

GAZA AND THE BOMBING OF CITIES AND CIVILIANS

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The devastating air attacks on Gaza raise yet again the question of how bombing attacks on cities with their civilian casualties came to be legitimized. How is it that Hamas, known for its deliberate placement of military facilities in populated areas, has not been universally criticized? Estimates of the number of civilians killed in Gaza vary and the data often come from Palestinian sources in Gaza. What percentage of the deaths are truly civilian? How much of the data, if it truly exists, has been manipulated up or down for political purposes? These questions are unlikely to have authoritative answers any time soon. But even using these suspect data, an idea of whether the number of civilians killed is unusual might be had from looking at some past history and the data available from there.

In the 1930s, before the beginning of WW-II, Prime Minister Neville Chamberlain of Britain made a parliamentary speech where he declared that it was “against international law to bomb civilians as such and to make deliberate attacks on the civilian population.” U.S. President Franklin Roosevelt called civilian bombing “inhuman barbarism.”

How was it then that cities and their populations during WW-II became military targets in violation of international conventions? WW-II gives an example of what might be called the technological imperative.

The bombing of civilians was inevitable given the development of the airplane. However, historically—and ironically—it began as an accident in 1940 when a lost German pilot bombed non-military sections of London. In retaliation, the British bombed Berlin the next day. And in response Hitler ordered the full-scale bombing of London and other cities.

Not so long ago I had the opportunity of visiting a number of Japanese cities and as I toured four of the islands of Japan, I noticed that many of the ancient sites I was seeing had been rebuilt sometime in the 1950s or 1960s. The reason finally struck me: the firebombing during WW-II. Around 100,000 tons of incendiaries were dropped between March and July of 1945 on sixty some Japanese cities. How this came about is an interesting story from the early days of operations analysis.

General Curtis Lemay had finally succeeded in acquiring an airplane that could penetrate Japanese air defenses—at a cost greater than that of the Manhattan Project—only to find that it was not very effective in destroying Japan’s military capacity and will to fight. The B-29 was designed for high-altitude, daylight precision bombardment, using high-explosive bombs dropped from heavily armed formations of planes able to defend themselves. When Lemay asked the operations research people to examine the problem of the bomber’s ineffectiveness, they recommended nighttime carpet-bombing of Japanese cities with incendiaries rather than precision bombing of war-supporting industries (remember, in those days precision bombing meant you were lucky if you could hit a building). Here we have an example of both a policy decision—the idea being to raise the human toll and thus weaken the will to fight—and a technological imperative since precision bombing with high explosives was unable to destroy Japan’s war supporting industry. The change to incendiaries where at nighttime one couldn't even attempt to aim is one of the first examples of the deliberately targeting civilians.

Despite the euphemisms such as "collateral damage", the bombing of targets where there are high density civilian populations is now commonplace in warfare. Given the number of civilian deaths in the current Israeli war in Gaza and the claims that the number of deaths is outrageous, it is important to make a comparison with past wars. The comparison to be used here is the percentage of civilian deaths of the population in a given target area. This approach will be used to compare the number of civilian deaths in Gaza with the bombing of Japan and Britain in WW-II.

Japanese civilian casualty estimates range from about half a million to well over a million. There is an estimate that one night's incendiary bombing of Tokyo killed more than 80,000 civilians. Some 10 to 20 million people were also rendered homeless. This should be compared with the approximately 350,000 people who ultimately lost their lives as a result of the bombings of Hiroshima *and* Nagasaki.

The population of Tokyo in 1940 was 6.7 million and the number killed by the U.S. in the period 1944-1945 was between 75,000 and 125,000. Choosing the midrange number of 100,000, the percentage of the population killed was some 1.5%.

Later in the war the U.S. Army Air Force joined the strategic bombing campaign of Britain. Together the "strategic bombing" policy led to the U.S. and Britain dropping thousands of incendiary bombs on the cities of Dresden, Hamburg and Cologne resulting in huge civilian casualties. It is not possible to find an exact accounting, but over 130 German cities were completely destroyed. Estimates of the casualties are in the range of 0.3-0.6 million killed, which would generally, using the three to one ratio, mean up to 1.8 million injured. Some 7.5 million were left homeless. Enough data is unavailable to find the percentage of the civilian population killed by the bombing.

Even though warning was not given to the population, the Coventry Blitz in 1940, where a mix of high-explosive and incendiary bombs were dropped on the city, killed only about 0.2% of the population. The reason is that there were many civilian air raid shelters.

Returning to the war in Gaza, the only information we have of Palestinian deaths comes from the U.N. Office for the Coordination of Humanitarian Affairs and the Hamas controlled Palestinian Ministry of Health. The number given as of 25 March 2024 was about 33,000 with no distinction between Hamas and Palestinian civilian deaths. The total population of Gaza given by the CIA is about 2 million. The Gaza war as of 25 March 2024 has then killed some 1.6% of the population. This is somewhat greater than the Tokyo example of 1.5% above.

This raises the question as to whether these two cases are even comparable given that the bombing in the Gaza war uses high-explosives and Tokyo was bombed with incendiaries, which caused a general conflagration but not a firestorm because of strong prevailing winds. Had this not been the case the two would likely not be comparable. But since it was the case, it is legitimate to compare them.

There are two major factors for the high percentage of deaths in Gaza. By counting the number of large craters in Gaza (40 feet or greater in diameter), it has been estimated that Israel dropped some five hundred 2000 lb "bunker busting bombs", and the second factor was the placement by Hamas of military facilities in high population density areas. It has been argued in the media that the high yield bombs are the reason for the high civilian casualty rate.

Here is the reason that the placement of military facilities by Hamas in a high population area is the most important factor: since the damage radius of a bomb only increases as the cube root

of the weapon's explosive yield, a ten-fold increase in weapon yield increases the radius of destruction by only a little over a factor of two. As an example, going from a 200 lb bomb to a 2000 lb bomb does not have a 10-fold increase in damage radius. The use of smaller yield weapons by Israel would have had little effect on the number of civilian casualties. It would, however, have greatly decreased the effectiveness of destroying buried targets such as the tunnels that Hamas uses for transport as well as the protection of its military facilities.

In summary, while the killing of civilians is indeed what President Franklin Roosevelt called an “inhuman barbarism,” it is now accepted in warfare for the reasons given above. The war in Gaza was due to the Hamas attack against Israel on October 7, 2023, and the horrendous and barbaric torture and killing of civilians.

As to the intensity of the Israel's response, keep in mind that the deaths of some 1200 Israeli civilians and the more than 240 people taken hostage by Hamas made this the worst day for Israel since its birth in 1948. Proportionately, the attack on Israel is comparable to the attack on the World Trade Center on September 11, 2001 that was responsible for the American led Global War on Terror.

The number of civilian deaths in Gaza is not exceptionally high given comparison with past wars. The number would be less if it was not for the well-known policy of Hamas to deliberately place military facilities in high population density areas.