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(Theme music)
Voiceover: The following is a production of the Pritzker Military Museum and Library. Bringing citizens and citizen soldiers together through the exploration of military history, topics, and current affairs, this is *Pritzker Military Presents*.
(Applause)
Williams: Welcome to *Pritzker Military Presents* with author James Holland discussing his book *Big Week: The Biggest Air Battle of World War II.* I'm your host Jay Williams, and this program is coming to you from the Pritzker Military Museum and Library in downtown Chicago. It's sponsored by Exelon. This program and hundreds more are available on demand at PritzkerMilitary.org. In early 1944 Axis and Allied forces were each facing a crisis. British and American air raids into Germany had suffered tremendous losses, but German resources, especially fuel and pilots, were strained to the breaking point. In February of 1944 the combined Allied air forces based in Britain and Italy launched their first round-the-clock bomber offensive against Germany. Their goal, to destroy the main factories and production centers of the German Luftwaffe while also drawing Axis planes into an aerial battle of attrition, ultimately intended to clear the skies ahead of the planned cross-channel invasion. Officially called Operation Argument, this aerial offensive became known as the Big Week. Aided by Allied aircraft especially the American long-range P-51 Mustang fighter to escort the bombers for their entire missions and superior tactics, the Big Week became one of the turning points of WII. In his book acclaimed historian James Holland chronicles this massive air battle through the experiences of those who lived and died during it. Through oral histories, diaries, and official records, Holland documents the fortunes of pilots, crew, and civilians on both sides. He takes readers from command headquarters to fighter and bomber cockpits to the home front. In this way he vividly recreates the campaign as well as its lead-up and aftermath. In the end, the six days of intense air battles cleared the skies of enemy aircraft in preparation for D-Day in June 1944. Ultimately Big Week makes a compelling case that this was one of the most important operations of the war. James Holland is a historian, writer, and broadcaster. He is the author of *The Rise of Germany: 1939 to 1941* and *The Allies Strike Back: 1941 to 1943*, the first two books in his "The War in the West" series. He also wrote the bestselling *Fortress Malta* and *Battle of Britain* as well as numerous works of historical fiction. Holland regularly appears on television and radio and wrote the BAFTA shortlisted documentaries "Battle of Britain" and "Dam Busters" for the BBC. A fellow of the Royal Historical Society, Holland has served as an advisor to the British government on the nation's history curriculum. Please join me in welcoming James Holland back to the Pritzker Military Museum and Library.
(Applause)
Holland: It's really nice to be back, and thank you all for coming along this evening. Big Week is an air battle despite being the kind of largest, in terms of numbers of aircraft involved, of the entire Second World War. It's a kind of forgotten episode, and I do think it's really interesting when you're studying WWII how the narrative tends to focus on inkpots, so we focus on the Battle of Britain or D-Day and Normandy and the Battle of the Bulge, Alamein, whatever it might be or certain battles in the Pacific like Guadalcanal or whatever. And quite often you don't sort of see how the bomber war and strategic air campaign fits into that bigger picture. And one of the arguments I'm gonna put forward behind this book and why this battle is important is because there's a symbiotic relationship between the importance of the strategic air war and how successful it might be from the Allied perceptive, but also about clearing the skies before D-Day, Operation

Overlord. And that's where it's kind of really important. I'm gonna start though, and mainly what I'm gonna be talking about tonight, is the background to Big Week and the context and how we got to that position in the third week of February 1944. I'm gonna start with one day, one crew in Sunday the 20th of February 1944, and it's the first real big day of Big Week, Operation Argument. And the night before RAF bomber command had been over, and the target had been Leipzig, which is where there were a number of aircraft, Luftwaffe aircraft factories and assembly plants and the RAF bomber commander had hammered it that night, and then the following day was the turn of the Americans of the USA air force, the Mighty A as they became known. And how they would fly over would be in kind of big boxes in formation. Do you remember, the British, the bomber command, would go over at night, and they would in what's called a bomber street, basically just take off. You knew where your route was, you knew where to avoid the flak, but you basically just go to the target under your own steam and your own way. Whereas the Americans because they were operating in daylight, what they did was they'd go in these defensive boxes. If you think about it, it's a bit like a convoy going across the Atlantic. The whole principle is you've got safety in numbers. You keep in a tight box. You have your outriders, your kind of destroyers, and corvettes and so on when you're crossing the Atlantic. And similar sort of thing with here. You have flying fortresses, you have B-24s. They're each absolutely loaded to the hilt with 50-caliber machine guns, well defended, and then you've got fighter escorts as well. And you can see here in this picture, you can see how they're operating in in different heights, 'cause you don't want to be firing madly from the side of the fuselage of your 50-caliber machine gun and hitting someone else. So you're kind of separated out at different heights in different formations, but you are operating together. The key though is to make sure that you stay in that formation because the moment you come out, the moment you fall out of that, you become a straggler, just as if you're a straggler in a convoy crossing the Atlantic that's when you start getting in big trouble, because you're easy prey. That defense in numbers, your safety in your box, that's all gone to pot. So what happens with Bill Lawley's crew? He's a young pilot of Cabin in the Sky number three. And the reason it's Cabin in the Sky number three is because Cabin in the Sky number one was the ship they flew over from America to the UK, and the moment they arrived it was taken away from them, so they went and join their bomb group, and they were given another one, and that was Cabin in the Sky two, but just before big week they would let--they were given some leave, and off they went, and when they came back they discovered another crew had borrowed their Cabin in the Sky two and hadn't come back, so that was Cabin in the Sky two gone as well. So literally the day before, February 19, they were given Cabin in the Sky three, and they hadn't quite gotten around to do the nose art. Americans, they like doing your nose art on the fuselage and on the cowling rather. And they hadn't quite gotten round to it, so it was unnamed, but for them they knew what it was. They knew it was Cabin in the Sky three. Anyway, Cabin in the Sky three gets to Leipzig, no problem at all, everything's absolutely fine, and the bombardier Henry Mason goes, "Bombs away," which is obviously the big signal that they can—they've done their bit, they've hit the target, and now it's time to get home. Except nothing happens, and this is really bad news, because of course when you're carrying two-and-a-half tons of bombs and your in a 30-ton ship the moment you get rid of that you're losing drag, that means you're getting faster, the plane is lighter, it moves up into the sky, and of course what's happening in the formation as everyone's dropping their bombs they're all moving onwards, and suddenly Cabin in the Sky three is stuck behind. This is not good news at all. Henry Mason dashes out of the front bit of the B-17, comes up--there's a kind of sort of walkway between the fuselage and main cabin bit, cockpit bit, and he starts kicking trying to kick the bombs out, but what must have

happened was, they were loaded up, and there must have been dampness. Anyway, they were frozen solid. It's about -50 at 18,000 feet over Leipzig on a snowy, cold, miserable winter's day in the third week of February in 1944, and they just cannot get them out. But of course they're lagging behind, lagging behind. Suddenly, wham, there's a big crack of flak and a shard of this exploding shell, hears water pour out of one of the engines, and suddenly it's on fire. Fortunately B-17s you've got fire extinguishers, so the fire extinguisher kicks in, knocks out the flames, that's one thing, that's okay, but at that point what has happened is that is three engines they're flying on now rather than four, and that is not good news, plus the two-and-a-half tons of bombs. Suddenly they're starting to really really lag behind. And if you're in a crew, and you're lagging behind the main formation, and you've still got your bombs onboard, and everyone else is kind of turning back for home and climbing up and getting out of the fray, this is not good news at all. This is Bill Lawley, the captain. I love this picture of him, because, you know, as a Brit, as a Limey, when I think of Americans in WWI, they're all kind of six-foot, they have square jaws, amazingly good teeth, they're kind of hunky, but actually he looks kind of--he's thin faced, he looks unassuming, he doesn't look like the kind of guy who's just about to stretch into the very depths of his soul and find some unbelievable courage. But that is what happens, because suddenly they're on their own, they're stragglers, and a whole load of Focke-Wulfs are turning towards them. And this is a sort of artist's illustration, but you can see this is a Focke-Wulf in the foreground here. And suddenly these Focke-Wulfs are coming towards them, and how the Germans would fly, what they worked out that the best way to attack American bomber formations was to kind of--what you'd do is, you'd dive down--so this is the formation, you'd dive down and then you dip under and then you pull up slightly and go over the top, and as you're closing in you're firing. And of course you've got tracers so you can hone in on your aim, and you just fire straight at them. And what happens is a cannon shell hits the front cockpit of Cabin in the Sky number three, and suddenly the world goes black for Bill Lawley, and when he comes to a matter of moments later he's got blood all over his face, his arm is absolutely shredded, he's got bits of his copilot all over him because what has happened is poor Paul Murphy the copilot has ben hit in the head, his head is gone, and his body, the rest to of his body is slumped against the front of the cockpit. So Lawley manages to pull back the headless corpse and somehow get hold of the control column and try and pull it out of the dive. It's now in a spiraling dive. And he also says, "Right, air crew it's time to abandon." And what happens is they kind of open the hatches, and the navigators' maps all just go (whooshing sound), and they're straight out of the hatch. From the wind and everything. Only one person actually does jumps out, and that's the flight engineer. Henry Mason is the only one who's not injured and the reason nobody else jumps out is because they've all been cut up as well. You know, with varying degrees of seriousness. And so just as they're kind of sort of bailing out or not bailing out, actually Lawley manages to kind of get control of the plane and pull out of the dive. It is just an incredible thing. Just imagine what that's like when you are wounded, your copilot you were talking to is now dead and headless next to you. Your plane is in a massive dive and screaming, you've got a cut up arm. This requires physical strength as well as moral strength to get over this, but he does. He pulls it out of the dive and amazingly managed to gain control. And he says, "Okay right I'm going to try and get you back." And Henry Mason comes up beside him and says, "You need some morphine," and he says, "I'm not gonna take any morphine. I can't take morphine because if I take morphine I can't better control the ship." So I'll just fight through it, and he does. And they manage to get across France, and at that point they're at lower altitude. Obviously the freezing ice has melted and managed to kick out the bombs at long last in a field somewhere in France, and then suddenly they see a whole load of Messerschmitts coming towards them. And

the rest of the crew despite being wounded managed to man their stations, fire their machine guns, and the Messerschmitts go away. And I guess that what probably happened was that they were coming back from a mission, they were low on fuel, low on ammunition, thought that this as a plane that was gonna come down anyway, it's trialing smoke, it's only got three engines, then another engine goes anyway, so they've suddenly only got two engines left, and obviously it's looking incredibly knocked-about, so they obviously thought it's not worth bothering. And so they fly on, and as they cross the channel, because they're crossing the channel, and because this is England, and because it's February 1944, there's this huge great cloudbank--it's always training and always miserable in England in winter of 1943 and 1944-- not anymore incidentally. It's actually a nice place in winter these days.
(Laughter)
Holland: And anyway they get over, and by this time Bill Lawley is kind of dipping in and out of consciousness. And wondering whether he can actually get across this final, final furlong. And then they get across, there's the white cliffs of dover, and they manage to get across, and they're into southern England over Kent, and up ahead are some hangars, but Lawley just can't quite maneuver the plane down in time. And suddenly they've gone past. And he says, "Well, I'm sorry boys, I'm just gonna have to crash in a field. And I'm gonna have to belly up, undercarriage up, and just gonna have to go in a field." And just as he's about to come down, there's some other hangars, and it's Manston, that kind of most battered airfield from the Battle of Britain, but there it is. And he comes in, comes in, belly up, undercarriage up, hits the ground, screech of metal, the whole plane sloughs across the airfield, suddenly there are the blood wagons coming towards them, they come to halt, and they're okay. And what is absolutely amazing about this is that Lawley manages to get out of the cockpit on his own and stagger off across to the nearest ambulance. It is the most incredible thing. And I just remind you that Cabin in the Sky three here behind me, this was brand new before they went on this mission. As you can see, it's not brand new anymore, and there is the fatal cannon shell in the cockpit. But you can see how smashed around and bashed around it is. It is an incredible story, and perhaps not unsurprisingly Bill Lawley was awarded the Medal of Honor for that action, and quite rightly so I'm sure. And in actual fact two others were awarded that day, both posthumously, sadly, but that is the only day in US Air Force history that three Medals of Honor were awarded in the same day. It is an amazing operation, and it was the start of an absolutely extraordinary week of air fighting and a critical week of air fighting. But that was then, and I'm gonna go back. I'm gonna rewind, and of course this is the Casablanca Conference of January 1943. This is the Western Allies, Britain and America, the chiefs of staff. Of course there's FDR your president on the left and Winston Churchill the prime minister on the right and all the chiefs behind. And they discussed many matters on that conference: future strategy, going into Cicely, finishing off the Battle of the Atlantic once and for all. But they also had a lot of discussions about the strategic air campaign and what was gonna happen. And what's interesting is the USAF air force had formed and arrived in Britain the previous summer of 1942, and then a lot of those units that came over were then transferred over to the Mediterranean in the North Africa campaign. And that was fine, but suddenly they're kind of building up again in 1943 and starting to get kind of serious about what they wanted to do. And the person who really makes a big plea for American precision bombing at the Casablanca Conference was General Ira Eaker who was the commander at the time of the 8th air force. And it's interesting because the British have decided, as the Luftwaffe had decided early on in the war, that it was just too dangerous flying by night--by day, rather. And that really the only way you can have any kind of impact is by bombing by night where, you know, radar and so on isn't so sophisticated in the first part of the war,

and it's much safer to go under the cover of darkness. And they're trying to encourage the Americans to join suit and do the same sort of thing, but the Americans have been resisting that because they think it's much more important to try and be accurate, precision bombing, and they also don't want to be kind of in the shadow of the British, and understandably so, and finally they want to make their own mark because there is ambition within the highest echelons of the US Army Air Force to actually just because the US Air Force, to become separate from the army. At the moment that time in 1943, they are still part of the army. And so they want their own independence as well. So there's all sorts of good reasons to stay with the daylight bombing, and there is a cadre of senior commander within the US Army Air Force that do believe, A, in strategic bombing, it can use steel no flesh, so you can use bombing as a means to limit the number of men at the cold face of war so you don't have a slaughter like we had in the First World War, and although America joined the war in 1917 and wasn't there for four years of slaughter, you still--American troops saw enough and American commanders saw enough to make sure that they don't want to repeat that. And anyway, why would you want to slaughter a whole generation of young people? Of course you don't. You want to use technology and mechanization and modernity as far as you possibly can to limit the number of casualties. This was one of the main reasons for putting so much emphasis on air power, and rightfully so in my opinion. However, so anyway, what Ira Eaker was also suggesting, and very forcibly, that it would be a good idea to focus on the destruction of the Luftwaffe as a priority. It was all very well he said, hitting cities, but what you really want to be doing is hitting aircraft factories and destroying the Luftwaffe, because he said, and again I think he was absolutely right, if you destroy the Luftwaffe, then it's gonna be much easier to bomb. It is really interesting that by the end of 1943, beginning of 1944, there were some 15,000 heavy antiaircraft guns in Germany, and yet the chances of them actually destroying a bomber, an Allied bomber, American or British, was 0.002 percent. Whereas actually if you were a fighter plane it was a very high chance of you shooting down a bomber, comparatively like twenty percent chance or something. So obviously it made sense to destroy the Luftwaffe or certainly the aircraft industry, because obviously the antiaircraft guns were also a part of the Luftwaffe, but to destroy the aircraft industry and the fighter defense, rather than the flak guns, because then your bombing will become more efficient. And he was quite right. However he had to come up against Arthur Harris, who was commander in chief and bomber commander and had been since the previous February 1942. Now Harris got to bomber commander at a time where fortunes of bomber commander were kind of at an all time low. The previous summer of 1941 had been the Butt Report where it had been proved that British bombers couldn't hit a barn door at five yards and were woefully inaccurate, faith in the bombers which had been so high in the 1930s, so much emphasis had been put on strategic air power, it seemed to be failing, and seemed to have been like we backed the wrong horse. Harris still absolutely believed in it. He stood on the rooftops of Whitehall in London during the blitz, saw the fires in the East End, and said, "They will reap what they sow. I will have my revenge." And he was absolutely determined to do it. And he was absolutely determined that airpower could be a decisive factor in the outcome of the war. But he also knew when he took over in February of 1942 that it couldn't happen over night, that it had to be a slow build. They needed more heavy bombers. Twin engine bombers--Wellingtons, Handley Pages, and Whitleys, and so on. Hamptons. These weren't enough. What you needed were big four-engine bombers. You needed the new Lancaster. the Lancaster was just coming into service at that time. You needed improved navigation tools. They had G in the middle of 1942. By 1943 you had Oboe and H2S, the first ground mapping radar, primitive maybe but pretty advanced by 1943 standards. Improved bombsites as well. And improved measures of

bombing. And he also needed more airfields with heavy concrete runways because heavy bombers need that. And it was also making sure that the Americans had their own buildup of forces as well, so there's only even with the speed of which airfields were being built, and they were literally being put up in a manner of weeks, it still all took time. So he was intending to start his all-out strategic air campaign in March of 1943 with an all-out attack on the rural industrial heartland, which conveniently was in the western side of Germany. And he wasn't that keen on Eaker's idea to target the Luftwaffe because he felt that the problem was that involved lots of precision bombing, and he wasn't convinced even with these new precision aids that that was okay. But anyway Eaker and his team put together a proposal, which was really kind of approved by the chiefs of staff and then sent to Harris for his own comments, and Harris said, "Yeah, that's great, I'm happy to go along with that as long as I can still choose my own targets if I feel the Luftwaffe targets are not suitable on any given day," which is basically a euphemism for saying, "Fine, but I'm gonna do exactly what I like." And that is basically what he did, and that was signed on the 10th of June 1943, and it was Operation Point Blank, and that was the destruction of the Luftwaffe. And that was the policy that was set in stone not just for improving the strategic air campaign and improving the efficacy of bombing, but also to make sure that we destroyed the Luftwaffe before we got to Operation Overlord, which at that time was planned for May 1944. The clock was inexorably ticking. And the point about this was no invasion can be done--you cannot do a cross-channel invasion, even Hitler understood this in 1940, which is why he never enacts Operation Sea Lion--you cannot do an amphibious invasion unless you have air superiority. And air superiority doesn't mean just having air superiority over the invasion beaches; it means having it over a whole swathe of Europe. Why? Well I'll tell you, because in Britain you're building up vast amounts of material: tanks, jeeps, guns ammunition, men, millions of men, medical supplies, Hershey bars, cigarettes, the whole shebang. Everything you might need to keep an army in force. But in the initial part of the invasion you can't do that. In the initial part of the invasion there's only so much that you can land on the beaches in the first twenty-four hours, in D-plus 1, plus 2, plus 3, plus 4. Up to kind of the first couple weeks, three weeks, four weeks even, there is a limit to how much you do. So the race is on. And what you don't want to do if you have an amphibious invasion, is make sure--you do not want to get kicked back into the sea. The number one priority for Operation Overlord is that it succeeds, not whether it's done in ninety days or seventy-seven days or whether you bust out of the bocage in seventeen days or fifty. What really matters above all, above everything else, is that it succeeds. And so the race is on, because what you want to do is land with a surprise, with the benefit of surprise. The enemy doesn't know where you're going to land as long as you've done all your intelligent work correctly. So therefore the enemy has to then bring his reserves up as well. And so there's a race between who can get there first, which can build up the most troops first. And so how do you win that race when you've got to go slowly across the sea, and they can go by road and by rail? Well the way you do that of course is by destroying those roads, by destroying the bridges, by destroying the railways, the marshaling yards, any means in which the Germans can get to that Normandy front, you want to slow them up and make it as difficult for them as you possibly can. And the way you do that is with fighter bombers and with medium bombers that are operating at much lower heights with much greater precision, and you hit out and you knock out all those bridges across the Seine and all across the Louvre, and you hit out all those marshaling yards, and you make it incredibly difficult for the Germans. But you can only do that if you've got control of the skies, because you can't do that if you've got lots of marauding Focke-Wulf 190s and Messerschmitt 109s all over the place. So that is why it is absolutely essential that before they even think about going to

an attack across the channel you have cleared the skies. And that is a big ask. However in the summer of 1943 it does still seem quite a long way off, it has to be said. And Harris's transformation of his bomber command, of his theory about mass destruction, mass area bombing, seems to be working because at the end of July 1943 they launch Operation Gomorrah, and this is the assault on Hamburg. 3,500 heavy bombers, mostly British but also Americans as well, attacking this second city of Germany, this ancient medieval Baltic port, and they absolutely hammer it. The conditions are right, there's just the right amount of wind, the gap between the different raids is just the right as they drop high explosives. Then you have incendiaries fanning the flames, a firestorm is created, and they just keep pounding it for three days and three nights. And in the end of it Hamburg is absolutely wrecked, and I still find this picture just shocking every time I see it. It is--Hamburg is laid to waste, and for the Nazi high command, for Germany as a whole this is an incredibly shocking moment. They cannot believe what has happened. The war has come to this. And had Harris managed to keep going at such a kind of level then perhaps maybe he could have fulfilled his ambition of winning the war purely by air power. Who knows? But it doesn't happen. One of the reasons why it's so successful that night is because they're not intercepted by many fighters, and the reason they don't do that is because they introduce a thing called window chaff, good old little bits of aluminum which scrambles the radar, so the fighters aren't there to unscramble them. Immediately they don't have an answer to this. But then Harris insists on attacking Berlin. He thinks, well, I've laid waste to Hamburg, but if I lay waste to Berlin as well then really surely then I'll come out of the war. And you can see his thinking. You can see it doesn't seem such a crazy idea in the late summer of 1943, and yet it doesn't happen. I'll go into that in a minute. Meanwhile the Americans are also having a torrid time. It's fine when you're going to Wilhelmshaven. It's not really fine when you're going to Bremen. It's certainly fine when you're going to northern France and when you're going to the western extremes of the rural. Perhaps that's okay because your fighter escorts can escort you all the way. But the moment you try to go deep into Germany, which is where the heartland of the Luftwaffe aircraft industry is that's a problem because suddenly you've got to kiss goodbye to your fighters because they don't have the range to go that far into Germany. And the moment you leave that, those boxes that you've got, those thirteen machine guns per flying fortress, that's just not enough, and they're getting slaughtered. In August there is the raid on Regensburg and Schweinfurt, and they get absolutely hammered. Nineteen percent of the force is knocked down and a further 120 planes are badly damaged. A little bit later on in October 1943, they try again, and they go back to Schweinfurt, Black Thursday it becomes known. Seventy-odd planes shot down. Twenty-six percent of the bombing force. That is just unsustainable. And the reason is of course is because you're expecting a lot from your crew. This of course is the cockpit of a B-17, and it's a pretty tight, cozy area. If I go on you can see this is the waist of a B-17. You can see that window on the right-hand side, that is open to the elements. You're sitting there as a gunner on a B-17 in your sheepskin suit. You've got electric wires in there to try and keep you warm, but al too often they would short, and then suddenly you're -45, you've got to take a mitt off, you've got to try and kind of, you know, put your wires in your heated suit back together. Can you imagine it? It's absolutely horrendous. And the other thing of course is, it might be really, really, really well armed, but actually you can see diddly-squat from those places. I can tell you, can you imagine you're at that station, you've got your 50-caliber machine gun, and a Focke-Wulf goes past (whooshing sound). It's gone, 375 miles and hour or whatever it is flying. And then the tail gunner is even worse. My goodness me. I don't know how many of you have actually been on a B-17, but it's horrific. You get on and you turn left, and eight foot down on the left-hand turn, it gets narrower and narrower and narrower. You

get this little kind of donkey seat. You have to put your legs back on themselves, so from the moment you cross the channel you've got to be in a squatting position. Unbelievably uncomfortable. You've got twin machine guns there, so actually although you've got this dome in front of you, what you can see is quite limited, and you can only see what's there. It's incredibly difficult, and it is brutal. This is a Lancaster. In front you've got the cockpit. When you're looking down the fuselage in that picture, and this big bit in the middle, that is a wing spar, which when you climb onto the Lancaster you've actually got to clamber over in your sheepskin suit, etcetera, etcetera. I mean, when you're on a Lancaster, when you're on a B-17, you look at these things and you think, these things are made for one thing only. They're made for bombing, for dropping bombs. They're not made for crew comfort. And of course what you have is moments of unbelievable terror while you're up in the air. Any moment you could be shot down. Of course the more skilled you are and the more you develop a sixth sense, the better you are equipped to deal with difficulties or whatever, a fighter on your tail or whatever it might be, but there is a huge amount of chance that comes into it, and if your number's up, your number's up, and you just know that. And then you come back to base, and you have comparative freedom to go and chase girls, go to the pub, go and see films, whatever you want, and you don't have that kind of sort of time of decompression really. It's incredible terror one minute, relaxation the next, and you know these are small closed communities. A bomber group, three squadrons on a base, a few thousand people. Everyone knows everybody, you're in your Quonset hut or Nissen hut, suddenly the whole row on that one side is empty, it's a painful reminder, and it's pretty chilling. This is Ludford Magna. This is actually a bomber command base, RAF bomber command base, 101 squadron known as Mudford Magna, and I think you can understand why. It was really unfortunate for those who lived through the war that you just had succession of really bad winters. '42-'43 was horrific, '43-'44 was awful, '44-'45 terrible. I mean, even in Italy it was snow, rain, mud, and absolute misery. And the winter of 1943-44 there was just a sort of kind of tense, tense cloud over Britain literally all the time. I remember talking to a Canadian pilot, he said he got so miserable that he used to just take off his Lancaster for an air test with his crew just so they could get above the clouds and see some sunlight. It was that bad. And so you can't have—and these are Nissen huts, and you can see this is an American base in some woods, and it's just cold and miserable, and inside there's coal rationing in Britain, so everyone's cold, and it's just not very nice. And if you're suffering really debilitating casualties, it doesn't matter that you've got more B-17s coming over from the US. And it doesn't matter that you've got plenty of more crews coming over. There is a point where morale can't sustain you, and once morale goes, you are in big trouble as a commander, as a fighting nation. Morale is really important. It's slightly different if you're in a totalitarian state like Nazi Germany, but it is not when you're in in democratic state like America or Britain. You've got to look after your guys. These guys are all volunteers. You've got to make sure they're okay and make sure they fell that you're gunning for them. And right now in the autumn of 1943 they've got a problem on their hand because suddenly it's October, then it's November, and they're getting no closer to destroying the Luftwaffe. D-Day, Overlord, is looming, and they still can't get to those aircraft factories, because every time they do they get absolutely hammered. So what are you gonna do? It's a problem. But of course if the Allies have got problems then so too have the Germans, and not these Reichsmarschall Hermann Goering, who is the world's only six-star general ever, and the one thing I would say--

(Laughter)

Holland: --about Hermann Goering is, yes, he was bad, but he did enjoy himself being bad. If you look at the leading Nazis, what a miserable bunch they were. And it's also extraordinary I think how they don't conform to the Arian stereotype in any shape or

form. Bormann looks like a Mafioso thug, Goebbels has got a clubbed foot, and Nazis are not tolerant of people with any kind of informities. Hitler's got a big nose and a weird haircut and even weirder mustache. And then the only one who comes close really is Goering, but he's taking lots of drugs and eating lots of food and putting on makeup, and it's not really working for him either. The amazing thing about Goering also is that he's an incredibly talented businessman. --Machiavelli really, and massively high IQ, but a really hopeless air commander. But in September 1943 what he does is he gathers together all his young senior commanders. And he's got a cadre of really good guys all in their kind of early thirties, people like Adolf Galland, Bethel Schmidt who was hopeless as an intelligence officer but a very good administrator, and others. And he gathers them all together and says, "Look, we're losing it. We've got to do something about this bombing. We've got round-the-clock bombing now from the Americans during the day, they're attacking the Reich. We've got to defend the Reich first and foremost. And what we need to do is draw the Luftwaffe back from the eastern front, from Italy, we need to get them over, and we need to concentrate on defending Germany." And everyone goes, "Hooray, absolutely. Quite right, Reichsmarschall." And literally that moment the telephone rings, and it's Hitler on the phone, and the other commanders are sitting there listening to this conversation. They can only hear Goering sort of going, "Yes, Mein Fuhrer, but, yet, ba--no, I, what--yes, Mein Fuhrer." And then they see him trudge back and disappear into another room where they hear him bursting into tears. And what has happened is he's had full kind of furry of the Fuhrer at him, and Hitler says, "Absolutely ridiculous. No, the only way to defend is to go on the attack. I want you to create a bomber force, and you need to go back and attack Britain." I mean, of course this is absolutely bonkers because they didn't manage it in 1940-41, they're certainly not gonna do it in 1943-44. And they just don't have enough bombers, and it's a waste of resources, and they absolutely need to focus on the fighters, but what can you do? The Fuhrer has spoken, and his will is omnipotent and all the rest of it. And everyone's really disheartened. However, with the limited sources they do have in the follow-up to--in the aftermath of Operation Gomorrah, the bombing of Hamburg, is they do need to pull their finger out, and they need to improve the air defense system, and again they haven't really come to the war of an air defense system because they always go on the attack. That's the German way of war; attack, not defend. And so once they do start getting attacked by bomber command in the first part of the war, what they do is create this sort of organically immerging air defense system, which hasn't really been properly thought through and is kind of reactive rather than being properly planned and thought through. And so then suddenly in the late summer or autumn of 1943 they start thinking, okay, we really do need to sort this out, and they completely overhaul the entire system. And they run it basically on the same lines as the British model--observer corps, radio listening services, radar, ground controllers, identification friend and foe, high frequency direction finding, all those kind of things, all those kind of tools, but really, really sophisticated kit by 1943 standards. They have glass control panels, where the controllers can look at this, and lights come on and all this. And their radar is second to none. It is really sophisticated radar for the day. And so they're developing this system, and they develop quickly, and it's really effective, which is one of the reasons why Hamburg is a bit of a one-off, if I'm being perfectly honest, and when the RAF bomber command start going into Hamburg, they start getting a little bit hammered. And they've also developed new ways of fighting. This is a chap called Hajo Herrmann. I had the privilege, I suppose, of interviewing him a number of times. I mean, he was a very scary individual even aged ninety-five. He had a little silvery goatee beard and very pale eyes but pupils that were sort of dark as night that kind of bore into your very soul. And he was an unapologetic Nazi, and that was quite terrifying, I have to say. He was not a man who suffered fools,

so the whole time I was there I was sort of thinking, please don't say something stupid in front of Herr Herrmann. But he was a fascinating guy to meet because, of course, he had been there right from the word go. He had been in the Condor legion, he had been in Poland, Battle of Britain, Battle of France, he'd blown up Piraeus Harbor, he worked on the general staff of the Luftwaffe, and he was on the general staff of the Luftwaffe in the summer of 1943 when he suggested creating what became known as the Wilde Sau, the wild boars, and these were Focke-Wulf 190s. These planes, and he would put bomber pilots who were trained on night flying, which day fighter pilots weren't, and he'd put them in, train them in fighter tactics, and send them up, and what they would do is although the didn't have radar or anything when your learned where bomber command were aiming for, then you would go into a circle around that city, around the edge of the city, around beyond the flak, and you would use the searchlights to light up planes, and then you would go in and shoot them down. And actually they were pretty successful. And yet at the back of that they were also increasing the number of night fighters. Now unlike the British and then the Americans, the Germans never had the cavity magnetron, which is the equipment which enables you to reduce the size of radar to something it very, very small so you can put it on destroyer or corvette or a Lancaster or B-17 or whatever it might be. So this is why they have these television aerials stuck to the front, which causes drag and also stops power. Having said that, despite that, they're quite sophisticated. The radar by this stage, and getting better all the time as you would imagine they would be. They also have a thing called Schrage Musik, which is cannons which actually point up the top of the fuselage, and what you would do is you would fly underneath a Lancaster, for example, which doesn't have a dorsal turret underneath it so it has no protection whatsoever on the underside of the plane. And you would go underneath it, so you'd be flying like that, and then you'd press the fire button, and it would go straight up. And if a 30mm cannon shell hits a Lancaster, it is goodnight Charlie for that Lancaster or Halifax or whatever it might be. And these are called the Zahme Sau, the tame boars. But they become much more efficient in this combination of a better air defense system, the wild boars, the tame boars, more night fighters, suddenly bomber command is taking an absolute hammering, so this is a problem as well. And so Harris's boast that he can end the war purely by strategic air power and by laying waste to cities is suddenly proving a little bit hollow, so you've got a massive problem on your hand. So by the autumn, by let's say November 1943, you've got the Germans who got problems because they don't have enough fuel, they don't have enough trained pilots, the trained pilots they've got are not good enough, they have got a burgeoning air defense system, they've got more night fighters. They've got a massive problem on their hand because they're still having to do bombers as well, but they are a stronger opposition in the skies over Europe by November 1943 than they had been five months earlier, certainly when Operation Point Blank was put into being in June 1943, sand so that is a problem for the Allies. And they've got no means of getting--the Allies have got no means of getting closer to those aircraft factories deep in Germany. How're you gonna do it? It's a real problem. But what they have got is some amazing fighter pilots. This of course is Gabby Gabreski, who's one of the great aces. He's the highest scoring ace, and has got a huge amount of hours in his logbook by the autumn of 1943. You've got Bob Johnson, another great ace of the 56-fighter group. You've got my favorite Don Blakeslee, who was just a complete dude, had been in the eagle squadrons, tough as old boots, there was nothing he didn't know about flying an aircraft, just loved air fighting, just couldn't get enough of it. And I love this picture here. This is of course the 4th fighter group at Debden, and there's Blakeslee talking to his men. Jimmy Goodson there leaning on his knee with the pencil thin mustache. I mean, these guys are proper heroes, and they look cool, don't they? They look like a generation ahead of

the Luftwaffe with their breeches and jackboots and so on, and even to a certain extent the RAF with their battle dress. These guys, they look ultramodern for 1943, they look confident, they look cocky, they look like they know what they're about, and of course they are all those things. To put this in some perspective, there is not a single American fighter pilot that is arriving in the UK without at least 350 hours in their logbook. That is a huge number. You think the Battle of Britain stage is 1940, both Luftwaffe and British fighter pilots had 150, 170. But this stage a new fighter pilot joining the Luftwaffe has got about ninety to a hundred. So that is a massive discrepancy. And actually that 350 hours applies to the RAF as well. These guys are seriously good. They've learned, and they've got numbers, they've got overlap. So an American fighter squadron, you would have sixteen ships in the air, and you would have maybe forty-five to sixty planes and pilots to feed that one squadron. So you've got lots of overlap, your new guy comes over, hundreds of--vast amounts of hundred-octane fuel. So you can go and practice. You'll get Jimmy Goodson to take you up and give you pointers, you'll learn the ropes from the kind of guys who've been around the block and got swastikas painted on their fuselage, then you'll go and do a little milk run over to France maybe, you'll learn the kind of hard--you'd learn, ease your way into it, and then by the time you're actually going in to do a proper raid over Bremen or Wilhelmshaven, you're seriously in the business. And so what you've got is much greater skill and flying ability than the Luftwaffe. So in a dogfight you are gonna win, on a one-to-one unless you're coming up on an amazing ancient ace in the Luftwaffe, but those numbers are getting fewer and fewer. So that's a huge advantage. And you've got a pretty good plane. You've got the P-37. It's got drop tanks on there, this one here. And it can take a huge amount of punishment, can out-dive literally anything. It is a really seriously good plane. The problem is, it's quite thirsty, and its range is quite low. Those P-38s as well. They've got twin engine fighters, but they're not as maneuverable, they're not as good, the Allison engines aren't much cop. they've got a bit more range, but they're still not the answer. So what are you gonna do? Well the answer actually of course is sitting right under their noses, and that is the P-51 Mustang. And I think you can argue, and I'd like to thing argue convincingly, that this is the most important aircraft that was ever built. And I'm saying important--there are amazing planes that have been created over in the--since the birth of flight, but think about the impact that planes have, and this one has more of a decisive impact, I think, than any other that I can think of. Interestingly it came under commission by the British early back in May 1940, and the British Purchasing Commission come over, and they ask north American aviation to make some P-40s, Curtiss P-40s for them, Curtiss hasn't got enough capacity to do it. And North America says, "You know, that's fine. We can do that, but actually we'd quite like to come up with our won idea." And the British go, "That's great, but we're in a massive hurry, so if you could do it in 120 days then great, but otherwise forget it." And they do lots of teeth sucking. Dutch Kindelberger the chairman, and Edgar Schmued the German chief aircraft designer, they do a bit of teeth sucking. "Okay, well I think we can do it." And actually they do it in 117. And it's an incredible plane, and the whole construction is much more efficient than a lot of tougher fighter planes, its much more logical, it's kind of thirty percent cheaper to manufacture than a P-47. It is a really good plane. It's got high wing loading. It's incredibly maneuverable. It's got this coolest thing. It's got the air intake. You can see underneath it at the back, it actually creates a sort of jet frost as a result of where the air goes through it. It's got this white undercarriage. It's kind of, tick, tick, tick. The only problem is the engine is a bit of a dud. It's an Allison, and it doesn't really work, and it flies brilliantly at 5,000 feet. But we don't want this at 5,000 feet. We want to be at kind of 25,000 feet, 30,000 feet, whatever. And as it gets higher in the air as altitude rises, its performance tails off. However, they are made for the British, and what has happened in the summer

of 1942 the chief test pilot at Rolls Royce, a chap called Ron Harker, says, "I wonder what would happen if we put a Merlin 61 inside a mustang. Can we give it a go?" And the engineers at Rolls Royce go, ‘Yeah, no problem at all." They put it in, and my god, it's like totally transformed. At 10,000 feet it can do 375 miles an hour. But at 15,000 it can do 410. At 25,000 feet it can do 430 miles an hour. At 35,000 feet it can do 455 miles an hour. And its fuel efficiency is absolutely through the nose. The higher the altitude, the more fuel-efficient it becomes, because of its clean lines, because of the way it’s constructed, and all the rest of it. So they suddenly got thinking, well hold on a minute, what happens if we put a fuel tank behind the cockpit? And North Americans go, well, I’m not sure it can cope with that load, but let's give it a go. So the put it in, and of course it goes off, and it's absolutely fine. And they go what would happen if we put two 75-gallon drop tanks on the wings? And they go, well, don’t think that's gonna quite work, but let's give it a go. Amazingly it takes off, it’s absolutely fine, and suddenly it can go 1,500 miles, and that's kind of Berlin and back, and that is a total game changer. The difference is of course is this is all happening in the late autumn of 1942, and what they're doing is, the Americans have put in an order of Packard--like 1,300 Packard engine Merlins, but they haven’t twigged at this stage a connection between range and this increased power. It’s not until the summer of 1943 that that happens. And actually it's Robert Lovett who is the assistant secretary of state of war who first puts this the way of Barney Giles, who is Hap Arnold's chief of staff of--he was the chief of the air staff. Barney Giles is Hap Arnold’s number two. And he tells Arnold he says, we’ll you know I think we've got a solution to this." ‘Cause Arnold is going, "We’ve got to find a long-range fighter. I don't care how we do it, but we've got to have it by January 1944. You've got to make it happen. Just sort if out, Barney, okay." And Barney says, "Well here it is. This is the answer. The answer is the Mustang.” And it is an incredible machine. The course the problem is question of time. America can turn out vast amounts of war material. We all know that. The arsenal of democracy and everything. And you’ve got Willow Run, and you can produce B-24s every thirty seconds or something stupid. But it takes time to build up this number of Mustangs. And the race is most definitely on. I love this picture. This is the plane that became the P-51B, Old Crow, flown by Bud Anderson, who is still very much alive. He is the highest scoring ace that is still with us, and actually he was over in the UK just a few weeks ago. Down to his old base at Leiston. But as you can see from here this range is transformed. I mean, look at this, you can see this mustang going all the way to Prague and beyond. That is a real game changer. And at the same time there is a change of personnel as well. Eaker has done a great job, no one's denying that, but there was a sense that he's not quite aggressive enough, that actually it just needs some new blood. And what happens is Karl “Tooey” Spaatz, guy second on the left here, he comes in as overruled strategic air, and Bill Kepner who is the guy on the left, he is the ace fighter command commander, he’s given new instructions by this guy who is Jimmy Doolittle who I'm sure you've all heard of here, one of the legends of American aviation, needs absolutely no introduction, but a huge experienced manner, absolutely the right person to take over 8th air force at this moment. And he does so, and again tells Bill Kepner, “Right, no more close escorts. I want you guys to go out and just down lots and lots of Luftwaffe. I want you to shoot down planes, when you come back from missions I want you to kind of shoot up airfields as well.” All the bomber pilots go, "What, but we need our close escort." All the fighter pilots go, "Hooray, we can go and kick some Luftwaffe butt." And off they go. And it does transform. And there is this moment on the 11th of January 1944. This is Jim Howard. He is a fighter squadron commander with the 354th fighter group, which is the first, the pioneer Mustang squadron that arrive in November, first flights, combat flights in December 1943. January 11, 1944, what's happened is the Mustangs have gone off swirling off and attacked lots

of Luftwaffe planes, but another formation has come and are attacking this box of B-17s. And Howard realizes he's already shot down three enemy aircraft just a few minutes earlier, suddenly realizes these B-17s are bereft of any fighter escort. A man should see off thirty separate attacks on these B-17s. Not one B-17 is shot down. And they all go back and go, "My god, this amazing guy in this Mustang, he was all protecting us." He shot down six that day, so he's an ace plus one in one day. A very self-effacing modest guy. He gets the Medal of Honor for that action as well, and again you can't really kind of argue with it. But it starts to show what superiority the Americans have. They've already got the skills, they've already got the ability, they've already—they've got the aircraft now, but crucially they've got the range, and that is a game changer. And it's starting to come into play in January and February 1944. It's starting to make a massive difference. And you have these new aces emerging like Dick Turner here. The 4th fighter group get them in the end of February as well. Even more fighter groups come in with Mustangs in March 1944, and it completely transforms everything. Meanwhile the Luftwaffe are just battling even more. I mean, there constantly being put up in atrocious weather, having to defend skies where they're massively outnumbered. This is a chap called Heinz Knoke who gets shot down something like seven times, I mean it's just unbelievable how many times he's shot down and still manages to get back in his Messerschmitt. There's one engagement in February where he goes up with his new wingman. The guy's just arrived at the squadron that morning, so he hasn't had any training in flights whatsoever; he's just straight into the action. And Knoke says, "Whatever you do, just stick to me, stick to me like glue. "So he does, and they go in and attack these bombers. And he sees a bomber going down, and he realizes it's the new kid, he's shot down this bomber. And he thinks, ah great, perhaps he's gonna be okay. Moments later a Messerschmitt is plunging down to the ground as well. Knoke follows him down, realizes it's his new wingman who's literally been in the squadron around three hours. Crashes into this filed and realizes it's the very same field that he went to a Luftwaffe recruitment junket back in 1938 outside his hometown of Hamlin. And they are really, really--it is hard not to feel sorry for those Luftwaffe pilots in those circumstances, it really is, because the conditions in which they're operating are absolutely brutal. And so then we get to this moment where you get to Big Week. Big Week, Operation Argument, is actually drawn up in November 1943, and it's a good thing that it doesn't happen until the third week of February because it gives them a chance to have more Mustangs into play, and they do go and hit these--all our efforts from Italy as well. We're in cahoots with bomber command. They do hit all these targets. And although they cause a huge amount of destruction--this is a picture here of them coming over and bombing during Big Week, and this is one of the targets at Regensburg again--although they do hit a lot of factories, and they do cause a lot of damage, the really big damage where it really counts and where it really hurts the Luftwaffe is in the number of pilots that are lost. And in this period it's just thousands. January, February, it's something like 2,000 pilots are lost, and that is just completely unsustainable. And what follows beyond Big Week--Big Week itself doesn't crush the Luftwaffe, but what it does, it gives them a massive hammer blow. Think of it like a boxing match, and think of it as if it's the seventh round, and what Big Week does is knock the guy down. But he comes up again, and he's still good for another three rounds, but he's weakened, and you know it's only going to be a matter of time. That's what it's like, and that is what's happened to the Luftwaffe in Big Week, and what happens following in March and April is that they really nail it. They deliver this hammer blow to the Luftwaffe. They clear the skies over Western Europe. The conditions in which Overlord is gonna happen are achieved, and what that means is in the buildup, in the nine weeks leading up to D-Day, the Allies can drop 197,000 tons of bombs on France alone, and they can do so sort of pretty much with impunity. And they

win. Once D-Day happens on the 6th of June of 1944 that race of buildup, that goes the way of the Allies, and it is because those skies have been cleared. And that is why Big Week is so important. Thank you.
(Applause)
Williams: Thank you to James Holland for an outstanding discussion and to Exelon for sponsoring this program. The book is *Big Week: The Biggest Air Battle of World War II*, published by Grove Atlantic. To learn more about the Pritzker Military Museum and Library, visit us in person or online at PritzkerMilitary.org. Thank you, and please join us next time on *Pritzker Military Presents*.
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