

Prepared by the SAN FRANCISCO AERONAUTICAL SOCIETY

Presidents Message SOCIETY'S HAPPENINGS

Spring 2015

2014 was a busy year here at the San Francisco Aeronautical Society. In the spring, the Society awarded \$2,500 scholarships to three very deserving students and we are pleased to share their SFAS Scholar essays here in this edition of FAM14.

The Board of Directors of the San Francisco Aeronautical Society enthusiastically welcomed a new member, Mr. Ken Turpen. Mr. Turpen will bring his unique experience and perspective to the board. Check out the back page of this FAM14 for a bio on Mr. Turpen.

On November 13, 2014 the Society celebrated with a gala entitled "The Ancient Dream of Flight: Building the Reality". This special evening reminded us of how the age-old human desire to take to the skies became reality. During the evening's program, the Society was pleased to present the 2014 Achievement in Aviation Award to Captain Moon F. Chin. You can see photos and read more about this wonderful event in this edition of FAM14.

With the help and support of its members and supporters, the Society is pleased to underwrite a special project to create archival photographic prints from an important collection of original glass plate negatives from the 1915 Panama-Pacific International Exposition held in San Francisco. An exhibition of these prints will be presented from February 10 to October 18, 2015, in the San Francisco Airport Commission Aviation Library and Louis A. Turpen Aviation Museum commemorating the 100th anniversary of the Exposition.

I hope that you enjoy this Spring 2015 edition of FAM14. On behalf of the Board of Directors, thank you for your generous and continued support.

Louis A. Turpen President

FAM 14 is the abbreviation for the world's first transoceanic Foreign Air Mail route, which originated in San Francisco and linked the East and West by air. The *FAM 14* masthead photograph, on page one, was taken by Clyde Sunderland and shows the Pan American Airways' *China Clipper* over the city of San Francisco on November 22, 1935, departing on the first trans-Pacific commercial flight to Manila, Courtesy of Pacific Aerial Surveys.

ANCIENT DREAM OF FLIGHT Building the Reality November 13, 2014 Louis A. Turpen Aviation Museum

Last November The Society welcomed aviation enthusiasts to a celebration of aviation and it's rich history. The evening's theme, "The Ancient Dream of Flight: Building the Reality" took guests on a journey from myth to the moon, and from the power of imagination to reality as they recalled the courage and tenacity of those who dared to dream and the dared to believe that such dreams would be made real.

As a special feature of the program, the Society presented the Achievement in Aviation Award to Captain Moon F. Chin, a true pioneer in air transport whose careers in aviation included legendary pilot, airline executive and owner and generous supporter of the preservation of aviation history - on two continents.

Proceeds from the the gala enables the Society to continue its Scholarship Program for Bay Area high school seniors who have shown an interest in aviation history. Over 200 guests were treated to a truly unique celebration of the age-old human desire to take to the skies.



For his outstanding contributions and excellence in the aviation industry and his demonstrated commitment to preserving its history, Captain Moon Fun Chin is presented the Achievement in Aviation Award by the San Francisco Aeronautical Society board member Zoe Dell Lantis Nutter.

With Our Thanks...

ANCIENT DREAM OF FLIGHT BUILDING THE FUTURE

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Guests at the gala were treated to a very special evening. Society Board Member Cathy Mayer with our MC for the night, Renel Brooks-Moon and her San Francisco Giants World Series ring.

SOCIETY UNDERWRITES SPECIAL PROJECT

The Society is currently funding a special project to create archival photographic prints from an important collection of original glass plate negatives created during the 1915 Panama-Pacific International Exposition held in San Francisco.

These negatives were donated to the SFO Museum by Edwin I. Power, Jr. in 2010, and they depict many of the "aeronautical exhibitions" that first exposed hundreds of thousands of fair-goers to the "aeroplane" and the marvels of human flight. The Cardinell-Vincent Company, official photographer of the Exposition, captured many of the famous aviators of the day as they thrilled the crowds with daring acrobatics over San Francisco Bay. Lincoln Beachey, Art Smith, Silvio Pettirossi, Allan and Malcolm Loughead (Lockheed) are among the pilots who made the Exposition a watershed moment in San Francisco's aviation history.

An exhibition of these prints will be presented from February 10 to October 18, 2015, in the San Francisco Airport Commission Aviation Library and Louis A. Turpen Aviation Museum commemorating the 100th anniversary of the Exposition.

EXHIBITION HIGHLIGHT The Legend of CNAC: China National Aviation Corporation, 1929-1949

From its uncertain beginnings to its remarkable successes as Asia's first sustained commercial airline, the China National Aviation Corporation blazed a trail unlike any other in the history of commercial air transport. For two decades, CNAC pioneered air operations over much of the world's most challenging terrain. These included the route system over the Himalaya, an area between India and China known as "the Hump." Daring to fly at extreme altitudes through all types of harsh weather conditions, the skilled and adventurous pilots of CNAC established an aerial lifeline to China.

The company's achievements occurred in the midst of—and were dramatically influenced by— a period of continuous political upheaval and wartime conditions throughout the region. CNAC's personnel continuously operated and adapted its air services during civil war, invasion, occupation, world war, and revolution. In opening the skies over China and beyond as a carrier of passengers, airmail, and cargo, CNAC became an important strategic asset during a time of great conflict.



CNAC advertisement sign c. 1947 printed board Courtesy of the Bixby Family L2014.1807.038

China's vast and varied geography with its widely dispersed population centers and limited transportation systems was an ideal setting for the promise of commercial air service in the early 1930s. In 1929, Clement M. Keys, a Canadian-born American financier and head of the Curtiss-Wright Corporation, entered into a partnership with China's Ministry of Railways. On April 12, the government formed the China National Aviation Corporation (CNAC.) China Airways Federal Inc. was formed as a Curtiss-Wright subsidiary and the operating division of



Captain Roy Clinton Farrell CNAC uniform insignia c. 1945 metal, enamel Courtesy of Roy Farrell, Jr. L2014.1803.001

CNAC. Scheduled service began on October 21 along the 525-mile route to Hankow with two passengers and one pound of mail.

By the end of 1932, air service in China, particularly through the Yangtze River Gorge, reduced travel time from weeks to hours. CNAC business rose twenty-five percent. On March 31, 1933, Pan American Airways acquired Curtis-Wright's forty-five percent of CNAC.

The role of CNAC as China's predominant commercial airline changed dramatically in 1937. For the next eight years, CNAC would play a vital role in support of China. CNAC pilots operated on the dangerous routes to Kunming, Chunking, and Rangoon, Burma preferring to fly at night and in bad weather as much as possible in order to avoid Imperial Japanese fighter squadrons. No longer able to maintain a base of operations in China, CNAC moved its headquarters to India. By late 1940, an alternative supply route to China was needed as the country's coastal cities were blockaded. CNAC pilots were the first to fly a China-India route from Chunking to Calcutta over parts of the world's highest mountain range, the Himalaya, a region that would become known as "the Hump." By pioneering this daring operation, CNAC had discovered a backdoor to China.

The artifacts, documents, and images in the exhibition reveal the visionary leadership and the fortitude and resourcefulness of the men and women of CNAC. United in a common cause, they pushed the power of air transport to its very limit in service to others. The legend of the China National Aviation Corporation continues to inspire. The Legend of CNAC exhibition is on view in the Louis A. Turpen Aviation Museum through May 29, 2015. The San Francisco Aeronautical Society is pleased to share the essays from the 2014 Scholar Award Winners.

The Legend of Doolittle Yuki Chin Aragon High School Attending UCLA, studying Education



In December of 1903, the Wright brothers successfully completed the first flight by a powered airplane in history, and soon after, became national heroes. However, despite its almost immediate use over the next several decades in militaries across the globe, flight remained a hazardous endeavor. Among other problems with the still developing technology, such as maintaining stability, efficient use of fuel, and

the need for durable and practical materials, were safety concerns due to human errors in piloting. Over time, engineers and technicians began finding ways to resolve each of the problems with the aircrafts themselves; however, they were still unsafe to fly in certain weather conditions, aircraft flight was disorienting, and pilots could easilty misjudge their sense of motion, interfering with important piloting decisions. But all of this would change with one flight made by General James H. Doolittle of the United States Army Air Force in 1929.

Doolittle was a brave, curious, and tenacious man since the age of 15, when he built his own homemade glider with which he jumped off a cliff in an attempt to fly. He began his military career as a flying cadet in October of 1917, and was commissioned on March 11, 1918 as a second lieutenant in the Signal officers Reserve Corps. While in service, both during and after World War I, Doolittle made a name for himself as an extremely talented pilot and aeronautical engineer, was a pioneer of aviation, and was pivotal in bridging the gap between engineers and pilots at the time; he served in several notable positions, such as flight instructor, flight leader, gunnery instructor, and engineering officer, was central in an expedition to recover a United States military plan that had force-landed in a canyon in Mexico, successfully completed the first transcontinental flight in 1922 within a day, performed for the first time the aerobatic maneuver of the outside loop, and most notably, completed the first ever full flight while relying on aerial instruments alone.

Recognizing the restrictions of flight from visibility due to weather and time of day, as well as pilots' tendencies to base judgments on incorrect or unreliable cues of vision and the vestibular senses, Doolittle was determined to prove that these dangers could be eliminated through use of flight instruments. Employing the Paul Kollsman altimeter and the Elmer Sperry artificial horizon and direction gyro, Doolittle was able to take off, fly, and land his plane while completely barring his view to the outside of the cockpit. Thus, Doolittle demonstrated that "blind" flying is indeed possible, and revoluntionized the use of aircrafts in paving a path for their practical use in all weather conditions.

Doolittle became the greatest contributor to aviation safety as it is known today. The flight instruments that he used in his first "blind" test flight, such as the artificial horizon and directional gyroscope, continue to be used by pilots in airplanes worldwide. Today, there are over ninety thousand airplanes in use in the air each day, some of them passenger carriers and private jets, others used for shipping and mailing, and still others for military use, but all of them flying in any number of varying weather conditions at all hours of the day. The airline industry generates nearly \$700 billion in annual revenue all across the world, and the global market for aviation is expected to double over the next two decades. But without the revolutionary experimental flights of James H. Doolittle in 1929, the scale to which aviation has grown over the course of the past century would have been impossible to achieve.

Lawrence Sperry: The Man Who Taught Machines How to Fly Patrick Lin

Aragon High School Attending Columbia University, studying Engineering



It seems that the fates had conspired to make Lawrence Burst Sperry the creator of one of the most important inventions in aviation history. Endowed with strikingly handsome looks, he had also certainly inherited his father's creative fire: at the young age of seventeen, Sperry and his brother, Elmer Jr., built a glider inside the family home while the other members of the family were away on vacation.

As the semi-famous story goes, when Sperry discovered that the wings of the glider were too large to fit through the doors of the house, he decided to rip out the large bay window in his parents' bedroom to allow the partially assembled plane to be moved outside, an action which his parents did not find at all amusing when they returned. If the building and flying of his own glider was any indication, Sperry also possessed a burning passion for aviation; in 1913, four years after building the glider, he obtained his pilot's license after completing lessons at the aviation school in Hammondsport, N.Y. Thus, his inventive spirit, coupled with his love for aviation, made Sperry poised to make a major breakthrough in the aviation world.

Perhaps the most important circumstance in the story, however, was the fact that Lawrence Sperry was the son of Elmer Sperry, the inventor of the gyrocompass. Elmer Sperry's gyrocompasses were already being used in US Navy ships, and as a result of the gyrocompass' success, the Navy was interested in having the Sperrys develop a gyrostabilizer for their planes. Lawrence Sperry took on the challenge, and after over fifty test flights in Hammondsport with Navy Lieutenant Patrick Bellinger, he successfully developed the world's first autopilot system, which linked a plane's yaw, pitch, and roll to three gyroscopes that, with the help of servomotors, would automatically correct for any changes in the plane's three axes while flying. In 1914, Sperry demonstrated his newly conceived gyrostabilizer in front of a crowd of thousands in Paris, flying without the use of his hands and even walking out on one of the wings while leaving the cockpit empty; it was a historic moment that not only stunned the crowd and the judges but also transformed Lawrence Sperry into an aviation legend.

In developing the world's first autopilot system, Sperry created an essential tool that would become part of standard flying practice for nearly all generations of pilots after him. In addition to the autopilot system, Sperry also created the artificial horizon and the turn and bank indicator, two indispensable instruments that are still used in almost all aircraft today. Perhaps the most impressive aspect of his inventions is the fact that they were created around 100 years ago, yet they still remain vital and widely used today. Even though Sperry's life was cut short by an accident while crossing the English Channel, he will always be remembered as the aviation legend who taught planes how to fly themselves.

The Flight of Life: How Sir George Cayley Changed Aviation

Neema Shayo Hillsdale High School Attending University of Pittsburgh School of Nursing, studying Nursing



A little piece of paper floats weakly through the air and crashes back down to the ground. A determined child picks it up and carefully smoothes it out. The child folds it this way and that, creasing the fresh folds with stubby, focused little hands. This child doesn't see the growing amount of wrinkles on his paper, but instead looks to the new creation with hope that yes, this is it, this time the paper plane will conquer

the sky. Without hesitation, the child lifts and launches the

paper, and the ivory sheet takes flight. Dancing with the wind, it glides through the air, finally free, getting higher and higher, until it's just a white speckle against the sharp, blue sky.

This is what Sir George Cayley lived for. That moment of freedom, when the piece of paper seemed to defy the laws of physics and took on a life of its own. It was through this that Sir Cayley developed a passion for flying machines, and devoted his life to it. His advancements in aviation dramatically changed how inventors and aviators thought about flying worldwide. Often called the "Father of Aerial Navigation". Sir Cayley developed one of the first proper understandings of the physics of flying. He discovered and identified the four aerodynamic forces of flight - weight, lift, drag, and thrust. Sir Cayley constructed his first aerial device, a helicopter with rotating propellers, in 1796. Just three years later, Cayley designed a unique flying machine, complete with a compartment for a human to board it, a curved wing, and a propulsion system. His revolutionary idea of creating a machine to power the flying machine spurred many to think about flying differently. The fact that one could create some type of engine to enable the plane to remain in the air was truly a game changer in aeronautics. In 1804, Sir Cayley designed the first modern configuration of an airplane, complete with a fixed wing and adjustable vertical and horizontal tails. But Sir Cayley didn't stop there. It was in 1853 that his hard work paid off, when the first successful man-carrying glider took Cayley's footman across the Brompton Dale in the United Kingdom. Sir Cayley's contributions to aviation weren't bound to just his sketchbook and inventing station, however. In 1838, he helped found the first polytechnic institute in the United Kingdom, now known as the University of Westminster. He served as its chairman for a considerable amount of years, and enabled many youth to learn about aviation.

It was from Cayley's ideas, his designs, his inventions, and his many contributions that planted the seed of determination to conquer the skies in many aeronautical inverters that came after Sir Cayley's passing in 1857. Not only did he provide others with hope that flying was indeed possible, Sir Cayley showed many how important it is to always persevere and maintain the will to succeed. Had Cayley focused on the wrinkles on the piece of paper, or on the number of times he watched his paper plane sink to the ground, aviation would not have been what it is today.

Instead of becoming discouraged, Sir Cayley used his failures as his motivation to try even harder. It is in this way that we can all learn from Sir Cayley. We must look at our failures only as the stepping stones to our success. We must not let the number of times we fall to the ground define who we are or destroy our passions. And we must always let our hearts fly free, higher and higher, until they are just white speckles against the sharp, blue sky.

Congratulations to all of our Scholar winners. We wish them all the very best in their endeavors.

WELCOME TO NEW BOARD MEMBER Ken Turpen



Association) since 1992.

The Society would like to welcome it's newest board member, Ken Turpen. Ken is currently a Captain for United Airlines and is flying the new generation Boeing 737 aircraft from San Francisco. He brings to the San Francisco Aeronautical Society board more than 25 years of aviation experience.

CONTACT! For Society general membership and other programs, please contact:

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The San Francisco Airport **Commission Aviation Library** and Louis A. Turpen Aviation Museum is located at San Francisco International

Airport, International Terminal, Pre-Security, Level 3. It is open Sunday - Friday from 10:00 am to 4:30 pm. The telephone number is (650) 821-9900. For additional information and to learn about volunteer opportunities, please contact the SFO Museum at (650) 821-6700, or email curator@flysfo.com or visit www.sfomuseum.org.

BOARD OF DIRECTORS

San Francisco Aeronautical Society

At United Airlines, Ken has flown the 727, 737, 757, and 767. His accomplishments include being awarded "Pilot of the Year" three times by United Airlines. His hobbies include hiking, fishing, skiing and pocket watch and wristwatch repair and restoration.

1988 and became an Air Force instructor pilot in 1989. He has built two experimental aircraft, and flown many others.

He has maintained membership with the EAA (Experimental

Aircraft Association) and AOPA (Aircraft Owners and Pilots

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