

*A British airman prepares to drop a bomb from the rear cockpit of an airship gondola during World War I. The development of precision guided munitions has greatly reduced civilian casualties caused by airpower.*

UK government photo



# Sanctuary from Above

By Phillip S. Meilinger

**G**ill Elliot, a historian and expert on war casualties, once stated that “technology” killed 46 million noncombatants during the wars of the 20th century. Of these, 24 million were killed by small arms, 18 million by artillery and naval gunfire, three million as a result of “demographic violence,” and less than two million due to air attack. In short, the number of civilians killed by air attack amounted to five percent of the total.

Moreover, since World War II, civilian casualty statistics have declined dramatically. Conflicts of the past three decades have demonstrated a capability to fight effectively with airpower while limiting risk to civilians.

Why is it, then, that airpower is still commonly singled out for criticism as an indiscriminate and reckless way to wage war?

The increasing use of precision weapons and improvements in intelligence-gathering tools has made it easier to discriminate

between military and civilian targets and to strike only the military. Modern air warfare is an increasingly efficient, effective, and humane tool of foreign policy.

World War I saw strategic bombing conducted by all major belligerents, but it claimed only a small number of noncombatants—1,413 dead in Britain, 740 in Germany, and perhaps a few thousand more throughout the rest of Europe.

Nearly 15 million died in the war overall. This carnage had a profound impact on survivors, but by the start of World War II, there were still no universally recognized laws regarding air warfare.

Military commanders applied existing rules regarding war on land and sea. Armies

could legally bombard a defended fortress containing civilians, and there were numerous examples of this over the previous century. Using these precedents, airmen reasoned that when Allied bombers flew over German-occupied Europe and were shot at by tens of thousands of anti-aircraft guns and intercepted by hundreds of enemy fighters, all of Nazi-occupied Europe was, in effect, a “defended fortress.”

International law also permitted navies to shell undefended fortresses and cities in order to destroy the military stores and facilities they contained. Because navies could not occupy a port as could an army, sailors were given wider latitude in shelling civil-



**A 2,000-pound inert laser guided bomb precisely hits its target after being dropped from an altitude of some 4,000 feet during testing in the 1970s.**

ians. Aircraft, like ships, could not occupy a city, so were the permissive rules of sea warfare more applicable to air warfare?

Doctrinally, air leaders in Britain and the US rejected the bombing of cities. Both the Royal Air Force and the US Army Air Forces entered World War II stressing precision bombing of enemy industrial centers. The RAF operations manual stated that the civilian populace was not a legitimate target and area bombing was rejected.

In August 1939, the British Chief of the Air Staff messaged Bomber Command that “we should not initiate air action against other than purely military objectives in the narrowest sense of the word, i.e., navy, army, and air forces and establishments, and that as far as possible we should confine it to objectives on which attack will not involve loss of civil life.”

War’s realities would soon put these idealistic goals to the test.

Bombing doctrine in the US was similar. Officers at the Air Corps Tactical School believed that a country’s economy was complex but fragile. Key nodes within that economy, such as the transportation system or specific factories manufacturing crucial industrial components, were disproportionately vital. If this industrial web were disrupted, the entire system might collapse. The doctrine the AAF took into the war made no mention of targeting population centers.

World War II proved to be far different than predicted. The fall of France in June 1940 left Britain alone against Germany, which soon began its blitz

against British cities. For its part, RAF operations quickly demonstrated that prewar doctrine was unrealistic. British bombers were too small, too slow, too vulnerable, and too few. German fighters and anti-aircraft guns decimated the attackers, so Bomber Command retreated to the safety of the night, something for which it was neither trained nor equipped. Worse, bad weather affected navigation, target acquisition, and bombing accuracy. Although Britain’s intent was precision bombing, in practice it became area bombing.

## Airpower is probably the most discriminate weapon that exists.

By early 1942 the RAF’s night offensive was targeting German cities, partly due to poor bombing accuracy and partly in retaliation for attacks on British cities by the Luftwaffe. The German raid on Coventry in November 1940 was a turning point: Prime Minister Winston Churchill then directed the RAF to aim for city centers on missions over Germany. Air Marshal Arthur Harris, who took over Bomber Command in February 1942, agreed with the concept of area attacks dictated by his civilian superiors.

US air doctrine also evolved during the war. AAF losses in daylight strikes were severe: On the Schweinfurt mission of Oct. 14, 1943, 60 B-17s and more than 600 crewmen were lost—more than 20 percent of the attacking force.

Nonetheless, American air leaders clung to daylight precision bombing doctrine. An invasion of France offered no hope of success before mid-1944, and something had to be done in the meantime to take the war into Germany and relieve pressure on the Soviets.

The Pacific air campaign also posed problems for the AAF. Bombing accuracy was worse than in Europe because of the greater distances involved and the 200 mph jet stream at 35,000 feet, where the B-29s generally flew. In addition, Allied intelligence concerning Japan’s economy was inadequate and precision targets were simply not available. Area bombing that could be done at night and at low altitude—with less risk to the attackers—was necessary.

Japan was a tenacious opponent: More than 20,000 Americans died at Iwo Jima and Okinawa, as did nearly 150,000 Japanese defenders. Moreover, on Okinawa more than 160,000 civilians died—caught in the crossfire between the opposing armies. The planned invasions of the home islands would have cost millions of American and Japanese lives.

Air attacks, culminating in the two atomic strikes, most likely left fewer dead in Japan than would have been killed by a bloody land campaign, a naval blockade, and disease and starvation in the civilian population.

Perhaps 40 million civilians died during World War II, but even if Elliot’s maximum of two million dead due to air attack is

used, it means that 95 percent of the civilians killed in World War II were claimed by starvation, disease, genocide, and the traditional means of land and sea warfare.

The plight of civilians under air attack improved after 1945, although many non-combatants died in both the Korean and Vietnam Wars. Statistics for the Korean War are unreliable, but Guenter Lewy, a political scientist, provides plausible figures for Vietnam, arguing that 25 percent of Vietnamese civilian deaths were caused by air attacks—the other 75 percent, more than 440,000 people, were killed by ground or naval action.

### THE DAWN OF PRECISION

Since Vietnam, the number of civilian casualties has dropped dramatically in conflicts involving the US.



*World War II saw enormous collateral damage. Top: US soldiers train a 155 mm howitzer artillery gun on the town of Cherbourg, France, during an advance. Such weapons were powerful, but indiscriminate. Bottom: The French town of Montebourg after being subjected to artillery fire and bombing.*



File photos

In the 1991 Gulf War, Greenpeace estimated that 5,000 Iraqi civilians were killed by air, but other researchers put the figure at less than 1,000. Although thousands of tons of bombs were dropped, damage to the civilian population was minor, amazing some Western observers.

Milton Viorst, an American journalist, wrote: “Oddly, it seemed, there was no Second World War-style urban destruction, despite the tons of explosives that had fallen. Instead, with meticulous care—one might almost call it artistry—American aircraft had taken out telecommunications facilities, transportation links, key government offices, and, most painful of all, electrical generating plants.”

In 1995 NATO intervened to halt fighting in Bosnia. According to Serbian President Slobodan Milosevic, 25 civilians died during NATO’s three-week air campaign. To stop the ethnic cleansing by the Serbs in Kosovo, in 1999 NATO launched a 78-day air campaign after which Milosevic capitulated. Despite the duration and intensity of this air campaign, Human Rights Watch estimated that fewer than 500 civilians were killed.

Statistics for the wars in Afghanistan and Iraq run anywhere from 500 to 1,300 dead in Afghanistan through 2002, and

from 3,000 to 7,000 dead during the first six months of the Iraq campaign, the major, traditional combat portions of the wars in those countries. Human Rights Watch states that “the ground war caused the vast majority of deaths,” noting for example that at al Hillah, a city in central Iraq, ground-launched cluster munitions caused 90 percent of all civilian casualties.

Another account of civilian casualties is provided by Iraq Body Count, an online database of violent civilian deaths since the 2003 invasion. The site determined that around 85,000 Iraqi civilians died as a result of the war up through 2008. Of these, about 9,500 were the result of air strikes—11.3 percent of the total. Significantly, not only did the number of civilian deaths decrease after 2005, but the percentage of deaths attributable to air attack also decreased—to 2.6 percent.

In other words, more than 97 percent of the estimated 60,922 Iraqi civilians killed after 2005 were the victims of ground warfare.

### **PRECISE AGAINST ISIS**

Joint Chiefs of Staff Chairman Gen. Martin E. Dempsey testified before Congress last fall that in Iraq today, “The thing that will cause the Sunni

population to actually take heart and actually reject [ISIS] is if we are very careful not to create circumstances of civilian casualties. . . . We have got to be very, very deliberate and very precise in our air campaign.”

The remarkable drop in casualties due to air warfare has become the norm and the expectation. It is largely the result of precision guided munitions, cautious rules of engagement, and advanced communications networks and sensors.

Although PGMs were used in the Vietnam War, Desert Storm was the first conflict in which they played a major role. Cockpit videos that tracked laser bombs showed the world memorable film clips of bombs flying down airshafts and through bunker doors. Following Desert Storm, PGM use increased in Kosovo, Afghanistan, and Iraq. The types of PGMs also expanded and were improved for greater accuracy and flexibility. The GPS-aided Joint Direct Attack Munition, which can bomb through clouds or sandstorms, made its debut over Kosovo. Since then, a laser guided JDAM had been developed permitting precision strike against moving targets. This dual-seeker weapon was first employed in Iraq in August 2008. The standard figure given for JDAM accuracy is five meters, or 16 feet, but those employing the weapons say accuracy is far better than advertised.

Yet PGMs are only as good as the intelligence used to guide them. To address this issue, sensors have grown both in number and resolution capability. Space-based cameras and radar produce resolutions of a few feet. Airborne sensors have a similar performance, and spotters on the ground have GPS range finders and laser designators to mark targets.

The impact of PGMs has been profound. One precision weapon is equivalent to hundreds of unguided bombs in the effects that it achieves—neutralizing the target. Besides lowering the risk to the attacking aircrew, PGMs dramatically reduce collateral damage.

A difficulty arises when attacking mobile targets, where identification is key.

On April 14, 1999, near Djakovica, Kosovo, NATO pilots attacked what intelligence sources had identified as a military convoy. It is now known that the convoy

also contained refugees—the Serbs had illegally commingled military and civilian vehicles. As a result, several dozen civilians were killed in air strikes.

Could this accident have been avoided if aircraft had flown at a lower altitude to allow better identification? Perhaps. But there is a tradeoff in such instances: If flying lower increases the risk to aircrews, at what point does the danger of misidentifying a target override the risk of losing a plane and its crew? If friendly losses meant the shattering of the Alliance—a major consideration, according to the NATO commander, Gen. Wesley Clark—were they preferable to Milosevic continuing his atrocities unchecked?

### TROOPS IN CONTACT

A major problem for air planners concerns the military commander's need to protect the lives of his forces and not put them at undue risk, while simultaneously limiting noncombatant casualties. Terrorists and insurgents deliberately commingle military targets with civilians, aggravating this dilemma. Such illegal tactics include placing surface-to-air missile sites near hospitals and schools, installing a military communications center in the basement of a hotel, or using civilian refugees as shields, as the Serbs did in a military encampment in the woods near Korisa, and as Saddam Hussein's "Fedayeen" did south of Baghdad in 2003.

Targeting lies at the heart of this issue. Some targets are preplanned while pop-up or fleeting targets allow little time for analysis.

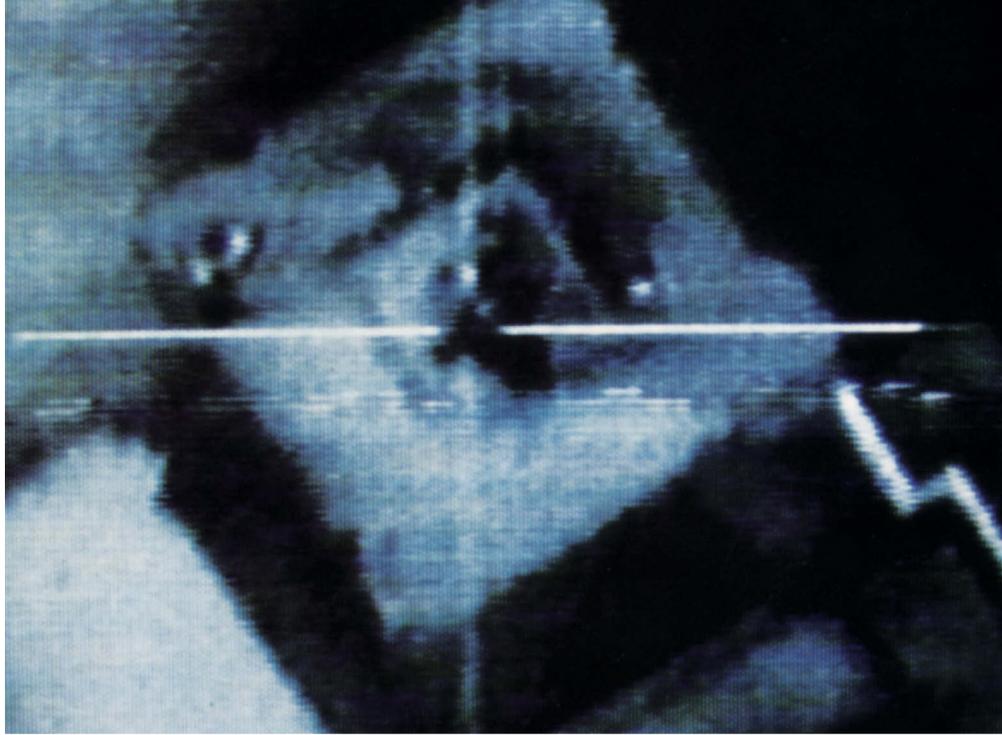
A more significant problem is when friendly troops are being attacked by enemy ground forces. This situation, termed "troops in contact," has proved thorny. Preplanned targets are vetted in advance to ensure intelligence has identified the correct target and that collateral damage will be held to a minimum. In a troops-in-contact situation these safeguards are often bypassed.

Ground forces under attack often call in air strikes to assist them. A responding aircraft will be given the location of the enemy—it may be GPS coordinates, but may simply be the location of a building where enemy fire is originating. Aircrews then try to identify the enemy and deploy weapons so as to protect friendly ground forces in trouble.

It is in this situation where most mistakes occur.

The Air Force realizes this, and its new doctrine manual on the subject stresses that "civilian casualties should be considered a critical vulnerability" and that "risk as-

File photo



An F-117 hones in with precision guided weapons on a target in downtown Baghdad on Jan. 17, 1991. The target is seen through the F-117's strike camera.

sessments" are the responsibility of the supported commander. In other words, if ground forces find themselves in trouble and demand air support, it is their responsibility to ensure they designate the correct targets to minimize collateral damage.

Human Rights Watch studied collateral damage incidents in Afghanistan and determined that the vast majority of cases involving air-delivered weapons causing civilian casualties were troops-in-contact situations. The statistics are compelling. In the 35 air strikes that caused collateral damage during 2006 and 2007, only two occurred as a result of preplanned strikes.

Thus, over 95 percent involved troops in contact—those instances when the rigorous safeguards taken at the air operations center to avoid such mistakes needed to be bypassed. Given that there were 5,342 air strikes flown by coalition air forces that dropped "major munitions" during those two years, the number causing collateral damage was a mere two-thirds of one percent of the total. Any mistake can be tragic, but that is still a remarkably small number.

The problem is fundamental: There are friendly troops present. When ground forces are put in harm's way, it is inevitable they will be attacked and then call for help from the air. The potential for making fatal mistakes then comes into play.

The solution to lowering casualties seems apparent, and is the approach being used by the Obama Administration against ISIS today: Avoid putting in ground forces.

Civilians have always suffered the most in war, especially from the traditional forms of land and sea warfare. During the last century, the worst indiscriminate killers included unrestricted submarine warfare, landmines, blockades, sanctions, sieges, artillery barrages, starvation, and genocide.

Centuries of evidence show that blockades, sanctions, and sieges have a percolating effect: They start killing at the bottom levels of society and slowly work their way upward. Countries at war will protect whatever allows them to continue the fight. They will sacrifice the weakest segments of society so that the strong can fight on.

If it is the intent is to lower collateral damage to noncombatants in war, then the past century has clearly shown that airpower, in the words of Marc Garlasco, then a senior military expert at Human Rights Watch, is "probably the most discriminate weapon that exists."

Clearly, the events of the past three decades have demonstrated the discriminate and precise nature of air warfare as conducted by the US and its allies. The challenge is to fight with restraint while still achieving the desired military and political objectives. Airpower offers the greatest possibility of achieving those goals. ✪

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