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Chapter 1 : Photo Gallery: Years Of Aviation Safety History | Aviation Week Archives | Aviation Week

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Throughout this century of flight, airplane designers have continued their quest for the ideal combination of strength, weight, and carrying capacity. Their designs quickly progressed from kite like constructions of wood, wire, and linen to sleek, all-metal aircraft of ever-greater size and performance, and on to lightweight, super-strong composite creations that no aviation pioneer could have imagined. The reason is obvious: Many of them resembled elaborate box kites, and were made of the same materials: These pioneering airplanes put a lot more emphasis on increasing lift than on reducing drag. Their primitive engines barely produced enough power to overcome the drag of a thicket of supporting struts, wires, and landing gear, so it was hard to coax their boxy shapes through the air much faster than a horse could run. At the time, the fact that they flew at all was marvellous. In the years before the war, better engines improved the performance of aircraft that remained kite like. A Glimpse of Things to Come: This technique achieves superior lightness and strength by using the outer shell-the fuselage itself-to bear the structural load. This expensive and time-consuming approach made sense for a purpose-built racer, but not for mass production. Comparing this early racer to the mph airplanes Curtiss was delivering to the U. Army in the years just before WWI makes it clear just how revolutionary this early racer was. In one way the Curtiss biplane was more advanced than the Deperdussin. The sleek racer relied on the wing warping control scheme originally devised by the Wright brothers, while in the lumbering Curtiss ailerons provided a more precise-and more modern-means of control. Standard Practice with Some Interesting Exceptions Although it would take almost 20 more years for most aircraft manufacturers to abandon traditional kite like construction, the war made it possible to mass-produce airplanes that used new materials and techniques. Other new designs experimented with metal tubing to replace the wooden frame, and sheet metal to replace the conventional skin over that frame. Starting in , the German Albatross Werke designed a series of fighters using semi-mono coque construction, in which thin sheets of plywood were screwed to a relatively light internal wooden frame to make the fuselage a rigid load-bearing structure. The strikingly clean appearance of its elliptical semi-mono coque fuselage made it one of the most elegant early fighters, a far cry from the conventionally boxy form of most WWI aircraft. Trying Metal Instead of Wood While conventional construction was the general rule for warplanes, WWI did see the beginning of what would later become the modern norm the all-metal aircraft. The German manufacturer Dr. Hugo Junkers pioneered all-metal aircraft during the war, and produced some strikingly modern-looking aircraft just after it. After some early experiments with thin iron sheeting for exterior panels, Junkers pioneered the use of duraluminum also called Dural , a light, strong aluminium alloy. During the war Junkers built aircraft in which every assembly-wings, fuselage, and tail-consisted of a Dural tube frame with corrugated Dural sheeting tacked onto it. The designs were conventional, using the metal skin as a covering, not as a load-bearing structure, but their aluminium alloy construction anticipated all-metal aircraft of the s and s. During â€" 18 three all-metal Junkers airplanes entered service in the German air force: The J 1 armoured biplane for close observation of enemy troop movements. Though underpowered, the J 1 was one of the most strikingly clean and modern-looking biplanes of the war, with no wires or struts between its metal wings. Visit the following Web site to see a photo of this pioneering biplane: Visit the following Web site to see a photo of this advanced WWI fighter: In the wartime rush to mass-produce combat planes, workers who understood all-metal construction were in short supply. Junkers only managed to produce small numbers of these aircraft, but they provided a glimpse of the future of aviation. With the end of WWI, Junkers explored even more advanced designs. In , within months of the end of the war, Junkers produced the F 13 airliner, a remarkably modern all-metal monoplane that carried four or five passengers in a fully enclosed cabin. By Junkers had produced over F 13s, and thousands of people in a dozen countries experienced their first flight-and formed their impression of what an airplane should look like-in this impressive early people-hauler. See photos of the revolutionary Junkers F 13 at this Web site: Some of these new approaches, such as mono coque and metal construction, would be perfected as the pace of technological progress accelerated during the interwar years. With aircraft designers combining new materials, construction techniques, engines, and aerodynamic developments in ever-more-imaginative packages, records were routinely set and surpassed in every area of aircraft performance. Engines One of the biggest developments of the post-WWI years was the rapid development and widespread adoption of the air-cooled radial engine. Without all the plumbing associated with liquid-cooled engines, the radial provided higher power, lower weight, and improved reliability. It was radial reliability that got Lindbergh across the Atlantic in ; that it took him over 33 hours was immaterial at the time. It took a lates invention-the streamlined NACA cowling-to give radial-powered aircraft speed to match their reliability. Meanwhile, the inline liquid-cooled engine was far from dead. Increased power and reliability made it a viable choice for designers who wanted their planes to have a smoother, streamlined shape. In the years between the wars, new materials and technologies, including variable-pitch propellers and retractable landing gear, brought out the best in aircraft performance regardless of the type of power plant that turned the propeller. Aerodynamic Improvements Even more significant during the interwar years was the push toward cleaner aerodynamics. By , designers were working to minimize the conventional clutter of struts and bracing wires, but to achieve significant performance breakthroughs they needed to deal with aerodynamic drag. In the Vega he produced a very advanced aircraft for the time. Like the Deperdussin racer of , the Vega used a smooth plywood skin. Its semi-mono coque construction gave it strength and a slippery aerodynamic shape, and its cantilevered wing required no supporting struts. The result was a beautiful low-drag airplane that superstar pilots including Amelia Earhart, Wiley Post, and Roscoe Turner flew to numerous speed, distance, and altitude records. Designed to win the MacRobertson race a long-range speed competition from England to Australia , the Comet was a beauty. Its sleek plywood semi-mono coque structure, thin cantilever wing, and streamlined nacelles for the inline, liquid-cooled engines and retractable landing gear made it look every inch the racer. Its gear, flaps, and variable-pitch propellers were innovations at the time, and the gamble paid off. Despite an ambitious project schedule that took the Comet from the drawing board into the air in just nine months, one of the three DHs entered won the race covering over 11, miles in just under 71 hours , and another took fourth place. In its day, the Comet was the most advanced wooden aircraft ever built. A Douglas DC-2 flying scheduled passenger service was second, while a Boeing flown by American aviator Roscoe Turner came in third. The first American airliner worthy of the name was the Ford Tri motor, a big, boxy all-aluminium airplane powered by three Wright Whirlwind radial engines. It evolved over time to accommodate from eight to as many as 13 passengers. With its corrugated skin, exposed radial engines, and fixed landing gear, the Tri motor was only slightly more aerodynamic than a barn door. Its uninsulated fuselage, the noise and vibration from its engines-particularly the one fixed to its nose-and its inability to rise above low-altitude turbulence made the big Ford loud and uncomfortable by modern standards. Despite these drawbacks, the Tin Goose was rugged and provided multiengine reliability. It also gave its passengers a marvellous view of the terrain not far below, and most of them were thrilled with the experience. In , Transcontinental Air Transport TAT inaugurated coast-to-coast service using a combination of the Tri motor by day and rail service at night to cut cross-country travel time in half to a mere 48 hours. Due to its limited range-about miles-the Tri motors flew the transcontinental trip in nine legs. It must have been an ordeal for those wealthy enough to subject themselves to the trip, but by the early s people all over the world embraced the idea of air travel, which was about to become a more comfortable experience for far larger numbers of passengers. The Ford Tri motor was generally replaced in American airline service during the s by more advanced metal airliners including the Boeing and Douglas entries that did so well in the MacRobertson race , but many continued in service for 30 or more years. Further refinement produced the immortal DC-3 in A major breakthrough in the design of these Boeing and Douglas aircraft was their integration of the engines and their cowlings into the wings, a breakthrough in aerodynamic efficiency that set the standard for future aircraft. The DC-3, which could carry half again as many passengers and had even better performance, defined the shape and appearance of the modern airliner every successful airliner since has shared a family resemblance with this breakthrough design. In its first 30 years aviation technology had made giant strides. Aircraft size, weight, power, strength, and speed had increased enormously. With another world war looming, every major nation threw vast resources into the effort to perfect new aircraft technologies. In the process extraordinary design would become commonplace. The Extraordinary Becomes Ordinary War tends to accelerate technology as nations seek military advantage, but in the day-to-day struggle to achieve superiority nations tend to focus their resources less on radical breakthroughs and more on proven techniques. The avant-garde aircraft designs of the s became the basis for larger, faster, and more powerful planes during WWII. While the ultimate aeronautical development of the war was the jet fighter, only a tiny number saw combat. In reality, WWII produced the last word in piston-powered, propeller-driven aircraft. The same method of construction used so stunningly in the DCa light but strong aluminium frame and a light, load-bearing skin of aluminium sheeting-became the norm for the military aircraft of every warring nation. Fighters, bombers, and transport planes grew in size, speed, and firepower, but the C the militarized version of the DC-3 remained the most successful transport aircraft of the war. However, its proven construction methods were forged into radical new shapes powered by engines of ever-increasing power and armed with increasingly potent guns and rockets. Bigger Prop linersâ€¦ In the late s and early s, airliners continued to grow in size and sophistication, but their all-metal, semi-mono coque construction continued the design revolution of the s. The DC-7 routinely flew non-stop across the U. The Stratocruiser, based on the B bomber, carried passengers across the Pacific to Hawaii in half a day, while passenger ships took five days to make the trip. While jet fighters immediately entered post war military service in many air forces, it would take several years for the new technology to find its way into civilian service. The first generation of jet airliners to enter service-including the ill-fated DeHavilland Comet in , its Comet 4 replacement in , the Boeing in , and the Douglas DC-8 in looked strikingly different from conventional prop liners. Their jet engines and lack of propellers were a dramatic and obvious difference, and their sleek, swept-wing forms were intriguingly modern. They looked fast even when they were standing still. Air travel was quickly transformed from an exotic experience for the few to a worldwide form of mass transit. Even in this brave new era of air travel, one major design trait remained the same for prop and jet airliners: But one new kind of material made its first appearance in early jet airliners: Greater Strength and Lightness-At a Price Composite materials consist of a resin matrix reinforced with fibres. Modern composites offer outstanding strength and lightness, but they are difficult and expensive to make, machine, and repair. The first composite material, fiberglass, came into use in boats, cars, and aircraft in the s. Some of this new material found its way into the Boeing , but the aviation industry had to explore this new technology and refine techniques to get better composites in greater quantity into production aircraft. In the closing decades of the twentieth century, boron or carbon fibres embedded in epoxy and other resin matrices produced ever-stronger composites, but these fabulously strong and lightweight materials are ever more costly, and some require careful maintenance to keep the composite surfaces from absorbing moisture. Cost and maintenance considerations ensure that military aircraft use composite materials in greater quantity than products for the civil aviation market. The tail of the F Tomcat fighter, which entered service in , featured composite horizontal stabilizers. More recent advanced fighters, including the AV-8B Harrier and the upcoming F Raptor, use composites for 25 to 33 percent of their structures.

Chapter 2 : FSX Insider | Years Of Aviation

In the years since the Wright brothers' first powered flight, aviation has witnessed many memorable events. From record-breaking flights and aerial warfare, to advances in aircraft design and the race for space, Flight covers the most memorable moments in the history of aviation.

The United States was emerging as a world economic power, but had yet to realize its full potential. Europe was at peace, tenuous as it was, while trouble in Russia was a portent of war and revolution to come. Much of the rest of the world remained as either economic or political colonies of the dominant powers. Once there, steam-driven trains were the primary means of longdistance overland transport for immigrant and citizen alike. The vast rail network linked most communities and enabled those who could afford it to ride across the country in less than a week. Nevertheless, once settled, most Americans stayed at home and few ever travelled more than 25 miles from their place of birth. And so it was across the rest of the developed world. Transportation was taking the first tenuous steps that would soon change the world forever. With the invention of the internal combustion engine, in the late nineteenth century, new possibilities of motive force became available. By the automobile was set to challenge the horse. Transportation would soon change even more dramatically because of a new invention â€" the aeroplane. Within the century that followed, humankind took to the air, led by the pioneering example of Wilbur and Orville Wright. First in frail craft, but soon in sturdy and reliable machines, aviators shattered long-standing barriers of time and distance. By midcentury air travel was common, and by the late s it had replaced the train and steamship as the preferred mode of transport. By the last quarter of the twentieth century, with large, efficient jet-powered aircraft, air travel was commonplace and affordable to all. Flying has become second nature to hundreds of millions of people and is so deeply intertwined into the fabric of society that it is impossible to imagine a world without it. The aeroplane also rapidly developed as a weapon of war. Used widely during World War I, where the techniques of air power were initially developed, military aircraft became an integral part of warfare by World War II. The advent of jet power, and sophisticated electronics perfected during and after the Cold War, has now turned the aircraft into a feared weapon over the twenty-first century battlefield. Today, years after the Wright brothers first took to the air in the first powered, controlled, heavier-than-air machine, the political, social, and economic challenges are different, yet, in many respects, remarkably similar. Today, aviation and spaceflight are critical tools for the improvement of the human condition and powerful instruments of positive change. This book is the story of that most remarkable achievement of the twentieth century â€" flight. Using superlative historical images and extraordinary new photography to illustrate an excellent text, this book is a fitting tribute to the courage and efforts of the pioneering individuals and organizations that inspired the first years of aviation. Nevertheless, the desire to soar through the air like a bird remained. In the course of the 19th century, scientists and inventors worked on the basic principles of flight, experimenting with gliders and ungainly steam-powered flying machines and models. But it took the persistent efforts of the Wright brothers, in experiments between and , to finally achieve practical powered aeroplane flight. The period up to brought spectacular progress. The public was enthralled by long-distance flying races and displays of aerobatics, while new speed and altitude records were posted yearly, although at the cost of the lives of many early aviators. As a result of these experiments, Chanute produced one of the most important gliders of the pre-Wright brothers era. His concept of a flying machine model shown here was as impractical as all other devices for muscle-powered, flapping-wing flight. H always dreamed of flight. They did not, however, dream of the Boeing The flight to which humans traditionally aspired was that of the birds, a business of feathers and flapping wings. To this the myths and legends of many cultures testify. In the most famous of these ancient stories, the skilled craftsman Daedalus makes wings of feathers and wax so he and his son Icarus can escape their imprisonment on the island of Crete. The technology improbably works, but Icarus flies too close to the sun and melts the wax, falling to his doom. The illusion that a person could fly like a bird or a bat cost some brave and foolish men their lives or limbs. In , for example, in Constantinople, a follower of Islam chose the moment of a visit to the Christian Byzantine Emperor by a Muslim sultan to demonstrate his powers of flight, jumping off a high building in a copious white robe stiffened with willow sticks. Other recorded attempts â€” by the learned Moor Abbas ibn-Firnas in Andalusia in , by English monk Oliver of Malmesbury in the 11th century, by Giovanni Battista Danti in Perugia, Italy, in â€" all had the same result for the same reason. However, this machine, built for the French Ministry of War, failed to become airborne when twice tested in If no one could see how to make a machine that would fly, they could possibly see why you would want to â€" especially in militaristic Europe, which was divided into states that were more or less permanently at war with one another. This could not be done with vacuum spheres, but it could with a balloon filled with hot air or a light gas such as hydrogen. As usual in the history of invention, the solution to a problem became apparent to several inventors at once. When Joseph and Etienne Montgolfier, paper manufacturers from the French town of Annonay, brought a hotair balloon to Paris in , they faced competition from gentleman-scientist Jacques Charles, who was ready to demonstrate a hydrogen-filled balloon. Early French aeronauts achieved some spectacular flights. In February Jean-Pierre Blanchard soared to over 3,m 12,ft in a hydrogen balloon. Despite the circulation of optimistic images such as this one, the Aerial Steam Carriage never flew. Tailplane But it was the Montgolfiers who established precedence and their place in the history books. As would happen in the exploration of space two centuries later, they sent animals up first on a test flight â€" a duck, a sheep, and a chicken. Ten days later Jacques Charles and a companion flew 40km 25 miles in a hydrogen balloon. Ballooning captured the public imagination much as flying machines would in the early 20th century. Crowds flocked to demonstration flights and the fliers became national heroes. He was George Cayley, who was to make the first serious practical and theoretical progress towards heavier-than-air flight. Cayley could easily be marked down as an eccentric â€" a member of the landed gentry using his privileged leisure to pursue a fanciful hobby. But he, in fact, worked within a maturing scientific tradition, which enabled him to precisely define the challenge of heavier-thanair flight: As early as Cayley engraved on a silver disk an image of a flying machine that marked a crucial step forwards in design from Leonardo-style ornithopters: Through the next decade he built both model and full-size gliders. His full-size glider had a wing attached to the front end of a pole, and at the rear of the pole a vertical rudder and horizontal tailplane. His calculations of lift and drag, and his comments on how an aircraft could be stabilized and controlled, constituted a solid basis for potential progress towards heavier-than-air flight. Unfortunately, they were largely ignored. The awakening of a more sustained interest in heavier-than-air flight did not come for another 30 years. It was provoked by the success of the steam engine applied to transport systems. Although a full-size version was never built, its cambered wings and separate tail with rudder and elevator were later widely adopted. Its two pusher propellers would have been driven by a light steam engine of up to 30hp. At sea, steam ships were a growing threat to the dominance of sail. This contraption was to be powered by a 30hp steam engine in the fuselage. But doubt and ridicule soon followed. Although Henson built a small model of his aircraft, he could not find anyone ready to put up the cash for a full-size version and rapidly abandoned aerial experimentation for good. The drawbacks of balloons were on a cigarette card on 21 obvious. A huge balloon was needed to carry November , but balloon even a small weight, and then it was only flight had a limited potential. Yet serious practical uses were found for be used to create a viable balloons in the 19th century: The first controlled powered balloon â€" a dirigible or airship â€" was demonstrated by Frenchman Henri Giffard in Mounting a steamdriven propeller under a cigar-shaped bag filled with coal gas, he flew 27km 17 miles at around 10kph 6mph. His example inspired other enthusiasts, although they were hindered by the lack of alternatives to the steam engine. Krebs, managed controlled flights at speeds of around 20kph 12mph. The advent of the internal combustion engine brought a further leap forwards. In Alberto Santos-Dumont, the son of a Brazilian coffee-plantation owner, embarked on a series of highly successful experiments in the skies of Paris, France, where he lived. He became a well-known and popular figure, responding to mishaps, such as crashing on the roof of a hotel, with admirable panache. He built 14 airships in all before transferring his enthusiasm to heavier-than-air flight. Meanwhile the Germans entered the airship field when Count von Zeppelin flew his first airship LZ 1 in see pages 56â€" Although an THE eccentric dilettante, he proved an outstanding pioneer of airship and aeroplane flight. He was reluctantly persuaded to climb into the boat-like fuselage of a glider, which then rolled down one side of a valley, lifted into the air, and briefly flew before coming down uncomfortably. The growing respectability of flight research was exemplified by the foundation of the Aeronautical significant progress in wing and tail design Society of Great Britain in , a dignified through experiments with model aircraft powered association of scientists and engineers who staged by a twisted rubber band. None of in , was an inspirational work based on the them flew. One member of the focused on power: In the s, brilliant ratio, to lift a machine and a man into the air? Although far from being a practical flying machine, it can lay claim to be the first manned craft to take off from level ground. Success would only be achieved when the traditions of powered and unpowered flight came together in the Wright brothers. Engine power Early experimenters in powered flight were unfortunate in that their only feasible power plant was a steam engine. In the s, with his brother Louis, he designed and flew a model aeroplane powered first by clockwork and then by a miniature steam engine. He then patented a design for a full-size monoplane with a lightweight steam engine and the surprising refinement of a retractable undercarriage. His man-carrying aeroplane was finally built and ready to test in With a French sailor on board, it ran down a sloping ramp, briefly lifted into the air, and immediately came back down to earth. In , at Krasnoe Selo outside St Petersburg, Mozhaiskii tested a two-engined monoplane with a mechanic at the helm. Spouting smoke from its shiplike funnel it momentarily lifted, then crashed to the ground. What he had achieved, as far as can be Steam engine ascertained, was to skim the ground at a 15 height of around 20cm 8in for a distance of 50m ft. This could not be called controlled, sustained flight, but it was a start. Armed with the first military budget for aeroplane development, Ader built a twin-engined aircraft, the Avion III. But when tested in front of military observers in October , it failed to get off the ground.

Chapter 3 : Welcome to the Complete Aviation Week Archive

This five film series explores in detail the past years of aviation history, from the Wright brothers' first flight to the Apollo moon landings and beyond, highlighting the biggest milestones "in an industry defined by innovation.".

Expert Risk Articles years of aviation insurance In Allianz started an aviation insurance business. The underwriting of its first airship insurance policy in Germany commenced what, this year, becomes a century-old partnership with the flight industry. The trailblazing flight, which came just one year after Charles Lindbergh completed the first solo transatlantic flight, was insured by a pioneering insurer, Allianz, which in celebrates years of underwriting aviation insurance. More than two million people lined the streets of New York in to celebrate the arrival of the Bremen; the first transatlantic airplane flight from east to west. Pioneering years The first three decades of the 20th century were pioneering days for aviation, in a world seemingly full of technological progress. In , the first ridged framed airships took to the skies while the Wright Brothers made their legendary first airplane flight in Over the following three decades the first aviators pushed man and machine to the limits, with many losing their lives in the process. In the s the world was gripped by the exploits of the early aviators, and the race to cross the Atlantic turned the likes of the Bremen crew into international celebrities. Jet age provides take-off The introduction of jet airliners, which enabled airlines to fly further and cheaper, was a key milestone for the development of the aviation industry, explains Josef Schweighart, Head of Aviation Germany at AGCS. Previously the aviation industry had not been commercially-driven, but all this changed with big leaps in technology after the Second World War that led to significant year-on-year growth. Fast forward to today and there are now almost 1, airlines operating worldwide, with a total fleet of 25, aircrafts. Around one third of goods by value traded internationally are transported by air. Underwriting aviation risks was to prove particularly challenging during the first decades of the 20th century, while the increasing international reach of the industry necessitates new solutions today. Aviation risk was generally considered too volatile for individual insurers, leading companies to join together in a bid to share the risks â€” a model that is still followed in the commercial aviation sector today. Key to the development of the aviation insurance market over the subsequent decades was the establishment of aviation pools. The German Aviation Pool, which continued as the main source of aviation insurance in Germany up until the s, was led by Allianz from an early stage. The pool functioned as a reinsurance company, offering its members and associated companies the chance to protect themselves from risk. However, the role has since diminished as large specialist aviation insurers are now able to underwrite much larger lines of coverage. The German Aviation Pool ceased active underwriting in , in part a response to the large losses inflicted by the terrorist attacks in the US on September 11, , as well as changes to EU competition rules regarding co-insurance arrangements. Local culture, global reach Despite the globetrotting image of aviation, the industry has historically been national in nature, although this has been changing, especially due to the impact of the London market with its international clients. For example, France has historically been strong in aviation, especially in aerospace, where four of the global aerospace companies are based Dassault Aviation, Safran SA, Thales Group and the multi-European Airbus Group. Yet aviation companies, especially large airlines and manufacturers, as well as general aviation and aerospace firms, are increasingly international in their reach. For example, international insurance solutions have become a key offering in the aviation sector and are very important for businesses such as product manufacturers and airport support services, which have been expanding beyond their national markets in recent decades. Increased footprint While Allianz began underwriting aviation risks for airships in Germany, over the past years it has increasingly become more diversified and international. After initially underwriting international risks through the German Aviation Pool, it built a local presence in key aviation markets, in part through acquisition. In recent years the insurer has been consolidating its regional aviation platforms, creating a global aviation insurer that can service clients consistently, both locally and globally. This has been a major change in how Allianz underwrites aviation business, according to Haagen. Consistency and flexibility Aviation risk is a volatile risk that benefits from being integrated into a large well-diversified insurance group. Large aviation insurers are also able to write large limits locally without the need to rely on reinsurance. Many insurers see aviation as a diversification play, but for us it is a core part of our business. Allianz has shown that it is not just here for short term gain. We have been writing aviation insurance for years and are here for the long term. Find the Global Aviation Safety Study and more studies, as well as expert articles on our Insights section.

Chapter 4 : Flight: Years of Aviation by R.G. Grant

The pioneer years of aviation included both successful and misguided efforts to make the number of safe landings approximate to the number of takeoffs.

Chapter 5 : A Look At Years Of Aviation Week History | Anniversary Issue content from Aviation Week

Years Of Aviation By Jon Seal - 20 September In the hundred years since the Wright brothers' first flight, aircraft design, materials, and construction have gone through a rapid and radical evolution.

Chapter 6 : Flight: Years of Aviation - R. G. Grant - Google Books

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Chapter 7 : Years of Aviation â€“ Singapore

The Fox Valley Aero Club and the Midwest Chapter of the Model T Ford Club are celebrating years of automotive and aviation history Saturday, Sept. 8.

Chapter 8 : Boeing: The Centennial

years of aviation in Barcelona Barcelona has, at long last, its aviation museum if only temporarily from 13th May to 12th June, the Centre Cultural Aeronautic, a multipurpose contemporary building located near Barcelona's international airport Terminal 2, is hosting the exhibition " Catalunya AeronÃ utica ", that celebrates the centennary of civilian aviation in Catalonia.

Chapter 9 : years of aviation insurance

Today, years after the Wright brothers first took to the air in the first powered, controlled, heavier-than-air machine, the political, social, and economic challenges are different, yet, in many respects, remarkably similar.