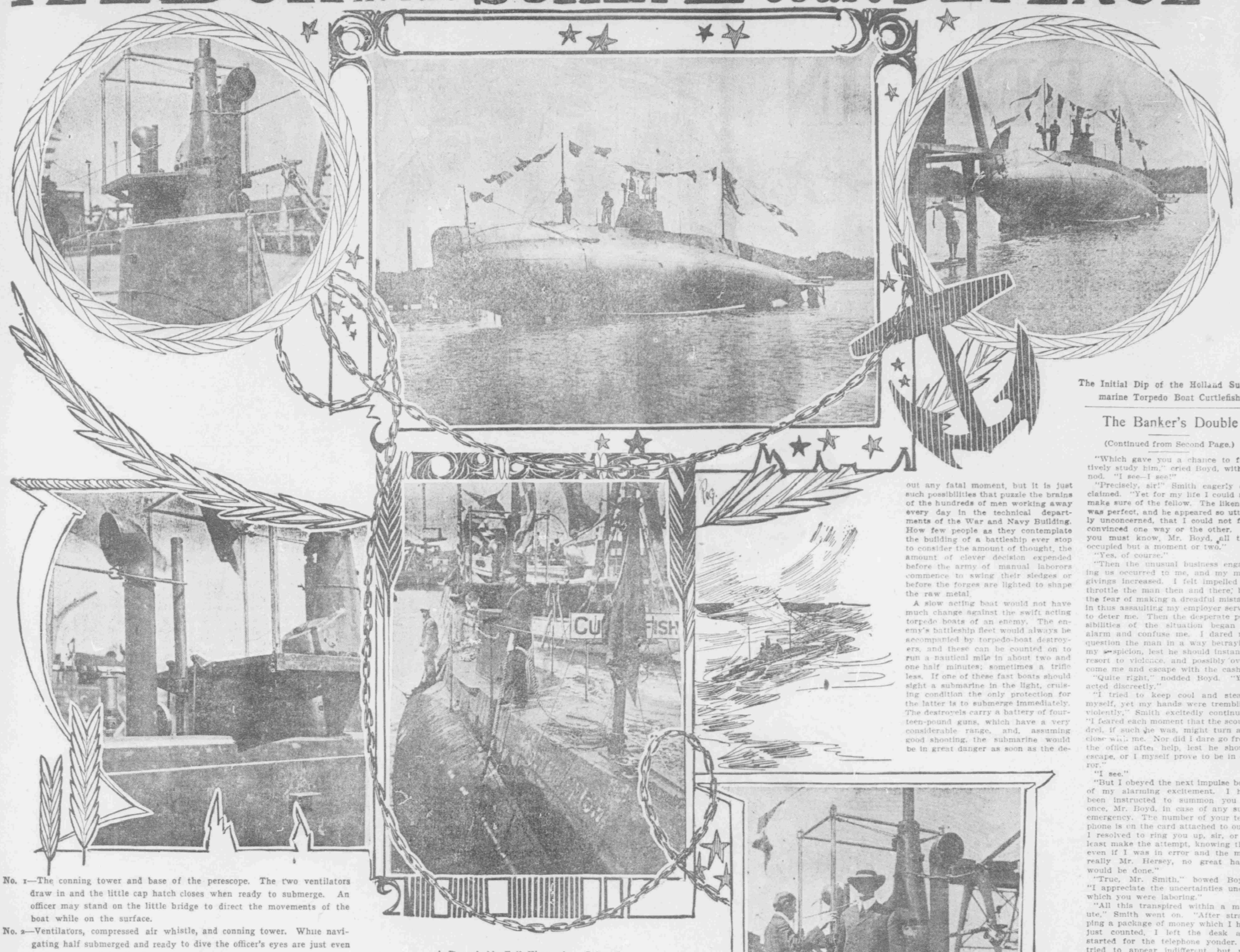
WARNED by costly accidents HARBOR mines in his UNCLE SAM SCHEME of coast will substitute submarines for DEFENCE

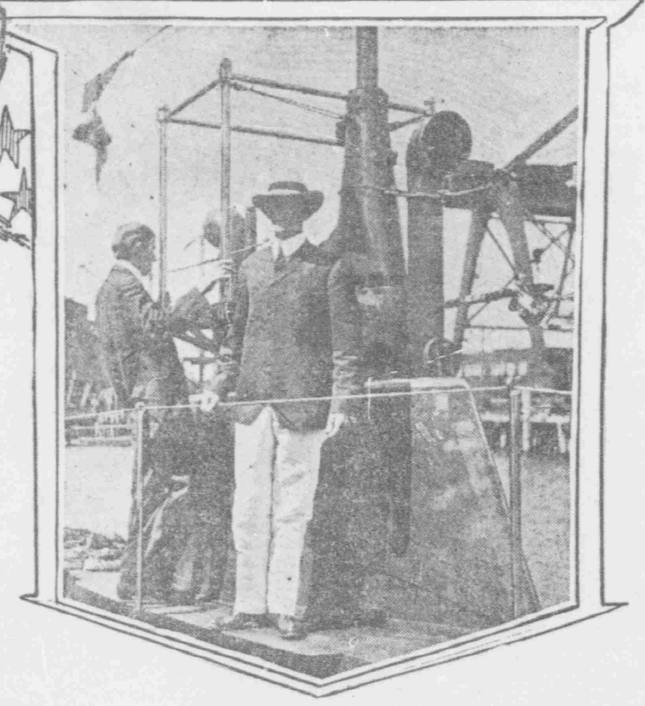


No. 1—The conning tower and base of the perescope. The two ventilators draw in and the little cap hatch closes when ready to submerge. An officer may stand on the little bridge to direct the movements of the boat while on the surface.

No. 2—Ventilators, compressed air whistle, and conning tower. While navigating half submerged and ready to dive the officer's eyes are just even with the peek holes in the conning tower.

A Remarkable Full View of a Submarine.
The Deck of the Submarine, Showing a Cruising Condition.

The Initial Dip of the Holland Submarine Torpedo Boat Curtlefish.



CAPTAIN CABLE,
The Greatest Expert in the World in Handling a Submarine Boat. Captain Cable Has Personally Instructed the Officers of the Russian, Japanese, Dutch, and English Navies in Their Various Countries.

[The following story by Mr. Archibald, Collier's well-known war correspondent, takes for granted the ultimate annexation of Cuba by the United States. It is significant that practically all American experts on modern warfare hold to that belief.]

By JAS. F. J. ARCHIBALD.

THE recent launching of the submarine torpedo boat Octopus marks a new point of progression in our naval program, which becomes more important each day as we come nearer the date of the annexation of Cuba. Our troops have landed and warships have been called to Cuban waters. The army of occupation has already commenced to move. It is going to be a certain victory, but it is not going to be an easy one. There will be tedious months of duty; there will be hill and brush fighting, and there will be the dread fever, but there will be no uncertainty as to the ultimate result. The danger does not lurk in Cuba, but in the remote yet ever present possibility of a foreign war when our force is divided.

The acquisition of the island of Cuba again diminishes the effective strength of our naval force. Every insular dependency added to our territorial composition has the same tendency, for every one of these dependencies demands and must receive its quota of naval defense. The problem of the Philippines decreased our naval effectiveness by at least one-third. Hawaii and Porto Rico also drew a certain proportion of the naval force, and now comes troublesome Cuba. It is all very well as long as we remain at peace with the world, but we must be in an ever ready position for war, or, better still, be in such a position as to preclude a possibility of war. Our navy must be free to go out on the high seas to destroy, and not be bound by a cable's length to the wharf of every great city demanding protection.

Most of the authorities of the present day consider that fixed mines are of sufficient protection for any harbor, but the fallacy of this theory has been proven so often that it seems strange that more nations do not follow the lead of England in the total abolishment of this antiquated means of defense. I cannot recall a single instance in the world's history of warfare where the fixed mine system has proven its worth in the enormous expenditure necessary to maintain it. Farragut sailed over them at Mobile, Dewey sailed over them at Manila, and from the sublime to the ridiculous, the good ship Gussie, with arms for the Cubans, sailed over them during the Spanish war at Key West. The Gussie was in command of an army officer, and that may account for it, but she chunked her side-wheel paddles through a well laid network of mines at Key West, while we on board were quite unconscious of the supposed impending danger.

As we pulled alongside a wharf a naval officer fairly bobbed up and down in excitement as he shouted: "You can't go over our mine field: you will set them off!" whereupon Colonel O'Connell answered, "Well, if your mines had blown us up you would have heard from us." But they didn't blow us up, and they never do. Perhaps an exception might be claimed in the case of the Russo-Japanese war, when a first-class battleship on each side suffered extinction by the means of a mine, but be it considered well that the Japanese ship was blown up by a Japanese mine and the Russian ship was blown up a Russian mine.

The Maine was blown up by a mine in Havana harbor, but it is almost certain that it was an accident and not intent that sent those unsuspecting men to their death.

* *

Accidental Explosions.

I was within short distance of one at Navchwang, in Manchuria, when it accidentally exploded during the operation of placing it in the harbor. It killed the four or five men handling it, and not one in the harbor ever prevented a Japanese ship from entering the mouth of the river Liao.

And so it is with the entire history of fixed mining from the first inception of these uncontrolled engines of war. They are far more dangerous to friendly shipping than to foreign foe, for upon the latter the effect is only a moral effect, while the former is passing over the mine zone every day. It is the moral effect that counts, but it can be produced in a manner far more advantageous and effective. The submarine torpedo boat produces a moral effect far more reaching than any fixed mine which, at its best, is only effective at the very mouth of the harbor, while a submarine radius of action is several hundred miles from the port. A submarine torpedo boat should be a torpedo boat pure and simple, and there should not be any attempt to combine with the boat the various attachments and compartments for repairing or replacing mines or cables.

* *

A Submarine in Every Harbor.

In the first place, if there is ever a single effective submarine torpedo boat in a harbor there will be no necessity of mining that harbor against a foreign foe; no hostile ship will ever attempt an approach to a harbor protected by these boats. If there is no enemy about, a diver could work far more effectively from a surface float or barge in placing or repairing mines than from a compartment in a submarine; if there is an enemy near by it would occupy the attention of the submarine in the endeavor to destroy it, so that it hardly seems at all useful to hamper the cruising effectiveness for the armament capacity by adding this diving-bell attachment to an otherwise active and aggressive boat. There is some agitation in favor of adding this compartment to our submarines, but it is to be hoped that the matter will be considered well before actually doing so, for it would be far more advantageous to increase the number of submarines until we have one or more in every harbor and do away with fixed mines entirely. England has found this scheme advisable and has adopted a very extensive plan of submarine defense.

The Octopus, which was finished at Quincy, Mass., a few days ago, is the latest model adopted by our Government. She will provide sleeping and living accommodations for the entire crew of twelve or fourteen men and with all the necessary arrangements for cooking. She has a radius of twelve hundred miles and a surface speed of ten or twelve knots. The Octopus is of the same general type as those now in commission, although greatly improved. She can clear for action and dive in an incredibly short time, which is her greatest advantage over the "even keel" submersible type. In two or three minutes she can be prepared for a dive, and while under way she can come to the surface for observation and dive again in five or six seconds without slacking her forward speed. It is in this that our adopted type has shown such a marked advantage over the "even keel" type, which is slow of action and unsporty in its possibilities.

The latest submarine boat, the Octopus, which was launched at the Fore River shipbuilding yards at Quincy, Mass., last Thursday is the latest and most improved type of boat in our service. She is almost the double in size and power of any now in commission and will be a model for the future development of our service in this class. The department has so thoroughly recognized the individual importance of this peculiar branch of the naval construction that a special submarine board has been appointed to deal directly with all questions relating to these boats and as the officers named on this board are of noted distinction in their various departments and corps it may be assumed that we will have some sane legislation regarding submarines both in the technical and political ends.

Rapidity of action is, without doubt, the most essential feature of submarine tactics and it is on this line that our future boats should be built. The present idea of a diving boat or a boat that goes into its submerged condition in the same manner that a fish might go into deeper water, is certainly the correct idea. A slow turning or slow-acting boat might get through its active life with success and without any fatal moment, but it is just such possibilities that puzzle the brains of the hundreds of men working away every day in the technical departments of the War and Navy Building. How few people as they contemplate the building of a battleship ever stop to consider the amount of thought, the amount of clever decision expended before the army of manual laborers commence to swing their sledges or before the forges are lighted to shape the raw metal.

A slow acting boat would not have much change against the swift acting torpedo boats of an enemy. The enemy's battleship fleet would always be accompanied by torpedo-boat destroyers, and these can be counted on to run a nautical mile in about two and one half minutes; sometimes a trifle less. If one of these fast boats should sight a submarine in the light, cruising condition the only protection for the latter is to submerge immediately. The destroyers carry a battery of fourteen-pound guns, which have a very considerable range, and, assuming good shooting, the submarine would be in great danger as soon as the destroyer got within a mile, and if within a half mile nothing but very poor shooting could save the submarine from immediate destruction. It follows that the ability to submerge rapidly is of the utmost importance. It is also most important that the boat is able to come to the surface and dive again in a very short moment, just as a porpoise might come to the surface for air.

Battleships and submarines and lots of them will save this nation many millions in time of peace and countless millions in time of war. The defense of Cuba is going to be a great problem for the future. The defense of the Philippines is still being argued and discussed, but the defense of Cuba is something so important and dealing so directly with our national safety that it will not admit of argument, but will demand immediate and decisive action, and no more certain defense could be found than these wonderful little submarines. They are as powerful as a battleship with a radius of a few hundred miles, and we can build a whole fleet of them at the cost of one battleship. One or more in each port of our new island possessions, handled by the army, in conjunction with the navy, would make our latest island acquisition immune from any attack.

The Banker's Double

(Continued from Second Page.)

"Which gave you a chance to furtively study him," cried Boyd, with a nod. "I see—I see!"

"Precisely, sir!" Smith eagerly exclaimed. "Yet for my life I could not make sure of the fellow. The likeness was perfect, and he appeared so utterly unconcerned, that I could not feel convinced one way or the other. As you must know, Mr. Boyd, all this occupied but a moment or two."

"Yes, of course."

"Then the unusual business engaging us occurred to me, and my misgivings increased. I felt impelled to throttle the man then and there; but the fear of making a dreadful mistake in thus assaulting my employer served to deter me. Then the desperate possibilities of the situation began to alarm and confuse me. I dared not question the man in a way betraying my suspicion, lest he should instantly resort to violence, and possibly overcome me and escape with the cash."

"Quite right," nodded Boyd. "You acted discreetly."

"I tried to keep cool and steady myself, yet my hands were trembling violently," Smith excitedly continued. "I feared each moment that the scoundrel, if such he was, might turn and close with me. Nor did I dare go from the office after help, lest he should escape, or I myself prove to be in error."

"I see."

"But I obeyed the next impulse born of my alarming excitement. I had been instructed to summon you at once, Mr. Boyd, in case of any such emergency. The number of your telephone is on the card attached to ours. I resolved to ring you up, sir, or at least make the attempt, knowing that even if I was in error and the man really Mr. Hersey, no great harm would be done."

"True, Mr. Smith," bowed Boyd. "I appreciate the uncertainties under which you were laboring."

"All this transpired within a minute," Smith went on. "After strapping a package of money which I had just counted, I left the desk and started for the telephone yonder. I tried to appear indifferent, but my knees were shaking and I was greatly excited. I reached the instrument without having heard any move in the private office, and quickly rang up the central station and called for your telephone number."

"And then the trouble began, I take it."

"Indeed, yes!" admitted Smith, with a groan. "The moment I heard you cry hello, I also heard the scoundrel dashing out of the private office. When I saw him I fully realized that my fears were warranted, for murder itself cried out in his every feature. He did not start for the door, but for me, drawing a weapon as he came. I yelled something into the telephone, yet I hardly knew what, for the ruffian reached me in an instant. I dropped the receiver and tried to grapple with him, but he dealt me the blow on the head which—which——"

"Lookout—catch him, Jimmie!" shouted Boyd. "He's fainting!"

So, indeed, he was. The rehearsal of the episode in which he had played so unfortunate a part had proved too much for him, in his weakened condition, and with his eyes rolling upward in his skull he suddenly had pitched forward in his chair, and fell like a dead weight into Jimmie Coleman's arms.

Some brandy and water presently revived him again, however; whereupon Boyd kindly remarked, suppressing with a glance the further inquiries to which Hersey would have subjected him:

glance the further inquiries to which Hersey would have subjected him:

"You need rest and quiet for a time, Mr. Smith, or a fever may follow your injury. The scoundrel gave you a brutal blow, indeed, and here is the weapon with which it was inflicted. Lucky it is a sand bag, instead of a locust, or you'd not have lived to tell what happened here. The knave has made off with the cash, all right, and left only a mighty fine-spun thread behind him. You just sit quietly, Mr. Smith, while I ask Mr. Hersey a few questions, and I then will take you home in a carriage. You need rest for the balance of the day, or you may go entirely to pieces."

"I do feel a bit done up, for a fact," Smith faintly admitted.

From Hersey, whom he then pro-

(Continued on th Page.)