Rommel could not be allowed to mass his forces at Normandy. Eisenhower took a gamble—and won.

The War on the

Halt US and British bomber attacks on German strategic targets. ... Divert these airplanes to strike railways and bridges in occupied but allied France. ... Accept in the process up to 160,000 French casualties. ...

That, in the spring of 1944, was what Gen. Dwight D. Eisenhower, Supreme Commander Allied Expeditionary Force in Europe, chose to do.

Eisenhower's verdict was epic in its consequences. Except for Truman's resolve to strike Hiroshima, no World War II air war decision was more complex or caused more bitterness than Ike's move to attack the French railway system in advance of the June 6, 1944 Allied landings in Normandy.

Top Allied leaders called it simply "the transportation plan." Because both attacker and defender were in a race against time, the outcome of the Normandy invasion hinged upon it.

Across the English Channel in France waited Field Marshal Erwin Rommel, nicknamed "Desert Fox." Hitler personally put him in charge of Army Group B, with orders to push the Allies back into the sea should they manage to put forces ashore.

After years of war with Soviet forces in the east, German forces comprised only 59 divisions in the west. Many of them were of inferior quality, but a few—notably, the Panzer divisions— were filled with Eastern Front veterans and were fearsome. They were the key to German planning; with his forces spread out across France, Rommel had no choice but to stake everything on a quick counterattack with his best units.

Rails

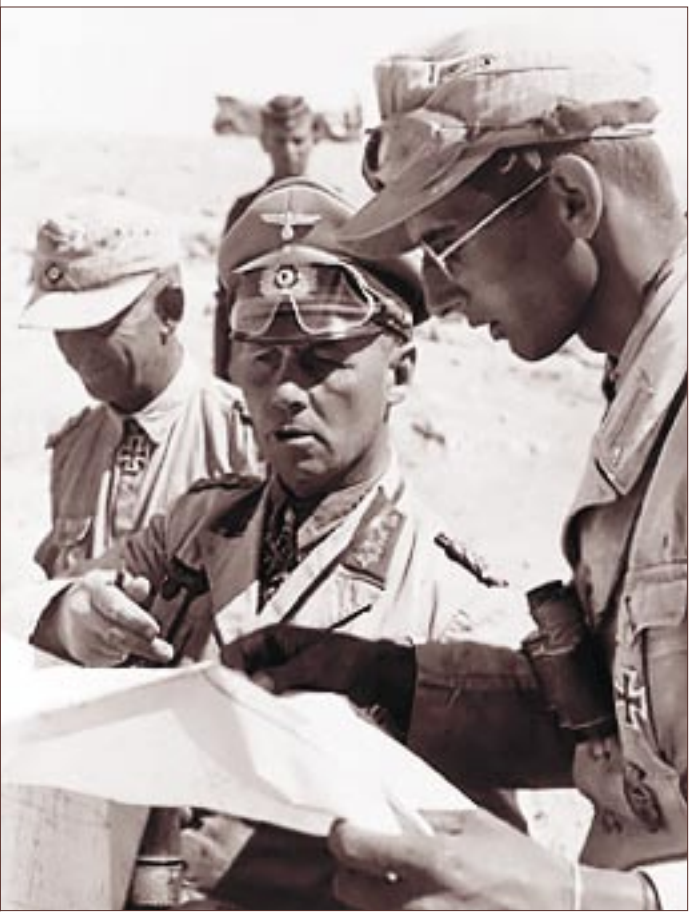
By Rebecca Grant

Contrary to popular belief, Eisenhower saw no problem in getting his forces ashore. Even the German generals acknowledged this would be manageable. The so-called "impregnable" Atlantic Wall fortifications of German propaganda were "sheer humbug," according to Field Marshal Karl R. Gerd von Rundstedt, who was commander in chief in the west and Rommel's putative superior.

The real test would come with Rommel's counterattack, and Eisenhower wanted to stop it before it even got started.

In this, airpower was the key. Eisenhower's whole premise for Normandy called for defeating Germany's air force and then using Allied airpower to hinder transportation so that Rommel could not maneuver rapidly and get his forces in position to oppose the landing in strength.

Ike and his deputy, RAF Air Marshal Arthur W. Tedder, formulated plans in which Allied fighters and bombers would pick off German forces moving by road toward the Normandy area. Of course, those forces wouldn't move until Hitler ordered his generals to concentrate to oppose the invasion. That done, the Germans would move swiftly, so the Allies' reaction time was sure to be limited.



Success at Normandy depended on hampering a German counterattack by cutting road and rail links. Opposite, Allied bombers wrecked this bridge over the Rhone River near Toulon, France. Rommel, at left, was counting on railways to rapidly deploy his limited high-quality forces against the Allied invasion. Above, Eisenhower offers encouragement to paratroopers before D-Day.

Since February 1943, the air offensive in Europe had been focused on pushing back the German Luftwaffe. Air superiority remained everyone's top goal. However, as 1944 began, the new question was this: What else could the air forces do before the landings to ensure the success of the Normandy invasion?

Enter one Solly Zuckerman with his plan for attacking France's railway system.

Zuckerman was an unlikely architect of airpower. One contemporary described him as "a small, mysterious man in an unpressed tweed suit." In 1943, this 39-year-old South African-born Oxford professor of zoology was best known for his book *The Social Life of Monkeys and Apes.* Some, like RAF Air Marshal Arthur T. Harris, never warmed to Zuckerman, whom he derided as "a civilian professor whose peacetime forte is the study of the sexual aberrations of the higher apes."

Tedder had a different view. He saw real insight in Zuckerman's detailed analyses. Trained as an anatomist, Zuckerman first worked with colleagues on assessing air raid casualties in London and then moved on to evaluating air operations in North Africa. There he won both Tedder's confidence and the Cambridge-educated airman's friendship as the two bonded over arcane discussions of history.

Next, Zuckerman helped Tedder prepare and execute coordinated attacks on the rail and road lines of commu-

American bombers such as the B-17G shown here bombed rail centers, repair yards, and tunnels, while fighters attacked rolling stock and repair crews.

nication crisscrossing the key island of Pantelleria, which the Allies during mid-1943 took in preparation for the invasion of Sicily.

Despite the professor's quirks, Tedder had complete confidence in his knowledge and judgment, which he put to good use.

Unique Knowledge

In January 1944, Tedder sent Zuckerman home to London to join in the secret Overlord planning work that was then under way at Norfolk House in the British capital. "His knowledge of bomb damage gathered in North Africa and Italy was unique and was occasionally to confuse those who imagined that they alone could know anything of bomb damage," said RAF Air Vice Marshal E.J. Kingston-McCloughry, who was already at work on D-Day air plans when Zuckerman arrived.

Making the debate on air plans all the more urgent were lessons learned from many bloody setbacks at the Anzio beachhead during the Italian campaign. On Jan. 22, 1944, Allied forces landed north of the German lines at Anzio. At first they met only light resistance. The Mediterranean Army Air Forces had bombed rail lines steadily, producing the impression that rail traffic was stopped and the battle area could be sealed off.

Those impressions could not have been more wrong. "The air forces reported that their preliminary bombings had disrupted all rail and road communications in central Italy," wrote naval historian Samuel E. Morison after the war, "but they had not done so." Soon, 14 divisions from as far away as Yugoslavia and southern France were closing off the Anzio beachhead. On Feb. 16, 1944, German Field Marshal Albert Kesselring launched a massive counterattack. He attacked with 125,000 troops, compared to the Allies' 100,000.

Kesselring's assault nearly worked. Two German counterattacks pushed salients deeply into Allied-held territory, but the Allies hung grimly on. At length, Allied soldiers—supported by intense air attacks and naval gunfire—succeeded in pushing back the Germans.

It was a close call. Everyone knew that, at Normandy in a few months, the Allies would have to do much better. Heeding the lessons of North Africa and Italy, Eisenhower and Tedder crafted a sophisticated plan of attack, taking into consideration the shocks and surprises of those earlier campaigns.

First, they reshuffled their priorities. The Germans already had fuel and supplies in the Normandy area, so there was no point in targeting that. What Eisenhower and Tedder wanted this time was to choke down the rail transport and force the German forces onto the roads. This would leave them exposed and vulnerable; hundreds of Allied fighters and bombers would rove the skies above the main highways, breaking up German maneuvers with timely and unexpected attacks. The idea was to make sure that Rommel, unlike Kesselring, would never get the chance to concentrate and then counterattack with numerically superior forces.

By early 1944, France's rail system was a ripe target. It was already suffering from the effects of four years of German occupation and neglect. Investment was minimal, and Germany had taken a third of the locomotives and rolling stock out of France for use elsewhere in Europe.

Targeting methodology for the rail attacks was selective. The unique aspect of Zuckerman's plan was that it sought to knock out only specific, high-value railway centers and heavy repair facilities in order to achieve maximum effect. "Only in special circumstances," noted Tedder, "was it thought worthwhile to bomb tunnels or isolated stretches of railway line." That is because it was easy to rebuild tracks. Moreover, attacks on rolling stock, while valuable, were time-consuming and dangerous. When it came to bridges, the story was much the same.

RAF Air Marshal Arthur Tedder (right), shown here with Marshal of the RAF Hugh Trenchard, got Ike to back his proposed campaign against rail rather than Lt. Gen. "Tooey" Spaatz's plan to target German oil supplies as a first priority. It worked: German rail traffic slowed to a near-standstill.

The final plan specified rail center targets across the length and breadth of France, Belgium, and western Germany. Initial attacks began in early March.

Few were as enthusiastic about the transportation plan as Eisenhower and Tedder. As the clock began ticking in February and March, Lt. Gen. Carl A. "Tooey" Spaatz, commander of US Strategic Air Forces in Europe, feared that attacks on the transport system would not bring up the German fighters, whereas "we believe they will defend oil to their last fighter plane."

Eisenhower was well aware of the controversy among his commanders. He was determined not to let their squabbles stand in the way of the two things he had to have: command of all air assets for the invasion and an immediate start to the transport plan.

Eisenhower was so adamant about it that he wrote, on March 22, 1944, that if a satisfactory agreement were not reached in a meeting three days off, he would "take drastic action and inform the Combined Chiefs of Staff that, unless the matter is settled at once, I will request relief from this command."

Eisenhower faced many problems in that tense period, but only one made him threaten to quit.

When the fateful meeting came, Eisenhower let Tedder be first to speak. Tedder presented a case in favor of chopping all air assets to Supreme Headquarters Allied Expeditionary Force (SHAEF) and starting a campaign against the French transportation system. Spaatz countered with the oil plan and his view that attacking rail yards and marshaling depots would not have a decisive effect within any measurable length of time.

Eisenhower had no objection to the oil plan but rail targets had to come first. The Germans already had 12 Panzer divisions in the west and Eisenhower reminded the group that the success of the whole plan was "conditioned on [there being] no more than 12," with three near the landing areas.

Air attacks beginning in April could reduce overall efficiency, "canalize" rail traffic and strain the whole system. To Eisenhower, "delaying of the arrival of one division would be worthwhile." He even conceded that "some reduction in traffic, however small," would justify adoption of the transport plan.

Eisenhower won his point with the military commanders. His next obstacle was British Prime Minister Winston Churchill. Churchill, who also served as Minister of Defense, was known for delving deeply into minute details of the war. He often formed opinions with an eye on postwar outcomes. This was no exception. Churchill balked at the idea of risking so many French lives, which he warned could conceivably drive postwar France into the arms of the Soviet Union.

Bridges, such as this one over the Loire River in Tours, were not part of the original attack plan. Air superiority, however, made them vulnerable.

Eventually, Churchill acquiesced to the plan. However, even after the bombing began in earnest, Churchill continued to complain about collateral damage. Continued hand-holding was a must. "We must never forget that one of the fundamental factors leading to the decision for undertaking Overlord was the conviction that our overpowering Air Force would make feasible an operation which might otherwise be considered extremely hazardous, if not foolhardy," Eisenhower told Churchill on April 22, 1944.

When Churchill again wavered in May, none other than President Franklin Roosevelt weighed in. Roosevelt told Churchill that "however regrettable the attendant loss of civilian lives," he, the American leader, would not constrain his commanders from doing whatever it took for Operation Overlord to succeed.

Nor did France flinch at the plan. French railway personnel quickly relayed bomb damage assessments back via the resistance and intelligence networks, according to Tedder. "No one has a greater stake in the success of that operation than the French," Eisenhower pointed out.

By then, intensive operations were under way. They had started up with Ike's April 17 directive moving rail centers to No. 2 priority. As always, Luftwaffe targets came first.

Ninth Air Force, Twelfth Air Force, and RAF Bomber Command attacked targets. Spaatz swung Eighth Air Force into the fight on April 19. Fifteenth Air Force added its might. By the end of April, rail targets in France, Belgium, and Germany had absorbed the explosive force of more than 30,000 tons of Allied bombs.

The German forces felt the effects of this bombing right away. Long lines of railcars backed up, unable to move. Von Rundstedt pulled 18,000 workers off construction of defenses on the Atlantic Wall and set them to work repairing railways.

Rommel Smells a Rat

Military train capacity in the northern region fell from about 58,000 tons a day in early March to barely 25,000 tons per day in early May. Over the same period, track available in the north plummeted from about 236,000 miles to just over 62,000 miles. Von Rundstedt transferred 10,000 more workers to the rails in May, to no avail.

Churchill pinged Tedder on May 29 with a memo asking if the rail attacks had exceeded the 10,000 casualty limit yet.

However, the Allied transportation plan carried a risk bigger than Churchill's wrath: What if the pattern of bombings revealed too much about the real landing site? Elaborate deception operations kept most German leaders focused on the Pas de Calais area as a possible entry point.

However, one man—Rommel—wasn't fooled. Rommel won his "Desert Fox" nickname in North Africa, and there he also learned stern lessons about the impact of Allied airpower. Like Eisenhower, Rommel believed that everything depended on swift movement of his mobile reserves. He wrote in late April that, "failing the early engagement of all our mobile forces in the battle for the coast, victory will be in grave doubt."

Rommel seemed to be in no doubt about the meaning of the sudden increase in railway attacks. He knew that the Allies would land at Normandy. By May 9, according to biographer Samuel W. Mitcham, he was touring the Cotentin peninsula, convinced it would be the focal point of the invasion.

Here Rommel's instincts almost upset Eisenhower's plans. Rommel began moving forces into the Normandy area in response to the rail bombings. He transferred seven mainly battalion-strength units during May. One unit, the 352nd Infantry Division, went undetected by Allied intelligence and put up the fierce D-Day resistance that almost repulsed the attack on Omaha Beach. On the coast, Rommel stepped up defenses. His tours to the lines bolstered German morale. Yet unless he could quickly move in reinforcements and organize for a counterattack, it would all be for naught, Rommel knew.

As D-Day approached, Tedder unleashed fighters and bombers on rolling stock and rail bridges. On May 21, one mission featured more than 1,200 fighters on sweeps against trains in northern France.

Allied airmen also began systematically dropping every bridge on the Seine between Paris and the sea. Bridges were not part of Zuckerman's original vision. He considered them "uneconomical and difficult targets." With a blanket of air superiority, however, airmen proved he was wrong.

On May 7, eight P-47s each dropped two 1,000-pound bombs on a 650-foot-long steel rail bridge over the Seine at Vernon. The bridge was demolished. Now, even the sharpest critics of bridge-bombing held their tongues. As May drew to a close, more low-level attacks by P-47s, B-26s, and other attack aircraft dropped bridge after bridge.

When the Germans attempted repairs, pilots strafed the workers and bombed the bridges again. This was a tremendous testament to precision bombing. Given the right tactics and the right conditions, airmen in 1944 could be precise indeed. They did it with a surprisingly low tonnage count, too. Dropping the Seine bridges and others marked on the system took a total of 4,400 tons of weapons. Not one train ran on those routes after the end of May. Harris' night bombers also scored highly precise attacks, knocking out several rail centers in just a single attack.

In total, 51 of the 80 northern rail centers met the highest bomb damage assessment criteria—with damage to the point where no re-attacks were needed. All but four of the remainder met the second-highest damage level criteria.

Across northern France, German military dislocation and paralysis set in. Rail traffic after May 19 fell to 38 percent of what it had been in February. By D-Day the French National Railway was operating at only 10 percent capacity, and Normandy was, "for all practical purposes, a strategic island," concluded Rommel biographer Mitcham.

Frozen in Place

Of the three Panzer divisions in the Normandy area, just one, the 21st, engaged late in the afternoon on D-Day. The tanks blocked the move on Caen, and cut the British line, but then withdrew for lack of support. Two others, 12th SS Panzers and Panzer Lehr, closed on the 7th but were mauled by fighters. Panzer Lehr did not get into the fight until June 9, three days after the first landings.

Rommel's forces put up fierce defensive resistance, holding out in some locations for weeks, but he needed reinforcements to hold defensive lines so he could pull out his Panzers and mass for counterattack. Those reinforcements did not come in time. As later noted by Harris, "When they did percolate through to the front, they found themselves operating in conditions of extreme disadvantage." Not only were the Nazi units fighting "under the shadow of overwhelming Allied air supremacy," he said, "they were attempting to hold a front behind which, for three or four hundred miles, the vital rail system was in a state of wreckage and complete confusion."

By June 12, Rommel had only 12 divisions totaling about 120,000 men. More than 326,000 American and British soldiers were already ashore.

To get to the battle, the 2nd Panzer division had to travel 160 miles and did not arrive until June 13. It took another week to prepare the road-weary unit for battle. The 17th Panzer grenadiers division made it to the fight on June 17. Another division, the 2nd SS Panzers, did not show up until June 26. It was July 1 before Rommel at last had four Panzer divisions ready for a counterattack. The attack advanced only a few miles before petering out.

"Katastrophal," von Rundstedt later wrote to his superiors.

Within days, von Rundstedt had been replaced. By mid-July 1944, Rommel was gone too, severely wounded in a strafing attack. The transport attacks, however, only expanded after the invasion. Germany was the next target. Under Tedder's guidance, the Allies attacked rail targets throughout fall 1944. Heavy attacks in the Ruhr in October 1944 slowed coal deliveries.

Oil vs. rail arguments continued as attacks on both target sets increased. In fact, from an operational perspective, bombing rail marshaling yards was a good tactical use of the mass bomber formations when weather prohibited precision bombing of oil plants.

As Tedder pointed out, the Germans could build underground factories, but "their lifelines remained on the surface." The more the Nazis dispersed, the more they depended on rail and other lines of communication.

The best evidence of success once again emerged from the deteriorating Wehrmacht. Air attacks on the German transport system led to a 40 percent drop in marshaling capacity by the end of 1944. The effect was profound: German factories manufactured 2,199 tanks from September to November 1944. Less than half ever reached German forces.

Eisenhower had said he'd judge the rail plan worthwhile if it delayed even one division. Instead, the combined effects of the campaign delayed them all in the crucial days after June 6, 1944. The results reverberated throughout the remainder of World War II in Europe, and, indeed, still do. ■

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