Total Rhetoric, Limited War: Germany's U-Boat Campaign 1917-1918

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Our armies might advance a mile a day and slay the Hun in thousands, but the real crux lies in whether we blockade the enemy to his knees, or whether he does the same to us.

Admiral David Beatty
January 27, 1917

Imagine this country's suffering's after four years of blockade. The stock of pigs slashed 77 percent; that of cattle 32 percent. The weekly per capita consumption of meat reduced from 1,050 grams to 135; the amount of available milk by half. Women's mortality up 51 percent; that of children under five 50 percent. "Perfidious Albion," but rather Imperial Germany. The suffering caused was not widespread. And 730,000 deaths by unrestricted submarine warfare, but rather by a surface blockade that, in the eyes of Jay Winter, did not fail short of being a war crime. Thus, we may well ask how "total" was Germany's unrestricted submarine warfare?

The Definition

The concept of "total war" is a vexing one and continues to defy precise definition. Does it infer the "total" application of all available armed force? Does it require "total" political aims, that is the "total" annihilation of the adversary? Does it translate into what John Keiger describes as the pursuit of "total" victory? Reference guides offer little assistance. The Official Dictionary of Military Terms, published by the American Joint Chiefs of Staff in Washington, D.C., under "total war" reads: "Not to be used." A private civilian reference guide, Edward Luttwak and Stuart Koehl, The Dictionary of Modern War, under "total war" warns the reader: The term is propagandistic and literary. . . .

For the purpose of assessing the "process of totalizing" war with specific reference to Germany's unrestricted submarine campaign of 1917, I will therefore use the generic definition offered by Carl von Clausewitz in Book Eight, Chapter Two, of On War. There, he depicted "absolute war" as a "general point of reference," as a "state of absolute perfection"; in other words, as a theoretical "standard" to "judge all wars by." A nation or ruler seeking to approach this ideal-type method, Clausewitz stated, needed to wage war "without respite until the enemy succumbed," that is, with all available forces and resources until one side dictated political terms to the other. In real war, of course, the "absolute" ideal was tempered by "extraneous matters" such as friction, inertia, inconsistency, imprecision, and the "timidity of man."

Few military leaders read Clausewitz; even fewer understood him. For example, Admiral Alfred von Tirpitz, the architect of Germany's High Sea Fleet, in 1888-9 translated "absolute war" simply into "victory in the first great naval battle of a war. In other words, victory in battle for Tirpitz was synonymous with "absolute" or "total" war. And General Erich Ludendorff, who in 1935 wrote a bestseller entitled Total War, allowed that the very concept simply tended to confuse (verwirrend wirken)." Still, Ludendorff later in the book championed unrestricted submarine warfare in 1917-8 as a genuine form of "total war."

The Vision

The first torpedo in the great debate over unrestricted submarine warfare was launched by Tirpitz on December 22, 1914. During an interview published by the Berlin representative of United Press, the grand admiral threatened "total" submarine warfare against the entering powers. Queried by Karl von Wiegand whether Germany truly intended to blockade Britain with its U-boats, Tirpitz testily replied: "If pressed to the utmost, why not? - England wants to starve us out within six weeks by attacking her merchant shipping. Levetzow passed the piece on to Fleet Commander Admiral Reinhard Scheer as well as to Kaiser Wilhelm II, and thereby claimed the title of "midwife" to unrestricted submarine warfare.

In an even more bizarre way, Rear Admiral Karl Hollweg came to the conclusion that the Lord God wanted Germany to turn to unrestricted submarine warfare. Sitting in a Memorial Day (Totensonntag) service at Berlin in 1916, Hollweg experienced a quasi-theological "vision" when reciting the words "Power and Glory" of the Lord's Prayer. The word 'Power' punched deeply into my memory. Yes, give us the power for the will to victory, Thou Governor of Battles."

After the war, Allied leaders in their memoirs suggested that the Germans had come within a hairbreadth of winning the war by way of the U-boats. The American Rear-Admiral William S. Sims recalled the gloom and despair that met him when he arrived at the Admiralty in April 1917. The Germans, he was told, "were winning" the war. "They will win," Admiral Sir John Jellicoe cautioned Sims, "unless we can stop these losses [603,000 tons in March] - and stop them soon." When Sims queried Jellicoe as to possible solutions to the problem, the first sea lord replied dourly, "Absolutely none that we can see now." Indeed, Jellicoe was most pessimistic throughout the spring of 1917 about the war against the submarines. On April 27, he cried out in exasperation at the War Cabinet's failure to grasp the seriousness of the submarine threat. "Disaster is certain to follow, and our present policy is heading straight for disaster and it is useless and dangerous in the highest degree to ignore the fact." His eventual successor, Admiral Sir David Beatty, was fully convinced that the war had come down to one of shipping attrition--and below the seas.

Nor were the sailors alone in their gloom. Prime Minister David Lloyd George after the war recalled: "The
``The price of coal had already risen 70 percent during the war. France, whose Sixth, the Germans were mesmerized with British coal cost. Even more important was that domestic food prices would soar. Already, riots and labor unrest. "The psychological effect upon Englishmen" of provisions and reserves allowed only 12.5 weeks, or barely levels of supply and reserve would fall 114,300 tons short of demand each seas; and that most of the 1.4 million tons of German bottoms interned in neutral ports could be "made unseaworthy" by their crews. The resulting 39 percent decline in tonnage available to succor Britain would constitute a "final and irreplaceable loss." London would be "in the grip of that fear which guarantees the success of the unrestricted U-boat war." Holtzendorff confidently accepted the "cost of a break with the United States" as neither American troops nor American money could arrive in Europe in time to blunt the U-boat offensive. The admiral's opinion was seconded by the Supreme Command (Field Marshal Paul von Hindenburg, General Ludendorff), the Navy Office (Admiral Eduard von Capelle), and the High Sea Fleet (Captain von Levetzow).

For, Holtzendorff offered a "new" concept of warfare. The very weapon, the U-boat, was new; just a decade had passed since the U-1 had gone down the slip in 1906. Now was the form of blockade--siege warfare at sea, wherein submarines replaced battering rams, catapults, towers, Greek fire, and sappers--whereby ships and cargoes were to be destroyed rather than seized. New were the statistical compilations, by both naval and civilian experts, that translated tonnage sunk by submarine warfare into political victory. New was the very concept that an industrialized state could be brought to its knees by this kind of economic blockade. And new was that civilian populations in general and women and children in particular were targeted for starvation. Caloric intake became a measure of survival or defeat. The U-war reduced German strategy to one of ordinance (torpedoes) on target.

But how had the admiral arrived at his blueprint for "total" war? What mathematical calculations lay at its root? And how accurate were they?

Another new element: Holtzendorff had gathered in the Admiralty Staff's Department B1 a small army of experts--the equivalent of a modern-day think tank--to make its case. They included Dr. Richard Fuss of the Diskontgessellschaft-Magdeburg; the Heidelberg professor of economics, Hermann Levy; the editor of the Berliner Tageblatt, Otto J. Hilfinger; the grain merchants Hermann Weil and Henry P. Newman; and Professor Bruno Harms of Kiel University. Fuss, Newman, Weil, and Levy were the principal authors of Holtzendorff's memorandum of December 22, 1916. In addition, Holtzendorff had recruited from the worlds of finance (Merk, Firk & Co. at Munich, Diskontgessellschaft and Dresdner Bank at Berlin, Norddeutsche Bank at Hamburg, and Zuckschwerdt & Beuchel at Magdeburg), industry (Phoenix Mines and Foundries at Hötting, Goed Hope Foundry at Oberhausen, and Hoesch Iron & Steel at Dortmund), and agriculture (Chamber of Agriculture in Anhalt, Chamber of Estates in Wittingen, and a count from Mecklenburg). In short, the admiral made his case with the support of a seemingly irrefutable cross-section of Germany's leading financial, commercial, agrarian, and industrial leaders. For the first time in modern German history, a national grand strategy was devised by committee.

The statistics that buttressed the official Admiral Staff memoranda were culled from a plethora of sources. These included not only the London Times, the Glasgow Herald, the Manchester Guardian, the Economist, the Scotsman, the Corn Trade News, the Liverpool Journal of Commerce, and Lloyd's Register, but also the grain experts on the German Frankfurter Zeitung and Berliner Tageblatt. The various memoranda all agreed, to varying degrees of certainty, on a number of basic, irrefutable points. First was that the war had to be brought to an end "by the autumn of 1917" as otherwise it would "result in the exhaustion of all the belligerents," which Holtzendorff saw as being "fatal for us." Hence, the prediction of victory through the U-boats by August 1, 1917 coincided perfectly with accepted political-strategic views.

Second, Holtzendorff and his paladins agreed that a modern economy was "a masterpiece of precision machinery; it is once thrown into disorder, malfunctions, frictions, and breakage will set in motion without end." "Disorder" caused by raw materials and food shortages would bring the British economy to a grinding halt within five months of unrestricted submarine warfare.

Third, the German experts agreed that Britain could never adopt rationing (as was already the case in Germany). London lacked the requisite local authorities to enforce controls; "the authority" to implement and to carry out central directives "is lacking"; and the British people "have not the discipline essential to meet such a crisis." In other words, the British national character militated against "war socialism" and "war economy." Strikes by the notoriously "refractory" British workers would cripple the national war effort and rising unemployment would lead to a vast migration of skilled laborers.

Fourth, Professor Levy, basing his research on the reports of the Royal Commission on the Supply of Food of 1903-05, convinced the Admiralty Staff that wheat was "beyond all comparison the most important cereal." Holtzendorff and Levy calculated precisely that Britain, which consumed 141,500 tons per week, at present levels of supply and reserve would fall 114,300 tons short of demand each week. Put differently, present provisions and reserves allowed only 12.5 weeks, or barely three months, supply. Wheat imports from Canada and the United States were already down to only two-thirds of normal levels and would soon fall to half due to a bad harvest in 1916 owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust. Importing wheat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent owing to wheat rust.

Fifth, Holtzendorff and Department B1 followed the alarming wheat statistics up by arguing that the financial burden imposed by increased imports would bring the British economy to ruin. Most immediately, Britain's balance of payments would plummet to record lows. "English finances rise and fall with English exports." But even more important was that domestic food prices would soar. Already, Manitoba Nr. 1 Wheat had gone up 258 percent since the start of the war; bread, butter, milk had more than doubled in price since 1914; barley and oats were up 250 percent; flour and bread evidence stands had doubled to twice their prewar levels; cold storage meat from Argentina and Australia had doubled, sugar tripled, and herring increased 600 percent in cost.

Sixth, the Germans were mesmerized with British coal production in general and reliance on Scandinavian pit-prop timber (Grubenholz) in particular. Coal, in Holtzendorf's phrase, was "the daily bread of commercial life." The price of coal had already risen 70 percent during the war. France, whose best fields lay under
German occupation, relied heavily on Britain for its supply of coal. Great Britain, for its part, drew half of its wood from Scandinavia. But these imports were already down 20 percent and sinking rapidly; the price of Scandinavian Graupenhölz had doubled since 1914. “England's forests,” Holtzendorff opined, “are poor.” In other words, without a steady supply of Scandinavian wood, Britain's coal industry threatened to collapse.

Seventh, and perhaps most critically, the members of the German “think tank” put British and world shipping to a microscope. According to Lloyd's Register, Britain had started the war with 21.3 million tons of merchant shipping; by late 1916 that figure was down to 20 million tons due to losses and redirection of bottoms to “other tasks.” Specifically, Holtzendorff projected that at least 8.6 million tons of shipping had been requisitioned “for military purposes,” that 500,000 tons plying the coastal trade, that 1 million tons were under repairs, and that 2 million tons were being hit mid by Bismarck. A closer examination of cargo bottoms docked in Britain from July to September 1916 showed that the real total was just 6.75 million tons. Even when one added to that figure the 900,000 tons of enemy shipping trading with Britain and the 3 million tons of neutral shipping, London could command at best 10.75 million gross tons of merchant bottoms.

This was the prey of the U-boats. For every ship destroyed, insurance premiums would rise and a public “grip of fear” would guarantee the success of the U-boat war. Holtzendorff dismissed convoy out of hand. Heavy weather, inexperienced merchant captains, the need to travel at the slowest vessel, and anticipated congestion in ports would militate against its adoption. Above all, convoys “would be a most welcome sight”--a target-rich environment--for the U-boats.

Eighth, Holtzendorff tied unrestricted submarine warfare to Germany's survival as a great and a world power. Since the High Sea Fleet had remained idle for most of the war, this massive new and unseen energetic attack at sea, and this could only mean the U-boats. The kaiser had given naval building direction in 1897; the Reich’s “economic and political future” still depended on sea power in 1916. There was but one alternative: destruction of Britain’s naval supremacy or Germany’s demise. “The unrestricted submarine war is the proper and only means” to secure “our national existence.” Holtzendorff closed the memorandum by “guaranteeing” that “the U-boat war will lead to victory” by bringing “England to her knees.” Almost at the same time, he submitted a sweeping shopping list of global war aims to kaiser and government.

With regard to force size, it should be pointed out that secrecy, confusion, and speculation enveloped the issue in an impenetrable fog of uncertainty. As early as March 1916, Chancellor Theobald von Bethmann-Hollweg had been forced to call a press conference in a vain attempt to quell “fantastic” public rumors that Germany was about to launch unrestricted submarine warfare with “200,400 U-boats.” The leader of the pivotal Center Party, Matthias Erzberger, recalled open speculation in Berlin about “300 or more U-boats.” And Grand Admiral von Tirpitz, who before 1914 had declined to put funds into U-boat construction for fear of thereby watering down capital-ship construction and creating a “museum of experiments,” did nothing to lay to rest such irrefutable speculation. That same month, Lieutenant-Commander Heinrich Löhe, to inform the Federal Chamber that Germany had “54 U-boats in commission” and “204 ready for service.” In short, all indicators pointed toward “total” force being on hand for “total” effort already in the spring of 1916.

The formal decision to launch the U-boat offensive was taken by kaiser, chancellor, generals, and admirals at Piess on January 9, 1917. It is interesting to note that whereas numerous authors in this volume stress the “acceleration of time”--that is, that so little time and so little information were available to make decisions of immense importance in what in fact was a rather “short war” by previous standards (Hundred Years' War, Thirty Years' War, Seven Years' War)--such was not the case with unrestricted submarine warfare. The issue had been debated both inside and outside official chambers since early 1915; the kaiser, in March 1916, Tirpitz sent a deputy, Lieutenant-Commander Heinrich Löhe, to inform the Federal Chamber that Germany had “54 U-boats in commission” and “204 ready for service.” In short, all indicators pointed toward “total” force being on hand for “total” effort already in the spring of 1916.

The factor that matters most is that the final analysis, the battle over unrestricted submarine warfare was fought on the ground chosen by the navy: the plenitude of expert Denkschriften that guaranteed victory by slide-rule calculations of British bottoms, coal, and food supplies. Put differently, the experts set the tone of the debate, laid down its ground rules, defined its parameters, and closed off all other options. Even the most bitter opponents of the U-campaign accepted the admiral's battleground. Thus, Max Weber already in March 1916 tried to lobby both Reichstag deputies and the Foreign Office against accepting unrestricted submarine warfare by refuting Holtzendorff's naval-technical arguments on its behalf. Secretary of the Treasury Karl Helfferich on August 31, October 6, and December 18, 1916, subjected Holtzendorff's memorandum to critical statistical analysis; and even his half-hearted final attempt to defuse Admiralty Staff thinking on the eve of the Piess decision was solidly based on Holtzendorff's memorandum. At the end of March, Berliner Hollweg at Piess endorsed the underwater offensive primarily on the basis of Holtzendorff's statistical prognostications of victory “before England's fall harvest.” And as late as July 10, 1917, at the height of the submarine war, the kaiser's personal friend, Albert Ballin, head of the Hamburg-amerika Line, argued the merits of the campaign with General Ludendorff strictly on the basis of Holtzendorff's statistical tabulations. The Reality

How close did Imperial Germany’s unrestricted submarine campaign come to Clausewitz's ideal of a theoretical "standard" to "judge all wars by"? Quantitatively, the Admiralty Staff’s predictions proved extremely accurate. The U-boats for the first four months of the campaign destroyed on average 629,862 tons of shipping, and for the next two on average 506,069 tons. Both figures were on target with Holtzendorff's predictions of December 22, 1916. The American war effort, again as the admiral correctly predicted, was slow to develop: a mere 225,000 "doughboys" had landed in France by the end of 1917. But Britain had not been "brought to its knees" by August 1, 1917.

What had gone wrong? In order to assess unrestricted submarine warfare as part of the "process of totalization" that is the theme of this volume, it is necessary to not "deconstruct" Holtzendorff's calculations, but rather on the basis of hard evidence to compare and to contrast the admiral's theoretical calculations against actual battlefront effectiveness. Therein, they fall short of the mark.

First, Holtzendorff and his experts failed to appreciate that a modern industrial state can tap into almost inexhaustible lines of credits; can build up an almost limitless debt, as long as it (and its creditors) believe in its future. In the British case, by 1917 this meant almost exclusively "inexhaustible" American credits.
Second, a modern state’s “machinery” is not as precise or as finely tuned as German Admiralty Staff planners had assumed. Rather, it is, in the words of Avner Offer, “a self-repairing mechanism, not a machine.” The British economy had a great deal of elasticity in 1917 and 1918, and it was able to adjust to changes in imports and production.

Third, the British national character likewise proved far more resilient than the German experts had predicted. Prior to the war, Britain’s economy was highly concentrated and highly insulated from the world economy. The Royal Navy protected British shipping so effectively that the British were able to continue importing food and raw materials at a relatively high level. The British also had a large home market, which was relatively closed to imports. The British government was able to control the flow of goods and services by means of a system of quotas, licenses, and tariffs. The British government was also able to control the flow of information by means of a system of censorship.

Fourth, more critically, Holtzendorff and his civilian subordinates failed to understand the nature of merchant cargoes and the submarine campaign. They assumed that the primary target of the submarine campaign was the transport of food and raw materials, and they underestimated the impact of the submarine campaign on the domestic economy. They also failed to understand the importance of the Atlantic trade and the impact of the Atlantic trade on the domestic economy. They also failed to understand the importance of the Atlantic trade and the impact of the Atlantic trade on the domestic economy.

Fifth, and most critically of all, Holtzendorff and his experts failed to understand the nature of merchant cargoes and the submarine campaign. They assumed that the primary target of the submarine campaign was the transport of food and raw materials, and they underestimated the impact of the submarine campaign on the domestic economy. They also failed to understand the importance of the Atlantic trade and the impact of the Atlantic trade on the domestic economy. They also failed to understand the importance of the Atlantic trade and the impact of the Atlantic trade on the domestic economy.

Sixth, Holtzendorff’s and Ludendorff’s curious calculations about Scandinavian pit-prop timber for British mines failed to hold. Once again, statistics proved whatever case their authors wished them to make. First and foremost, given that coal mining was a crucial war industry, Britain assigned top priority to pit-props, thus guaranteeing their availability. Domestic housing construction was delayed due to the war, and the wood thus saved was diverted to mines. Even had there been a shortage, Britain could conceivably have turned to the forest reserves of France, which it could have shuttled across the Channel with impunity. The hard reality of politics also softened the submarnines’ bite. Shortly after the commencement of unrestricted U-boat warfare, Germany had to conclude agreements with the major European powers—Denmark, the Netherlands, and the Scandinavian countries—that allowed them to maintain their trade (including wood and food) with Britain.

Seventh, the Germans erred terribly in their rather simplistic calculations of gross tonnage available to Britain. They failed entirely to take into account world tonnage, which was about twice as large. Nor did they anticipate that London could requisition neutral and interned German ships, conscript their crews, and set and enforce uniform insurance rates. Although convoy first of twelve to twenty ships and later of thirty to forty vessels protected by an escort screen did not really get fully underway until the summer of 1917, once ritualized it actually brought about more efficient use of port and railway facilities due to its predictable rhythms of arrivals and departures. Special Transport Workers’ Battalions eliminated anticipated congestion in British ports. And “Atlantic concentration” eliminated the need to institute the more lengthy sea routes to Australia, India, and South America. Above all, the nature of merchant cargoes, and not simply the total tonnage, was critical. Thus Admiral von Holtzendorff and his civilian experts failed to understand that Britain’s daily needs of 15,000 tons of grain could be delivered by a mere four ships. Or that the government would simply give grain cargoes higher priority, thus assured the national cereals supply.

In fact, as the U-boat historian Bodo Hertzog has shown, at no time in the war did London reduce even the oats for its race horses! No one in Berlin had dreamed that Britain, basically by adjusting production and consumption at home, would eventually free up 6.7 million tons of shipping—sufficient to transport 1.3 American soldiers to France.

Eighth, the politics of unrestricted submarine warfare backfired. As is well known, Britain did not beg for peace on August 1, 1917. Nor was General Ludendorff “spared a second battle of the Somme” by the U-boat war. British coal mines did not close due to lack of pit-props. Allied and neutral ships continued to ply the Atlantic: only 393 of the 95,000 ships convoyed across the Atlantic were lost; and not a single troop transport was torpedoed en route to France. No major food riots erupted in Britain. No vast migration of skilled labor developed. No public panic ensued.

Ironically, the Russian Empire collapsed just two months after the Germans launched their unrestricted submarine campaign on February 1, 1917. Then, as expected, on April 6 the United States entered the war.
thereby turning the tide against Germany. By the summer of 1918, half a million American soldiers manned the front lines. They arrived in France at the rate of 10,000 per day. A cargo or transport ship left the eastern seaboard of the United States for France every five hours. Almost one-half of the 962,000 "doughboys" escorted to France by the U.S. Navy sailed on board eighteen large German ships that had been interned in American ports and later seized by the American government.

Finally, Germany never managed to mount the "total" effort required to conduct "total" war. Whereas an internal study by Lieutenant Ulrich-Eberhard Blum of the Submarine Inspectorate at Kiel in May-June 1914 had estimated that at least 222 U-boats would be required for an underwater offensive against shipping in the waters surrounding the British Isles, Germany never even remotely approached this figure. For much of 1915, when the clamor for unrestricted submarine warfare first reached its peak, Germany had available in both the Atlantic and the Mediterranean theaters on average 48 boats; and the following year, when public speculation went as high as 300 U-boats, the average monthly total was 58 craft. Most of the Reich's treasure, labor, and raw materials instead went into army production under the auspices of the "Hindenburg Program" and the Auxiliary Service Law of late 1916. Even on February 1, 1917, the date on which Holtzendorff's unrestricted submarine warfare commenced, total forces available stood at only 111 boats, of which 82 were stationed in the North Sea and the English Channel. If one keeps in mind that at any given time one in ten of all U-boats were undergoing repair and refit, and none were going to returning from the war zones, this meant for 1917 that on average a mere 32 boats were on patrol in the North Sea, the English Channel, the Irish Sea, and the Atlantic Ocean to bring Britain "to its knees." Moreover, only 20 of these 32 boats were stationed in the critical waters off Britain's west coast. In short, there existed no synergy between "total war" rhetoric and actual force structure.

Nor did the U-boat force appreciate significantly over time. Despite the heated public as well as internal debate over unrestricted submarine warfare, the Navy Office tendered U-boat orders without sense or purpose. A mere 29 craft were ordered in 1914; 72 in 1915; 86 in 1916; and 67 in 1917. Not a single U-boat building contract was placed in the critical eight months between September 1915 and May 1916. None of the boats ordered in and after May 1916 were completed in time to see service.

Still, German yards proved unable to meet even these modest, sporadic orders. The truth is that wartime U-boat production consistently failed to meet contractual delivery schedules: only 12 units were completed on time; 50 were six months behind schedule; and 114 were nine months late. A central U-boat Office to regulate the purchase, construction, and delivery of submarines was not established until December 5, 1917.-four months after Holtzendorff's promise of victory over Britain! The so-called "Scheer Office" of the autumn of 1918, which planned to place orders for 450 U-boats, was largely a national placebo, a propaganda effort to show the nation that the navy was back in business. It speaks volumes for the "blue-water" mentality of the Imperial Navy's leadership that at the very height of the unrestricted submarine campaign, in the spring of 1917, Admiral von Capelle of the Navy Office spent a great deal of time pondering the construction of "a special cemetery for our existing submarines" after the war. What in October he termed "unlimited construction orders" for U-boats threatened officer promotions and battlefleet symmetry.

**The Verdict**

Was Germany's unrestricted submarine warfare an example of "total war"? I have suggested that while the rhetoric was "total," the reality was limited. Admiral von Holtzendorff, Department B1, and their civilian experts sought "total" victory over Britain by attacking not only Britain's merchant ships but also British arms, munitions, and children and workers at home. In the process of indiscriminately targeting all shipping-merchant as well as war, neutral as well as belligerent--for sinking without warning, they flagrantly ignored (indeed, violated) international law. Put differently, civilian populations were viewed by Berlin as targets on an equal footing with combatants in the field. There can be no question that, as Wolfgang J. Mommsen has argued elsewhere in this volume, the U-boat "brought a qualitative shift in strategic thought" insofar as it targeted enemy morale and will power.

The cold-blooded calculus behind Holtzendorff's "total" war concept was equally frightening. Merchant and neutral ships, women and children were seen and tabulated as "wastage" in much the same sense as front-line troops. Septic columns of merchant kettos destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against steel hulls. This "process of totalization" would reappear in the crisp line troops. Septic columns of merchant bottoms destroyed paralleled those of soldiers killed. Measures of calorific intake by Britain's women and children matched those of soldiers injured and rehabilitated, of shells produced and fired. It was all a matter of accounting, of war by slide-rule. No romanticism. No adventure. No individualism. In the process, grand strategy was reduced to ordnance on target--in this case, torpedoes against ste

16 Naval History of World War I... and II, 1914-1919... (Berlin, 1936). 94.

17 Stenographische Berichte, 322. 2

18 ibid., 255, 226, 259. Italics in the original.

19 Bernd Stegemann, Die Deutsche Marinepolitik 1916-1918... (Berlin, 1970), 51-8.

20 Stenographische Berichte, 291.

21 ibid., 236.

22 ibid., 233.

23 ibid., 227, 249.

24 ibid., 236-41.

25 ibid., 265.

26 ibid., 265.

27 ibid., 240-3.

28 ibid., 250-1. At Pless on January 9, 1917, Ludendorff also stressed the centrality of pit-props. ibid., 322.

29 ibid., 226.

30 ibid., 256.

31 ibid., 256-4.

32 "The navy is still popular with the people... Yet something must be done immediately to preserve this predilection. One hears next to nothing, for example, about the U-boats." ibid., 265.


36 Matthias Erzberger, Erlebnisse im Weltkrieg... (Stuttgart and Berlin, 1920), 227.


38 See Der verschwirte U-Bootkrieg... in Max Weber, Gesammelte Politische Schriften... (Berlin, 1958), 143-51.

39 See Stenographische Berichte, 170-8, 186-92, 199-209.

40 ibid., 321. The chancellor saw the U-boats as Germany’s “last card,” but deemed their chance of success as being “downright favorable.”


42 Bodo Heranz, 60 Jahre Deutsche Luftfahrt... (Munich, 1968), 111.


46 Olson, Economics of the Warfame Shortage, 75, 77, 96, 98-109.

47 William Clinton Mullendore, History of the United States Food Administration 1917-1919... (Stanford, 1941), 10, 48, 121.


49 Olson, Economics of the Warfame Shortage, 59.

50 ibid., 87, 92. See Jethro, Submarine Role, 296-7, for convoys.


52 Olson, Economics of the Warfame Shortage, 110-1.


54 Baer, One Hundred Years of Sea Power, 76.


56 Arno Spindler... ed., Der Handelskrieg mit U-Booten, 5 vols... (Berlin, 1932-36), 11-10, 153-6.

57 ibid., 3:212, 366.

58 Peter Graf Kielmansegg, Deutschland und der Erste Weltkrieg... (Frankfurt, 1968), 393.

59 ibid., 397.

60 Heranz, 60 Jahre Deutsche Luftfahrt, 109.


62 ibid., 193.

63 Richard Fues, Der U-Boot-Krieg des Jahres 1915: Ein Kapitel aus Brüder Politik im Weltkrieg... (Stuttgart, 1936), 94.

64 Hadley, Chief of the Naval Cabinet, 1914-1918... (Durham, 1963), 260-2.

65 ibid., 226.

66 Olson, The Great War and the British People, 110-1.

67 ibid., 226.

68 ibid., 226.

69 ibid., 226.

70 ibid., 226.

71 ibid., 226.

72 ibid., 226.