

The Fallen of World War II: Examining History's Deadliest Conflict by the Data

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Abstract—The second world war, which spanned from 1939 to 1945 was a global conflict that caused over 70 million deaths, making it the deadliest war in history. Neil Halloran's data-driven documentary, "The Fallen of World War II" provides an in-depth look into the number of soldiers and civilians who perished in each theater and country during the war. Civilian deaths eclipsed military deaths throughout the entire war. The documentary compares the number of deaths during world war two and all of the wars since. The resulting bar graph reveals an era of relative global peace as the number of military deaths has drastically decreased. Despite the advancement of the destructive capability of nuclear weapons during the cold war, the world's richest countries have maintained relative peace.

I. INTRODUCTION

World War Two (WW2) was one of the most devastating conflicts in human history. No less than forty-five million people, both military and civilian, died as a result of the Second World War, while some estimates reach as high as 80 million total deaths [1]. The sheer scale of the global conflict has been unmatched before or since WW2. There were two main alliances in World War II: the Allied Powers led by Great Britain, the USA, and the Soviet Union, and the Axis Powers led by Germany, Italy, and Japan [2]. During the 1930's, hostilities increased as Germany, Italy, and Japan underwent campaigns of territorial expansion. WW2 is commonly acknowledged to have started in September 1939 when Germany invaded Poland and ended in September 1945 with the unconditional surrender of Japan to the allies [3].

With the tremendous amount of battles, conflicts, civilian raids, and even genocides through the six-year-long war, it becomes difficult to fathom just how many lives were cut short during the war for each of the countries involved. Neil Halloran created an interactive data-driven documentary entitled, "The Fallen of World War II", which examines and highlights the tragic loss of life during the war. The documentary uses data visualization tools like animated line charts and interactive bar graphs to give viewers a fresh perspective on the cost of human lives during WW2. Moreover, the documentary used population-scaled bar graphs from 1939 to the present to show how the scale of battle deaths has dramatically decreased since the end of WW2. The eighteen-minute documentary can be publicly viewed from Halloran's website: <http://www.fallen.io/ww2/>, where users can interact with the charts and see tooltips giving important information like countries involved, the names of the important battles, and the number of deaths suffered by each country.

II. MAIN CONTENT

Given that death figures across countries and years are in the millions, it becomes hard to visualize each life lost. The documentary uses one mark in the form of a human icon to represent 1,000 deaths in the graphs.

A. Military Deaths

The documentary begins by illustrating the number of military deaths in the European theater of the war, mostly between the Allies and Germany. Military deaths only cover the deaths of soldiers and direct combatants during combat and in prisoner-of-war (POW) camps after capture. The documentary effectively uses animations in plotting the person icons one by one along with sound effects to emphasize to the audience just how many people died from each country. The documentary begins by analyzing the death counts of two of the allies, the USA and Great Britain. For the USA, over 75% of total military deaths occurred in the European theater, the majority of which occurred near the end of the war after D-Day. Great Britain had a similar number of military deaths as the U.S. with around 400,000 military deaths. Nazi Germany lost around 500,000 soldiers fighting the U.S. and Great Britain in the Western Front.

However, the scale of the battle on the Western Front is dwarfed by the battle on the Eastern Front between Germany and the USSR. In just one pivotal battle on the Eastern Front, the Battle of Stalingrad, over 500,000 Germans died, the same number as German soldiers killed in the entire Western Front. In total, 2.3 million Nazi soldiers died fighting the Soviet Union. Despite being victorious, the Soviet Union paid a terrible human cost as they lost 8.7 million soldiers fighting the Nazis. The bar chart, figure 1 highlights just how many Soviet Union soldiers died in comparison to all of the military deaths of the other allies, US, Great Britain, and France.

The less-covered theater of World War Two is the Asia-Pacific Theater involving the Japanese and the United States and its allies. The documentary shows the immense human cost paid by China, one of the U.S.'s allies, who lost the second most people after the USSR during WW2. Moreover, the Japanese military demonstrated the ultimate but fatal nationalism by giving their life in battle through kamikaze attacks. Kamikaze attacks occurred when Japanese pilots in aircrafts with explosive missiles purposely crashed their planes onto enemy naval ships. Kamikaze attacks were one of the most significant causes of death near the end of the war as shown in the documentary like in the Battle of Okinawa late in the war [4].

B. Civilian Deaths

The impact of war on the civilian population is often overlooked. Through the use of animations and visualizations, the documentary emphasizes that more civilians died during WW2 compared to military deaths. One of the most tragic genocides in history was the holocaust, commonly known as the killing of six million Jews under Nazi occupation. The magnitude of Jewish people killed can be seen in figure 2, where each individual mark represents 1,000 Jews who died. Over half of all Jewish deaths were Polish. The documentary shows how Poland suffered the most deaths in consideration to the total population of the country as over 16% of their entire population died during WW2. After the documentary showed all the Jewish deaths, it also shed light on non-Jewish Holocaust deaths perpetrated by the Nazis. Hundreds of thousands of Gypsies, homosexuals, and the disabled were exterminated in Nazi war crimes.

Civilian deaths were not a result of accidents, as many civilians were intentionally fired upon or bombed. The documentary shows how it was not only the Axis powers that intentionally killed civilians. Over the course of their bombing raids over German civilian populations, the U.S. and Great Britain inflicted over 600,000 civilian deaths. Moreover, some civilian deaths were a direct result of their own country's willingness to sacrifice their civilian population. In the Asian Theater, the Chinese government flooded the Yellow River to slow down the invading Japanese forces, causing 500,000 Chinese civilians to perish.

III. CONCLUSION

In total, the documentary estimates that over 70 million people died during the six-year period of WW2 from 1939 to 1945. The Cold War between the former allies, the USSR and the USA, ensued after the end of World War Two. Despite the many proxy wars between the two superpowers like the Korean War and Vietnam War, the data shows that the world has been relatively peaceful ever since 1945. The year-by-year bar chart seen in figure 3 shows the steep decline in military deaths compared to deaths during WW2 colored in red.

Neil Halloran's "The Fallen of World War II" effectively conveys the scale of the conflicts and resulting deaths that occurred during WW2. The documentary was released relatively recently in 2016, when today's younger generation may not be as familiar with the war, considering it happened over 70 years ago. Some lesser-known facts such as the role of the USSR in the war and the tragic loss of life among civilians were also given importance in the documentary.

The documentary's use of bar charts was very appropriate in comparing the number of deaths per countries. At a glance, the audience could quickly see which countries were most affected by the War in terms of deaths. Halloran's decision to designate an icon mark for each thousand deaths also helped the audience visualize the millions and millions of people who died because of the tragic conflict.

APPENDIX A VISUALIZATIONS

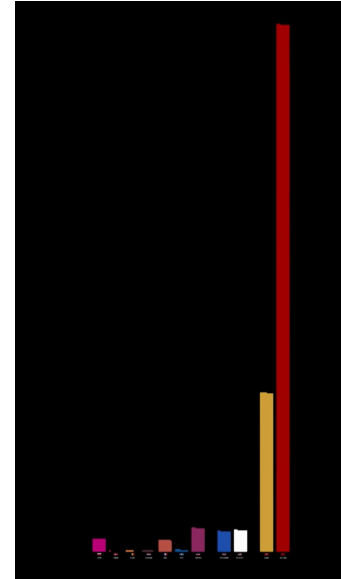


Fig. 1: Military Deaths - Russia (Red), Germany (Yellow), US (white), Great Britain (Blue)

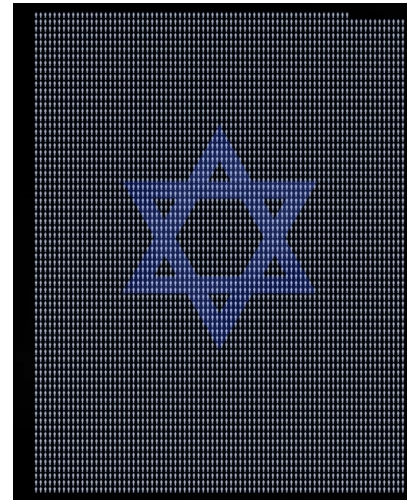


Fig. 2: Visualization of Total Jewish Deaths (6 Million)

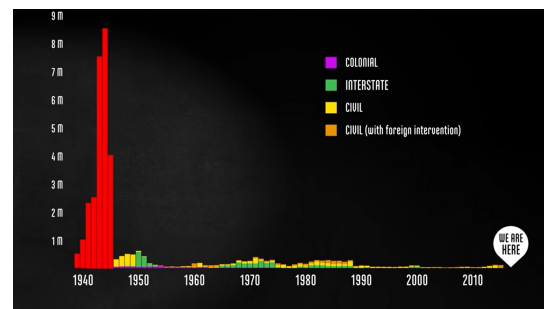


Fig. 3: Bar Chart showing the decreasing number of military deaths post-WW2)

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