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# War Losses

By [Antoine Prost](#)

**Military sources provide the primary statistics of war losses and casualties during World War I. In order to review and eventually revise their figures, one must understand how military statistics were produced. This enquiry reveals the limits of generally accepted estimates and leads to a higher estimate of military deaths and a lower estimate of the wounded. The number of civilian dead and wounded is much more conjectural and depends on how the terms are defined. Estimates of military war losses are also a question of linguistics.**

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## Introduction

The issue of war losses is an intricate one, involving several crucial points. First, words matter. The meaning of words such as “killed in action”, “wounded” or “casualties”, which are the main headings in table columns in books or articles dealing with war losses, are misleading. Take the wounded: some died, others did not, meaning that the total number of soldiers who died as a result of war should include those who died from their wounds. This leads to the questions: How did statisticians

calculate their estimates? What period of time did their calculations cover? What parameters did they define? Such questions are seldom discussed. However, it is impossible to propose an even somewhat rigorous estimate of war losses without discussing them.

## A Discussion about Sources

Military statistics serve as the main sources: various armies originally published the following figures of soldiers killed. The exact origin of these statistics is key to any discussion of war losses, with four consequences.

First: As our main sources are *armies*, it is impossible to calculate war losses by *nations* or *empires*. After the war, political leaders of new states tended to publish high figures of losses to show other nations how damaging the war had been for their people. But no one can say with any degree of certainty how many Poles or Czechs were killed. Some writers, though, tried to do just that. They first derived the number of Czech or Polish soldiers killed while wearing the Russian, German or Austro-Hungarian army uniforms based on the percentage of soldiers of each nationality within each imperial army. They then added these numbers to obtain, for example, the total Polish war dead.<sup>[1]</sup> This evaluation is highly problematic for three reasons. First, the definition of Polish territory varied between the three imperial armies, and does not coincide with Polish frontiers established in 1919. From what part of [Poland](#) did Polish soldiers come? Second, this evaluation made the assumption that Polish soldiers' mortality rate was exactly the same as those of German or Russian soldiers. But this was just a hypothesis. It is impossible to ascertain whether Imperial Headquarters (German, Russian or Austro-Hungarian) engaged Polish soldiers as a matter of priority during battle, in order to preserve their own nationals, or, on the contrary, spared them out of distrust and fear of their possible connivance with the local population or their lack of fighting spirit. The German Headquarters preferred to send soldiers from [Alsace](#) to the [Eastern](#) rather than the [Western Front](#). Incidentally, if one were to calculate French losses according to the same rules as Polish or Czech losses, one would include Alsatian soldiers killed while wearing the German uniform. Finally, since the armies' losses were themselves calculated approximately, applying percentages of specific populations to them would only result in even more unreliable estimates. Better to avoid this and calculate losses not per nation but per army.

Second: War loss statistics were highly sensitive data. During the war, figures indicating the numbers of soldiers killed or wounded in action were arguments in political and military debates. High numbers of useless losses were invoked against commanders in chief, for example against [Robert Nivelle \(1856-1824\)](#) and Sir [Douglas Haig \(1861-1928\)](#) in 1917; such bloodletting was a major reason behind calls for their removal. Public opinion was shocked by the thousands dead on the first days of the [Somme](#), the Chemin des Dames or Passchendaele, and the home [population's morale](#) was at stake. Hence the armies were eager to conceal too high of losses in order to safeguard themselves from controversy. For this reason, it is likely that the main source of information was biased by commanders' and their staffs' temptation to minimise war losses.

Third: Regardless of this bias, armies were more interested in evaluating the number of living than dead soldiers. Commanders asked how many soldiers they could use in battle, how many were unavailable; it did not matter whether the unavailable ones were dead or “only” wounded. For instance, the German *Sanitätsbericht* counted wounded soldiers coming back and those who did not return to the field army, but it did not distinguish in the latter group between those who died from their wounds and those who recovered but were sent home or discharged.

More generally, military sources used a category easy to understand, in order to find a place in the statistics for soldiers about whom nothing was known: the “missing”. Some missing were dead, others were [prisoners of war](#) (POWs), others were far from the trenches in rear hospitals, sometimes in foreign countries. Evaluations of war losses often included the missing. For the military, wherever they were, they were not on the battlefield. However, many of the missing were alive. French statistics provide monthly tables of war losses from November 1918 to July 1919 and surprisingly show a growing number of dead soldiers from month to month. A small reason for this growing death toll was that some soldiers died in hospitals after the armistice. But the main reason was the redistribution of those originally listed as missing into other categories: the dead, the wounded still in the army, the discharged. As the numbers were updated each month, new names slipped from the “missing” category to the category of those killed, wounded or discharged, each of which increased regularly. There were not new victims of the war, but rather artefacts of a better evaluation of war losses.

Fourth: Military statistics only registered officers and soldiers, not civilians. This makes such figures useless in counting not only the losses of civilian populations but also a small part of military losses after discharge. Some soldiers died from their wounds or illness after leaving the army. It would be fair to count them among war losses. Undoubtedly, for instance, gas victims are casualties of war, even when they were dressed in civilian clothes. However, it is impossible to include them in the calculation of war losses. Some of them died a few months after the armistice. Others had the chance to recover, to live many more years, dying perhaps from cancer or an accident, not from a gas-related illness. How should one separate these categories of cause of death? The only certainty is that evaluations of war losses are somewhat underestimated due to this difficulty.

## Definitions and Evaluation of Soldiers Killed

Before beginning any evaluation of the war’s military losses, a precise delimitation of those considered soldiers who died in the war is needed, for it is all but clear. One question is easy to solve: that of POWs. Obviously, POWs have to be taken into account: they were soldiers, large numbers of whom died in the camps. In some cases, including them in the calculation of war losses makes a huge difference. For example, more than 180,000 [Russian POWs](#) died in German camps. It is therefore necessary to include them in any calculation of war losses.

The problem of sick soldiers is much more difficult to resolve. French military doctors had to distinguish between illnesses due to service or not. They did it, but the criteria they applied were not

clear. It was a matter of financing pensions more than of [medicine](#). If the sickness was recognized as due to service, the soldier's death would give the [widow](#), orphans and parents the right to a war pension. It seems convenient not to consider this distinction and to include all the dead from illness among the war's victims. This is a very important decision, in some cases. The Ottoman army, for example, suffered from disruption, starvation, extreme heat and cold, so that deaths through sickness, at around 467,000, were more numerous than the dead and missing (243,600) and those who died of wounds (68,000).<sup>[2]</sup> According to whether or not they were included, the total of war dead could vary by a factor of two.

Another difficult question arises when dealing with American soldiers. More than 38,000 died on American soil from illness. The [Spanish flu](#) had devastating effects on this army. Should they be included in the war losses? If one considers that they were soldiers, the answer is yes. But as they never went to the other side of the Atlantic Ocean, it seems difficult to argue that their deaths were due to the war. The [American Expeditionary Forces](#) at home did not suffer from malnutrition, disorganisation or lack of sanitary provisions in the field. This is why the author chose not to include these dead in his estimate.

The following table of military war losses has been constructed based on these assumptions. It shows that the Allied armies' losses were higher than those of the Central Powers by more than 1 million men due to the high numbers of war dead in Romanian and Serbian forces, both of whom fought in very difficult conditions. It is important, though, to go a step further and to ask if the various populations proportionally paid the same price in loss of life in the war. But to compare the number of deaths per thousand inhabitants as a base for calculation would hardly make sense, since variations in demographic patterns meant that the number of adults available for mobilisation varied from one country to another. Taking the proportion of men aged between fifteen and forty-nine or mobilised men killed during active service avoids this bias, but the uncertainties noted above indicate the need for caution when comparing them.<sup>[3]</sup> The losses were particularly heavy for nations such as [Serbia](#), [Romania](#) and [Turkey](#), where statistics were least reliable and the disorganisation and shortfalls in sanitation or food supply most severe. Losses for the French and the German armies were very similar (16.8 percent of mobilised men killed in the French army, 15.4 percent of Germans), both of them higher than British losses (12.3 percent).

From the military point of view, the losses were higher in the [infantry](#) than in the [artillery](#) or other service arms, for evident reasons. From the demographic point of view, it is clear that young soldiers paid the highest toll for the war. This is true anywhere, though probably more in [Germany](#), where nearly 40 percent of soldiers killed were aged twenty-one to twenty-five. Because the German population was larger and younger than the British and French ones, the German army did not enrol as many men in their thirties and even less in their forties, as did Allied armies. But in [France](#) and [Great Britain](#) the percentage of young soldiers among the war dead is only three or four percentage points below the German level.

As in every trade, war needs an apprenticeship. The first battles were the bloodiest. Soldiers had no

actual knowledge of what heavy guns and [machine guns](#) did; they did not anticipate their firepower. In addition, they had been trained for another kind of war, where victory would come from infantry charges, not from artillery shelling. They ran towards the enemy's guns and [machine guns](#) in open fields, without sufficient precautions. The result was a massacre. During the four first months of the war, the French army lost 310,000 soldiers killed, much more than during the ten months of the [battle of Verdun](#) (160,000). As the then Lieutenant [Charles de Gaulle \(1890-1970\)](#) later wrote: "In an instant, it appeared that any bravery in the world could not prevail against firepower" ("*En un instant, il apparaît que toute la valeur du monde ne prévaut point contre le feu*"). However, headquarters remained confident in the offensive doctrine, and they continued to try to break through the enemy's lines by launching massive attacks, facing intact machine gun positions. The first day, sometimes the first hours, of an offensive were marked by huge numbers of men killed in action or wounded. On the first day of the [Battle of the Somme](#) (1 July 1916), the British army lost approximately 20,000 soldiers.

Country	Uralnis 1972 <sup>[4]</sup>	Winter 1986 <sup>[5]</sup>	Overmans 2003 <sup>[6]</sup>	EVALUATION
Russian Empire <sup>[7]</sup>	1,811,000	1,811,000	1,800,000?	1,997,500
France <sup>[8]</sup>	1,327,000	1,327,000	1,327,000	
French colonies	71,000	71,000	78,000	
France + colonies	1,398,000	1 398 000	1,405,000	1,400,000
United Kingdom <sup>[9]</sup>	715,000	723,000	750,000	761,000
Australia	60,000	60,000		60,000
Canada	61,000	61,000		61,000
India	54,000	54,000		54,000
Newfoundland				
New Zealand	16,000	16,000		16,000
South Africa	7,000	7,000		7,000
Others				
Total Dominions	198,000	198,000	180,000	198,000
Total British Empire	913,000	921,000	930,000	959,000
Italy <sup>[10]</sup>	578,000	578,000	460,000	600,000
United States <sup>[11]</sup>	114,000	114,000	117,000	87,900
Japan			1,000	300
Romania	250,000	250,000	250,000	250,700
Serbia	278,000*	278,000	250,000?	278,000
Belgium	38,000	38,000	38,000	38,000
Greece	26,000	26,000	25,000	26,000
Portugal	7,000	7,000	7,000	7,200

Montenegro			13,000	3,000
<b>Total Allied forces</b>	<b>5,135,000</b>	<b>5,421,000</b>	<b>5,296,000</b>	<b>5,647,600</b>
German Empire <sup>[12]</sup>	2,037,000	2,037,000	2,037,000	2,037,000
Austro-Hungarian Empire <sup>[13]</sup>	1,100,000	1,100,000	1,460,000	1,513,500
Ottoman Empire <sup>[14]</sup>	804,000	804,000	325,000	772,000
Bulgaria	88,000	88,000	88,000	87,500
<b>Total central Powers</b>	<b>4,029,000</b>	<b>4,029,000</b>	<b>3,910,000**</b>	<b>4,410,000</b>
<b>TOTAL</b>	<b>9,164,000</b>	<b>9,450,000</b>	<b>9,206,000</b>	<b>10,057,600</b>

Table 1: Number of Dead<sup>[15]</sup>

\* [Montenegro](#) included

\*\*The total given by the *Enzyklopädie* (3,550,000) is wrong.

## War Wounded

Statistics about those who were wounded but did not die from their wounds are more doubtful than those of soldiers killed in action or those who died from wounds, for two main reasons. First, there are many kinds of war wounds. A soldier who cut the tip of his little finger in [barbed wire](#) and became infected was formally a wounded soldier. Did he belong in the same category as amputees, or those suffering severe facial injuries? Obviously not, but the armies' registry offices thought otherwise: in the same category, "war wounded", very different people were grouped together. Therefore estimates of the war wounded tend to be meaningless figures.

The category of war wounded is not only heterogeneous, it is sometimes incomplete. Victims of [shell shock](#) were not always recognized as war victims, depending on national cultures. In Great Britain, shell shock and post-traumatic stress disorder (PTSD) were acknowledged as war injuries; in France and Germany, their symptoms were often taken as proof of cowardice. This made a difference, to say the least. Better having half of a little finger cut than being awakened each night by nightmares of trench warfare.

Second, statistics of war wounded came from the armies' sanitary or medical branches: ambulances and hospitals. What they counted was not men, but patients who passed through their doors – how many medical evacuations were made, how many men entered the hospitals and casualty clearing stations, or lazarettos. These numbers are misleading. The distinction between evacuation for illness or for wounds was not clear cut, and sick soldiers may have been counted as wounded, and conversely, wounded men counted as sick; many were both. Some lightly injured soldiers were never evacuated; they went back to their units after medical care.<sup>[16]</sup> They are not

included in the calculation. Others are counted several times: soldiers leaving one hospital for another were counted as admitted in the second and in the first. They were counted twice, three times, sometimes even more.

Even supposing that this problem could be solved and that one could follow each soldier from the ambulance to the last hospital he entered, the question would not vanish, for one soldier may have been injured several times. The same soldier may have been evacuated multiple times. Even the more exact count of evacuation does not give an exact figure of the wounded. To extrapolate the number of wounded from the number of evacuations, one has to accept a hypothesis about the mean frequency of multiple wounds. For instance, the French Headquarters calculated the total number of wounded from the hypothesis that half the wounded soldiers had been wounded twice. Given the number of evacuations, an easy calculation gives a number of wounded: 4,194,000 evacuations multiplied by two-thirds equals 2,796,000 wounded. Applying another multiplying ratio would give another estimate.

The French official report did not state any justification for the ratio it applied. The author's own research in the veterans' archives has led to much lower percentages of men wounded multiple times in some regions: 22 percent in the Seine and 17.5 percent in the Loir-et-Cher.<sup>[17]</sup> The results of calculations using the same base figure of 4,194,000 evacuations are 2,796,000 with a ratio of 50 percent wounded multiple times; 3,437,705 with a ratio of 22 percent wounded several times, and 3,569,362 with a ratio of 17.5 percent. These figures are but mathematical games, the rules of which are arbitrarily chosen. A supposedly "real" estimate of wounded soldiers is out of reach.

In such conditions, it would be absurd to give exact numbers of the wounded. Better to give round numbers. Several authors have tried to do that, with widely differing results. Table 2 comes from [Jay Winter](#), except for France, where the author's own calculation gives a lower figure. Even with this correction, Table 2 shows, as does Table 1, that the Allied forces' losses were higher than those of the Central Powers. The reasons for such a difference – 3.5 million more – are unclear. However, it acknowledged that artillery was the most dangerous weapon. In the French army, 60 percent of wounded soldiers were injured by shells, against only 34 percent from bullets and 6 percent from bayonets or knives, flame-throwers or suicide.<sup>[18]</sup> Hence the explanation probably lies in a kind of superiority of the German army's deployment either of artillery and gun-fire, on the offensive side of battle, or, on the defensive side, in a more efficient preparation of deep defences and equipment in the trench system. One other reason possibly lies in the higher density of the front line on the French side (around one man each metre) than on the German one (one man each two metres), and in the fact that the German army was on the defensive for long periods of the war on the Western front; casualties among soldiers in offensive operations were probably higher than those who stood on the defensive. In any case, battle was more dangerous and murderous for Allied soldiers than for their counterparts on the other side of the line.

Generally speaking, these figures may be overestimates. They probably include all the wounded, even those with minor injuries. Take the French case, where the system of war pensions was largely

conceived and then gave detailed estimates. In total, 8 million men were mobilised. 1.4 million died and 6.6 million survived. They did not all go to the battlefields; some remained in the rear offices and services. As their proportion of the total changed during the war, it is difficult to say exactly how many they were. However, the estimate of 1 million looks probable. Around 7 million men entered the actual combat zone and 5.5 million came home. The author's estimate of 3.4 million wounded – half a million higher than the French army evaluation but one million lower than those of Winter or Westmoreland – means that two out of three returning veterans had been injured. But only 1.1 million received war pensions, and around 100,000 were amputees, blind, severely injured by gas, and so on.

Hence it seems possible to distinguish three groups of wounded. The first could be termed invalids, those unable to live normally. This was a relatively small group, below 5 percent of survivors. The second group was composed of wounded who suffered from war injuries for the rest of their lives and received war pensions, even for light injuries. This was the central group, around 20 percent of the veterans. The third group had been wounded but recovered so completely that they lived without disabilities or other difficulties, approximately 40 percent of the survivors. A fourth group of veterans, between 30 and 35 percent, escaped unharmed.

These remarks show how different conditions are embedded in the one and the same word: “wounded”. Between the amputee in his wheelchair and the man whose only remaining injury is a scar, there are no commonalities other than a word.

<b>Country</b>	<b>Westmoreland<sup>[19]</sup></b>	<b>Winter<sup>[20]</sup></b>
Russian Empire	4,950,000	4,950,000
France		
French colonies		
France + colonies	4,266,000	3,400,000*
United Kingdom	1,663,435	
Total Dominions		
Total British Empire	2,087,898	2,090,000
Italy	953,886	947,000
United States	205,690	234,000
Japan	415	907
Romania		120,000
Serbia		133,000
Belgium	44,686	45,000
Greece	21,000	21,000
Portugal	13,751	14,000
Montenegro	10,000	10,000
<b>Total allied forces</b>	<b>12,809,280**</b>	<b>11,964,907</b>



German empire	4,247,243	4,216,000
Austro-Hungarian Empire	3,620,000	3,620,000
Ottoman Empire	400,000	400,000
Bulgaria	153,390	152,000
<b>Total central empires</b>	<b>8,419,533</b>	<b>8,388,000</b>
<b>TOTAL</b>	<b>21,228,813</b>	<b>20,352,907</b>

Table 2: Number of Wounded

\* My own estimate

\*\* The wounded from some little territories not listed above are included in this total.

## Civilian Losses

Military losses tend to be much better documented than civilian deaths in wartime. As armies needed as precise an estimate as possible of the men available for combat, they counted only soldiers. Civilian administrators had to care for the sick and bury the dead, whatever their cause of illness or death. No office, anywhere, registered civilian war-related deaths. These numbers have been drawn from very different sources, using various assumptions and definitions. Surely, the dead from air bombings were war victims, but they were not numerous. The central difficulties come from the influenza epidemic and the blockade.

The whole world was struck in 1918-19 with an epidemic of Spanish flu. The author's calculations include soldiers who died from illness when wearing the uniform, for one could argue that their resistance to illness had been weakened by life in the trenches. Soldiers who died from the Spanish flu – about 32,000 in the French army, among them the poet [Guillaume Apollinaire \(1880-1918\)](#) – are considered fallen soldiers. But what about civilians? Most estimates of civilian losses include dead from the Spanish flu, but there are no reasons to do so. The epidemic appeared in the [USA](#), which was not directly affected by the war in mid-1918, where it killed more than half a million people. Are they war victims? The author believes not, which is why American soldiers who died in the USA before leaving were not included in his war loss estimates. For the same reasons, it seems difficult to attribute the heavy toll of the flu in belligerent countries to the war, as long as their medical situation remained normal. If the war had not happened, these inhabitants would have caught the flu anyway and would have died in the same numbers. To include these dead in the calculation would only serve to increase the number of civilian losses and to make the face of war more hideous. Pacifism does not need such a sleight-of-hand.

The second difficulty lies in the blockade. The Central Powers suffered heavily from cold and malnutrition, due to the shortage of coal and food. This situation was a result of bad and incompetent administration. In [Russia](#), as in Turkey and the Balkans, administrative and economic

disorganization and inefficient transportation produced starvation, and bad nutrition made sickness often fatal. In Germany, the War Office (*Kriegsamt*) created chaos with respect to the food supply and contributed to the development of the black market. This is a first explanation, though not a sufficient one. The shortage of coal, [raw materials](#) and food was another, perhaps more important, reason. The shortage was mainly a result of the [Allied blockade](#), maintained until the signing of the [peace treaty](#) in late June 1919. Hence, it seems logical to attribute a number of civilian deaths to war conditions.

But it is difficult to count Germans who died of hunger and still more difficult to say whether they were victims of the Allied blockade or of the black market and the German administration's disorganization. Huge figures have been proposed. For example, in Central and Balkan Europe, some have offered estimates as high as two million. In the Ottoman Empire, quite apart from the one or more million people killed during the [Armenian genocide](#), the figure has been advanced of at least 1,500,000 civilian deaths from famine or malnourishment.<sup>[21]</sup> These figures probably include dead from the Spanish flu. It is possible that such figures have been exaggerated, but it seems very difficult to make clear estimates from evidence so thin. Anyway, the human cost of the war for civilians is undisputed, though impossible to calculate with precision.

As the reader ought to be given the best possible estimate, the author has collected the figures usually proposed in Table 3 below, though he is not at all convinced they are valuable.<sup>[22]</sup> These numbers are but suppositions. Figures for Great Britain or France, in particular, seem contradictory with what is known of wartime living conditions in these countries. In Great Britain, Winter has shown the paradoxical improvement of infant mortality rates during the war, and other scholars have given additional evidence of a lessening of poverty. In France, even if the Spanish flu was considered as a war-related catastrophe, 300,000 or 600,000 civilian dead in France would be astounding figures. The estimate given by Wikipedia of 408,000 dead from the Spanish flu for France is an evident miscalculation: in the unoccupied territory, the total numbers of civilian dead were 583,000, 722,000 and 617,000 for the years 1917, 1918 and 1919 respectively. Thus the surplus civilian mortality of 1918-19, due to the flu, cannot exceed 175,000. These statistics do not prove anything but the will of their author to present the war as a greater massacre than it was. The only certain point is that there is a wide contrast between countries where people died of illness and starvation by the hundreds of thousands, such as Russia, the Balkans, the Central and Ottoman Empires, and those where the government succeeded in maintaining a minimum supply of food, housing and medical care.

To conclude: these statistical insights suggest an asymmetric double contrast. On the front line, the Allies paid the highest price, both in terms of those killed in action and those wounded. But on the home front, the Central Powers and Russia paid a much higher toll. War was not only a military matter; it was an ordeal for whole societies.

Country	World War I casualties, online source <sup>[23]</sup>	Westmoreland <sup>[24]</sup>	Overmans <sup>[25]</sup>
Russian Empire	1,500,000	2,000,000	

France	300,000	40,000**	600,000
United Kingdom	109,000	30,633	600,000
Italy	589,000		700,000
United States	757		
Japan			
Romania	430,000	275,000	300,000
Serbia	450,000	650,000	300,000
Belgium	68,000	30,000	50,000
Portugal	82,000		
Greece	150,000	132,000	
German empire	426,000	760,000	700,000
Austro-Hungarian Empire	460,000	300,000	400,000
Ottoman Empire	4,200,000*	2,150,000	2,000,000
Bulgaria	100,000	275,000	300,000

Table 3: Number of Civilian Losses

\* Armenian genocide included

\*\* French colonies included

## Conclusion

To conclude: these statistical insights suggest an asymmetric double contrast. On the front line, the Allies paid the highest price, both in terms of those killed in action and those wounded. But on the home front, the Central Powers and Russia paid a much higher toll. War was not only a military matter; it was an ordeal for whole societies.

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## Notes

1. † Handelsman, Marcell: La Pologne. Sa vie économique et sociale pendant la guerre, Paris 1933.
2. † See notes for Table 1.
3. † Winter, Jay: The Great War and the British People, London 1985, table 3.4, p. 75. The author has adjusted Winter's rates by applying his own calculations.
4. † Urlanis, Boris Tsesarevitch: Guerre et populations, Moscow et al. 1972.
5. † Winter, Jay: The Great War and the British People, London 1985, p. 75.
6. † Overmans, Ruediger: Kriegsverluste, in: Hirschfeld, Gerhard / Krumeich, Gerd / Renz, Irina: Enzyklopädie Erster Weltkrieg, Paderborn 2003, p. 663.
7. † Gatrell, Peter: Russia's First World War. A social and economic history, London 1989, p. 246. 181,900 POWs died in captivity and need to be included in the total.
8. † Prost, Antoine: Compter les vivants et les morts. L'évaluation des pertes françaises de 1914-1918, in: Le Mouvement social 222 (2008), pp. 41-60. This included colonial and foreign soldiers, soldiers dead from illness due to service, and about 75,000 dead from illness not due to active service.
9. † Winter, Jay: The Great War and the British People, Cambridge, MA 1986, pp. 71-5. Winter stated that 41,000 officers and soldiers died between 1 October 1918 and 30 September 1919, and yet he does not take them in his calculation. This author has included them in his own evaluation, for they are probably either soldiers wounded before the armistice, or missing soldiers whose deaths were confirmed after it.
10. † Mortara, Giorgio: La Salute publica in Italia durante e dopo la guerra, New Haven 1925, p. 29. Mortara presented good reasons to believe that the official figure of 578,000 dead was an underestimate.
11. † Clodfelder, Michael: Warfare and armed conflicts, a statistical reference to casualty and other figures, 1618-1991, vol. 2, Jefferson et al. 1992, pp. 782-789. Clodfelder cited one official source listing 126,710 American war dead and another, 120,144. These figures include dead from illness. But, according to the second statistic, 38,815 soldiers died on the American continent before crossing the Atlantic Ocean to engage in combat. They are not included in this author's estimate.
12. † Sanitätsbericht über das Deutsche Heer, vol. 3, Berlin 1934. This report listed an estimated 1,973,701 war deaths. But this statistic refers to deaths prior to 31 July 1918 and did not include seamen. From numbers given by the *Zentralnachweisamt für Kriegerverluste und Kriegsgräber*, Ruediger Overmans provided a much better estimate. The *Wirtschaft und Statistik*, 1925, p. 29, gave a total of 2,055,000 war deaths. The difference between this figure and Overmans' (2,037,000) arises from a different figure for deaths in German colonies (14,000 against 1,185).

13. ↑ The numbers usually quoted come from: Grebler, Leo / Winkler, Wilhelm: *The Cost of World War to Germany and to Austria-Hungary*, New Haven 1940. Grebler and Leo themselves quoted Kerchnawe, Général: *Die Totenverluste der österreichisch-ungarischen Monarchie nach Nationalitäten*, Vienna 1919. Ruediger Overmans kindly brought to my attention the *Statistisches Handbuch des gesamten Deutschlandums*, Berlin 1927, where Wilhelm Winkler listed 812,000 Austrians dead and 645,000 Hungarians. These figures probably do not include dead from Bosnia. Schulze, Max-Stephen: *Austria-Hungary's economy in World War I*, in: Broadberry, Stephen / Harrison, Mark (eds.): *The Economics of World War I*, Cambridge 2005, p. 81, numbered Serbian dead around 56,500 and gave a total figure of 1,686,200 dead for the Austrian-Hungarian Empire, but he included the missing. As some of the missing were probably not dead, this author has added the 56,500 Serbian dead to the figures given by Winkler. Hence his estimate is possibly an underestimate.
14. ↑ Erikson, Edward J.: *Ordered to die. A history of the Ottoman Army in the First World War*, annexe F, Westport et al. 2001, p. 241. Erikson took the usual estimate as an overestimate and cited 771,844 dead: 175,220 killed in action, 61,487 missing in action, 68,373 dead of their wounds and 466,759 dead of disease. As these figures are accepted by: Lewy, Guenter: *The Armenian massacres in Ottoman Turkey. A disputed genocide*, Salt Lake City 2005, this author kept them in his own evaluation, which is close to that of: Zürcher, Erik Jan: *Between Death and Desertion. The experience of the Ottoman Soldiers in World War I*, Turcica 1996, pp. 235-58. [Erik Jan Zürcher](#) provided these statistics: 325,000 killed in action, 60,000 dead of their wounds and 400,000 from illness, thus totalling 785,000 deaths. However, a doubt remains about Arab soldiers who possibly were not all taken into account.
15. ↑ The central reference is Jay Winter's estimate, except for the following countries: Russia, France, United Kingdom, Italy, United States, German Empire, Austro-Hungarian Empire and Ottoman Empire.
16. ↑ *Les archives de la Grande Guerre*, Paris 1921, n° 19, p. 55. These archives indicate that the lightly wounded were not included; perhaps 20 percent of all wounded soldiers who entered ambulances or hospitals returned to their regiments after less than a month.
17. ↑ Prost, Antoine: *Les Anciens combattants et la société française, 1914-1939*, vol. 2, Sociologie, Paris 1977, p. 24. It is necessary to distinguish those wounded several or multiple times from those who were multiply injured, that is in various parts of their body.
18. ↑ France, Ministère de la Guerre, Direction du Service de Santé, *Etude de statistique chirurgicale, Guerre de 1914-1918*, Paris 1924.
19. ↑ Westmoreland, Ingrid P.: *Casualties*, in: Tucker, Spencer C. (ed.): *The European powers in the First World War. An encyclopedia*, New York et al. 1996, pp. 172f.
20. ↑ Winter, Jay M.: *Victimes de la guerre. Morts, blessés et invalides*, in: Audoin-Rouzeau, Stéphane/Becker, Jean-Jacques (eds.): *Encyclopédie de la Grande Guerre, 1914-1918*, Paris 2004, p. 1077.
21. ↑ Lewy, Guenter: *The Armenian Massacres in Ottoman Turkey. A Disputed Genocide*, Salt Lake City 2005, pp. 60f.
22. ↑ One might be surprised to find estimates from Wikipedia. I have chosen to include them in Table 3 because Wikipedia gives references for each line of its table, which historians dealing with this issue seldom do.
23. ↑ World War I casualties online source: [http://en.wikipedia.org/wiki/World\\_War\\_I\\_casualties](http://en.wikipedia.org/wiki/World_War_I_casualties). This table is quoted because it indicates its numbers' sources, which is not so frequent.
24. ↑ Westmoreland, Ingrid P.: *Casualties*, in: Tucker, Spencer C. (ed.): *The European powers in the First World War. An encyclopedia*, New York et al. 1996, pp. 172f.

25. ↑ Overmans, Ruediger: *Kriegsverluste*, in: Hirschfeld, Gerhard / Krumeich, Gerd / Renz, Irina: *Enzyklopädie Erster Weltkrieg*, Paderborn 2003, p. 663.

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