On Nuclear Disarmament

Carl Sagan

Fifty-one thousand human beings were killed or wounded here, ancestors of some of us, brothers of us all. This was the first full-fledged example of an industrialized war, with machine-made arms and railroad transport of men and materiel. This was the first hint of an age yet to come, our age; an intimation of what technology bent to the purposes of war might be capable. The new Spencer repeating rifle was used here. In May 1863, a reconnaissance balloon of the Army of the Potomac detected movement of Confederate troops across the Rappahannock River, the beginning of the campaign that led to the Battle of Gettysburg. That balloon was a precursor of air forces and strategic bombing and reconnaissance satellites.

A few hundred artillery pieces were deployed in the three-day battle of Gettysburg. What could they do? What was the war like then? . . . Ballistic projectiles, launched from the cannons that you can see all over this Gettysburg Memorial, had a range, at best, of a few miles. The amount of explosive in the most formidable of them was some twenty pounds, roughly one-hundredth of a ton of TNT. It was enough to kill a few people.

But the most powerful chemical explosives used eighty years later, in World War II, were the blockbusters, so-called because they could destroy a city block. Dropped from aircraft, after a journey of hundreds of miles, each

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1. Army of the Potomac: the Union army that defeated Confederate forces near the town of Gettysburg, Pennsylvania. The battle was a turning point in the Civil War.
2. TNT: a chemical compound used as an explosive.
carried about ten tons of TNT, a thousand times more than the most powerful weapon at the Battle of Gettysburg. A blockbuster could kill a few dozen people.

At the very end of World War II, the United States used the first atomic bombs to *annihilate* two Japanese cities. Each of those weapons had the equivalent power of about ten thousand tons of TNT, enough to kill a few hundred thousand people. One bomb.

A few years later the United States and the Soviet Union developed the first thermonuclear weapons, the first hydrogen bombs. Some of them had an explosive yield equivalent to ten million tons of TNT; enough to kill a few million people. One bomb. Strategic nuclear weapons can now be launched to any place on the planet. Everywhere on earth is a potential battlefield now.

Each of these technological triumphs advanced the art of mass murder by a factor of a thousand. From Gettysburg to the blockbuster, a thousand times more explosive energy; from the blockbuster to the atomic bomb, a thousand times more; and from the atomic bomb to the hydrogen bomb, a thousand times still more. A thousand times a thousand, times a thousand is a billion; in less than one century, our most fearful weapon has become a billion times more deadly. But we have not become a billion times wiser in the generations that stretch from Gettysburg to us.

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3. thermnuclear (θərməˈnuklər) adj.: based on the process of nuclear fusion, in which atomic nuclei combine at high temperatures, releasing energy.
The souls that perished here would find the carnage of which we are now capable unspeakable. Today, the United States and the Soviet Union have booby-trapped our planet with almost sixty thousand nuclear weapons. Sixty thousand nuclear weapons! Even a small fraction of the strategic arsenals could without question annihilate the two contending superpowers, probably destroy the global civilization, and possibly render the human species extinct. No nation, no man should have such power. We distribute these instruments of apocalypse all over our fragile world, and justify it on the grounds that it has made us safe. We have made a fool’s bargain.

The 51,000 casualties here at Gettysburg represented one-third of the Confederate army and one-quarter of the Union army. All those who died, with one or two exceptions, were soldiers. The best-known exception was a civilian in her own house who thought to bake a loaf of bread and, through two closed doors, was shot to death; her name was Jennie Wade. But in the global thermonuclear war, almost all the casualties will be civilians, men, women, and children, including vast numbers of citizens of nations that had no part in the quarrel that led to the war, nations far removed from the northern mid-latitude “target zone.” There will be billions of Jennie Wades. Everyone on earth is now at risk.

Two months before Gettysburg, on May 3, 1863, there was a Confederate triumph, the Battle of Chancellorsville. On the moonlit evening following the victory, General Stonewall Jackson and his staff, returning to the Confederate lines, were mistaken for Union cavalry. Jackson was shot twice in error by his own men. He died of his wounds.

We make mistakes. We kill our own.

There are some who claim that since we have not yet had an accidental nuclear war, the precautions being taken to prevent one must be adequate. But not three years ago we witnessed the disasters of the Challenger space shuttle and the Chernobyl nuclear power plant, high-technology systems, one American, one Soviet, into which enormous quantities of national prestige had been invested. There were compelling reasons to prevent these disasters. In the preceding year, confident assertions were made by officials of both nations that no accidents of that sort could happen. We were not to worry. The experts would not permit an accident to happen. We have since learned that such assurances do not amount to much.

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This is the century of Hitler and Stalin, evidence—if any were needed—that madmen can seize the reins of power of modern industrial states. If we are content in a world with nearly sixty thousand nuclear weapons, we are betting our lives on the proposition that no present or future leaders, military or civilian—of the United States, the Soviet Union, Britain, France, China, Israel,

4. apocalypse (ap-ō-kāl’p-ə-sis’): total devastation.
5. Challenger: an American space shuttle that exploded in 1986, killing all seven crew members.
6. Chernobyl (chér-no’bīl): a town in the Ukraine (then part of the Soviet Union) that was the site of a major nuclear power plant accident in 1986.
India, Pakistan, South Africa, and whatever other nuclear powers there will be—will ever stray from the strictest standards of prudence. We are gambling on their sanity and sobriety even in times of great personal and national crisis, all of them, for all times to come. I say this is asking too much of us. Because we make mistakes. We kill our own. . . .

We have made a fool’s bargain. We have been locked in a deadly embrace with the Soviet Union, each side always propelled by the abundant malefactions of the other; almost always looking to the short term—to the next congressional or presidential election, to the next party congress—and almost never seeing the big picture.

Dwight Eisenhower, who was closely associated with this Gettysburg community, said, “The problem in defense spending is to figure out how far you should go without destroying from within what you are trying to defend from without.” I say we have gone too far. . . .

The Civil War was mainly about union; union in the face of differences. A million years ago, there were no nations on the planet. There were no tribes. The humans who were here were divided into small family groups of a few dozen people each. They wandered. That was the horizon of our identification, an itinerant family group. Since them, the horizons have expanded. From a handful of hunter-gatherers, to a tribe, to a horde, to a small city-state, to a nation, and today to immense nation-states. The average person on the earth today owes his or her primary allegiance to a group of something like a hundred million people. It seems very clear that if we do not destroy ourselves first, the unit of primary identification of most human beings will before long be the planet Earth and the human species. To my mind, this raises the key question: whether the fundamental unit of identification will expand to embrace the planet and the species, or whether we will destroy ourselves first. I’m afraid it’s going to be very close.

The identification horizons were broadened in this place 125 years ago, and at great cost to North and South, to blacks and whites. But we recognize that expansion of identification horizons as just. Today there is an urgent, practical necessity to work together on arms control, on the world economy, on the global environment. It is clear that the nations of the world now can only rise and fall together. It is not a question of one nation winning at the expense of another. We must all help one another or all perish together.

On occasions like this it is customary to quote homilies; phrases by great men and women that we’ve all heard before. We hear, but we tend not to focus. Let me mention one, a phrase that was uttered not far from this spot by Abraham Lincoln: “With malice toward none, with charity for all. . . .” Think of what that means. This is what is expected of us, not merely because our ethics command it, or because our religions preach it, but because it is necessary for human survival.
Here’s another: “A house divided against itself cannot stand.” Let me vary it a little: A species divided against itself cannot stand. A planet divided against itself cannot stand. And [to be] inscribed on this Eternal Light Peace Memorial, which is about to be rekindled and rededicated, is a stirring phrase: “A World United in the Search for Peace.”

The real triumph of Gettysburg was not, I think, in 1863 but in 1913, when the surviving veterans, the remnants of the adversary forces, the Blue and the Gray, met in celebration and solemn memorial. It had been the war that set brother against brother, and when the time came to remember, on the fiftieth anniversary of the battle, the survivors fell, sobbing, into one another’s arms. They could not help themselves.

It is time now for us to emulate them, NATO and the Warsaw Pact,7 Israelis and Palestinians, whites and blacks, Americans and Iranians, the developed and the underdeveloped worlds.

We need more than anniversary sentimentalism and holiday piety and patriotism. Where necessary, we must confront and challenge the conventional wisdom. It is time to learn from those who fell here. Our challenge is to reconcile, not after the carnage and the mass murder, but instead of the carnage and the mass murder.

It is time to act. ☼

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7. **Warsaw Pact**: an alliance of the Soviet Union and other Communist nations.
Comprehension

1. **Recall**  What weapons were used in the Battle of Gettysburg?

2. **Recall**  What developments in warfare occurred during and shortly after World War II?

3. **Summarize**  According to Sagan, why should we reject assurances that a nuclear war will not occur?

Critical Analysis

4. **Examine a Rhetorical Device**  What idea does Sagan emphasize with his **repetition** of the statement, “We have made a fool’s bargain”?

5. **Examine an Argument**  Sagan states that as society has evolved, humans have gone from identifying with small groups to identifying with enormous nation-states. How does this idea relate to the main **claim** of his argument?

6. **Interpret a Statement**  What does Sagan mean when he says that “the real triumph of Gettysburg” was the behavior of surviving veterans who attended the 50th anniversary of the battle, in 1913?

7. **Analyze Inductive Reasoning**  Review the graphic organizer you created as you read. Does Sagan provide sufficient **support** for his conclusion about nuclear weapons and **security**? Explain why or why not.

8. **Analyze a Conclusion**  At the end of his speech, Sagan says it is “time to act” to prevent nuclear war. In a chart like the one shown, identify specific actions that individuals and groups can take in response to Sagan’s call for action.

9. **Compare Texts**  Compare and contrast the techniques of argument used in Sagan’s speech and Alan Blinder’s editorial “Abolishing the Penny Makes Good Sense.”

10. **Evaluate Explanations**  Sagan became famous for helping the general public understand scientific concepts. How well does he explain the complex issues involved with nuclear weapons? Cite evidence to support your opinion.