

AIR POWER

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History





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COVER: Short Sunderland flying boat just having passed under Tower Bridge in London, England. (Photo courtesy of Wikipedia, taken by Wing Cmdr (ret'd) Derek Martin.)

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If “variety is the spice of life,” then the winter 2010 issue of *Air Power History* contains plenty of variety. We lead off this issue with British historian Arnold Harvey’s article on floatplanes, flying boats and oceanic combat in World War II. Harvey begins by tracking the promise and progress of these aircraft throughout the 1930s. Then he considers their purposes and performances during World War II. While all of the belligerents used these planes and the planes performed well enough, their fate was sealed mainly by the advent of the catapult and the aircraft carrier.

While conducting research on a project about his West Point class of 1950, Michael De Armond discovered that one of his classmates, Joe Anderson, had not received the recognition he deserved. Anderson completed 100 missions, including one in which his heroism actually saved lives. On another mission Anderson led an attack on North Korea’s electric power grid that “turned out the lights” in that country for a prolonged period. These contributions went unrecognized for many years and only after De Armond and others urged Anderson to petition the appropriate authorities to review the record did justice prevail.

Third is Daniel Haulman’s account of “Two Memorable Missions of World War II: Memmingen, July 18, 1944 and Berlin, March 24, 1945.” Dr. Haulman, chief of organizational history at the Air Force Historical Research Agency at Maxwell AFB, Alabama, focuses on the bomber escort performance of the celebrated Tuskegee Airmen. He concludes that the only African-American flying units in the war acquitted themselves very well, especially in the face of the disadvantages and discrimination that they endured.

With the Space Shuttle on the verge of retirement next year, Navy aviator and historian Rodney Rogers waxes nostalgic (pardon the pun) in his Readers’ Forum piece “Icarus Ascending.” Rogers recalls the *Columbia* and *Challenger* disasters and a deadly accident in August 1962, involving U.S. Navy F-8 Crusaders. Conceding that unmanned space flight will eclipse the Shuttle, Rogers declares that “an aviator’s will is indomitable. . . . [but] Icarus will forever be ascending in the human spirit.”

If you missed the Air Force Historical Foundation’s Annual Awards Banquet on November 18, 2010, turn to page 56, where the Executive Director’s report followed by a photo essay will fill you in. General William M. Fraser III, commander of the Air Combat Command, with the Foundation’s CEO, Major General Dale Meyerrose, presented the ceremony’s two most prestigious awards: the General Carl A. “Tooey” Spaatz Award went to former USAF chief of staff General Larry D. Welch. USAF (Ret.) and the Major General I.B. Holley Award to Dr. Alan R. Gropman, Distinguished Professor of National Security Policy at ICAF.

Also in this issue are a goodly number of book reviews as well as new books received. Check out the remaining departments, including the lists of article and book reviewers. Finally, we salute two great leaders who died this year, Generals T.R. “Ross” Milton and Devol “Rock” Brett.



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Floatplanes, Flying Boats and



Oceanic Warfare, 1939–1945



Arnold D. Harvey

(Overleaf) A group of PBY Catalinas fly over the Golden Gate Bridge during its dedication on May 27, 1937. (Photo from the R.L. Lawson collection, courtesy of the Nat'l Museum of Naval Aviation.)

BY THE END OF THE WAR, AT LEAST SIX GERMAN SUBMARINES HAD BEEN SUNK BY BRITISH FLYING BOATS, AS COMPARED TO ONE BY A LANDPLANE

Aircraft that could operate from, or over, water were just one aspect of naval commitment to extend the scope of aviation technology in World War I.¹ In the Adriatic, relatively tranquil and richly endowed with sheltered bays, single-engined flying boats, Lohners and Macchis, skirmished throughout the forty-one months of the Austro-Italian conflict: *Linien-schiffsleutnant* Gottfried Banfield was ennobled for his various exploits as a Lohner pilot. In the North Sea, *Oberleutnant zur See* Friedrich Christiansen of the German *Kriegsmarine* was credited with shooting down eight British flying boats and two floatplanes* while piloting a Hansa-Brandenburg floatplane. Later he was second only to Hermann Göring as the World War I ace who enjoyed the greatest prominence in the Nazi era. German floatplanes also carried out successful torpedo attacks on British merchant shipping, off Southwold and Harwich, in May and June 1917. British flying boats and floatplanes were responsible for much the greater part of air patrolling over the North Sea in the war against German submarines. In 1917, of 168 sightings by British aircraft of German submarines, twenty-eight were by naval airships, sixty-eight by flying boats, sixty-six by floatplanes, and only six by landplanes.²

By the end of the war, at least six German submarines had been sunk by British flying boats, as compared to one by a landplane. In addition, French flying boats had shared with a torpedo boat in the sinking of a German submarine in the Ionian Sea and had driven another German submarine ashore at Cartagena, in neutral Spain, where it was interned, and two Austro-Hungarian flying boats had sunk a French submarine in the Adriatic.³ A floatplane, lowered into the water for takeoff from the seaplane tender HMS *Engadine*, had detected the German cruiser screen at the opening stage of the Battle of Jutland, and other British floatplanes had given good service in the eastern Mediterranean.⁴

However, the flying boat and the floatplane had most clearly proved their limitations. The sea in northern latitudes was rarely calm enough for floatplanes to be lowered into the water from ships out at sea. Floatplanes and flying boats making sorties

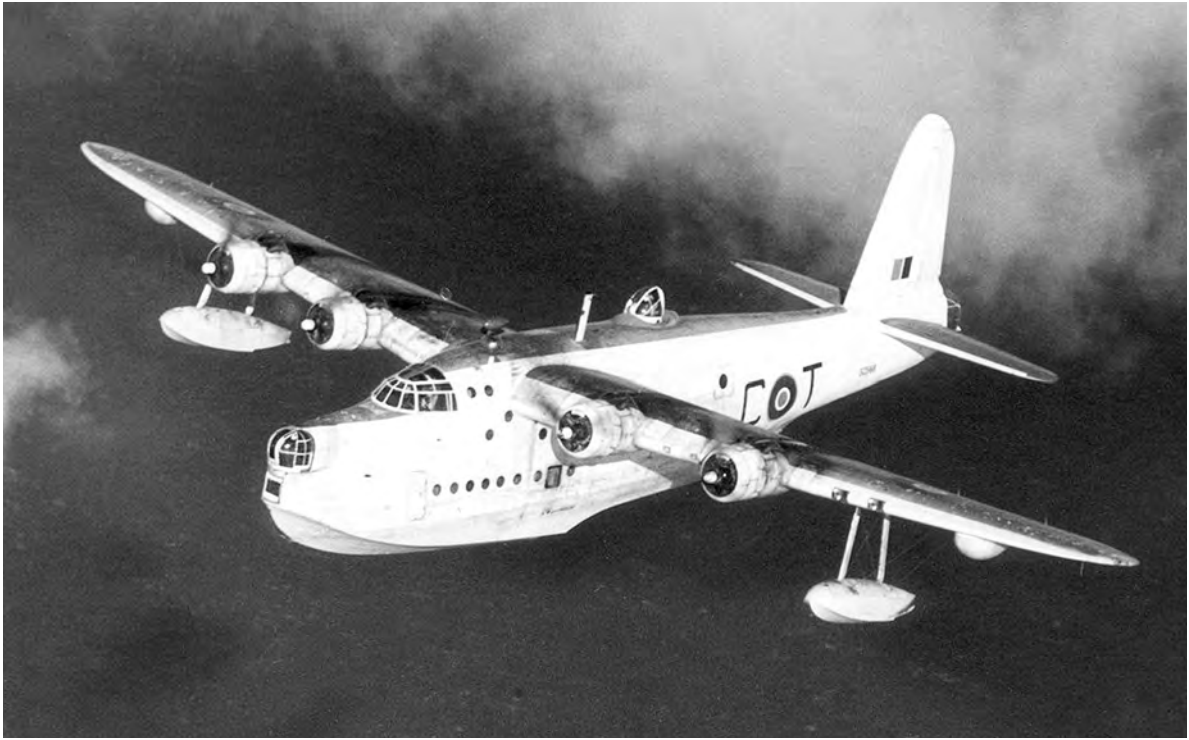
* The difference between a flying boat and a floatplane is that the former is essentially a boat with a tail and wings, an arrangement which until the introduction of high narrow hulls in the 1930s necessitated placing the engines high above the hull, giving a noticeably clumsy appearance. A floatplane consists of an ordinary airplane fuselage with the engines in the usual place, but with an undercarriage of floats instead of wheels. Floatplanes are also called seaplanes, though in American usage the latter term refers to flying boats.)

from coastal bases were, from the nature of their construction, fatally inferior in speed and maneuverability to landplanes flying from bases a little further inland. The increased reliability of airplane engines cancelled the somewhat illusory advantage of aircraft that could land on water if their engines failed. It was "somewhat illusory" because they could not touch down without smashing up if the sea was rough, and could only take off again after field repairs if the sea was dead calm. Floatplanes operating with the fleet at sea were increasingly seen as less practicable than landplanes flown off from short flight decks on specially converted warships. The Short floatplanes based at Dunkirk, Britain's first line defense against the U-boats operating out of Zeebrugge, were replaced by De Havilland DH 4 landplane bombers in January 1918.⁵

Growing international interest in the prestigious Schneider Trophy, awarded to the fastest aircraft that could take off from water, had the surprising result that between 1931 and 1935 the world air-speed record was held by floatplanes. However, this did not disprove the disadvantages of the floatplane concept. The 37-litre V-12 engine of the Supermarine S.6B, which won the Schneider Trophy and held the air-speed record from 1931 to 1933, and the 50.25-litre V-24 engine of the Macchi M.C. 72, which held the record from 1933 to 1935, consumed prodigious amounts of "hot" fuel (60% benzol, 30% methanol, 10% acetone in the case of the Supermarine S.6B) but hot fuel burned out the engine out after a couple of hours. The enormous torque of the engine made the aircraft almost unmanageable, especially when taking off and landing. And the thin wings and the upper parts of the floats had to be used as radiators not simply to avoid the drag of a projecting radiator, but because a projecting radiator would not have been large enough to void the tremendous heat generated by an oversized engine burning hot fuel.⁶

What really rescued the floatplane from oblivion was the invention of the aircraft catapult, operating with an explosive charge or compressed air. Installed aboard larger warships, aircraft catapults sidestepped the problem of take off in rough seas, but also significantly extended range, as a more heavily-loaded aircraft could become airborne with less expenditure of fuel. Landing could be facilitated by the host ship making a tight turn and the airplane landing on the smoothed-out water alongside. During the 1930s the battleships and cruisers of most navies were fitted with catapults and hangars. Britain's Royal Navy adopted the Fairey Seafox for its light cruisers and the floatplane version of the Fairey Swordfish torpedo bomber for its larger war-

Since completing his PhD at Cambridge, England, Arnold D. Harvey has taught at universities in Italy, France, and Germany. He is the author of Collision of Empires: Britain in Three Wars, 1793-1945 (1992), A Muse of Fire: Literature, Art, and War (1998), Arnheim (2001), and Body Politic: Political Metaphor and Political Violence (2007). Dr. Harvey has contributed to the RUSI Journal, and published articles on air warfare in several journals, including Air Power History, "Bombing and the Air War on the Italian Front, 1915-1918." [Fall 2000]



THE APPEAL
OF FLYING
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ships. The latter was supplemented and eventually replaced by an amphibious single-engined flying boat. The Supermarine Walrus, which had a similar performance, but more internal accommodation and could thus serve as a “barge” for senior officers coming ashore. The French navy, which operated floatplanes from coastal bases and from a large tender, also had a single-engine flying boat, the Loire 130, on its warships. (It was, however, shore-based Loire 130s which reconnoitered the Thai fleet in January 1941, and made possible the French navy’s decisive victory at the Battle of Ko Chang.) Other navies favored the floatplane. And whereas the Royal Navy installed two aircraft on its heavy cruisers, most U.S. Navy heavy cruisers carried four, and two of the Imperial Japanese Navy’s heavy cruisers, the *Tone* and the *Chikuma*, had all eight of their 8-inch guns forward of the bridge and two catapults and five or six floatplanes aft.⁷ It seemed to be assumed that in a future war heavy cruisers would carry out the traditional function that had originally given the name to this class of fighting ship and would cruise the oceans alone or in pairs, attacking enemy commerce. (As it turned out, only one of the heavy cruisers used in World War II carried out such a mission, and that was a comparative flop. The German *Kriegsmarine*’s *Admiral Hipper*, with three floatplanes, sank a grand total of six ships while cruising the Atlantic between June 1940, and February 1941, whereas the pocket battleship *Admiral Scheer*, with only one floatplane, sank sixteen merchant ships in the Atlantic and Indian Oceans between October 1940 and April 1941. Also the armed merchant cruiser *Jervis Bay*. Even the ill-fated *Admiral Graf Spee*, also with one floatplane, managed nine ships sunk in three months.⁸ The *Tone* and *Chikuma*, incidentally, were assigned to accompany carrier task forces, and their float-

planes were used mainly to report on the weather and as early warning pickets.) Both Britain and France experimented with floatplanes carried on submarines; the Japanese built eleven submarines with an airplane catapult on their foredecks, and placed in production a lightweight floatplane, the Yokosuka E14Y1, intended exclusively for use with submarines. They also built three specially designed large, fast seaplane tenders.⁹

The flying boat, though lacking the glamor of the record-breaking Supermarine S.6B and Macchi M.C.72 floatplanes, had also obtained some celebrity in the early 1930s, largely as a result of the long distance formation flights organized by air force minister General Italo Balbo. Even more impressive, the flight of the twelve-engined Dornier Do X across the south Atlantic, then from Brazil north to New York, and finally back home via Newfoundland and the Azores, in 1931–1932. Friedrich Christiansen, the Great War floatplane ace, was the aircraft’s captain during this well-publicized stunt. Experts had concluded that landplanes were more economical to run on a scheduled transatlantic service, and that their engines’ greater reliability made emergency landings on water irrelevant. Still, the appeal of flying boats for potential long distance travellers meant that the flying boat concept remained viable and this may have influenced military thinking (though one notes that work on the design of the Short Sunderland military flying boat began slightly earlier than that on the somewhat less challenging Short Empire passenger flying boat project).¹⁰

More important was the influence of overseas empire. Long distances, requiring larger aircraft with sufficient fuel capacity to carry a useful payload to a remote destination, together with scattered populations, tropical weather that periodically



A flight of Short Sunderlands.

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reduced airstrips to mud slides, and an abundance of sheltered moorings in bays, lakes and estuaries meant that flying boats could be employed where landplanes were scarcely practicable. The German Dornier company designed a three-engined long-range flying boat to a requirement drawn up by the Netherlands Naval Air Service (*Marine-Luchtvaartdienst*) for use in the Netherlands East Indies. By the time of the German invasion of the Netherlands, in May 1940, eleven of these machines had been delivered by Dornier and a further twenty-six built under licence in the Netherlands.¹¹ The Supermarine Stranraer twin-engined flying boat, only seventeen of which were used by Britain's Royal Air Force, was taken up with enthusiasm by the Royal Canadian Air Force, for whom forty were built by Canadian Vickers.¹² The Short Sunderland, too, was mainly intended for overseas service. When war broke out in September 1939, two squadrons of these aircraft had to be recalled from the Mediterranean for use in home waters and twelve machines built for the Royal Australian Air Force were pressed into service alongside the Royal Air Force Sunderland squadrons.¹³

The only major belligerents in World War II to have modern multi-engined floatplanes were the two countries that had no separate naval air force—Germany and Italy.¹⁴ At first glance this seems a paradox, but in fact, just as the distances of trans-oceanic empire encouraged the use of flying boats, so the smaller but still considerable distances of Europe's land-locked seas sponsored the employment of the floatplane as a weapon in coastal warfare. In September 1939, the *Luftwaffe* had torpedo bomber units equipped with the excellent Heinkel He 115 twin-engined floatplane and Italy's *Regia Aeronautica* had two maritime bombardment *gruppi* of Cant Z.506B trimotor floatplanes. These aircraft did not have the fuel capacity of multi-engined flying boats, and could not therefore operate where landplanes of superior performance could

not also operate. Consequently they turned out to be of very limited use as fighting machines. They may be seen as a particularly striking instance of the misreading of the implications of a strategic situation, and one which Britain's Royal Air Force—too often condemned as having got most things wrong in its pre-war planning—managed to avoid.¹⁵

Since the science of hydrodynamics was still to a great extent at the trial and error stage, it is impossible to make any generalization as to whether it was floatplanes or flying boats that handled better in water. Perhaps the biggest design disaster of the period among aircraft that could take off from water was the Saunders Roe Lerwick, which performed so poorly on water that it had to be scrapped, and that was a flying boat. The Lerwick also had problems in flight. Whereas other flying boats and floatplanes often handled well in the air, except that they were always inferior in performance to comparable landplanes; but both flying boats and floatplanes were always awkward on any but the smoothest water. Even in World War I the wheeled under-carriage of landplanes had pneumatic tires and shock absorbers, and of course the free rotation of the wheels absorbed some of the impact of touching down. At 70 or 80mph water was almost as unyielding as concrete, and floatplanes and flying boats had no pneumatic tires or wheels, and only a few floatplanes had shock absorbers, to cushion impact. Military pilots were generally not trained to make smooth touch-downs like airline pilots and often caused their aircraft to bounce spectacularly as they hit the runway. A clumsy landing on water might hole a float or hull or worse. On one occasion an Arado Ar 196 operating from the German armed merchant cruiser *Orion* touched down so hard that both the engine and the engine bearers—the framework on which the engine was bolted—fell off into the sea. On another occasion the Ar 196 tipped forward and smashed the leading edge of its wing.¹⁶ The floatplane that was standard on larger Italian warships in 1940, the I.M.A.M Ro 43 was so little trusted in the open waters even of the Mediterranean that instead of returning to its host ship after being catapulted off, and being winched back on board, it was required by standing orders to make for a seaplane base shore after it had completed its mission. By early 1943, the Ro 43 was being replaced on Italy's battleships by a long-ranged version of an obsolescent single-seat fighter, the Reggiane Re 2000, a landplane.¹⁷ In June 1943, R.A.F Coastal Command laid it down as a rule that “where the surface wind speed is in excess of 15 knots the sea condition should at all time be deemed to be unfit for landing in open waters.”¹⁸ Taking off from water was even more problematic. One pilot wrote of taking off in a Supermarine Walrus amphibian, “As she leaps forward the waves lose their cushion-like quality and feel rock hard. For a few seconds one has the impression of charging down a pot-holed road in a car with no springs.”¹⁹ On May 28, 1943, a Short Sunderland ignored orders prohibiting patrol planes from attempting rescues at sea, and touched down to rescue the crew

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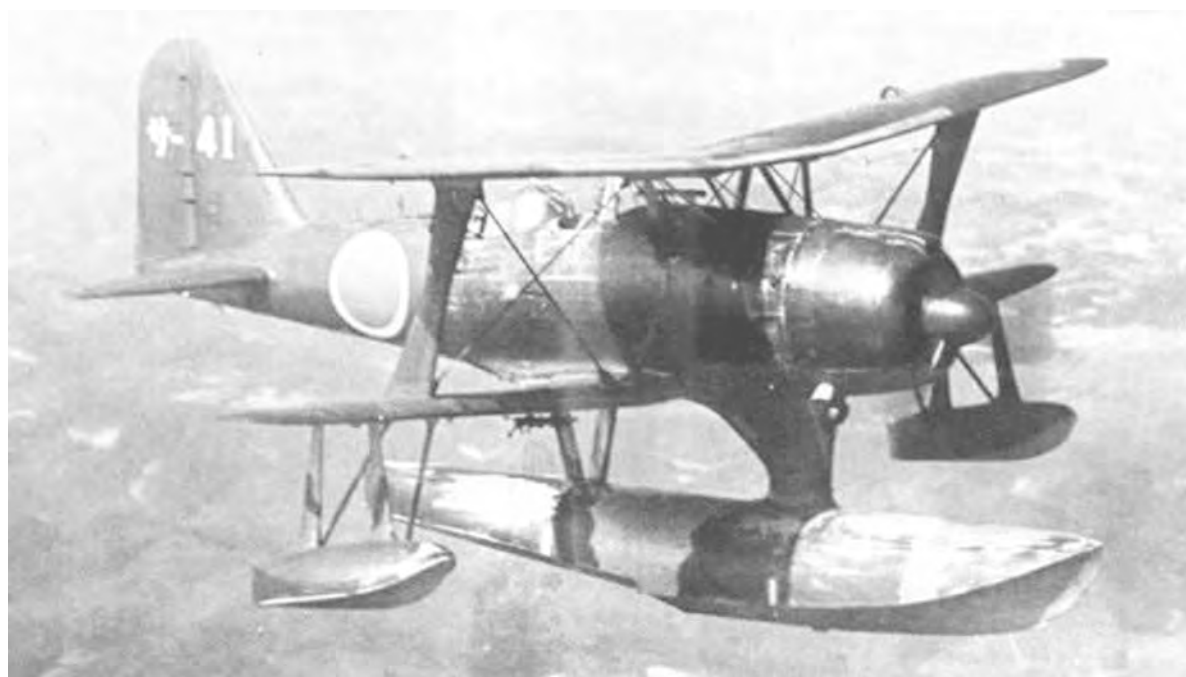
of an Armstrong Whitworth Whitley that had been forced to ditch. It required a three-mile run to lift off (admittedly it had extra men on board and one engine was malfunctioning) and at the last bounce was struck by a wave that punched a seven-foot by four-foot hole in the hull.²⁰ Two Supermarine Walruses deployed specifically for air/sea rescue duties which touched down to take aboard the crew of a ditched Handley Page Halifax bomber on June 22, 1943, had to taxi back and forth searching for water calm enough from which to take off. One managed to become airborne after half an hour with three of the Halifax's crew aboard, but the other had to be towed to shore. A Walrus that picked up a downed fighter pilot off the Normandy beach-head on June 11, 1944, failed to get airborne after six attempts and eventually taxied to Dover, which took five hours.²¹ The aircraft's hull or floats inevitably threw up spray, and in a single-engined floatplane the propeller also picked up additional water, which was thrown over the windscreen and the side of the fuselage. If there was a swell and brisk wind even the Heinkel He 115, which seemed to have been excellent hydrodynamically, tended to bounce off the water before it had achieved sufficient lift to keep in the air.²²

Maintenance was also a problem. At Pembroke Dock servicing the engines of the Sunderlands in the open in a damp winter's wind, with every spanner or screwdriver that fell from numbed fingers being irretrievably lost in the water below the aircraft, was found to be so awkward that the local commander decided it was easier to winch the sixteen-ton aircraft on shore on a cradle in order to carry out even routine daily inspections.²³ Flying

boats and floatplanes also had the disadvantage that though their liquid runways were invulnerable to bombing, they were much more exposed at their moorings than landplanes were in the massive revetments provided at aerodromes in combat zones. The Japanese particularly were later to lose many flying boats and floatplanes in attacks on their bases.²⁴

And the weather was also a greater problem than for landplanes—in February 1943, the crews of the Sunderlands of No. 246 squadron moored at Bowmore in the Western Isles had to stay on board their aircraft for several days running the engines simply to hold position in a winter storm. On one occasion the aircrew had to climb out on a wing to act as a counterweight.²⁵

Sir John Slessor, Air Officer Commanding Coastal Command, during a key phase of World War II, proudly described the Short Sunderland as "the really classic flying boat.... She gave a tremendous impression of massive reliability combined with graceful beauty in her white war paint."²⁶ The Sunderland's very real limitations had to be overlooked because of what may well be the Royal Air Force's worst misreading of the lessons of World War I. In May 1918, the *U-155* had cruised west of Gibraltar between longitudes 15 degrees and 20 degrees west, and in August 1918 more U-boats had operated—admittedly with poor success—off the east coasts of the U.S. and Canada. Still, most attacks on merchant shipping had been within 200 miles of the British and French coasts. For some reason it was assumed that this would also be the case in a future war. The airplane adopted by the Royal Air Force in the mid-1930s as its principal



THE SHORT SUNDERLAND AND LATER THE AMERICAN-BUILT CONSOLIDATED CATALINA WERE BASICALLY PRESSED INTO SERVICE BY THE ROYAL AIR FORCE AS A STOP-GAP

coastal defense weapon, the Avro Anson, a twin-engined landplane, had a range of 660 miles. At the period it was ordered there was little risk of interception over the North Sea by the short-ranged single-seat fighters of the day. But by the time the Anson entered squadron service, Germany and several other countries were developing twin-engined, multi-seat long-ranged fighters that could have made short work of an aircraft like the Anson with a top speed of less than 200 mph and an armament of two machine guns. In any case, its short range made it useless for patrolling out into the Atlantic or north of the Faroes. The Royal Air Force was not alone in overlooking the need for a long-range maritime patrol bomber. In the United States the Boeing B-17 was developed specifically with this role in mind, and on May 12, 1938, three early model machines grabbed world headlines by intercepting the Italian transatlantic liner *Rex* 725 miles out to sea the day before she was due to arrive at New York. By 1940, the U.S. Army Air Corps was much more interested in using the B-17 as a strategic bomber, to be employed in massed formations against inland targets.

In Germany, Karl Dönitz, then only a captain in charge of the submarine branch of Hitler's navy, secured a decision in 1937 to concentrate Germany's submarine building program on the Type VII U-boat with a range of 6,000 miles. (Although at this stage he envisaged that Germany's main submarine effort would be in the Mediterranean, where he had served as a U-boat watch officer and then commander during World War I). However, the *Luftwaffe* had no modern long-ranged flying boat available until the Blohm und Voss Bv 138 made its debut, actually as a transport, in the Norwegian campaign in April 1940.²⁷ The question of acquiring the superior Dornier Do 24 seems not to have arisen until the Do 24 production line in the Netherlands was taken over in May 1940, and even then the Do 24

was used mainly for air-sea rescue. Germany's chief reliance for long range maritime missions during the first two years of the war was on a landplane, the Focke Wulf FW 200C, an airliner converted hurriedly for military use only after the outbreak of war.

The Short Sunderland and later the American-built Consolidated Catalina were basically pressed into service by the Royal Air Force as a stop-gap. Both were in short supply: the jigs for the Short Sunderland were dismantled in 1940, in expectation of its being replaced in squadron service by the twin-engined (and more economical) Saunders Roe Lerwick flying boat but the latter proved to be unusable, and though 49 Short Sunderlands had been delivered by the end of 1939, only another 52 were completed during the next two years: production only gained tempo in the second half of 1942.²⁸

Despite Churchill's later claim that "The battle of the Atlantic was the dominating factor all through the war," Royal Air Force Coastal Command's campaign against the German U-boat was never given the priority accorded to RAF Bomber Command's offensive against German cities.²⁹ A squadron of Armstrong Whitworth Whitley heavy bombers was seconded to Coastal Command on September 30, 1939, and a squadron of Vickers Wellington ICs commenced operations patrolling the Dutch Coast in November 1940, and as both types began to be phased out in Bomber Command more Coastal Command units began to operate them. The Wellington was found to be ideal for medium range patrolling and eventually became standard equipment in this role; the Whitley was replaced as soon as possible by four-engined Consolidated Liberators and Handley Page Halifaxes. Five Halifaxes of 158 squadron and fifteen from 405 squadron were detached to Coastal Command in October 1942, and two of Coastal Command's Whitley squadrons were re-equipped

with Halifaxes, but though Sir Arthur Harris, the head of Bomber Command, disliked the Halifax he was parsimonious even with that.³⁰

The Avro Lancaster, regarded by Harris and most other senior officers as Bomber Command's best plane, was allocated to Coastal Command for only a few missions: the first such, on July 17, 1942, brought back photographs of the crew of a sunken U-boat swimming in the water, following an attack by the Lancaster and a Whitley: this was Coastal Command's first confirmed submarine sinking.³¹ Bomber Command's chief contribution to the war against the U-boat was a training unit, No. 10 Operational Training Unit, which between August 12, 1942, and July 19, 1943, carried out 1,800 maritime patrol sorties in Whitleys—17,000 flying hours. Each trainee crew usually did two patrols: only two of the 55 U-boats sighted were sunk but 45 Whitleys were lost, half of them with no survivors.³² Eventually the American Consolidated Liberator became Coastal Command's principal long range patrol plane. However, the entry of the United States into the war in December 1941, slowed down the supply of both Liberators and Catalinas however; the United States Navy wished to concentrate maritime patrol resources in the Pacific and the great distances involved in the war with Japan created a pressing need for Liberators for use as bombers in the Far East. The military build-up in the Middle East also involved a growing demand for long-ranged aircraft, both as bombers and transports.³³ In the end fewer than half of the Liberators supplied by the U.S.A. to the Royal Air Force could be spared for Coastal Command.³⁴ Consequently it was not until the middle part of 1943 that the Sunderland ceased to have a prominence in Coastal Command's inventory that many officers had thought excessive.³⁵

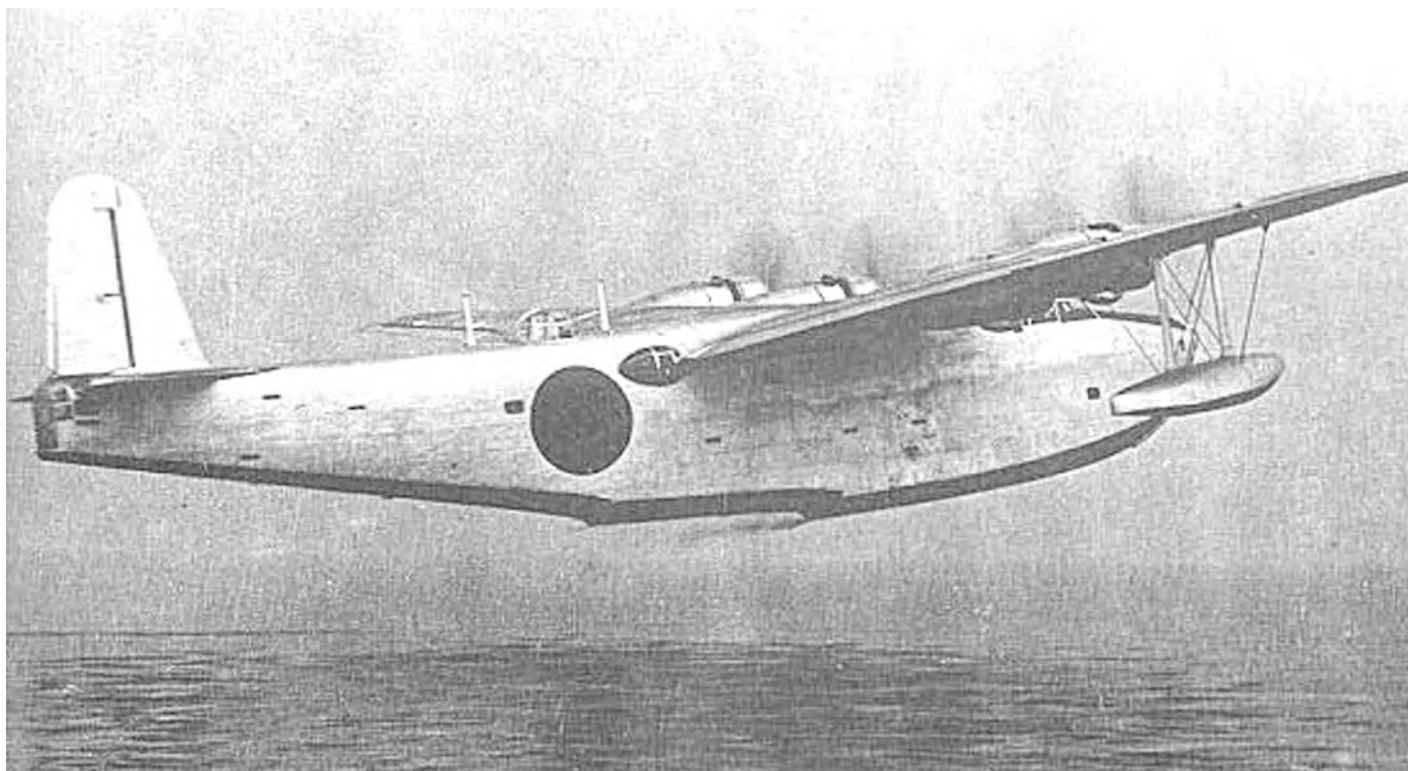
While the flying boat was finding at least some sort of role, the floatplane was failing to find one. Curiously, the first German submarine to be sunk by aircraft in World War II fell victim to a floatplane: a Fairey Swordfish floatplane from HMS *Warspite* sank U-64 in Narvik Fjord on April 13, 1940.³⁶ Heinkel He 115s of *Kustenfliiegergruppe 506*, based at Stavanger in South-West Norway, sank the 11,495 ton cargo liner *Remuera* off Kinnaird Head on August 26, 1940, and had other successes later in the year. Nevertheless, it was decided to terminate production of the He 115 since landplanes had more priority. The stationing of a small number of He 115s near Bordeaux, and of single-engined Arado Ar 196s at Brest, seems to have been due to non-availability of suitable landplanes. In 1942, the now aging He 115 provided about one in ten of the strike aircraft available for attacks on the Arctic Convoys in the Barents Sea. However by now the anti-aircraft defences carried on merchant ships and the proximity of well-armed escorts meant that the floatplane's relative bulk placed it at a significant disadvantage compared to faster, more agile bombers like the Junkers Ju 88. When production of the He 115 was resumed in 1944, it was to provide for air-sea rescue and transport requirements.³⁷ The sixty plus Cant Z.506B trimotor floatplanes avail-

able to the *Regia Aeronautica* when Italy entered the war in June 1940, based mainly at Brindisi and in Sardinia, carried out a few sorties in their designated role as "maritime bombers," but were then diverted to air-sea rescue and communications duties. In the first six months of 1942, the *Regia Aeronautica's* maritime section lost not a single aircraft to enemy action, but 39 to "other causes."³⁸ The twin-engined Fiat R.S. 14 floatplane which began to replace the Cant Z.506B in 1941, had a very small bomb load and was rarely if ever used in a combat role. Fairey Swordfish floatplanes were used for some months for short-range patrolling from Gibraltar by a squadron principally equipped with obsolescent Saunders Roe London II flying boats, and twelve Northrop N-3PB floatplanes on order for the Norwegian government at the time of the German invasion of Norway were eventually pressed into service with Norwegian crews for patrolling off Iceland. These however were merely stop-gap measures and both the squadron at Gibraltar and the Norwegian unit were later re-equipped with Catalina flying boats. A Norwegian proposal to base two Northrop N-3PBs in Spitzbergen was turned down by the Royal Air Force as impractical in 1943.³⁹

The Norwegian campaign, in which lack of airfields in the northern half of the country had been a significant factor, caused the Royal Air Force to give serious consideration to the development of a floatplane fighter, and a conversion of a Supermarine Spitfire with floats was tested, before being converted back to wheeled format. The RAF was well aware that a plane with floats could never compete successfully with a fighter equipped with retractable undercarriage—later in the war floatplane versions of the Spitfire VB and the Spitfire IX were tried out, but it was finally decided to concentrate on carrier-borne fighters. Both France and Italy had developed floatplane fighters before the war, but the French Loire 210, despite being sluggish in performance, had a tendency to shed its wings, and the Italian I.M.A.M. Ro 44, a single-seat version of the Ro 43, was quickly found to be too slow for modern combat. The Japanese had provided themselves with a short-ranged spotter biplane with two forward-firing machine guns, the Mitsubishi F1M2, which was used in conjunction with the longer-ranged Aichi E13A1. During the invasion of the East Indies F1M2s operating from seaplane tenders were surprisingly successful in combat with much more powerful American and British-designed landplanes, possibly because the westerners underestimated the manoeuvrability of the somewhat archaic-looking Japanese floatplane.

F1M2s also acted as escorts for Kawanishi H6K4 flying boats on bombing raids and fought with Dutch-flown Dornier Do 24s. Later the Japanese deployed a floatplane version of the famous Zero, the A6M2-N, specifically intended for covering seaborne invasions in areas where land-based air support might not be feasible. Fated to operate mainly in defence of islands already occupied by the Japanese and under assault from

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The Kawanishi H8K.

A FLOAT-PLANE... WAS RESPONSIBLE FOR THE ONLY AIR RAIDS ON THE NORTH AMERICAN CONTINENT EVER CARRIED OUT

American landplanes—most notably in the Aleutians—and in 1943, they brought into service a purpose-built floatplane fighter, the Kawanishi N1K1, the only floatplane used in combat in the Second World War to be capable of exceeding 300 m.p.h. Comparatively few of either type were built, and in action they were generally swamped by the greater numbers of landplanes that the Americans had available, but a landplane version of the N1K1 was produced in significant numbers and by the end of the war was replacing the Zero as the Imperial Japanese Navy's principal fighter type.

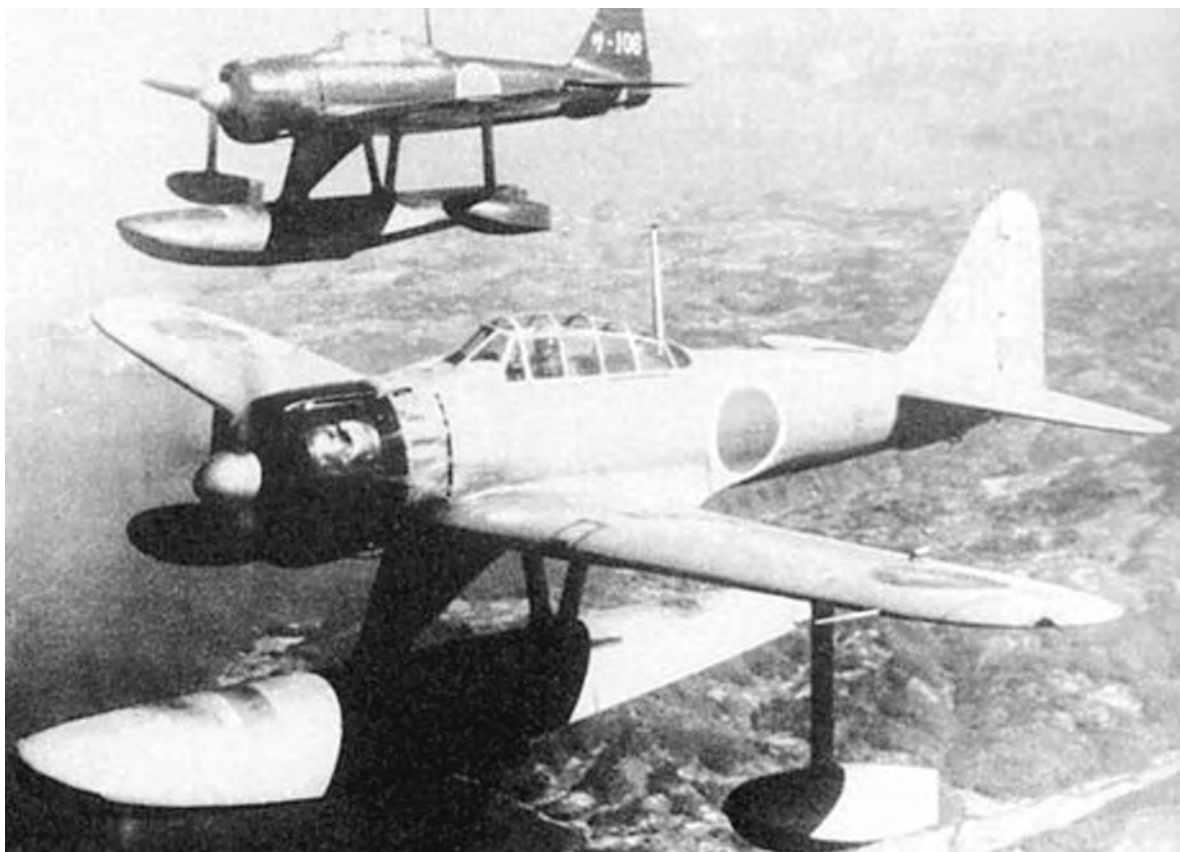
It was a floatplane that was responsible for the only air raids on the North American continent ever carried out. In an unsuccessful attempt to set Oregon's forests on fire, on September 9, 1942, a Yokosuka E14Y1 piloted by Warrant Officer Nobuo Fujita was launched from the Japanese submarine *I-25* to drop incendiaries on the slopes of Mount Emily ten miles north-east of Brookings. The location of Fujita's second attempt to set the American west coast alight, on September 29, is uncertain, but the two attacks epitomize the wishful thinking that characterized so much of the history of the floatplane. Later the Japanese developed a larger submarine-launched floatplane, the Aichi M6A1, originally with a view to attacking the Panama Canal. Six of these aircraft embarked on two submarines, leaving on July 23, 1945, to carry out a raid on American naval units at Ulithi, but the mission commander was informed by radio of Japan's surrender before he had an opportunity to launch the attack.⁴⁰

As for floatplanes carried on board warships engaged in big-gun actions, they showed their usefulness and their disadvantages from the outset. The really vital parts of a major warship's upper

works, the gun turrets and the conning tower, were of course armoured, and the rest of the structure was very solidly built: but the aircraft carried by such a warship are quite as flimsy as any other aircraft. At the Battle of the River Plate in December 1939, the two Walrus amphibians on board HMS *Exeter* and the Arado Ar 196 floatplane on board the *Admiral Graf Spee* were wrecked by shell bursts at the commencement of the action. But a Fairey Seafox on board HMS *Ajax* was launched successfully and spotted for fall of shot (initially causing confusion by identifying the splashes from *Ajax*'s shells as those from HMS *Achilles*). A few days later, flying off Montevideo, the Seafox was able to observe the scuttling of the *Graf Spee*. If the latter had a serviceable shipboard aircraft aboard, Captain Hans Langsdorff might have been able to discover that the Royal Navy squadron waiting in the estuary for the *Graf Spee* to leave neutral waters was still significantly less powerful than his own vessel.⁴¹ Eighteen months later the *Bismarck* was also unable to launch her Arado Ar 196 because of damage from enemy gunfire, though in this instance it was the catapult rather than the airplane which a shell from HMS *Prince of Wales* had rendered unserviceable, and the only use the doomed German battleship could have found for a floatplane would have been to fly the ship's war diary to the nearest German-controlled territory.⁴²

Enemy shells were not the only agent that might wreck a shipboard plane during an exchange of fire. The discharge of warship's own guns, which might crack the glass in the frames of family snapshots in the officers' quarters and cause the pissoirs to fall off the walls in the mess decks, could easily damage an airplane exposed on the upperworks. HMS *Warspite*'s Fairey Swordfish floatplane per-

The Mitsubishi A6M2 float-plane.



IT WAS HOWEVER THE JAPANESE WHO COULD CLAIM WHAT WAS PERHAPS THE MOST BRILLIANT ACTION BY SHIPBOARD FLOATPLANES OF THE ENTIRE WAR: AT THE BATTLE OF SAVO ON AUGUST 9, 1942

formed brilliantly at the second battle of Narvik on April 13, 1940 spotting for *Warspite* as she helped sink seven German destroyers and the *U-64*, but in the action against the Italian fleet at Punta Silo on July 3, 1940, the concussion of *Warspite*'s opening salvo shattered the floatplane as it was being readied to launch on its catapult and it had to be simply jettisoned over the side.⁴³ The same thing happened to one of the spotter planes on board the Japanese flagship, the heavy cruiser *Nachi*, at the Battle of the Komandorskis on March 26, 1943.⁴⁴ At the Battle of the Denmark Strait HMS *Prince of Wales* was unable to launch its Walrus because its fuel had become contaminated with water.⁴⁵ At Mers el Kebir on July 3, 1940, it was aircraft from the carrier HMS *Ark Royal* that spotted for the battleships. At Punta Silo the exchange of gunfire was observed by a I.M.A.M. Ro 43 launched by the Italian cruiser *Eugenio di Savoia*, but there seems to have been no attempt—or time—to spot for fall shot. At the Battle of Matapan an I.M.A.M. Ro 43 launched by the *Vittorio Veneto* gave the Italians their initial warning of the approaching British fleet, and later a Walrus from HMS *Warspite* reconnoitred the Italian fleet, but it was reconnaissance by a Short Sunderland flying boat and by aircraft flown off the carrier HMS *Formidable* that played a more important part in the action.⁴⁶

Four weeks earlier, at the Battle of the Java Sea on March 1, 1942, shipboard floatplanes had been involved in one of the great naval fiascos of the war: the 36,600 ton Japanese battleship *Hiei*, engaging the elderly 1,190 ton destroyer USS *Edsall* at extreme range 250 miles south south-east of Christ-

mas Island, launched its three-seat Kawanishi E7K2 and two two-seat Nakajima E8N2 floatplanes to spot for fall of shot and managed to fire 210 14-inch shells without a single hit. The two 12,000 ton heavy cruisers *Tone* and *Chikuma*, which were in company with the *Hiei*, may also have launched floatplanes—they carried at least ten between them—but achieved probably no more than two direct hits on the *Edsall* with the 844 8-inch shells they fired at her.⁴⁷ It was however the Japanese who could claim what was perhaps the most brilliant action by shipboard floatplanes of the entire war: at the Battle of Savo on August 9, 1942, five Japanese floatplanes dropped flares to illuminate the Allied squadron while Japanese warships attacked out of the darkness, sinking four allied cruisers and damaging a fifth.⁴⁸ By that stage radar had already proved its value in night action at Matapan, and it was radar, not shipboard spotter planes that was to be decisive in the sinking of the Japanese battleship *Kirishima* at the Naval Battle of Guadalcanal on November 15, 1942, and of the German *Scharnhorst* at the Battle of North Cape on December 31, 1943. Radar basically obviated the need for catapult scout and spotter floatplanes. It was calculated in May 1942, that over a period of seventeen months HMS *Warspite* had averaged little more than two aircraft launchings a month.⁴⁹ It was decided not to install catapults and hangars on the battleship *Vanguard*, then under construction, or on the projected *Lion* class of battleships, and to remove them from some classes of cruisers in order to reduce top weight and to facilitate the operation of light anti-aircraft weapons: the Royal Navy's



THE U.S. NAVY FAVORED RETAINING FLOATPLANES ON BOARD BATTLESHIPS... MAINLY FOR ARTILLERY SPOTTING PURPOSES

Director of Plans considered that “the fitting of cruisers with aircraft has been a temporary measure which is dying a natural death.”⁵⁰

The half dozen or so floatplanes previously operated from American aircraft carriers were withdrawn at the beginning of the war. But the U.S. Navy favored retaining floatplanes on board battleships. This seems to have been mainly for artillery spotting purposes, battleships being increasingly used for shore bombardment rather than in ship-to-ship action. In the second half of the war the only country that continued to maintain a high level of floatplane use in combat was Japan. Again, this points to the way in which aircraft that could land on water were chiefly significant as a stop-gap. During the opening phases of the Pacific War, when Japan had been on the offensive, floatplanes had been of real value and provided one more illustration of the precision with which the Japanese deployed their very limited resources.⁵¹ Once the Americans had gone over to the offensive, their material superiority rendered the floatplane, with its inherently inferior combat performance, an irrelevance or even a liability. For the Japanese perhaps the most unexpected (and ultimately, most dangerous) aspect of the American counter-attack was the U.S. Navy’s submarine campaign against Japanese merchant shipping. Japan had excellent long-range flying boats but scarcity of resources meant that a combined total of only 382 four-engined Kawanishi H6K and H8K flying boats were built, and at least a quarter of these were used as long range transports. Others were used in questionable stunts like the bombing of suburban Honolulu (and breaking a few windows) in the small hours of March 5, 1942, after a stop for refuelling from a submarine in the French Frigate Shoals, and providing navigational guidance for the twenty-four land-based Yokosuka P1Y1 bombers that were sent out on a one-way mission against the U.S. Navy’s anchorage at Ulithi on March 11, 1945. It resulted in damage to a single American warship, the carrier *USS Randolph*.⁵²

The Imperial Japanese Navy also had an excellent though obsolescent landplane bomber with a longer range than the RAF’s Whitley, the Mitsubishi G3M3, but lacked the organizational resources to train crews for patrol work in addition to training crews to operate the G3M3’s bomber replacement, the Mitsubishi G4M1 and G4M2. The main burden of anti-submarine patrolling fell therefore on Aichi scout floatplanes, the three-seater E13A1, which ran the American Vought OS2U a close second as the floatplane manufactured in the largest numbers ever—1,418 built compared to 1,519—and the two-seater E16A1, of which 256 were built during the last twenty months of the war. The E13A1 had an endurance of more than ten hours, and with its cramped cockpits must have been a gruelling experience to operate on patrol duties.

A Japanese staff paper captured in February 1945, stated, “It is obvious that use of the former anti submarine tactics by the Imperial Navy in the present war only resulted in our navy being held in contempt and our supply line being severed at leisure by enemy submarines.”⁵³ This is not entirely fair. The quality of Japanese air-to-surface vessel radar was poor, and they had less success with aircraft fitted with magnetic anomaly detection equipment than the Americans, though their use of this technology in coastal patrol aircraft suggests that, like RAF Coastal Command, they had responded to evidence that searching for enemy submarines in close proximity to their potential targets yielded better results than general patrolling.⁵⁴ In the end however the Japanese lacked the means to provide adequate air cover for their shipping throughout the vast area where American submarines might attack, and even after occupying Wake Island they lacked (just as every other nation then lacked) aircraft with sufficient range to patrol the waters far out in the central Pacific where American submarines proceeded mainly on the surface. Out of 40 American submarines lost in action between 1941, and 1945, only four were sunk at sea by Japanese



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aircraft, with aircraft taking a subordinate role in the destruction of two or three others.⁵⁵

This was actually a better ratio than that achieved by the *Regia Aeronautica* in the more restricted waters of the Mediterranean. Of thirty-four Allied submarines sunk by Italian forces between June 1940, and September 1943, only two were sunk by Italian aircraft.⁵⁶ On the other hand, of the over five hundred German U-boats sunk by the British 1939-1945, something like a third were sunk by aircraft without the intervention of surface vessels.⁵⁷

The success of the British effort against enemy submarines, so vastly disproportionate to the results achieved by the Italian and Japanese armed forces, depended on superior SIGINT (signals intelligence), including ULTRA, superior radar technology, more effective weaponry, such as the Hedgehog forward firing depth charge system, but most of all on Britain's capacity to invest, despite other priorities, human and material resources that were much greater in absolute terms even if not so in proportion to overall national effort. The relatively greater role played by aircraft in the British effort was a measure of the fact that aircraft, by their very nature, could cover a much wider extent of water than could surface ships, and once U-boats were being located in every part of the Atlantic Ocean it was the aircraft patrolling where warships could not be spared that caught a large proportion of the submarines that were sunk.

To this effort Short Sunderland and Consolidated Catalina flying boats contributed very little. RAF Coastal Command's first successes were with the American built Lockheed Hudson, which had replaced the Avro Anson in the medium range patrol role (one of these aircraft forced the surrender of *U-570* on August 27, 1941,) and the Vickers Wellington (a Wellington from No.172 squadron sank *U-502* on July 6, 1942, in the Bay of Biscay). The first German submarine to be destroyed by a flying boat in the Second World War seems to have

been the *U-158*, sunk by a United States Navy Martin PBM Mariner west of Bermuda on June 30, 1942.⁵⁸ At least five U-boats had been sunk by U.S. Navy Catalinas before a Coastal Command Catalina achieved a U-boat kill (*U-620* on February 13, 1943) and the first sinking of a U-boat by a Short Sunderland (*U-465*) was not till three months later.⁵⁹ By this stage the long-ranged Liberator was catching up with the Lockheed Hudson as Coastal Command's most successful sub-killer. During October and November 1943, the period in which the tide can be seen to have decisively turned against the German submarine, Coastal Command Liberators accounted for eight and a share in a ninth of the twenty U-boats sunk by aircraft. American-flown Liberators accounted for another three, and contributed to the shared kill; a Sunderland (actually crewed by Canadians) sank one U-boat, as did a Hudson, and three were destroyed by medium-ranged Wellingtons.

In March 1943, R.A.F Coastal Command had seventy-five Sunderland and thirty-five Catalina flying boats in service (about ten per cent more than the hoped for establishment) as compared to 108 medium-ranged Lockheed Hudson and Vickers Wellington landplanes (again about 10 per cent more than aimed at) and thirty-eight Liberators, twenty-two Halifaxes, and thirty-four Boeing Fortresses, with a requirement for fifty-two more Liberators.⁶⁰ At this stage the Vice-Chief of Air Staff thought the United States Navy's "action in starving the Atlantic of Liberators in the interest of the Pacific is quite inexcusable."⁶¹

By February 1945 the figures were about thirty Halifaxes, six Fortresses (which had served with success in two squadrons but were now being phased out), about 130 Liberators, eighty Wellingtons, fifteen Vickers Warwicks—one of the Wellington squadrons, No.179, had been reequipped with this type in November 1944—and 127 flying boats, approximately half Sunderlands and half Catalinas.⁶² There were also three United States Navy

In the foreground is a PB2Y Coronado, while in the background is a PBM Mariner.



USE OF FLY- ING BOATS FOR LONG- RANGE PATROLLING WENT OUT OF FASHION IN EUROPE AFTER 1945, BUT CONTIN- UED IN THE PACIFIC

Liberator squadrons and one Catalina squadron operating from bases in the United Kingdom. These overall figures understate the importance of the Liberator in the key area, the Bay of Biscay, which Bordeaux-based U-boats had to traverse to and from their operating areas. A senior Bomber Command staff officer had admitted in 1943, "now that the submarines are fighting it out on the surface with their Flak guns, and with the increased use by the enemy of long range fighters over the Bay, the Whitley is no longer fit for the job," and this was even truer of the Catalina, 25 m.p.h. slower than the already slow Whitley, and like the Whitley equipped with only a single rifle-caliber machine gun in its nose.⁶³ The portly Sunderland too was not ideal for attacking a target that fired back, and the flying boats carried out patrols principally where U-boats were less likely to be encountered. Claims that Catalinas and Sunderlands accounted for 67 U-boats between them appear to be exaggerated, and in any case it is difficult to think of an instance of a supposed flying boat successes that was achieved in an area where a land-based aircraft might not have been equally or more suitable, if they had been available.⁶⁴

The Germans also used flying boats in the Atlantic, including half a dozen six-engined Blohm und Voss Bv 222s. The later were the largest aircraft to be involved in air-to-air combat in the

Second World War: one of them shot down a U.S. Navy Liberator on October 22, 1943, but they were not employed to attack Allied shipping.⁶⁵ In November 1943, a unit equipped with a four-engined landplane, the Junkers Ju 290A, began operating from a base near Bordeaux, but one was shot down almost immediately by a British long-ranged fighter and two were destroyed by carrier-borne fighters in February 1944.⁶⁶ After the withdrawal from combat operations of the Focke Wulf FW 200C, the Luftwaffe cannot be said to have ever competed seriously with the Allies in the air over the mid-Atlantic beyond 15 degrees west.

It is surely significant that the use of flying boats for long-range patrolling went out of fashion in Europe after 1945, but continued in the Pacific. The Japanese, who lacked not only the resources but also the foresight to equip themselves to build airfields on all the islands they occupied, were obliged to rely on floatplanes as a poor man's weapon. The sheer size of the Pacific Ocean, and the scale of the movement season-by-season of the island front lines, meant that the Americans depended too heavily on aircraft capable of landing on water. In 1941, the United States Navy had fourteen converted destroyers serving as seaplane tenders. Later they commissioned nearly forty specially built tenders, six of them vessels over 12,000 tons and with an aviation fuel capacity of more than 264,000 U.S. gallons

Vought-Sikorsky OS2U3
Observation Scout
"Kingfisher". Depth
charges beneath the wings
can be dropped on an
instant's notice. (USCG
photograph.)



each.⁶⁷ These served as mobile base facilities all over the Pacific theatre, taking advantage of the sheltered anchorages offered by many Pacific island groups. Most of the 3,290 Consolidated PBY Catalinas and nearly 1,000 Martin PBM Mariners built during the war were deployed in the Pacific, and the Catalina was even used as a night raider against Japanese shipping, though as often as not transport and communication duties were at least as pressing as reconnaissance and patrolling requirements. The PBY-5A version was built as an amphibian, with retractable tricycle undercarriage, which facilitated its use for miscellaneous non-combat duties. American combat units in the Pacific had the largest logistical "tail" of any military force in history, and while flying boats in no sense spearheaded the American advance, they were vital for filling in the spaces behind. (Because of the Imperial Japanese Navy's preoccupation with using submarines against enemy warships, only fifteen Japanese submarines out of a total of 120 lost in action were sunk by the unassisted efforts of aircraft, and three fifths of those were sunk by ship-board aircraft operating in the vicinity of battle fleets.)⁶⁸

The United States Navy in the Pacific also operated a large number of catapult launched floatplanes, especially the Vought OS2U Kingfisher, though perhaps the most noteworthy exploit of this aircraft was the rescue of World War I fighter ace Eddie Rickenbacker on November 13, 1942, three

weeks after the B-17 in which he was a passenger ditched north of Samoa.⁶⁹ (A total of 795 Curtiss SO3C Seamew floatplanes were built, in addition to the 1,519 OS2U's, but it is probable that many of them were never issued to frontline units, because of the machine's disappointing performance: one notes that not only was the Catalina built in greater numbers than any other flying boat before or since, it was also built in greater numbers than the Kingfisher and the Seamew put together.) Aircraft that could land on water greatly facilitated the war in the Pacific but they cannot be said to have made a decisive contribution to Japan's defeat. In Europe they formed a key part of the front line, even if only temporarily and with mediocre success, in the longest campaign of the war.

Aircraft that can land on water are still useful today in areas that have more lakes than human settlements. Helicopters are less economical to operate, have a shorter range and need constant attention from the pilot in flight, which makes them tiring to fly long distances. But most people in the world do not inhabit remote locations and should large-scale warfare break out in such regions, the belligerents would no doubt quickly summon up civil engineering resources to transform unpopulated wildernesses into the semblance of suburban shopping malls. As a military technology the flying boat and the floatplane has never really ever had the future it seemed to have in the mid-1930's. ■

AS A MILITARY TECHNOLOGY THE FLYING BOAT AND THE FLOATPLANE HAS NEVER REALLY EVER HAD THE FUTURE IT SEEMED TO HAVE IN THE MID-1930's

1. The Royal Naval Air Service developed the best heavy bomber of the war, the Handley Page 0/400, just as the German navy was chiefly responsible for employing Zeppelins to bomb London, and the U.S. Navy was in the process of working up a heavy bomber unit, the Northern Bomber Group, in Northern France at the time of the Armistice. Both the R.N.A.S and the German navy also operated land-based fighter units over the Western Front: the Sopwith Triplane flown by No.10 Squadron R.N.A.S was so successful that Germany's *Luftstreitkräfte* invited tenders for a triplane fighter of their own, the result being the Fokker Dr 1, the type which both Werner Voss and Manfred von Richthofen were flying when they were shot down.
2. Walter Raleigh and H.A Jones, *The War in the Air* (7 vols. Oxford 1922-34 vols. 4 p. 408, Appendix II.
3. Lucien Morareau et al. *L'Aviation Maritime Française pendant La Grande Guerre (hydravions et avions)* (Paris 1999) p. 50.
4. Raleigh and Jones, *War in the Air*, vol.2 p.407; The National Archives (TNA), AIR I/2386/228/11/14 pp. 4-8.
5. Raleigh and Jones, *War in the Air* vol.4, p. 74.
6. C.F. Andrews, E.B. Morgan *Supermarine Aircraft: Since 1914* (London 1981) pp. 182-201.
7. Leo Marriott, *Catapult Aircraft: The Story of Seaplanes Flown from Battleships, Cruisers and other Warships of the World's Navies, 1912-1950* (Barnsley 2006) p. 51; www.combinedfleet.com.
8. www.feldgrau.com/ahpper.html and www.feldgrau.com/ascheer.html.
9. Mark R. Peattie, *Sunburst: The Rise of Japanese Naval Air Power 1909-1941* (Rochester 2002 edit) p. 249.
10. TNA, AVIA 2/1348, note by C.B. Collins July 14, 1938, and note by J. Stewart Aug 17, 1938.
11. John W.R Taylor ed., *Combat Aircraft of the World* (London 1981) p. 148.
12. Andrews and Morgan, *Supermarine Aircraft*, pp. 137, 139.
13. C.H. Barnes, *Shorts Aircraft: Since 1900* (London 1967) pp. 346-49.
14. The Dutch *Marine-Luchtvaartdienst* had ten Fokker T VIII-W/G twin-engined floatplanes in service on May 1940 (these were evacuated first to France and then to Britain, where they carried out patrols till September 1940) and in April 1941 the Royal Yugoslav Navy had twelve SIM-XIV-H twin-engined floatplanes, but both these aircraft types though of modern design had relatively small engines, 450 h.p. in the case of the Fokker T VIII-W/G and 240 h.p. in the case of the SIM-XIV-H, and neither can be regarded as up-to-date and genuinely combat-effective warplanes. France's *Aéronavale* decided to use landplanes rather than floatplanes as torpedo bombers during the first week of the war and told manufacturers that it did not intend to take up two twin-engined floatplane torpedo bombers then under development, the Bloch MB-480 and the Loire Nieuport LN 10; but antiquated Lioré-et-Olivier H-257 *bis* twin-engined biplane floatplanes that had not yet been replaced in squadron service were used to attack German columns in May 1940: see William Green, *War Planes of the Second World War* (10 vols. London 1960-68) vol. 6 (Floatplanes) *passim*.
15. Cf. A.D Harvey, "The Royal Air Force and Close Support, 1914-1940," *War in History* vol.15 (2008) pp. 262-486.
16. Paul Schmalenbach, *German Raider: a History of auxiliary cruisers of the German Navy 1895-1945* (Cambridge 1977) pp. 82-83.
17. Nino Arena, *I Caccia a Motore Radiale: La Generazione Intermedia, Macchi MC. 200, Fiat CR. 42, Reggiane RE. 2000, Fiat G.50* (Modena 1979) p. 414.
18. TNA, AIR 15/488, SASO instruction, Coastal Command June 27, 1943, cf. ADM 1/9088 Minute sheet 2 Naval Staff meeting May 26, 1936, discussion of non-availability of aircraft capable of landing at sea.
19. Terence Horsley, *Find, Fix and Strike: The Work of the Fleet Air Arm* (London 1943) p. 35.
20. Barnes, *Shorts Aircraft*, p. 355.
21. G.W.R. Nicholl, *The Supermarine Walrus: The Story of a Unique Aircraft* (London 1966) pp. 119-21.
22. TNA, AVIA 19/578, Swordfish Floatplane Test Report F 138A Sept 1936, p. 44; TNA, AVIA 19/597, Test H/157, March 1941, p.3. The aircraft tested was probably one of three Norwegian He 115 A-2s that had escaped to Britain, along with a German He 115 B-1 the Norwegians had captured: two planes crashed while being tested, Green, *War Planes of the Second World War*.
23. TNA, AIR 75/129, Sir John Slessor, "Seaplanes and the Royal Air Force," c. 1961 p. 4.
24. For example three Short Sunderlands were destroyed at their moorings at St Paul's Bay at Kalafrana on Malta, March-May 1941; 27 Consolidated PBV Catalinas were destroyed at the Kaneohe seaplane base on Oahu during the Pearl Harbor attack on Dec 7, 1941; three Japanese Kawanishi H6K4 four-engined flying boats were sunk at Port Blair in the Andaman Islands, in attacks carried out by RAF Hudsons on Apr 14 and 18, 1942; 19 Japanese floatplanes were sunk at Tulagi by divebombers from USS *Wasp* on Aug 7, 1942: a Japanese flying boat and seven A6M2-N Floatplanes were destroyed at their moorings at Kisha, in Aleutians on Sept 14, 1942; two six-engined Blohm und Voss Bv 222 flying boats and a Bv 138 were destroyed at their moorings at Biscarosse, May 17, 1943: Chaz Bowyer, *The Short Sunderland* (Bourne End 1989) p. 39; Andrew Hendrie, *Flying Cats: The Catalina Aircraft in World War II* (Shrewsbury 1988) p. 114; S. Woodburn Kirby, *The War Against Japan* (5 vols., London 1957-64) vol.2 pp. 126-27; Eric Larrabee, *Commander-in Chief: Franklin Roosevelt: his Lieutenants, and their War* (London 1987) p. 266; Brian Garfield, *The Thousand-Mile War: World War II in Alaska and the Aleutians* (London 2004 edit) p. 155; www.armchairgeneral.com
25. Ian Carter, *Coastal Command 1939-1945* (London 2004) p. 101.
26. TNA, AIR 75/129 p.8 In fact the finest flying boat of the Second World War was Japan's Kawanishi H8K2, a type which first flew just over three years after the Sunderland prototype: with 27% more power it had more than twice the rate of climb and bombload, 54% longer range, 27% more speed, and a 65% higher ceiling, and whereas the Sunderland was armed with eight rifle calibre machine guns, the H8K2 carried five 20mm cannon as well as machine guns.
27. Peter Padfield, *Döenitz: The Last Führer* (London 2001 edit) p. 156.
28. Tony Buttler, *Short Sunderland* (Milton Keynes n.d.) p. 16.
29. Winston S Churchill, *The Second World War* 6 vols. (London 1948-54) vol. 5, p. 6.
30. Tony Buttler, *Handley Page Halifax* (Luton n.d.) pp. 29-32.
31. Axel Niestlé, *German U-Boat losses during World War II: Details of Destruction* (London 1998) p. 86.
32. TNA, AIR 14/617, Air Marshal Sir John Slessor (Coastal Command) to Air Marshal Sir Arthur Harris (Bomber Command) July 23, 1943: but Slessor credits 10 OTU with a single sinking and Axel Niestlé with two: inci-

- dently the hours flown by the trainees per sighting were 309 compared to an overall Coastal Command average of 312 hours which Sir Charles Portal, Chief of Air Staff, told Slessor on Mar 21, 1943, "seems to me to be an utter waste of time": TNA, AIR 8/1398.
33. TNA, AIR 20/896, Portal to Vice Chief of Air Staff, Sept 3, 1942, and AIR 8/461 and AIR 20/884 passim.
34. James D. Oughton, *The Liberator in Royal Air Force and Commonwealth Service* (Tonbridge 2007) p. 35, cf. Allan G. Blue *The B-24 Liberator: A Pictorial History* (Shepperton. 1976) p.80.
35. TNA, AVIA 7/3807, TRE meeting Oct 12, 1942.
36. Taylor, *Combat Aircraft of the World* p. 104 claims that a French Aeronavale Levasseur PL 15 – a biplane floatplane based on a design dating from the 1920s – sank an unidentified submarine off Lorient on Oct 30, 1939, but no German submarine was lost on or around that date.
37. Friedrich Lauck, *Der Lufttorpedo: Entwicklung und Technik in Deutschland 1915–1945* (Munich 1981) pp. 39, 46; Green, *War Planes of the Second World War*, vol. 6, p. 83.
38. Giuseppe Santoro, *L'Aeronautica Italiana nella Seconda Guerra Mondiale* (2 vols. Milan 1957 edit) vol.1 pp. 83–88, vol. 2, p. 578; Ufficio Storico della Marina Militare, *La Marina Italiana nella Seconda Guerra Mondiale* (18 vols. Rome 1950–66) vol. 1 p. 94 table XLVIII.
39. TNA, ADM 1/4819, cf. AIR 20/1043 Air Marshal Philip Joubert to Air Marshal Wilfred Freeman, Apr 22, 1942 and Coastal Command meeting May 21, 1942, statement by Commander Dahl. The Northrop N-3PB was supposedly 'the fastest military seaplane in the world' – Eric Sargent, *The Royal Air Force* (London 1942, edit) p. 505 – though in fact the Japanese A6M2-N was faster. See also AIR 27/1721, Operations Record Book of No.330 (N) Squadron.
40. www.wikipedia.com; René J. Francillon, *Japanese Aircraft of the Pacific War* (London 1979 edit.) p. 294 states that ten M6A1s on four submarines were sent out.
41. Leo Marriott, *Catapult Aircraft*, pp. 20–21
42. www.kbismarck.com/avioni.html
43. V.E. Tarrant, *Battleship Warspite* (London 1990) p. 89–90.
44. Garfield, *Thousand-Mile War*, p. 193.
45. Roger Chesneau, *Hood: Life and Death of a Battle Cruiser* (London 2002) p. 154, Both *Hood* and *Prince of Wales* had gun-laying radar in any case, and had also counted on their destroyer escort to report fall of shot.
46. *Marina Italiana nella Seconda Guerra*, vol. 4 (R. Giuseppe Fioravanzo: La Guerra nel Mediterraneo) pp. 146–47, 415, 422–23. See also Tarrant, *Battleship Warspite*, p. 98.
47. www.combinedfleet.com/hiei2.htm
48. Marriott, *Catapult Aircraft*, p. 86.
49. TNA, ADM 1/11784 Enclosure B.
50. *Ibid* minute by Captain C.E. Lambe, Director of Plans, June 30, 1942 cf. ADM 1/9088, Naval Staff Meeting May 26, 1936, raising exactly the issues that led to this decision six years later.
51. Cf. A.D Harvey, 'Army Air Force and Navy Air Force: Japanese Aviation and the Opening Phase of the War in the Far East', *War in History* vol. 6 (1999) pp. 174–204, especially p. 195–96.
52. Stetson Conn et al., *Guarding the United States and its Outposts* (Washington 1964) p. 218 – the flight from the French Frigate Shoals via Honolulu back to the flying boat's base on Jaluit Island in the Marshalls was about 3,000 miles and the whole mission involved more than 27 hours flying time; Masami Jinno, *Azusa tokubetsu kougekita: Bakugekiki "Ginga" sanzen kiro no kouseki* (Kojinsha 2000); English summary http://wgordon.web.wesleyan.edu/kamikaze/books.japanese.azusa.index.htm
53. TNA, AIR 40/2185.
54. Cf Stephen, Roskill *The War at Sea 1939-1945* (3 vols. London 1954–61) vol. 3, part 1, pp. 263–64 tables 15 and 16. The Imperial Japanese Navy operated a small number of specially designed MAD aircraft, the Kyushu Q1W2, but without particular success: a United States Navy squadron with MAD-equipped Catalina was involved in the destruction of three U-boats while based in Morocco and a detachment based in Devon sank a fourth, the U-1107, in the Channel on Apr 30, 1945: Ragnar J. Ragnarson, *US Navy PBY Catalina Units of the Atlantic War* (Oxford 2006) p. 66 ff.
55. Office of the Chief of Naval Operations, Naval History Division *US Submarine Losses: World War II* (Washington 1963), cf. www.valoratsea.com
56. Alberto Santoni, Francesco Mattesini, *La Partecipazione Tedesca alla Guerra Aeronavale nel Mediterraneo (1940-1945)* (Rome 1980) p. 599, Table C, p. 602 Table D, p. 607 Table E.
57. John Slessor, *The Central Blue: Recollections and Reflections* (London 1956) p. 470, cf. Axel Niestlé, *German U-boat losses*, p. 202, appendix 2. Niestlé revises many earlier claims regarding the loss of individual U-boats, noting several instances of aircraft being credited with sinking U-boats that were only damaged or sinking U-boats other than the one they were credited with (pp. 224–40 passim) or even sinking a U-boat and not being credited with it (p. 227, note 41) but since the publication of his book in 1998 more information has come to light: for example the sinking on July 6, 1942 of U-166 off the coast of Louisiana by a U.S. Coast Guard Grumman J4F2 Widgeon amphibian, supposedly only the second sinking of a submarine by a flying boat in World War II, turns out not to have happened: the location of U-166's wreck when it was discovered in May 2001 indicated that it had been sunk two days previously by a patrol boat: www.uboot.net. Details of sinkings of U-boats given in William S. Hanable, *Case Studies in the Use of Land Based Aerial Forces in Maritime Operations*, (Washington 1998) which came out in the same year as Niestlé's work, are in many instances shown by the latter to be incorrect.
58. Niestlé, *German U-boats losses* p. 123.
59. *Ibid.*, pp. 194–95.
60. TNA, AIR 8/1398, D.O.N.C memo Mar 10, 1943.
61. TNA, AIR 8/1399, V.C.A.S. to Chief of Air Staff, Mar 24, 1943.
62. Roskill, *War at Sea*, vol. 3, part 2, p. 451 Appendix U.
63. TNA, AIR 14/617, minute by Air Vice Marshal Robert Sandby, June 24, 1943.
64. Sir John Slessor (TNA, AIR 75/124 p.7,9) claimed that Sunderlands sank 31 ½ U-boats and Catalinas 36 but cf. note 57.
65. www.armchairgeneral.com; TNA, ADM 1/13258 memo for Director of Naval Intelligence, Oct 13, 1943. In addition to the Bv 222s the *Luftwaffe* seems to have had only a single *Staffel* of three-engined Bv 138s based in the Bay of Biscay whereas there were two *Gruppen* of these machines based in Norway, one at Stavanger and Trondheim, the other at Tromsø from where they could shadow Arctic Convoys without interference from British long ranged fighters. The only Bv 222 to be shot down on patrol in the Bay of Biscay, by a Mosquito on 8 February 1944, was operating at night. An exchange of fire between a Bv 222 and a Coastal Command Halifax early on 8 October 1943 was inconclusive: TNA, AIR 27/544, operations Record Book of No.58 Squadron. Though not as heavy as the Boeing B-29, the Bv 222 was more than 20 feet longer and had a wing area nearly 60% larger.
66. Karl Kössler, Günther Ott, *Die Grossen Dessauer: Junkers Ju 89, Ju 90, Ju 290, Ju 390: die Geschichte einer Flugzeugfamilie* (Planegg 1993) pp. 181–88, 243–44.
67. *Conways Fighting Ships 1922–1946* (London 1980) p. 157.
68. Slessor, *Central Blue*, p. 470.
69. W. David Lewis, *Eddie Rickenbacker: an American Hero the Twentieth Century* (Baltimore 2005) p. 441.



A Lieutenant in the Korean Conflict



Michael De Armond

(Overleaf) Col. Joe Anderson receives the Distinguished Flying Cross in April 2006, from Brig. Gen. Ronald D. Fullhart, Commandant of the Air Command and Staff College. Not shown, Brig. Gen. Mike De Armond pinned the Airman's Medal on Col. Anderson. (All photos courtesy of the author.)

(Right) Cadet Joe Anderson, at the United States Military Academy, 1950.

THE WASHOUT RATE FOR WEST POINT GRADUATES WAS A "WHOPPING" TWENTY-NINE PERCENT, COMPARED TO A FIVE PERCENT RATE FOR AVIATION CADETS

Joseph Emory Anderson, Jr. was born on February 5, 1928, in Chester, South Carolina. His father owned a grocery store where Joe Jr. worked daily after school and in the summer. Joe Jr.'s mother, Ruby Ruth Anderson, a college graduate, became a teacher and later was a clerk in the county office. Joe's father enlisted in the Army in 1917.

Joe Anderson graduated from high school in 1945, in the top ten percent of his class and was elected class secretary. Joe had two younger brothers, one of whom became a U.S. Marine Corps aviator. The other, a Clemson University graduate, joined the Army and served in combat in Korea and Vietnam. Joe had attended Clemson as a freshman in 1945-1946.

Joe's father, knowing that he could not afford to send all three sons through college, urged Joe Jr. to seek a congressional appointment to West Point. Joe Jr. adopted the idea eagerly. Thanks in part to his father's efforts, Joe received a congressional appointment as a "third alternate," later changed to a "first alternate." Three days prior to reporting to West Point in July 1946, Joe received a principal appointment.

After four years of strenuous academics, Joe graduated in the top half of his class in June 1950. Knowing that twenty-five percent of the West Point and Annapolis graduates would be assigned to the new U.S. Air Force, Joe prepared himself for a flying career. Assignment to a particular service branch depended on a graduate's academic standing. In August 1950, after taking two months of "graduation leave," Joe reported to James Connally AFB, near Waco, Texas, for six months of basic training. He was fortunate to complete 110 hours in the North American T-6 trainer at a base that had the highest washout rate for West Pointers—thirty-four percent—of any of the four basic training bases. In February 1951, Joe reported to Williams AFB, near Phoenix, Arizona, for advanced training in the North American T-28 and the Lockheed F-80.



Again, the washout rate for West Point graduates was a "whopping" twenty-nine percent, compared to a five percent rate for aviation cadets. When the Chief of Staff of the Air Force, General Hoyt Vandenberg learned of the situation, he personally flew to Williams AFB to find out why this was happening. Convinced that West Pointers were being discriminated against, General Vandenberg directed that any of the fifteen West Pointers who had been washed out would be reinstated in the program if they so desired. Vandenberg also demanded regular updates on their training progress. Joe Anderson was again successful and graduated with wings on August 4, 1951, with the Class of 51-E.

Brig. Gen. Michael E. De Armond graduated from West Point in 1950 and was commissioned in the U.S. Air Force. After winning his pilot's wings in 1951 and completing combat crew training, he was assigned to the 335th Fighter Interceptor Squadron, of the 4th Fighter Group in Korea. On April 21, 1952, while flying his forty-seventh combat mission, he was shot down by a MiG-15 and spent seventeen months in solitary confinement as a Chinese prisoner of war. Among his varied assignments, De Armond served as chief of intramural athletics the Air Force Academy (1956), pilot instructor at Vance AFB (1957), Laon Air Base, France, in a Tactical Reconnaissance Wing (1961), and in the Pentagon in the Studies and Analysis Directorate (1964). He flew 222 combat missions in Vietnam and received a below-the-zone promotion to colonel. In 1970, Colonel De Armond reported to the 36th TFW at Bitburg, Germany, as Deputy Commander for Operations. In 1971, he reported to the 52d TFW at Spangdahlem Air Base, as vice commander. In 1972 he became Director of Safety for U.S. Air Forces in Europe. In 1973, he assumed command of the 50th TFW at Hahn Air Base Germany. In 1974, he was named commander of the Defense Supply Agency (DCASR) in Los Angeles. General De Armond's awards and decorations include the Distinguished Service Medal, the Legion of Merit, the Distinguished Flying Cross, the Air Medal with thirteen Oak Leaf Clusters, the Air Force Commendation Medal, the Air Force Outstanding Unit Award Ribbon with Oak leaf Clusters, the Prisoner of War Medal, the Republic of Korea Presidential Unit Citation and the Republic of Vietnam Gallantry Cross with Palm. General De Armond is a Command Pilot with 268 combat missions and 4,500 flying hours. He has flown the F-80, the T-33, the T-39, F-86, F-100, RF-101 Voodoo, and the F-4. He holds graduate degrees from George Washington University, Air Command and Staff College, and the Industrial College of the Armed Forces.



Lt. Anderson and his F-80.

Combat Experience

THE PLANE'S SIX NOSE GUNS WERE LOADED WITH 1,200 ROUNDS OF 50 CALIBER AMMUNITION IN AUTO-MATIC FEED

Following flight training, Joe reported to Nellis AFB, Nevada, in August 1951, for four months of gunnery and bombing training in the F-80. He was then assigned to Clark Air Base, Philippines, for an additional three months of air combat and formation flying. One day while "rat racing" at 20,000 feet in the number four position, Joe lost sight of number three and overshot him. Joe's horizontal stabilizer had hit number three, punching a hole in number three's canopy, generating confusion about who hit whom. At mass on the following Sunday, the chaplain had the two pilots take up the collection as a symbol of thanks. The pilot of number three was killed four months later on a weather penetration mission in Japan.

In February 1952, Joe reported to the 8th Fighter Bomber Wing at K-13, Suwon, South Korea. While flying F-80Cs with the 36th Squadron, Joe Anderson's aircraft was hit several times by anti-aircraft fire, including one round that went through his cockpit and destroyed the radio compass. On June 13, 1952, Joe Anderson experienced the most hazardous flight of any of his F-80 combat missions. He took off on his ninety-first mission at 10:20 a.m. as the number four man in Victor Flight, with the 36th Fighter Bomber Squadron. On takeoff Joe found out that he had drawn a "dog" of an airplane with an underpowered engine, making it difficult for him to keep up with the group. Flying number

four in his flight, Joe started to fall behind as they crossed the bomb line and entered enemy territory. Unable to keep up with his flight at 96 percent power, the most he could get, Joe pushed the throttle around the detent to emergency power at 106 percent. He caught up quickly with his flight, but as he retarded the throttle his RPMs (revolutions per minute) remained at 106 percent.

In reading his instruments, Joe found that his fire warning light had been on since takeoff, but he was not particularly concerned. An entry in the Dash-1 manual indicated that the fire warning light in this aircraft frequently came on for no apparent reason. A minute later, however, Joe heard a thud and the engine began to unwind rapidly and lose power. Joe immediately checked his aircraft, but did not see any smoke or fire. As he was still reasonably close to the bomb line he called number three to continue on. Joe had decided to abort the mission and glide toward friendly territory for a possible bailout. As he headed south Joe spotted a friendly base, K-47, Chunchon, South Korea, with a short but usable 3,700-foot runway located very close to the bomb line. Joe decided not to bail out, but instead to make a "dead stick," no power, landing.

As he approached the Han River, Joe jettisoned his bombs but elected to retain his drop tanks, which still contained fuel. He retained the tip tanks because the F-80 was notorious for jettisoning only one tip tank when the pilot tried to jettison both. If one tip tank hung up Joe would be in an aircraft with no power and a heavy, asymmetric load on one wing tip. Joe would find his aircraft very difficult to control.

As he approached the runway, Joe became very busy hand-pumping the gear down, which caused him to inadvertently overshoot the runway. As he tightened his turn for a final approach, he knew something was wrong when the mobile control officer jumped into his jeep and took off. As Joe began his round out for landing at about twenty feet he felt the control stick go slack as the nose of his aircraft began to drop rapidly. The aircraft hit the runway so hard that he was stunned on impact, as the partially extended nose gear collapsed and was severed from the aircraft. Both drop tanks exploded on impact as the semi-conscious pilot and his aircraft slid down the runway in a ball of fire.

With his helmet still on, Joe heard the tower call saying that an F-80 had exploded on landing impact. He tried to call the tower to report that he was okay, but couldn't reach the "mike button" on the throttle as he slid down the runway in a daze. As the aircraft came to a stop, Joe regained consciousness sufficiently to hear noises like the beating of a base drum. When he looked up he saw a master sergeant, in a blue uniform, standing on top of the burning aircraft and trying, ineffectively, to chop a hole in Joe's canopy. Joe motioned to the sergeant to jump off the burning aircraft, which he finally did. Then Joe blew off the canopy and dove head first over the left side of the cockpit. Later, Joe said the only thing that saved him from breaking his neck on the runway was the oxygen hose attached to his helmet and to the aircraft. This pivoted his



The author, 2d Lt. Michael De Armond, Christmas Day, 1951, at K-14, Kimpo, Korea.

**DETERMINED
TO
COMPLETE
100
MISSIONS,
JOE
SCHEDULED
A MISSION
FOR THE
NEXT DAY**

body 180 degrees, allowing him to hit feet first on the runway. Stumbling away from his aircraft, Joe saw one wing, the fuselage tank, and the engine section going up in flames. As he ran from the burning aircraft, a fire truck pulled up directly in front of his aircraft. Joe raced toward the fire truck. He told the argumentative driver to get his truck and personnel off to the side of the runway because he was parked directly in front of Joe's aircraft. The plane's six nose guns were loaded with 1,200 rounds of 50 caliber ammunition in automatic feed. Joe knew that the ammunition would "cook off" as soon as the flames (which were now in the cockpit) reached the aircraft nose section.

Just then, an ambulance pulled up near the burning aircraft and took Joe to the flight line dispensary for an immediate physical exam. He had been there for only a few minutes when the door burst open and a wild-eyed airman shouted, "All hell is breaking loose on the runway!" The fire had reached the nose of the F-80 and the 50-caliber ammunition was "cooking off" and firing down the runway. Several T-6s parked at the end of the runway were shot up as Joe's aircraft continued to burn to a charred wreckage. The only salvageable piece of the F-80 was its nose gear, which had broken off on landing impact.

After things quieted down, the medics asked Joe what he needed. "Something to eat," he replied. The mess hall was notified and two cooks showed up to find out what he wanted. When Joe answered, "Southern fried chicken," there was some consternation on the cooks' faces but they said they would chase one down. Fatigued, Joe walked out of the dispensary and climbed up on a seven-foot-high sandbag revetment for a quick snooze in the sun. As he slept, Joe felt somebody yank his feet, causing him to fall seven feet before landing on his derriere.

When he looked up, he saw it was the master sergeant who had stood on top of his burning aircraft trying to break open the canopy. The sergeant said to Joe, "Lieutenant, I don't know how many times I have to save your ass in one day but you apparently don't know the bad guys are shooting at you? We normally get hostile fire at this time from enemy snipers prowling in the bushes around the perimeter of the base." Soon after the firing stopped, the sergeant took Joe outside and showed him the bullet holes in the sandbags closest to where Joe had been sleeping. Sand was still seeping out of these bullet holes.

Prior to departing the area, Joe was called in for a discussion with the K-47 wing commander who told Joe that he had fouled up his base. This included shot up T-6s, a completely burned up F-80, melted black top on his main runway, and numerous delays or cancellations of his scheduled flying activity. The colonel further suggested that Joe should have bailed out instead of crash landed. Joe apologized and departed K-47 aboard a C-47 that was sent for him. He was accompanied by the nose gear of his F-80—the only remaining part of his aircraft. An accident board investigation later ruled Joe's F-80 as a combat loss. Following his major landing accident at K-47, Joe returned to the 8th Fighter Bomber Wing. Determined to complete 100 missions, Joe scheduled a mission for the next day as well as combat missions for the following eight days.

Attack on the Sui-ho Dam Hydro-Electric Complex

However, when mechanical problems arose with his aircraft, preventing him from completing his 100th final "Champagne Flight," Joe volunteered to join the raid on the Sui-ho Dam. The wing commander approved. On June 23, 1952, at 1525 hours, Lieutenant Anderson took off in an F-80C fighter-bomber, tail number 663, for a maximum forty-eight-hour attack on North Korea's Sui-ho Dam hydro-electric complex along the Yalu River. Joe was assigned as flight lead of Victor Flight, with the 36th Fighter-Bomber Squadron. Victor Flight was positioned immediately behind the group commander's flight, led by Colonel Gallagher. En route to the target, three aircraft aborted for mechanical reasons. As the forty-five-aircraft group approached the target, Gallagher transmitted that he was experiencing radio difficulties and directed Lieutenant Anderson, to take the group lead. As Victor Flight moved into the group lead, Lieutenant Anderson heard Navy aircraft trying to contact the group. Anderson waited to hear if Colonel Gallagher would respond. But when no response came, Anderson answered the Navy's call. They told him that they would be three to four minutes late in getting off the target and requested a delay in the attack. Anderson answered in the affirmative, while rapidly trying to select a new and unplanned initial attack point (IP). He considered making a 360 degree circle South of the Yalu River in order to eat

**MOST OF
NORTH
KOREA
SUSTAINED A
NEAR TOTAL
BLACKOUT**

**HIS FAILURE
TO RECEIVE
A DFC...
REFLECTED
AN
APPARENT
BREAKDOWN
IN THE
SYSTEM**

up the four minutes requested by the Navy. However, he realized that remaining just South of the Yalu would draw intense antiaircraft fire. Anderson, therefore, decided to proceed north across the Yalu and to then make a 180 degree turn with his group to attack the Suiho Dam complex from the North. He believed most of the anti-aircraft fire from the dam area would be directed toward allied aircraft expected to be approaching from the South. Anderson selected a secondary IP to the North and coordinated his attack timing so well that when he rolled in as lead aircraft on their bomb run he heard Easter Flight, the Navy's last flight, calling clear of the target.

Lieutenant Anderson realized that the group's attack had to be highly accurate. The forty-five F-80s with their 500-pound bombs were at maximum range and had fuel for only one pass on their target. Despite heavy automatic weapons and tracking barrage fire, Anderson led the group on a highly successful attack with the group returning to K-13 without the loss of a single aircraft, but on minimum fuel. As a result of this raid, most of North Korea went dark for two weeks, and reportedly sustained a near total blackout late into 1953.

Awards and Decorations

On completion of his 100th and final mission Joe prepared to depart for home and reunite with his family. Following the Sui-ho Dam Raid he heard that he might receive the Silver Star or the Distinguished Flying Cross (DFC). As he had been the Awards and Decorations Officer for his squadron, he believed that his replacement would provide an appropriate award. By 1953, Joe realized that he would probably not receive the DFC he had expected. He had never submitted an application on his own as he considered such an action to be self-serving and unprofessional. As the years passed, Joe gave up expectations of any award. The Air Force had decided and so be it. Fifty years later, in 2003, while preparing a series of biographies for my 1950 West Point classmates who had elected to serve in the new U.S. Air Force—twenty-five percent of the class (or 169 graduates)—I noted several anomalies. The first was that eleven West Point classmates of Joe Anderson, who had flown 100 combat missions with Joe in the 8th Fighter Bomber Wing all had received DFCs, except for Joe Anderson, also with 100 missions received nothing. His failure to receive a DFC following his Korean combat experience reflected an apparent breakdown in the system. I strongly urged Joe Anderson to apply to the Board of Military Corrections at Randolph AFB, Texas.

Then, after reviewing additional information in Joe's record, I noted the heroic action he had performed in February 1952, was worthy of an Airman's Medal. When Joe's burning aircraft slid to a stop, Joe blew off the canopy and dove out of his burning cockpit. His intent was to put as much distance between himself and his burning F-80 as soon as possible. As he ran he saw a fire truck and

its fire fighters pulling up directly in front of his burning F-80 and its six nose guns. Joe then immediately ran in front of his burning aircraft in order to get the fire truck driver and his personnel to move off to the side of the runway ASAP. He told them that the fire in the cockpit would soon reach the aircraft's nose and ignite 1,200 rounds of 50 caliber ammunition.

About four minutes after an ambulance had taken Joe to the flight line dispensary, the 1,200 rounds had "cooked off" down the runway where the firefighters had been located. Without Lieutenant Anderson's exceptional valor and complete disregard for his own safety, a firefighting crew of four to five firemen would have been killed or wounded and a fire truck destroyed. As with the DFC recommendation, I strongly recommended that Joe Anderson submit a request for an Airman's Medal. This, too, would accompany his application for correction of military records by the Board of Military Corrections at Randolph AFB.

In May 2005, Joe Anderson finally submitted his applications for the correction of military records. These applications were reviewed, but disapproved by an independent contractor. On June 2, 2005, a memorandum was forwarded to the Air Force Board of Corrections of Military Records. In addition a letter was forwarded to Washington by Gen. Bennie L. Davis, former Commander of the Training Command and the Strategic Air Command (SAC). General Davis disagreed with the negative findings at Randolph and recommended appropriate corrections of Colonel Joe Anderson's Military Records. On January 17, 2006, the Air Force Board for Corrections of Military Records, even after fifty-four years, awarded Colonel Anderson the DFC and the Airman's Medal.

Career Progression

Following his combat experience Joe Anderson had a varied career. After a two-year assignment he graduated from the University of Michigan with an MS in aeronautical engineering and an MS in astronautics. For the next five years, 1958–1963, Captain Anderson instructed in physics, astronautics, and missiles and space systems at the Air Force Academy. As a captain, and later as a colonel, Joe Anderson served for five years in the Air Command and Staff College, including one year as a student and four years as director of curriculum, and then as vice commandant of the college. On two separate assignments, he also spent five years in the U.S. Pacific Command at Hickam AFB, Honolulu, Hawaii, and two years at Misawa Air Base, Japan.

Personal Note: *I was a West Point classmate of Joe Anderson and also went into the Air Force and flew in Korea. On April 21, 1952, I was shot down in an F-86, made a POW, and spent seventeen months in solitary confinement. After the Sui-Ho Dam attack, I thought to myself, "Thanks, to whoever turned out all the lights in North Korea." Only many years later did I learn that it was Joe Anderson.* ■

A Tale of Two Missions: Memmingen, July 18, 1944 & Berlin, March 24, 1945





Daniel L. Haulman

(Overleaf) The B-17 was the only bomber used on both the Memmingen and Berlin missions.

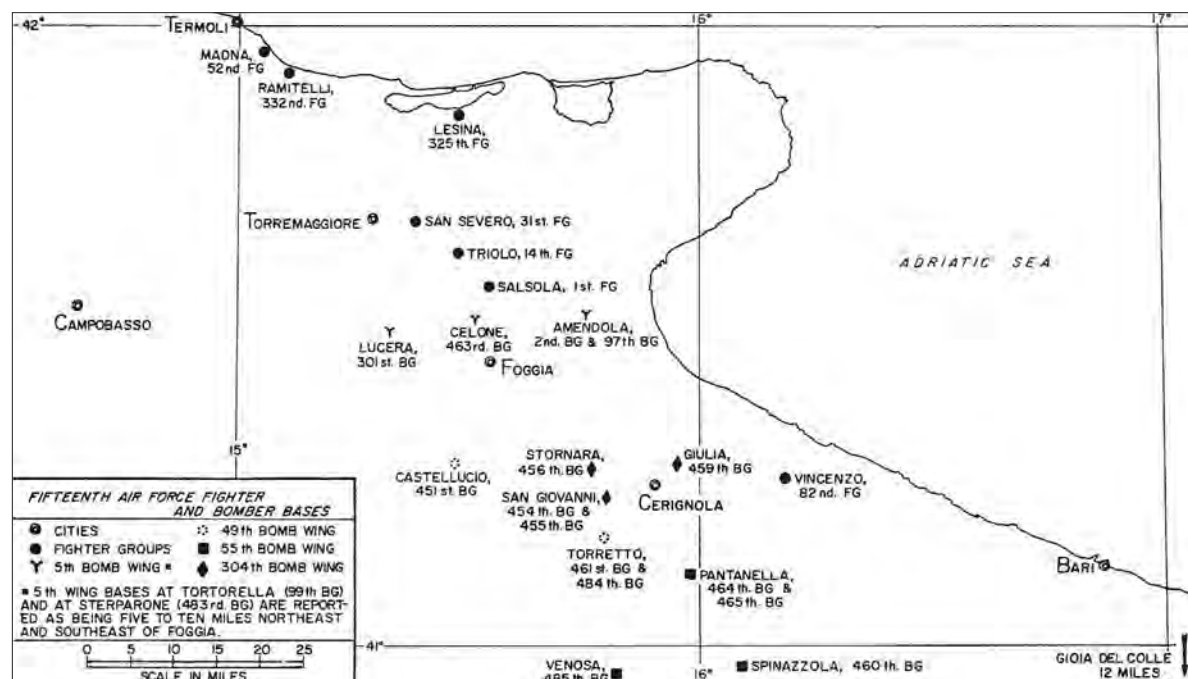
**THE
FIFTEENTH
AIR FORCE
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TWENTY-ONE
BOMBARD-
MENT
GROUPS IN
FIVE WINGS,
AND SEVEN
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AIRFIELDS IN
THE FOGGIA
AREA OF
EAST
CENTRAL
ITALY**

On July 18, 1944, the Fifteenth Air Force was in the midst of an extensive strategic bombing campaign against enemy targets in Nazi Germany and other areas of Europe under Hitler's control. It marshaled twenty-one bombardment groups in five wings, and seven fighter escort groups in one wing, all based at various airfields in the Foggia area of east central Italy, near the Adriatic Sea. From those bases, the Fifteenth Air Force launched bombing missions to various strategic targets in Germany, Austria, Hungary, Rumania, northern Italy, Czechoslovakia, and occupied parts of France.¹

Only one of the five bombardment wings, the 5th, with six bombardment groups, flew B-17 Flying Fortresses. The other four bombardment wings, with a total of fifteen bombardment groups assigned to them, flew B-24 Liberators. Both the B-17s and the B-24s were four-engine heavy bombers, of similar size but with slightly different characteristics. The B-17 could fly higher and was more survivable if hit by gunfire, and the B-24 could fly farther and faster.² Each of the twenty-one bombardment groups had four bombardment squadrons assigned to it.³

Of the seven fighter escort groups, four flew P-51 Mustangs, the fastest and longest-range fighters in the Army Air Forces' (AAF) inventory, and the other three flew P-38 Lightnings, twin-engine fighters that were also fast and had a considerable range. By July 1944, the Fifteenth Air Force had relinquished its P-47 fighters because they had less range and lower speed. Six of the seven fighter groups each had three fighter squadrons assigned to it. The 332d Fighter Group had four: the 99th, 100th, 301st, and 302d Fighter Squadrons. The 332d was unique in other ways. It was the only one of the Fifteenth Air Force combat groups composed of African-Americans and the only one to enter combat in World War II. Because the pilots trained at Tuskegee, Alabama, they are sometimes called the "Tuskegee Airmen."⁴

The mission of the Fifteenth Air Force on July 18, 1944, was to attack a series of different targets. The four B-24 wings, and their fifteen bombardment groups and sixty bombardment squadrons, were to bomb targets in the Friedrichshafen area of southern Germany, including the Lowenthal airdrome, the Manzell aircraft components factory, the Ober-Raderach synthetic fuel factory, and the Maybach



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A B-17 going down after being hit on a bombing mission.

THE AXIS MAINTAINED A MAJOR FIGHTER BASE AT UDINE, IN NORTHERN ITALY, NORTH OF VENICE

engine factory. Four of the seven fighter escort groups, including the 1st, 14th, 31st, and 82d, were to escort the B-24s to, over, and/or from their targets. The 1st, 14th, and 82d flew P-38s, while the 31st flew P-51s. The only B-17 wing, the 5th, with its six bombardment groups, was originally assigned to bomb the Memmingen airdrome in Germany, not far from Friedrichshafen, because intelligence reports showed it to be filled with 70 to 75 enemy aircraft, including Me 110s and Me 410s, "not too well dispersed." The report noted that the installation was used "for major repair and probably assembly. This makes the airdrome one of the highest priority counter-air targets." The 5th Bombardment Wing Intelligence Annex for its operations order for the Memmingen mission noted that if the weather was favorable, the enemy could and probably would put up 125 single engine fighters and 115 twin-engine fighters. It also predicted that between thirty and forty more enemy fighters might confront the bombers from bases in northern Italy.⁵

The Fifteenth Air Force assigned the mission of escorting the B-17s of the 5th Bombardment Wing that day to the 332d Fighter Group, the Tuskegee Airmen. Their mission was, in the words of their own narrative mission report, "to furnish penetration, target cover, and withdrawal for the 5th Bomb Wing to Memmingen A/D." In other words, the Tuskegee Airmen were to provide escort to the B-17s to, over, and from the target at Memmingen.⁶

Plans called for two other fighter escort groups, besides the 332d, to play a part in the Memmingen mission. The 52d Fighter Group was assigned to help escort the B-17s to Memmingen, but once in the target area, around 1030 hours, it was to leave

the bombers and conduct a fighter sweep out in front of them, leaving the 332d Fighter Group alone to escort the bombers. The plan also called for the 325th Fighter Group to meet the bombers in the target area at 1110 hours, after the bombing, and escort the rear groups of bombers home. The 332d, 52d, and 325th Fighter Groups all flew P-51 Mustangs.⁷

The 5th Bombardment Wing did not launch all six of its bombardment groups of B-17s, as originally planned. The 97th Bombardment Group bombed the Casarsa railroad bridge in northern Italy instead, and the 99th Bombardment Group did not fly a mission at all that day. The other four B-17 bombardment groups of the 5th Bombardment Wing included the 2d, 301st, and 463d, 483d.⁸ Each of the four groups launched twenty-eight bombers, for a total of 112 B-17 Flying Fortresses.⁹ Each group included four squadrons of seven bombers. Two fighter groups, the 52d and 332d, embodying seven fighter squadrons, were assigned to escort four bombardment groups, with sixteen bombardment squadrons, to the target at Memmingen. The 325th Fighter Group ultimately did not play a role at all in the battle, because instead of escorting the bombers back from Memmingen after the bombing, it was recalled to Italy at 0940, before the bombing.¹⁰

The 332d Fighter Group launched sixty-six P-51 Mustangs from Ramitelli Airfield, its base in Italy, at 0750 hours. Eight of the fighters returned early, six because of mechanical difficulties and two because they were spares. That left fifty-eight P-51s of the 332d Fighter Group to escort the bombers, along with the P-51s of the 52d Fighter Group until the initial point (I.P.) at Kempten, just before the target of Memmingen.¹¹

The Axis maintained a major fighter base at Udine, in northern Italy, north of Venice. When the 332d Fighter Group flew over the area, at 0950 hours, large numbers of enemy fighters emerged. Some of the 332d Fighter Group P-51s engaged the enemy aircraft in combat, hoping to prevent them from reaching the B-17s preparing to rendezvous with them. During the air battle, members of the 332d Fighter Group claimed to have shot down several enemy aircraft over Udine and Treviso. Those P-51 pilots who took part in the aerial combat over northern Italy that day dropped their wing tanks to increase their speed and ability to maneuver, depriving them of the extra fuel they needed to reach Memmingen. Twenty-one of the 332d Fighter Group's P-51s turned back toward Ramitelli, leaving only thirty-six Tuskegee Airmen to escort the 5th Bombardment Wing. However, at least on the way to the target, the 52d Fighter Group was also escorting the B-17s.¹²

The four bombardment groups were difficult to escort because not all of them followed the planned route to Germany and because the last two groups in line became widely separated from the others. The 52d Fighter Group mission report noted that the groups were spread out for a distance of twenty miles.¹³ The 483d Bombardment Group flew north-

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ward over the Italian mainland, where the sky was clear, instead of the planned route over the cloudy Adriatic Sea.¹⁴ The 5th Bombardment Wing showed up at the rendezvous point late, but by 1005, the 332d Fighter Group had rendezvoused with them.¹⁵ The 52d Fighter Group had also rendezvoused with the lead groups of the B-17s.¹⁶ After the 52d Fighter Group left the lead groups of bombers at 1030, as planned, for their assigned fighter sweep out ahead of the bomber formations, only thirty-six fighter escorts from the 332d Fighter Group were left to escort the scattered four groups of the 5th Bombardment Wing, with their 112 bombers, over Memmingen.¹⁷

The 332d Fighter Group reported: "Bomber formation was good and easy to cover," which is mysterious, because only the two lead bombardment groups, the 2d and 463d, were in a close enough formation to make them easy to escort. The 332d Fighter Group's four fighter squadrons included the 99th, 100th, 301st, and 302d. The mission report lists the 301st as the lead squadron. The 99th was flying low, the 302d was flying middle, and the 100th was flying high.¹⁸ The fighters could not provide as much protection for the 301st and the 483d—the last two of the four groups of bombers—because they were so far behind the others. The bomber formations of the four groups were too widely separated to really be "easy to cover." Two groups of bombers, with a maximum of fifty-six B-17s, were easier to protect than four groups of bombers, with 112 of the Flying Fortresses.

The first groups of bombers approached the initial point at Kempten, just before the Memmingen target, around 1030 hours, at which time the 52d Fighter Group left them, as noted earlier, to be protected by the 332d Fighter Group. At 1045, the 483d

Bombardment Group finally arrived over Kempten. At that time and place, approximately 100 German fighters, mostly single-engine FW 190s and Me 109s, attacked the 483d Bombardment Group, because it appeared to be without escort. The enemy fighters began shooting down the B-17s of the 483d from the rear, using cannon and rocket fire.¹⁹

One of the 332d Fighter Group squadrons, the 100th Fighter Squadron, reported a few days after the mission: "Escorting a flight of bombers over Memmingen, Germany, July 18, 1944, the pilots fondest hopes were realized when enemy aircraft came up to attack our bomber formation. During this attack our pilots succeeded by a victory of six (6) enemy aircraft. Lt. Lester was accredited with three (3) victories, Lt. Holsclaw two (2) and Lt. Palmer one (1)."²⁰

Fifteenth Air Force general orders also confirm four other aerial victories by members of the 332d Fighter Group's 302d Fighter Squadron: one each by 1st Lt. Weldon K. Groves and 2d Lts. Lee A. Archer, Jr., Roger Romine, and Hugh S. Warner. That day, members of the 332d Fighter Group's 100th and 302d Fighter Squadrons shot down ten enemy aircraft. The records strongly suggest, however, that all ten of these aerial victories occurred over the Udine and Treviso areas of northern Italy, in the air battle on the way to Germany, and not over Memmingen, and all of the aircraft destroyed were Me 109s.²¹ Apparently, only two of the aerial victories of 332d Fighter Group members that day occurred over Memmingen. Capt. Edward L. Toppins and 1st Lt. Charles P. Bailey, both of the 99th Fighter Squadron, each shot down one FW-190 in the target area.²²

The 332d Fighter Group was with the B-17s bombers of the 5th Bombardment Wing, which it



Col. Benjamin O. Davis, Jr.,
commander of the 332d
Fighter Group.

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ESCAPE**

was assigned to escort, when they were attacked by enemy fighters on July 18, 1944. But most of the aerial victories of the group that day had been scored over northern Italy on the way to Memmingen, and not in the target area in Germany. However, missing air crew reports indicate that two members of the 332d Fighter Group, 2d Lts. Gene C. Browne and Wellington G. Irving, both of the 301st Fighter Squadron, were last seen in the Kempten area at 1045 in the vicinity of enemy aircraft. This suggests that of the four squadrons of the 332d Fighter Group, the 99th and 301st Fighter Squadrons were more involved in the air battle over Memmingen than were the 100th and 302d Fighter Squadrons. (The latter were more involved in the air battle over Udine and Treviso.)²³

According to the 483d Bombardment Group mission report, "The attack lasted 20 minutes and practically all passes were made from level rear and from five, six, and seven o'clock (positions, not time). The fighter escort arrived about 8 minutes after the initial attack, and was very effective from then on, despite the fact that they were heavily outnumbered."²⁴ When pilots of the 52d Fighter Group became aware of the battle, they reported seeing German fighters attacking the B-17s, and 332d Fighter Group fighters already battling with the enemy.²⁵ Although the 52d Fighter Group had already begun its fighter sweep fifteen minutes earlier than the initial enemy attacks on the 483d

Bombardment Group, its fighter pilots returned to the B-17s they had earlier escorted to help the 332d Fighter Group in defending them. The German pilots generally ignored the American fighters and concentrated on the bombers.²⁶

According to German records, 151 fighters rose to attack the B-17s of the 5th Bombardment Wing groups raiding Memmingen Airdrome on July 18, 1944. They came from five units; two with FW 190s and three with Me 109s that were based at Memmingen, Holzkirchen, Bad Woerishofen, Goetzensdorf, and Fels am Wagram airfields. The 332d Fighter Group escort fighters numbered only thirty-six. Thus, the Germans outnumbered the Americans by a ratio of more than four-to-one. It is no wonder that many B-17s went down that day, despite the arrival of help from friendly fighters of the 1st, 31st, and 52d Fighter Groups as the battle raged on. The 483d Bombardment Group reported that it was unescorted when it was attacked by the huge number of enemy airplanes. But, it is possible that the bomber crews might have confused some of the friendly fighters with the many enemy fighters coming at them.²⁷

Fortuitously, two other American units—1st Fighter Group, which flew P-38s, and the 31st Fighter Group, which flew P-51s—were circling in the same vicinity, awaiting the arrival of some B-24s they had been assigned to escort to targets in the Friedrichshafen area, which was to the southwest. Some of the B-24s had been recalled, but their fighter escorts were not notified. So, the 1st and 31st Fighter Groups eventually joined the 332d and 52d Fighter Groups in defense of the B-17s of the 5th Bombardment Wing.²⁸ The 1st Fighter Group spotted what appeared to be unescorted B-17s and diverted to escort them. After enemy aircraft attacked the B-17s, the 1st Fighter Group joined the battle. The P-38 pilots reported seeing at least twelve B-17s going down after they were attacked by about ninety single-engine enemy aircraft, including Me 109s and FW 190s and claimed to have shot down fourteen enemy aircraft that day.²⁹ The 31st Fighter Group, which flew P-51s, also reported seeing B-17s instead of B-24s between 1030 and 1045 hours, and shortly thereafter observed approximately seventy enemy fighters attacking the Flying Fortresses. At 1055, the 31st Fighter Group pilots attacked the enemy airplanes and claimed to have shot down twelve of them in an air battle that lasted twenty minutes. The group also reported seeing P-38s escorting the B-17s.³⁰ No doubt those P-38s were with the 1st Fighter Group.

The 5th Bombardment Wing continued its mission against Memmingen, and inflicted heavy damage on the airfield and the planes on the ground there that were not able to escape. In addition to 170 personnel killed and 140 injured, the Germans suffered the loss of fifty aircraft on the ground, three hangars, two workshops, the ready room, and a barracks.³¹ The 483d Bombardment Group earned a Distinguished Unit Citation for its role in the mission.³² As mentioned earlier, the 325th Fighter

(Left to right) Lt. Col. Buchanan, Lt. Gen. Ira C. Eaker, Lt. Gleed, Lt. Col. Benjamin O. Davis, Jr., and Capt. Tresville at Ramitelli AB, Italy in July, 1944.



**THE BATTLE
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ENEMY AIR-
CRAFT FIRE
THAT DAY.**

Group, which was originally assigned to cover the B-17s from the target area back to Italy, never escorted any of them, because the 325th had been recalled at 0940 hours, before the battle began.³³

The battle proved costly for the 5th Bombardment Wing and its escorts. German fighters shot down at least fourteen B-17s of the 483d Bombardment Group, as well as one of the 301st Bombardment Group, which had arrived at Kempten and Memmingen last.³⁴ Fifteen Flying Fortresses, with 150 crew members, fell to enemy aircraft fire that day. Not all of the bomber crew members died. Many parachuted from their doomed flaming aircraft.

Of the bombardment groups on the July 18, 1944, Memmingen mission, only the 483d and the 301st Bombardment Groups lost aircraft to enemy fighters.³⁵ The last two groups to reach the Memmingen target area, they were most vulnerable to enemy aircraft.

The four Fifteenth Air Force fighter groups that took part in the air battle over Memmingen on July 18, 1944, in defense of the B-17s of the 5th Bombardment Wing earned a total of forty-one aerial victory credits, equal to the number of enemy aircraft they downed on that mission day. The 1st Fighter Group shot down fourteen German fighters; the 31st and 332d Fighter Groups shot down twelve each; and the 52d Fighter Group downed three.³⁶ The gunners aboard the B-17s of the 483d

Bombardment Group claimed to have shot down twenty-eight additional enemy airplanes.³⁷ In the air battles over Memmingen, the Americans claimed to have shot down at least sixty-nine German fighters. This number is probably considerably larger than the actual number of enemy aircraft lost. German records show only twenty-eight of their aircraft shot down in the area that day.³⁸

The four fighter groups of the Fifteenth Air Force that took part in the air battle over Memmingen on July 18, 1944, reported in their own mission reports as having lost a total of seven of their own fighters that day, including three each from the 332d and 31st Fighter Groups, and one from the 52nd Fighter Group. The 1st Fighter Group reported no fighters lost that day.³⁹

In all, Fifteenth Air Force in the Memmingen mission lost fifteen bombers and seven fighters—twenty-two aircraft—lost to enemy aircraft. This compares to between twenty-eight and sixty-nine fighters the enemy lost in the air and fifty German planes destroyed on the ground. However, even if the Americans shot down more aircraft than the Germans, the Germans shot down more crewmen. Most of the German losses were single-engine fighters, each with one pilot, while most of the American losses were four-engine bombers with a crew of ten each. American personnel losses included 150 bomber crew members and seven fighter pilots, for

a total of 157. German losses numbered as few as twenty-eight up to sixty-nine pilots in the air, 170 personnel killed and 140 wounded on the ground, for a total between 338 and 379 killed, wounded, or shot down.⁴⁰

While both sides claimed victory, the records suggest that at least fifty airplanes, and as many as ninety-one fell in air combat on the Memmingen mission on July 18, 1944, not to mention the fifty airplanes destroyed on the ground from the air. It

must be considered as one of the greatest battles of World War II.

Note: Most of the sources in the end notes below come from the Fifteenth Air Force mission folder for July 18, 1944, call number 670.332, at the AFHRA, which includes the narrative mission reports of the groups involved as well as the planning documents of the wings over those groups.

[Story continues on page 34, with Berlin Mission.]

NOTES

1. Maurer Maurer, *Air Force Combat Units of World War II* (Washington, D.C.: Office of Air Force History, 1983); Martin W. Bowman, *USAAF Handbook, 1939-1945* (Mechanicsburg, Pa.: Stackpole Books, 1997), p. 76.
2. Jim Winchester, editor, *American Military Aircraft* (New York: Metro Books, 2005), pp. 43 and 89.
3. Maurer, *Air Force Combat Units of World War II* Bowman, *USAAF Handbook, 1939-1945*, p. 76.
4. Maurer, *Air Force Combat Units of World War II*, pp. 212-213; Bowman, *USAAF Handbook, 1939-1945*, p. 76.
5. 5th Bombardment Wing Operations Order 628 dated July 17, 1944 for July 18, 1944 mission; 306th Fighter Wing Operations Order 138 dated July 17, 1944 for July 18, 1944; 5th Bombardment Wing Intelligence Annex dated July 17, 1944 for Operations Order 628 for July 18, 1944 mission.
6. 332d Fighter Group Narrative Mission Report 28 dated July 18, 1944; 306th Fighter Wing Operations Order 138 dated July 17, 1944 for July 18, 1944 mission.
7. 306th Fighter Wing Operations Order 138 dated July 17, 1944, for July 18, 1944 mission; 52d Fighter Group Narrative Mission Report 47 for July 18, 1944; 325th Fighter Group Narrative Mission Report 30 dated July 18, 1944.
8. 5th Bombardment Wing history for July 1944; 99th Bombardment Group history for July 1944; Fifteenth Air Force Mission Folder for July 18, 1944.
9. Fifth Bombardment Wing Operations Order 628 dated July 17, 1944 for July 18, 1944 mission.
10. 325th Fighter Group Narrative Mission Report 30 dated July 18, 1944.
11. 332d Fighter Group Narrative Mission Report 28 dated July 18, 1944; 52nd Fighter Group Narrative Mission Report 47 dated July 18, 1944; Fifth Bombardment Wing Operations Order 628 dated July 17, 1944, for July 18, 1944 mission.
12. 332d Fighter Group Narrative Mission Report 28 dated July 18, 1944.
13. 52d Fighter Group Narrative Mission Report 47 dated July 18, 1944.
14. 483d Bombardment Group Tactics Report dated July 18, 1944.
15. 332d Fighter Group Attack Sheet, July 18, 1944.
16. 52d Fighter Group Narrative Mission Report 47 dated July 18, 1944.
17. 52d Fighter Group Narrative Mission Report 47 dated July 18, 1944; 332d Fighter Group Narrative Mission Report 28 dated July 18, 1944; 306th Fighter Wing Operations Order 138 dated July 17, 1944 for the July 18, 1944 mission; 5th Bombardment Wing Operations Order 628 dated July 17, 1944 for the July 18, 1944 mission; The 1st Fighter Group, which was originally assigned to escort B-24s to another target, met the B-17s of the 5th Bombardment Wing instead and noted "Bomber formations were scattered to the point where it was impossible to give them good escort. Some groups were fifteen miles away from the main formations." 1st Fighter Group Attack Sheet, July 18, 1944.
18. 332d Fighter Group Narrative Mission Report 28 dated July 18, 1944.
19. 483d Bombardment Group Special Narrative Report, July 18, 1944.
20. 100th Fighter Squadron report, in the July 1944 history of the 332d Fighter Group.
21. Fifteenth Air Force General Order 2202 dated July 31, 1944; Fifteenth Air Force General Order 2350 dated Aug. 6, 1944; Fifteenth Air Force General Order 2484 dated Aug. 11, 1944.
22. Fifteenth Air Force General Order 2484 dated Aug 11, 1944.
23. Missing Air Crew Reports 6973 and 7027, on microfiche at the Air Force Historical Research Agency
24. 483d Bombardment Group Special Narrative Report, July 18, 1944.
25. 52d Fighter Group Narrative Mission Report 47 dated July 18, 1944.
26. 52d Fighter Group Narrative Mission Report 47 dated July 18, 1944.
27. Jean-Yves Lorient and Richard Goyat, *Jagdgeschwader 300* (Hamilton, Montana: Eagle Editions, 2008), pp. 234-39; James Kitchens.
28. 1st Fighter Group Narrative Mission Report 1066 dated July 18, 1944; 31st Fighter Group Narrative Mission Report 585 dated July 18, 1944.
29. 1st Fighter Group Narrative Mission Report 1066 dated July 18, 1944.
30. 31st Fighter Group Narrative Mission Report 585 dated July 18, 1944.
31. Donald Caldwell and Richard Muller, *The Luftwaffe over Germany* (London: Greenhill Books, 2007), p. 222.
32. 483d Bombardment Group section of Maurer, *Air Force Combat Units of World War II*.
33. 325th Fighter Group Narrative Mission Report 30 dated July 18, 1944.
34. 483d Bombardment Group Special Narrative Report, July 18, 1944; 301st Bombardment Group Special Narrative Mission Report, July 18, 1944.
35. Briefing and attack sheets for the 301st and the 483d Bombardment Groups, among the mission documents in the Fifteenth Air Force mission folder for July 18, 1944.
36. USAF Historical Study number 85, *Air Force Credits for the Destruction of Enemy Aircraft, World War II*.
37. 483d Bombardment Group narrative mission report dated July 18, 1944.
38. Feb 22. 2010 e-mail message from Dr. Richard Muller of the Air University's School of Advanced Air and Space Power Studies, a noted authority on the Luftwaffe during World War II.
39. Daily narrative mission reports of the 1st, 31st, 52d and 332d Fighter Groups for July 18, 1944.
40. Donald Caldwell and Richard Muller, *The Luftwaffe over Germany* (London: Greenhill Books, 2007), p. 222.

Berlin, March 24, 1945

In some ways, Fifteenth Air Force's bombing raid on Berlin on March 24, 1945, was superlative. The Fifteenth had never attacked the German capital before. The Eighth Air Force in Britain usually had that assignment. The Germans had come to expect raids on Berlin to come from Britain to the west, and not from Italy to the south. Moreover, the Eighth Air Force was busy that day bombing other targets in support of the Allied crossing of the Rhine River. The Fifteenth Air Force's bombers and their escorts had never flown so far before on a mission. Their principal target was the Daimler-Benz tank assembly plant, which produced armored vehicles then resisting the advancement of the Allied armies racing across Europe toward Berlin.¹

During the second half of 1944 and the first four months of 1945, the Fifteenth Air Force in Italy possessed twenty-one bombardment groups, organized into five wings, seven fighter groups, organized into two wings, one permanent and the other provisional. The bombardment groups flew B-24s and B-17s heavy bombers, and the fighter groups flew P-51 and P-38 fighter airplanes, primarily to escort the bombers, but also for strafing ground targets. Launched out of several bases in Italy, the bombardment groups flew missions to destroy various targets in southern and central Europe still under Nazi occupation. The fighter escorts, also based at several locations in Italy, rendezvoused with the bombers on the way to the target, over the target, or on the way back.

Among the targets were factories and marshalling yards in southern Germany.

Berlin was not the only Fifteenth Air Force target that day. Fifteen B-24 groups were sent to bomb other targets: eight to Neuburg, Germany; four to Munich, also in Germany, and three to Ceske Budejovice in Czechoslovakia. The Fifth Bomb Wing, and its six B-17 bombardment groups, however, were assigned to bomb Berlin. Among them were the 2d, 97th, 99th, 301st, 463d, and 483d. The Flying Fortresses were more survivable than the B-24 Liberators because they were more likely to return to base after being hit.²

The Daimler-Benz plant in Berlin was expected to be heavily defended, not only by several batteries of antiaircraft artillery, but also by the best of the German fighters. They included new Me-262 jet aircraft, which could fly as much as 100 miles per hour faster than the U.S. Army Air Force's AAF's fastest propeller-driven fighters. For that reason, the Fifteenth Air Force assigned no fewer than five of its seven fighter groups to escort the bombers. The 31st, 52d, 325th, and 332d Fighter Groups flew the P-51 Mustang, and the 82d flew the P-38 Lightning. In other words, six bombardment groups that day were escorted by five fighter groups. The Fifteenth Air Force rarely assigned so many fighter groups to escort only one bombardment wing, but the more dangerous Berlin target was worth the extra effort.³

In March 1945, the eleven groups assigned to the Berlin mission flew out of ten different air bases in Italy. Both the 2d and 97th Bombardment Groups

Table I: Home Bases of Fifteenth Air Force Groups on the Berlin Mission, March 24, 1945

Group	Home Base in Italy at time	DUCs earned previously
2d Bombardment	Amendola	Two
97th Bombardment	Amendola	Two
99th Bombardment	Tortorella	Two
301st Bombardment	Lucera	Two
463d Bombardment	Celone	One
483d Bombardment	Sterparone	One
31st Fighter	Mondolfo	Two
52d Fighter	Madna	Two
82d Fighter	Vicenzo	Three
325th Fighter	Rimini	Two
332d Fighter	Ramitelli	None

Source: Maurer Maurer, *Air Force Combat Units of World War II* (Washington, DC: Office of Air Force History, 1983).

Table II: Fifteenth Air Force Bombardment Groups Bombing Berlin, March 24, 1945

Bomb Group	Aircraft over target	Altitude in feet	Tons dropped	Target time	Aircraft lost	Aircraft missing
2	26	27,200	64	1228	1	1
97	26	28,000	58	1221	0	0
99	26	25,000	63	1232	0	0
301	26	27,600	63	1234	0	0
463	20	26,000	50	1221	2	4
483	25	24,800	58.5	1228	0	1
TOTALS	169	-	356.5	-	3	6

Source: Fifth Wing A-2 Section Daily Intelligence Report, March 24, 1945, contained in the Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.

Table III: Bomb Runs of the Fifth Wing,
Fifteenth Air Force, March 24, 1945

Bomb Gp	Bomb Run	Altitude	Speed
2	8 minute visual	27,200 feet	150 mph
97	6.5 minute visual	28,300 feet	150 mph
99	5 minute visual	25,000 feet	150 mph
301	5 minute visual	28,000 feet	145 mph
463	4 minute visual	25,000 feet	150 mph
483	4 minute visual	25,000 feet	150 mph

Source: Fifth Wing Nav-Bomb-PFF Analysis for Mission of March 24, 1945, drafted for Fifteenth Air Force commander, in Fifteenth Air Force mission folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.

ment groups had earned two DUCs, and four of the five fighter groups had earned at least two. The 82d Fighter Group, the only P-38 group on the Berlin raid, had earned three DUCs. The only group without such an award, the 332d Fighter Group, had entered the conflict later than the others. Still, it had been in combat for more than a year, and had gained a reputation for effectiveness.⁵

Each of the escorting fighter groups had its own assignment, but all were directed to cover at least part of the 5th Bombardment Wing's groups. For example, the 325th Fighter Group was to cover the three leading groups on penetration to Berlin. The

Table IV: Fifteenth Air Force Fighter Groups Escorting Bombers to Berlin, March 24, 1945

Fighter Group	Aircraft in target area	Type of aircraft flown	Enemy aircraft encountered	Time of rendezvous with bombers	Time leaving bombers
31	53	P-51	Me-262s	1145	1320
52	54	P-51	Me-109	1215	1345
82	29	P-38	Me-262s	1145	1230
325	51	P-51	Me-262s	1200	1425
332	54	P-51	Me-262s	1145	1225

Source: Narrative mission reports of the 31st, 52d, 82d, 325th, and 332d Fighter Groups, contained in the Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.

Table V: Fifteenth Air Force Aerial Victories Over German Me-262 Jets on March 24, 1945

NAME	FTR GP	FTR SQ	AUTHORITY
Col. William A. Daniel	31	308	15 AF GO# 2525 (19 Apr 1945)
1 Lt. Forrest M. Keene	31	308	15 AF GO# 2709 (24 Apr 1945)
1 Lt. Raymond D. Leonard	31	308	15 AF GO# 2709 (24 Apr 1945)
Capt. Kenneth T. Smith	31	308	15 AF GO# 2709 (24 Apr 1945)
2d Lt. William M. Wilder	31	308	15 AF GO# 2709 (24 Apr 1945)
2d Lt. Charles V. Brantley	332	100	15 AF GO# 2293 (12 Apr 1945)
1 Lt. Roscoe C. Brown	332	100	15 AF GO# 2293 (12 Apr 1945)
1 Lt. Earl R. Lane	332	100	15 AF GO# 2293 (12 Apr 1945)

Source: USAF Historical Study No. 85, *USAF Credits for the Destruction of Enemy Aircraft, World War II* (Maxwell AFB, Ala. and Washington, D.C.: Albert F. Simpson Historical Research Center and Office of Air Force History, 1978), 506 and aerial victory credit cards at AFHRA. 31st Fighter Group narrative mission report, March 24, 1945, in Fifteenth Air Force Mission Folder for March 24, 1945, AFRHA call number 670.332.

were stationed at Amendola. The 99th, 301st, 463d, and 483d Bombardment Groups were stationed at Tortorella, Lucera, Celone, and Sterparone, respectively. Mondolfo was the home base of the 31st Fighter Group, while the 52d Fighter Group was based at Madna Airfield. The 325th Fighter Group called Rimini home, and the 332d was stationed at Ramitelli Airfield. Commensurate with the importance of this mission, planners had devised a complex set of assembly points to foil enemy defenses. Each escorting fighter group had its own assignment, but all of them were required to cover at least part of the Fifth Bombardment Wing's groups flight: to, over, and/or return.⁴

All of the groups had considerable combat experience. Indeed, every group except one had already earned at least one Distinguished Unit Citation (DUC) for a previous mission. Four of the bombard-

332d, the only African-American fighter group in World War II, and the only African-American group to enter combat, was assigned to provide close escort for the entire wing to Berlin to the limit of the fighters' fuel endurance. The 31st Fighter Group was to provide close escort on penetration, over the target, and withdrawal for the three rear groups of the bombardment wing. The 52d was to cover the bombers over the target and on withdrawal. Finally, the 82d Fighter Group was assigned to escort the withdrawal of the bombers from Berlin.⁶

The six bombardment groups of the Fifth Wing launched a total of 169 B-17s on March 24, but only 148 of these made it over the target. Eleven returned early. The other ten were either shot down or failed to reach the proper area at the appropriate time. 147 of the bombers that reached the target dropped their bombs, which consisted of some 356 tons of 1,000-

B-17 Flying Fortress heavy bomber of the kind flown by the 5th Bombardment Wing of the Fifteenth Air Force on both the Memmingen and Berlin missions.



P-38 fighter like that flown by the 1st, 14th, and 82nd Fighter Groups of the Fifteenth Air Force.



Table VI: Missing Air Crew Reports of the Bombers Failing to Return from the Berlin Mission, Fifteenth Air Force, March 24, 1945 (AAA=antiaircraft artillery; E/A= enemy aircraft)					
Missing Air Crew Report	Bomb Group	Bomb Squadron	Reason for loss	Number aboard aircraft	Time and place
13208	463	774	AAA	10	1146. 5027N, 1321E
13258	463	772	AAA	10	1145. 4955N, 1310E
13271	463	772	AAA and E/A	10	1150. 5040N, 1340E
13274	463	773	E/A	10	1208. 5100N, 1310E
13278	463	773	E/A	10	1200. 5205N, 1310E
13371	463	775	AAA	10	1250. 5045N, 1320E
13372	2	429	AAA	10	1400. 4810N, 1450E
13374	2	20	AAA and E/A	10	1215-1230. 5200-5220N, 1300-1335E
13375	483	817	E/A	10	1227. Berlin area

Source: Missing Air Crew Reports, numbers 13208, 13258, 13271, 13274, 13278, 13371, 13372, 13374, 13375. Fifteenth Air Force General Order number 2293, dated April 12, 1945. The Fifth Wing A-2 Section Daily Intelligence Report for March 24, 1945 (AFHRA call number 670.332) agrees that nine bombers either were lost or went missing on the raid, and notes one of these from the 483d Bombardment Group, two from the Second Bombardment Group, and six from the 463d Bombardment Group.

Table VII: Missing Air Crew Reports of the Fighters Failing to Return from the Berlin Mission, March 24, 1945, Fifteenth Air Force, March 24, 1945				
Missing Air Crew Report	Fighter Group	Pilot	Aircraft Type	Reason for loss
13266	332	Flight Officer Leon W. Spears	P-51	Unknown
13267	332	Captain Armour G. McDaniel	P-51	Enemy aircraft
13268	332	Flight Officer James T. Mitchell, Jr.	P-51	Mechanical failure
13269	332	2d Lieutenant Ronald W. Reeves	P-51	Lack of fuel
13270	332	2d Lieutenant Robert C. Robinson, Jr.	P-51	Lack of fuel

Source: Missing Air Crew Reports, numbers 13266, 13267, 13268, 13269, 13270. Fifteenth Air Force General Order number 2293, dated April 12, 1945.

The P-51 Mustang was often considered the best fighter aircraft in the USAF inventory. This one is one used by the 332d Fighter Group and has the distinctive red tail.



pound general purpose and cyclonite bombs. Lasting for about thirteen minutes, the bombing from all six

groups took place between 1221 and 1234 hours. All of the bombardment groups were escorted, and all except one—the 97th—reported enemy aircraft encounters; they all reported flak.⁷

Good visibility on the day of the mission allowed all bomb runs of the Fifth Wing's six groups to be visual. The runs lasted from 3.5 to 8 minutes, with an average of about five minutes per run. Bombing altitudes ranged between 25,000 and 28,300 feet. Indicated air speed varied from 145 to 150 miles per hour, but the bombers did not all fly over the target at the same time. Those arriving later contended with some obscurity due to the smoke of earlier-dropped bombs in the area. Half of the formations were diamond-shaped. Although some of the bombs landed on target, many of the patterns were large and either off to the left or short of the aiming point.⁸

The five fighter groups on the Berlin mission launched 258 fighters, mostly P-51s but also P-38s, to guard the 169 B-17s launched. Some of the fighters turned back early, but 241 fighters were effective escorts that day for the 148 bombers that reached the German capital. Thus, despite the unusually high number of escorts for this Fifteenth

Table VIII: Fighter Group Assignments on Fifteenth Air Force March 24, 1945, Mission to Berlin			
Fighter Group	Type Aircraft	Assignment that day	Time of rendezvous rendezvoused with bombers
31st	P-51	penetration, target cover, and withdrawal for rear 3 of 6 bomber groups of 5 th Bomb. Wing	1145
52nd	P-51	target cover and withdrawal for 5 th Bomb. Wing	1215
325th	P-51	penetration, target cover, and withdrawal for lead 3 groups of the 5 th Bomb. Wing	1200**
332nd	P-51	penetration to prudent limit of endurance	1145
82nd	P-38	penetration (2 squadrons) and withdrawal (other squadrons) for 5 th Bomb. Wing	1145*

*reported late rendezvous because group took off late, because of delayed delivery of 300-gallon belly tanks, but still met the bombers as early as any of the other groups.
 **supposed to provide penetration escort for the lead 3 groups, but did not meet the bombers until fifteen minutes after three of the other groups had already rendezvoused with them

Source: Fifteenth Air Force Mission Folder for March 24, 1945, with group mission reports therein (AFHRA call number 670.332).

Table IX: Accuracy of Bombardment Groups of the 5th Bomb Wing of the Fifteenth Air Force on the March 24, 1945 Mission to Berlin (Daimler-Benz Tank Assembly Plant)		
Bombardment Group	Type of Aircraft	Accuracy
2	B-17	"the pattern..was good...off to the left" (not accurate)
97	B-17	"photos show a large pattern being off course to the left" (not accurate)
99	B-17	"pictures show an excellent pattern in the briefed MPI (mean point of impact, or target) with a few scattered short hits" (accurate)
01	B-17	"the pattern from 2 boxes centered on the briefed MPI, but the pattern of the other 2 boxes fell a little short" (half accurate)
463	B-17	"photos show bombs hitting in the target area, although the pattern was large..." (somewhat accurate)
483	B-17	"pictures show a poor pattern, but with some excellent hits" (somewhat accurate)

Source: Fifteenth Air Force Mission Folder for March 24, 1945, with group mission reports therein (AFHRA call number 670.332).

Air Force bombing mission, there were still fewer than two escorts per bomber.⁹

The aerial dogfights were intense. The Germans launched as many as thirty Me-262s jets against the bombers. Nonetheless, the American P-51 Mustang escorts, although significantly slower than the German jets, proved to be more maneuverable. Eight of the Mustang pilots, including William Daniel, Forrest Keene, Raymond Leonard, Kenneth Smith, and William Wilder of the 31st Fighter Group's 308th Fighter Squadron, and Roscoe Brown, Earl Lane, and Charles Brantley of the 332d Fighter Group's 100th Fighter Squadron, each shot down an Me-262 that day. All of these aerial victories were scored by P-51s.¹⁰

Fourteen of the airplanes the Fifteenth Air Force sent to Berlin on March 24, 1945 failed to return. Among them were nine of the Fifth Bombardment Wing's B-17s, six of which belonged to the 463d Bombardment Group, two of which belonged to the 2d Bombardment Group, and one of which belonged to the 483d Bombardment Group. Of the lost bombers, six were shot down primarily by enemy anti-aircraft artillery, or flak. The three

other lost bombers were shot down by enemy aircraft fire. Enemy aircraft also hit at least two of the six bombers that went down primarily by flak. Only one of the five fighter groups escorting the Fifth Bombardment Wing bombers that day also suffered losses. Five of the P-51s of the 332d Fighter Group also failed to return. Each B-17 carried a crew of ten. With nine of the bombers failing to return, and five fighters, 95 men did not come back, at least immediately, from the Berlin raid.¹¹

The five fighter pilots who did not come back immediately, were all members of the 332d Fighter Group, including Capt. Armour G. McDaniel, who was seen to have been hit by enemy aircraft fire; Flight Officer Leon W. Spears, lost to an unknown cause; Flight Officer James T. Mitchell, Jr., whose aircraft is believed to have suffered mechanical failure; and 2d Lts. Ronald W. Reeves and Robert C. Robinson, who were believed to have landed at another airfield because they lacked enough fuel to land at their home field of Ramitelli. The March 1945 history of the 332d Fighter Group notes all five of these pilots as having gone missing in action, but the group's history notes that Flight Officers Mitchell

B-17s and their accompanying fighters on a mission.



and Spears returned to the 301st Fighter Squadron on May 10, having been repatriated from Poland.¹²

Only three of the eleven bombardment and fighter groups that went to Berlin on March 24, 1945, earned the Distinguished Unit Citation (DUC) for the mission. They included the 463d and 483d Bombardment Groups and the 332d Fighter Group. In other words, two of six, or only a third, of the participating bombardment groups earned the decoration, and only one of five of the fighter groups. Every participating group that did not earn the DUC for the Berlin mission had already earned at least one DUC for another or other missions. In fact, after the Berlin raid, all eleven of the groups had a total of two Distinguished Unit Citations, except the 82d Fighter Group, which had three, and the 332d Fighter Group, which had one.¹³

The March 24, 1945, mission to Berlin was important historically for a number of reasons. It was the first Fifteenth Air Force mission to the German capital and the longest Fifteenth Air Force mission of the war. It was a mission in which Fifteenth Air Force fighters shot down more German jet Me-262 airplanes than any other day. Although the mission occurred in the closing months of the war, destruction of facilities at the Daimler-Benz tank works contributed to the Allied advance, depriving the Germans of some of the tanks they needed to defend the capital. ■

NOTES

1. Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945. Kit C. Carter and Robert Mueller, *The Army Air Forces in World War II Combat Chronology, 1941-1945* (Maxwell AFB, Ala. and Washington, D.C.: Albert F. Simpson Historical Research Agency, Air University, and Office of Air Force History, 1973), pp. 606-7.
2. Fifteenth Air Force Mission Folder for March 24, 1945, which contains narrative mission reports for all bombardment and fighter groups launched that day, AFHRA call number 670.332, March 24, 1945.
3. Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945. Kit C. Carter and Robert Mueller, *The Army Air Forces in World War II Combat Chronology, 1941-1945* (Maxwell AFB, Ala. and Washington, D.C.: Albert F. Simpson Historical Research Agency, Air University, and Office of Air Force History, 1973), pp. 606-7.
4. Maurer Maurer, *Air Force Combat Units of World War II* (Washington, D.C.: Office of Air Force History, 1983).
5. *Ibid.*
6. Narrative mission reports of the 31st, 52d, 82d, 325th, and 332d Fighter Groups for March 24, 1945, contained in the Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.
7. Fifth Wing A-2 Section Daily Intelligence Report, March 24, 1945, contained in the Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.
8. Fifth Wing Nav-Bomb-PFF Analysis for Mission of March 24, 1945, drafted for Fifteenth Air Force command,

der, in Fifteenth Air Force mission folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.

9. Narrative mission reports of the 31st, 52d, 82d, 325th, and 332d Fighter Groups, contained in the Fifteenth Air Force Mission Folder for March 24, 1945, AFHRA call number 670.332, March 24, 1945.

10. USAF Historical Study No. 85, *USAF Credits for the Destruction of Enemy Aircraft, World War II* (Maxwell AFB, Ala. and Washington, D.C.: Albert F. Simpson Historical Research Center and Office of Air Force History, 1978), p. 506 and aerial victory credit cards at AFHRA. 31st Fighter Group narrative mission report, March 24, 1945, in Fifteenth Air Force Mission Folder for March 24, 1945, AFRHA call number 670.332.

11. Missing Air Crew Reports, numbers 13208, 13258, 13266, 13267, 13268, 13269, 13270, 13271, 13274, 13278, 13371, 13372, 13374, 13375. Fifteenth Air Force General Order number 2293, dated April 12, 1945. The Fifth Wing A-2 Section Daily Intelligence Report for March 24, 1945 (AFHRA call number 670.332) agrees that nine bombers either were lost or went missing on the raid, and notes one of these from the 483d Bombardment Group, two from the Second Bombardment Group, and six from the 463d Bombardment Group.

12. Missing Air Crew Reports 13266-13270; 332d Fighter Group histories for March and May 1945, AFHRA call numbers GP-332-HI, March 1945 and GP-332-HI, May 1945.

13. Lineage and honors histories of each of the eleven groups, contained in Maurer Maurer, *Air Force Combat Units of World War II* (Washington, D.C.: Office of Air Force History, 1983).

READERS' FORUM

Icarus Ascending

By Rodney O. Rogers

Each time I watch a Shuttle launch from my backyard on the Halifax River in Ormond Beach, Florida, two images sear my brain: *Columbia's* ruins falling like stars from the edge of space, and stratospheric plumes of smoke from *Challenger* as it disintegrated shortly after launch from Cape Canaveral. These two mishaps inevitably bring to mind another fall from the sky, a third poignant reminder of the risks aviators have always accepted to dare the heavens.

It happened nearly half a century ago, and involved a Chance-Vought F-8 Crusader, the United States Navy's first 1,000-mile per hour, carrier-based jet, a Vietnam War champion celebrated as the "last of the gunfighters." For all its prowess as a war plane, however, the Crusader was challenging

to handle, especially aboard ship, and it had a long history of periodically claiming the lives of pilots who flew it.

In August 1962, a flight of four Crusaders from the Fighter Squadron Sixty-Two *Boomerangs* took off from Naval Air Station Cecil Field in Jacksonville, Florida. Headed for the Guantanamo Bay Naval Base in eastern Cuba, the flight was led by the squadron's Skipper. The second most senior pilot would later fly for the Blue Angels Flight Demonstration Team. Both of these men survived the dramatic mishap fate had in store for their flight that day, although the Blue Angel to-be later would die in a Grumman F-11 Tiger ground impact during a Team air show. One of the other two pilots, Lieutenant Junior Grade Thomas J. "TJ" Malloy,

EACH TIME I WATCH A SHUTTLE LAUNCH, TWO IMAGES SEAR MY BRAIN: COLUMBIA'S RUINS FALLING LIKE STARS FROM THE EDGE OF SPACE, AND STRATOSPHERIC PLUMES OF SMOKE FROM CHALLENGER AS IT DISINTEGRATED SHORTLY AFTER LAUNCH

Vought F8U-1P Crusader photo reconnaissance aircraft, redesignated RF-8A on October 1, 1962. Aircraft 144622 was lost in a mishap on October 29, 1963.



F8U-2N Crusader fighters, redesignated F-8D on October 1, 1962 and subsequently remanufactured as the F8H. Flight led by the author, Summer 1968.

I WENT THROUGH FLIGHT TRAINING WITH TJ, WHO WAS THE REGIMENTAL COMMANDER AND TOP CADET IN OUR PRE-FLIGHT CLASS



would not live to fly another day.

I went through flight training with TJ, who was the regimental commander and top cadet in our Pre-Flight Class. I remember him—a quiet, handsome man, of medium height, tough of mind and body—for his reverence of God, his love of flying, and his dedication to the Navy and to his country. Most of all I remember TJ because in my imagination he embodies the courage and frailty of aviators who operate aircraft near the limits of the flight envelope.

The Boomerangs' four Crusaders are in loose formation over south Florida above 40,000 feet.

Florida's usual summer thunderstorms, huge and building rapidly, are already reaching above the Crusaders' flight path. Beautiful when viewed from a distance, in the proximity these storms are deadly. The Skipper begins a gradual ascent in an effort to top the storms. Preoccupied perhaps with the cumulonimbus, he allows the airspeed to dwindle as he climbs. Crossing the Florida Straits between Key West and Cuba, the four Crusaders—now well on the back side of the thrust curve—are skimming the tops of the building storms. Suddenly, the steel-gray birds encounter what must have been an extraordinarily powerful wind shear.

Rodney O. Rogers is a former Navy jet pilot with six years active duty and eight years reserve flying, during which he logged 247 carrier landings and 2500 hours of flight time, including 1500 in the F-8 Crusader and 500 in the A-4 Skyhawk. He holds the Ph.D. degree in Computer Science from the University of Central Florida and in English and American Literature from the University of Virginia, and has taught literature, aeronautics, and computer science at a number of American universities. Currently he is a faculty member in the Department of Aeronautical Science at Embry-Riddle Aeronautical University in Daytona Beach, Florida, where he teaches aerodynamics, aircraft performance, and simulator-based upset recovery maneuvering to aspiring airline pilots. Over the past few years, Rogers has published the results of three federally-funded research experiments to assess the effectiveness of upset recovery training using desktop flight simulation. He is currently a member of the International Committee for Aeronautical Training in the Extended Envelope (ICATEE). The efforts of ICATEE, sponsored by the Royal Aeronautical Society of London, are focused on reducing lost-of-control in-flight accidents by improving air transport pilot upset prevention and recovery training.



Crusader aircraft 146863 was retired to the boneyard at Davis-Monthan AFB, Ariz. September 15, 1980.

Of an instant, three of the pilots experience flameouts. The fourth continues unimpeded and lands safely in Gitmo. The other three planes are gliding powerless into the heart of the thunder. Chance casts the dice. One of the three stricken pilots obtains a relight, flies out of the storms intact, and limps into Cuba. The Skipper and TJ, however, must ride the whirlwinds into the sea. In retrospect, the one pilot unaffected by the wind shear reports

hearing a final radio transmission from TJ, who has entered a spin and is initiating an ejection. Then silence.

Thirty hours later, the evil weather has abated. Search and Rescue finally locates the Skipper floating in a life raft. Severe back injuries sustained in ejecting will cause him to be relieved of his duties. Nothing of TJ or his fallen Crusader is ever retrieved, save that after some days his battered hard hat is found floating in the crystal green waters of the Gulf Stream. A picture of the shattered helmet—its Boomerang paint scheme still discernable—appeared in the accident report disseminated months later to the F-8 community. When I read the report, I glimpsed TJ's youthful face smiling at me from the broken shell of the hard hat. I can still see it stark and clear almost fifty years later.

What is one to make of such a mishap? Long before man's first flights, the ancient Greeks, in a still famous myth, foresaw the risks of entering the realm of the gods. Daedalus and his son Icarus fashion wings of wood, wax, and feathers to escape the labyrinth of King Minos on the Mediterranean island of Crete. The father cautions the son not to ascend too high, lest the sun's heat melt the wax holding his wings together, nor to fly too low lest the salt waves of the wine-dark sea ensnare him. Nevertheless the youthful Icarus, enthralled by the ecstasy of flight, soars higher and higher. Ultimately, his wings fail and he plunges to his death in the Aegean Sea, creating the Dodecanese island now known as Icaria. Daedalus, proceeding cautiously at a middle altitude, flies to safety.

The classical Greeks saw this old story of

Aircraft 145629 was lost in an operational mishap on May 11, 1977.



OF AN INSTANT, THREE OF THE PILOTS EXPERIENCE FLAMEOUTS

Daedalus and Icarus as an example of the wisdom of following Aristotle's *golden mean*, the middle way between two extremes that the Romans later called the *via media*. Icarus suffered from *hubris*, a sense of godlike power that leads a hero to fall through over-reaching.

Maybe so, but whom do we really admire in this ageless story of two aviators—the cautious father or the daring son? Pilots who push the limits of flight might well say Icarus. Was Icarus punished by the gods, or was he rewarded? Who can say what wonders this fearless youth glimpsed as he soared heavenward? To borrow a marvelous notion from the seventeenth-century English poet John Dryden, “None but the brave deserves the fair.” Never mind that the line between brave and reckless is not always distinct.

What motivates aviators to tempt Fate the Hunter cannot quite be explained. I suppose it will always remain something of a mystery. In a well-known poem by W. B. Yeats, an Irish airman killed in World War I foresees his death. He explains that “a lonely impulse of delight” drove him to risk his life in aerial combat. Despite the profound consequence of his choice, he still prefers a pilot’s brief life in the tumultuous clouds to a longer, more pedestrian existence on the ground:

*I balanced all, brought all to mind,
The years to come seemed waste of breath,
A waste of breath the years behind
In balance with this life, this death.*

Thomas J. Malloy is long dead, but whatever impulse drove him to dare the skies lives on. It is

the same impulse that inspired—among countless aviators—Icarus; the crews of *Columbia* and *Challenger*; and Major Robert Gregory, the Irishman in Yeats’ poem. Surely, it is in the hearts of every Shuttle crewmember today. I believe it will continue to motivate aviators into the far distant future.

At Embry-Riddle Aeronautical University, I teach young men and women who aspire to flying careers. Ironically, in late 2002, shortly before the *Columbia* tragedy, I asked the twenty-five students in one of my classes if they would be willing to risk flying on a Shuttle mission. Virtually everyone in the class said yes. After *Columbia*’s fall, I posed the question a second time. Now more cautious, most of the students were, nevertheless, still willing to risk flight into space. Suppose, I asked, you knew the odds of dying were as unfavorable as one in ten, would you still go? Several adventurous students said they would. They considered a ninety percent probability of surviving acceptable, even favorable, given what they imagined the rewards of a Shuttle flight to be.

An aviator’s will is indomitable. Though unmanned space exploration now threatens to eclipse the Shuttle program, Icarus will forever be ascending in the human spirit. Godspeed and a following wind, TJ. You and your kind endure and are forgotten. Your valor brings man closer to the stars.

Note: The Space Shuttle *Columbia* disaster occurred on February 1, 2003. The *Challenger* fell on January 29, 1986. ■

Aircraft 148657 was an F8U-2 Crusader, redesignated F-8D on October 1, 1962 and subsequently manufactured as an F8-H. It was lost in a mishap aboard *Shangri-la* (CVS 38) on August 1, 1970. In August 1962, the generic term for the Crusader was F8U. It did not become the F-8 until October 1.



Project Emily: Thor IRBM and the RAF. By John Boyes. Stroud, Gloucester, Great Britain: The History Press, 2008. Glossary. Illustrations. Tables. Notes. Appendices. Bibliography. Index. Pp. 160. \$42.95 Paperback ISBN: 978-07524-4611-0

John Boyes's *Project Emily* is the first operationally focused, book-length study of the Thor intermediate-range ballistic missile (IRBM) since Julian Hartt's *The Mighty Thor: Missile in Readiness* in 1961. Its appearance on the eve of the fiftieth anniversary of Thor IRBMs achieving operational status in the United Kingdom (UK) is altogether fitting. An active member of the Royal Air Force Historical Society, Boyes has cultivated an abiding fascination, as he says in the book's introduction, with "all things aeronautical" and first saw an operational Thor site from a distance in 1959. When his work as a chartered accountant in the mid-1990s took him to areas where Thor IRBMs had been located, he sought to learn more about them but found "little authoritative history" had been published apart from two chapters in Humphrey Wynn's 1994 volume titled *RAF Nuclear Deterrent Forces*.

After concisely summarizing development of the ballistic missile from the first operational launch of a V-2 in September 1944 to early disappointments and successes with Thor, Boyes deftly draws the reader into the story of Thor from a UK perspective. He discusses the slow progression toward a U.S.-UK agreement on Thor basing, constructing the infrastructure for the various sites, arrival of the first missile, training crews, and squadron operations. His coverage of several topics is especially noteworthy: sparring between the USAF and the Royal Air Force over levels of authority; efforts to control the press; dissatisfaction of trainees with their circumstances; and UK motives for accepting Thor IRBMs. A short chapter on the UK Thor force's full alert during the Cuban Missile Crisis of October 1963, followed by its abrupt stand-down and dismantlement, concludes Boyes's narrative.

Drawing extensively from documentation in The National Archives of the UK, Boyes achieves a remarkable level of detail on Thor-related issues ranging from international affairs to daily routines at an operational site. He supplements the official material with information from miscellaneous papers, magazines, newspapers, and tidbits from conversations or correspondence with men who served on active duty at the Thor stations. As one might suspect, the author's neglect of official records in U.S. archives and interviews with Benjamin Bellis or other surviving USAF officers associated with Thor de-

ployment gives *Project Emily* a distinctly British viewpoint. Those desiring another perspective might examine "Project Emily and Thor IRBM Readiness in the United Kingdom, 1955-1960" by L. Parker Temple III and Peter L. Portanova, which appeared in the Fall 2009 issue of *Air Power History*.

While certain stylistic aspects of Boyes's book tend to make reading it tedious, its content represents a substantially positive contribution to the historical literature on ballistic missiles. An inordinate amount of passive voice, combined with occasional thickets of technical discussion, sometimes bog down the narrative pace. Nonetheless, accounts of hunting rabbits and procuring geese for Christmas dinner at the Thor stations enliven the story. Despite its having been researched and written by a non-historian, *Project Emily* merits attention from anyone interested in Thor missile history.

Dr. Rick W. Sturdevant, Deputy Director of History, HQ Air Force Space Command



Last Letters from Attu: The True Story of Etta Jones, Alaska Pioneer and Japanese POW. By Mary Breu. Portland, Oregon: Alaska Northwest Books, 2009. Map. Photographs. Bibliography. Index. Pp. 295. \$16.95 paperback. ISBN: 978-0-88240-810-1

Last Letters from Attu is the fascinating story of Etta Jones, an Alaskan schoolteacher living on the island of Attu in the Aleutians with her husband, Foster, at the outbreak of World War II. Written by Jones' grandniece, Mary Breu, the book not only describes Jones' 1942 capture and imprisonment by the Japanese, but also her earlier life in Alaska through letters and her unpublished memoir.

Moving to Alaska in 1922, in search of adventure with her sister Marie, Jones found work as a schoolteacher and met her future husband, Charles Foster Jones, a prospector and miner. Following their marriage, they spent the next twenty years moving between remote villages as employees of the Alaskan Indian Service, operating schools for the native Alaskans. Through Jones' personal letters and her memoir, the reader is transported back to a time when Alaska was still a harsh frontier only a few decades removed from the 1896 Gold Rush. The newly married couple departed for their honeymoon on a dogsled and built a life for themselves among the native Alaskans. By the early 1940s they were well adapted to the isolation and extreme weather of Alaska and

volunteered for one last assignment to Attu, at the extreme western tip of the Aleutians. In addition to his school duties, Jones' husband also radioed daily weather reports to the Weather Bureau—a job with deadly consequences when Japanese forces captured Attu in June 1942.

In conjunction with the Battle of Midway, the Japanese attacked Alaska, bombing the American base at Dutch Harbor and occupying Kiska and Attu Islands. With no means to resist, the Joneses and the native Aleuts on Attu were quickly rounded up by Japanese troops. Foster Jones was killed after being interrogated about his radio and his widow was shipped off to Japan as a prisoner.

After reaching Japan, Jones joined a group of Australian nurses captured in Papua-New Guinea. Over the next three years they endured hardships and cruelty at the hands of their Japanese captors before being released in September 1945, following Japan's defeat. Unlike the story in the first part of the book, Jones' World War II ordeal is viewed primarily through the eyes of her fellow prisoners. Understandably, her memoir and subsequent stories focused on her happier life with her husband before World War II. Upon her return to the United States, Jones moved to New Jersey, eventually traveling to Australia to reunite with the nurses imprisoned with her.

Last Letters from Attu is not only an inspiring story of one woman caught up in the horror of World War II, but also an engaging glimpse of frontier life in Alaska. Etta Jones lived a fascinating life, showing how ordinary people can triumph over extraordinary circumstances. We can be grateful her grandniece was able to share her amazing story.

Major Jeffrey P. Joyce, USAF (Ret.), Docent, NASM's Udvar-Hazy Center



Pegasus: The Heart of the Harrier: The History and Development of the World's First Operational Vertical Take-off & Landing Jet Engine. By Andrew Dow. South Yorkshire UK: Pen & Sword Aviation, 2009. Tables. Diagrams. Illustrations. Photographs. Notes. Appendices. Bibliography. Index. Pp. 543. £35.00 ISBN: 978-1-84884-042-3

Andrew Dow worked for Bristol Siddeley (later merged with Rolls-Royce), maker of the Pegasus jet engine, starting in 1962 as a commercial apprentice. By 1975 he was the manager responsible for the commercial fortunes of Pegasus. He

held that position for some sixteen years. His book details the history of the Pegasus engine from its conceptualization in 1956 to the present day. While the meat of the book focuses on engineering aspects, it also covers in depth the politics, business maneuverings, inter-service rivalries, tactics, and personalities that played a significant role in the development, production, employment, and success of the Harrier as an aircraft. It is in fact several histories in one, which accounts for its 543-page length.

One interesting aspect of the book is a foreign view of American inter-service rivalries and conflicting tactical outlooks that American writers tend to gloss over or ignore. Dow and the people he interviewed for the book have no such reluctance. The U.S. Army expressed interest in the Kestrel (forerunner of the Harrier) as a replacement for the Mohawk; but the USAF, which had no interest itself in VTOL aircraft, fought against Army acquisition of fixed-wing aircraft even for reconnaissance work. This, of course, made no sense to the British, because the U.S. Marines, Navy, and Air Force all had their own air forces comprised of both fixed-wing and rotary-wing aircraft. Bristol Siddeley held no great love for the USAF, which it saw as having no interest in VTOL aircraft because of doctrinal myopia.

Dow states that U.S. Marine Air had an understanding of close air support that the USAF lacked. He believes these differences were born during the battle for Guadalcanal. There the Marines' close air support aircraft were based close to the front lines. That experience gave the Marines the view that for close air support to be effective, it had to deliver weapons on target within thirty minutes of a call for fire support. Longer than that and the enemy will have disappeared or the issue will have been decided. This view demanded CAS aircraft be deployed close to the battle area—something the Harrier could do with ease.

In his view, the USAF over relies on conventional airfields because it has never been denied them. The British have experienced it as recently as the Falklands War. By the same token, the Pegasus makers believed the U.S. Navy has been slow to embrace VTOL technology because it endangers their super carriers. In the end, it was the U.S. Marines that purchased the Harrier and incorporated it into their inventory and way of war.

As befitting a technical history, this book is filled with photographs and diagrams to illustrate and support the text. Useful appendices provide information on the variants of Pegasus engines made for the Royal Navy, U.S. Marines, and the Indian Navy.

Frankly, I have never read a book that covers the technical history of an engine and the development of an aircraft as completely as this one does. Engineers, aircraft mechanics, pilots, and historians will find this book of real value. Others might find it to be a dry read, but one will find no better book on its subject matter.

David F. Crosby, former USAF history writer and doctrine developer for the U.S. Army Air Defense Artillery School



Orville's Aviators: Outstanding Alumni of the Wright Flying School, 1910-1916. By John Carver Edwards. Jefferson, N.C.: McFarland & Company, 2009. Photographs. Bibliography. Appendices. Index. Pp 189. \$45.00 paperback. ISBN: 978-0-7864-4227-0

Orville's Aviators recounts the flying experiences of six of the 113 students who attended the Wright Flying School. These six represent an interesting cross section of pioneer aviation. Edwards details the life experiences of Russian Immigrant and Orville Wright's chief instructor, Arthur Welsh; tea-dynasty heir Howard Gill; Archibald Freeman, who would bomb Boston Harbor with flour bags; self-indulgent Grover Bergdoll; George A. Gray, who was half of a husband and wife flying team; and explorer Howard Rinehart. On the surface they appear to represent a seemingly disconnected group of aviators; however, Edwards does a solid job of linking the pilots under a central theme of courage. These early pioneers of aviation all faced extreme danger as they learned to fly the highly temperamental and fragile Wright Flyers. Each chapter is filled with harrowing escapes from crashes caused by engine failure, sudden gusts of wind, and pure misfortune. Ultimately three of the six would die in plane crashes; one would take his life, and only two would die of old age.

Each pilot is discussed in his own well-researched chapter. Edwards lays out a detailed chronological story of their individual experiences as they crisscrossed the nation either to compete at various air meets or perform exhibitions. Inserted within the text are photographs, newspaper clippings, and advertisements for flights. These help bring the stories to life.

In addition to the theme of courage, Edwards repeatedly drives home the fact that the Wrights were businessman very much interested in making a profit from their aviation interests: flight school, airplane factory and exhibition team made. For readers not familiar with the Wright

Brothers other than their historic 1903 flights, Edward's discussions will be enlightening.

Perhaps a true hidden gem of the book is how through discussing the six early aviators, Edwards provides readers with a seldom-seen glimpse into the very early days of aviation—days filled with countless contests, exhibitions, and death-defying challenges. This insight only helps drive home a strong appreciation for the courage, dedication, and adventurous spirit of the pilots.

The appendices provide a timeline for the Wright Brother's aviation activities, a list of all Wright aircraft, and a list of the Wright Flying School 113 students. These tables are very useful in helping the reader understand how rapidly aviation advanced in the pioneer days, how primitive the planes were, and how the school's graduates truly represented a significant portion of the future of aviation. Edwards should be commended for successfully selecting six fine examples from a list that includes General Hap Arnold and countless record setters and barnstormers.

In summary, this is an outstanding look into the very early days of aviation. Future pilots will be fascinated to learn that Wright students were guaranteed only four hours of flight time with flights often lasting less than ten minutes. Historians will appreciate the detailed research, and lovers of flight will enjoy the detailed and often harrowing there-I-was stories. While a bit pricey for a paperback, this book is definitely worth reading for both pleasure and learning.

Lt. Col. Dan Simonsen, USAF (Ret.), Ruston, Louisiana



Targeting the Third Reich: Air Intelligence and the Allied Bombing Campaigns. By Robert S. Ehlers Jr. Lawrence: University Press of Kansas, 2009. Photographs. Maps. Bibliography. Notes. Index. Pp. xv, 422. \$39.95 ISBN: 978-0-7006-1682-4

In World War II, Allied bomber crews flew more than 1,400,000 sorties and dropped nearly 2,700,000 tons of bombs on the Axis powers. The cost to Germany was astounding: over 3,600,000 buildings destroyed, 300,000 civilians killed, and another 780,000 wounded. Homelessness reached close to 5,000,000, with Germany's cities in ruins, industry exhausted, and its people utterly demoralized.

Key to this devastating blow to Germany was air intelligence. Ehlers' book

addresses how the Allies, through targeting and damage assessment, utilized air intelligence to gain an upper hand and ultimately destroy the Third Reich. A USAF colonel and professor at the School of Advanced Air and Space Studies, Ehlers examines the experiences of both British and American airmen from the Great War to World War II and the development of air intelligence. Ehlers focuses primarily on intelligence's role in the Allied combined bombing campaign against the Axis powers, which relied heavily on targeting information and bomb damage assessments. Intelligence provided airmen the key insights on individual effects in support of the military strategy. *Targeting the Third Reich* looks at the three heavy bomber campaigns: first against French and Belgian railroads to isolate Normandy from German reinforcements and resupply, then against Germany's oil industry, and finally against Germany's railroads and canals and how intelligence benefited, and hindered, the Allies.

Targeting the Third Reich attempts to fill the void in the role air intelligence played in the defeat of the Axis. As Ehlers points out, recent scholarship has made great strides with respect to the Combined Bomber Offensive's role in destroying the Luftwaffe and giving the Allied air force air supremacy to the bombing's "disastrous effects on Germany's war economy." Air intelligence allowed commanders to direct bombers to the most lucrative targets. From the spring of 1944 to the end of hostilities in Europe, intelligence personnel convinced leadership to continue to strike key targets.

However, as Ehlers points out, intelligence was frequently misused by both political and military leaders who "pushed their various strategic and operational preferences" at various points throughout the conflict. Ehlers expertly highlights operational errors as a result of the misused intelligence. He examines cases where bombers attacked "targets sets that were not lucrative," or too many of different kinds with inadequate forces, or just plain failure to attack target sets with sufficient persistence.

Interestingly, Ehlers' analysis of the Allies' targeting in the oil offensives shows the failure to attack the only three plants which made ethyl fluid, an indispensable component in aviation fuel. Germany had no substitute for these materials. The factories were highly vulnerable, and the Germans had no way to rebuild quickly due to their complexity and vastness. However, none of the three plants was ever bombed. Even though the oil offensive knocked out aviation fuel production quickly, Ehlers contends that the Allies

could have accomplished the feat much more expediently with raids on these plants.

Colonel Ehlers accomplishes his goal of filling the void by providing a historical analysis of air intelligence's role in defeating the Third Reich. His book fits nicely within the recent scholarship such as Randall Wakelam's *The Science of Bombing: Operational Research in RAF Bomber Command* and Randall Hansen's *Fire and Fury: The Allied Bombing of Germany, 1942-1945*. *Targeting the Third Reich* is a well-written and researched work that magnificently traces the development of air intelligence from the Great War to its achievements, and failures, in World War II. It is a must for any aviation historian.

R. Ray Ortensie, *Command Curator*,
Headquarters Air Materiel Command



Challenges to Chinese Foreign Policy: Diplomacy, Globalization, and the Next World Power. Ed. by Yufan Hao, C. X. George Wei, and Lowell Dittmer. Lexington: University Press of Kentucky, 2009. Notes. Index. Pp. ii, 377. paperback. \$29.95 ISBN: 978-0813192024

In his introduction to this book, Yufan Hao suggests that China's foreign policy-making process appears as a "black box" to Western observers who too often rely on their own frame of reference to make sense of outputs. Written primarily by authors of Chinese origin, the book attempts to provide outsiders with a better understanding of the thinking behind China's approach to thorny foreign policy issues. Though by no means exhaustive, it touches on a range of issues, including China's relations with the United States, the European Union, Russia, Japan, and North Korea; its management of ongoing instability and conflict in South Asia; and its efforts to maintain national security while assuring the rest of the world that China's rise in the international order will be peaceful.

Unfortunately, this book is no exception to the rule that edited collections tend to be of uneven quality and outdated by the time they hit the shelves. Based on conferences held in 2005 and 2006 but not published until 2009, not all of the seventeen chapters will keep the reader's attention, either due to the quality of their argumentation or because the topics discussed have been overtaken by events.

That said, even if relations between Taiwan and China have evolved to the point where the two sides have agreed to

expand cross-strait trade, objections raised by various factions prior to finalization of the Economic Cooperation Framework Agreement demonstrate that the underlying political dynamics between the two neighbors remain pretty much as Zhidong Hao ably describes in his chapter on the impact of the 2005 Anti-Succession Law. The same logic applies to chapters covering North Korea's ongoing nuclear weapons saga and the notion of China as a "responsible stakeholder" in the international system. Though "responsible stakeholder" is a Bush-era construct—and, according to contributor Jianwei Wang, a vague and somewhat condescending way to frame U.S.-China relations—it persists as part of Washington's diplomatic lexicon.

While the reader will certainly profit from re-examining recent foreign policy events through a Chinese lens, the process will not be without frustration. It is one thing to present the Chinese viewpoint; it is quite another to ignore the (normal) contradictions between rhetoric and reality. For example, it is somewhat ironic that Jia Qingguo lauds China's preference for multilateralism over the U.S. tendency to unilateralism, arguing that the two nations "should work together to enhance the UN Security Council's effectiveness and develop a new set of international norms to enable the international community to tackle security problems such as weapons of mass destruction, terrorism, and transnational criminal activities." Yet, to cite a contemporaneous example, China supported a UN 2006 Security Council resolution calling on Iran to suspend its uranium enrichment program. More recently, it also agreed to impose limited economic sanctions on that regime. But to keep Iranian oil flowing in its direction, China has more often seen fit to thwart international efforts to bring Iran to heel. If, as C.X. George Wei notes in his chapter, China believes, not unreasonably, that economic sanctions are a blunt and ineffective tool, how can one explain its use of these measures against U.S. defense firms who participated in a recent \$6.4-billion arms deal with Taiwan?

Regarding the role oil plays in China's foreign policy decision-making, another notable shortcoming of this book is its silence on that country's international energy investment strategy. Given China's increasing stake in the energy resource sectors of Africa, Latin America and, closer to home, Canada, this issue is of pressing interest, as is China's foreign financial strategy writ large.

Still, for those who wish to consider Chinese foreign policy from a non-Western perspective, this book has something of value to offer. It is just too bad that the

space between words and deeds was not fully explored.

Holly Porteous, international affairs and defense analyst, Ottawa, Canada



The Ace. By Jack D. Hunter. Indianapolis: Blue River Press, 2008. 300pp. \$15.95 paperback ISBN: 978-0979924064

Jack D. Hunter, author of seventeen novels including the *New York Times* best-seller *The Blue Max*, published his final novel, *The Ace*, before his death due to cancer in April 2009. Drawing on personal experiences, including his own military service during World War II, Hunter exhibits a high level of credibility throughout this novel with his aviation expertise. From his focus on flying machines and technology, to the realities of wartime psychological struggles, to depicting the essence of military aviators, Hunter displays an uncanny ability to capture the quintessential elements of aeronautics during this initiation period for American military air power. *The Ace* turns back the clock to the infancy of U.S. military aviation when America was dragged into World War I and struggled to rapidly develop its aircraft and air-going people into an effective combat force. This book, while a novel, weaves actual historical people and events amongst the fictional characters and story lines. With appearances by the boisterous air power proponent Billy Mitchell, the magisterial Army General John J. Pershing, and renowned flying ace Eddie Rickenbacker, it is often difficult to discern where the truth and fiction begin and end.

Despite the inclusion of these famous figures, *The Ace* primarily revolves around the lives of four individuals who inadvertently become deeply intertwined in each other's lives. For the aviation enthusiast, two of the central characters are pilots: John King and Bill Carpenter. While Hunter provides these characters with many of the stereotypical traits of early aviators, it is their personality quirks, relationships, and unexpected flaws that make them exceptionally noteworthy. *The Ace* includes an abundance of aeronautical nostalgia with frequent focus on rich people's flying toys, foreboding aerial combat vignettes, and enough luck and crashes to appease even the most intrepid aviators. In addition to the flyers, the novel focuses on American Congressman Thaddeus Slater and privileged heiress Mary Lou Whiting. Through these characters and their personal interactions, *The Ace* incorporates clichéd Washington political corruption plots and

scenes of infatuation and romance. Ample suspense exists throughout the book aided by episodes involving crooked politicians, spies, pyramid schemes, and blackmail. Despite these diversions, *The Ace* continuously returns the focus to flying and how the main characters are connected through coincidental linkages within the small world of early aviation.

In addition to coalescing the various events into a central theme, the genius of *The Ace* resides in the intriguing character flaws of the central figures. These idiosyncrasies often rear their ugly heads at inopportune times. One minute a character is a polite and well-mannered individual only to abruptly transition to an arrogant, conceited, know-it-all. Additionally, in the case of one of the aviators, one minute he is a great and competent flying ace and the next a vulnerable psychiatric ward candidate. The twists in the plot keep the reader captivated and anxious to find out what will occur next. The only near certainty of *The Ace* is that anyone intrigued by aviation or with an affection for flying will enjoy this easy-to-read novel.

Maj. Brian M. Swyt, USAF, Air Command and Staff College



Taking Command: General J. Lawton Collins from Guadalcanal to Utah Beach and Victory in Europe. By H. Paul Jeffers. New York: New American Library, 2010. Photographs. Notes. Appendices. Bibliography. Index. Pp. viii, 326. \$16.00 ISBN: 978-0-451-22983-0

Collins was commanding general of VII Corps in the European Theater. He was among 35 others who commanded a corps in battle during World War II in the 22 such headquarters that saw action (three did not). Before that, he commanded the 25th "Tropical Lightning" Division on Guadalcanal and New Georgia—one of the several hundred who at one time or another led one of the 86 divisions that saw combat.

In various evaluations, he was rated the best corps commanding general in the ETO, one of the best with Troy Middleton, or second to Lucian Truscott. No question: he was good. VII Corps performed well from Utah Beach to V-E Day under his aggressive leadership. The only criticism is about his share in deciding to attack in the Hürtgen Forest. The blame there must be split among Ike, Bradley, Hodges, and Collins.

Right after the war, he had a four-month assignment as Deputy Commanding General and Chief of Staff of Army

Ground Forces (his first job as a lieutenant general). From December 1945 until August 1947, he served in the more high-powered assignment of Chief of Information because of the public unrest about demobilization and other issues. That position, under various titles, had been held since 1935 by Alexander Surles as he advanced from Lt. Col. to Maj. Gen (with an interval in the middle to prove himself as a troop leader—which he didn't). Collins' next job came as a surprise to almost everyone when he was picked to succeed Gen. Tom Handy as Deputy Chief of Staff of the Army. When the Chief's position became vacant with Bradley's move to Chairman of the JCS, Collins was again a surprise choice to succeed him, because Mark Clark seemed to have better credentials. "Lightning Joe" served as Chief from August 1949 until August 1953, spanning the entire Korean Police Action. Too young to retire, he accepted the job of U.S. Representative on the NATO Military Committee until 1955 while he was also a special emissary to Vietnam.

The book is a good summary of Collins' career and the events in which he participated. Its major drawback is the absence of maps, which are essential for a study of battles and campaigns. There are a number of small errors, the most egregious of which is "Congressional" Medal of Honor—three times. The included chronology fails to include a significant tour, though it is covered in the text. Some may have read Collins' *Lightning Joe* when it came out in 1979, but this book is a good refresher and worth acquiring at a reasonable price.

Brig. Gen. Curtis H. O'Sullivan, ARNG (Ret.) Salida, California



Leadership in Space: Selected Speeches of NASA Administrator Michael Griffin, May 2005-October 2008. Washington, D.C.: NASA Headquarters, 2008. Illustrations. Photographs. Pp. xii, 329. \$43.00. ISBN: 978-0-16-081565-2

This book consists of twenty-seven selected speeches given by Dr. Michael Griffin, NASA Administrator from 2005 through 2008. These speeches were written by him with no intermediate speech writers. They clearly reflect what he believed and wanted NASA and the U.S. to accomplish through the years of the George W. Bush Administration and into the future. The speeches are direct and speak for themselves without further

interpretation necessary.

Dr. Griffin presents himself as an aerospace engineer, and he even discusses in one speech the subject of engineering integrity—something not emphasized very often. In these speeches, Griffin explains what NASA is and does, why it decides and acts as it does, the agency's strengths and limitations, and why NASA is important to the United States.

The speeches cover the plans, strategy, and programs of NASA that respond to and address the "Vision for Space Exploration" as set forth by President Bush in February 2004. The latter was formally backed by Congress in 2005. This was a key affirmation of our nation's space program after the Space Shuttle *Columbia* disaster in February 2003. Dr. Griffin thoroughly explains the Space Shuttle retirement and the new Constellation/Orion/Ares development programs. He also details the rationale for the possible end of the International Space Station by 2020 and the overall primary goal of a manned mission to Mars.

These speeches define Dr. Griffin as a strong advocate for the growing and critical role for U.S. industry and private enterprise in space exploration missions. In one speech, he presents a realistic appraisal of the American public showing that most of them do not understand NASA or its accomplishments.

In his speeches, Dr. Griffin many times emphasizes key issues and challenges of the U.S. space program. One of those issues is our national leadership. "We have the opportunity, and I would say the obligation, to lead this enterprise, to explore worlds beyond our own and to help shape the destiny of this world for centuries to come." Another important issue is the complex subject of the congressionally determined budgets. The current NASA budget represents only 0.6 percent of the total Federal budget—not an overwhelming figure! He points out that consistently staying the course year after year can be more important than the annually approved funding. We must be a partner that other countries can depend on: international participation and cooperation is critical. We have fifteen partners on the International Space Station, and over half of NASA's space missions involve international partners. Dr. Griffin believes in partnerships, but not ones where we pay them with NASA funding. Real partners must contribute their own resources.

I enjoyed reading these speeches. My enthusiasm for space exploration has been reenergized, and I am optimistic about U.S. space leadership in the future. After the many organizational challenges and budget crises he faced, I like Dr. Griffin's

ending for one speech where he quotes Scotty of Star Trek's U.S.S. Enterprise: "I'm giving 'er all she's got, Captain."

Paul D. Stone, *Docent, NASM's Udvar-Hazy Center*



A History of Air Warfare. Edited by John Andreas Olsen. Washington, DC: Potomac Books, 2010. Bibliography. Index. Notes. Bibliography. Pp. xvii, 488. \$55.00. ISBN: 978-1-59797-440-0.

John Olsen is an active-duty colonel in the Norwegian Air Force. Beyond that he is a scholar and a man of great vision. He has gathered together essays by sixteen distinguished authors (including him), each of whom contributes a well-written and reasoned description of air power in a particular time frame—warts and all in a few cases.

In the introduction, Olsen states that the book is intended as an introductory text for students of air warfare. While that may have been his intention, he has put together a book that should also be used at our Army, Navy, and National War Colleges. The elements of air warfare and air operations do not exist in a vacuum. They affect and influence ground and naval operations to an overwhelming degree.

No reviewer worthy of the name can be denied an opportunity to pick a few nits in an otherwise outstanding book. One of the essayists, Martin van Creveld, is the guiltiest party. He states that General Billy Mitchell was tried and imprisoned for insubordination in 1925, comparing him to Giulio Douhet who did time for criticizing the Italian conduct of the war during World War I. While there were probably a few U.S. Navy admirals who would have taken great delight in seeing their vocal nemesis locked up, the actual sentence of Mitchell's court-martial was suspension from rank, command, and duty with forfeiture of all pay and allowances for five years. Van Creveld goes on to illuminate the utility of air transport referring to the use of Italian aircraft to lift Franco's African troops across the Strait of Gibraltar in 1936 and into combat against Spanish government forces. Actually the main airlift was provided by German Ju 52 transports dispatched by Hitler at the opening of the Spanish Civil War.

The last part, Perspectives, provides three outstanding essays. In *Air Power In Small Wars* (Chapter 14), James S. Corum looks at counterinsurgency operations since 1913. He states that the lessons of counterinsurgency warfare have been consistent in that the role of air power is in

support of police and army forces.

In Chapter 15, *The Rise and Fall of Air Power*, Martin van Creveld lays out a somewhat different and positive tack. He points out that air power, dealing with the atmospheric use of power projection, may be subsumed within a larger Air and Space set, with Space perhaps predominating eventually. He does not write off manned aerial vehicles.

This volume is an outstanding anthology. I can only hope that it winds up on the required reading list of all the senior war colleges in the United States. It is thought-provoking and illuminates many of the problems that have faced strategists and military operators in the past and even the present. I highly recommend it to readers of *Air Power History*. Read it and let the discussions begin.

Capt. John F. O'Connell, *USN (Ret.)*,
Docent, National Air & Space Museum



Dogface Soldier: The Life of General Lucian K. Truscott, Jr. By Wilson Heefner. Columbia: University of Missouri Press, 2010. Maps. Photographs. Notes. Appendices. Bibliography. Index. Pp. xv, 377. \$39.95 ISBN: 978-0-8262-1882-7

There is no shortage of material on Truscott in books about him or with mention of him. One of the earliest and best is Truscott's own *Command Missions*, though it has the limitations of any autobiography. An excellent recent work is Jeffers' *Command of Honor* (2008), although it is too brief and relies too much on secondary sources. This current book is somewhat longer and has an impressive list of primary sources.

Truscott is one of only two generals who commanded at the division, corps, and field-army levels during World War II (Alexander Patch is the other). There is little question that he was one of the best at each level, though the time at each was limited—nine months with 3d Infantry Division, eight months at the helm of VI Corps, and five months commanding Fifth Army in combat. One disadvantage he had, as any non-ringknocker knows, is that he was not a West Point graduate. He also didn't attend the Army War College (just as he was selected, the school was suspended), but there were two other lead

generals who also missed that opportunity. Being a star at polo may have helped his career at several points; but, while he was also a hard drinker (well known), this was not that unusual and didn't seem to impair his performance. Both Jeffers and Heefner touch lightly on Truscott's relations with Clare Booth Luce, since recent revelations suggest there was an affair.

Heefner gives a good account of the campaigns Truscott took part in. The maps are generally good but suffer from the all too usual sin of not showing all of the places mentioned in the text. Several of the most interesting parts of the book deal with Truscott's assignment to the China-Burma-India Theater as commanding general of an army group (this didn't come about in the end because of V-J Day) and the eight years he spent later with the CIA.

There are some minor errors on such things as correct grade which should have been known by the author or caught by better editing. Overall, however, the book was a pleasure to read, possibly because I was present for many of the events covered. I sincerely feel this is a worthwhile book for anyone with an interest in World War II and the art of leadership.

Brig. Gen. Curtis H. O'Sullivan, ARNG (Ret.) Salida, California



9th Air Force: American Tactical Aviation in the ETO, 1942-1945. By Gregory Pons [translated from the French by Philippe Charbonnier and Gregory Pons]. Paris: Historie & Collections, 2008. Maps. Diagrams. Illustrations. Photographs. Bibliography. Pp. 192. \$59.95 ISBN: 978-2-35250-077-3

Gregory Pons has set out to provide a peek into the day-to-day life of the men of the Ninth Air Force as they fought their way across Europe from the establishment of what was to become the Ninth Air Force through to V-E Day in May 1945. It is the method of accomplishing this task that sets this book apart. Pons uses photographs and diaries from veterans of many of the Ninth Air Force units to illustrate what life was like from the settled, established bases in England to the temporary landing fields in France and Germany as the Ninth moved forward following the advancing armies. Stories from many of the crew positions are presented. The reader hears from pilots of fighters, medium bombers, transports, liaison aircraft, and gliders. Gunners, flight engineers, bombardiers, navigators, and, in one

chapter, a bulldozer operator of an engineer aviation regiment, present their views as well.

The book is composed almost entirely of photographs, diagrams, illustrations, and maps. Many of the photographs have probably not been seen before, as they appear to be largely from private collections. The pictures and illustrations of nose art—especially those in color—will delight modelers. Side views of representative aircraft from the units being profiled are well done, as are the computer productions of the uniforms of the position being detailed.

Another welcome feature is the representation of various flying clothes, most of which are from *Militaria Magazine*. Illustrations of the plethora of uniform pieces and parts that went to provide aircrew the necessary flying kit are very well done. A nitpick at this point though: frequently, a piece of equipment is referenced and cannot be easily identified, if at all. This is especially true of such items as the microphone contained in an oxygen mask. But for modelers interested in doing figures, this book is a "must have." It will complement earlier books illustrating World War II flying gear nicely.

There are issues, as one might expect, when translating from the French. An aggressive editor would have helped tremendously. One recurring error that should have been caught was the mislabeling of the Distinguished Unit Citation as the Distinctive Unit Citation. Other gaffes, such as failing to correctly abbreviate and capitalize ranks correctly, while they are irritating and distracting, do not appreciably detract from the overall product.

Overall, this would be a reasonable book to add to a library on the ETO, especially as it provides a glimpse into one of the less-well documented aviation organizations in that theater. Also, since it draws heavily on diaries and places them in their historical context, it allows readers to compare and contrast the views of the war from many different angles.

MSgt. Al Mongeon, USAF (Ret.), Burke, Virginia



Back at the Gap: The History of Fort Indiantown Gap. By Frank H. Smoker. Jamestown, Pa.: KeyComp Printing Service, 2009. Maps. Photographs. Notes. Appendices. Bibliography. Pp. xii, 205. \$25.00 paperback ISBN: 978-0-578-00780-9

When General Smoker called and

asked if *Air Power History* would be interested in reviewing his book, I thought this was probably going to be a rather ho-hum volume. I've driven by Fort Indiantown Gap many times on Interstate 81 without giving the place much thought. In fact, the book turned out to be a very interesting read and one that has even more meaning in this day and age where the Guard and Reserves have become so much more integral to the defense of this country.

General Smoker is certainly qualified in the subject. A Pennsylvanian, he first visited the former Mt. Gretna training facility as a youth. He served as a B-17 navigator in Europe in 1945, before mustering out and joining the Air National Guard. After receiving his pilot's wings in 1952, he was assigned to Fort Indiantown Gap and rose through a number of positions that included command of the PA ANG for the last seven of the 32 years he lived on the post. This gave him a passing knowledge of his subject! Since retiring in 1985, he has been active in establishing and running the museum there.

What makes the Fort interesting and quite a bit different from many active bases is the wide variety of units it has seen and duties it has had to accomplish. While military activity in the area dates back to the French and Indian War, the first real activity started in 1885 with the Pennsylvania's 28th Division training at Mt. Gretna. By the time World War II was looming on the horizon, this facility was inadequate, so the Commonwealth bought up 19,000 acres of farmland in 1940 to build the Indiantown Gap Military Reservation. Leased by the Federal Government, "The Gap" quickly became a major staging area for the European Theater. At least eight divisions and 250,000 men received their final training there before shipping out. From 1944 to 1946, it also was home to nearly 1,300 German and Italian POWs. With V-E Day, the fort processed nearly 450,000 troops who were mustering out—including Jimmy Stewart, Jack Parr, and Fred Waring.

In the years since the war, the Gap has vacillated between being primarily a federal or a state installation. Several divisions trained there for Korea. After Vietnam fell, over 22,000 Vietnamese and Cambodian refugees were housed there and processed for resettlement in the U.S. In 1980, over 19,000 Cubans had their first taste of a new life in the U.S. at the fort. The Gap escaped several brushes with closing through the BRAC process, but the arguments to keep the installation as a National Guard training site won the day. Today, the Gap is still home to the 28th Division, one of the great units of the U.S. Army.

The book can be obtained from, and helps fund, the Pennsylvania National Guard Military Museum. Just go to their website and learn more about it and a most interesting military installation.

Col. Scott A. Willey, USAF (Ret.), Book Review Editor



Guardians of the Revolution: Iran and the World in the Age of the Ayatollahs. By Ray Takeyh. New York: Oxford University Press, 2009. Notes. Index. Pp. 310. \$27.95 ISBN: 978-0195327847

In order to establish a more stable and strategically-strong relationship with Iran, the United States should aim for "regional integration" with the Islamic Republic instead of continuing the failed policy of containment and isolation. Dr. Takeyh argues that the United States' heavy-handed approach, coupled with Iran's truculent and recalcitrant diplomatic behavior, has failed to achieve long-range results satisfactory to both nations.

Born in Iran, Dr. Takeyh currently serves as a Senior Fellow for Middle Eastern Studies at the Council on Foreign Relations, an independent, non-partisan think tank. In addition to advising various government agencies on Middle Eastern affairs, he has taught at the National Defense University.

Takeyh begins his book with the triumphant return of the previously-exiled Ayatollah Khomeini in 1979. Following years of oppression and corruption under Shah Reza Pahlavi, a more fundamentalist sentiment boiled over, forcing the Shah to flee the country. The result, Takeyh explains, was a radically new form of government: an Islamic Republic. Furthermore, Khomeini and his radical followers did not intend to remain within the borders of Persia, but rather desired to export their new version of Islam around the world. Countering Western influence, the Islamic Republic hoped to return to a stricter form of government.

For the next decade, Iran turned against western influence, especially that of America, whom Iran viewed as the "Great Satan." What resulted was a proxy war between the United States and Iran, fought through Lebanon, Syria, and Israel. However, Takeyh writes that this violent and uncompromising approach stymied any future chance of relations between Iran and the rest of the world. Countries around the globe did not trust Iran, nor did they want to negotiate with a sover-

eign nation that openly supported global terrorism. "The tragedy is that the imam created a system of governance and an ideological framework that would go on to restrict the initiatives of even the most enterprising of his successors."

Following the death of Khomeini in 1989, subsequent Iranian leaders realized that, in order to survive in global affairs, they would have to take a more conciliatory approach. The result was a decade of inner turmoil in Iranian politics; one where progressive reformers fought against recalcitrant Khomeini die-hards. "The 1990s were a time of transition. The Islamic Republic was struggling to define its identity and its mission in the aftermath of its founder's demise and the end of the war with Iraq." Further complicating the matter was the fact that the Clinton Administration was not interested in forgiving, or reaching out to new Iranian progressives in order to repair the schism created in 1979. As a result of this American rebuke of an Iranian olive branch, the hard-liners' stance seemed vindicated, and they once again took power at the turn of the century.

Fear of Western influence and hatred for America is what originally bound Iranians together. These emotions once again took control over the country in the early 2000s and only grew in strength as America's influence in the Middle East waned in the wake of the second war with Iraq. Hezbollah's victory over Israel in 2006, and the political victory of Hamas in Gaza. Thus, Iranian president Ahmadinejad's vitriolic rhetoric can somewhat be sustained by Iran and unanswered by Western powers. "The apparent success of Ahmadinejad's nuclear diplomacy has seemingly validated his claim that, should Iran remain steadfast, the Western powers will grudgingly accept its new status."

Instead of taking the usual, aggressive chest-to-chest approach with Iran, the United States should try an alternate path, one of negotiation and compromise. This would rob Iranians of the one element that has bound them together since 1979: hatred for America's anti-Iranian policies. If America demonstrated that it could compromise with the Islamic Republic, Iranians would lose faith in the leaders telling them that the United States is uncompromising. "Instead of focusing on reviving a shattered balance of power, the United States would be wise to aim for regional integration and the fostering of a framework where all of the powers see it in their own interest to preserve the status quo."

Takeyh's pellucid work is crucial in understanding the machinations of contemporary Middle Eastern politics. How-

ever, his work is purposely limited in scope, leaving the reader thirsty for knowledge of the Islamic Republic prior to 1979. Takeyh assumes his readers have already mastered this vast, pre-Khomeini period and, thus, delves deeper into post-revolutionary Iran. While there is nothing wrong with this approach, it still paints an incomplete picture in understanding the conflagrations that plague the Middle East.

Maj. Matthew R. Basler, Assistant Professor of History, U.S. Air Force Academy



Knight of Germany: Oswald Boelcke, German Ace. By Johannes Werner. Philadelphia and Newbury UK: Casemate, 2009. Photos. Maps. Notes. Appendix. Pp. 271. \$29.95 ISBN: 978-1-935149-11-8

World War I aviation historians generally consider German fliers Max Immelman and Oswald Boelcke as the first true tacticians of aerial combat. Though he died after an air-to-air collision in October 1916, Boelcke already had been credited with 40 victories. He was perhaps Germany's first true hero of the war. In 1932, Professor Johannes Werner used letters and interviews to publish the biography *Boelcke: Der Mensch, der Flieger, der Führer der deutschen Jagdfliegerei* (Boelcke: Man, Flier, German Fighter Leader). In 1933, it was translated into English and published in the United Kingdom. It was re-issued in 1985 and again in 1991, when Norman Franks added an introduction and appendix examining Boelcke's 40 victories, two of which appear unconfirmed based on Allied records.

The original edition appeared when Germany's Weimar Republic was in its final days; Adolph Hitler and the National Socialists were about to take power. Hardly surprising is that Werner notes in his conclusion that the example of Boelcke's "... heroic spirit still counted for something ... when the German nation was not yet vitiated by the poisons of doubt, discontent, despondency and treachery, but still believed in its country and the victory of its just cause and was ready to make any sacrifice, trusting in God and this cause."

Werner divides this biography into nine chapters with the first two devoted to Boelcke's childhood, experiences as an army signals officer, and pilot training in the spring and summer of 1914. In the third chapter, he concentrates on Boelcke's

observation flying before discussing the emergence of aerial combat in chapter four. Chapter five examines Boelcke's transition from observation pilot to methodical hunter in the Fokker E.III, the third in a series of aircraft that revolutionized air combat by successfully employ a synchronized forward-firing machine gun mounted on the engine cowling. Boelcke enhanced this technical advantage to optimize what would become basic offensive fighter tactics—dives out of the sun for a surprise stern attack from the closest range possible. The remaining four chapters discuss Boelcke's emergence as a national hero; his use of fighter sweeps, first at Verdun in the late winter and spring of 1916; and the formation of a dedicated scout, or fighter, unit, *Jadgstaffel 2*, in the fall of 1916 during the Battle of the Somme. Among the pilots he chose for what became known as *Jadgstaffel Boelcke* was Manfred von Richthofen, who would become the war's leading ace. In the technically superior Albatros D.I and D.II, Boelcke scored twenty victories over the final two months of his career.

Despite Werner's obvious admiration for Boelcke's accomplishments, the author treats his subject in a surprisingly even-handed fashion. For the most part, he lets letters home tell the story. Boelcke, sensitive to his parents' natural concerns for his safety, refrains from sharing with them the physical and mental challenges of primitive air-to-air combat. Franks' introduction, which includes the *Dicta Boelcke* (Boelcke's classic rules for success in aerial combat), provides a context for the evolution in aerial warfare. Overall, this story is more about Boelcke the man than Boelcke the tactician.

Lt. Col. Steve Ellis, USAFR (Ret.), Seattle Washington



Alan Bristow—Helicopter Pioneer: The Autobiography. By Alan Bristow and Patrick Malone. South Yorkshire UK: Pen & Sword Aviation, 2009. Photographs. Index. Pp. 384. £25.00 ISBN: 978-1-84884-208-3

Best known as the founder of Bristow Helicopters, Alan Bristow had a remarkable and event-filled life. Most importantly for aviation, he played an important pioneering role in using helicopters in new and useful roles. He began flying helicopters during World War II, but wasn't impressed. Eventually, his post-World War II helicopter experience transformed him into a very powerful and wealthy man.

Bristow served in the merchant fleet

early in World War II and saw action against both the Germans and Japanese. After surviving several sinkings, he joined the regular navy so he could fight back. He entered Royal Navy pilot training hoping to fly fighters but instead found himself flying R-4 helicopters. He was the first pilot to land a helicopter on a battleship. When the war ended, he forgot about helicopters and sold airfield equipment for a living.

Bristow's life changed when Westland offered him a job as a helicopter test pilot. Westland sent him to the Sikorsky factory in the United States to learn to fly the S51, which Westland would build under license. As Westland's only S51 test pilot, he flew demonstration flights and trained other test pilots. He also helped demonstrate the helicopter's use in law enforcement, rescue work, and news reporting. Unfortunately, he had a falling out with Westland's sales director, punched him during an argument, lost his job, and was blackballed from the UK's still-small helicopter community. So, he left for foreign shores.

The French firm Helicop-Air hired Bristow to run operations, hire and train pilots, fly demonstrations, and sell Hiller 360 helicopters for use as crop-dusters and air taxis. He dusted crops in French West Africa and tried to sell helicopters in Indochina. Going into business for himself, he tried to interest the French in using helicopters for aero-medical evacuation. He flew missions on his own dime at the request of military commanders before the French bought enough helicopters from him to equip a squadron.

Bristow sold Aristotle Onassis on the idea of using the helicopter to spot whales for whaling ships. Onassis bought the helicopters and gave Bristow a lucrative service contract to operate them. Later, having witnessed the cruelty of harpooning whales from ships, Bristow invented an aerial harpoon that used an electrical charge to kill whales humanely. He sold it, made his first million dollars, and then exited the whaling business.

Recognizing that helicopters had much to offer the oil industry, Bristow offered his services to Shell and won a contract to support the company's Middle East operations. Eventually, Bristow Helicopters Ltd. would become a worldwide giant in the helicopter service industry with its primary focus on serving the oil industry. Bristow went on to many more adventures in business including the evacuation of his people and helicopters during the Iranian Revolution (best selling author James Clavell wrote his book *Whirlwind* based on the operation).

This book offers those interested in the business side of aviation a great deal of interesting insider information. Historians will find it interesting and useful as well. The military professional will find it of little use but an interesting read nonetheless. The book is richly illustrated with photographs. I recommend it.

David F. Crosby, former USAF history writer and doctrine developer for the U.S. Army Air Defense Artillery School



The Quiet Warrior: A Biography of Raymond A. Spruance. By Thomas B. Buell. Annapolis, Md.: Naval Institute Press, 1987 (first published 1974). Maps. Photographs. Bibliography. Index. Notes. Pp. xxxvi, 518. \$16.47 paperback ISBN: 1-59114-085-6

This is the story of one of the most effective, yet little known, naval commanders of World War II. A Rear Admiral when the war started Raymond Spruance was wearing four stars by February 1944. He never sought the limelight and avoided press conferences like the plague. *The Quiet Warrior* effectively sums him up—quiet, competent, and deadly. Every time Spruance commanded an operation against the Japanese they lost: Midway where the Japanese lost four fleet carriers in June 1942 and were thrust permanently on the defensive; the amphibious assault on the Gilbert Islands in November 1943 (Tarawa); and the amphibious assault on the Marshall Islands in May 1944, including an air assault on Truk. These operations were central to the thrust across the Central Pacific and led to the Marianas operations that secured Guam, Saipan, and Tinian as bases for B-29 operations against the Japanese home islands.

Spruance graduated from the Naval Academy in 1906, and served as a line officer in surface ships. He commanded six ships before being selected for rear admiral in 1940. His shore duty included several tours at the Naval War College where war games focused on a war with Japan. On December 7, 1941, he was Commander Cruiser Division Five, attached to an aircraft carrier battle force commanded by Halsey. He and Halsey worked well together.

The task force (TF) spent early 1942 conducting harassment raids against enemy islands in the Pacific. But a major Japanese offensive against Midway was in the offing. Although Midway was the physical objective, the true goal was to lure American carrier forces into an

ambush. Admiral Nimitz, CINCPAC, was warned by communications intelligence and recalled Halsey's TF to Pearl to replenish. Halsey was put into hospital at Pearl Harbor with a severe case of dermatitis but recommended that Spruance, a non-aviator, replace him. Spruance commanded TF 16, with carriers *Enterprise* and *Hornet*; while VAdm. Fletcher, another surface line officer, commanded TF 17 with *Yorktown* and overall tactical command.

At Midway, Spruance directed an immediate airstrike against the Japanese Navy (IJN) carriers once their position was reported by scout aircraft. The airstrike sank three of the four IJN carriers; the remaining carrier was hunted down and sunk later that same day. Spruance came under some criticism from naval aviators for failing to close the reported IJN position for another carrier strike. However, he knew that superior IJN surface forces had the capability to sink his carriers with their heavy guns in a night engagement, which was their forte, and steamed away to deny them the opportunity.

At the 1944 Battle of the Philippine Sea, Spruance again was criticized for failing to destroy all the IJN carriers. He was concerned for the security of his amphibious forces, busily engaged in landing operations in the Marianas. His carrier aircraft shot down well over 400 IJN aircraft in a defensive battle later called the "Marianas Turkey Shoot." U.S. submarines sank two IJN carriers, and a third was sunk by carrier air attack. Although several IJN carriers survived, the large loss of planes and aircrew effectively destroyed their future usefulness.

Spruance also had some problems with USAAF commanders who controlled land-based air involved in the Gilberts and Marshalls campaigns. Buell treats the matter evenly, though some USAF readers may side with their predecessors.

His final campaign involved amphibious assaults on Iwo Jima and Okinawa during early 1945. Following the Japanese surrender, Spruance briefly became CINCPAC and then headed the Naval War College. He capped his career in 1952 as Ambassador to the Philippines.

Buell does a wonderful job of extracting information about Spruance, a very private person, from his wife and daughter and key staff officers, and presents the reader with an understanding of an outstanding military officer. However, two significant errors, or perhaps typos, mar an otherwise very well written book. Buell states that Spruance positioned his forces 325 miles northwest of Midway when, in fact Spruance's forces were northeast of Midway. He also discusses the Savo Island

debacle at Guadalcanal in August 1943. That actually took place in August 1942. Perhaps the original editors can be excused for missing those points, but a Naval Institute editor should have caught the mistakes; and Buell, a Naval Academy graduate in 1958, should have known better.

*Capt. John F. O'Connell, USN (Ret.),
Docent, National Air and Space Museum*



Engineering the Space Age: A Rocket Scientist Remembers. By Robert V. Brulle. Maxwell AFB, Ala.: Air University Press, 2008. Figures. Photographs. Notes. Appendices. Bibliography. Index. Pp. xviii, 268. \$24.00 Paperback ISBN: 1-58566-184-8

Lieutenant Colonel Robert Brulle is a veteran of World War II, a U.S. Army Air Corps pilot who flew P-47 Thunderbolts in Europe. After the war, he studied for and received a bachelor's degree in engineering from the Aeronautical University in Chicago and a master's degree from the Air Force Institute of Technology. Upon retiring from the Air Force in 1957, Brulle went to work for McDonnell Aircraft Corporation until he retired from the company in 1983. He is also the author of *Angels Zero—P-47 Close Air Support in Europe*.

In *Engineering the Space Age*, Brulle recounts his experiences from the end of the Second World War through the 1980s and, in doing so, documents the history of the technological advances made during that time. The narrative is equally interspersed with personal anecdotes and engineering technical data. Unfortunately, while that makes the book entertaining to read at times, it also makes it difficult to read when the reader is trying to understand the engineering data incorporated in the prose.

If a reader is looking for a book that recounts a personal, in-depth, "behind the scenes" look at the U.S. space program, this is not it. While there is some information about the U.S. space program, it is contained only in the middle third of the book. The title, therefore, is a bit of a misnomer. One chapter is devoted to the manned space program, and there is a good discussion regarding the different designs considered for crew ejection in case of booster malfunction. Then, a couple of chapters are devoted to missile technology and one other chapter quickly summarizes the manned space program. The rest of the book focuses on aircraft and aeronautical engineering. Perhaps the book would have been better titled, *Engineering*

in the Space Age.

In short, this book documents a time in history where aeronautical and astronautical engineers and their achievements rapidly advanced. Lt. Col. Brulle's level of recall and detail of engineering graphs, tables, and equations is outstanding. His book provides a level of historical documentation that is useful for current and future engineers.

Lt. Col. Cynthia L.A. Norman, USAF (Ret.), Docent, Smithsonian's Udvar-Hazy Center



Armchair Warriors: Private Citizens, Popular Press, and the Rise of American Power. By Joel R. Davidson. Annapolis, Md.: Naval Institute Press, 2008. Notes. Bibliography. Index. Pp. xiii, 317. \$28.12 ISBN 978-1-59114-201-0

With a few exceptions, Americans have experienced the nation's wars secondhand, because military service was largely the exception rather than the rule. Even in World War II, only ten percent of the nation wore uniforms. But Americans have always enjoyed a free exchange of ideas and been "problem solvers" with a willingness to offer advice that is unencumbered by facts. Most Americans experienced a shared view of military conflicts through a "free press" that related knowledge of military campaigns, and many citizens felt compelled to offer advice on America's military endeavors.

Armchair Warriors presents letters from ordinary Americans that were written during a century of warfare from the Spanish-American War to the Cold War. Each Chapter introduces military problems that were related by popular publications. Letters to the editor or letters written to politicians, military leaders, or the National Inventors Council introduced "common sense" solutions to these military dilemmas. Most of the letters were written by ordinary Americans who wanted to help solve the problem; some letters were written by more famous Americans like Thomas Edison and Sinclair Lewis. The quality and depth of analysis for most solutions reflected the inexperience of the authors—for example, assigning black troops to the Cuban and Philippine campaigns because they were immune to tropical diseases; spraying German troops in World War I with a mild acid to dissolve their uniforms and cause them to return to Germany; or topping the U.S. western mountain-range with nuclear weapons detonations to alter weather patterns and provide rainfall to the western deserts. A

relocation and resettlement of all South Koreans to the U.S. during the Korean War was offered as a solution to end that 1950s conflict. But some suggestions, like the strategic targeting of the German ball-bearing industry, offered wiser and more practical alternatives.

In *Armchair Warriors*, Joel Davidson provides extensive documentation and a comprehensive bibliography to support his work. The letters reflect an American public with a true desire to help solve military problems with “practical” solutions. Most of the solutions presented did not provide a “Eureka Moment,” but did reflect some very interesting problem-solving techniques. Dr. Davidson has practiced law in Washington, D.C. and earned a Ph.D. in history from Duke University. He has worked as a historian for the National Building Museum, the President’s Commission on Holocaust Assets in the United States, and the Army Center for Military History. He also authored *The Unsinkable Fleet: The Politics of U.S. Navy Expansion in World War II*.

Dr. Gary R. Lester, Lt. Col., USAF (Ret.), Deputy Historian, Air Force Operational Test and Evaluation Center, Kirtland AFB, New Mexico.



RAND in Southeast Asia: A History of the Vietnam War Era. By Mai Elliott and James Thomson. Santo Monica, Calif.: RAND Corporation, 2010. Maps. Photographs. Bibliography. Index. Pp. xxii, 672. \$30.00 paperback ISBN: 978-0-8330-4754-0

I reviewed this RAND report because of a general interest in the activities of this global-policy think tank, which I’ve followed for some years, but more because of their involvement here in research on insurgency and counterinsurgency during the Vietnam War era. Those subjects are of immediate concern to us today. I’ll confess I had trouble plowing through the nearly 700 pages to extract the lessons that apply now. Much of the study actually seems to be of more interest to participants, their families, and friends.

RAND was formed under the sponsorship of Hap Arnold in 1944 to use operations research (OR) for military applications employing modeling, statistics, and algorithms. Following the war, RAND had a contract with the Air Force on a variety of complex subjects but the organization evolved into a strategic think tank to help on decision making with optimal allocation of resources to achieve policy goals.

For years, with the exception of the Peoples’ Republic of China, Asia did not loom large at RAND, and insurgency was not a main focus of research. However, as the United States became increasingly involved in Vietnam, the organization’s attention shifted, and this work describes what happened. There is a wealth of background material on the national security situation at that time which led to the shift.

The study covers the employment of air power in a limited war under escalating conditions and changing rules of engagement. It devotes attention to the Tet Offensive and the sideshow of the Pentagon Papers. Much of this is insider stuff, not widely known, and maybe not of concern to everyone. It is best read selectively, picking out the gems of general interest. Interspersed with them are vignettes about internal corporation politics, infighting, and personality conflicts. A glossary is badly needed to clarify the numerous abbreviations and acronyms.

Brig. Gen. Curtis H. O’Sullivan, ARNG (Ret.), Salida, California



World War II in Colonial Africa: The Death Knell of Colonialism. By Richard E. Osborne. Indianapolis Ind.: Ribel-Rogue Publishing, 2001. Maps. Photographs. Index. Pp. xiii, 405. \$22.95 paperback ISBN: 978-0962832451

This is an outstanding work whose author and publisher are little known. Although it was published nearly a decade ago, I doubt that it has seen wide circulation.

Conflict in the “Dark Continent” is as old as mankind—which originated there

but was largely unrecorded until the hieroglyphics about the Valley of the Nile and then the writings about the northern littoral of the Phoenicians, Greeks, Carthaginians, Romans, the sweep of Islam, and the Ottoman Empire. In 1911, Italy took Libya from the Ottomans. In 1921 through 1925, Marshal Petain fought Abd el-Krim in the Atlas Rif. The book starts with the Italian invasion of Ethiopia that occurred in 1935-36. The 1914-18 campaigns in Africa are mentioned somewhat in passing.

Two stories are told at the same time. First is the involvement of the entire continent of Africa during World War II, and the second is the decolonization that started after that war. It is also the history of Africans fighting overseas in Europe and Asia.

Though World War II started in Europe in September 1939 (and in July 1937 in the Far East), it took two momentous events in 1940 to really bring Africa into the war: Italy entered the conflict with her African colonies, and France withdrew from it with her worldwide colonial empire. It is obvious that most of the battles and campaigns covered here have been written about before, and often, in more detail. But this is the first time I’ve seen them brought together as a cohesive whole.

In addition to the combat discussions, there is a wealth of information about social, economic, and political conditions in the colonies of the nine nations that had experienced war directly on the continent. Some of it was new to me, while much was already known but, again, was brought together into an integrated story.

There are no notes or bibliography, but they aren’t really missed though I was curious about sources. The maps are clear and aid understanding. The numerous pictures add life to the story. I strongly recommend this work to any serious student of World War II. It fills a niche.

Brig. Gen. Curtis H. O’Sullivan, ARNG (Ret.), Salida, California



Books Received

Bartsch, William H. *Every Day a Nightmare: American Pursuit Pilots in the Defense of Java, 1941-1942*. College Station: Texas A&M University Press, 2010. Photographs. Notes. Appendices. Bibliography. Index. Pp. xxi, 506. \$40.00 ISBN: 978-1-60344-176-6

Bluhm, Raymond K., Jr. *The Vietnam War: A Chronology of War*. New York: Universe Publishing [Div of Rizzoli International], 2010. Illustrations. Photographs. Index. Pp. 288 \$50.00 ISBN: 978-0-7893-1897-8

Bollinger, Martin J. *Warriors and Wizards: The Development and Defeat of Radio Controlled Glide Bombs of the Third Reich*. Annapolis, Md.: Naval Institute Press, 2010. Map. Photographs. Notes. Appendix. Bibliography. Index. Pp. xviii, 269. \$39.95 ISBN: 978-1-5911-4067-2

Breffort, Dominique and Nicolas Gohin. *Hawker Hurricane: From 1935 to 1945*. Paris, France: Histoire & Collections, 2010. Profusely illustrated. Pp. 83. \$19.95 Paperback. ISBN: 978-2-9152-3987-4

Colgan, William B. *Allied Strafing in World War II: A Cockpit View of Air to Ground Battle*. London and Jefferson, N.C.: McFarland, 2010. Photographs. Illustrations. Bibliography. Index. Pp. vii, 263. \$38.00 Paperback ISBN: 978-0-7864-4887-6

Ciancone, Michael L., Ed. *History of Rocketry and Astronautics* {AAS History Series, Vol. 33, IAA History Symposia, Vol. 22, Houston, Tex., 2002} San Diego, Calif.: American Astronautical Society, 2010. Pp. xiv, 554. \$75.00 Paperback ISBN: 978-0-87703-559-6

Clodfelter, Mark. *Beneficial Bombing: The Progressive Foundations of American Air Power, 1917-1845*. Lincoln and London: The University Press of Nebraska, 2010. Photographs. Notes. Bibliography. Index. Pp. xii, 347. \$40.00 ISBN: 780-0-8032-3398-0

Godefroy, Andrew B., Ed. *Great War Commands: Historical Perspectives on Canadian Army Leadership, 1914-1918*. Kingston, Ont.: Canadian Defence Academy Press, 2010. Maps. Photographs,

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The Progressive Foundations of American Air Power, 1917-1945

MARK CLODFELTER

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Notes. Index. Pp. xv, 247. Paperback ISBN: 978-1-1001-5601-9

Harvey, James N. *Sharks of the Air: Willy Messerschmitt and How He Built the World's First Operational Jet Fighter*. Philadelphia and Newbury, UK: Casemate, 2010. Notes. Photographs. Bibliography. Index. Pp. 352. \$32.95 ISBN: 978-1-935149-46-0

Jackson, Daniel. *The Forgotten Squadron: The 449th Fighter Squadron in World War II—Flying P-38s over China with the Flying Tigers, 14th Air Force*. Atglen, Pa.: Schiffer Military History, 2010. Maps. Photographs. Appendices. Notes. Bibliography. Index. Pp. 160. \$59.99 ISBN: 978-0-7643-3537-2

McCaslin, Leland C. *Secrets of the Cold War: U.S. Army Europe's Intelligence and Counterintelligence Activities against the Soviets*. Solihul, West Midlands UK: Helion & Co., 2010. Maps. Photographs. Appendices. Pp. v, 200. \$39.95 ISBN: 978-1-906033-91-0

* Martin, Matt J. with Charles W. Sasser. *Predator—The Remote Control Air War over Iraq and Afghanistan: A Pilot's Story*. Minneapolis, Minn.: Zenith Press, 2010 [An Imprint of MBI Publishing Co., 2010 Photographs. Pp. x, 310. \$28.00 ISBN: 978-0-7603-3896-4

Miller, Jerry. *Stockpile: The Story behind 10,000 Nuclear Weapons*. Annapolis, Md.: Naval Institute Press, 2010. Notes. Photographs. Index. Pp. xix, 273. \$37.95 ISBN: 978-159114-531-8

Millett, Allan R. *The War for Korea, 1950-1951. They Came from the North*. Lawrence: The University Press of Kansas, 2010. Maps. Illustrations. Photographs. Notes. Appendices. Bibliography. Index. Pp. xx, 644. \$45.00 ISBN: 978-0 7006-1709-8

Piehler, G. Kurt and Sidney Pash, Eds. *The United States and the Second World War: New Perspectives on Diplomacy, War, and the Home Front*. New York: Fordham University Press, 2010. Notes. Index. Pp. xii, 400. \$46.00 ISBN: 978-0-8232-3120-1

Rossano, Geoffrey L. *Stalking the U-Boat: U.S. Naval Aviation in Europe during World War II*. Gainesville: University Press of Florida, 2010. Photographs. Notes. Appendices. Bibliography. Index. Pp. xviii, 429. \$85.00 ISBN: 978-0-8130-3488-1

Stouffer, Jeff and Stefan Seiler, Eds. *Military Ethics: International Perspectives*. Kingston, Ont.: Canadian Defence Academy Press, 2010. Illustrations. Notes. Index. Pp. v, 307. Paperback ISBN: 978-1-1001-6318-5

Williford, Glen. *Racing the Sunrise: Reinforcing America's Pacific Outposts, 1941-1942*. Annapolis, Md.: Naval Institute Press, 2010. Maps. Notes. Tables. Photographs. Bibliography. Index. Pp. xviii, 394. \$37.95 ISBN: 978-1-59114-956-9

Have you read a very good or very bad book in air power history recently? Send your review to Col. Scott A. Willey, address below.

* Already under review

PROSPECTIVE REVIEWERS

Anyone who believes he or she is qualified to substantively assess one of the following new books is invited to apply for a gratis copy of the book. The prospective reviewer should contact:

Col. Scott A. Willey, USAF (Ret.)
3704 Brices Ford Ct.
Fairfax, VA 22033
Tel. (703) 620-4139
e-mail: scottlin.willey@gmail.com

As this issue goes to press, the Air Force Historical Foundation has just honored several distinguished individuals at its 2010 Awards Banquet, recognizing those who have contributed to the making and documenting of air power history. More than 100 Foundation members and guests attended the event at the Army-Navy Country Club in Arlington, Virginia, which began with a welcome reception and was followed by dinner and the award presentations. Gen. William M. Fraser III, Commander of the Air Combat Command, and Air Component Commander for the U.S. Joint Forces Command, was the Awards Banquet's featured speaker. Lt. Col. Dik Daso, USAF (Ret.), Curator of Modern Military Aircraft at the National Air and Space Museum, was on hand to sign copies of the Air Force Historical Foundation's two major book publications: *The Vietnam War: A Chronology of War*, which was released to the public earlier this month, and *World War II: A Chronology of War*.

Gen. Larry D. Welch, USAF (Ret.) received the Foundation's Gen. Carl "Tooey" Spaatz Award, which recognizes a sustained, significant contribution to the making of Air Force History during a lifetime of service. General Welch became the twelfth Air Force Chief of Staff in July 1986, after serving as the commander in chief of the Strategic Air Command, and director of the Joint Strategic Target Planning Staff.

Dr. Alan Gropman received the Air Force Historical Foundation's Maj. Gen. I.B. Holley Award for excellence in the documentation of history. Dr. Gropman, Distinguished Professor of National Security Policy at the Industrial College of the Armed Forces, used his Awards Banquet comments to call for historians to "Speak truth to power."

Herman S. Wolk's *Reflections on Air Force Independence* was named the Foundation's *Air Power History* Best Book Award of 2009. This short book was selected for its portrayal of how the service's founding airmen fought against long odds in helping to establish the Air Force as an independent service. Mr. Wolk passed away earlier this year, and the award was accepted by his wife, Sandy. Wolk was a past recipient of the Foundation's Maj. Gen. I.B. Holley Award, and had a fifty-year-long career in the Air Force History program, retiring as the Air Force senior historian. Thomas Wildenberg received *Air Power History* magazine's 2009 Best Article Award for his story on the A-1C(M) gunsight, which he used as a case study on technological innovation in the U.S. Air Force. Colonel Charles T. "Tom" Bradley, USAF (Ret.), was recognized for his service as executive director of the Foundation, and Robert F. Dorr, for his twenty-two-year service as technical editor of *Air Power History*. Mr. Dorr also contributes articles and the popular feature "History Mystery."

We are truly grateful to our sponsors for their support of this event: Lockheed Martin for sponsoring the reception, and the table sponsors – the Air Force Sergeants Association, the Boeing Company, EADS North America, GE Aviation, Goodrich, and Pratt & Whitney. And, above all, we are most thankful to those members whose kind financial support enabled a goodly number of enlisted personnel to attend the banquet as guests. Bravo!

Jim Vertenten
Executive Director

2010 Awards Banquet



(Left) Maj. Gen. Dale W. Meyerrose, President of the Air Force Historical Foundation, accepts Platinum Donor Lockheed-Martin's check from Maj. Gen. Kenneth M. DeCuir, Technology Committee Chairman while Foundation Executive Director Jim Vertenten is on the right and Maj. Gen. Silas R. Johnson, Development Committee Chairman is at left.

(Below) *Air Power History's* Publisher, Brig. Gen. Alfred F. Hurley (left) and curator and author Dik Daso.

(Below left) A Canadian airman examines the Foundation's World War II book.



(Left) Maj. Gen. Dale W. Meyerrose, President of the Air Force Historical Foundation (right), gives the I.B. Holley Award to Dr. Alan Gropman, while General William M. Fraser III, ACC commander looks on.

(Below) Maj. Gen. Dale W. Meyerrose (right) gives the Foundation's Spaatz Award to General Larry D. Welch, while ACC commander General William M. Fraser III (left) assists.

(Below left) The wife of *Air Power History's* Publisher, Mrs Johanna Hurley.



2010 Awards Banquet

(Right) Maj. Gen. Dale W. Meyerrose, President of the Air Force Historical Foundation, gives the Foundation's *Air Power History* Best Book Award of 2009 to Mrs. Sandy Wolk, widow of winner Herman S. Wolk.



(Below) Maj. Gen. Dale W. Meyerrose, President of the Air Force Historical Foundation, gives the Foundation's *Air Power History* Best Article Award of 2009 to Thomas Wildenberg.

(Below right) Colonel Charles T. "Tom" Bradley, USAF (Ret.), was recognized for his service as executive director of the Foundation.



(Above) Foundation Executive Director Jim Vertenten presides at the rostrum.

(Above right) Technical Editor Robert F. Dorr was recognized for his twenty-two years of service to the Foundation. Accepting on behalf of Mr Dorr was Jacob Neufeld, *Air Power History's* Editor, from Maj. Gen. Dale W. Meyerrose.

(Right) Trustees John F. Kreis (left) and Kenneth J. Alnwick (center) talk with Executive Director Jim Vertenten.



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17. Signature and Title of Editor, Publisher, Business Manager, or Owner: I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties). (Signed) Jim Vertenten, Executive Director, Air Force Historical Foundation, October 1, 2010.



One example of the artwork in the Air Force Art Collection, *100 Years of Flight* by Ezequiel Martinez—Catalog Number: 2004.018. (Courtesy of the U.S. Air Force Art Collection.)

News

Air Force Art at Sixty

In honor of the sixtieth anniversary of the Air Force Art Program, more than 200 pieces of artwork will be on display at the National Museum of the U.S. Air Force, located near Dayton, Ohio, from October 22 through December 31, 2010. The paintings, which have all been donated to the Art Program within the past two years, can be viewed daily during regular museum hours (9 a.m. to 5 p.m. daily).

The U.S. Air Force Art Collection documents the history of the U.S. Air Force through the universal language of art. The actions and deeds of Air Force men and women are recorded in paintings by eminent American artists in a way words alone could never tell. These paintings are both historical and educational and expose the military and the public to the

diverse roles and capabilities of the U.S. Air Force.

For information about the exhibit, please contact Sarah Swan in the museum's Public Affairs Division at (937) 255-1283 or sarah.swan@us.af.mil.

Notice

Did you fly a "Mission to Tokyo" during WW II?

I'm writing a book about B-29 Superfortress operations against Japan. "Mission to Tokyo" will be published by Zenith Press in November 2012. The focus of this book is the March 9-10 incendiary attack on the Japanese capital. However, the book will also provide a new history of the entire B-29 campaign.

I'd like to hear from B-29 pilots, crewmembers, support personnel, family members and historians. I'm looking for

personal accounts, photos, memorabilia and documents. If you'd like to help with this new history, please contact me. Don't hesitate to pick up the phone.

Robert F. Dorr
3411 Valewood Drive
Oakton, VA 22124
(703) 264-8950
robert.f.dorr@cox.net

Letters

509th Bomb Wing or 509th Composite Group?

I was surprised to see, in the Fall issue of *Air Power History* [Vol. 57, No. 3, page 11], a reference to the 509th Bomb Wing. It was never a bomb wing. Its correct designation was the 509th Composite Group.

TSgt Roger Sandstedt, USAF (Ret.)
Lake St. Louis, Missouri

Thank You, Reviewers

In the year's last issue, it is appropriate to recognize the many individuals who help to produce this journal. Brig. Gen. Alfred A. Hurley, our publisher, continues to provide sage advice on all aspects of *Air Power History*. Dr. Richard Wolf performs layout, design, and typesetting; essentially, he is the assistant editor. Col. Scott Willey, the book review editor, makes his job look easy—it's not. Bob Dorr is an extraordinary authority on airplanes and just completed twenty-two years on the staff. John Kreis chairs the annual best article and best book committees. Eileen and Richard De Vito read every line of type and catch a multitude of errors. Jim Vertenten and Angela Bear handle myriad administrative chores, including the very important Foundation's home page. To the right are the lists of article and book reviewers. I thank them all very much. If you are aware of anyone I may have missed, please let me know.

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Guidelines for Contributors

We seek quality articles—based on sound scholarship, perceptive analysis, and/or firsthand experience—which are well-written and attractively illustrated. The primary criterion is that the manuscript contributes to knowledge. Articles submitted to *Air Power History* must be original contributions and not be under consideration by any other publication at the same time. If a manuscript is under consideration by another publication, the author should clearly indicate this at the time of submission. Each submission must include an abstract—a statement of the article's theme, its historical context, major subsidiary issues, and research sources. Abstracts should not be longer than one page.

Manuscripts should be submitted in triplicate, double-spaced throughout, and prepared according to the *Chicago Manual of Style* (University of Chicago Press). Use civilian dates and endnotes. Because submissions are evaluated anonymously, the author's name should appear only on the title page. Authors should provide on a separate page brief biographical details, to include institutional or professional affiliation and recent publications, for inclusion in the printed article. Pages, including those containing illustrations, diagrams or tables, should be numbered consecutively. Any figures and tables must be clearly produced ready for photographic reproduction. The source should be given below the table. Endnotes should be numbered consecutively through the article with a raised numeral corresponding to the list of notes placed at the end.

If an article is typed on a computer, the disk should be in IBM-PC compatible format and should accompany the manuscript. Preferred disk size is a 3 1/2-inch floppy, but any disk size can be utilized. Disks should be labelled with the name of the author, title of the article, and the software used. Most Word processors can be accommodated including WordPerfect and Microsoft Word. As a last resort, an ASCII text file can be used.

There is no standard length for articles, but 4,500-5,500 words is a general guide.

Manuscripts and editorial correspondence should be sent to Jacob Neufeld, Editor, c/o *Air Power History*, 11908 Gainsborough Rd., Potomac, MD 20854, e-mail: editor@afhistoricalfoundation.org.

General Theodore R. Milton, USAF (Ret.) (1915-2010)



Gen. Theodore R. "Ross" Milton died on August 24, 2010. The son of a U.S. Army Cavalry officer, he was born in 1915, at Schofield Barracks, Hawaii, and enlisted in the Regular Army in 1934. His late father, a graduate of West Point, had set a highly influential example in encouraging the horsemanship that made Ross a devoted polo player and determined to win a congressional appointment as a West Point cadet in the Class of 1940. With the encouragement of family friends, like Gen. Henry H. "Hap" Arnold, and the example of contemporaries, such as the future Air Force Chief of Staff, George Brown, Milton completed Army Air Corps pilot training in Texas, first at Love Field and later at Kelly Field in San Antonio. The outbreak of World War II led to his assignment to B-17 combat duty with the Eighth Air Force in Europe from 1943 to the end of the war in 1945.

Earlier, in January 1944, when the future General Milton was a lieutenant colonel and top-notch 91st Bomb Group Commander, he had won a place in our country's military history when the historian of the U.S. 1st Bomb Wing cited Milton's leadership in a battle over Oschersleben, Germany, that was "traumatic by any standard" and became known as "Milton's Kampf" where he met "violent opposition" by Luftwaffe aircraft.

As the historian stated: "Lt. Col. Milton regularly found himself in the front of the aerial battle. His airplane was badly hit. An engine was lost, several cannon shells exploded in the cockpit, and Colonel

Milton and Captain Everett, the pilot, were both painfully wounded. The Wing nevertheless ploughed through and bombed the target, although twelve aircraft were lost in the attack. This was the heaviest enemy opposition since the Schweinfurt mission of October 14, 1943."

Milton returned to the United States in 1945, and remained until 1948, when he was reassigned to Europe as Chief of Staff for the combined Airlift Task Force, the command that directed operations for the Berlin Airlift.

I first met the future General Milton in 1955, after the Air Force Academy opened in Colorado Springs, where he and his devoted wife, Betty and later, their son Tod, moved into a new housing development on the adjacent highway. On Milton's initiative, I and other brand-new faculty members at the Academy, brought our cadets to a memorable session where Milton and Johannes Steinhoff, the former *Luftwaffe* general and Me-262 fighter pilot, jointly taught a class about their competing experiences in World War II.

Milton soon took on a long series of broadening assignments around the globe. From 1949-1957, he served respectively for two years as Director of Operations in the Military Air Transport Service (MATS), and then was a student in the Air War College before becoming for three years the Executive Assistant to the Secretary of the Air Force, James Douglas. In 1957, Milton was promoted to brigadier general and commanded the 41st Air Division, a tactical fighter-bomber unit in the Fifth Air Force in Japan.

Promoted to major general in 1961, he was assigned to command the Thirteenth Air Force at Clark Air Base, Philippines. In 1963, he became Deputy Chief of Staff in the Tactical Air Command at Langley AFB, Virginia. In February 1967, he was promoted to lieutenant general and named the USAF's Inspector General. He also served as the USAF Comptroller until March 1969, when he assumed duties as Deputy Chairman, NATO Military Committee, at NATO Headquarters in Brussels, Belgium. On August 1, 1971, General Milton became the U.S. Representative to the NATO Military Committee, his last assignment before retiring in 1974.

General Milton's wide ranging and successful military career endowed him with a great perspective, highly valued by the Air Force's leaders, including Generals Curtis LeMay, Bruce Holloway, George Brown, and Jack Ryan.

Milton's many military decorations and awards included the Distinguished Service Cross, Distinguished Service Medal, Silver Star, Legion of Merit with two oak leaf clusters, Distinguished Flying Cross with three oak leaf clusters, Bronze Star Medal, Air Medal with four oak leaf clusters, Purple Heart, Honorary Commander of the Most Excellent Order of the British Empire, British Distinguished Flying Cross, French Croix de Guerre with palm and various World War II campaign medals.

In January 2011, General Milton will be laid to rest in peace in the U.S. National Cemetery at Arlington, Virginia.

Brigadier General Alfred F. Hurley, USAF (Ret.), Publisher, Air Power History

Lt. Gen. Devol Brett, USAF (Ret.) (1923-2010)



With the passing of Lt. Gen. Devol Brett, USAF (Ret.) on August 14, 2010, the Air Force Historical Foundation lost one of its most wholehearted and passionate supporters. Known as “Rock” to many friends and colleagues, he believed that knowledge of air power and U.S. Air Force history and heritage, simply put, was critical for an effective national defense. Rock put his heart into the Foundation as its vice president from the late 1980s through the middle of the 1990s. He, along with the Foundation’s then-president, Gen. Bryce Poe, past president Maj. Gen. Ramsay Potts, and a team of supporters organized a series of annual air power history symposia in Washington, Hampton, Virginia, at the Air Force Museum in Dayton, Ohio, and in the United Kingdom. At the same time, they were tireless in seeking funding to support the Foundation’s activities during some very trying years. In fact, the Foundation survived in large measure due to the work of General Brett and his friends.

The son of Army Air Forces (AAF) Lt. Gen. George Brett, Rock’s military career began in the Presidio of San Francisco at his birth in Letterman Hospital on August 1, 1923. Growing up in the AAF, Rock knew “Hap” Arnold, “Tooey” Spaatz, Ira Eaker, and Frank Andrews, almost as members of his family. Gen. Bernard Schriever married Rock’s sister, Dora, in the Arnold’s house at Bolling Field,

in the District of Columbia. Rock graduated from the Landon School in Washington, D.C. and the United States Military Academy in 1945. He did well at the Academy, but spent considerable time marching off demerits that he seemed to have accumulated by a restive opposition to discipline, at least as he told it. In 1953, he attended the Royal Air Force Staff College at Bracknell, United Kingdom, and in 1966, he earned a Master of Arts degree in international affairs from The George Washington University.

Rock flew 100 combat missions in P-51s during the Korean War and more than 100 the Southeast Asia War. In the latter, he did so while serving as vice commander of the 12th Tactical Fighter Wing. On one mission, North Vietnamese anti-aircraft gunners shot down his F-4C. A rescue helicopter crew pulled him from the Gulf of Tonkin. Subsequently, General Brett served as commander of the 81st Fighter Wing at RAF Bentwaters, then as chief of the U.S. Military Assistance Advisory Group to Iran. His last active duty assignment was as commander of Allied Air Forces Southern Europe and of the United States Air Forces in Europe’s Sixteenth Air Force. Subsequent to his military service, Rock engaged in a number of enterprises, and was for a many years associated with the Institute for Defense Analyses (IDA) in Alexandria, Virginia.

Occasionally brash, always enthusiastic, Rock seemed a restless man, striving to make his country better and the Air Force more able to fend off the country’s enemies. When something had to be done, and he wanted you to do it, Rock had a way of looking at you while asking that meant one could not say no. Above all else, Rock Brett was a patriot, kind, decent, and generous man; he was a man who loved his family and his friends. We shall miss him greatly.

General Brett was preceded in death by his wife of fifty-two years, Hermine. He is survived by his wife, Lou Longino Brett; his son George Howard Brett II, and wife, Sally; daughter Karla Wickett and son-in-law, Ken; and by grandchildren, Lt. Sarah Scott, USAF, and Michael Dietz, Megan Brett, Brett Thompson, Lauran and Shane Hamilton, and Elizabeth Wickett; great-grandson, Cole Hamilton; and stepchildren, Kathy Sanchez, and Nolan and Kay Sanchez. General Brett will be buried at Arlington National Cemetery in December 2010.

The family has requested that memorial contributions be made to the Air Force Academy Foundation.

By John F. Kreis



The mystery aircraft in our fall issue was the Beech T-44A, the Navy's multi-engine trainer based on the Beech Model H90 King Air executive transport.

Between 1977 and 1980, the Navy purchased sixty-one of the twin-engined trainers, described as "modern, efficient, and low cost" in a manufacturer's brochure. The popular name assigned to the plane, Pegasus, is all but unknown to the naval aviators who fly it and the civilian contractors who maintain it.

Powered by two 550-shaft horsepower Pratt & Whitney Canada PT6A-34B turboprop engines, the pressurized T-44A carries five. The interior includes seating for an instructor (right seat), a student pilot (left seat), and a second student. Two additional passenger seats are included.

Student naval aviators—prospective pilots in the U.S. Coast Guard, Marine Corps and Navy—received flight instruction in the aircraft. It's used to

familiarize flyers with multi-engine operations, including those under instrument flight rules. As a military version of a widely used civilian aircraft, the Pegasus is compatible with navigation systems in the civilian world.

In August 2006, after twenty-nine years of operation, the Navy began upgrading T-44A airplanes with an integrated digital cockpit under the new designation T-44C. A proposed T-44B model was never built. About fifty T-44Cs remain in service today.

Our follow-up photo shows T-44A bureau no. 160973 of Training Air Wing Four during a stopover at Andrews Air Force Base, Maryland, on May 20, 1978.

Twenty-nine readers responded to our "name the plane" challenge. All provided the right answer. Our "History Mystery" winner, chosen at random from correct entries, is Andrew McKinney of Houston, Texas.

This Issue's Mystery Plane

Can you identify this issue's "mystery" aircraft? Remember the "History Mystery" rules:

1. Submit your entry on a postcard. Mail the postcard to Robert F. Dorr, 3411 Valewood Drive, Oakton VA 22124. Entries may also be submitted via e-mail to robert.f.dorr@cox.net.

2. Name the aircraft shown here. Include your address and telephone number. Entries not accompanied by both an address and a phone number will be disqualified.

3. A winner will be chosen at random from among correct entries and will receive an aviation book.

And let's get serious about those historical treasures in your attic or basement. Some veterans say they just don't remember where their color slides are. Dig out your slide or snapshot of a rare aircraft and lend it to Air Power History for this contest.





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