PRESENT WAR GAINS FOR THE SUBMARINE CHIEF ATTENTION OF NAVAL CONSTRUCTORS WHO DOUBTED ITS EFFICIENCY

Allies' Lines May Bend, but Never Break, Says Frenchman from Front

Mr. Gaston Dru Tells of Trenches That Are Semi-Permanent Fortifications, with Barbed Wire Entanglements and Heavy Guns on Most Important Positions.

(Special Dispatch.)

LONDON, Dec. 12.

Gaston Dru, writing for the Daily Mail of French bravery, says:—

"A Frenchman who has just returned from the front, where he spent several days with the different French army staffs, and who is staying for a few days in London, gave me the following account of his trip to the English and French lines:—

ground they defend, for their sportsmanlike behavior under the most trying circumstances. They seem, in fact, to consider war as a sport, rather more dangerous than big game shooting, but as highly interesting. Let me say that, in a different way, the French troops show the same admirable morale and give you a few instances of their heroic behavior.

A Gallant N. C. O.

"I happened to inspect our lines near Verdun a few days after a very stirring episode had taken place. A French 'adjudant' (non-commissioned officer of one of our territorial regiments—which are, as you know, our Landsturm and not supposed to be as fully prepared for active service as our standing army or its reserve—had, with a few of his men, held a farm for over forty-eight hours against a considerable number of German troops who had attacked the buildings with the utmost determination and with the support of artillery. After the relief of this territorial unit the general in command of that part of the French line paraded them and, unexpectedly calling the 'adjudant' out of the ranks, gave him there and then the highest reward which could be given to him—la médaille militaire—and asked him what was his calling in civilian life. 'I am the son of the proprietor of a night restaurant facing the Folies-Bergères and I help my father,' said the 'adjudant.' Is not that typical of the French army? This man, who had certainly not been prepared by his ordinary life—rather the reverse—for deeds of military courage, had behaved under the most trying circumstances like a hero and held against tremendous odds a position which ought to have been in reason carried a hundred times by the overwhelming German forces which attacked it!

General with a Charmed Life.

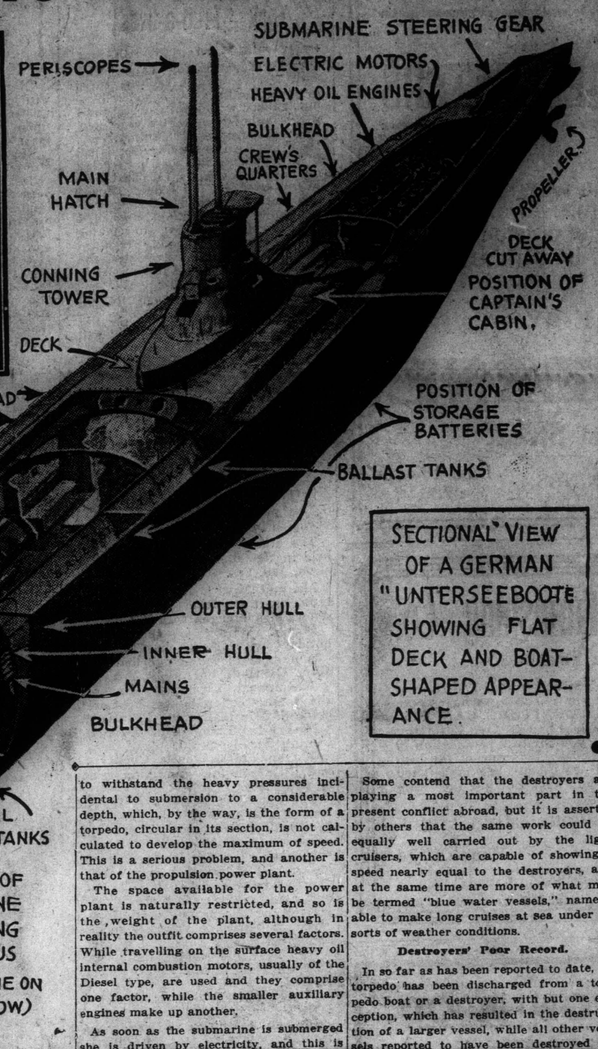
"Another instance of French bravery. We are in the North of France now, close to these English soldiers, whose courage fills our men with noble emulation. An old French general, very fat and hating to walk more than absolutely necessary, has a campstool carried by one of his A. D. C.'s, and planted always where the German bullets and shells fall the thickest. He seems to bear a charmed life, the hail of lead always leaving him unscathed. His staff has already been renewed twice, but the old fellow is still unwounded. Unnecessary exposure of life, would you say? Now, listen. The other day on a most vital point of our line the Germans made a desperate effort to break through. The French trenches, raked by shell and bullet, were becoming wellnigh untenable. Appears the old fat general. His A. D. C. puts down the well known campstool; the general sits on it. The deathly hurricane becomes so violent that the defenders of the trenches waver—a few seconds more and there would be a panic among them. 'Hulloa, children,' says the old fat man, lighting a cigar, 'are you going to leave me? I am comfortable here. I hate walking. My horse is not here and if you go I must remain alone.' A cheer from the French trenches. The soldiers will not leave their general, and the whole day long they held their trenches, inflicting tremendous loss on the Germans, who could not in spite of their efforts, 'bag' or kill the old fat man.

German Cruelty to Wounded.

"Let us go back now to the east, near the Argonne. I will tell you a story which will show the inhumanity of the foes against which we are fighting. Two trenches a couple of hundred yards apart. Night attack by the French; counter-night attack by the Germans; neither party able to break through. Lots of German wounded remain near the French barbed wire entanglements, lots of French wounded lie in front of the German lines. Under cover of the night the French bring into their lines the German wounded, for in the day it would become impossible. Not so the Germans. They leave the French wounded to lie the whole day in front of their trenches, moaning and screaming. During the next night those of the poor fellows who are able to do so try to crawl toward the French trenches. German soldiers get out of their lines, get hold of the French wounded, drag them back where they have fallen, and, jeering at the French, who do not dare to fire for fear of hitting their wounded comrades, return to their own trenches. One of the French wounded, half delirious, sing-songs at intervals during forty-eight hours the following melody:—

Messieurs les Allemands,
Je suis trop blessé
Pour me battre encore;
Venez me chercher,
Donnez-moi un peu d'eau,
Car je meurs de soif!

(Messieurs the Germans, I am too seriously wounded to fight you again; come and fetch me, give me a little water, for I am dying of thirst.) The Germans sneer and clap their hands. This grewsome scene lasted two days, at the end of which the French troops, incensed, made a night sally, which was what the Germans had hoped for. In spite of terrific fire the French succeeded in bringing back to their trenches what remained alive of their wounded. The poor fellow who sang the mournful melody is now in hospital and will live."



A GERMAN SUBMARINE AT SEA—*From a German Drawing*

©N.Y. HERALD CO. FROM THE SPHERE

(Special Dispatch.)

LONDON, Dec. 12.

WHILE it is general admitted that Germany practised a remarkable policy as regards preparedness in army affairs for the war now in progress abroad, it is equally true that the British policy as regards the navy was on what was supposed to be a basis of equal preparedness.

The vast and scattered possessions of the British Empire, together with its admitted supremacy in the maritime world, made it necessary for Great Britain to keep ahead of other nations in so far as the navy was concerned, but unfortunately no real test of the actual values of various types of fighting ships was available to assist the British Admiralty in its expenditures.

The present war has very largely affected the policy of the Admiralty, and though it may be more or less premature to say what the future policy of construction will be, nevertheless many important truths have been demonstrated, and at great cost, both as regards vessels and men.

Theories Are Now Tested.

During the last ten years the ideas embodied by naval constructors in the vessels built in that time have been based chiefly on theory rather than practice, and now that the opportunity to determine the relative values of various types of vessels intended for purposes of war is at hand the British Admiralty is making a close study of results.

As an example of the various opinions of the value of various types, that of Lord Charles Beresford regarding submarines is most interesting. Only about three weeks before war was declared this eminent authority stated that the submarine was not a blue water vessel, and he maintained that it was useless on the sea's highways.

The successful operation of submarines since the war started has demonstrated that Lord Charles Beresford was mistaken in his judgment of these vessels, and a majority of those interested in British naval construction affairs now attach great importance to the submarine. It is probable that more vessels of that type will be built in the future than of any other.

Battle Ship Not Yet Tested.

Authorities are not prepared to say that the usefulness of the battle ship has been proven a negative quantity by the submarine, as the inroads of the subsea vessels have so far been successful chiefly against cruisers and other speedy craft.

The submarine of the present day does not meet with all requirements, however, and it is probable that those of the future will be equipped with power sufficient to give them a surface speed of about twenty-one knots, or, in other words, enough speed to enable them to keep up with a battle squadron at sea.

The problems that confront naval architects and constructors in the development of submarines of sufficient size to go to sea and stay there for long voyages, and at the same time to have a speed of twenty-one knots, are not at all easy to solve, though not by any means beyond the realm of possibility.

That form of hull which is best able to withstand the heavy pressures incidental to submersion to a considerable depth, which, by the way, is the form of a torpedo, circular in its section, is not calculated to develop the maximum of speed. This is a serious problem, and another is that of the propulsion power plant.

The space available for the power plant is naturally restricted, and so is the weight of the plant, although in reality the outfit comprises several factors. While travelling on the surface heavy oil internal combustion motors, usually of the Diesel type, are used and they comprise one factor, while the smaller auxiliary engines make up another.

As soon as the submarine is submerged she is driven by electricity, and this is generated by dynamos while on the surface and delivered through storage batteries to the shafts and propellers. This electrical equipment makes up another factor, while the compressors and other auxiliary machinery necessary to eject the torpedoes and operate the pumps must also be considered.

The Diesel motor, of many makes and designs, is heavy and more or less intricate, but has the great advantage of using heavy low grade fuel oils rather than volatile gasolene, and this factor for safety is considered to offset all other disadvantages the Diesel engines may possess resulting from the high compression necessary for their operation and the consequent heavy construction and multiplicity of parts.

Dislike German Motor.

It is known that the Allies are determined to eliminate everything German or of German origin, wherever possible, and, as the Diesel motor is of German origin so far as the inventor of the principle is concerned, although made in many countries, the nations now at war with Germany are anxious to find some substitute for the Diesel motor, but at the present time have not succeeded.

Representatives of various Powers abroad have recently been on a quest for some motor of American origin to take the place of the Diesel motor. What they desire is an engine that does not of necessity operate under such high compression, and hence may be built lighter, with fewer parts and at less cost, than the Diesel, but that may use the same grades of oils with the assurance that the combustion will be perfect.

Some contend that the destroyers are playing a most important part in the present conflict abroad, but it is asserted by others that the same work could be equally well carried out by the light cruisers, which are capable of showing a speed nearly equal to the destroyers, and at the same time are more of what may be termed "blue water vessels," namely, able to make long cruises at sea under all sorts of weather conditions.

Destroyers' Poor Record.

In so far as has been reported to date, no torpedo has been discharged from a torpedo boat or a destroyer, with but one exception, which has resulted in the destruction of a larger vessel, while all other vessels reported to have been destroyed by under water means met destruction through submarines or mines.

In the latest light cruisers the speed has been about thirty knots, whereas the destroyers have an average speed of about thirty-five knots, but it seems to have been demonstrated that the ability of a submarine to remain unseen is worth more from an offensive standpoint than the far greater speed of the destroyer or the fast cruiser, both of which are depended upon to render effective work through their torpedo tubes.

For defensive purposes, such as scouting and patrol duty, there is no doubt that the light cruiser has many advantages not possessed by the submarine. At the same time, in surface action, it has been demonstrated that several destroyers may greatly bother an enemy and lessen the effectiveness of the enemy's broadsides, but therein the advantages of the destroyers have been enumerated.

Moral Effect Is Great.

Like mines, submarines have a serious moral effect on officers and crews of opposing nations. The unseen antagonist is the most dreaded and as such the submarine has its special value. Great Britain's next naval appropriation will be liberal as regards submarines and the same appears to be true regarding France, Russia and Japan among the Allies, while the success of the U-9 will in itself encourage Germany to greatly increase the number of submarines in her navy, unless some understanding that tends toward general disarmament is arrived at when the present conflict abroad ends.

Germany's "Minenwurfer" Throws 200 Pound Shell That Can Be Seen Coming

(Special Dispatch.)

LONDON, Dec. 12.

As the war progresses we become more and more aware of the completeness of the German fighting machine.

The huge howitzers which were used in the reduction of the Belgian forts were perhaps the most surprising feature of the Teuton's artillery equipment. But in many other departments the careful scientific preparation and forethought which have been displayed are only too evident. If the morale of the German troops were only equal to the excellence of their artillery equipment a different tale of their progress on the Continent could be told.

A late instalment of "Eye Witness's" graphic account of the war contains an allusion to the "minenwürfer," or trench howitzer, which the Germans are using. "In this quarter," he writes, referring to the sanguinary conflict now in progress on the Lys, "we experienced for the first time in the northern theatre of war the action of the 'minenwürfer.'"

This trench howitzer is another of the productions of Krupp. It is a curious little weapon, but, though small, it is undoubtedly a factor seriously to reckon with in trench fighting.

Howitzer a Novel Weapon.

The howitzer itself is only three feet or so long and weighs 130 pounds. Its mounting is a small affair of about 100 pounds, but it is attached to a heavy bed or platform of 930 pounds dead weight. This complete mass of a little over half a ton is provided with wheels and a couple of handles and can readily be transported by two men.

Its small size and mobility permit of it being moved about in the trenches. When in position the howitzer, with its bed, is removed from the travelling wheels, and the weapon can then be fired from the ground. The shell, or bomb, which the "minenwürfer" throws is illustrated in the diagram. It is a decided novelty in munitions of war.

The calibre of the howitzer is less than three inches, but the shell thrown is a sphere over a foot in diameter, weighing, with its charge of high explosive, close upon two hundred pounds.

To enable the little howitzer to accommodate such a huge shell an adapter has to be used. In the diagram the adapter is shown shaded. The long stem fits into the bore of the "minenwürfer," and a shorter stem, culminating in a kind of cup, fits into the shell itself and holds it in position for discharge.

When the howitzer is fired the adapter and shell are forced out together. The two are soon separated, however, the air, forcing its way between them in the direction of the arrows, causing the adapter to fall apart and to allow the shell to travel on its way alone.

The velocity given to the shell as it leaves the bore of the howitzer is only 230 feet per second. The lowest elevation employed is forty-five degrees, and at this angle the shell travels a distance of 550 yards, the maximum range obtainable. The accuracy of fire is said to be very good.

Its Flight Can Be Seen.

Although this range is so small, the shell takes no less than ten seconds in its flight, and reaches a height of 410 feet in the air. It is difficult to imagine the feelings of those in the trenches against which the howitzer is operating, as they see the large circular shell lobbing toward them. The projectile consists of but a thin steel envelope, the greater part of its 200 pounds weight consisting of high explosive.

Four pounds of dynamite or guncotton are considered sufficient to demolish breastworks of two to three feet thickness, composed of earth rammed between planks or railway sleepers. It is not, then, difficult to estimate the destructive powers of such a mass of high explosive falling into the trenches.

The effect of ordinary shrapnel shell is obtained by the bullets and splinters of the envelope when the shell bursts. With the "minenwürfer" shell the effect is almost entirely explosive. The walls of the shell are too thin to be capable of doing much damage, and it is not in this direction that the effect is expected.

When the trenches are less than five or six hundred yards apart, a shorter range can be obtained by elevating the howitzer to a greater angle than forty-five degrees. At sixty degrees, for instance, the range would be 470 yards. The shell would then reach a height of 620 feet in the air, and would take twelve and a half seconds to complete the trajectory.

Invasion of England by Air May Come Any Moment

(Special Dispatch.)

LONDON, Dec. 12.

The reasons for the general disbelief that exists in England of a German invasion already have been reported. And while much correspondence appears in the daily newspapers regarding the necessity for preparation in case of such an event by the organization of civilian defensive forces, like the landsturm in Germany, the English people as a whole remain very blind to the necessity for such precautions.

There are experts in aerial navigation who believe that a German invasion is not only possible but probable, and who have, therefore, been keenly watching the coastal struggle and studying its significance. One of these is H. Massac Buist, who discusses the situation with some authority.

"The determined endeavors of the Germans to gain positions bordering on the Straits of Dover," he says, "have served on the one hand for the publication of the most alarmist reports of their intentions, and on the other for contemptuous assertions by a section of civilian writers in England to the effect that whether the enemy gain possession of any bases on the Straits of Dover or not makes absolutely no difference in what they can do to annoy England. This second school, for example, asserts that Ostend, Calais and Boulogne would be of no use as bases from which to operate airships, and that despite the fact that various forms of more or less portable German airship halls are already being set up at Brussels, Antwerp and elsewhere.

"The one contention is as absurd as the other. This is self evident if we consider what manner of vehicle of the air any class of airship is.

"The great problem before all classes of airship builders is to utilize as small a proportion as possible of hydrogen, the lifting force to raise the mere body of the airship, so that as large a proportion of the force as possible may be available for lifting crew, fuel, ammunition or other apparatus required for the purposes of campaign service. All classes of machines that navigate the air have to carry their fuel supplies with them; therefore, if they are required to make a long voyage, nearly all their load carrying capacity must be employed in lifting the fuel. Thus, if operating from any base on the North Sea that would require a voyage of 150 miles or more to reach England, an airship, which always has to return to its base if it is to end the voyage safely, would have to carry fuel for anything between 300 and 400 miles more than would be necessary for it to make an attempt on England from a base such as Calais. Were it operating from that French port the same airship would be able to carry a ton or two more ammunition, because it would want that much less weight of fuel to accomplish the given task.

Would Have England Prepared.

"For these reasons all talk of the possession of Channel bases being useless to the Germans for the purpose of employing aircraft against England is idle. To say that they can operate against England more conveniently from a base nearer at hand is not to indulge in scaremongering. To create a false confidence on the part of the public and tell it in effect that England is immune from aerial raid is absurd.

"The public must be prepared for the new era. It must also learn the lessons that this war has taught. Many a German move is made not because there is any sense or military object in it, but merely because it is hoped by that means to spread terror. Therefore, though no permanent good, and certainly very little military damage, is likely to result from any German aerial raid over England, a deal of miscellaneous damage could be done. Further, the possession of Channel bases would inevitably mean that bomb dropping expeditions by aeroplanes would be possible on the part of a German force operating against England.

"In times of peace, too, Germany has concentrated a deal of attention on evolving comparatively heavy and large aeroplanes, even as she has especially favored large air ships. In the preliminary stages of the war the superiority of the smaller sized and speedier British aeroplanes stood the Allies in excellent stead. In turn there seemed a very considerable amount of evidence to the effect that German aeroplanes rather had the advantage of the average French types in the matter of speed. Be this as it may, in the later stages of the war the greater part of German aeroplane work has not been done by the largest type of machines that have been evolved in the Fatherland in times of peace.

Invasion By Aeroplane.

"It is, therefore, necessary matter for speculation whether or not Germany's plans for making an aerial invasion of England include the use of aeroplanes. From the point of view of range there is no reason whatever why these should not be flown quite effectively from as far as Ostend well into England. If Germany were to obtain bases nearer Calais or Boulogne, yet longer excursions could be made by such aeroplanes into England. The use of larger machines than appear so far to have been employed on any general scale in the war might not be intended merely for the carrying of greater supplies of petrol—as with the Curtiss transatlantic aeroplane, which had to be made on a large scale to carry big stores of fuel, with a corresponding demand for greater motor power—but it might be to enable the capacity for the carrying of bombs or aerial torpedoes to be as great as possible."

IN GERMANY BY MISCHANCE, WRITER SEES BOYS DRILL

Correspondent on Wrong Train Narrowly Escapes by Crowding Under Seat.

(Special Dispatch.)

LONDON, Dec. 12.

A story of an exciting trip into German territory, which was entirely unintentional, is sent by a correspondent now stationed at Lake Constance.

Remembering that Constance was a training centre for the younger German conscripts, he writes:—I thought a short trip might prove interesting. I therefore went to Kreuzlingen, a small Swiss town, that is really a suburb of Constance, with the idea of arranging a cab drive into Germany.

This turned out to be impossible, first because what few cabs Kreuzlingen possessed before the war had emigrated to Constance for the use of their excellencies the Herren Offiziere, and secondly because gendarmes stood like guardian angels by the chain that stretches half way across the road and divides Switzerland from God's own empire. Only Germans and Swiss are allowed to enter the hallowed territory at this point, so that when my passport was demanded I remarked regretfully that I had left it at home. This was strictly true, for I had taken care to bring nothing incriminating with me except my mistakes when talking German.

Giving up the quest as hopeless for the moment, I decided to catch the 3:23 train back to my present quarters, but when the train moved off I discovered we were off in a northerly instead of a southerly direction. "Konstanz," called the conductor as he stalked through the carriage. I was in Germany. I hesitated, and was saved, for it was not until we were again on the move that I decided to leave the train, and I jumped off some fifty yards from the station. By dodging under a wire fence and following a small path parallel with the railway line I reached the town.

There was nothing for it but to put aside all horrid doubts about whether it would be possible to get out of Germany and to make the most of my sightseeing opportunities. In three hours I "did" Constance in approved American tourist fashion.

The cafés were thronged with groups discussing the inevitable topic of Deutschland's victories and drinking the beer so dear to the hearts of all good Bavarians and Wurtembergers.

A band of ragamuffins, their closely cropped heads half hidden under cardboard helmets, were goodnaturedly cheered as they performed a caricature of the goose step past a barracks building, preceded by a small urchin who conjured noises out of a kettledrum.

In the barracks yard a detachment of youths, many of them only five or six years older than the young barbarians, were being drilled by a loud voiced and at times abusive sergeant. They were grimly serious about their work and from the intense look on their faces they appeared to think that the fate of the Hohenzollern dynasty depended on whether they pleased a group of wounded officers, two of them wearing the much distributed iron cross, who stood watching.

"Fine, aren't they?" said a woman at my side.

"Splendid," I replied; and then to avoid awkward questions as to why I was not doing military service, "We don't see things like that in Switzerland."

As in French towns, the proportion of people wearing mourning was large, and in the fine old church I saw row upon row of kneeling women clad in black.

There is a large hospital for French wounded in Constance, and about twenty of them were being brought from the station. They were mostly only suffering from slight injuries and could walk, but two or three were carried on ambulances. The German population watched them silently, and there were no signs of a hostile demonstration.

Acting on the principle that one is more hidden in a crowd than in a corner, I dined at a large second class restaurant, which was nearly full. To avoid unwelcome and dangerous conversation I chose a small table near the door, at which an unteroffizier and a girl were seated.

The air was thick with battle talk. A woman who entered with a late edition of an evening paper quickly sold out, and from all sides came the question:—Was ist neues?"

"Nothing special," said the non-commissioned officer at my table to his woman friend. "I can't understand why we are not getting nearer the French coast."

Emboldened by the fact that I had not once been in a really awkward situation since my predicament in the train, I decided to spend an hour in a popular "konzert and bierhalle" that I remembered going to as a student. Here, instead of the "Fur Kaiser, Vaterland und Gott" type of song one would have expected at such a time, the singers were winning applause with racy ditties that would certainly not have passed the British censor.

Startled at hearing French spoken behind me, I turned round and saw two French women. A man sitting by them asked if I had seen an evening paper. I said no, but there was nothing new in it. Sadly conscious that if I became involved in a talk with him I should betray the numerous imperfections in my German, I plunged into conversation with one of the French women. After listening for a while the man who had addressed me got up suddenly and went out by a side door.

"He suspects you," said the French woman. "Are you a German? If not you had better go before he comes back with somebody else."

"Say I am from Geneva," I said. While passing out I heard my kind friend telling another man that I was French-Swiss, and that she had met me in Geneva.

Admittedly in a blue funk, I put as many streets between myself and the "konzert and bierhalle" as was possible in ten minutes. It was then close upon ten o'clock, and I realized that getting into Germany was far easier than getting out. At length I found a cab, and saw with relief that the driver wore the Swiss button.

"I am French-Swiss, but I have lost my passport," I said, thinking one small lie better than enforced residence in Germany. "I will give you five francs if you can get me back to Kreuzlingen."