To Stop Them On The Beaches

Luftwaffe Operations against the Allied Landings in Italy

By Professor James S Corum

In May 1943 it was not yet clear to the Nazi High Command that the war had turned irrevocably against the Axis. German forces had suffered a disaster at Stalingrad, but hoped to recover the situation on the Eastern Front with a grand offensive in the Summer. In Tunisia the Axis had taken another severe defeat. After winning a few operational victories early in the campaign the German/Italian forces had been overwhelmed by Allied ground and air power. Over Germany, cities were taking a beating from the increasing RAF night raids, but German air defenses were formidable and it looked as if Germany could win the aerial attrition battle. Although the strategic situation in the Mediterranean looked bleak, with Italy clearly the next target of Allied forces, the Wehrmacht High Command was feverishly working on plans to reinforce Italy in the hope that the expected Allied landings could be thrown back into the sea or at least endure heavy losses so any Allied advance would turn into a stalemate. Whatever the Allied course of action in the Mediterranean, the Luftwaffe was expected to have a major role in repelling any landing attempts.

Abandoned Junkers Ju 88s

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This article will examine the Luftwaffe plans, tactics and operations against the Allied amphibious operations at Sicily, Salerno and Anzio between July 1943 and February 1944. The air war in the Mediterranean in 1943-44 was a sideshow for both the Luftwaffe and the Allied air forces, overshadowed by the great air battles on the Eastern Front and over the skies of Germany. As such, the Luftwaffe and the Allied air operations over Italy have received scant attention from airpower historians. Yet it was nonetheless a very important campaign and one the Luftwaffe fought with considerable effort and ingenuity.

German strategic situation in May 1943

The early part of the campaign for Tunisia gave the Luftwaffe a false impression of its true capabilities. From December 1942 to February 1943 the Luftwaffe generally held air superiority over the battlefront. The German and Italian air forces operated from good, all-weather airfields close to the front while the British and Americans had few airfields within effective range of Tunisia and were forced to build new airstrips at the end of a long logistical pipeline and with far too few engineers. During the Winter of 1942-43 the USAAF and RAF forward airfields were often deep in mud and short of parts and supplies. At the same time, the Americans had trouble coordinating their air operations with the British and developing an effective doctrine for supporting the ground war.

However, by the Spring of 1943 the Allied problems with coordination of air forces, supplying forward airfields and building adequate airstrips had been largely sorted out. The Americans and British were soon able to use their superiority in numbers to drive the Luftwaffe from the skies, interdict Axis ships and aircraft traveling to and from Tunisia and render the Axis airfields largely inoperable. Just before the end of the collapse, the Germans and Italians, having taken heavy losses in the air, pulled their battered formations out of Tunisia to Sicily and the Italian mainland. The German and Italian air forces left behind hundreds of wrecked and damaged aircraft on Tunisian airfields — many of the planes in good condition but unflyable due to a lack of spare parts

Macchi MC 202

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that never arrived because of the Allied interdiction of Axis supply lines.

The disaster in Tunisia woke up the German High Command to the crisis in the Mediterranean theater. As the situation in Tunisia deteriorated, the German High Command assessed the Italian armed forces as being in such poor shape that they were basically incapable of offering serious resistance to an Allied attack on Italy. The fighting worth of the Italian Army was low due to lack of equipment, obsolete equipment, poor training,

Light bomber and attack (fighter-bomber and Stuka) units were based in Sicily, southern Italy

poor morale and weak officer leadership. The Italian Air Force was rated as largely ineffective. While there was a large number of planes on hand, all but a few of the fighters were capable of taking on Allied aircraft on an equal basis. The Italian bomber force of several hundred planes was regarded as so hopelessly obsolete that it was rated as having no value for the defense of Italy. The Italian aircraft industry and air force logistics system, never very capable in the first place, were close to a breakdown. Air force operational rates were about 30-40% of aircraft due to a lack of parts and especially a lack of spare engines. The only really useful units of the Regia Aeronautica were the fighter units that had recently been reequipped with the Macchi 202s and 205s. In those two fast, maneuverable and well-armed aircraft the Italians had planes that were roughly equal to the Allied P-40s and Spitfires. The only Italian force that was rated as fairly modern and effective was the Italian navy. Even then, the Germans wondered whether the Italian fleet could ever stand up to the Royal Navy in open battle.[1]

On 2 March 1943 the Italian High Command, the Commando Supremo, sent Hitler a long message outlining Italy's precarious strategic situation and demanding large quantities of modern equipment from the Germans. The next day, after conferring with his staff about the crisis on the southern front, Hitler replied to Mussolini and, to reassure his ally, promised large quantities of German matériel and assistance to include tanks and artillery for the Italian Army and re-equipping the Italian bomber fleet with German Ju 88 medium bombers. A large number of flak guns and radar units were also promised and the German equipment was to flow immediately.[2] In the meantime, German army and air reinforcements were ordered to Italy.

The Luftwaffe prepares to meet the Allies

The crisis in the Mediterranean pushed the German High Command to reorganize the command structure of the army and Luftwaffe in Italy. Through the North African campaign Luftwaffe Field Marshal Albert Kesselring, with the title of 'Commander in Chief-South', had worn two hats as commander of German army units as well as commander of Luftflotte 2 (Air Fleet 2). In June 1943 Luftwaffe Field Marshal Wolfram von Richthofen was pulled from the Russian front, where he commanded Luftflotte 4 in southern Russia, to take over Luftflotte 2 in Italy. Kesselring still maintained the title of Commander in Chief-South but his authority now extended only to

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Junkers Ju 88

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German army units and some Luftwaffe flak units placed under army command. As was typical in the Nazi command system, there was no true theater commander or joint staff. Luftflotte 2 was under Berlin's direct authority and reported directly to the Luftwaffe High Command. In any case, Kesselring and von Richthofen were expected to coordinate their commands and plans for the defense of Italy.

The selection of von Richthofen as Luftwaffe commander shows how seriously the High Command viewed the threat in the Mediterranean. The temperamental and rather humorless von Richthofen was not an easy general to work for. However, he had the well-deserved reputation as the best tactical air commander in the Luftwaffe. Not only was von Richthofen a gifted tactician, he was ruthless and aggressive and was known for accomplishing a lot with limited resources. A great part of his success as a commander was in his understanding of aviation technology. He had earned a PhD in engineering during the Reichswehr era and had served as a leader in the Luftwaffe's Technical Branch developing new weapons and equipment before he was sent to serve in the Condor Legion in 1936. He could be expected to make the best use of the new anti-ship torpedoes and radio-guided bombs that the Luftwaffe was deploying to the Mediterranean.

Along with von Richthofen other first rate Luftwaffe senior commanders were sent to the theater. Col Dietrich Pelz was pulled out of his post as Inspector of Luftwaffe bombers and Stukas and sent to command the German bomber force in Italy. Pelz had won recognition as an outstanding bomber commander and tactician early in the war and was charged to develop effective bomber tactics against the expected allied invasion forces.

The next year he would become the Luftwaffe's youngest major general at 32.

The available Luftwaffe forces for the defense of Italy were commanded by Luftflotte 2, headquartered at Frascati, a small town near Rome, which also contained Kesselring's headquarters. Luftflotte 2 had two major elements, Fliegerkorps II, whose headquarters was in Sicily at Tavromina Airfield. However, before July a more secure headquarters had also been prepared near Naples.[3] Also assigned to support Fliegerkorps II was Air Training Division 2, based in the south of France. Fliegerkorps II's main force consisted of a fighter command based at Tapani Airfield in Sicily, with fighters and fighter-bombers at Vibo Valentia and Monte Corvine airfields. Light bomber and attack (fighter-bomber and Stuka) units were based in Sicily, southern Italy and there were several groups of aircraft in Sardinia.

Air Training Division 2 was headquarters for bomber units that been badly mauled on other fronts and had been sent to a restful sector to be rebuilt, reequipped and retrained. It also contained Bomber Wing 100 (KG 100), which was being equipped and trained to employ the new radio-controlled bombs, the first true PGMs. In addition to these flying commands, the Luftwaffe's representative to the Italian Air Force staff (Superaeria) General Ritter von Pohl, had a staff to conduct liaison with the Italians and also commanded the Luftwaffe's ground forces and flak units in Italy.[4]

In total, in early July 1943 the Luftwaffe had an official strength of 667 combat aircraft available for the defense of Italy: six Ju 88 bomber groups, each with 40 aircraft, 1-2 weak He 111 torpedo bomber groups, three fast bomber groups (1 group Me 210s and two groups Me 110s), several attack (Schlachtflugzeuge) groups in the process of transitioning from the Ju 87 Stuka to the FW 190 fighter-bomber, four groups of Me 109 day fighters and one group of Ju 88 night fighters. For reconnaissance, Luftflotte 2 had one group of Ju 88 long range reconnaissance planes, one group of He 111 bombers equipped with radar to track shipping and one squadron of Me 109s equipped with camera and drop tanks for extra range.[5] Official numbers are, of course, often misleading. Most of the units were well under strength. For example, the Me 210 fast bomber group had only 18 aircraft, and of these, only 12 were operable. In most categories of combat plane, the Luftwaffe units were at two-thirds strength or less. Thus, in early July there were only 443 Luftwaffe operational combat aircraft in Italy and southern France.[6] The Luftwaffe estimated that it

Messerschmitt Me-110

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and the combat units of the Regia Aeronautica were outnumbered by a factor of approximately five to one in the air — a fairly accurate assessment.

The Italian Air Force (Regia Aeronautica) was in far worse shape than the Luftwaffe. Of the massive German assistance promised to the Regia Aeronautica in March 1943, by July only 40 Ju 88s had arrived to equip an Italian bomber group, and this unit was not yet operational. The Italian bomber force of 400 aircraft was so obsolete that it was written out of German planning. Italian aircraft production and maintenance remained in poor shape and was, in fact, getting worse by the day. The Italian fighter arm had a strength of 530 planes, but of these only the Macchi 200s, 202s, 205s and Re 2001s were considered modern enough to take on any Allied planes. Of these latter craft, only 130 were operational. To repel any Allied landing, the SM 79 and SM 84 torpedo bombers would be essential, but the Regia Aeronautica had only 22 of these operational. In the final reckoning before the Allies landed, the Italian Air Force paper strength of 1,042 aircraft translated into an operational strength of 164 relatively modern aircraft that could take on the Allies in less than suicidal conditions.[7]

Von Richthofen arrived on 12 June 1943 to take over a battered and demoralized force. On his way to Italy, von Richthofen had been personally briefed by Goering in his vast Karinhall estate. Goering was convinced that the Luftwaffe's failure in North Africa had been due to poor leadership and lack of will. As he had done in the Battle of Britain, Goering blamed his pilots' lack of courage and aggressiveness for the failure against the Allies. Goering even drew up an order stating that any Luftwaffe pilot — up to wing commander — who showed any lack of aggressiveness would be demoted to private and sent to fight as a soldier on the Russian Front.[8] Von Richthofen made his own assessment when he got to Italy. Von Richthofen, who had been continuously at war as a senior Luftwaffe commander since 1939 (and for 18 months in Spain before that) and had more than enough experience to intelligently review the Luftwaffe's condition without Goering's advice. His private assessment of the Luftwaffe's capabilities versus the vast Allied resources led to some pessimistic conclusions. Von Richthofen realized that if the British and Americans got ashore in force, neither the Italian army or the small number of German ground units had any hope to defeat them.

The only way to defend Sicily or Sardinia was to catch the invasion fleet at sea, or at the moment of landing, and to sink enough transports and supply ships to cause an Allied logistics breakdown. He remarked, "We can put every effort into attacking enemy shipping . . . If we are successful in disrupting the supply over the beaches we can make his ground units ineffective and vulnerable to counterattack by our forces".[9] The Luftwaffe's Intelligence estimated that the Allies had 1 1/2 million tons of cargo shipping in the Mediterranean to support landing operations. If the Luftwaffe and Regia Aeronautica could sink or disable 100,000 tons per day, any allied assault would soon be crippled. As von Richthofen noted, "We can't

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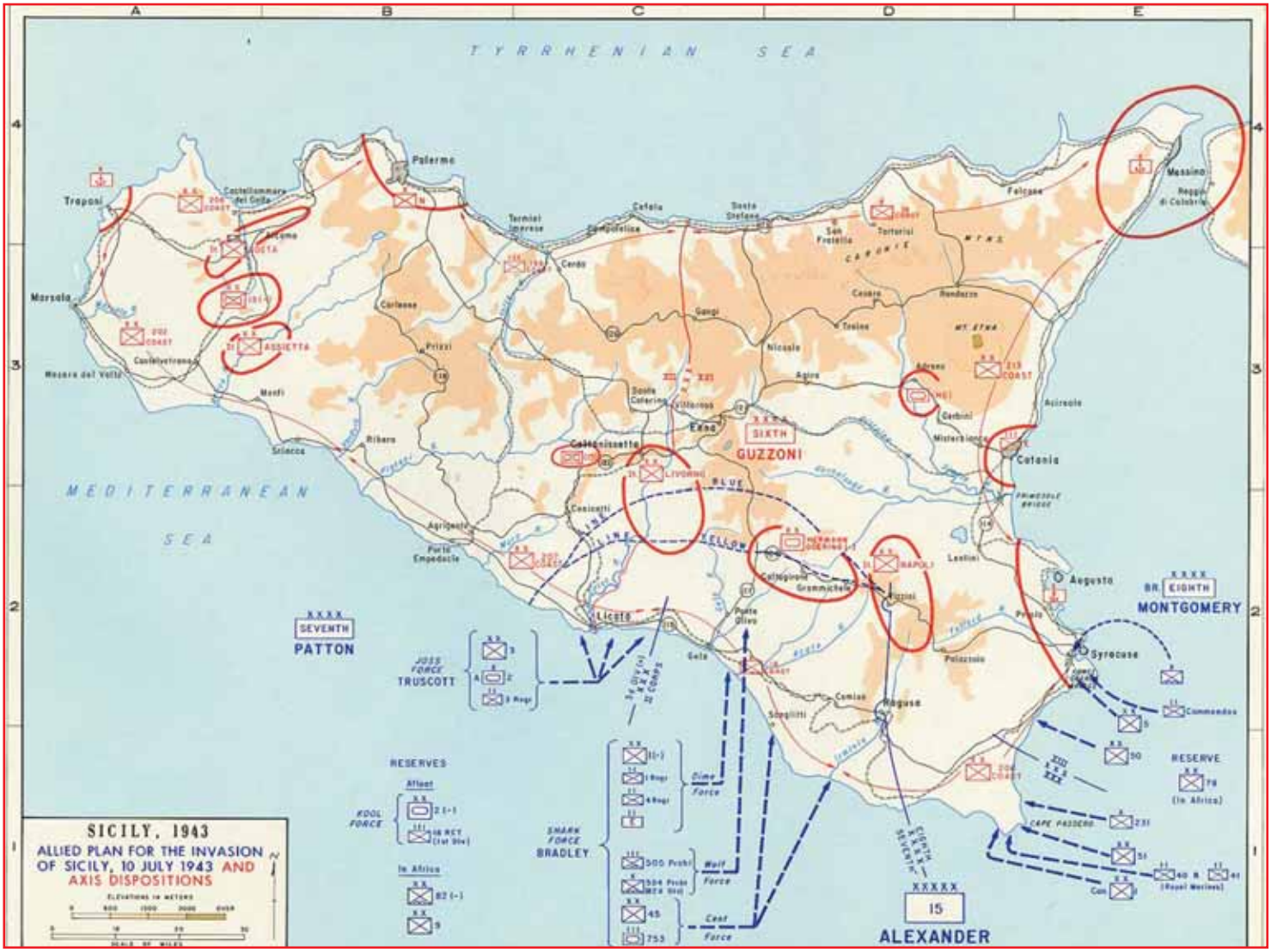
predict a success with this strategy . . . but it's the only strategy that offers a possibility of success".[10]

From May to July the Luftwaffe experienced an ever-increasing number of air raids against their airfields in Sicily, Southern Italy and Sardinia. Even the Luftwaffe bomber bases in southern France were attacked. The Allied advantage lay in the American four engine B-17 and B-24 bombers that had the range and payload to pound any Axis airfield in the theater, including those in Northern Italy and Southern France. The large British and American twin-engine bomber force had the range and payload to hit targets in Sicily, southern Italy and Sardinia. Through the month of June, the AAF/RAF bombers ranged all across Italy, attacking rail centers, shipping, and Italian munitions factories. The Luftwaffe's air bases came in for special attention. Von Richthofen pulled most of his bombers out of Sicily for well-defended fields in the Foggia area in southern Italy. Some fighters were pulled out of Sicily and based at airfields around Naples, Foggia and Calabria although some fighters and the attack units remained.

There are conflicting accounts of the Luftwaffe's relations with the Regia Aeronautica before the Sicily battle. Some Luftwaffe officers describe the Italians as being very cooperative and loyal Allies at this point in the war. Other Luftwaffe officers complained that the Italians were deliberately



dragging their feet and inhibiting full cooperation with the Germans. The lack of Italian engineers supporting the Luftwaffe delayed the process of rebuilding, repairing and enlarging the airfields that the Germans urgently needed if they were to stage their units south and mount an air defense of Sicily.[11] I tend to support the former view of the Italians as loyal allies of the Germans in mid- 1943. Whatever the relations between the German and Italian army had been, and they were often marred by distrust and acrimony, the Regia Aeronautica had a reputation of always doing its best to support the Luftwaffe in North Africa. In the case of the slow pace of airfield building and repair, I suspect that the Italian regime's routine incompetence is a better explanation than any bad faith.

The defense plan

From May to June the Luftwaffe feverishly tried to set up an effective air defense system for Sicily, southern Italy and Sardinia. As part of Hitler's aid package, 100 German flak batteries arrived in northern Italy to defend the heartland of Italy's war industry. Normally, most of the flak crews were Italian soldiers with Germans manning the radars and gun control systems. Additional Luftwaffe flak reinforcements went to southern Italy and Sicily along with German ground troops and the 5th Flak Division was deployed to southern Italy. As Tunisia was falling, the Germans emplaced a long-range Freya radar in Western Sicily and another in Sardinia. Numerous short-range radars were deployed to cover German bases.[12] One of the most severe German problems was a shortage of trained technical specialists. In Tunisia the Luftwaffe had lost its most experienced fighter operations (radar) controllers and such men were hard to replace.[13]

In spite of Goering's admonition to simply fight harder, the new commander had a few weeks to make his own assessment and draw up his own plan. Von Richthofen and Pelz worked hard to develop some anti-shipping tactics against the expected Allied invasion that would inflict maximum damage on the Anglo-American fleet with minimal German casualties. Given the massive Allied superiority in fighters, the Luftwaffe's best chance would be to attack at night or at dawn or dusk. Pelz directed that the bombers were to fly carefully planned courses out to sea and then drop to 50 meters altitude and change course to confuse Allied radar. As planes approached the target they were to climb to 2,500 meters and attack the target in a 30-50 degree dive. The group commander would drop illumination flares and would use colored flares to mark the target for his bombers.[14] Due to the fuel shortage, each mission would be carefully calculated with the most experienced pilots and navigators carrying a larger bombload and less fuel and the inexperienced crews a smaller bombload and more fuel.[15]

Ideally, German / Italian reconnaissance would find the Allied invasion convoys well out to sea and give the air units plenty of warning to hit the enemy hard and early. Pelz hoped that the Allied shipping could be hit with large, coordinated attacks of 50-80 planes at once. The highly trained German bomber force of 1940 might have been able to carry out such complex plans, but after Russia and North Africa, the Luftwaffe bomber force was a shadow of its former self. Despite a desperate shortage of trained bomber aircrew, Pelz hoped to quickly retrain his units to carry out anti-ship strikes.

Attacking ships is quite an art, and one the Germans had done little to master. A specialized Luftwaffe anti-shipping force had been virtually ignored before the war. From 1939-1942 the Ju 87 Stuka was the most capable airplane for attacking ships. But the Stuka had little chance to survive in combat against the Western Allies in 1943. In 1942 the Luftwaffe had finally created a small force of He 111 torpedo bombers, which did well against Allied convoys to Northern Russia that summer. In the Mediterranean the Luftwaffe had set up a torpedo bomber school at Grosetto and in the Spring of 1943 and was in the process of training and equipping two bomber groups for the mission when a massive Allied raid devastated the base. Von Richthofen withdrew the small torpedo plane force to relative safety in Southern France.[16]

Von Richthofen placed a good deal of hope in the small fast bomber and fighter-bomber force (Me 210s, 110s and FW 190s). They were expected to roar in at full speed at 50 meters altitude in order to evade allied radar. At about a kilometer from the target they would climb slightly and skip their bomb into the enemy while also strafing him.[17] The greatest problem in using these light attack planes was their limited range with heavy bombloads,

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especially the FW 190. Some attack units would have to be held in central or southern Italy and stage into Sardinia or Sicily if these islands were attacked. The closer a German airfield was to Allied bases in North Africa, the more intense the Allied bomber attacks and the heavier the daily attrition. Luftflotte 2 would have to pick just the right moment to stage the aircraft forward to the vulnerable Sicilian or Sardinian bases.

The intelligence picture: anticipating the Allied assault

German Intelligence left Kesselring and von Richthofen largely in the dark about Allied plans and forces. German signals intelligence was usually a very good source of intelligence on the Allies, but after Tunisia fell, the Allies maintained a pretty thorough radio silence in the Mediterranean and this source died up. The Luftwaffe's only long-range reconnaissance asset capable of monitoring Allied shipping and port activity was a squadron of Ju 88 reconnaissance planes. Try as they might, it was hard to get past the Allied fighter cover to photograph the main North African ports where Allied invasion forces were assembling. A few aerial reconnaissance reports came in during May-June, but there was nothing like a comprehensive coverage of Allied port and naval activity.[18] A handful of Italian and German flying boats and seaplanes patrolled the open sea to try to spot Allied convoys and shipping, but dared not get too close to the well-patrolled North African coast.

From all sources of intelligence, including agent reports, Wehrmacht intelligence in Italy estimated that the Allied powers had 50-55 divisions of ground troops in the Mediterranean, including the US Army, British Army and Free French Forces. German Intelligence even reported that the Americans had a force of three paratroop divisions based near Oran and being readied for the invasion of Italy. Of this vast Allied force, which included the former Vichy French forces in North Africa, the Germans estimated that 25 divisions were fully

Even in an all-out campaign against Allied shipping, the Luftwaffe and Regia Aeronautica were not able to accomplish much. The Allied loss of 12 ships to Axis air attacks did not hinder the landing of over 100,000 troops nor their vehicles and supplies on the shores of Sicily

equipped and trained and available for the coming campaign. Moreover, of this force, the Germans estimated that the Allies had the shipping and landing craft to land 120,000 men and 4,000 thousand tanks and vehicles in one lift.[19] The German estimates were almost double the true Allied strength figures. The Allies would use most of their ready combat forces in the theater, 12 divisions, in the Sicilian operation and the Allies, at peak strength in 1944, would never have more than 20 divisions in Italy. As for airborne divisions, the Americans had only one, the 82nd Airborne, in the theater. However, the estimate on Allied shipping was not far from the mark. The British and Americans had the capability to land a force of 100,000 men on Axis shores.

From the scanty information available, von Richthofen believed that there were two obvious targets for an Allied invasion, Sicily and Sardinia. Of these Sicily was the most probable site for an attack as it lay within fighter range of the British airfields on Malta. In the case of Sardinia, while it was out of range of the single-engine fighters, it was within easy range of Allied light and medium bombers and the British had carriers in the Mediterranean that could provide fighter cover. As an obvious target, Sardinia was reinforced by Italian and German ground forces and a strong German and Italian air contingent was sent there. If the Allies took Sicily, they could easily base aircraft there and assault southern Italy. If the Allies took Sardinia, its airfields could cover Allied landings in central Italy. As far as von Richthofen was concerned, the worst possible scenario was a simultaneous Allied attack on both islands. German and Italian ground and air strength was simply too thin to make an effective fight for both locations. Per Luftflotte 2's assessment, the Allies "would do the Germans a favor" if they only attacked at one location as the Luftwaffe and Regia Aeronautica only had enough airplanes to make a good fight on one front.[20]

The Allies telegraphed their intention to move on Sicily when they seized the island of Pantelleria south of Sicily in early June. Pantelleria was a large, well-garrisoned island with a major airdrome and a radar station. The Allied air forces subjected the island to a massive two-week bombardment that broke the morale of the Italian defenders and the garrison surrendered just as the first boats of the amphibious landing force touched shore. Pantelleria was vital to any Allied action against Sicily because its radar provided early warning of Allied raids and its airfield, within fighter range of Sicily, was urgently needed for land-based aviation. The Germans rightly figured that the British and Americans would not make such a great effort to seize Pantelleria if Sicily were not the primary target. After Pantelleria the AAF and RAF bombers began ranging all over Sicily and southern Italy, striking logistics centers, rail centers and, most importantly, German and Italian airfields. Von Richthofen noted that, "the competition between us and the Allies is to see if we can repair our airfields as fast as the Allies could bomb them".[21] By 20 June, von Richthofen noted that the German

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airfields in Sicily had been so heavily damaged that the Luftwaffe's attack units "couldn't get off the ground in less than 45 minutes".[22] As the air attacks on airfields across southern Italy increased in early July, the Germans and Italians placed their forces in Sicily and Sardinia in the highest state of alert.

Battle for Sicily

Early on the morning of 9 July an Italian reconnaissance plane spotted an allied invasion convoy south of Pantelleria. At 1630 the same day another Italian plane spotted five convoys steering north from Malta. The Italian and German forces on Sicily were all alerted. Within an hour a German reconnaissance plane reported a convoy 33 miles northwest of Malta. Until dark the Axis reconnaissance units shadowed the Allied convoy movements and before 2000 hours the Italian Air Staff ordered their torpedo bombers based in Sardinia to attack.[23] The Axis forces were about to face the largest amphibious operation in history (to that time). The time and place of the attack was expected and the Luftwaffe had used the time since Tunisia to prepare air attack plans and tactics.

On the morning of 10 July the Allies began landing six divisions at eight landing points along a 100-mile stretch of the southern Sicilian coast. With an invasion fleet of 1,365 warships, transports and supply ships as well as 1,225 smaller landing craft it was, as one might say today, a "target rich environment" for the Luftwaffe and Regia Aeronautica.[24] The Luftwaffe and Italian Air Force began hitting Allied armada before dawn.[25] At 0510 the US minesweeper *Sentinal* was sunk by a direct hit from a Stuka with 10 killed and missing and 51 wounded. At the Licata landing site there were several air attacks but no US ships were hit.[26] At the Gela landing site just before 5 AM a Stuka made a direct hit on the destroyer USS *Maddox* that sank immediately with heavy loss of life. Italian and German bombers flying from Sardinia attacked the Gela beachhead in the afternoon and inflicted minor damage to the destroyer USS *Murphy*. A Luftwaffe fighter-bomber sank LST 313 while a high-level bomber attack that night came nowhere close to hitting any ships.[27]

In the British landing sector near Catania the British invasion fleet came under heavy attack, mainly from the Luftwaffe bombers based in southern Italy. On D-Day four Liberty ships and a Dutch auxiliary were hit by bombs and two were sunk. That night two British hospital ships, the *Dorsetshire* and *Talamba* were bombed and *Talamba* subsequently sank.[28]

During the first two days of the landing the German and Italian aircraft met little opposition from Allied fighters. Even though the RAF and AAF had based several fighter groups on Malta and Pantelleria, amounting to several hundred planes, the fighters were flying at extreme range and had less than an hour to patrol over the beachheads. With eight landings and over 100 miles of coast to cover the AAF and RAF could keep no more than a few planes patrolling over each sector, even with a maximum effort. The German and Italian planes, which had orders to avoid combat with Allied fighters, found it easy to slip in to attack the Allied ships. The American 307th Fighter Squadron that covered landing reported the German tactics of the first part of the invasion as "2-5 Me 109s or Fw 190s trying to sneak in and dive bomb the ships".[29] The US unit claimed only two German aircraft in the campaign for the island.[30] The main resistance to the Axis air attacks was the shipboard anti-aircraft fire, which managed to bring down several Axis aircraft during the first day. During the first two days of the campaign the Germans and Italians lost at least 27 aircraft attacking Allied ships — losses under the 5-10% rate that von Richthofen deemed acceptable attrition.[31]

On 11 July the German and Italian air forces attacked Allied shipping throughout the whole landing area. In the American sector, ships logs reported several large and well-coordinated attacks by German bombers. At 1540 hours a force of 24-36 Ju 88 roared in over the US fleet. A direct hit was made on the SS *Robert Rowan*, an ammunition ship, and it began to burn. The crew was removed with no casualties and the *Robert Rowan* blew up at 1700 in one of the most dramatic moments of the campaign.[32] The ammunition ship sent a column of smoke thousands of feet into the sky as debris and unexploded shells rained down over several square miles. The event was captured on film (a US cameraman at Gela was taking a photo of the beachhead just as the *Robert Rowan* exploded).

That night the Italian and Luftwaffe bombers attacked for more than an hour using parachute flares for illumination and the destroyer USS *Tilman* was slightly damaged by a near miss. In the British sector, the destroyer HMS *Eskimo* was badly damaged by a German bomb.[33]

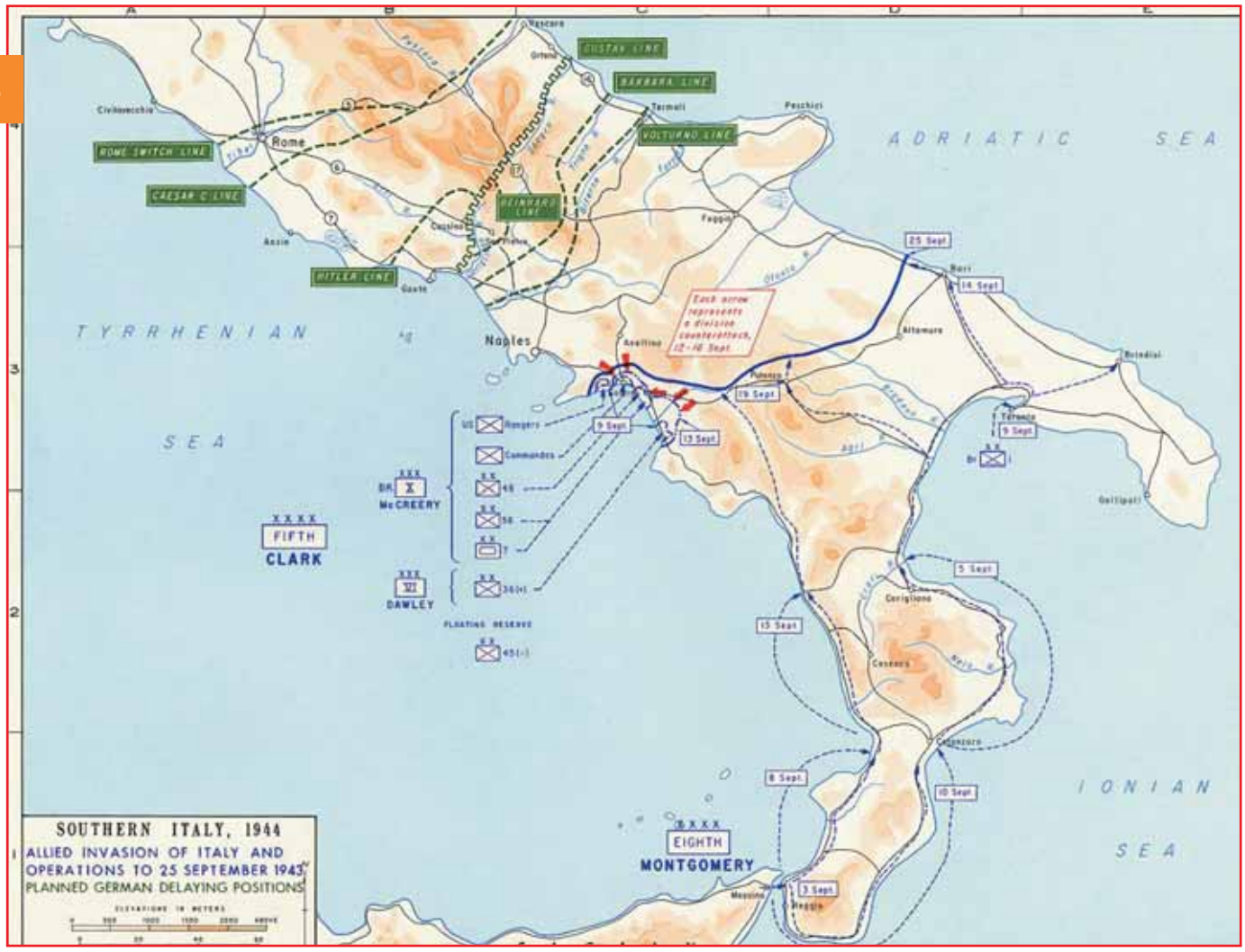
After the first days of the invasion the Axis attacks tapered off as the Allied air forces rapidly put several captured airfields near Catania into operation and immediately shifted fighter units to Sicily. Once RAF and AAF fighters were based in Sicily they quickly won air superiority over the whole island and made it far too dangerous for the Luftwaffe or Regia Aeronautica to operate in daylight. In the meantime, before the Allied air units were established ashore, the Luftwaffe kept up the attacks. On 13 July the Liberty ship *Timothy Pickering* was sunk and on the 17th the Liberty ship *William Coleman* was badly damaged as well as the HMS *Queen Emma.*[34]

The Germans had deployed a revolutionary new weapon to the theater . . . The new weapon was the precision-guided munition

The HS 293 would actually glide towards the target with the bombardier steering with a joystick and radio guidance for the control surfaces. Once a target was clearly sighted, the bombardier would ignite a rocket engine that would propel the bomb and its 700-pound warhead into some unfortunate ship at almost 500 miles per hour

The first days of the Allied landing at Sicily was last time the Axis air forces were able to have a fairly free hand in the air due to the thin Allied air cover. It was the last opportunity for the Germans to use their most lethal anti-ship weapon, the now-obsolete Ju 87 Stukas, in daylight operations. However, even in an all-out campaign against Allied shipping, the Luftwaffe and Regia Aeronautica were not able to accomplish much. The Allied loss of 12 ships to Axis air attacks did not hinder the landing of over 100,000 troops nor their vehicles and supplies on the shores of Sicily.[35] The massive Allied air campaign against Axis airfields in June had cost the Germans and Italians over 200 destroyed aircraft and over 100 damaged.[36] The systematic Allied air superiority campaign against Axis airfields played the primary role in minimizing Axis airpower over Sicily.

The air battle over Sicily was also the last gasp of the rapidly expiring Italian Air Force. As the Germans expected, the Italian bomber force proved worthless and Italian bomber raids sank no ships and caused minimal damage. The Italian torpedo bombers did somewhat better, sinking one ship and damaging the British carrier HMS *Indomitable* on 16 July, forcing the ship to steam to Gibraltar for repairs. The Italians indeed did their best as loyal German allies. The Regia Aeronautica coordinated operations with the Germans and pressed their attacks aggressively. But the Italians didn't have much to fight with. The Italian 4th Fighter Wing that flew in the Sicilian campaign had a strength of 133 Mc 205 and Mc 202 fighters on the books but only 49 operational planes. Italian air operations



included escorting the Luftwaffe's Stukas to the target and from 11-14 July the Italian fighters tangled with the AAF's P-38s and the RAF's Spitfires over the invasion beaches.[37] After a few days, however, the Italian Air Force was literally fought out, suffering from attrition and constant attacks on their airfields. By mid-July 1943 the Regia Aeronautica disappeared from the war as a cohesive force.

The lack of accurate intelligence remained a problem for the German commander and staffs. The reports on Allied losses sent to von Richthofen by the air units were wildly inaccurate. Apparently every near hit was counted as a sinking. With many of the attacks at night, air units simply estimated the damage inflicted on the Allied fleet. On 10 July, von Richthofen estimated that 100,000 tons of shipping had been sunk as well as a "large number of landing boats".[38] On 11 July Luftwaffe units reported five to six large ships sunk along with many landing boats. By the end of the second day of the operation the Axis estimated that they had sunk or disabled 350,000 tons of Allied shipping.[39] On 12 July another 100,000 tons of shipping was reported as sunk or heavily damaged.[40] Although von Richthofen believed his strategy of attrition against the Allied shipping was working, reality in the form of growing Allied air superiority affected the German campaign plans. At dawn on the 13th a strike by the Ju 88 force suffered a heavy loss when six were shot down. At the same time, a group of Me 110s shipped in from Germany to replace combat losses was destroyed on the ground by an Allied air attack. By the 14th, von Richthofen, still receiving reports of heavy Allied shipping losses, forbade any more large air attacks. Luftwaffe units were ordered to try to slip by Allied air and anti-aircraft cover in small groups to attack the invasion fleet.[41] By 15th, five days after the landing, Kesselring and von Richthofen realized that the invasion was not going to be defeated and Luftflotte 2 started to evacuate Luftwaffe personnel, equipment and aircraft in Sicily.[42]

The thing the Allies had most feared came to pass as Dorniers carrying Fritz X bombs arrived over the fleet

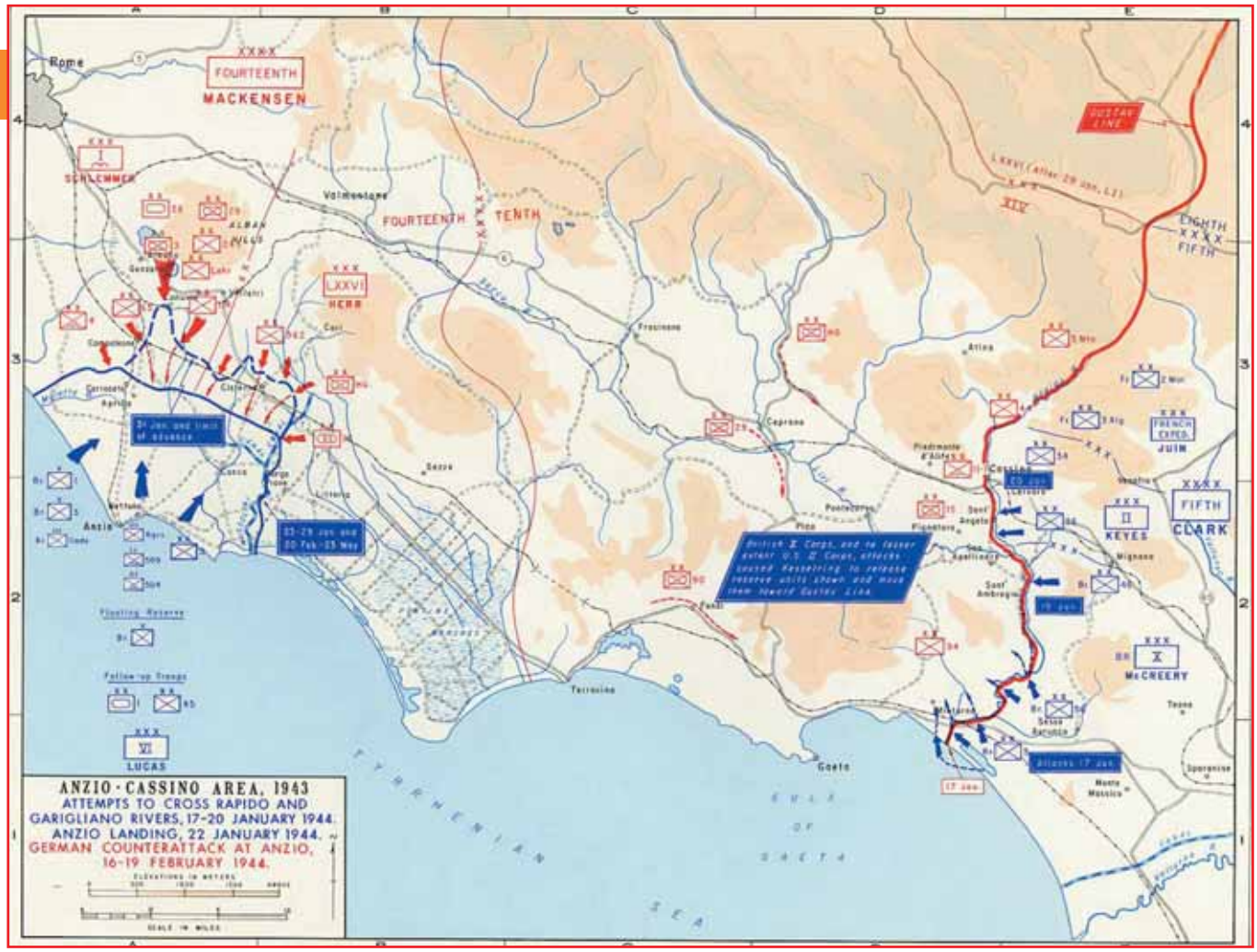
The Luftwaffe continued small attacks through July and August and reported another few hundred thousand tons of Allied shipping lost. However, from mid-July on, the Luftwaffe's priority was to rebuild its force and prepare for the next stage of the war, the expected Allied invasion of southern Italy. In contrast to the massive Allied losses claimed by the Luftwaffe (over 500,000 tons), in the month of July, in fact, the Allies lost only 14 merchant ships (80,000 tons) in the Mediterranean along with two warships (USS *Sentinel* and USS *Maddox*).[43]

Salerno

The Sicily Campaign ended on 17 August 1943 when the Allies marched into Messina. On that day Kesselring was busy rushing reinforcements to southern Italy and von Richthofen was working frantically to rebuild the units that had been badly battered in Sicily. The Allied failure to follow up the victory in Sicily with an immediate jump across the straits to the Italian mainland was viewed as a godsend by the German commanders. Montgomery, with characteristic caution, waited more than two weeks to land the 8th Army in Calabria on 3 September and the Germans used the time to prepare strong defenses. The Bay of Salerno, with the great port of Naples, was the most obvious target for an Allied landing on the Italian coast although the Germans were still concerned about the possibility of an Allied landing on Sardinia and had to maintain a strong air detachment there. At this time Luftflotte 2 had seven bomber groups based in the Foggia area and another two at the southern Italian base at Viterbo. Three bomber groups (I KG 26, III KG 26 and III KG 100) were stationed in southern France, ready to stage south to support Luftwaffe operations against an Allied landing. Although the unit strength of each bomber group was supposed to be 40 aircraft, some of the groups, especially KG 26 and KG 100, had taken heavy losses in Sicily and the heavy attacks on the Foggia and Viterbo airfields continually cost the Germans aircraft destroyed on the ground. In early September 1943 most of the bomber groups were at half strength or less, giving the Luftwaffe fewer than 200 bombers for the whole theater. As the Allies prepared to attack Salerno, the Luftwaffe prepared to withdraw its bombers to airfields in the far north of Italy, in Piedmont, Bergamo and Piacenza, in order to make them less vulnerable to Allied attack.[44] The fighter, light bomber and fighter-bomber units were dispersed to airfields in Calabria and Apuleia within range of any probable Allied landing sites. After the losses in Sicily, the fighters and attack units were also weak, operating at half strength or less.

For the Luftwaffe, Salerno would be a tougher air campaign than Sicily as the British and Americans had captured and repaired numerous airfields in Sicily and, although flying at long range, were in a better position to keep a strong air cap over the beachhead than in the first days of the Sicily landing. The Luftwaffe would need new tactics and weapons to have a chance of inflicting major damage upon the Allied fleet. Indeed, the Germans had deployed a revolutionary new weapon to the theater that gave them the hope of turning back the expected Allied invasion of southern Italy. The new weapon was the precision-guided munition, a bomb that could be dropped at high altitude, steered in flight by a bombardier with radio control and could hit a precise target, such as an Allied ship, with devastating effect. In tests the new bombs had proven to be ten times more accurate than any conventional bombs dropped at high altitude. The campaign at Salerno would be the first major test of the precision bomb in warfare.

The Luftwaffe had, in fact, developed two different models of precision bombs. The first was the Fritz X, a 3,000 lb armor-piercing bomb designed with a large tail with controllable surfaces. The Fritz X would be dropped at approximately 22,000 feet in a trajectory that would bring it close to the target. A flare in the bomb's tail gave the position to the bombardier, who then used a simple joystick to manipulate the radio-controlled tail surfaces to steer the bomb to the target. Because it was an armor-piercing bomb, the Fritz X was intended for use against Allied warships. The second bomb was the Henschel Hs 293 and resembled a powered glider more than a conventional bomb. The Hs 293 could be dropped from high or medium altitudes and the bombardier was able to track it by a flare in the tail, as with the Fritz X. The HS 293 would actually glide towards the target with the bombardier steering with a joystick and radio guidance for the control surfaces. Once a target was clearly sighted, the bombardier would ignite a rocket engine that would propel the bomb and its



700-pound warhead into some unfortunate ship at almost 500 miles per hour. The latter bomb was intended primarily to destroy soft-skinned merchant vessels and transports.

In September 1943 two bomber groups of Bomber Wing 100 (KG 100), each with twenty planes, had been trained and equipped to drop the Fritz X and Hs 293. Both groups employed Dornier Do 217 bombers and KG 100 had long been considered to be an elite bomber unit and used consistently by the Luftwaffe to employ new equipment and techniques. In 1940 KG 100 had been the premier unit in the Luftwaffe for long-range navigation and bombing and had been the first air force unit to be designated as a 'pathfinder' force for other bombers. Because of the more complex nature of the radio-guided bombs, the aircrew of KG 100 were a carefully selected and trained group. In dropping the Fritz X, for example, the pilot had to pull up and fly as slowly as possible after dropping the bomb in order to allow the bombardier to acquire the bomb and the target. Moreover, the pilot had to fly straight and release the bomb within a five-degree cone. Employing such a weapon required precise flying far above the standard coming out of the German pilot schools in 1943. The Hs 293 was considerably easier to employ, without the same requirements for staying on a direct course.[45]

On 8-9 September 1943 it must have seemed to the Wehrmacht in Italy as if everything was happening at once. In the late afternoon of 8 September a German reconnaissance plane spotted a vast Allied convoy north of Malta heading east for Salerno. A landing at Salerno was expected within 12 hours and the German forces were alerted.[46] On the same day, the Italian surrender, which had been secretly negotiated and signed the week before, was announced. At the same time that they had to prepare to repel an Allied invasion, the German forces also had to immediately seize control of all Italy and disarm the Italian armed forces. However, the Germans had also been quietly planning for this eventuality since the Spring and had its forces

All the Luftwaffe forces in Italy were ordered into the Anzio battle. In von Richthofen's words, "We couldn't have done more"

in position of execute 'Operation Axis', the plan to secure Italy for the German Reich. The selection of the code name for the operation suggests that Field Marshal Kesselring had a humorous streak in his nature.

Of course, things can always get worse, and they did. That night the USAAF launched a big raid of 120 heavy bombers on the German army and Luftwaffe headquarters at Frascati. The outside buildings were all leveled and Kesselring almost killed in the raid. Of the 1,000 personnel at the army and Luftwaffe headquarters about 80 were killed with many more wounded. The German theater headquarters communications were shut down. However, the Germans were fairly lucky that day. Most of the headquarters was located underground in deep tunnels and caves and remained unscathed by the attack. In a remarkable show of competence, the Luftwaffe's signal engineers restored full communications in only six hours.[47] On the morning of the 9th, von Richthofen was able to put his portion of Operation Axis into effect.

The first mission of the German bomber force was to see that the Italian navy did not end up in Allied hands. A large part of the Italian fleet had sailed for Allied ports in North Africa during the night and was spotted off the coast of Corsica. Aircraft of KG 100 attacked their allies of a day before and made two direct hits with Fritz X bombs on the Battleship *Roma*, the pride of the Italian fleet. Two near misses added to the damage. The Roma sunk almost immediately, taking almost all the officers and crew with her. It was a pretty impressive debut for the PGM in use against a major warship.[48] Several smaller Italian ships were sunk or damaged by German air attacks on the 9th as the Italian fleet raced to safe Allied havens.[49]

A force of 55,000 American and British ground troops supported by 586 Allied warships, transports and landing ships fought their way ashore in the Bay of Salerno at dawn on 9 September.[50] With the bombers busy attacking the Italian fleet, the first Luftwaffe attacks were made by Fliegerkorps II's Me 109 fighters and the Fw 190 fighter-bombers of the attack groups. The Me 109s employed a new weapon in the form of 21cm rocket launchers mounted on the wings.

The Fw 190s carried 500 kg bombs (1,100 lb). With fairly strong Allied fighter cover, with additional air cover provided by five British carriers, the only effective tactic for the Germans was to slip in at high speed, fire the rockets and drop the bombs at the first likely targets and run away at high speed. As in Sicily, the damage reported by the Luftwaffe was wildly exaggerated. While von Richthofen was told that two Allied cruisers had been sunk and 150,000 tons of Allied shipping had been taken out of action, in reality the Luftwaffe's fighter-bombers had only crippled one LST and sunk another.[51] Some small landing craft were sunk or badly damaged as well, the 21 cm rockets actually proving to be an effective weapon against small vessels.

In any case, 9 September 1943 was perhaps the busiest day for the Luftwaffe in Italy as it survived Allied air attacks, seized control of all the Italian Air Force installations and flak units, bombed the fleeing Italian navy and attacked the Allied landing. Despite the events of the Salerno landing, von Richthofen's personal diary hardly mentioned the Allied attack while containing a detailed account of all the measures that had to be taken to secure the German lines of communication in Italy. It's a testament to the Luftwaffe's competence and von Richthofen's capable leadership that so many simultaneous crises could be handled. .

It would be three days before Luftflotte two bombers were ready to conduct major strikes against the Allied beachheads. In the meantime, General Fink's Fliegerkorps II fighters and fighter-bombers made a series of low level hit and run raids, which mostly damaged Allied light craft. Most of the German bombers were relegated to night raids on the Allied fleet because there were too few fighters to escort them in daylight attacks. The three battered Luftwaffe fighter groups still in southern Italy could only mass enough planes to escort the Do 217s of KG 100 on daylight raids. One of the Luftwaffe's most effective anti-shipping forces, the small group of torpedo bombers, could not be used in daylight due to the paucity of escort.[52]

On the 11th the thing the Allies had most feared came to pass as Dorniers carrying Fritz X bombs arrived over the fleet. The cruiser USS *Savannah* was badly damaged by a glide bomb. Two days

later the cruiser USS *Philadelphia* had a narrow escape as it maneuvered frantically to avoid two guided bombs. The cruiser HMS *Uganda* was not so lucky. It was hit by a guided bomb and crippled on the 13th and attacked again while it was being towed away on the 14th.[53] On the 13th the British hospital ship *Newfoundland* took a direct hit and sank. On the 14th the merchant ship SS *Bushrod Washington* was hit by a guided bomb, probably a Hs 293, and sunk. The next day KG 100 Dorniers struck the *SS James Marshall* with a guided bomb. The ship was wrecked but later salvaged. On the 16th, a week after the landing, KG 100 got their biggest prize of the campaign. The battleship HMS *Warspite*, which provided vital gunfire support for the Allied units engaged in desperate fighting ashore, was hit by two guided bombs and damaged further by two near misses. The *Warspite* was towed to Malta, repaired and eventually returned to service, but would be out of action for several months.[54]

It was basically a pretty auspicious beginning for the PGM in warfare. The small Luftwaffe force equipped with the new weapons had, in a week, disabled a battleship, two cruisers and had sunk or wrecked three other vessels. It still was not enough to seriously hinder the Allied landing and buildup. The Luftwaffe, however, had a different picture. The Germans believed that dozens of Allied warships and merchant vessels had been sunk or disabled at Salerno (400,000 tons by the 18th) when the reality was far different. In the month of September 1943 the Allies lost 52,000 tons of merchant shipping in the Mediterranean.[55] Still, by mid September it was clear that the Allies were successfully ashore and would continue to advance up the Italian peninsula.

The combat losses to the Luftwaffe during the Salerno battle were reported as low. Still, there was a steady attrition from combat and Allied attacks on German airfields and by mid-September the Luftwaffe bomber force was described simply as being 'fought out'.[56] Since the southern Italian bases were in the path of the Allied ground advance, they were evacuated on 20 September and the bomber units sent to northern Italy. The fighters and attack groups who had borne the brunt of the battle at Salerno were pulled out for the relative safety of Central Italy. The Luftwaffe needed time to reorganize, retrain and rebuilt its units after Sicily and Salerno. Von Richthofen, who was being treated for tuberculosis, started five weeks of convalescent leave in a northern Italian sanitarium. Kesselring, who didn't like von Richthofen but still valued his competence, told Berlin to keep von Richthofen in the theater despite health problems because he needed the Luftwaffe commander to rebuild his force for the battles expected in the Spring.

The Luftwaffe reorganizes

Of course, Hitler's promise of massive reinforcements to von Richthofen made in the Summer proved false. After the failure to stop the British and American landings at Salerno, the Luftwaffe in Italy was radically reorganized and reduced to a fraction of its former strength. The situation in Italy was at least stable and the demands of the other fronts and defense of Germany were too pressing for Berlin to ignore. The Luftwaffe's command setup was also reduced and reorganized. Fliegerkorps II under General Bulowius was detached and sent to France. Luftflotte 2's bomber command was eliminated. KG 1 was sent to Germany to be reequipped with the He 177. One bomber group (II KG 77) was sent to Germany to be trained as a torpedo unit and another group (II/LG 1) was sent to Greece but was available to support operations in Italy. Only three Ju 88 bomber groups with about 100 planes were retained in Italy (I and II KG 76 were stationed at Aviano) and the other bomber groups were sent to France to take part in the planned bomber offensive against England. Sardinia was evacuated with its air detachment brought to northern Italy. Three fighter groups (I JG 53, I JG 77, I JG 4) a fighter-bomber wing of two groups (I SG 4, II SG 4) and some reconnaissance squadrons were retained in the theater and stationed in northern and central Italy.[57] By late Fall 1943 the Luftflotte 2 had fewer than 300 operational combat planes available for operations in Italy.

However, even this reduced force was still capable of inflicting serious damage on the Allies. During November 1943 the Germans noted the weakness of the Allied air defenses at the port of Bari in southern Italy, one of the Allies' most important supply bases. Using reconnaissance planes flying from the Albanian Luftwaffe command as well as from Luftflotte 2, Bari and its shipping was kept

under careful observation for two weeks.[58] In a raid meticulously planned by von Richthofen and his staff, a force of 105 Ju 88s, virtually every bomber in the Italian theater, attacked Bari harbour the night of 2-3 December. The Luftwaffe's tactics were superb. Most bombers first flew out to sea and dropped to low altitude to avoid Allied radar observation. Pathfinder bombers dropped 'windows' (aluminum foil strips) to jam the Allied air defense radars while the bombers systematically worked the port over by the light of parachute flares. The small port was crammed with shipping and the Ju 88s were lucky enough to hit an ammunition ship and a tanker. The ammunition ship blew up and rained explosives on the other vessels as the fire from the tanker's burning oil spread. In a short time 16 Allied merchant vessels were destroyed and eight others damaged. The port facilities were heavily damaged and knocked out of operation for three weeks. Naval historian Samuel Morison described it as "the most destructive air attack since Pearl Harbor".[59] Yet the Bari raid was not to be repeated, Allied anti-aircraft and night fighter defenses at the major ports, such as Naples, were simply too strong for the Luftwaffe's small bomber force.

Anzio

The Luftwaffe settled into a routine of small night harassment raids against Allied logistics during the Winter of 1943-44. By January 1944 things were so quiet that Field Marshal von Richthofen took a trip to the Po Valley to hunt ducks with some of his staff. While von Richthofen was reducing the bird population of northern Italy an Allied invasion fleet of 370 ships and landing craft made the 150 mile jump from Naples to Anzio on 22 January 1944 and landed a corps of 50,000 American and British troops on the coast near Rome with virtually no opposition. In contrast to Sicily and Salerno, the landing came as a complete surprise to the Germans. The Luftwaffe's air reconnaissance force was, by this time, unable to provide more than the sketchiest picture of Allied shipping movements and convoys. However, the Germans had noted Anzio as a possible landing site and had enough reserves near Rome to throw against the invaders and slow the Allied advance.

Bad weather over northern Italy prevented von Richthofen from flying immediately south to direct operations against the landing from his headquarters near Rome.[60] Many German aircraft in Northern Italy were grounded by bad weather for the first days of the battle and the Luftwaffe's premier anti-shipping force, the guided bomb groups of KG 100, were dispersed around small airfields in southern France to evade the Allied bomber campaign against the larger German airfields. It took days to assemble the units and stage them south to airfields in Italy closer to the action. The Luftwaffe's fighter and attack groups in Italy had been badly weakened by constant attacks on their airfields in the three days before the Anzio landing and needed time to sort themselves out and move to airfields close to the landing site. When he arrived at his headquarters late on the evening of the 22nd, von Richthofen gave the orders to deploy available air units to oppose the landing as well as ordering 40 Luftwaffe flak batteries to the front lines to engage the Allied ground troops. Virtually all the Luftwaffe forces in Italy were ordered into the Anzio battle. In von Richthofen's words, "We couldn't have done more".[61]

In the meantime, Luftflotte 2's only response to the Anzio landing on the 22nd were a few fighters stationed near Rome that evaded the Allied air cover and strafed the beach. Some fighter-bombers also attacked the shipping. For the next two days, poor weather hindered the Luftwaffe's deployment of forces to meet the Allied landing.[62] On the night of the 23rd the Luftwaffe drew its first blood when a destroyer HMS *Janus* was hit by a German air-dropped torpedo and sunk and the destroyer HMS *Jervis* was damaged by a bomb.[63] The first large attacks came on the 24th. Fifteen fighter-bombers of Schlachtgeschwader 4 attacked the Allied fleet in the afternoon while another 43 aircraft attacked at dusk and 53 bombers attacked at night. A 500 kg bomb from a fighter-bomber hit the destroyer USS *Plunkett* and caused heavy damage and casualties. That night the hospital ship *St. David* took a hit from a guided bomb and sank. The destroyer USS *Mayo* hit a mine and was badly damaged.[64] Through the campaign, the German bombers also dropped mines in the shipping lanes at night and between January and April 1944 more than 600 mines were dropped by the Luftwaffe near Anzio.[65]

As the fighting intensified von Richthofen was often at the front to observe the air attacks of his

unit from an observation post overlooking the bay. General Ritter von Pohl, commander of all the flak units in Italy was appointed as the 'close battle commander' of Luftflotte 2 with the responsibility of commanding all the flak and air units in the Anzio sector.[66] Within a few days, the German air campaign assumed a pattern. Groups of 30-50 fighters and fighter-bombers would attack the shipping and beachhead once or twice a day while the bombers, especially the KG 100 units with the guided bombs, would attack at night. The German bombers normally employed 'Window' against the Allied air defenses, which proved effective in jamming the Allied air defense radars. The Allied commanders noted that Anzio saw the toughest German air opposition in the whole Mediterranean campaign. A dusk raid of FW 190s on the 26th damaged a LST, 7 light craft, two merchant ships and a tug.[67] On the night of 29 January KG 100 had its best night of the campaign when its guided bombs sank the cruiser HMS *Spartan* and the Liberty Ship SS *Samuel Huntington*.[68] One factor that made the German night attacks so effective was the Luftwaffe's large radar installation at Cape Circe that overlooked the Anzio beachhead. Despite many attempts by the Allies to destroy the site, the radar kept operating throughout the campaign and gave the Luftwaffe a clear picture of the Allied air activity over the sector.

Any air attack can be terrifying, but it is especially tough on sailors because there is no place to hide on a ship. The sailors that faced the nightly Ju 88 raids with conventional bombs took them fairly calmly. While the conventional bombers made a lot of noise, they rarely hit anything. This was not so in the case of the attacks with the Fritz X and Hs 293. Because the tail flare in the bombs and the rocket engine of the Hs 293 were highly visible at night, anyone under attack could see the bomb heading straight for the target. This leant a surreal quality to the raids by KG 100 on the Allied fleets at Anzio and Salerno. An American Army sergeant at Anzio watched the attack that sank the cruiser HMS *Spartan* (probably a Hs 293) and described the "bright red spot (the flare) that seemed to hang in the sky for several seconds . . . when the target was located it came down like a comet in a wide sweeping arc". The explosion was described as 'tremendous'.[69] After the initial landing supplies were brought in by LSTs and Liberty Ships that unloaded as quickly as possible and sailed away. Such ships might be unlucky enough to experience one such attack. However, the sailors

A 25% hit rate for bombs does not seem much by modern standards but it represented a quantum leap in the capability of airpower in 1943-1944

A DO 217 carrying the Hs 293 guided bomb

manning warships like the HMS *Spartan* that stayed on station to provide gunfire support to the troops onshore had to suffer through several such attacks. If the PGMs of 1943-44 were not as accurate as their modern descendents but, like the Kamikazes in the Pacific, they certainly had a demoralizing effect on their targets. The German campaign against the beachhead reached a crescendo in mid February when Kesselring mounted a major ground offensive to try to destroy the Allied beachhead. Massed Luftwaffe fighter-bombers provided close air support for the German panzer units advancing on the Allies and bombers struck Allied depots and logistics. The Germans flew more than 150 sorties on 16, 17 and 19 February in a desperate attempt to break the Allied defense.[70] The all-out effort failed. The AAF and RAF were able to fly hundreds of sorties against the German attackers as well as against the Luftwaffe. Between 16 and 19 February the Allies claimed 26 German aircraft shot down at Anzio.[71] By 22 February it was clear to Kesselring that his forces were not going to overrun the Allied beachhead at Anzio. At the same time, the Luftwaffe was clearly exhausted by its effort and steady attrition. Night bomber attacks continued with a Liberty Ship and LCT hit by guided bombs and sunk on 15 February and the destroyer HMS *Inglefield* sunk by a guided bomb on 25 February with heavy loss.[72] However, after this time the Luftwaffe effort petered out and assumed the nature of minor harassment raids.

By mid-Spring 1944 Berlin understood that there was little the Luftwaffe could do in the Italian theater and all the bombers were withdrawn from the theater to reinforce the expected battle in France. By June Luftflotte 2 was left with a force of less than 200 combat aircraft on paper, with about 100 fighter planes and fighter-bombers operational. That month the Luftflotte was officially abolished and the Luftwaffe force in Italy downgraded to the status of a special command 'The German Air Force in Italy's. For the rest of the war, the major Luftwaffe opposition to the Allies in Italy would be its flak brigades. Von Richthofen, a field marshal, remained in command of a force more suitable for a major general. Perhaps it was Hitler and Goering's way of punishing von Richthofen for the failure to hold the Allies in Italy. In any case, relegating a brilliant commander and tactician like von Richthofen to a minor command on what had become a backwater front when there were major air battles to come over Germany and on the Western front is typical of the petty manner in which the Third Reich treated its top soldiers in the last two years of the war.

Conclusion

The Luftwaffe's campaign in Italy in 1943-1944 is a snapshot of a force in rapid decline. Given the enormous Allied air superiority over the Germans, its surprising that Luftflotte 2 did as well as it did. Von Richthofen and gifted subordinates such as General von Pohl, General Bulowius, and Colonel Pelz developed some fairly effective tactics against the Allied invasion fleets and inflicted moderate damage on the Allies against great odds. Frankly, it is hard to see how the Luftwaffe could have done better given its strategic situation and the force disparity.

The British-American commanders wisely chose the most effective strategy for dealing with the Luftwaffe threat to the invasion fleets at Sicily, Salerno and Anzio. The German airfields throughout the Italian theater were attacked so constantly and effectively (with a lot of help from Ultra intelligence) that the battered Luftwaffe combat units were never able to recover from their losses. Attrition was constant. No sooner would replacement aircraft arrive from Germany, sometimes in batches of 30 or more, than they would be blown to bits in an Allied bomber raid. The German records are full of such stories. Moreover, the heavy Allied attacks on the forward German airfields forced the Luftwaffe to pull their units away from the front and to fly at extreme range for much of the campaign. The sound Allied air strategy forced the Luftwaffe to fight inefficiently.

Attrition of aircraft was especially heavy in the Italian theater.[73] In addition, pilot attrition had become a crisis for the Luftwaffe by the time of Sicily. Although careful tactics kept pilot losses fairly low in Italy, the well-trained aircrew of the early war years could not be easily replaced. To make tactics effective one also needs good pilots. Yet, by 1943, the failure of the Luftwaffe to adequately expand its flight schools early in the war was evident in the state of pilot proficiency. In 1942 pilot attrition forced the Luftwaffe to drastically reduce the time and flight hours for new pilots. By 1943 new bomber and reconnaissance pilots were arriving at the front

with scarcely more than 100 hours total flight time. This meant that the operational commanders in the Mediterranean couldn't simply give their squadron commanders mission orders. Flights had to be carefully planned to ensure that inexperienced pilots were allocated more fuel and were shepherded by more experienced pilots. Luftwaffe pilots were generally less capable in night operations, although the Allied air superiority forced the Luftwaffe to operate largely at night.

An example of the failure of the Luftwaffe's Training Command to meet the needs of the war is seen in the two groups of KG 100 that specialized in dropping the Fritz X and Hs 293 guided bombs. Both were cranky weapons to use. As with any new and complex weapon there were a lot of bugs in the system and the aircrew needed a lot of extra training to use the guided bombs effectively. Moreover, only very competent pilots and aircrew could be expected to accurately drop the bombs and hit the targets. Because of the deficiencies in the Luftwaffe training system and the acute shortage of experienced bomber crews by 1943, there were never more than 40 airplane crews that were fully qualified to employ the guided bombs. That alone was a godsend for the Allied forces that had to face the German attacks. The bombs weren't that hard to produce nor were there any shortage of Do 217 bombers. The whole programme was limited by personnel shortages.

Another issue that limited the effectiveness of the Luftwaffe's precision bomb attacks was the failure to provide enough battle-experienced pilots and commanders to KG 100. While the pilots and bombardiers of the precision bomber groups were the top graduates of the Luftwaffe training programme, only a few of the squadron and flight leaders in KG 100 had considerable battle experience. Even a well-trained pilot or flight leader can become unnerved and confused in his first experience in combat. Several of the attacks made by KG 100 at Salerno and Anzio went off course and executed poor attack runs due to the inexperience of the flight and aircraft commanders. Another problem for KG 100 was the Allied flak. Due to the German use of 'window' against the Allied radars, Allied defensive fire tended to be unguided barrage fire — spectacular to view but not especially dangerous. If the Luftwaffe had assigned some more 'Old Hares' (combat-experienced bomber pilots) to KG 100 the attacks against the Allied shipping would likely have been pressed much more aggressively through the relatively ineffective Allied night air defenses. Instead, more than a fifth of all the Fritz and Henschel bombs dropped in combat were dropped in emergency release mode as the bombers broke off combat. Many other bombs were dropped in such a haphazard fashion that the crew was unable to track the fall of the bomb.[74]

Although many pundits and historians touted the First Gulf War as 'the first precision war' few remember that modern precision bombing was born in the Italian campaign. The Fritz X and Hs 293 were true PGMs and mark the beginning of a revolution in aerial warfare that culminated in the air campaigns of 1991 and 2003. Before the Luftwaffe's radio-controlled bombs the only precision weapon of an air force was the dive-bomber, and dive-bombers were highly vulnerable to enemy fighters and light anti-aircraft. Moreover, dive bombers couldn't operate effectively at night and none of the World War II dive bombers could carry the large ship-busting 3,000 lb Fritz X. In contrast, the Luftwaffe's radio-controlled bombs were true standoff weapons, designed to be released at high altitude, outside the range of light anti-aircraft, and sometimes miles from the target. The survivability of the PGM carrying aircraft was notably increased. In addition, the Fritz X and Hs 293 could be used effectively at night. Of the 500 guided bombs dropped by KG 100 in 1943 and 1944 28% malfunctioned, usually due to electronic or guidance problems. Twenty percent of the bombs were dropped in emergency release, sometimes when the aircrew fear Allied night fighters. However, of the over 300 bombs dropped in combat, about a quarter of them either hit the target directly or landed close enough to inflict damage. Indeed, the damage inflicted by a few guided bomb raids on the Allied fleet in the Italian theater was pretty impressive. In opposing the Allied landings in Italy the Luftwaffe's two small guided bomb units sank or disabled two battleships, sank one cruiser and disabled two, sank or crippled two destroyers and sank a further seven merchant ships and transports and damaged at least 17 more. A 25% hit rate for bombs does not seem much by modern standards but it

represented a quantum leap in the capability of airpower in 1943-1944.[75]

Notes

[1] General Paul Deichmann, ed. *Die deutsche Luftwaffe in Italien*, Monograph, April 1956. In the USAF HRA Doc. K113.310-8 1943-1945 Kapitel 1 pp. 18-22
[2] ibid p. 25
[3] Deichmann Part II p. 3
[4] Deichmann Part II p. 3
[5] Deichmann Part II p. 5
[6] Deichmann Part II p. 5
[7] Deichmann Part II p. 7
[8] ibid p. 36
[9] Von Richthofen Diary 12 July 1943. Copy of the Diary from the Von Richthofen family.
[10] ibid
[11] In his diary von Richthofen expresses continual distrust of the Italian High Command and its intentions. General Paul Deichmann, in his monograph on the Italian campaign, often describes the Italians as doing their best.
[12] Deichmann pp. 37-40
[13] Deichmann pp. 40-41
[14] Deichmann p. 53
[15] ibid.
[16] Deichmann part II p. 13
[17] Deichmann Part II p. 26
[18] See Bundesarchiv / Militaerarchiv BA / MA Doc RL / 2 / II / 305 'Lageberichte Luftflotte II' for the surviving reconnaissance reports of April-June 1943. The Germans only occasionally got reconnaissance planes over the major Allied ports in North Africa such as Algiers, Oran, Bizerte, Bone tried to observe major Allied ports with
[19] Deichmann, see Chapter 2 pp. 1-3 and Part III pp. 45-47
[20] Von Richthofen Diary, Entry of 9 July 43
[21] ibid
[22] Von Richthofen Diary entry of 20 June 1943
[23] Samuel Eliot Morison, *History of United States Naval Operations in World War II: Sicily, Salerno, Anzio, January 1943-June 1944*, New York: Little Brown and Co., 1954 p. 69
[24] www.naval-history.net / WW2194306.htm World War 2- 1943, Sicily, Salerno, Italy p. 4
[25] Morison p. 85
[26] ibid p. 88
[27] ibid pp. 107-108
[28] ibid p. 164
[29] USAF HRA Doc SQ FI 307-HI, *307th Fighter Squadron Outline History* to 31 Dec 1943
[30] ibid
[31] Brigadier General C.J. Molony, *The Mediterranean and Middle East* Vol. V, London HMSO 1973 p. 66
[32] Morison p 120
[33] ibid p. 158
[34] ibid pp 164-165
[35] Richard G. Davis, *Carl A. Spaatz and the Air War in Europe*, Washington; Center for Air Force History, 1993, p. 241. The Allied planners had expected to lose as many as 300 ships to air attack.
[36] Molony p. 48
[37] Antonio Duma, *Quelli Del Cavallino Rampante: Storia Del 4 Stormo Caccia*, Rome: Edizioni Dell'Ateneo, 1980 pp. 347-349
[38] Von Richthofen diary 10 July 43
[39] ibid entry of 11 July
[40] ibid entry of 12 July.
[41] Ibid entries of 13 and 14 July.
[42] Ibid entry of 15 July 43
[43] See WWW. Naval-history and David Brown, *Warship Losses of World War II*, Annapolis: Naval Institute Press, 1990 pp. 87-88
[44] Deichmann, Part III pp. 71-72
[45] Deichmann part II p. 46 On the difficulties in using the Fritz X and Hs 293 see A.I. 2 G Report 1813 "German difficulties in Guiding the Remote-Controlled Glider Bomb", Oct. 1945 in USAF HRA Doc. 170.2278B
[46] Deichmann part III p. 80
[47] Deichmann Part III p. 85
[48] The Luftwaffe employed a few Fritz X and Henschel PGMs against Allied merchant shipping in the Bay of Biscay on 25 August and in the Mediterranean on 29 August. The first use of the weapons against armored warships was on 9 September. See William Green, *Warplanes of the Third Reich*, New York; Galahad Books, 1970, p. 154.
[49] Morison p 244, see also Deichmann Part III p. 86
[50] WWW. Naval-history, Salerno p. 11
[51] Von Richthofen Diary 9 Sept. 43
[52] Deichmann Part III p. 83
[53] Morison pp. 290-292.
[54] Morison pp. 296-300
[55] WWW. Naval-history, Salerno, p. 11
[56] Deichmann Part III pp 88-89
[57] Deichmann Part III p. 89-93
[58] See BA / MA Doc RL / 2 / II 304, Intelligence Reports Luftflotte 2 November-December 1943 and BA / MA / 2 / II / 369 Luftflotte 2 Lageberichte Nov-Dec 1943
[59] Morison p. 319, 322
[60] Von Richthofen Diary, 22 January 1944
[61] ibid
[62] ibid
[63] Morison p. 344
[64] ibid pp. 345-346
[65] Deichmann Part IV p. 110
[66] ibid p. 105
[67] Morison p. 349
[68] ibid p. 355
[69] History of the 3rd AAA Air Support Control Squadron. P. 3 in USAF HRA Doc SQ-A-Sup-Cont-3-HI, Feb 1944-Feb 1946.
[70] USAF HRA Doc 650.430-3, HQ 12th AF, A-2 Section, *Enemy Air Activity Over Anzio Beachhead*, Jan- April 1944.
[71] ibid
[72] Morison pp. 363-364
[73] Attrition in the Mediterranean was far worse than on the Eastern Front. With a fighter force of 296 planes in the Med in September-December 1943, the Luftwaffe lost almost 400 planes. In Russia, during the same period, the Luftwaffe had almost 500 fighters, but lost fewer airplanes. Most of the attrition, About 70%, was due to aircraft lost on the ground to Allied raids. At each stage of the Allied advance, the Luftwaffe abandoned dozens of aircraft, sometimes only slightly damaged, on airfields in Sicily, Southern Italy and Sardinia. The weak Luftwaffe forward maintenance structure could not cope with the number of aircraft repairs required.
[74] Interview with Herr Ulf Balke, historian at the Bundesarchiv / Militärarchiv Freiburg, 14 May, 2003. Herr Balke's father served in KG100 and he is writing a book on that unit.
[75] In 1945 KG 100 did a careful study of its experience in using the guided bombs. See translation of Air Force Research Station Karlshagen, "Considerations on the Employment of New Technical Special Weapons" 18 Feb 1945 in USAF HRA Doc. 170.2278B