

# WAS AIR POWER DECISIVE?



**A civilian agency, studying at first hand the effects of our strategic bombing on Germany, turns in a revealing report.**

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**"BOMBS RIP HAMBURG," "REICH OIL PLANTS BLASTED," "RAF POUNDS RUHR."** Day after day, for at least two years, headlines like these studded the U. S. press until many people began to wonder how long the bombarded Germans could continue to produce the sinews of war.

Then it developed that targets already "obliterated" were being obliterated all over again—repeatedly—and doubts sprang up as to just how effective the air war really was. With only contradictory reports from dubious Swedish salesmen and equally dubious Swiss observers to rely on, the public and even Air Force officials, despite reconnaissance photos, remained ignorant of the full effects of the air war until our troops went in.

Even then, the full tale would have been obscured by the loss of records and the destruction of certain types of evidence if the War Department had not provided an agency to travel with the advancing forces and gather the vital information. The United States Strategic Bombing Survey was the name given to this agency, which has now transferred its operations to Japan, and its first full report clears up questions that have waited a long time for answers.

The Survey project had its inception in a letter from President Roosevelt dated Sept. 7, 1944, in which he suggested to the Secretary of War that "it would be valuable in connection with the air attacks on Japan and for postwar planning to obtain an impartial and expert study of the effects of the aerial attack on Germany." Two months later the Survey was established and embarked on its first task, that of recruiting and training personnel for the big job ahead. The T/O called for 300 civilians, 350 officers and 500 enlisted men, with headquarters in London, a forward headquarters near Frankfurt and several regional headquarters to be strung out through Germany.

Franklin D'Olier, president of the Prudential Life Insurance Company, was chosen to head the project, with Henry C. Alexander, of J. P. Morgan, as vice-chairman. It was the "first time in military history," as Gen. H. H. Arnold of the Army Air Forces pointed out, "that a major service or phase of warfare has been subjected to the careful scrutiny of objective civilian analysis."



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The enlisted men, drawn from every branch of the service by spec number, were selected to fill jobs as interpreters, draftsmen, photographers, tabulators and personnel clerks. A few were stationed in Washington, but most of them were shipped off to London in the fall of 1944 for a brief period of training and orientation in the work of the Survey. Quartered at Bushey Park, which had been SHAEF Headquarters before D-Day, they were drilled in their respective tasks and found themselves at the very core of the Allied command. One detail of 15 men was assigned for three weeks to the Central War Room, near Downing Street, where much of the top-echelon planning of the war was done. On more than one occasion a GI would come across Winston Churchill scurrying along a corridor—and find himself too awed to respond to the Prime Minister's V-sign greeting.

From Bushey Park the Survey workers—civilians, officers and enlisted men—went across to the continent in small teams, rarely numbering more than 15 and sometimes as few as six. Their assignment called for front-line duty, since the objective was frequently to grab records before the retiring Nazis might have a chance to destroy them. In characteristically systematic fashion German factory officials had carefully recorded the results of each bombing—casualties, property damage done, effects on morale and even the extent of destruction by each type of bomb.

This was precisely the information the Survey was after, and it was hidden in the least likely places—in barns, in caves, in private houses, in a hen house on one occasion, and several times in coffins. Skilled investigation had to be conducted, and risks had to be taken.

Although the casualties were not heavy by combat standards, two of the enlisted men met their deaths in line of duty, and a fair proportion of Purple Hearts were won as well as a number of field commissions and Bronze Stars.

Typical of the questions that civilians had long been asking and that the Survey set out to answer were the following: *Is air power decisive in winning a modern war? What did the bombings do to German industry? What happened to the Luftwaffe? What effect did the air war have on German morale?*

Before answering the first of these questions the Survey Report makes it extremely clear that air power alone was not counted on to bring victory. Neither was it intended to be a subordinate operation. The air attacks were conceived, says the Report, as "part of a larger strategic plan—one that contemplated that the decision would come through the advance of ground armies rather than through air power alone."

Specifically, the role of aviation was to establish air superiority prior to the invasion and to use that superiority to weaken the enemy's "will and capacity to resist." "Will," here, means morale, and "capacity" means industrial power. It is chiefly on these two counts, therefore, that the performance of the Allied air forces is judged in the Report.

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*By the men . . . for the men in the service*



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Within this framework the agency found that "Allied air power was decisive in the war in Western Europe"—decisive, but not quite in the way a casual follower of the war news might have imagined. The air war did not destroy German industry, plant by plant, because Germany's recuperative power—its ability to get a bombed-out factory back at work—was one of the surprises of the war. Second, the terrific punishment inflicted on the German people from the air shook their morale and induced a spirit of defeatism, but it was not enough to change that defeatism from passive discontent to open revolt.

Finally, the air war was decisive only when domination of the air over Germany had been attained: "Without it, attacks on the basic economy of the enemy could not have been delivered in sufficient force and with sufficient freedom to bring effective and lasting results." The *Luftwaffe* had to be crippled before the Allied air forces could do an effective job. Each of these points receives extended treatment in the Report—and the facts appear to warrant the emphasis.

**N**o indispensable industry was permanently put out of commission by a single attack or even by a few repeated attacks. Germany was well prepared, and a number of factors operated to cushion the worst effects of the air raids. Plants, machinery, and manpower were so plentiful that throughout the war a great deal of German industry was on a single shift basis. Fewer German women were engaged than in the first World War, consumers' goods stocks were high and the average work-week was actually below that prevailing in Britain. All of this meant that when the pounding really got heavy, the Germans had plenty of industrial power in reserve.

In addition to this potential power, the Germans soon found, according to the Survey, that Allied bombing was not quite so accurate as was generally supposed on this side of the Atlantic. In training, our crews achieved great precision under target range conditions, but, says the Report, "It was not possible to approach such standards of accuracy under battle conditions. . . ." Formation flying dictated bombing patterns which did not always make for precision. Taking the air war as a whole, Survey studies show that "only about 20 percent of the bombs aimed at precision targets fell within the target area," that is, within a thousand feet of the objective. Great improvement was noted as the war neared its end, of course, and for the month of February 1945 a peak accuracy of 70 percent was achieved.

The speed and persistence with which the Germans were able to get bombed plants back into operation were a disconcerting feature of the air war. They took such advantage of every pause in the assault that in several major instances Allied efforts were fruitless in the long run.

Take, for example, the story of our attacks on the ball-bearing industry. Half the output came from plants in the vicinity of Schweinfurt, and in a series of raids extending over many months Allied airmen dropped 12,000 tons of bombs over this vital area—one-half of one percent of the total tonnage delivered in the entire air war. Early results were highly encouraging: In September 1943 production was down to 35 percent of the pre-raid level. A month later came the famous raid in which German fighters and flak took a toll of 62 American planes, with 138 others damaged. That heavy loss forced us to allow the Germans a breather, which they used to great



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advantage. Factory structures had been badly damaged, but machines and machine tools were in relatively good shape. The Germans also had substantial stocks on hand, and energetic steps were taken to disperse the industry. By the autumn of 1944 production was back to pre-raid levels, and the Survey finds that in the end, "There is no evidence that the attacks on the ball-bearing industry had any measurable effect on essential war production."

**M**UCH more successful was the attack on oil. This vital commodity, tight to begin with, was naturally made a high-priority target as soon as German air power had been appreciably reduced. Here, too, the Nazis were resourceful, and at one point they employed 350,000 men for the repair, rebuilding and dispersal of bombed plants and for new underground construction. Nevertheless, Germany's synthetic oil production dropped from a high of 316,000 tons per month, when the attacks began, to 107,000 tons in June 1944 and 17,000 in September. The Survey staff located a desperate letter written in June of that year to Adolf Hitler, in which Albert Speer, the Minister of Armaments, advised his Fuehrer: "The enemy has succeeded in increasing our losses of aviation gasoline up to 90 percent by June 22. Only through speedy recovery of damaged plants has it been possible to regain partly some of the terrible losses."

The cost to our air forces was high. According to the Report, our "air crews viewed the mission to Leuna [largest of the synthetic oil plants] as the most dangerous and difficult assignment of the air war." The plant was first put out of production on May 12, 1944. In 10 days it was functioning again—at least in part. Attacked once more on May 28, it not only got going within a week, but by early July was producing at 75 percent of capacity. So it went throughout the summer and fall, each attack followed by repairs and restoration of production at a progressively lower level. By the end of the year production was down to 15 percent and remained at that level to the end of the war. To attain the crippling of this one plant, 22 full-scale attacks were required over a period of a full year, involving 6,552 bomber sorties and 18,328 tons of bombs.

High as the cost was, it paid off many times over, and constitutes perhaps the best illustration of the decisive value of the strategic bombing campaign. The loss in oil production was drastically felt throughout the enemy's armed forces. Pilot training was dangerously curtailed to save gasoline. The movement of *Panzer* divisions in the field was seriously hampered, and when the Germans launched their desperate counteroffensive in December 1944, they knew that their oil reserves were insufficient.

According to information obtained by the Survey group, the Nazi leaders hoped to make up the shortage by capturing Allied stocks. They failed in this objective, and as a result, many *Panzer* units were lost for lack of fuel. Similarly, says the Report, "in February and March of 1945 the Germans massed 1,200 tanks on the Baranov bridgehead at the Vistula to check the Russians. They were immobilized for lack of gasoline and overrun."

Hardly less important a result of the successful raids on Germany's synthetic oil plants was the crippling of her nitrogen output. So seriously was the supply of explosives lowered that by the beginning of 1945 the Nazis were filling shells



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with a mixture of explosives and non-explosive rock-salt extender. Units manning flak guns were told to fire only on planes that attacked the particular installations they were assigned to protect—and not even then unless “they were sure of hitting the planes”!

**D**ISPERSAL of plants was the keynote to Germany's defense of her aircraft production—and it was a highly successful defense. Not until February 1944 did the Allies go all out in their effort to blast the *Luftwaffe* in the making. In one week 3,636 tons of bombs were dropped on aircraft plants, and in that and succeeding weeks every known factory in the industry was hit. Nevertheless, the *Luftwaffe* received 39,807 new planes in 1944 as compared with 15,596 for 1942, and more planes were delivered in March, the month after the peak attacks, than in January, the month before. The explanation lay not only in dispersal but in the fact that the Germans had provided considerable excess capacity for the airframe industry. Another factor was the surprising durability of German machine tools, which frequently survived heavy bombing.

What finally washed up the *Luftwaffe* was a change in tactics. Allied fighters, formerly confined largely to protecting bombers, were shifted in 1943 to the task of destroying German fighters. They succeeded so thoroughly that the resulting loss of Nazi pilots, and the disorganization of squadrons, reduced the *Luftwaffe* to ineffectiveness by the spring of 1944. German air generals admitted to Survey officials that on D-Day “the *Luftwaffe* had only 80 operational planes with which to oppose the invasion,” and that “at no time between D-Day and the break-through at St. Lo did reinforcements offset losses.”

Reinforcements did strengthen the *Luftwaffe* later in the year, but never to any significant degree, making the fate of Germany's increased production of aircraft in 1944 a major mystery. The Survey people don't know the answer, and the German generals themselves offered all sorts of conflicting explanations. Hazarding a number of guesses on the subject, the Report suggests that much of 1944's production might have been “lost in transit from factory to combat bases, destroyed on the fields, or grounded because of a shortage of gas or pilots.” Then, too, German production figures may have suffered from wishful thinking.

The possibility that these mystery planes were “lost in transit” is a lively one, because, says the Report, “the attack on transportation was the decisive blow that completely disorganized the German economy.” In 1939 the German railway system was among the best in the world, and its standards of maintenance, according to the Report, “were higher than those general in the United States.” Highly organized and efficient, too, were the commercial highway networks and the inland waterways, which carried roughly a quarter of the nation's freight. From the day of the invasion to the end of the war, the air attack on German transportation closely geared to ground operations, was persistent and crushing. Freight car loading that totaled 900,000 cars in August 1944 dropped to a disastrous low of 214,000 cars by March of 1945. “Thereafter,” says the Report, “the disorganization was so great that no useful statistics were kept.”

And what about Germany's civilians—those civilians who, we were told repeatedly, could never stand up under such a pounding? Studies conducted by the Survey show by how thin a



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thread their morale actually hung in the darkening days of 1944 and 1945:

"The people lost faith in the prospect of victory, in their leaders and in the promises and propaganda to which they were subjected. Most of all, they wanted the war to end. They resorted increasingly to 'black radio' listening, to circulation of rumor and fact in opposition to the regime; and there was some increase in active political dissidence—in 1944 one German in every thousand was arrested for a political offense."

The Survey experts believe that if the German people "had been at liberty to vote themselves out of the war, they would have done so well before the final surrender." Obviously they were anything but free, however, and rather than take the risks of revolt, as other tyrannized peoples have done, they continued to work for the Third Reich up to the very end.

The ability of the Germans to survive devastating air attacks—surprising to their own leaders as well as the outside world—rested only in part on the crushing power of a ruthless police state. There were other factors. One was the fact that production never seemed to suffer for long, however severe the attack. The Survey obtained figures to show that "while production received a moderate setback after a raid, it recovered substantially within a relatively few weeks. As a rule, the industrial plants were located around the perimeter of German cities, and characteristically these were relatively undamaged."

Then, too, stockpiles of clothing and other civilian commodities were available for bombed-out civilians until the very last stages of disorganization. Despite the bombing, Germany—living off the fat of conquered Europe—at no time offered its people a diet inferior to that of the British. German shelters were excellent, though insufficient in number, but fire-fighting equipment proved inadequate. Incendiaries were found to have been four to five times as destructive as high explosives, and "fire storms occurred, the widespread fires generating a violent hurricane-like draft, which fed other fires and made all attempts at control hopeless." The Survey estimates that casualties from air attack totaled roughly 305,000 killed and 780,000 wounded, while 20 percent of Germany's houses were destroyed or damaged.

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**S**UMMING up its findings, the Survey authorities report that although air power might have been more advantageously applied in this case or that, its decisive bearing on the victory was undeniable: "In the air, its victory was complete. At sea, its contribution, combined with naval power, brought an end to the enemy's greatest naval threat—the U-boat; on land, it helped turn the tide overwhelmingly in favor of Allied ground forces. Its power and superiority made possible the success of the invasion. It brought the economy which sustained the enemy's armed forces to virtual collapse. . . ."

That should be tribute enough to the air arm. But the men who made this Survey are not foolish enough to believe that the next war can be won by applying the principles of the last one. The little atom makes a world of difference, and "the great lesson to be learned in the battered towns of England and the ruined cities of Germany is that the best way to win a war is to prevent it from occurring." Which nobody can deny.

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