

Chapter 1 : A short history of air power (Book, ) [blog.quintoapp.com]

*A very good overview of the history and development of airpower from the Wright Bros. first flights at Kittyhawk, North Carolina, to the Royal Navy's use of Sea Harrier jump-jets in the conflict with Argentina over the Falkland Islands.*

These brought him back to Friedrichshafen, where he was immediately accorded the status of hero by the German pilots who regarded him not as an enemy but as a fellow comrade of the air. The official response was less amused. The Germans were beginning to think of bombing too, and not just with Zeppelins. At the same time the Friedrichshafen raid was mounted, they were forming their first airplane bombing unit. This was officially titled Carrier Pigeon Unit Ostende, which suggested they were not entirely certain of the morality, or perhaps the practicality, of the exercise. They did not become fully operational until the new year. Before then, England itself had been bombed. A German seaplane flew across the Channel to Dover and dropped a bomb on December 21, and on Christmas Day an Albatross seaplane flew up the Thames, looked over London and assorted other spots, and dropped two bombs on the forts along the river. The British tried to intercept it, and sent up planes to shoot at it futilely with rifles and pistols, but the impudent German escaped unharmed. The British were relieved that the intruder was a mere airplane, which could not do much harm, and not a Zeppelin, of which the public had conceived an exaggerated fear. This was much farther than an aircraft could fly at the time, but in the opening weeks of the war the Admiralty had converted three Channel packets to serve as seaplane carriers. These were far from aircraft carriers in the modern sense; they were equipped with cranes and hangar space, and could lift float planes on and off the water, in effect providing movable bases for the short-ranged aircraft of the day. Planned in November, the raid did not materialize until Christmas. The three seaplane carriers, Engadine, Em-press, and Riviera, left Harwich on Christmas Eve with destroyer and cruiser escorts, and at daybreak on Christmas morning they were fifty miles northwest of Cuxhaven. This was a fairly dangerous place to be, deep in German waters, with the ships required to stop and lie dead in the water while the planes were hoisted over the side. Nine planes were lowered to the water, but only seven were able to be started. It took half an hour for the planes to get off; five minutes after they left, a German Zeppelin appeared and dropped bombs around Empress before being chased off by the fire of the escorting destroyers. For all their trouble, the British did not accomplish much. They got to the general area of the Zeppelin base only to find it completely blanketed by fog, so that they saw nothing. They then flew over the air was clear, and they next they appeared over the Schelling Roads and dropped a few more bombs. The German return fire was heavy, and of the seven planes, only two made it back to their carriers. The others ditched here and there, one alongside a destroyer, one near a Dutch trawler. The most dramatic rescue was of three seaplane crews by the submarine E-11, which saved the men but had to abandon the planes when bombed by a Zeppelin. Air warfare at sea was thus off to a rather unpromising start. Just as with the Friedrichshafen raid, losses were heavy, especially of equipment, and the return was small. On a cost-efficiency accounting, it was hardly worth the effort. But, as with the earlier raid, it was a beginning; there would someday be better airplanes, and better techniques, and greater results.

**Chapter 2 : A Short History Of Air Power by James L. Stokesbury**

*A Short History of Air Power is no different. If the topic is of interest to you this book will get you grounded--no pun intended--in the subject, from the Wright Brothers to air power in Vietnam and beyond.*

Israeli drones were used as electronic decoys, electronic jammers as well as for real time video reconnaissance. The trend had been emerging before the American war in Afghanistan began in , but was greatly accelerated by the use of UAVs in that conflict. Endurance UAVs[ edit ] The idea of designing a UAV that could remain in the air for a long time has been around for decades, but only became an operational reality in the 21st century. Beamed power UAV experiments[ edit ] The idea of using UAVs as a cheaper alternative to satellites for atmospheric research, earth and weather observation, and particularly communications goes back at least to the late s, with conceptual studies focused on UAVs with conventional propulsion, or new forms of propulsion using microwave beamed power or photovoltaic solar cells. Raytheon suggested what would now be described as a UAV using beamed power, flying at an altitude of 15 kilometers 9. The helicopter carried a rectifying antenna or " rectenna " array incorporating thousands of diodes to convert the microwave beam into useful electrical power. The demonstration received a good deal of publicity, but nothing came of it, since enthusiasm for Earth satellites was very high and the rectenna system was heavy and inefficient. However, in the s, NASA became interested in beamed power for space applications, and, in , published a design for a much lighter and cheaper rectenna system. The NASA rectenna was made of a thin plastic film, with dipole antennas and receiving circuits embedded in its surface. The UAV required watts, and was able to obtain this level of power from the 6 to 12 kilowatt microwave beam. Solar photovoltaic PV cells, are not very efficient, and the amount of power provided by the Sun over a unit area is relatively modest. A solar-powered aircraft must be lightly built to allow low-powered electric motors to get it off the ground. Such aircraft had been developed in the competition for the Kremer Prize for human-powered flight. In the early s, Dr. MacCready and his AeroVironment company took a fresh look at the challenge, and came up with an unorthodox aircraft, the " Gossamer Condor ", to win the Kremer Prize on 23 August In , Dupont Corporation backed AeroVironment in an attempt to build a solar-powered piloted aircraft that could fly from Paris, France to England. The first prototype, the "Gossamer Penguin", was fragile and not very airworthy, but led to a better aircraft, the " Solar Challenger ". A solar-powered UAV could in principle stay aloft indefinitely, as long as it had a power-storage system to keep it flying at night. The aerodynamics of such an aircraft were challenging, since to reach high altitudes it had to be much lighter per unit area of wing surface than the Solar Challenger, and finding an energy storage system with the necessary high capacity and light weight was troublesome as well. The main wing spar was made of carbon fiber composite tubing, with ribs made of styrofoam and braced with spruce and Kevlar, and covered with thin Mylar plastic film. The wing was light but remarkably strong. The wing was built in five segments of equal span. Two gondolas hung from the center segment, which carried payload, radio control and telemetry electronics, and other gear. The gondolas also provided the landing gear. Each gondola had dual baby-buggy wheels in front and a bicycle wheel in back for landing gear. There were two motors on the center wing segment, two motors on each inner wing segment, and one motor on each outer wing segment. The flights were conducted using radio control and battery power, as the aircraft had not been fitted with solar cells. HALSOL was put into storage, and as it turned out, would be resurrected for greater glories later, as discussed later. For the moment, though, it remained a complete secret. Amber was designed by a team under Abraham Karem of Leading Systems. The wing was mounted on a short pylon above the fuselage. The cruise missile version of Amber would discard the wing when it made its final dive on a target. Amber had an inverted v-tail , which would prove a popular configuration for a pusher UAV, since it protected the propeller during takeoff and landing. The airframe was made of plastic and composite materials, mostly Kevlar , and the UAV had retractable stiltlike tricycle landing gear to ensure propeller clearance. Amber had a flight endurance of 38 hours or more. The initial contract specified three "Basic Amber" A cruise missile prototypes and three B reconnaissance prototypes. Initial flights were in November , with long-endurance flights the next year. Up to this time, Amber was a deep secret, but in details

of the program were released. Amber was only one of a number of different US UAV programs in planning at the time, and the US Congress became impatient with what was perceived as confusion and duplication of effort. Congress ordered a consolidation of UAV programs in , freezing funding until June , when the centralized Joint Program Office for UAV development, mentioned earlier, was established. Seven Amber Is were built, and were used in evaluations along with Basic Ambers through However, funding for reconnaissance assets was being cut, and in the Amber program was killed. Requests had been made in for the aircraft to be used in search and rescue operations following Hurricane Katrina , but because there was no FAA authorization in place at the time, the assets were not used. Drones face regulatory, safety and technological hurdles â€” even though demand for them is burgeoning. Government agencies want them for disaster relief, border surveillance and wildfire fighting, while private companies hope to one day use drones for a wide variety of tasks, such as inspecting pipelines and spraying pesticides on farms. The Canadian government wants to buy at least three high-altitude, unmanned aerial vehicles in what could be an attempt to salvage its Arctic sovereignty ambitions.

Chapter 3 : History of unmanned aerial vehicles - Wikipedia

*The Marine Shop is part of the Marine Corps Association & Foundation (MCA&F). Besides shopping online, MCA&F members, active duty Marines, family members and Marine Corps fans can visit our two brick-and-mortar stores in Quantico and Camp Lejeune.*

World War I and between wars[ edit ] U. These aviation units, some of which were trained in France , provided tactical support for the U. Concurrent with the creation of this combat force, the U. An assistant secretary was created to direct the Army Air Service , which had dual responsibilities for development and procurement of aircraft, and raising and training of air units. During this period, the Air Corps began experimenting with new techniques, including air-to-air refueling and the development of the B-9 and the Martin B , the first all-metal monoplane bombers, and new fighters. Air power court martial[ edit ] Americans were fascinated with aviation in the s and s and refused to allow War Department conservatism to block innovation. General Billy Mitchell , the deputy director of the Air Service sought to wrest control of coastal defense away from the Navy. He went public insisting that his planes could sink battleships any day, a claim proven with a series of tests that culminated in the sinking of the Ostfriesland. Mitchell lost his self-control in when he accused the Navy in a press release of "incompetency, criminal negligence and almost treasonable administration of the national defense. He was convicted, and resigned. He became a popular hero and public opinion forced the War Department to strengthen the Air Corps. Until his death in Mitchell, as a civilian, was a tireless prophet of airpower before numerous civilian audiences, but he lost touch with aviation developments and ceased to be influential inside the services. The Air Corps managed a few publicity stunts, but always seemed to be overshadowed by glamorous civilians like Charles Lindbergh , Howard Hughes or Amelia Earhart. In President Franklin Roosevelt, feuding with the airline industry, suddenly turned the delivery of air mail over to the Air Corps. Multiple crashes by inexperienced Air Corps pilots in mediocre planes with poor navigation gear emphasized the fragility of the new service, and undercut its claims that in wartime it could perform miracles. Roosevelt, however, had become a firm believer in air power and had behind him both public opinion and Congress. When mobilization began in spring Roosevelt was as energetic as anyone in expanding the Air Corps role, calling for 50, planes a year, and sending the best new models to Britain for its war against the Luftwaffe. The Air Corps, headed by the Chief of the Air Corps, continued as before but now held responsibility only for supply, airfields, and training, in effect splitting the Air Force into two parts. Technology[ edit ] In , the B Flying Fortress made its first appearance. In a feat of navigation impressive for the time, three Bs intercepted the Italian passenger liner Rex at sea. But his campaign offended many and resulted in a court martial in that effectively ended his career. His followers, including future aviation leaders "Hap" Arnold and Carl Spaatz , saw the lack of public, congressional, and military support that Mitchell received and decided that America was not ready for an independent air force. Under the leadership of its chief of staff Mason Patrick and, later, Arnold, the Air Corps waited until the time to fight for independence arose again. World War II[ edit ] U. Roosevelt took the lead, calling for a vastly enlarged air force based on long-range strategic bombing. Organizationally it became largely independent from the Army in , when the Army Air Corps became a part of the new U. In the major reorganization of the Army by War Department Circular 59, effective March 9, , the newly created Army Air Forces gained equal voice with the Army and Navy on the Joint Chiefs of Staff and complete autonomy from the Army Ground Forces and the Services of Supply, serving as a separate service in all but name. The reorganization also eliminated both Combat Command and the Air Corps as organizations the latter remained a combat branch of the Army until in favor of a streamlined system of commands and numbered air forces for decentralized management of the burgeoning Army Air Forces. Major General Carl A. Spaatz took command of the Eighth Air Force in London in ; with Brigadier General Ira Eaker as second in command, he supervised the strategic bombing campaign. In late , Spaatz was made commander of the new U. Spaatz began daylight bombing operations using the prewar doctrine of flying bombers in close formations, relying on their combined defensive firepower for protection from attacking enemy aircraft rather than supporting fighter escorts. The doctrine proved flawed when

deep-penetration missions beyond the range of escort fighters were attempted, because German fighter planes overwhelmed U. The Eighth Air Force had attempted to use both the P and P as escorts, but while the Thunderbolt was a capable dog-fighter it lacked the range, even with the addition of drop tanks to extend its range, and the Lightning proved mechanically unreliable in the frigid altitudes at which the missions were fought. Bomber protection was greatly improved after the introduction of North American P Mustang fighters in Europe. With its built-in extended range and competitive or superior performance characteristics in comparison to all existing German piston-engined fighters, the Mustang was an immediately available solution to the crisis. In January the Eighth Air Force obtained priority in equipping its groups, so that ultimately 14 of its 15 groups fielded Mustangs. P escorts began operations in February and increased their numbers rapidly, so that the Luftwaffe suffered increasing fighter losses in aerial engagements beginning with Big Week in early Allied fighters were also granted free rein in attacking German fighter airfields, both in pre-planned missions and while returning to base from escort duties, and the major Luftwaffe threat against Allied bombers was severely diminished by D-Day. The first development and sustained implementation of airlift by American air forces occurred between May and November as hundreds of transports flew more than half a million tons of supplies from India to China over the Hump. After the Mariana Islands were captured in mid, providing locations for air bases that could be supplied by sea, Arnold moved all B operations there by April and made General Curtis LeMay his bomber commander reporting directly to Arnold, who personally commanded Twentieth Air Force until July. LeMay reasoned that the Japanese economy, much of which was cottage industry in dense urban areas where manufacturing and assembly plants were also located, was particularly vulnerable to area attack and abandoned inefficient high-altitude precision bombing in favor of low-level incendiary bombings aimed at destroying large urban areas. On the night of March 9<sup>th</sup>, 1945, the bombing of Tokyo and the resulting conflagration resulted in the death of over 100,000 persons. At the same time, the B was also employed in widespread mining of Japanese harbors and sea lanes. On August 15, Emperor Hirohito announced the surrender of Japan, stating: Moreover, the enemy has begun to employ a new and most cruel bomb, the power of which to do damage is indeed incalculable, taking the toll of many innocent lives. Should We continue to fight, it would not only result in an ultimate collapse and obliteration of the Japanese nation, but also it would lead to the total extinction of human civilization. Such being the case, how are We to save the millions of Our subjects; or to atone Ourselves before the hallowed spirits of Our Imperial Ancestors? This is the reason why We have ordered the acceptance of the provisions of the Joint Declaration of the Powers.

Cold War and war in Korea[ edit ] Special photo of Air Force bombers from the s through the late s. In November 1947, General Dwight D. Simpson, to prepare a definitive plan for the reorganization of the Army and the Air Force that could be effected without enabling legislation and would provide for the separation of the Air Force from the Army. That act became effective 18 September when the first secretary of the Air Force, Stuart Symington, took office. In 1948, the service chiefs agreed on usage of air assets under the Key West Agreement. The fledgling Air Force quickly established its own identity. Army Air Fields were renamed Air Force Bases and personnel were soon being issued new uniforms with new rank insignia. Once the new Air Force was free of army domination, its first job was to discard the old and inadequate ground army organizational structure. This was the "Base Plan" where the combat group commander reported to the base commander, who was often regular army, with no flying experience. Spaatz established a new policy, "No tactical commander should be subordinate to the station commander. The commander of the 15th Air Force, Major General Charles Born, [12] proposed the Provisional Wing Plan, which basically reversed the situation and put the wing commander over the base commander. Under this plan, the base support functions — supply, base operations, transportation, security, and medical were assigned to squadrons, usually commanded by a Major or Lieutenant Colonel. All of these groups, both combat and combat support, were in turn assigned to the Wing, commanded by a Wing Commander. This way the Wing Commander commanded both the combat operational elements on the base as well as the non-operational elements. All of the hierarchical organizations carried the same numerical designation. In this manner, for example, the 28th became the designation for the Wing and all the subordinate groups and squadrons beneath it. As a result, the base and the wing became one and the same unit. On 16 June 1948, the legacy combat groups were inactivated and the

operational Combat Squadrons were assigned directly to the Wing. The World War II history, lineage and honors of the combat group were bestowed on the Wing upon its inactivation. In response, the United States expanded its military presence throughout the world. The efforts of these air forces saved the city from starvation and forced the Soviets to back down in their blockade. Conflict over post-war military administration, especially with regard to the roles and missions to be assigned to the Air Force and the U. Navy, led to an episode called the " Revolt of the Admirals " in the late s, in which high-ranking Navy officers argued unsuccessfully for the case for carrier-based aircraft rather than strategic bombers. Although both air superiority and close air support missions were successful, a lengthy attempt to interdict communist supply lines by air attack was not as successful and was replaced by a systematic campaign to inflict as much economic cost to North Korea and the Chinese forces as long as war persisted, including attacks on the capital city of Pyongyang and against the North Korean hydroelectric system. The first bombing raids against North Vietnam occurred in , following the Gulf of Tonkin Incident. In March , a sustained bombing campaign began, code-named Operation Rolling Thunder. Except for heavily damaging the North Vietnamese economy and infrastructure, Rolling Thunder failed in its political and strategic goals. The rapid redeployment of fighters, bombers, and attack aircraft help the South Vietnamese Army repel the invasion. Operation Linebacker demonstrated to both the North and South Vietnamese that even without significant U. Army ground forces, the United States could still influence the war. The insurgent nature of combat operations early in the war, and the necessity of interdicting the North Vietnamese regular army and its supply lines in third-party countries of Southeast Asia led to the development of a significant special operations capability within the USAF. Provisional and experimental concepts such as air commandos and aerial gunships , tactical missions such as the partially successful Operation Ivory Coast deep inside enemy territory, and a dedicated Combat Search and Rescue mission resulted in development of operational doctrines, units, and equipment. Combat operations since [ edit ] The USAF modernized its tactical air forces in the late s with the introduction of the F , A , and F fighters, and the implementation of realistic training scenarios under the aegis of Red Flag. The humiliating failure in April of the Operation Eagle Claw rescue mission in Iran resulted directly in an increased USAF emphasis on participation in the doctrine, equipment, personnel, and planning of Joint Special Operations. Lessons learned in these operations were applied to its force structure and doctrine, and became the basis for successful air operations in the s and after September 11, The development of satellite reconnaissance during the Cold War, the extensive use of both tactical and strategic aerial reconnaissance during numerous combat operations, and the nuclear war deterrent role of the USAF resulted in the recognition of space as a possible combat arena. An emphasis on "aerospace" operations and doctrine grew in the s. Missile warning and space operations were combined to form Air Force Space Command in The creation of the internet and the universality of computer technology as a basic warfighting tool resulted in the priority development of cyber warfare techniques and defenses by the USAF. Navy and the RAF. Operation Provide Comfort "96 and Operation Northern Watch " " no-fly zones north of the 36th parallel north and Operation Southern Watch " no-fly zone south of the 33rd parallel north. USAF aircraft are used to provide support to Coalition and Iraqi forces in major operations to eliminate insurgent centers of activity and supply in north and west Iraq. Operations in both Afghanistan and Iraq demonstrated the effective utility of Unmanned air vehicles , the most prominent of which was the MQ-1 Predator. Protests were inspired by the revolutions in Tunisia and Egypt. In addition, the Air Force employs , civilian personnel including indirect hire of foreign nationals. However, after two decades of failure to recapitalize its aircraft under Clinton and the two Bushes, the USAF has its oldest and most outdated fleet ever. Tactical aircraft purchases were put off while Fifth-generation jet fighters were facing delays, cost overruns and cutbacks and the programs to replace the s bomber and tanker fleets have just been started over again after many aborted attempts. Air Force on 29 February announced one of the largest military acquisition programs in U. The plane was spotted late 13 March Rescuers could reach the site only by helicopter and arrived at daybreak 15 March

### Chapter 4 : A Short History of Air Power: James L. Stokesbury: [blog.quintoapp.com](http://blog.quintoapp.com): Books

*This is a smoothly written account of the development of air power from pioneering days to its global manifestation in the era of nuclear weapons, jet propulsion and guided missiles.*

Hetrick to design one of the most important advances in automobile safety. Hetrick, a retired industrial engineering technician, received a patent in for what he called a "safety cushion assembly for automotive vehicles. Hetrick designed the system to reduce injuries during emergency braking and frontal collisions, according to a story in American Heritage about his invention. In that story, Hetrick recalled the inspiration for his invention: About three miles outside Newport, we were watching for deer bounding across the road. Suddenly, there was a large rock in our path, just past the crest of a hill. I remember hitting the brakes and veering the car to the right. We went into the ditch but avoided hitting both a tree and a wooden fence. German inventor Walter Linderer also received a patent in for an "inflatable cushion" to protect drivers in accidents. Their early airbag designs inspired others in the automotive industry to work on this safety feature. Car makers also faced another challenge with airbags: They could cause secondary injuries when passengers came in contact with them. In , carmaker Mercedes-Benz started to develop airbags for its vehicles. Two developments prompted that move: Breed invented a device that many say gave birth to the airbag industry. Breed invented a reliable, five dollar crash sensor. He helped designed more than two dozen other car safety inventions, including an airbag that vents air as it inflates. This invention -- patent No. Today his company, Key Safety Systems, Inc. Get the news you need delivered right to you! Join over , subscribers and receive the latest expert advice, consumer news, and recall notices in your inbox.

### Chapter 5 : Short History of Air Power | Rambles in the Air

*Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.*

### Chapter 6 : The Air War Project – History of Airpower Podcast and Blog

*A Short History of Air Power This book is in very good condition and will be shipped within 24 hours of ordering. The cover may have some limited signs of wear but the pages are clean, intact and the spine remains undamaged.*

### Chapter 7 : A Short History of the Airbag

*A Short History of Air Power is a concise, complete and readable account of the use of the aeroplane in warfare from the Italian conquest of Libya in to the Falklands crisis. When most of Europe went to war in , little thought was given to the use of aeroplanes except to scout enemy positions and direct artillery fire.*

### Chapter 8 : A Short History of Air Power by James L. Stokesbury | LibraryThing

*A SHORT HISTORY OF i l l 1 James [blog.quintoapp.com](http://blog.quintoapp.com)by Author of A Short History of World War I and A Short History of World War II A SHORT HISTORY OF AIR POWER lames [blog.quintoapp.com](http://blog.quintoapp.com)by This superb account of the military use of the airplane over the last seventy-five years.*

### Chapter 9 : Short History of Air Power - James L Stokesbury - Google Books

*Introducing "Short Cuts", quick takes on a variety of airpower subjects ranging from history to concepts to the people that shaped the course of the airplane as a weapon of war.*