adder, the Shark, the Porpoise and others of the Holland type which the government already owns. The board is also of the opinion that she is superior to those boats in several important particulars.

The difficulties in the way of submarine navigation have been so numerous that it was felt by naval engineers that much had been accomplished when within recent years they had been reduced to five—difficulty of securing safety, of obtaining fair speed, of steering, of insuring stability and of directing and discharging the torpedo. The Fulton has eliminated the problem of safety. As to speed, it has been found that an excess of ten knots when submerged is not to be accomplished as yet. The motor most available for under water service has probably been the subject of more conjecture and experiment than any other point connected with this species of navigation. Storage batteries as at present constructed are too heavy, steam is out of the question for obvious reasons, and the other usual means of propulsion are equally inefficient in subsurface navigation. The most feasible motor has been found in a gas engine which develops high pressure by means of explosions. Until recently it was impossible to keep the exhaust gases from escaping into the boat. There was also the danger of detection from the escaping bubbles and the smell of gas. As to steering, there remain obstacles yet to be overcome. When under water it is not possible to see more than 100 feet in advance even when at rest; when the boat is in motion the difficulty is greatly increased. The Fulton is provided with a sensitive compass which will give warning of the approach of a hull of copper, bronze, aluminium or some other nonmagnetizable metal. The most important device, however, is the periscope. It is in reality a sort of circular camera. When those below wish to find out what is going on above the water they thrust it upward through a circular opening in the top of the boat. There is formed on the reflecting table a picture of the surface, with any object that may be upon it in plain view. The periscope is so slender and so long that the motion of the boat interferes with its steadiness. It may prove also to be a means of detection, and a well directed shot from a warship would be likely to render it ineffective. All submarine boats are fitted with small conning towers projecting a short distance above the hull and having glass covered peepholes. These towers can be used when cruising near the surface, and the top may be opened if the weather is fine. In most boats the opening in the conning tower forms the principal way of ingress and egress.

To secure a reasonable habitability in a submarine boat was a problem that baffled constructors for a long time. The recent test of that feature on the Fulton demonstrated the fact that the little cabin of that craft is quite as safe as quarters on a battleship. Until now there has been little effort made either to warm or cool these boats. Hitherto it has been possible to remain in a submarine craft only a short time without experiencing discomfort from the change of temperature. Besides this, there has been no adequate provision for eating and sleeping, and the light has not been good enough to admit of accurate observation. All this has been overcome. The Fulton went down in one of the slips at the torpedo station at a few minutes before 11 o'clock one evening and reappeared next morning at a few minutes past 11, the test having covered a little over twelve hours. The nine men who spent the night at the bottom of the slip not only ate, drank, talked, read and played cards, but cooked, lighted their apartment brilliantly with electricity and might have warmed it with the same agent. The subaqueous revelers declared that they could have remained submerged for ten days.

Perhaps the greatest difficulty of all is to be encountered in the discharge of the torpedo. In addition to the confined space in which torpedoes are operated and the difficulty of giving them the correct direction at the time of firing, it is necessary that the boat should be nearly horizontal at the moment, else the torpedo will take too deep a dive or rise to the surface at the beginning of its run. The shock of firing also causes great longitudinal disturbance in the boat. The tests made with the Fulton show that much of the trouble formerly experienced from this cause has been overcome.

It is, of course, unfortunate that Lake's latest improvements in submarine navigation were not made public by the recent tests. The design of the department was to show the utmost fairness in the matter of a choice, and for that reason the competition was arranged. Since the eastern complication came to a focus, and for a long time before that period, both Lake and the Holland company have had abundant opportunities to put their inventions into actice service. It would be an interesting coincidence if the two little destructive agents should now see active service on opposing sides.

When or by whom the first submarine boat was built will probably never be known. Alexander the Great was interested in subaqueous navigation, and it was suggested in the thirteenth century. In 1372 some English ships were destroyed by a machine carrying fire under water. In the early part of the seventeenth century submarine boats were numerous, and by 1727 no less than fourteen types of submarines had been patented in England alone. In 1775 David Bushnell built his first boat, with which Sergeant Lee attacked the British ship Eagle in New York harbor. Lee actually got under the ship, and his attack failed only because the screw with which the torpedo was to be attached to the bottom of the Eagle was not sharp enough.

EDGAR W. JONES.