

The History of the Twentieth Century

Episode 355

“Reap the Whirlwind”

Transcript

[music: Fanfare]

“The Nazis entered this war under the rather childish delusion that they were going to bomb everyone else, and nobody was going to bomb them. At Rotterdam, London, Warsaw, and half a hundred other places, they put their rather naive theory into operation. They sowed the wind, and now they are going to reap the whirlwind.”

British Air Marshal Arthur Harris.

Welcome to *The History of the Twentieth Century*.

[music: Opening War Theme]

Episode 355. Reap the Whirlwind.

Back in the good old days, before the war, I spoke about aerial bombing, which was at that time a new and untried form of warfare. From the beginning, it was clear that bombers could potentially be used to attack innocent civilians far behind the front lines, a thought that filled most people with horror. Military analysts imagined dreadfully destructive bombing attacks that would in a matter of days or weeks destroy an enemy nation's ability to fight, perhaps even bomb it back to a preindustrial economy.

Only a ruthless, barbaric nation would resort to such mass slaughter of civilians, went the thinking. A civilized nation would restrict its bombing to military targets, in the same way that soldiers are only supposed to shoot at other soldiers in uniform, and not at civilian noncombatants.

In August 1939, the British Air Ministry set out the rules for air warfare. Intentional targeting of civilians was banned. Only identifiable military targets could be attacked. The Air Ministry even declared that bombing through clouds or at night should be prohibited. Even if it were believed that a military target was down there somewhere, risking the lives of civilians by bombing blind and hoping to hit it by sheer luck was unacceptable.

If the enemy did not reciprocate, and went ahead and bombed without regard for civilian lives, that might be different, but it was important that the RAF restrain itself until that happened. If it did happen, in the Ministry's words, then the RAF could "take the gloves off."

In 1936, separate commands were organized within the RAF: Fighter Command and Bomber Command. The first would be responsible for the defense of Britain; the second would be the RAF's offensive arm. This was different from the German Luftwaffe or the United States Army Air Corps, which distributed their bombers among multiple commands.

You'll recall what I said about separate air forces back in episode 327. Once they are formed, they have a political-bureaucratic incentive to focus on strategic bombing, which they can conduct independent of the other services, as opposed to ground support operations or attacks on ships at sea; these by their nature encourage the subordination of the air units to the Army or Navy, respectively.

This was particularly true of the RAF Bomber Command. What was it for, if not for strategic bombing behind enemy lines? Close air support? Pshaw.

When the war began in September 1939, the air forces of all three major combatants—France, Germany, and Britain—restrained themselves from strategic bombing missions that might put civilians at risk, out of fear that this would provoke the enemy into retaliatory strikes on their own cities. The French were particularly adamant about this, as they were right next door to Germany and Germany had the larger air force. The French and British militaries agreed between themselves not to strike at targets in German cities, as the German response was likely to be terrible.

The Germans also honored this unspoken agreement, at first, although it did not stop them from bombing civilian targets in Poland, a nation that lacked the capacity to retaliate. The Polish government urged their western allies to bomb Germany on their behalf, to no avail.

This put RAF Bomber Command in the peculiar position of being restrained from doing the very thing they had spent years of planning and training to prepare themselves for. The Western Allies did agree to unleash their bombers in certain dire eventualities: a German invasion of Belgium, for instance, or a German offensive that threatened to overwhelm the Franco-British defenders.

In May 1940, both of those red lines were crossed, and if that wasn't enough, the Luftwaffe had savagely and indiscriminately bombed the Dutch city of Rotterdam. Was it the one, or the other, or was it that the Chamberlain government fell and was replaced by the more aggressive Churchill government that finally convinced the British to cry "Havoc!" and unleash the dogs of war? Most likely a bit of all three. Even then, the French remained reluctant.

Bomber Command was now cleared to bomb military and economic targets in Germany, even at the risk of civilian casualties; intentional targeting of civilians remained forbidden. When the

Battle of Britain began, the Luftwaffe was under similar constraints. Neither side could avoid collateral civilian deaths; each side accused the other of deliberately targeting civilians.

In September 1940, the German bombing campaign became the Blitz. Indisputably, the Luftwaffe was now deliberately targeting civilians.

British propaganda emphasized that Germany had a history of attacking civilians by air. The Germans had dropped bombs on Britain from Zeppelins in the last war, and who could forget Guernica? What about Warsaw, Rotterdam, or Coventry? Obviously, the Germans had no scruples about bombing civilians, and they never had. Hence the use of the pejorative “Huns” to describe the Germans, invented in the last war and revived for this one, meant to imply that the Germans were barbarians.

In addition to the simple argument that deliberate attacks on our civilians justify use of the same tactic in retaliation, there was a more complex moral argument. Hitler was an extraordinary threat, and not only to Britain, but to the entire world; therefore, extraordinary means were justified to defeat him.

Within the British government and military, advocates for bombing raids in Germany offered studies. These studies argued that German industry was concentrated in the Ruhr region, easily reached by British bombers. German industry was also brittle and stretched to the limit to maintain the German war effort, these studies claimed; it wouldn't take much to disrupt it. It was estimated that 4,000 bombing sorties would be enough to destroy Germany's ability to wage war.

But once Bomber Command was off the leash, it quickly became clear how wildly optimistic these claims were. The RAF had fewer than 300 bombers, and in practice, bombing accuracy was nothing like the reassuring estimates in those studies, especially since Bomber Command bombed at night. It was safer to fly over Germany by night, but obviously that came at a cost in accuracy.

Safety trumped accuracy, because the RAF was learning the same lesson the Luftwaffe learned during the Battle of Britain: that strategic bombing leads to heavy losses of bombers and their crews. Back in episode 328, I told you how Winston Churchill ordered the bombing of Berlin for the first time on November 7, 1940, to coincide with the visit of Soviet foreign minister Vyacheslav Molotov for talks with the German government. The attack succeeded in its main goal, which was to demonstrate to Molotov that Britain was still very much in the war, but of the 169 bombers sent to Berlin, only 73 found the city, and only 52 returned. In exchange for this heavy price, the RAF killed nine people and destroyed 14 houses. It had been a costly raid, and the RAF would not attempt to bomb Berlin again until 1943.

In November, following the bombing of Coventry, the British War Cabinet for the first time approved the use of bombing as pure retaliation; that is, to avenge bombing attacks on British cities by striking back at German ones. The first city chosen for a retaliatory strike was

Mannheim, and a plan was drawn up to strike that city with over 200 bombers on the night of December 16. Bad weather reduced the number of planes to barely 100, and the bombings were wildly inaccurate. Mannheim suffered 34 deaths; compare that to 554 in Coventry.

This result disappointed the War Cabinet, which suspended city bombing for the time being. Bomber Command attempted Winston Churchill's pet idea, dropping incendiaries on Germany's famous and beloved forests to trigger widespread forest fires. The incendiaries failed to produce the huge fires Churchill had hoped for. German forests were too damp.

In December, came a report which concluded that the RAF's heretofore minor bombing attacks against Germany's synthetic oil plants in the Ruhr had reduced German fuel supplies by 15 percent. That was remarkable news, and the Cabinet ordered a vigorous bombing campaign against those fuel plants.

As a side note, one of the ways Germany supplied the Wehrmacht with fuel was through the use of synthetic oil plants, which converted domestically mined coal into hydrocarbon fuels. The process is particularly useful for producing aviation fuel. Construction of these plants had been a key part of the Four-Year Plan.

The campaign against the oil plants was a complete failure. The RAF simply wasn't accurate enough to hit individual buildings, and the December report's conclusions were revealed to be far too optimistic.

By spring of 1941, Bomber Command was primarily targeting German naval facilities as part of the British effort to fight back against the U-boat campaign. Compared to oil plants, warships and port facilities and submarine pens were easier to find at least, but these attacks didn't produce much in the way of results either.

In June, the Air Ministry came up with a plan that had the advantage of combining the principle of striking at economic targets with the desire to avenge last year's Luftwaffe strikes on English cities. The proposal was that Bomber Command target railway transport in the Ruhr region of Germany, and specifically rail yards and facilities inside large cities. That way, if the bombs missed the rail yard, which most of them would, they would land on nearby industry or residential neighborhoods, and in the latter case erode the morale of the German public, while still allowing Bomber Command to claim publicly that they were only targeting railroads, not people.

The British government and the RAF were coming around to the view that the war would have to be taken to the German people themselves, and this view would remain part of British bombing strategy for the rest of the war.

To put it another way, the British were drawing the same conclusion that the Germans had drawn after the first two months of the Battle of Britain, that area bombing of densely populated cities

was the most effective use of their bombers. There is a huge irony in this decision, and maybe you've already spotted it. The British, above all other people in the world, ought to know the limits of what can be accomplished by strategic bombing. Back when I talked about the Battle of Britain, episode 328, I began by reminding you about pre-war theories of strategic bombing—The bomber will always get through, and all that—and remarked that the Luftwaffe was making the first ever attempt to put these theories into practice and defeat the UK solely with strategic bombing.

And it didn't work. In economic terms, the British experience was that even when a city was heavily bombed, production bounced back to normal in a week or less. Civilian deaths over the one-year period from July 1940 through June 1941 numbered more than 40,000, a terrible number, but the British economy was barely affected and the British public emerged from the nightmare with their morale and their commitment to the war strengthened, if anything. Nevertheless, the RAF would make an attempt to succeed where the Luftwaffe had failed, and defeat Germany by strategic bombing.

When Winston Churchill and Franklin Roosevelt held their summit meeting in Newfoundland that August, American military leaders raised this very objection to their British counterparts. German bombers couldn't defeat you; what makes you think that British bombers could defeat them? The British response was something like, "Well, German civilians lack the fortitude and pluck that the British are famous for." Senior RAF commanders were convinced that the German public would not be able to endure anything like what the Luftwaffe had put the British public through. This was not so much a conclusion drawn from observation as it was a proclamation of faith.

We all know that the nature of the Second World War changed drastically on June 22, 1941. The British public got a hint that something was up earlier in the month, when German bombings tapered off to nothing, as the Luftwaffe was redeployed to support Operation Barbarossa in the East. The day of the German invasion, Churchill addressed the nation on the wireless, pledging to support the Soviet Union generally; one of his specific pledges was "to bomb Germany by day as well as by night with ever-increasing measure."

In their private communications, Churchill told Stalin that strategic bombing of Germany was the most important way Britain could aid the USSR in the fight against its invaders. The British bombing campaign would at the very least force the Luftwaffe to keep some of its fighters in western Germany as well as some of its fearsome 88mm anti-aircraft guns. Remember those 88s were virtually the only weapon that could damage one of the heavy Soviet KV-2 tanks, so every one of them assigned to aerial defense of a German city amounted to a net gain of several tanks for the Red Army.

In the back of Churchill's mind was the thought that bombing Germany was a way of keeping the Soviets in the war. In the back of everyone's mind was the thought that if the USSR collapsed, the British could expect the Luftwaffe to turn its attention on them once again.

Before the war, the German-born British physicist Frederick Lindemann had been a member of Sir Henry Tizard's committee of scientists tasked with investigating possible defenses against German bombing, from which came the development of radar. He was also close friends with Winston Churchill, and became science advisor to the Churchill government in 1940.

Lindemann set up a statistical analysis agency within the government populated by economists and known as S-Branch. S-Branch used its statistical analysis capabilities to evaluate relative efficiency and effectiveness of military and economic projects to determine where the government should invest its resources. How to get the biggest bang for the buck, as we Americans like to say.

In July, Lindemann, now Lord Cherwell, and S-Branch turned their attention to the question of how effective the RAF bombing campaign over Germany truly was, with the goal of calculating the first real, scientific, data-supported answer. To collect this data, the RAF developed bomber cameras capable of taking photographs of the ground below at night. This involved dropping a flare as a sort of giant flashbulb and triggering the camera shutter just as the flare lit. This was always a difficult process. Pilots disliked that they were required to fly straight and level while the photograph was being taken. Features such as clouds of smoke, searchlights, and anti-aircraft fire confused the picture and made analysis challenging.

An economist and civil servant named David Bensusan-Butt (I hope I pronounced that correctly) analyzed over 600 photographs taken by the RAF in June and July 1941, and on August 18, released a report of the results. Bear in mind that two-thirds of British bomber crews came home acknowledging that they weren't able to find their targets at all. The report didn't consider those sorties; only the ones in which the bomber crew reported locating and bombing the intended target.

The analysis was positively damning. It showed that in bombing raids over Germany, only one out of four aircraft that reported bombing the target were able to place their bombs within five miles. In the Ruhr region, the number was one in ten. When there was no moon in the sky, the figure was one in fifteen.

Was this any way to run a war?

Predictably, the RAF responded by criticizing the methodology of the report, and Lord Cherwell conceded there were issues. Even so, Bomber Command was already aware that accuracy was a problem. How do you hit a target at night, when you can't see it? Given the fact that Bomber Command's usual procedure was to split their bombers into small groups and attack multiple

targets on one night, it seemed likely that in many cases, these small strikes were not hitting their targets at all. Not with a single bomb.

In the aftermath of the report, the RAF continued to collect data on bomber accuracy for the rest of 1941. The follow-up studies concluded that, if anything, the original report had been too generous.

A frustrated Winston Churchill reminded the overall commander of the RAF, Air Chief Marshal Sir Charles Portal, of the RAF's pre-war claims of how chillingly devastating strategic bombing against cities would be. Reality was falling far short of those claims. Churchill noted that these grim predictions were a factor in the reluctance of previous British and French governments to confront Germany and especially in the French and British abandonment of Czechoslovakia in 1938. Portal could only reply by noting that the British Army wasn't going to be fighting on the Continent anytime soon; only the RAF Bomber Command had the capability of hitting back at the Germans for the foreseeable future.

Apart from accuracy, training was also a problem for Bomber Command. Over the course of 1941, the Germans got better at air defense. Losses mounted, requiring programs to train replacements, except now the new recruits also had to be taught what to expect in the way of German defenses and how to deal with them. This would take more time. Also, training inevitably meant accidents. Bomber Command regularly lost more bombers in accidents than it did on bombing missions. From July to December 1941, the number of sorties flown and the tonnage of bombs dropped steadily decreased. July saw nearly 4,000 sorties delivering 4,400 tons of bombs. December saw 1,500 sorties delivering 1000 tons.

By the end of the year 1941, Bomber Command was in crisis. Something had to change. One desperately needed improvement was better bombers; bombers that could carry heavier bomb loads over longer distances.

Fortunately for the RAF, a new generation of bombers was entering production, from designs first conceived in 1936, when the British government began building up the RAF. There was the Short Stirling, the first four-engine bomber to fly with the RAF. It had a range of 2,300 miles, or 3,700 kilometers, and could carry a seven ton load. These numbers exceeded even the capacity of the Americans' vaunted B-17 Flying Fortress. There was also the Handley Page Halifax, which had a more limited range than the Stirling but could carry a comparable load.

Best of all, there was the Avro Lancaster, with a range of 2,500 miles and a bomb capacity as high as 11 tons, although a load that heavy substantially reduced the range. Still, the Lancaster was faster, had more range, and could carry a bigger load than anything else flying at the time, although in defense of the B-17, let me point out that the American bomber had a much higher ceiling, up to 35,000 feet, compared with the Lancaster's 21,000.

These were serious bombers, with capacities four to five times what the Luftwaffe's bombers could manage. The only problem was that there weren't enough of them. Back in 1940, during the Blitz, bomber production had to be sidelined for the sake of fighter production. The new bombers only began to enter service in 1941, and even then there were technical problems that needed to be ironed out.

Bomber Command also needed to address this nagging problem of accuracy, now that it had been revealed to be embarrassingly low. Even worse was the navigation problem. Remember that two-thirds of British bomber crews reported they couldn't even find the *city* they were supposed to be bombing.

Yes, Bomber Command needed an overhaul. Bomber Command needed a new strategy.

Bomber Command needed new leadership.

[music: Holst, "Dance to the Spirits of Fire" from *The Perfect Fool*.]

Arthur Harris was born on April 13, 1892 in Gloucestershire, England. At the age of 17, he emigrated to Rhodesia and considered himself primarily Rhodesian thereafter. In the First World War he served in a Rhodesian regiment that fought in South-West Africa alongside the South African Army.

After that campaign ended in 1915, he traveled to England, hoping to serve with the British Army in Europe. Instead, he found himself in the Royal Flying Corps, where he served with distinction. At the end of the war, he chose to remain in what was now the Royal Air Force. In that capacity, he led bombing campaigns against uprisings by the Iraqis and other Arabs in the Twenties.

In the late Thirties, he was in the Middle East Command during the Palestinian Arab Revolt. His suggested solution to that conflict was "one 250 lb or 500 lb bomb in each village that speaks out of turn." He also advocated within the RAF for the development of these new generation of heavy bombers, the ones I told you about earlier.

On the day of the attack on Pearl Harbor, Harris was in Washington, negotiating with the Americans to supply aircraft to the RAF. Harris disliked Americans, whom he privately dismissed as "arrogant as to their own ability and infallibility..." In the aftermath of the attack, US Secretary of War Henry Stimson asked Harris if the RAF would return the 250 American aircraft already supplied to it. America now needed them in the Pacific.

In January 1942, while Churchill and his military leaders were in Washington for talks with the Americans, the Chief of the Air Staff, Air Chief Marshal Sir Charles Portal, asked Harris to take over Bomber Command. The current commander, Air Marshal Sir Richard Peirse was dismissed, owing to the disappointing performance of Bomber Command under his leadership. Harris's appointment became effective upon his return to Britain in February.

In March 1942, Baron Cherwell sent the prime minister a memorandum endorsing what was delicately called “dehousing.” As the memo put it: “Investigation seems to show that having one’s home demolished is most damaging to morale. People seem to mind it more than having their friends or even relatives killed...” Poor morale would mean lower production. Of course, bombing homes at night could be expected to kill or injure the family living there, which might be regrettable, but that was not the purpose of the bombing. The purpose was “dehousing.”

Harris had no problem whatsoever with this. Shortly after assuming his new command, he made the comment I quoted at the top of the episode, essentially saying that the Germans had it coming. He dismissed those within the RAF who objected to targeting civilians as “weak sisters” and civilians who opposed the strategy as “fifth columnists.” He resented that the Churchill government kept the new strategy secret and publicly continued to insist that it was only bombing economic targets and civilian casualties were merely unfortunate accidents. Harris wanted the Government to openly acknowledge that it was targeting civilians and civilian homes.

Bomber Command had a new leader, and a new strategy. What it still lacked were technologies to improve its accuracy.

First, with regard to procedures, Bomber Command’s evolution in strategy in many ways recapitulated the Luftwaffe’s. The Luftwaffe began its bombing campaign with smaller attacks on specific targets, usually a military facility or a factory that produced airplanes and airplane parts. Then it switched to night bombing to reduce losses, and discovered that hitting a specific target at night was virtually impossible. The Blitz marked a switch to area bombing, in which large numbers of bombers attack not a pinpoint, but an area, in large numbers, generally the densely built center of a city. This increased the chances of hitting something, and the Germans also discovered they suffered fewer losses when they grouped their bombers together over one target, as opposed to conducting many small strikes over different targets.

Area bombing guaranteed civilian casualties, but the Germans, like the British, insisted, at least publicly, that bombing raids were intended to destroy economic targets like factories, and any civilian deaths were a regrettable inevitability. Even the infamous Luftwaffe bombing of Coventry was intended primarily to strike at Coventry’s industries, or so the Germans said.

During the Blitz, the latter part of the Battle of Britain, the Luftwaffe had developed an effective mix of bombs. There were high explosive bombs and there were incendiary bombs, which were much smaller and primarily intended to start fires. Bomber Command also used a mix of bombs, but the Luftwaffe’s experience showed that the most effective mix was a small number of very big bombs, known as “blockbusters,” since they supposedly could damage a whole city block, with large numbers of incendiaries.

The principle was this: the purpose of the blockbusters was to blow out the roofs, windows, and doors of city buildings. The incendiaries then fell inside the buildings, where there was plenty of fuel for the fire, and the openings that used to be doors and windows allowed oxygen to flow into

the building and feed the flames, and then allowed the flames to spread. The blockbusters also were meant to break water mains, so that civilian fire brigades would be unable to fight the fires.

Damage the buildings enough, and then drop enough incendiaries, and you get the conditions for a huge, raging, uncontrollable fire that will burn until it burns itself out, consuming everything but brick and stone. Eventually, these kinds of bombing raids would produce firestorms, a fire so intense that it fuels itself. The fire heats the air above it, which then rises, drawing in cooler fresh air from the surroundings, which feeds the flames.

Igniting such a conflagration was beyond the ability of the Luftwaffe or the RAF in the early years of the war, but beginning in 1943, Allied raids over German and Japanese cities would sometimes spark one of these devastating firestorms.

Then there was the issue of navigation. Bomber Command preferred to bomb cities on the coast, or at least on a big river, because the water could be seen at night, at least in moonlight, but that was hardly a solution.

During the Battle of Britain, the Germans used radio navigation to help Luftwaffe pilots find their targets. This was an offshoot of instrument navigation, a technology developed between the wars that could guide an airplane to a runway using radio beams, even if the pilot could not see the airfield. The German system, called Knickebein, which means crooked leg, was a more sophisticated version of the same technology that employed huge radio antennas capable of sending very narrow beams. Two transmitters widely separated could aim their beams so they would intersect over the target. A bomber could follow one of the beams until it detected the other one, then the crew knew it was time to release the bomb.

The British knew nothing of this system at first, until they noticed the sophisticated detectors aboard captured German bombers. Even with this evidence, many prominent British scientists advising the Government and the Air Ministry could not believe such a system was practical. The British investigated further, a project codenamed Headache. RAF planes loaded with commercial ham radio sets were sent to look for these beams and determined that yes, they were there.

This led to what's been called the Battle of the Beams. The British started a project to devise countermeasures; it was codenamed Aspirin. They found ways to jam the signals and confuse the bomber pilots, and then to broadcast counterfeit signals that could be used to lure a German bomber off course. A side benefit of this latter approach is that these German planes would get lost and have difficulty finding their way back to base. The extra flying might use up their fuel before they could return; there are even cases of German bombers landing at British airfields under the mistaken belief they were in France or Germany.

In 1942, the British began using a comparable technology they called Gee. Unfortunately, this technology had a range limit. German radio stations on the western edge of the country could

broadcast beams that could reach nearly anywhere in England, but the reverse was not true. Gee could guide a plane to a target in western Germany, say, the Ruhr industrial region, but not as far as Berlin.

The British also put to use their more advanced radar technology to develop a ground radar system called H2S. The name was probably derived from “height to slope.” H2S allowed for radar images of the ground even at night and even through cloud cover, which was a boon to bomber navigation.

At first, these new electronic devices were expensive and hard to come by. The RAF couldn’t put them in every plane, so it put them into specialized planes called Pathfinders, that would fly ahead of the other bombers, leading them forward, then drop flares to pinpoint the target. Hey guys, drop your bombs here.

Armed with these new technologies and tactics, Bomber Command began a bombing campaign that would soon put the Luftwaffe to shame.

One of the first bombing raids of Harris’ tenure took place on the night of March 8, when 211 RAF planes bombed the German city of Essen in the Ruhr region, home to the Krupp steel works, known as the “weapons forge of the Reich.” The raid killed ten people and destroyed a few houses. The Krupp works were undamaged.

On the night of March 28, 234 RAF planes bombed the port city of Lübeck, on the Baltic Sea. Lübeck was beyond the range of the Gee navigation beams, but its distinctive geography made it hard to miss. The city was built on an island at the confluence of two rivers, just inland from the Baltic shoreline. These water landmarks (watermarks?) made the city easy to find, and the raid was scheduled for the night of a full moon, just to be sure. Additionally, Lübeck was an old city, dense with wooden buildings, making it an ideal target for incendiaries. It was “built more like a fire lighter than a city,” Air Marshal Harris quipped. Never mind that the city wasn’t any sort of military target.

The Lübeck raid was a big success. It killed 300 people, wounded 700, and damaged more than half the buildings in town, a Coventry-level result. In fact, the RAF began using the raid on Coventry as a yardstick, measuring its own raids on a scale of “one Coventry,” “two Coventries,” and so on.

In Germany, news of the attack disturbed Adolf Hitler. He accused the Interior Ministry of negligence and transferred responsibility for air defense to Joseph Goebbels. The propaganda minister expressed concern that bombing raids on this scale might indeed be harmful to civilian morale.

The next full moon in April saw multiple raids on another Baltic port city, Rostock, which suffered death and destruction comparable to that seen in Lübeck.

Even so, Harris wanted bigger raids. The RAF practiced flying bombers in large formations that could bomb a city in successive waves. Bomber Command only had about 400 bombers available at this time. Harris wanted many more and sought to demonstrate how effective a truly large bombing raid could be. How about a *thousand* planes? That would surely leave a mark on any city, and the large numbers would overwhelm German defenses.

Thus was conceived Operation Millennium, with its suitably apocalyptic codename, which was executed the night of May 30. Harris put together a force consisting of Bomber Command's regular bombers plus its training aircraft, and the training crews that operated them, and whatever other bombers he could beg, borrow, or steal from other services. He managed to scrape together 1,047 planes, more than double the size of any previous RAF bombing raid.

The chosen target was Cologne, close enough that Gee could show the bombers the way, and the attack was a success, destroying 13,000 civilian homes, including apartments, and 3,300 non-residential buildings, including 16 schools, six department stores, ten historic buildings, and 17 churches. An additional 8,000 homes and other buildings were seriously damaged. Four hundred and eighty-six people were killed, over 5,000 wounded, and nearly 60,000 left homeless. The RAF lost 43 planes.

The attack was a success for Harris and Bomber Command; it enraged Adolf Hitler, who demanded Luftwaffe retribution, insisting that "terror must be met with terror, and the attempt to destroy German sites of culture must be answered by leveling English sites of culture." As if the Battle of Britain never happened.

Harris sought to follow up on the success of Operation Millennium with further 1000-plane raids on Essen the night of June 1 and Bremen on the night of June 25. These raids were far less successful, doing only modest damage, and the German defenders were developing better tactics. Losses of planes and training crews were getting serious enough that they threatened to impair Bomber Command's training program, forcing Harris to scale back his ambitions for the rest of 1942.

Even so, these few dramatic raids helped salvage Bomber Command's reputation and lift the spirits of Britain's allies and its own public, impatient for some sign of progress in the war against Germany.

Conversely, these raids did indeed demoralize German civilians, along with reductions in food rations. The bombings engendered doubts over the competence of Germany's leaders. Open opposition was forbidden, but sometimes on the crumbling walls of destroyed buildings you might find anonymous notes that bore tart comments such as, "We have you to thank for this, *mein Führer*."

Per Hitler's instructions, the Luftwaffe began a campaign of bombing British cathedrals and other sites of historical or cultural value. These began with an attack on Exeter on the night of

April 23, which is St. George's Day, and continued with strikes on Bath, Norwich, York, and Canterbury, among other locations.

The morning after that first raid on Exeter, an indiscreet representative of the German Foreign Office publicly joked that the Luftwaffe intended to bomb every building in Britain that had three stars in the Baedeker Guide. Afterward, both British and German people began calling these the "Baedeker Raids," much to the irritation of Goebbels, the propaganda minister, because the German government wasn't supposed to admit that the real goal of the raids was to destroy historic landmarks. Officially, they were German retribution for British terror bombings.

In 1942, the United States was shipping the heavy bombers of its own Eighth Air Force to Britain, but the Americans weren't yet involved in these bombing raids. The US simply didn't have enough bombers, production of new bombers was just beginning to ramp up, American bombers were also needed in the Pacific and in North Africa, and American strategists were still thinking about landing soldiers in France before the end of the year, which meant saving the bombers to support that plan, dubbed Operation Sledgehammer.

Nonetheless, and spoiler alert, a 1942 invasion of the Continent is not going to happen. (Except it kind of is; I'll discuss that in a future episode.) In 1943, however, the US Army Air Force is going to begin its own parallel bombing campaign over Germany.

But that is a topic for a future episode. We'll have to stop here for today. I thank you for listening, and I'd especially like to thank Brent and Hyman for their kind donations, and thank you to Nicolai for becoming a patron of the podcast. Donors and patrons like Brent and Hyman and Nicolai help cover the costs of making this show, which in turn keeps the podcast available free for everyone, so my thanks to them and to all of you who have pitched in and helped out. If you'd like to become a patron or make a donation, you are most welcome; just visit the website, historyofthetwentiethcentury.com and click on the PayPal or Patreon buttons.

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And I hope you'll join me next week, here on the *History of the Twentieth Century*, as we turn from the air war to the naval war. After the sinking of *Bismarck*, Adolf Hitler cancelled all future surface raids into the Atlantic. Now it was up to the U-boats. Happy Time, next week, here, on *The History of the Twentieth Century*.

Oh, and one more thing. You may already know that Air Marshal Harris picked up the nickname "Bomber" Harris in the British press, owing to his aggressive enthusiasm for strategic bombing.

The air crews who served under him had a different nickname; they called him “Butcher” Harris or “Butch” Harris. These nicknames were not a reference to his bombing strategy, but to the heavy losses aircrews in Bomber Command were sustaining. The loss rate in Bomber Command was higher than in any other branch of the British military.

[music: Closing War Theme]