

## Dug In!

WWI trenches in myth and reality

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The short version is that the reality was horrible, and the myth even worse. Trench warfare has rightly become synonymous with the kind of warfare that no one ever wants to experience again, and it was the reason that belligerents in WWII developed things like *Blitzkrieg* to avoid a static front where thousands – tens of thousands, hundreds of thousands – of men would die in wave after wave of ineffective attacks.



The Michigan Tech *Dug In!* trench is both a commemoration and physical contemplation of the type of warfare that consumed millions in Europe from 1914-1918. The audio soundtrack developed by Visual and Performing Arts gives a selection of memoirs and poetry about the trenches from many different participants' point of view.

We have created a 100ft. long section of a “forward firing trench”, the sort that would be looking directly out to no-man’s land toward the enemy. In a fuller recreation, there would be communication trenches that ran back from the front (up the hill, in our case) to support and habitation trenches, which would also have had dugouts and in some cases entirely underground cities for protection from enemy bombardment.

If you want the best overall source on the American Expeditionary Forces, see the U.S. Army’s Center for Military History, “Learning Lessons in the American Expeditionary Forces” ([https://history.army.mil/html/books/024/24-1/CMH\\_Pub\\_24-1.PDF](https://history.army.mil/html/books/024/24-1/CMH_Pub_24-1.PDF)). It is about 25 pages, but I would recommend reading it for the overall wartime experience of the army as a whole (not so much the soldier’s experience).

### The Trenches

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Trenches in warfare were well-developed in the 17<sup>th</sup> century in European warfare but were exclusively used for besieging a fortress or a city. Sébastien Le Prestre de **Vauban** (1633–1707) developed siege trenches into a ‘clockwork art form’ in the latter half of the century, claiming that if he had a given number of men, a known size of the place he had to besiege (*i.e.*, the size of the perimeter), and the number of guns he had, he could calculate to the hour how long it would take to force a surrender.

Trench warfare was not an unknown concept to the belligerents when Europe went to war in 1914. The US had some experience with this in the siege of Petersburg, VA, during the Civil War (it lasted 10 months, from June 1864 to March 1865) where the Confederates came out and dug opposing trenches against the Union besiegers. Mark Twain had also described the slaughter that would ensue from a heavily fortified position in the age of industrialized warfare in the chapter called “The Battle of the Sand Belt” in *A Connecticut Yankee in King Arthur’s Court* (1889).

So when the Germans moved on France in 1914—making it to within a dozen miles of Paris—and then the French and Belgians pushed them back, the Western Front

stabilized into about a 350-mile line of trenches from the Swiss border to the English Channel. For the next four years, quickly augmented by British (and Canadian) troops and then later from summer 1917, American troops, both sides kept trying to 'break through', though in reality a successful attack might gain only hundreds of yards at best.

The human cost of this method of a stagnant front was mind-boggling. At one of the first major conflicts, at Ypres in Belgium in 1914, as both sides sought to emend their trenches north and west to the English Channel, 40,000 Germans were killed *in one assault* on the British/French lines. The Battle of Verdun in early 1916 cost between 750,000 and a million men on both sides (and that is longest, but only *second*-deadliest battle of the war. Consider that in the one well-documented battle, we cannot calculate the combatant dead to within 250,000 men!).

When the American Expeditionary Force began arriving in late 1917, getting ready to fully engage in spring 1918, the Germans launched what is known as the Spring Offensive (also Ludendorff Offensive or the Kaiser's Battle) that lasted for 2 months in March and April 1918. The Germans were trying to win before the Americans could decisively overwhelm them on the Western Front (though they had their own reinforcements coming as their war on the Eastern Front was over when they signed a treaty with the new (post-revolution) Russian government in early March 1918). The Allies lost 850,000 defending this assault and the German lost 650,000. Finally, the Hundred Days Offensive from July to November 1918 saw 1.85 *million* men on both sides killed or wounded as the war flared to its bitter end of the Armistice on Nov. 11.<sup>1</sup>

Overall, total direct casualties of WWI are estimated 37.5 million (a 58% casualty rate for all combatants). 7 million survivors were severely maimed but lived; 80,000 men were classified as suffering "shell-shock" (and *many* more were not granted that classification, but had severe trauma). France alone lost 11% of its total population in the conflict.

	Dead	Wounded	
Allies	2,032,410	5,156,920	
Central Powers	1,496,200	2,589,000	
	3,528,610	7,745,920	<b>→ 11,274,530 total dead and wounded</b>

As a consequence, when visiting the trench, we would be appreciative if teachers could tamp down the inclination of students to jump up on the parapet and play soldier by pointing their fingers over the top of the sandbags and saying "bang". That heroism in the face of overwhelming odds is certainly part of the story, but as they listen to the audio accompaniment, we hope that they will appreciate the truly staggering cost in life that this conflict entailed.

<sup>1</sup> If you are interested in a visualization, see Sam Weiss, "WW1 Monthly Casualties by Fronts and Belligerents," R-bloggers, April 2, 2015, online at <https://www.r-bloggers.com/ww1-monthly-casualties-by-fronts-and-belligerents>. It's an interesting example of how to show a complex timeseries of data.

## The Technology

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The reason the conflict was so horrific was that the tactical concepts of offense and defense had not evolved to take into account modern industrialized warfare. In particular, the ability of machineguns and artillery to repel virtually any assault made attacking a near suicide mission. That is why both sides came up with complex flanking plans to try to get around the enemy... but once the trench system was complete from the sea to the Alps, there was nowhere to go 'around'. Instead, they had to repeatedly try to go through.

Artillery in this conflict ranged from small trench mortars that could lob small explosive shells into the next trench a few dozen yards away to mammoth railcar-mounted guns that could fire tens of miles (e.g., the 520mm French Schneider Howitzer fired a shell weighing over 1400kg [1.5tons] could fire 17km (10mi.)).<sup>2</sup> And this was the first war where everything fired explosive Shrapnel shells.<sup>3</sup> The typical American artillery piece was about a 3in. caliber (actually we used French 75mm guns mainly), and shot a 5-7kg shell 6,000-9,000 yds. At as high as 30 rounds per minute (though 3-4 was more typical sustained fire).

To give a sense of the size of bombardments, at the Battle of the Somme (Feb.-Dec. 1916), the British fired 1,738,000 artillery shells at the Germans. They advanced a total of 5 miles. But the industrial scale of the war ramped up quickly: in the first two weeks of the Battle of Passchendaele (Aug. 1917) the Allies fired 4,283,550 shells and is estimated that throughout the First World War the Allies used 5,000,000 tons of munitions with the Central Powers lobbing back about the same. 10 million tons of high explosive.

Add to the machine guns and artillery the addition of low-tech barbed wire and high-tech chemical warfare (mustard gas, chlorine gas, phosgene gas), and life in the trenches and military operations were less that effective in many ways. And horrible. Did we mention horrible?

Other new technologies were mobilized for the first time in WWI: tanks which were a great propaganda and morale-booster, though not ultimately all that decisive; and radio and telephone communication which allowed much better contact between units and information delivery back to HQ.

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<sup>2</sup> For more fascinating facts about WWI artillery, see <https://www.historyhit.com/facts-about-world-war-one-artillery>.

<sup>3</sup> They were developed in the early 19<sup>th</sup> century, but weren't widely adopted until the 1880s

## Resources

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- A day in the trenches Student worksheets  
[https://www.teachingenglish.org.uk/.../A\\_day\\_in\\_the\\_trenches\\_student\\_worksheet.pdf](https://www.teachingenglish.org.uk/.../A_day_in_the_trenches_student_worksheet.pdf)
  - Although written from the British perspective (much of the material out there is), this one is the best we have found for thinking about life in the trenches.
  - The learning skills are partly geared towards language/word forms.
- Life in the trenches (Canadian War Museum)  
[https://www.warmuseum.ca/supplyline/wp-content/.../Trenches\\_EN\\_full-lesson.pdf](https://www.warmuseum.ca/supplyline/wp-content/.../Trenches_EN_full-lesson.pdf)
  - Very good set of worksheets with handouts and activities for students.
- World War One Information and Activity Worksheets  
<https://www.methacton.org/cms/lib/PA01000176/.../world-war-1-beginning.pdf>
  - While this is a very large set of resources about the whole war, it is strangely sanitized and the activities are quite un-instructive (wordsearches, for example). But the section on trenches (pp. 25-34) has some good ideas and extracts to talk about life in the trenches and activities the soldiers would have been doing.
- Video 'game' of 4 missions in the trenches.  
<http://www.bbc.co.uk/schools/worldwarone/hq/trenchwarfare.shtml>
  - This one would obviously have to be done before coming to the trench,
- What was the fighting like on the Western Front?  
[www.mrbuddhistory.com/uploads/1/4/9/6/14967012/worksheet.pdf](http://www.mrbuddhistory.com/uploads/1/4/9/6/14967012/worksheet.pdf)
  - This has good diagrams of the trench itself and how it was related to the new technologies of the day.
- Life in the trenches <https://www.teachithistory.co.uk/attachments/27301/life-in-the-trenches.pdf>
- Poetry from the Trenches of World War I (National History Day)  
<https://www.nhd.org/sites/default/files/1REVISED-Smith-LM-2-poetry.pdf>
  - This is a really well done set of poetry readings from a HS teacher in NC.
- Letters from the First World War, 1916- 18. Trenches.  
<http://www.nationalarchives.gov.uk/documents/education/letters-from-the-first-world-war-1916-1918-3-trenches.pdf>
- Trench Warfare in World War I  
<https://civics.sites.unc.edu/files/2012/05/TrenchwarefareinWWI.pdf>
- World War 1 Trench Warfare - Madison County Schools  
[www.madison.kyschools.us/.../Letters%20from%20the%20Trenchs%20Activity.docx](http://www.madison.kyschools.us/.../Letters%20from%20the%20Trenchs%20Activity.docx)

If you are interested in more developed worksheets, see the Teachers Pay Teachers website:

<https://www.teacherspayteachers.com/Browse/Search:wwi%20trench%20warfare%20worksheet>