

WHAT HAPPENS ABOARD A SUBMARINE WHEN IT GETS ITS DEATHBLOW

Every once in a while now we read in the newspapers these days a laconic message from the other side of the Atlantic something like this:

"An English Port—The American steamship So-and-So arrived today with a thrilling account of an engagement with one of the Kaiser's U-boats, in which the American gunners put up a glorious fight and, with a well-placed shot sent the submarine to the bottom."

What happens aboard the submarine when it has been dealt a death-blow, and goes scuttling down to the bottom, her crew taking their last plunge? This article attempts to visualize the horrors of that death, and points out how the unerring shots of Uncle Sam's gunners will eventually disrupt the morale of the German navy and hasten along the end of the war.

BY CHARLES W. DUKE.

LET the gunners of the United States Navy keep on making "hits" at the expense of the Kaiser's "Unterseebooten" as they bob up out of the waters of the Atlantic, and the effect, sooner or later, will be to strike terror into the hearts of the Von Tirpitz navy, and thus hasten along the termination of the war by the collapse of the German sea domination through submarine warfare!

To anyone who has voyaged in a submarine, either in the service of the Government or as a civilian permitted to become acquainted with the interior of a submarine in action, war-time or otherwise, it is well within the imagination to figure out that a continuation of the "hit-the-target-everytime" practice inaugurated by our gunners since the formal entry of the United States into the world-war eventually will get the German undersea navy.

Attrition! We have the word used a lot in this war. Our allies abroad have hoped to wear down the common enemy by slow-grinding policies of "watchful waiting and doing." Our own country is into the game of attrition now for fair, and our own naval experts figure that the attrition in which we will figure (speaking from the Navy standpoint) is to keep right on sinking U-boats as fast as the Germans build and launch them. The steady, persevering German says he will build a new submarine for every one sunk by Uncle Sam's gunners; the Yankee says he will keep on sinking the U-boats until Germany is worn out with building them and her men terrorized at the thought of a horrible death—bottled up in a submarine that sends them down to a horrible death under water when dealt a death wound by a warship of the United States Navy.

To win this war it will be necessary to smash the morale of the German a stunning solar plexus. The solidarity of the German people, the cohesion in the field and at sea, their civilian populace behind the firing line, their men and women in the fields of industry, has, to all intents, remained intact up to the present time. Russia's revolution in favor of a democracy seemingly has had little effect on the rank and file of the people of Germany. While we have not been permitted to look behind the curtain into Germany since Ambassador Gerard came away, there seems not to have been a clamor for peace from that empire on account of our entry into the war. It will require some extraordinary feat by our armed forces to show Germany how powerful is the new foe with which she now must reckon.

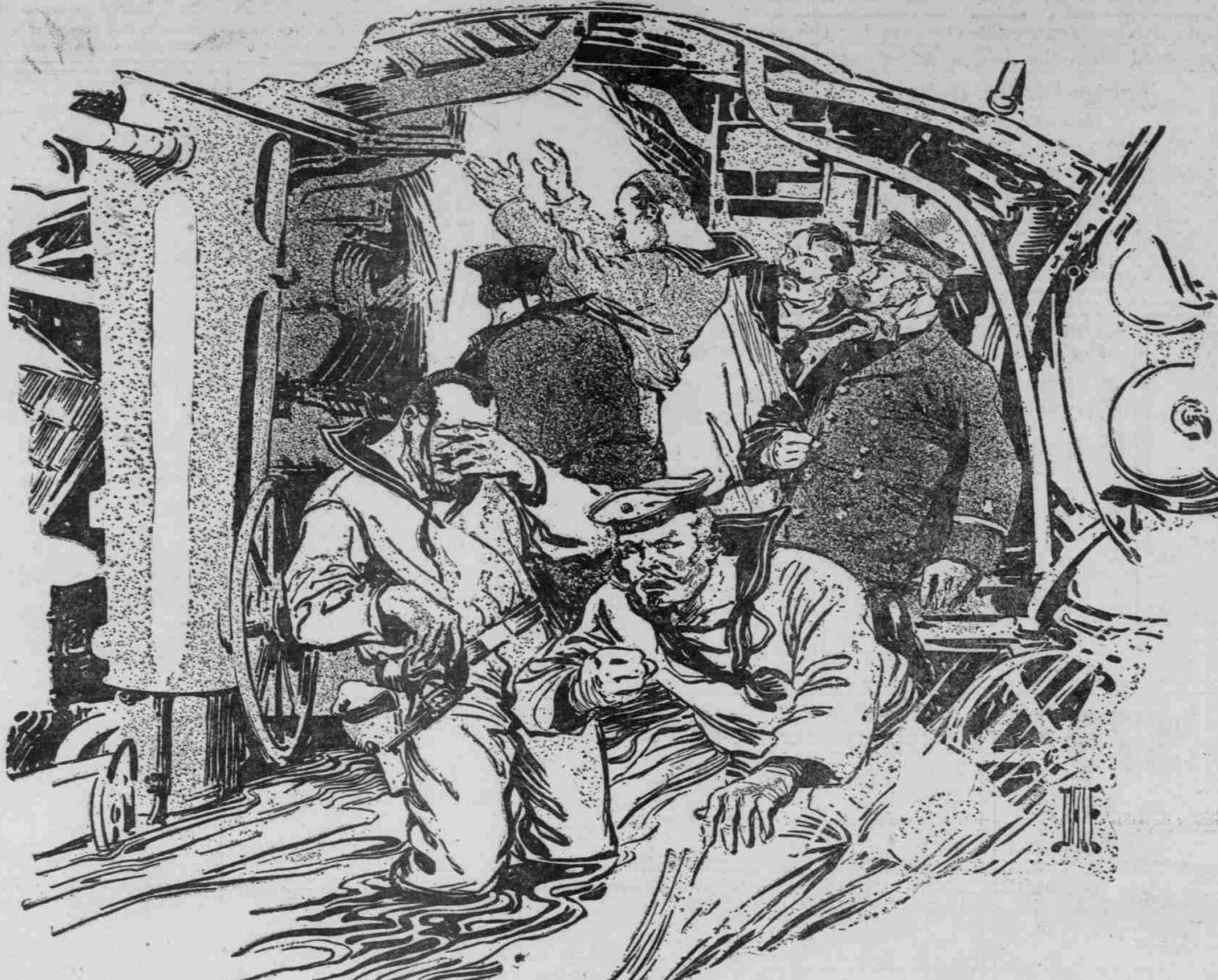
It would seem that we were well on our way as regards combating the U-boat. The steamship Mongolia set the pace soon after our entry into the war by a well-placed shot fired by a United States naval crew that shattered the periscope and conning tower of a German submarine and sent it careening into the depths. Another notable exploit reported was that of the Silver Shell in dealing another death blow to a U-boat. Between them there were several other well-authenticated cases, and since then more cases—and the war against the U-boats has just begun. It began by Admiral Sims and his squadron of eagle-eyed, sure-shot torpedo destroyers. We can well imagine Von Tirpitz gathering his forces together ere long and calling them off before the advance of a new foe "that shoots too straight."

In considering how the morale of the Von Tirpitz crews can be worn down, it is well to consider first of all the terrible grilling conditions which they find along its own lines. One of these conditions has been an increase in the cruising radius of the made-in-Germany submarine, increasing by improved facilities in construction as well as enlarged size the time that each vessel can remain away from its base. This was exemplified last summer by the first voyage to this country from Bremen of the merchant submarine Deutschland, which made a round-trip trans-Atlantic journey ever consummated by an ocean-going submarine, and returned safely to its home port.

Submarines in Canada made the voyage early in the war from the St. Lawrence to the Dardanelles under their own power, of locomotion. Contemplating life aboard a submarine, cruising for many days in cramped quarters, a German submarine 300 or 400 feet long, in which are stored gasoline engines for surface cruising, electric batteries for surface cruising under water, storage tanks for water ballast, and a host of other "less warfare against the world's merchant marine, has little room for the members of the crew. There are no plank-tea parties aboard submarines. German sailors may play pinocle on camp chairs or sing "Deutschland über Alles" as they quaff their coffee and eat the tabled food prepared for them on little electric ranges, but they are not enjoying even the ordinary pleasures of life as they know it in their landrout brothers of the trenches.

Aboard American submarines our jacks sleep in bunks that fold into the walls of the compartments. There is no John Bull does not permit even so small a luxury, for his sailors have to sleep in hammocks. It is said the Germans sleep the same way. There is no doubt that only two things to do aboard a submarine in wartime, bottled up in a vessel that for the most part is concealed and blind to the outside world, is to either keep plugging away at the work to which you are assigned or lie down in a dead sleep. There are no windows through which you can gaze upon the wonders of the ocean bed. You may read if you have literature and artificial light.

Life Undersea. With the North Sea overrun now by the navies of the United States, England and France, it is a safe bet that the U-boats will be kept pretty well under water all the time. Fancy the existence of the undersea sailor who cannot come on deck to loosen up his cramped limbs by a bit of exercise up and down deck and for a breath of free air. Ventilation, indeed, is one of the great problems to be reckoned with continually. It has been variously reckoned that a submarine can remain



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entirely submerged from 36 to 72 hours without danger of asphyxiation to her crew. While cruising close to the surface, the periscope and take in continually fresh quantities of air. But when enemy ships are near the ventilators are drawn in and the crew are dependent upon the bottled-up oxygen. It is hardly to be expected that with all the improvements the Germans have put upon the submarine they have been able to turn impure air into fresh oxygenized air.

Increasing the cruising radius of a submarine, therefore, would seem also to increase the discomforts and inconveniences of everyday life. This, you say, is a part of the rigors of war to which man becomes accustomed in true Spartan style. All very true, indeed, but when to the merciless grind of a daily life under water, without sun, shine, with cramped quarters and restricted ventilation, you add the rapidly increasing danger of death thrust from an enemy torpedo boat destroyer, aeroplane or other warlike agency, the dreary monotony of the submarine marine taken on a new aspect.

What happens aboard a submarine when it is rammed, torpedoed, shelled or bombed, and goes down, down into the depths? The mind conjures up a horrible picture of the death that follows. A few years ago, when our own United States submarine F-4 went down many fathoms off Hatteras, with some fatalities, the mind conjures up a horrible picture of what happened when at last the submerged craft was raised and the bodies of her brave crew taken from the grewsome interior where they had died like rats in a trap. In the trenches a man is shot and has a chance for his life under the merciful auspices of the Red Cross; up in the air something goes wrong with the mechanism of the aeroplane and there is a chance that the airman may pilot his ship back to earth or that he may fight its fall and effect a safe landing; aboard a torpedoed battleship there is a chance that he may escape in a lifeboat or be picked up while swimming by a trawler or destroyer.

Suppose the periscope is torn off by a shot. It does not necessarily follow that the submarine is doomed. The periscope is a narrow tube eight to 12 inches in diameter, running from the undersea captain's conning tower 20 or 25 feet overhead. If the periscope be torn off water rushes into the opening, if it be below the surface of the sea but the danger of being "swamped" may be averted by cutting off the flow of water through safety devices that have been perfected in the modern submarine. This would be applied by cutting off the tube of the damaged periscope below the damaged point.

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The New York College will have no open-air opera this season, contrary to all announcements and statements. The first inkling of this fact leaked out through a statement from the Metropolitan Opera House, which denied that this management had anything to do with the scheme. The board of the college then discovered that they had been used by people who had more sense for a business enterprise than for anything else, following which the directors withdrew their permission to use the stadium in this manner.

One of the changes in musical life brought about by the war is the re-inauguration of the beautiful clubhouse of the Arion Singing Society on Park avenue and Fifty-ninth street. Those who came to continue the musical activities will carry them on in rooms in Terrace Garden, and while it is stated that at some future time they may rebuild it is a fact that all the rooms have been dismantled and the furnishings sold by public auction. The society is retaining only a few of its trophies and so soon as it can be emptied it will be occupied by the Anderson Auction Company as an art gallery. The building is owned by George Ehret, the brewer, and not by the Arion Club, as heretofore believed.

The Liederkrantz, also a German singing society, has so far affiliated with American conditions that the club will be run as usual and will co-operate with the German Hospital in case of need.

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at the Saint Nicholas Rink during the summer twice weekly opened auspiciously Wednesday evening, with Anna Case as soloist. Miss Case proved to be a rare attraction and her singing was of unusual beauty and purity. It is customary to complain about acoustics when concerts are transplanted into auditoriums of this sort, but it is due to the young American soprano to say that not one word of her diction was lost in the immensity of the room.

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The interior of the submarine is divided into three main sections. In the fore part of the boat is to be found the torpedo room, the great vaulted, ruthless weapons of undersea warfare are stowed near the chambers whence they are fired. Quarters for the crew and officers generally are in this section of the vessel. The middle section is

given over pretty much to the operating department with all the mechanism necessary to operation of the ballast tanks, firing of the torpedoes, steering the ship. Aft will be found the engine-room, containing the oil or gasoline engines for surface cruising and the electric storage batteries for underwater navigation. Underneath all three, running the length of the vessel, are the ballast tanks by which the submarine is submerged and raised. In submarine parlance, this process is called "trimming." The vessel is submerged by pumping water into the ballast tanks and raised again by expelling the water by means of compressed air.

A United States cruiser or battleship has landed full and free against the hull of the submarine. The hull is thin, necessarily so because of the weight of the torpedoes. The weight of the torpedoes is speed, and speed cannot be attained by belting the submarine with armor after the fashion of a dreadnought. It is as sturdy as possible to resist pressure under water, but cannot possibly have the protection in layers of steel that a surface-cruising warship has.

A shot punctures the skin of the submarine, and in pours the water. Even though the submarine is divided into watertight compartments, there is no safety once a shot has struck home. A vital spot. A great volume of water fills the compartments like a sea, and the submarine is blown out of the water. But as they retreat fore into the torpedo chambers, or aft into the engine room, the great weight of rushing water carries their prison ship steadily downward.

What to do? It is a time to think and act quickly. Eventually, as the vessel sinks lower and lower into the water, the pressure against the thin hull increases. According to hydrostatic experts, the water pressure increases at the rate of four and one-half pounds to the square inch for every additional 10 feet submerged. At 200 feet there is a pressure of 87 pounds to the square inch. The English-built vessels on which the writer was a guest had to be submerged at a depth of 200 feet successfully before they were accepted by representatives of the English government. The American submarines employed in the work got a fat bonus for it.

At 100 feet under the surface of the sea globules of water are standing out on the cork-covered interior of the submarine hull. At 200 feet the globules in a steady stream are dripping from the sides and ceiling of the craft. What would happen at 400 or 600 feet or further down, down, down, as the wounded submarine sank away to its last resting place? The crew is overwhelmed by a great crush of water.

Suppose the submarine has been crippled in such a way that it sinks a hundred or more feet and remains poised in midwater when the pressure of the water and the weight of the vessel are equalized. Or suppose it sinks helpless to the bottom of a bay 75 or 100 feet down. There are two ways to get out. One by one the crew might draw lots and take their chances on being shot out of the submarine tor-

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The Wait for Death. Old sea salts tell you that not many men would get out in this way, the chances lessening for every foot further down the submarine is held under the surface. And, if the plan was entirely feasible, there would always be in every case one man who would be left after every other man had gone!

In case the doomed crew found it inexpedient to attempt either form of escape, the only alternative would be to sit down and wait for death. Electric light would hold out so long as there remained any power in the storage batteries; food and water until the supply was exhausted. But, worse yet, the supply of oxygen! Probably the most fascinating thing aboard a submarine when cruising under water is the giant ventilator shaft that feeds the main supply of fresh air. As the ship cruises close to the surface with the ventilator out, you stand close to it and feel the cool inflowing current of fresh salt air. When it is clamped down tight and you are cruising far under water you stand by the same ventilator and think what a horrible thing it would be to be a prisoner in the vessel, with the air growing nauseous and thick about you and no refreshing inflow from that yawning ventilator mouth.

We can thus imagine the end of a submerged imprisoned crew waiting for death in the narrow confines of a steel cigar-shaped vault. It must be something like the overpowered sensation, if either or chloroform administered in an operation. Only infinitely worse, because it creeps on slowly and stifles your mind and body minute by minute until the agony is eventually ended after the tortures of a million years. I remember once hearing the chiming of a clock toll off the hours of a long night that intervened between the time of a critical operation for a loved one. Think of the agonizing moments of waiting for death aboard a stricken submarine! It would surely be better had the plates of the craft been rent by sheer force of water power and they come in the welcome clasp of a huge flood of water than to die this way by slow strangulation!

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No man is going to relish that sort of thing very long. On a battlefield there is a chance to grab a bayonet, lead a charge when the enemy hordes swoop down upon you, you fight, fight, fight and square, and die fair. Every time a battleship fleet looms horns with a battleship fleet there is a fair chance to stand squarely up to your guns and batter right back and forth until the battle is won. But not in a submarine! Not a fair, square chance for your guns. Let the American gunners keep right on smashing the submarine from the cross of the waves and the backbone of German savagery is going to be broken. Can't you figure out the moral effect of that roll call at Wilhelmshaven when Von Tirpitz called his fleet of snakes for a fresh parley, fresh stores of demon torpedoes and fresh "strafes" for the United States Navy, only to find each succeeding roll call that roster of ships is dwindling away?

Virtually prisoners for long days and weeks in their subterranean prison, the German sailors have been enjoying "unmolested sport" of sinking merchant ships right and left. It has been the "tonic" to brighten the hell of their daily life. They started in at a merry clip at the beginning of the war, when on one auspicious afternoon three British warships were blown out of the water. But you haven't heard lately of any large warships succumbing to the sting of the submarine. Only the merchant marine has suffered in this way. And now that the latter are going forth armed, dealing death blows at their enemy's hideouts, the warships, their toll seems to be decreasing. Marconi, the miracle man of the wireless, brought to this country with the Italian communication system, and 13 Austrian submarines sunk in one week. The aeroplane is being used in a wonderful way now in sighting submarines and then bombing them. Every agency is trained toward the extermination of the submarine, and the U-boat is going to have a hard time surviving this summer. Uncle Sam has declared the open season for them, and that means they are doomed—soon, if not sooner.

"Lost Submarines." Eventually, the poor deluded German sailor, who has slain women and children right and left "because Von Tirpitz said so," is going to learn that the Yankee gunners can shoot as straight as the U-boats with sturdy legs and long guns as the Teuton himself can shoot at a poor helpless relief ship or hospital ship with a torpedo. And when the American Navy sets a list of "lost submarines" keeps piling up in the chartroom at Wilhelmshaven the "lost command" of the "unterseebooten" are going to have some difficulty holding their men in service.

Rats can look on at a careful of rodents being drowned in the farmer's trough unaffected—because they are only rats. But men are human beings who love to fight and die fair. Just let the United States Navy keep on blotting out every German submarine and the German Navy will be going to be chilled at the prospect of shipping aboard one of the undersea fleet; Von Tirpitz will be driven to cover and the United States Navy will win the war and "make all the world safe for democracy."

Germany's submarine defeat—crushing, overwhelming defeat—will probably mean that at the next great international peace conference the submarine will be ruled out of the game forever as the "blow below the belt" that honest, civilized sportsmen no longer tolerate. For the ruthless submarine and German barbarism are synonymous and they must die together.

OLIVE FREMSTAD RETURNS NEXT NEW YEAR'S DAY TO METROPOLITAN STAGE IN "PARSIFAL"

(Continued From First Page.)

can" and "Pagliacci," to be given in two series.

Marcel Charlier, the well-known French conductor who has co-operated for many seasons with Campanini, has been engaged, and the artists will include Luisa Villani, Claudia Mulo, Maggie Fayle, Mabel Riegalin, Marie Wintzky, Henrietta, Wakefield, Luca Botta, Pietro Audisio, Paolo Anan, Virgilio Lazari and Henry Weidman. Edouardo Petri, of the Metropolitan Opera chorus school, has charge of the performances.

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Virtually prisoners for long days and weeks in their subterranean prison, the German sailors have been enjoying "unmolested sport" of sinking merchant ships right and left. It has been the "tonic" to brighten the hell of their daily life. They started in at a merry clip at the beginning of the war, when on one auspicious afternoon three British warships were blown out of the water. But you haven't heard lately of any large warships succumbing to the sting of the submarine. Only the merchant marine has suffered in this way. And now that the latter are going forth armed, dealing death blows at their enemy's hideouts, the warships, their toll seems to be decreasing. Marconi, the miracle man of the wireless, brought to this country with the Italian communication system, and 13 Austrian submarines sunk in one week. The aeroplane is being used in a wonderful way now in sighting submarines and then bombing them. Every agency is trained toward the extermination of the submarine, and the U-boat is going to have a hard time surviving this summer. Uncle Sam has declared the open season for them, and that means they are doomed—soon, if not sooner.

"Lost Submarines." Eventually, the poor deluded German sailor, who has slain women and children right and left "because Von Tirpitz said so," is going to learn that the Yankee gunners can shoot as straight as the U-boats with sturdy legs and long guns as the Teuton himself can shoot at a poor helpless relief ship or hospital ship with a torpedo. And when the American Navy sets a list of "lost submarines" keeps piling up in the chartroom at Wilhelmshaven the "lost command" of the "unterseebooten" are going to have some difficulty holding their men in service.

Rats can look on at a careful of rodents being drowned in the farmer's trough unaffected—because they are only rats. But men are human beings who love to fight and die fair. Just let the United States Navy keep on blotting out every German submarine and the German Navy will be going to be chilled at the prospect of shipping aboard one of the undersea fleet; Von Tirpitz will be driven to cover and the United States Navy will win the war and "make all the world safe for democracy."

Germany's submarine defeat—crushing, overwhelming defeat—will probably mean that at the next great international peace conference the submarine will be ruled out of the game forever as the "blow below the belt" that honest, civilized sportsmen no longer tolerate. For the ruthless submarine and German barbarism are synonymous and they must die together.