Centennial of Flight Commemorative Issue

The Circuit

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In Celebration of Technical Women In the Federal Aviation Administration

http://two.faa.gov/

News for employees in the technical field

The Circuit

Volume 21, Issue 1

2003
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Greetings to Technical Women's Organization Members and Our Supporters
By Marcia Corey, President

Starting July 1, a new leadership team has come to the helm to guide our organization for 2003-2004. Please join me in welcoming and supporting this wonderful group. They include Debbie Cervantes, Vicki Richard, Bernadette Ohlemacher, Laura Helm, Mary Ann Keller, Beverly Anderson, Candy Close, Marilyn Tomko, Monika Steinke, Robertha Walley, Angela Smith, Marjorie Weeks, Sheila Griffin, Elizabeth Doucette, Frank Cullen, Clarissa Holland, Brenda Smith-Keene, Patti Mattison, Sunny Faith, Janet Long, Patricia Walker, Cynthia Noble, Laurie Camilien-Pietrak, and Lynn Strazzini.

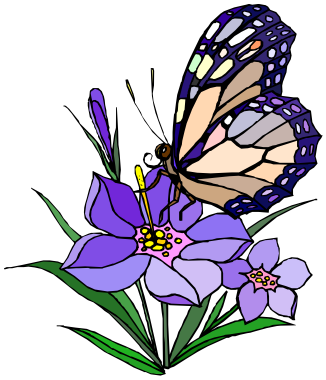
I also wish to acknowledge two key people who continue to guide us from the sidelines, and those are our two past presidents, Cathy Hedglen and Mary Thomas. They are there supporting us along our journey.

As your new president, I am deeply committed to our mission, which is to provide information, education, resources and a support network to all technical women and to women who are seeking to move into technical positions in the Federal Aviation Administration.

As some of you have already seen, I am seeking your assistance in identifying the current needs of the organization, learning your issues and concerns, and strengthening our focus. I am also reaching out to you for assistance with our publications and activities. We can only provide the services you want with your help. As Hillary Clinton stated, "It takes a village."

We are in a time of impending and imminent change. The government has been challenged to do things differently, to question what work is truly governmental, and to compete for work where there is an opportunity for

competition. The Federal Aviation Administration has been given a clear budget message and will be redesigned around the performance-based Air Traffic Organization. While our mission remains the same, our ways of doing business will look different in the future. How we look at this change is critical to our future.



Let's think for a minute about change. If the caterpillar didn't sense the need for change, it wouldn't become the beautiful butterfly that so delights us with its wonderful colors and graceful flight. If Wolfgang Mozart or Wynton Marsalis didn't touch an instrument and Pablo Picasso or Georgia O'Keeffe hadn't picked up a paintbrush, they wouldn't have produced the incredible music and art that inspire us today. If Orville and Wilbur Wright, or Bessie Coleman, or Amelia Earhardt hadn't had a dream to fly, we wouldn't have these heroes and role models to inspire us to dream as well.

So how does the Technical Women's Organization move forward in this era of change in the Federal Aviation Administration? Most certainly we do not want to stand in the way of change, as we know that change will occur with or without us. Instead, we are here to embrace change and to become champions for the evolving nature of what's to come. We take a leadership role with a vision of the future that will be valuable to our technical workforce. We offer our support as partners in making change that is meaningful and successful.

As members and supporters of the Technical Women's Organization, I encourage you to join with us as flexible, progressive, visionary advocates of change. This positive, embracing response will carry us forward with strength and purpose that adds significant value to our role in the organization. We will be the butterflies, we will be the artists, and we will fly to new heights in our lives.

We look forward to your support and assistance, and encourage you to become an active participant in the work of our organization. We are fueled by your energy, sustained by your commitment, and nurtured by your support. In exchange, we are a support and resource network for you, a voice for technical women, and a circle of friends.

This is a special edition of "The Circuit," written to give a historical perspective based on the celebration of the Centennial of Flight. It is also written to highlight some of the people who are special to the Technical Women's Organization and to give an opportunity for our members and supporters to share their thoughts and ideas. It is the start of a series of "The Circuit" publications that will continue to highlight our friends and supporters and the impact they have on the National Airspace System. We hope that this information will open our networking community and recognize the wonderful talent in the Technical Women's Organization and throughout the Federal Aviation Administration. The Federal Aviation Administration, Technical Women's Organization, and the National Airspace System are all better because of you all. Thanks for all you do, and thanks for being a member or supporter of the Technical Women's Organization.

Sincerely,

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THE NATIONAL AIRSPACE SYSTEM (NAS)- THEN AND NOW
A PERSONAL PERSPECTIVE

By Robert A. Wright, Manager
General Aviation and Commercial Division, Flight Standards Service

Imagine, if you will, piloting your aircraft through the dark skies by following a series of lighted beacons across a defined "lighted federal airway". Or imagine listening through earphones for a faint "A" or "N" in Morse Code, or more hopefully, a steady "hum" indicating you were on course ("on the beam") using one of the new low frequency radio ranges installed.

These navigation methods were about all that was available for most aircraft flying through the 1920's and 1930's, unless you navigated purely by landmarks ("pilotage", it was called) as most aircraft did then. Smaller sport and recreation aircraft still navigate by landmarks to this day. Despite these basic navigational aids, the emerging new airlines and some private aircraft learned how to use the radio ranges to navigate during instrument meteorological conditions and made relatively safe instrument approaches during bad weather. This was done without an air traffic control system, which existed only for the military. It constituted the first of three generations of the NAS, and was very akin to what we call today a Free Flight system. This era lasted from the 1920's to the early 1950's, although remnants of the lighted beacon infrastructure survive till this day and the last radio range was decommissioned in 1974. As a young pilot, I used the airway beacons to navigate the mountains at night while stationed in Montana during my Air Force years from 1970-1973. I also used the few low frequency ranges that were available from southern Canada.

The second generation of the NAS was developed in the 1940's, installed in the 1950's and includes what is still the bedrock of our current NAS: VHF Omnidirectional Ranges (VOR), Distance Measuring Equipment (DME), Instrument Landing System (ILS), and ground based enroute and terminal radars (primary radar initially with secondary radar added later). Three factors were characteristic of this first NAS transition: (1) the transition was lengthy, 27 years (the first VOR in 1947, the last radio range in 1974); (2) the transition was possible only because airspace users were willing to be equipped with avionics that could use the new radio aids; and (3) the transition required government "stimulus"

to provide benefits to users in the form of capabilities such as lower landing minimums or reduced aircraft separation.

The FAA and the user community have had to re-learn those lessons during the transition to the third generation of the NAS, now fully underway. The third generation of the NAS includes both new concepts and new hardware, both on the ground and in the aircraft. This transition is revolutionary because it shares responsibility between the cockpit and the controller and is, in some ways, a return and enhancement of the "free flight" era of the first generation NAS. These changes are enabled by revolutionary new technology brought to us by the Communications, Navigation, Surveillance/ Air Traffic Management (CNS/ATM) revolution. From the point of view of aircraft operators it is informally known as "cool, neat, stuff, all it takes is money" and that is the issue at hand. All three lessons from the last transition apply here, and both the FAA and user community are struggling to apply them again to a new era and set of operating conditions.

The space-based navigation (GPS/WAAS, etc.), new surveillance methods (ADS-B, etc.), and new communication technology (data link, etc.) will be useless without aircraft equipage, new procedures, and pilot/operator training. The FAA has previously focused attention on ground systems and that is changing. The FAA is partnering with avionics suppliers and the user community to prototype new cockpit systems and operating concepts. Programs such as Capstone and Safe Flight 21 are leading the way in that direction.

It is important for FAA employees and managers to contemplate the future of the current NAS transition and the personal challenges it creates. The transition of the NAS from ground to aircraft is profound and will shape our future whether we are controllers, technicians, engineers, or safety inspectors. Our jobs will change and our work force will be transformed based on the new technologies on our horizon.

Technical Women's Organization's Presidents

In November 1984, Maureen Beharelle and Laura O'Malley sent surveys to several female technicians in order to determine if there was interest in forming a support group for women technicians in Airway Facilities. The purpose for the group would be to provide information regarding changes in the technical field, problem solving, and generally to discuss various aspects in the technical field.

Mid 1987 - **Gerry Morgan** volunteered for the position before the first conference.

October 7-9, 1988: The first Technical Women's Organization development conference was held in the Washington Headquarters Civil Rights Office with the assistance of George Gordon, Pat Webster, and Linda Dimon from Civil Rights. The following women wrote the Constitution and Bylaws and became Charter Members of the Technical Women's Organization:

Abby Call, Vianne Fowler, Karen Hammond, Clarissa Holland,
Marie Meyer, Barbara Silva, and Betsy Titherington.

The Technical Women's Organization became recognized under the auspices of Civil Rights because the organization represented the focus of an employee group whose members were not represented by any other employee group (i.e., minority women/women in the technical work field).

October 1988 – 1990 **Abby Call** became the first elected president at the first conference

Following in Gerry's and Abby's footsteps, the following women have served the Technical Women's Organization as Presidents:

1990-1991 -- Marie Meyer
1991-1993 -- Barbara Silva
1993-1997 -- Bernadine Molen
1997- 2001 -- Cathy Hedglen
2001-2003 -- Mary Thomas
2003-2005 -- Marcia Corey

TWO PROFILES

Throughout this special edition of The Circuit, we'll spotlight several members and supporters with their accomplishments.

Maria Tavenner

Maria Tavenner is a highly regarded manager for the FAA. She is currently the Acting Manager for Communication and Information, and Terminal Surveillance. Her other recent assignments include Acting Deputy of Terminal Surveillance and the Service/Product Lead for several Terminal Surveillance teams. As Service/Product Lead, Maria has managed research and development, acquisition, fielding/implementation and sustainment for high visibility projects, including the Airport Surface Detection Equipment-Model 3, the Airport Movement Area Safety System, and an Airport Movement Area Safety System Runway Status Light demonstration program.

Her recent awards include the Research and Acquisition organization's Safety and Security Award and the Office of Communications, Navigation, and Surveillance Systems Model Work Environment Award. She is a long-term friend and supporter of the Technical Women's Organization, and has been a mentor in the Headquarters Mentor Program for five years.

Richard Thoma

Richard Thoma is the Program Director for Operational Support in Airway Facilities. He has been with the FAA for 28 years and began his career in the Southern Region Facilities and Equipment installation program and has worked in operations programs within Air Traffic Services for 16 years.

Rick has been important to the Federal Aviation Administration as a manager in a variety of field, regional and headquarters facilities and equipment and operations positions. This has included Assistant Manager, Establishment Engineering Branch (today's National Airspace System Implementation Center); Branch Manager, Maintenance Operations; Atlanta Sector Manager; Atlanta Systems Management Office Manager; Deputy Airway Facilities Division Manager for Southern Region; Headquarters Deputy Program Director, National Airspace System Operations; and Acting Deputy Director, Air Traffic System Requirements Service.

Rick has had a broad range of experiences and has contributed significantly to the mission of the Agency. He is a highly regarded manager and a valuable contributor to the Technical Women's Organization. He is an active mentor in the Headquarters Technical Women's Organization Mentor program, and a member of the Federal Aviation Administration Managers Association. He is also a member of the Air Traffic Control Association.

Barbara Miller

Barbara is the Manager of the System Service Center at Orlando International Airport in Orlando, Florida. She is a current bright star for Technical Women's Organization members and the Federal Aviation Administration. On September 9th of this year she was rewarded with the "Airway Facilities Director's Key of Excellence Award". This award was given in recognition of her achievements over the past three years that culminated in the successful construction, commissioning, and cutover of the new tallest Air Traffic Control Tower in North America. This was a tremendous task that required continuous planning and coordination with National Airspace System Implementation Program personnel, local Air Traffic, and Greater Orlando Aviation authority. During this time, despite extreme taxing of Airway Facilities manpower resources she maintained highly reliable Airway Facilities services and equipment at an existing Air Traffic Control Tower and co-located Terminal Radar Approach Control. This feat was especially critical for facilities here at Orlando, a designated high impact airport, where continuous operation and service is vital to the National Airspace System.

Fanny Rivera

As the Assistant Administrator for Civil Rights and Diversity Advocate for the Federal Aviation Administration, Fanny Rivera is the principal advisor to the Administrator on Agency civil rights, equal employment opportunity, managing diversity and affirmative action matters. Ms. Rivera leads the Agency's efforts to create a Model Work Environment that is productive and hospitable, where all employees can develop to their potential and contribute fully to the organization.

Prior to her assignment as Assistant Administrator, Ms. Rivera served as Deputy Assistant Administrator for Information Technology. She began her career in federal service in 1973 with the Office of Personnel Management in New York. Eleven years later, she joined Federal Aviation Administration Eastern Region Human Resource Management Division, later heading up that region's Civil Rights office.

Upon graduating from the Agency's Senior Executive Service Candidate Development Program, Ms. Rivera was named Deputy Regional Administrator for the Western-Pacific Region, where she shared in the responsibility for the general management of a region with a population of approximately 5,700 employees. She also acted as Regional Administrator for that region, prior to accepting the Office of Information Technology position in Headquarters.

Throughout her career Ms. Rivera has been an advocate for women and minorities. In her current position, she is a critical link between individuals looking for positions in all fields, especially hard to fill technical ones, and with management personnel who have positions available. Her office is responsible for the special emphasis programs within Federal Aviation Administration all of which play an integral part of assisting and filling positions.

Ms. Rivera readily and willingly shares her experiences with others. Her most recent mentee and Technical Women's Organization member, Lisa Neal stated: "Fanny was open and sincere and shared information on her personal and business trials and triumphs." Ms. Rivera's dedication to the Agency and ensuring people are taken care of in all positions does not go unnoticed. She has received numerous awards for outstanding agency contributions, including the Agency's Administrator's Award for Excellence in Equal Employment Opportunity and, most recently, the Secretary of Transportation Meritorious Achievement Award. She has also been recognized by the various employee associations for the work she has done in supporting them and their goals.

TWO Mentor Program Logo

Ms. Rivera actively and energetically supports the Technical Women's Organization and the programs it has to offer. Since the Technical Women's Organization Headquarters Mentor Program began she has been a mentor to four individuals. One of her mentees, LeQuan Turner, stated: "Without question, Fanny Rivera has made a remarkable impact on me both personally and professionally. Her leadership skills, experience, background, and education were the preparation, not only for my personal successes, but are a viable asset to women and minorities."
Fanny Rivera is one of those individuals you "must meet".

TWO Mentor Program

By Lynn Strazzini

The Headquarters Mentor Program began its sixth year in October 2003. For the first time, PWC (Professional Women Controllers) is partnering with TWO to cosponsor this year's program, which has 29 mentee and mentor pairs. Supervisors and mentors have already participated in sessions to discuss their roles and responsibilities; the program Kickoff session was held on November 13; and the mentees will attend Individual Development Plan training in December. Mentees are expected to meet with their mentors at least twice monthly and attend monthly classes, e.g., Setting Goals & Decision making, the Myers-Briggs Type Indicator, and the FAA's Organizational Structure. This 7-month program will conclude in June 2004 with a formal graduation ceremony.

TWO and PWC are currently in the preliminary stages of helping two regions -- AWP and AGL-- design mentor programs, which can serve as pilots for other interested regions.

Women's History Article

By Sherry Golightly

Have you ever taken a moment to consider all of our feminine forebears who paved the way for the freedoms and liberties the modern woman of today enjoys? Have you ever considered the women who served as "groundbreakers" and opened for the rest of us the variety of career field's women occupy today?

We often look at where we are and evaluate our career status and personal growth against what we as individuals have done to achieve the status and positions we occupy. Pause for a moment and consider how that perspective would alter if we took a moment to appreciate the dedication and sacrifice of that those who came before us. Think about all that those women gave to make it possible for us to achieve the careers, position and status we are able to attain today.

Our Journey Begins…

Have you ever heard of the 'Declaration of Sentiments"?

The first official women's rights convention was held in 1848. The convention took place in Seneca Falls, NY and after a few days of discussion, Elizabeth Cady Stanton drafted "The Declaration of Sentiments." This declaration was based on the American Declaration of Independence, and demanded equality with men regarding law, education and employment, as well as the right to vote. 68 women and 32 men signed the Declaration of Sentiments.

In 1850, over 1,000 participant's traveled to Worcester, Mass. to attend the first National Women's Rights Convention. In May of that same year, Elizabeth Cady Stanton, and Susan Brownwell Anthony formed the National Woman Suffrage Association. The objective of this organization was to achieve voting rights for women via a congressional amendment to the Constitution.

In November of 1850, Lucy Stone and Henry Blackwell formed an association, the purpose of which was to gain voting rights for women by amendments to individual state constitutions. They named the new association the American Woman Suffrage Association.

On December 10, 1869, the efforts of the American Woman Suffrage Association beared fruit when the territory of Wyoming passed the first women's suffrage law, and in 1870 women began serving on juries in the territory.

In 1890, the National Women Suffrage Association and the American Women Suffrage Association combined to become the National American Women's Suffrage Association. The newly combined organization launched a state-by-state campaign to obtain voting rights for women.

In 1878, Susan B. Anthony authored the Federal Woman Suffrage Amendment and submitted it to Congress.

In 1896, more than 100 black women's clubs combined to become the National Association of Colored Women. Notable names in this movement include Josephine St. Pierre Ruffin, Mary Church Terrell and Anna Julia Cooper.

In 1903, the first women's labor organization was formed. The aptly titled National Women's Trade Union League was formed to improve working conditions and wages for women.

In 1913, Alice Paul and Lucy Burns formed the Congressional Union. The purpose of this union was to achieve the passage of a federal amendment to give women the right to vote.

In 1916, the first birth control clinic was opened in Brooklyn, NY by Margaret Sanger. Ten days later Margaret Sanger was arrested and the clinic was closed.

In 1919, after a delay of 41 years, the Senate and the House of Representatives passed the federal woman suffrage amendment. At this point, the amendment still requires ratification by the states.

On August 26, 1920, the 19th Amendment to the Constitution, which granted women the right to vote, was signed into law by then Secretary of State, Bainbridge Colby.

On November 10, 1921, Margaret Sanger founded the American Birth Control League. The ABCL offered the women of that day education on pregnancy, sexually transmitted diseases as well as a voice for social and political reform.

In 1923, after petitioning the courts, Margaret Sanger was permitted to open anther clinic in New York City.

In 1935, birth-control information was removed from the "obscene" listing which allowed the dissemination of contraceptive information through the mail. This however was not the end of the war for birth-control advocates. The battle for birth control continued in the legal system for the next 20 years.

In 1942,the American Birth Control League became the Planned Parenthood Federation of America.

In 1960, after considerable struggles, the Food and Drug Administration approves birth control pills.

In 1963, Congress passed the Equal Pay Act.

In 1964, Title VII of the Civil Rights act made it illegal to discriminate in employment on the basis of race and sex. The Equal Employment Opportunity Commission was established at the same time.

In 1965,the last remaining state law that prohibits the use of contraceptives by married couples was struck down. The precedent setting case was Griswold v. Connecticut.

On March 22, 1971, the Equal Rights Amendment is passed by Congress and sent to the states for ratification. Alice Paul drafted this amendment in 1923, it died in 1982 when it failed to be ratified by the minimum 38 states. The amendment reads, "Equality of rights under the law shall not be denied or abridged by the United States or by any State on account of sex."

In 1986, as a result of the case Meritor Savings Bank v. Vinson, the Supreme Court determined that sexual harassment was a form of illegal job discrimination.

Names you should know…

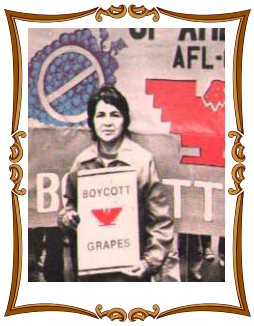
Elizabeth Cady Stanton was born in Johnstown, NY in 1815. She was educated at the Troy Female Seminary, which is now known as the Emma Willard School in Troy, NY. Elizabeth was highly respected by some, and sorely ridiculed by others for her involvement in the movement to Abolish slavery. Along with Lucretia Mott and Susan Brownwell Anthony, she is credited with beginning the movement to organize women to win equality. Elizabeth Cady Stanton and Parker Pillsbury edited the Revolution, the first militant feminist magazine which was published by Susan B. Anthony. Elizabeth Cady Stanton died in 1902 at the age of 87.

Shirley Chisholm was born in 1924 and in 1968 was the first African-American woman elected to the U.S. Congress. In the 1950's she ran for and won a seat in the NY State Legislature. She entered several Democratic Primaries in 1972 and received 151 delegate votes for the presidential nomination. She has written and published two books, "Unbossed and Unbought" and "The Good Fight." She was invited to serve as Ambassador to Jamaica by President Clinton. This is a truly fascinating lady!

Maria Goeppert Mayer was born June 18, 1906 in Kattowitz, Germany. She won the Noble Prize in Physics in 1963 for her work on the nuclear shell structure. She described it as the "a series of concentric shells that resemble the layers of an onion." Because of her description of the nucleus structure, she was known as the "Madonna of the Onion". Maria married Joseph E. Mayer, an American Student in 1930 and migrated to the United States and became a citizen in 1932. (*Maria was the second woman to be awarded the Nobel Prize. The first woman to win the Nobel Prize was Marie Sklodowska Currie, who won for Physics in 1903 for her research on the radiation phenomena.)*

Mary Ann Shadd Cary was born in 1823 in Wilmington, Delaware. She was the eldest of 13 children born to free Negro (as African-Americans were known then) parents. She received an education from Pennsylvania Quakers and devoted much of her life to abolishing slavery. She became an educator, not just teaching, but actually established several schools for African-Americans in West Chester and Wilmington, PA; New York; Morristown, NJ and Canada. Her list of firsts is impressive. She edited the "Provincial Freeman," a first among African-American women in North American. She was the first woman to speak at a national Negro Convention. She was the first African-American to obtain a law degree from Howard University's law school and upon achieving her degree, she worked with Susan B. Anthony and Elizabeth Cady Stanton for women's suffrage. She testified before the Judiciary Committee of the House of Representatives. She was also the first African-American woman to cast a vote in a national election.

Susette La Flesche was born in 1854, the daughter of Chief Joseph La Flesche, who was the Chief of the Omaha native American tribe. Proud of her heritage, she campaigned for Native American rights. She completed her education at the Elizabeth Institute in New Jersey. She was the first Native American to be published as a writer and an artist. She traveled with Thomas Tibbles, a newspaperman of the Omaha Herald on a lecture tour and shed light on the injustices perpetrated against the Ponca Indians. Tibbles later became her husband in 1881. She was instrumental to the passage of the Dawes Act in 1887. The Dawes Act was thought to be a progressive law that would benefit the tribes.



Dolores Huerta was born in 1930. She gave up a teaching career to become a co-founder of the United Farm Workers with Cesar Chavez in 1962. This amazing woman managed to raise 11 children while working for the benefit of countless migrant/immigrant workers. The year 1965 found her in the middle of the Delano Grape strike, negotiating contracts, taking the lead on political activities the purpose of which was to benefit farm workers, and organizing demonstrations and boycotts. Her efforts helped secure collective bargaining rights, immigration rights and unemployment insurance for farm workers, under the 1985 Rodino amnesty legalization program.

The commonality shared by each of these women is there good will in seeking to better the conditions of not just themselves or their race, but for society in general and all women. There are many more women who deserve recognition for the firsts that they achieved and for the inspiration we could all get from their stories. These articles were written to encourage you delve into the "herstory" (instead of history) and benefit from the spirit of perseverance and the indomitable will that is evidenced there.

The information found above was taken from the Preamble of the Constitution of the United States of America and the following web-sites: www.infoplease.com. Other web-sites of interest are www.womenshistory.about.com; www.greatwomen.org; and www.almaz.com/nobel/women.

TWO PROFILES

JoAnn Kansier

JoAnn is a manager for the Federal Aviation Administration and is the current Director of Competitive Sourcing. She has held a variety of positions in contracting, labor relations, voice & data communications, terminal systems, and systems requirements. She believes her varied background affords her a special opportunity to link the right people together to reduce system redundancies and to impart efficiencies in major National Airspace System program efforts. She identifies this broad organizational networking as "relationship leadership". Recently, while serving as the lead for the Communications Steering Group, Joann demonstrated how bringing together the right people leads to real mission improvements, a positive impact on the National Airspace System, and allows more employees to succeed in the team environment as well as individually.

Clarissa Holland

Clarissa entered the Federal Aviation Administration in 1974 as a GS-4 developmental electronic technician after completing a degree in Electronic Engineering Technology from a local college. She reported to the Allegheny County Airport, which was a part of the old Pittsburgh Sector, where she progressed to a GS-12 Navigation/Communication technician. In 1991, Clarissa became the Program Developmental Specialist, which later was changed to the Program Support Specialist in the PIT Systems Management Office. Over the years Clarissa has been detailed to the following positions: Navigation/Communication Supervisor, Sector Field Office Manager, and System Service Center Supervisor. Clarissa recently celebrated her one-year anniversary as the Manager for Program Support in the Pittsburgh System Management Office.

Clarissa became a Chapter member of the Technical Women's Organization when she attended and assisted in writing the Constitution and Bylaws at the first conference in 1988. She has held the positions of Vice-President, Treasurer, and is the current Historian. She is also the current Chairperson for the Nominations and Elections Committee and the Constitution and Bylaws Committee.

Clarissa has worked selflessly in the Technical Women's Organization and has been a driving support for every President in office. She is the go-to person when there is discussion or questions on the bylaws. Clarissa has been one of the prime foundations for the Technical Women's Organization....and we love her for it!

Jo L. Tarrh

Jo is the Airway Facilities Division Manager in the Southwest Region. Early in her career, as a non-supervisory Facilities and Equipment engineer, Jo took special pride in being selected as the project manager and team lead for the 1st elevated Very High Frequency Omni-Range (VOR) antenna in the Dallas-Fort Worth Metroplex Plan. Since this was a "first", she and her team had to make sure it would work. They reviewed drawings, created a design and successfully tested 3 VORs, handing the design off to other regions for installation. It was this early success, which led to Jo's first supervisory position as manager of an 165 million dollar project as Regional Associate Program Manager for the DFW Metroplex Plan. More recently, two System Management Offices in the Southwest Region won two of the three national Airway Facilities System Management Office annual awards. This national success for her employees brings Jo the greatest personal satisfaction of all.

Judy Nauman

Judy is the Airway Facilities Assistant Division Manager (ANE-401) in the New England Region. She has been a private pilot since 1978 and has always loved aviation. She views it as "an inspiring escape from all earthbound stresses." It was in 1981 that she decided to make her avocation her vocation and joined the Agency.

Anyone who has worked with Judy knows that She is devoted to excellence through plain old hard work. One of the many things Judy is admired for is her enthusiasm for getting out of the office and into the field to listen 'first-hand' to the Specialists who maintain the National Airspace System. In New England and her previous assignment in Alaska, where inclement weather and logistics can make visiting a site a challenge, Judy arose to the occasion. Donning her boots and wrapping up against the weather she has been known to brave the cruelest of winter weather to visit field sites. Judy will tackle anything and see it through. She is a master at applying the talents and skills of those she leads, along with the Agency's resources to ensure that the best product possible is consistently provided with ever increasing efficiency.

Prior to her assignment in New England Judy was Assistant Manager of the South Alaska Systems Management Office. Other FAA assignments include Manager, Sacramento Flight Inspection Office; Special Assistant to Associate Administrator for Aviation Standards; Special Assistant to Administrator; Northwest Mountain Region--Public Affairs. Prior to joining the FAA Judy completed a 6-month Congressional Fellowship with then Congressman Norman Mineta.

Judy Holcomb

Judy Holcomb, long-time member of TWO and past TWO Regional Representative from the Aeronautical Center in Oklahoma City, Oklahoma, is currently the Airway Facilities Division Assistant Manager within the FAA Academy.

Starting out as a Clerk-typist for the FAA in 1979, Judy became interested in electronics while working with Airway Facilities Instructors on a computer-based instruction course entitled Electrical Principles Phase I. Encouraged by her Manager, Judy enrolled in various electronics courses completing them in record time! From there, Judy was hired by the Aeronautical Center Logistics Center as a developmental Electronics Technician. Progressing in the electronics repair shops, Judy gained a wide range of expertise.

Attending college during this time, Judy obtained an Associates degree in Electronic Technology. Moving into the FAA Academic world as an Instructor, she continued with her education. Judy not only completed her Engineering Conversion, she went on to receive a Bachelor of Science in Quantum Physics from Oklahoma City University, as well as, a Masters and Doctorate in Aviation and Space Education through Oklahoma State University. She is now Dr. Judy Holcomb!

Dr. Holcomb has served in a variety of management positions: Supervisor for the AF Common Principles Unit, Curriculum Manager for (then new) Computer Based Instruction platforms, Manager of Development Section and Program Support, and Manager of Training Operations and Technologies Support Branch. In October of 1997, Judy served as the AF Assistant Division Manager (temporary) until it was made permanent in October of 1998.

Laurie Camilien-Pietrak

Laurie Camilien-Pietrak is an Investment Analysis Team Lead in the Integration Investment Analysis Branch of the Office of System Architecture and Investment Analysis. Laurie provides leadership to Investment Analysis teams encompassing members from multiple Lines of Business within the Agency and with divergent interests in the various programs. The goal of these teams is to conduct analysis that will support a credible business case for program decisions as well as promote alternatives that support the Agency's strategic goals. With Laurie's leadership these investment analysis teams play a critical role in modernizing the National Airspace System. All modernization programs must undergo this arduous investment analysis process in order to gain executive approval for funding and eventually implementation of solutions. Laurie, like so many others spotlighted in this edition of "The Circuit," quietly makes a profound difference in the continual efforts to modernize the National Airspace System by the things she does every day.

American Legacy - Living In the Spirit of Harriet Quimby and Bessie Coleman

Connie Tobias (L) with Sandra Campbell (R)

Nashua, New Hampshire, September 2003, Daniel Webster College recently celebrated this years "Centennial of Flight" with a weekend of events and speakers as part of their "2003 Aviation Heritage Festival". Daniel Webster is a private college with degree programs in air traffic management, aviation flight operations and aviation management

One of the festivals most unique events, was the "Tea with Harriet Quimby and Bessie Coleman, Female Legends of Aviation", in which Connie J. Tobias and Sandra J. Campbell reenacted the lives of Quimby and Coleman before festival attendees which included students from three area schools. Donning aviatrix regalia that closely resembled that worn by Harriet and Bessie in their time, Connie and Sandra met and performed together for the first time. Connie is a pilot for U.S. Airways International and Sandra is Manager of the Technical and Administrative Support Staff for the FAA Aircraft Certification Service's Small Airplane Directorate in Kansas City, Missouri.

Both Tobias and Campbell, two incredibly talented women, share at least one major motivational concept, which is their determination to follow their dreams. This concept continues to be true for many technical women, serving as professionals in traditionally male dominated professions. Those special words, "follow your dreams" are words that many of us carry with us throughout our lives to accomplish amazing feats, sometimes believed impossible. As Sandra emphasizes in her first-person account of Bessie Coleman's life, Coleman's father advised "Follow your dreams, and don't take 'no' for an answer, because every 'no' is a little bit closer to yes!"

Photo courtesy of John Dow Sr.

Sandra, much like the famous aviatrix that she emulates, has been featured in a book entitled "A Power of Her Own, authored by Kathryn Sommer. The brief photo biography outlines Sandra's own personal story and how she was inspired by Bessie Coleman. Sandra believes that "one's personal power is not only about following their dreams, but also helping others to follow theirs". In 1996, Sandra wrote and produced her one-woman play entitled "Follow Your Dreams, The Bessie Coleman Story" which she still performs live for audiences throughout the country.

Since then, the play has been produced by PBS Kansas City Public Television and has aired on other PBS stations around the country. A video was made for purchase and like Campbell, those who have contributed to the making of the video believe their contributions make a difference and will continue to inspire others. Campbell says she is thankful for all the opportunities God has given her to use her gifts and talents in this way. "Through the grace of God, I have been able to face and overcome my own life challenges, and the play is one avenue for me to give back". It is her dream to continue fulfilling her destiny by helping others achieve their goals.

Much like the father of Coleman, Sandra's father was encouraging, an inspiration and very supportive. He knew his daughter had a special gift and advised "You're nobody if you're not helping somebody". It is Sandra's hope that her life will continue fulfilling her fathers' words by helping others reach their full potential. Her other accomplishments include a bachelor's degree in Communications from Avila College, a masters degree in Management from Baker University, an adjunct professor with Webster University and numerous performance awards throughout her FAA career. She holds membership in various organizations, including Delta Sigma Theta Sorority Inc, the University of Missouri-Kansas City Women's Council, FAA Managers Association, International Women In Aviation, National Black Coalition of Federal Aviation Employees, Professional Women Controllers, Tuskegee Airmen Inc., and the International Black Aerospace Council. She has received countless awards and recognition for her play and is the founder of Purple Jellybean Productions Inc.

In 1921, Bessie Coleman, or "Brave Bessie" as she was known, became the first licensed African-American woman pilot. Bessie had difficulty acquiring her license in America due to her gender and race, so she studied French and obtained her license there. Bessie returned as the first female, African-American pilot and soon became a popular attraction on the air show circuit. In Campbell's reenactment of "Queen Bess", She portrays the life story of Coleman from childhood in Texas, and her adventures in Chicago and in France where she earned her pilots license at the Federation Aeronautique Internationale, June 15, 1921.

In Jacksonville, Florida, April 30, 1926, Bessie met an untimely death during an aircraft accident. Sandra's own life parallels Bessie's in many ways, including the fact she was born on April 30th, only a few decades after the aviatrix death.

Connie J. Tobias, a pilot herself, was inspired by the story of Harriet Quimby. In 1975 when she was pedaling a 10-speed bicycle from California to Delaware, stopping somewhere in the middle of America for a drink of water, she watched as an airplane flew gracefully across the sky. It was that moment, she decided to complete her trip, return to Ohio and follow her childhood dream to become an airline pilot. At that time, few women flew commercial aircraft, but that didn't stop Connie. Several years later at Ohio University, she graduated at the top of her class earning degrees in aviation and engineering. First hired by the airline industry in 1982, Tobias has been a Captain for ten years with over 18,000 hours total flight time with 600 transatlantic crossings in heavy jets to her credits. Currently, she flies the

Airbus 330/300 for US Airways International. She has flown over 60 different types of aircraft and recently felt honored to carry troops, personnel, and supplies to and from Kuwait during the Iraq war.

Harriet Quimby developed a passion for flying after watching her first air meet during a performance by John Moisant. The following spring she entered Moisant's school of aviation and 1911 became the first woman in the United States to earn a pilot's license. She soon traveled to France where she obtained a Bleriot monoplane and flew home across the English Channel. Tall and willowy she looked the modern aviatrix and became a popular figure for posters of the day and was referred to as the esteemed "American Birdwoman". While other women aviators wore combinations of men's clothing adapted for safety and comfort in the pilot's seat, Harriet designed her own suit with an attached hood rather than a helmet.

Connie was invited to Daniel Webster College several years ago. During her reenactment of the aviatrix who was also a visionary and a journalist, she wore the replica of Harriet's purple satin flying suit, hood, boots, gloves, goggles, and scarf. With much research, Connie discovered she and Harriet shared similarities, not only in looks, but a passion for flying, and their mid-western upbringings. Connie has piloted a 1909 Bleriot, similar to the one Quimby flew in 1912 and frequently recounts the exciting flight across the Channel to groups of school children.

Numerous articles have been published about the Harriet Quimby Scholarship Program which Connie supports by giving motivational speeches. The Harriet Quimby Scholarship Program was established at Ohio University, Russ College of Engineering in 2001. In October 2002, she received the Medal of Merit from OU.

Connie J. Tobias - Dayton Air Show 2003,
Photo by Ty Greenlees - Dayton Daily News

The legends of Harriet Quimby and Bessie Coleman live on today, because of Connie J. Tobias and Sandra J. Campbell. Stay tuned, there is definitely more to come from these incredibly sensational women. And remember "***Follow Your Dreams***"!

This Article Written by ~The Noble Pen ~

Read more about Harriet Quimby in the new "Women in Aviation" Women's Firsts calendar.

A Technical Woman
Interview with Brenda Smith-Keene

By Patricia Walker

Brenda Smith-Keene, a member of the Technical Women's Organization and a true technical woman herself began her FAA Career in Central Region as an Electronics Technician in 1986. Among one of her most significant accomplishments was becoming an FAA Academy instructor for Navigation and Landing systems.

Smith-Keene was selected this year for the Visiting Professor Program at Langston University, a program initiated by Jessie McMullen, Airway Facilities Division Manager at the FAA Academy. As She stated, "It is indeed an honor to be at Langston. As a full time instructor for the 2003-2004 school year, I'll be teaching four classes this semester and three different classes next semester. These classes include the Principles of Electric Power, Electronic Fundamentals, Electronic Communication, Circuit Analysis, Instrumentation and a Design class. Langston is a Collegiate Training Initiative (CTI) school so I am partially there as a recruiter for the FAA, as well. The "visiting professor" program has been in existence for 12 years. I am the second female to instruct in the program, Celeste Roth, presently a Branch Manager at the FAA Academy was the first, somewhere around 1995 - 1997".

Brenda submitted her name through her division supervisor. Her name, among others, was submitted to Langston. No interviews were conducted and amongst the six names submitted the selections were made. The choice was extremely difficult due to the high caliber of all of the candidates. The staff advised FAA management that they continue to be impressed with the quality of people that work at the Academy. This was the kind of tough choice they loved!

We asked Brenda about the history of Langston. She replied "Bessie Coleman, the first African American pilot of record and a female aviatrix attended Langston for a short period of time. It was the only type of school for African-American people at that time. So, this is twice as exciting for me, because I also do the "Spirit of Bessie" for the monologue "Follow your Dreams", which is a one-woman play written and produced by Sandra Campbell. It is the story of Bessie Coleman".

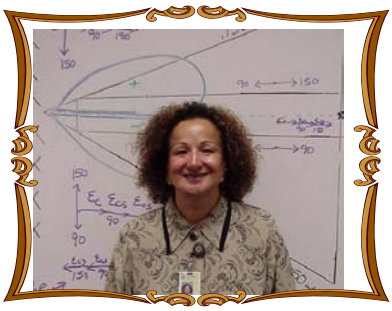
Brenda was written into the play in 1997. She represents the "spirit" of Bessie Coleman. When accompanying Campbell to performances, she opens the play with an interpretive dance to a slow, blues/jazz song, "Down Here on the Ground," by Diana Reeves. Dressed in a flowing black gown, her body language, facial expressions, and gestures represent the anguish Bessie must have felt in her many, unsuccessful attempts at the opportunity to learn to fly.

Following Campbell's' closing, she emerges dressed in an all white flowing gown and appearing somewhat angelic as she gracefully portrays Bessie's triumphant rise to become the first African American (of record) licensed pilot. She closes out the play with a final dance to the song "I Believe I Can Fly," originated by R. Kelly.

As a member of TWO since 1991, Brenda has served as Central Region Vice Representative, Central Region Conference Coordinator, Aeronautical Center Representative since 2002, and on various committees.

(Although Brenda has a Bachelors Degree in the Science of Criminal Justice and another Bachelors degree in Psychology, she is currently working on her Masters degree. She is a member of the National Black Coalition of Federal Aviation Employees, the American Business Women's Association (ABWA), Kansas City Chapter, and a lifetime member of Delta Sigma Theta Sorority Inc.)

Photo courtesy of Mr. John Dow Sr.



SPECIAL CONGRATULATIONS TO BRENDA!

The Technical Women's Organization congratulates you for hard work, determination, and the perseverance to continue "following your dreams." You are a true motivator and an inspiration to all of us.

Localizer Array Equipment - Photo provided by Mr. Ken Harris

TWO Profiles

Phyllis Duncan

Phyllis started her career with the FAA 24 years ago as a reporter on the "FAA Aviation News Magazine." Her FAA career was interrupted briefly in the early 1980's when she worked as an automotive safety inspector for the National Highway Traffic Safety Administration. There, she analyzed automotive safety complaints and initiated appropriate enforcement action against car manufacturers. Within six months she missed airplanes so much she returned to the FAA.

Phyllis has held a number of different jobs within Flight Standards, mostly centered around writing safety and technical articles for "FAA Aviation News" or developing policy handbooks for use by safety inspectors, including the "General Aviation Operations Inspections Handbook." Her 22 years experience as a commercial pilot and flight instructor have provided her the experience and knowledge to write about inspector job tasks, flight training, aviation safety, and air traffic, among other things. Phyllis also worked in general aviation in the Flight Standards Operations Branch where she helped develop the policy on the remedial training program, as well as for operations that ranged from ultralights to private operators of transport category airplanes.

She and her significant other, a former FAAer, used to have a lot of fun flying up and down the east coast in a Grumman AA5B "Tiger," and Phyllis worked in corporate aviation, charter flying, and flight instruction. She is currently working on standardizing inspector guidance into an online web-based application that will provide current policy for the approved way of conducting surveillance and certification. The results of this effort will be very beneficial for inspectors. Currently, inspectors must work from 4 to 5 different printed books not knowing which one is the most current information. Standardizing accessibility of this information will be more efficient and improve safety. Phyllis believes this will be her biggest contribution to aviation ever and hopes to finish this project before she retires.

Phyllis said she has been very lucky in the FAA. She has been active in the TWO Headquarters mentor program for the last several years. She's been the beneficiary of some very good mentors in the agency herself. They took risks and gave her responsibilities not generally provided to a female, especially one without thousands of hours of aviation experience. She's been able to work on many different projects that together have definitely made a positive difference for aviation safety. Having been an inspector for a while, she tries to make differences that will make their jobs easier. When she leaves the FAA, she'll know she was there, and she made a difference.

Phyllis is a former member of the Professional Women Controllers, Inc. (PWC), a longtime member of TWO, and a member in several other professional organizations including, The 99's; Women in Aviation International; Aircraft Owner's and Pilots Association; and the National Organization for Women. In addition, Phyllis is the author of a collection of fictional short stories, "Rarely Well-Behaved," and she has manuscripts of four novels she hopes to have published.

Greg Burke

Greg is the Deputy Director of Air Traffic Systems Development for the Federal Aviation Administration in Washington D.C. He's served the agency in many other capacities including Deputy Director of Systems Architecture and Investment Analysis; Manager, NAS Architecture, Architecture and Systems Engineering Division; and various engineering positions for the Office of System Architecture and Program Evaluation and the NAS Office of System Engineering Service.

"Due to the ever decreasing Internet year, it is becoming important to successfully manage the transition from discrete improvements of individual systems to continuous improvement for a system of systems in order to increase overall NAS performance. Simultaneous with this transition, the emotional intelligence level of organizations must increase to the level of its IQ, so as to ensure the necessary energy and creativity needed to cope with the rapid pace of change."

Mary Golia

Mary Golia is the Deputy Program Director in the National Airspace System Implementation Program: an organization of 1500 people. Mary's organization is responsible for the safe implementation of National Airspace System technology into a live environment. Due to the Aviation Investment and Reform Act of the 21st Century, modernization is faster now, and her organization's role as gatekeeper to the National Airspace System is even more important.

She describes her role as the Chief Operating Officer of her organization. Her job is to manage the daily operation, measure corporate work plan execution, provide quality oversight, and ensure all business decisions in managing implementation achieve the desired outcomes of quality implementation. Customer focus has been essential in measuring results and improving performance.

An engineer by background, Mary has transitioned from engineer-to supervisor-to manager. Her foundation is built upon both Facilities and Equipment and Operations experience: including Manager for Technical Support; Manager of Systems Operations at New York Air Route Traffic Control Center and Deputy of the Airway Facilities Operations Division at the National Command Center. She has accepted increasingly challenging roles and challenges others to be their best! She credits the people she worked with during her career for her success. She says she has worked with many dedicated, skilled people who are passionate about their work. She views her role as a "working manager" a rewarding and enjoyable experience.

Teresa Hudson

Teresa became an electronics technician in the Federal Aviation Administration in September of 1977. After several years as a technician, she became an instructor in the Airway Facilities Division of the FAA Academy in Oklahoma City, Oklahoma. She returned to the field for a short while, then served as the Technical Advisor to the Director of the Operational Support Directorate in Airway Facilities for approximately 2 years. Teresa was then selected as the Deputy Program Director for the Operational Support Directorate. In 1999 Teresa became the Assistant Division Manager, Airway Facilities Great Lakes Region. In December of 2001 she became the Division Manager, Airway Facilities Central Region, where she is currently serving.

It seems that everywhere Teresa goes she is valued for her contributions and leadership. No where is that more evident than in the Central region where her own employees have the following to say about her, "*Since Teresa became the Airway Facilities Division Manager in Central Region in December 2001, our region seems to have been restored a sense of comfort. She has an open door policy and has encouraged employees to feel free to come to her and express their ideas and concerns. She walks around the office with a welcoming smile yet focused on the business at hand. Teresa has been a joy to get to know and a pleasure having her as our Manager.*"

Lynn Williams

Lynn is a Senior Emergency Planner with the Emergency Operations Staff in the Office of the Deputy Administrator. Her work involves mitigating impacts to the National Airspace System due to national or regional emergency situations, such as the recent Hurricane Isabel.

Her office provides all of the guidance for Continuity of Operations and Emergency Operations planning for all of the FAA, including Headquarters (including plans for executive level staff), Command Center, and Regions. She monitors and reviews Continuity of Operations and Emergency plans and helps organizations exercise their plans to make sure they will work.

As a part time secretary, Lynn came to the Federal Aviation Administration from the Department of Defense in December of 1995 at the Command Center in Herndon, Virginia. She was accepted into the "upward mobility" program as a management and program analyst and in November of 2001 Lynn was asked to join the Emergency Operations Staff as a Senior Emergency Planner.

The Changing Technology of the National Airspace System

By Richard A. Thoma
Program Director, Operational Support, Airway Facilities Service

For all practical purposes, the first recognizable federal requirement to manage the installation, maintenance, and operation of the air navigation system began with the passage of the Air Commerce Act of 1926. This kicked off the federal role in guiding the development and stewardship of the early NAS. That role has been strengthened and organizationally recast several times over the years and even now, with the FAA ready to implement a performance based air traffic organization, we stand poised to effect even more historic change.

There was a time when sending something "air-mail" involved the following (Circa 1920): Air mail pilots would fly your letters only during daytime hours and then transfer the cargo to trains for the night time journey. In 1924 true transcontinental service was made possible with the installation of light beacons between Chicago and Cheyenne, allowing pilots to fly New York to Chicago by day, Chicago to Cheyenne by night, then on to San Francisco by day.

The impact of technology since then has transformed our aviation system and continues to influence its future. Predictably, technology's influence has been immense. Just consider the following technical solutions that have come (and gone in some cases): first federal airway traffic control center (precursor to ARTCCs, 1936), surveillance radar-equipped ATCT (1946), VORs (1947), the transistor (1951), first use of DOD radar for civilian airports (1955), secondary radar (1959), surface radar (ASDE, 1960), enroute automation (NAS Enroute Stage A, 1967), terminal automation ARTS-1 (1968), AWANS (1976), ARTS 2 (1978), FDIO (1986), PRM (1988), and the list goes on…

The transformation of the NAS has been no less noteworthy than that of today's sophisticated aircraft when compared to that first flight on the outer banks of North Carolina.

But technology is not just about machines and components, it's about processes, resources, people and the means and methods in which they are leveraged to affect outcomes. As systems and processes have become more integrated, so too have the roles of every one of us. One can't ensure safety, efficiency, and performance in the NAS by being one-dimensional. Throughout those years, the people wove the real fabric that became the NAS.

Our ability to assimilate change, adjust policies, and promote safety throughout has served aviation interests well. We have become as critical to the NAS as the very systems themselves. Orchestrating a complex NAS architecture to provide essential aviation services isn't done by chance. It is done through the men and women that are stewards of those capabilities and resources.

We will need to further embrace change and meet the demands that aviation stakeholders place on us in the future.

As we marvel at the ongoing insertion of new and improved NAS system capabilities, we should equally recommit to our continued role in NAS evolution, which we influence and steer. Those generations beyond us will hopefully marvel at our accomplishments in the same manner we do with our predecessors after 100 years of flight.

TWO Profiles

ViAnne Fowler

ViAnne, a founding member of TWO, has had a strong impact on the National Airspace System (NAS) in every position in her career. Her contributions include ten years of "front line" restoration and certification of navigation and communication systems. After studying at University of California State Fullerton, she became an engineer and went on to contribute to the National Airspace System (NAS) through her work installing navigational aids and radar systems. ViAnne was instrumental in the installation of numerous radars throughout the NAS with her favorite project being the Airport Surveillance Radar-8 (ASR-8) installation in Guam. She also enjoyed the ASR-9 in other locations. She feels fortunate to have been part of the evolution from broadband to narrowband radar, improvements on the microwave link transmission systems, and the migration into the Leased Inter-facility National Airspace System Communications System program.

With her problem solving ability and leadership skills, ViAnne managed the Technical Support Unit in San Diego, incorporating the responsibilities of technician-in-depth services, facilities and equipment assistance, and creating and delivering on-the-job courses for both legacy and state-of-the-art systems.

ViAnne's next major contribution to the NAS came from her work as Sector Manager of San Diego Sector and later Deputy SMO Manager at Pacific Desert Systems Management Office (PDS-SMO) housed inside of Southern California TRACON. She successfully created processes, hired employees, and coordinated system installations and certifications in preparation for the commissioning of the TRACON. This facility was a significant milestone for the Federal Aviation Administration as it merged five Level V TRACON facilities into one 'Super' Terminal Radar Approach Control facility.

She currently provides leadership to the Airway Facilities Division of the Northwest Mountain Region (ANM). For the past six years ViAnne has been contributing as both Assistant Manager and Manager, bringing a "back- to-basics" focus on operations, reliability, and availability of services and equipment. Just recently, ViAnne finished an eight-month detail in Air Traffic as the Assistant Division Manager here in ANM. She learned more about the NAS from a different perspective.

ViAnne is to be commended for her many contributions and positive impact to the National Airspace System over the years.

Ken Sander

Ken Sander has worked for the Federal Aviation Administration for 30 years. He worked in a variety of Facilities and Equipment and Operations positions in Western Pacific Region before moving to Headquarters in 2001. Starting out in Facilities and Equipment as a civil engineer, Ken worked on many construction projects that shaped National Airspace System facilities in Northern California, including the San Francisco Airport runway reconstruction project, as well as managed the Air Route Terminal Control Center expansion program, the Automated Flight Service Station, and the installation of new power systems upgrades.

In 1987 Ken moved from Facilities and Equipment to Operations as the Operations Manager for the Los Angeles Basin, where he stayed for four years, then to Resource Planning as the Assistant Branch Manager for Operations. His last assignment in Western Pacific was as Manager at the Desert to the Sea (DTS) Systems Management Office in Palmdale, California. Ken is currently in Headquarters and is managing the transition for Air Traffic Services into Labor Distribution Reporting.

Ken's well-rounded Airway Facilities background gives him a solid knowledge of the National Airspace System from an Airway Facilities perspective. Ken is currently a mentor in the Technical Women's Organization and Professional Women Controller's Headquarters Mentor Program

Maureen Woods

Maureen Woods is currently the Manager of the Great Lakes Region's Airway Facilities Division. Prior to this, she served as the Deputy Director of the FAA's Air Traffic Service. Having executive-level experience in two major Lines of Business within the FAA, she has effectively championed innovative managerial concepts within both Air Traffic and Airway Facilities. She focuses on promoting a corporate perspective that supports win-win problem solving throughout and across these Lines of Business. Within Airway Facilities, Ms. Woods has helped to shape various high-level strategic initiatives, including the development and stand-up of the FAA's Mid-States Operational Control Center, an organization responsible for coordinating maintenance and restoration activities associated with the safe and efficient functioning of the NAS.

Cecelia L. Hunziker

Cecelia L. Hunziker has served as the Regional Administrator for the Federal Aviation Administration's Great Lakes Region since September 1996. The 8 state region has 6,500 full time employees with an operations budget of $800 million a year. The region is one of the largest in terms of registered aircraft and airports, has the world's busiest Air Traffic Control Centers at Cleveland and Chicago, and the biggest and best United States airshow – the Experimental Aircraft Association AirVenture at Oshkosh. The region is also the nighttime air cargo hub of the nation.

A native of Alaska, Ms. Hunziker had an early introduction to aviation and was a Fixed Base Operator part owner prior to coming to work for the Federal Aviation Administration. She has held various agency positions, including positions in Human Resource Management, Logistics Service, Office of Civil Rights, Management Services, Budget, Flight Standards, and Air Traffic. She has served in the Washington Headquarters, the Aeronautical Center, and in three Regions.

Ms. Hunziker has distinguished herself as a recipient of many awards during her 31 year Federal Aviation Administration career, including these from the Department of Transportation: 1998 Secretary's Gold Medal Award for Outstanding Achievement; the Thirty First Annual Secretary's Award of Diversity; and more recently the Secretary's 2001 Award for Meritorious Achievement.

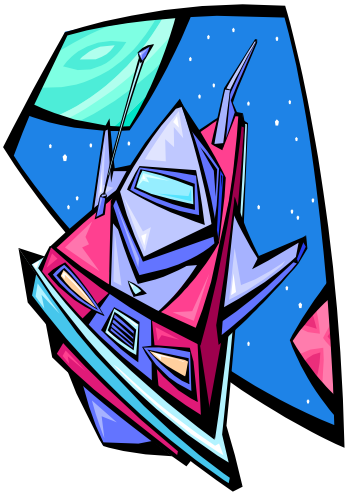
Carolyn Blum

Carolyn Blum is the Regional Administrator for the Federal Aviation Administration's Southern Region. She oversees the Agency's largest region, which includes eight southeastern states and the Caribbean. Prior to assuming these responsibilities, Carolyn served as Acting Executive Director for System Development in the Federal Aviation Administration's Washington Headquarters. She has also served as Associate Administrator for Contracting and Quality Assurance. Carolyn began her career in transportation in 1974, when she joined the Office of the Secretary for the Department of Transportation. She has been a member of the Senior Executive Service since 1987. She chaired the task group that developed a new Executive Compensation System in support personnel reform. She was also instrumental in the establishment of the Accountability Board, which tracks and monitors the Agency's implementation of policies to eliminate harassment in the workplace.

A BEAUTIFUL NOISE

By Sunny Faith

Telecommunications - That's my passion. I suppose the moment I realized that it wasn't Mr. Spock that was making my teen heart hammer; so much as it was all of that space technology he used. And now, technology changes on an hourly basis. Mr. Spock and Captain Kirk made space and communications technology so commonplace for my generation - but somebody had to start somewhere. Even if you don't ly awake at night pondering how a transporter works, you've got to admit – inventions and discoveries come about in the most interesting ways. From brilliant accidents to years of painstaking research and effort, I imagine the path to developing communications in space is littered with the work of quirky, intelligent, and enthusiastic scientists.



So what about placing an object in space? Crazy idea back in 1686 – but not for Sir Isaac Newton! Well – I'm sure that many of his neighbors thought he was crazy – and for all I know, his family may have preferred that "Uncle Isaac" just stay away from any family gatherings. No matter how crazy his ideas may have seemed at the time, many would argue that satellites started with Sir Isaac Newton. He originated the principle of what it would take to place an object such as a satellite into orbit around the earth. Not only did he give birth to the basic idea, but also through his discovery of the fundamental physical laws of motion - specifically his third law on action and reaction, which represents the theoretical base for rocket propulsion - he even laid the groundwork for later practical solutions. It took mankind an additional 270 years to approach the required magnitude of mechanical thrusts.

But what about communications in space? That makes for another interesting story.

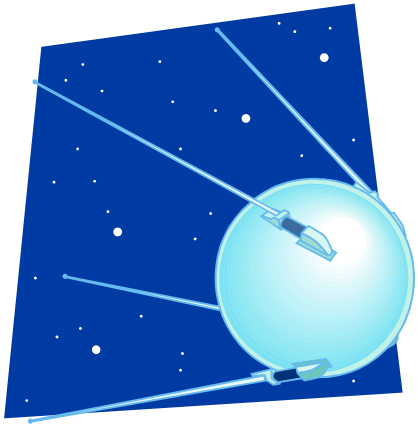
In 1945, shortly after the war, a number of scientists at Fort Monmouth's Camp Evans began working on a way to pierce the earth's ionosphere with radio waves. This was a feat that had been tried just before the war without success and which many thought impossible. The scientists called their work "Project Diana". Their goal was to determine if a high frequency radio signal could penetrate the outer atmosphere of the earth. The solution was to send a radar signal to the moon and bounce it back to earth. The beautiful noise.

Hundreds of scientific computations were required for this event, including an accurate computation of the velocity of a position on the moon relative to a position on the earth. (Try working THAT one out in your head…..)

On 10 January 1946 the moon reliably returned the first pulsed signals at a frequency of 111.5 MH and 3 KW peak power. The significance of this experiment was more than a scientific stunt. It attested to the fact that radio waves of proper frequency could be transmitted through the entire atmosphere in both directions with little attenuation, thus making it feasible to establish and maintain radio contact with objects in space.

After the event, the New York Times reported, "*Applications almost beyond immediate comprehension are foreseen as a result of this electronic achievement*." The U.S. scientific community was ecstatic at such an achievement and its vast potential. Another decade later the first satellites were launched into space.

In 1957 the Soviet Union launched SPUTNIK I. Taken by surprise, President Eisenhower ordered the military to put a U.S. satellite into space by the following year. It was an amazing time of advancing technology by the most dedicated and knowledgeable scientists of our century. And in February 1958, the satellite "Explorer I" was launched into space.



The future of communications was shaped by the work of the Camp Evans engineers and their dedication to Project Diana, as well as the visionary work of Sir Isaac Newton. These scientists paved the way for satellites, manned space launches and so much more - including the first satellite-based communications system of the FAA, the Alaskan NAS Interfacility Communications System (ANICS). I hope that you will want to know more about ANICS. I'll bring you information about the Alaskan Region system, in our next issue of The Circuit.

The links below may offer more detailed information on Sir Isaac Newton and Project Diana:

Newton's Theories
http://csep10.phys.utk.edu/astr161/lect/history/newtongrav.html

Information on Project Diana
http://www.infoage.org/diana.html

TWO Profiles

Debbie Johnson

Deborah (Debbie) Johnson is the Program Director for the National Airspace System Operations. Her job is among the most challenging, divergent and interesting within Airway Facilities, if not the Agency. The accountability for the plans, policies and processes that support, monitor and guide the day-to-day operations of the National Airspace System infrastructure resides within the organization Debbie manages. Debbie's organization, and Debbie specifically, serves as a lightening rod for issues and resolutions affecting national airspace operations. Debbie's daily concerns run the range from real-time critical operational issues to 'paving the road' for the planning and implementation of policies that will ensure near and long-term requirements are addressed. She stays aware and involved in the progress and quality of her organization's initiatives while also maintaining constructive relationships with customers and stakeholders of the outcomes. Somehow, she accomplishes this at warp speed while still having time to speak to any and all who approach her.

In the almost thirty years Debbie has worked for the Federal Aviation Administration she has served in an administrative position, as an electronics technician at various locations and eventually as management. A Washington D.C. native, Debbie moved her family to Trenton, New Jersey when she was selected as Manager of Eastern Region's 'Independence' Systems Management Office. Following that she returned to headquarters and Washington D.C. as the Deputy Program Director for National Airspace System Implementation. In 2001 she was selected for her current position as the Program Director for the National Airspace System Operations

Debbie is a manager who is truly dedicated to mission accomplishment and organizational improvement. She is a role model, coach, mentor and guide to many people both inside and outside of Airway Facilities. Her influence is felt well beyond her organization, and her guidance touches people throughout the Agency. She has been a long-time TWO supporter. As an advocate of the TWO Mentor Program, Debbie meets with many mentees, providing career advice and often offering temporary assignments to her organization. Debbie has positively impacted the National Airspace System through her daily leadership and through her concern and encouragement for many of those people who work in the National Airspace System. The Federal Aviation Administration is truly lucky to have Debbie Johnson in a guiding role for the Agency.

Barbara R. Silva

Barbara R. Silva is the Chief Operating Officer of the Federal Aviation Administration Logistics Center, Oklahoma City, Oklahoma. She is directly responsible for the operational direction of 534 employees who provide support services to maintain the operation of 54,000 National Airspace Systems located at 28,000 facilities. The Logistics Center has been transformed to a fee-for-service government business and is recognized for a standard of excellence throughout the federal government.

Ms. Silva began her Federal career with the Department of Defense in 1966. In 1980, she transferred to the Federal Aviation Administration and has held various positions as an electronics technician, engineer, telecommunications management specialist, evaluation specialist, program manager, and manager. In addition, she has served as an Equal Employment Opportunity counselor, investigator, and as a federal mediator. In 1994, she was requested to work an extended detail for the Secretary of Transportation in the Office of Civil Rights. She became the Deputy Program Director of the Federal Aviation Administration Logistics Center in 1997 and has been instrumental in partnering with the Director to achieve the Center's successes.

Cathy Hedglen

Cathy Hedglen began her career in federal service at the United States Post Office in Brooklyn, New York, in 1970. An outreach program designed to increase the number of women and minority electronic technicians, called "the 150 program" brought her to the Federal Aviation Administration. She was the first woman hired through this program. She has now completed over thirty years of service with the Agency. During her career Cathy worked at the Air Route Traffic Control Center in Indianapolis, Indiana, as a display technician for seven years. She was selected as an instructor at the Federal Aviation Administration Academy in Oklahoma City, Oklahoma where she taught many different courses over eight years. She was the supervisor of the Academy's Environmental Support Unit for three years prior to being selected as an Assistant Systems Engineer in 1990 for Albuquerque Air Route Traffic Control Center. In 1995 Cathy was the lead for the Southwest Region Prototype Operational Control Center team that competed in the Operational Control Center design contest. Returning to Albuquerque, she was promoted to the National Airspace System Operations Manager. In 2001 Cathy was selected for her current position as the Manager for Technical Support at the Red River System Management Office in Bethany, Oklahoma.

Cathy is a founding member of the Technical Woman's Organization affectionately known as TWO. She won the "name the organization" contest by suggesting the name TWO, and has served as Aeronautical Center Representative, National Secretary and the President. She will retire on January 3rd 2004, after 34 ½ years of service. She looks forward to spend time with her grandchildren, quilting and doll making.

Changes in the National Airspace System

By Marie Meyer

When I was asked to write an article about the changes I've seen in the NAS, it got me thinking. I thought about my parents and wondered what kinds of changes they dealt with. Radio to television; trains to planes to name of few changes they've seen. For me, the changes in NAS have been subtler. I'll address a couple of those subtle changes.

My first position in the FAA was at the Boron Long Range Radar Site. The Boron site contained the FPS-67B long-range radar, Beacon-5 secondary radar and GRR/GRT Air to ground radio communications system. The equipment technology ranged from vacuum tubes to solid state. The FPS-67 was developed using 1950's technology. It contained a receiver system that used a crystal as a memory circuit to compare two signals and the result determined the movement of the aircraft. The Crystal was cut to one revolution of the radar so the return echo from the target could be compared to its previous signal. The FPS-67 now has been upgraded and modified a number of times and now contains solid-state systems.

In 1985, the Beacon-5 was one of the most current equipment the FAA inventory. The only tube in that system was the transmitter power output vacuum tube. This system was replaced with the current MODE-S (1990's technology). Like its predecessors, MODE-S sends a signal to aircraft to engage identification systems and provide the plane's altitude.

The ground radio receiver (GRR) and ground radio transmitter (GRT) were based on late 1960's technology (no vacuum tubes). This communication system is in the process of being replaced by Motorola radios. The Motorola radios are basically maintenance free and if they fail, they are replaced.

Another technological change I've seen over the years is with something more drastic. While it seems obvious to today's world how important computers are, for the FAA it has been a remarkable change. This change has been both positive and negative. Positively, the computer has expanded our ability to cross many mediums. Negatively, the OP-TEMPO has increased exponentially.

Lastly, in terms of change, I long for the days of solving the mystery of troubleshooting to the component level. These days, surface mounted components remove the necessity to troubleshoot.

These changes I've seen have generally been positive for helping the FAA move into the 21st century. Now if I could only get a radar system to make me a cup of coffee while I certify it!

Note: Detailed information on FPS-67 and other can be found at:
http://fas.org/nuke/guide/usa/airdef/an-fps-20.htm

TWO Profiles

Emily Godinet

Emily Godinet, Program Manager and Analyst for AFZ-100, National Airway Facilities (AF) Training Division, provides support for AF through the development of national standards, plans, and programs. Previous FAA positions include Staff Specialist and Electronics Instructor for the AF Academy Division. As an Instructor, Emily specialized on a variety of systems such as the Automated Radar Terminal System (ARTS) IIIA, ARTS IIE and ARTS IIIE. Emily also worked as an ARTS/ Radar/ Data/ Comm technician at the Ontario, California TRACON. Starting as a Nuclear Weapons Electronics Specialist in the U.S. Army, Emily has spent 29 years in the electronic arena. Emily held positions with NOAA and NBS.

A member of TWO since entering the FAA, Emily has been a Regional Representative at the Aeronautical Center and the Chairperson of the Education and Career Development. She is a long-term member and valued supporter.

Iris Lupu

Iris is the Facilities and Equipment/Operations Liaison in the Operations Branch in the Federal Aviation Administration's Eastern Region. She supports the National Airspace System in several ways. Iris coordinates reimbursable agreements with airport sponsors. This involves working with airports on projects like runway expansions that necessitate the relocation of federal facilities such as navigation aids and instrument landing systems. She reviews engineering plans and provides technical expertise for the reinstallation. In her role as the Facilities and Equipment budget coordinator, Iris collects financial requirements from multiple organizations, consolidating them into the budget. She also monitors National Airspace Implementation activities during installations of new equipment to coordinate information sharing and minimize the impact to stakeholders.

Iris started with the Federal Aviation Administration in 1974 as an engineer. Most of her background is in the terminal area she. She has been a manager at both the Islip and La Guardia System Service Centers. She also worked at the New York Air Route Traffic Control Center. She loves her job in the Regional Office and feels she has come "full circle:" starting in facilities and Equipment, working in the field, and now in Operations at the Regional Office.

Sharon Bauch

A typical tomboy growing up, Sharon put more energy into building electronic kits with her dad than she did playing dress up. Her favorite store? Radio Shack. During her unior year of high school, Sharon had her first opportunity to take a formal class in electronics. Her exceptional grades got her noticed by the local college and the following year she began taking electronic classes there as well as going to high school to complete her senior year. One day, the FAA came to her college to select two people to be part of a co-op program called the CTI (Collegiate Training Initiative) Program.

She began her career with the FAA in 1996, working full-time during the day and going to college full-time in the evening. Sharon was merely a GS-2. Two years later she graduated from college with an Associate Degree in Electronic Engineering Technology with an FAA Option. The FAA hired her on permanently and five years later Sharon became not only the youngest Software Specialist in the country, but only one of twenty to occupy the position of her particular discipline –DARC Software. Sharon applies her strong will and 'Don't give up' attitude she acquired as a GS-2 to her current position. "Some problems are easy to fix, some more complex and irritating. Either way, you'll figure it out eventually as long as you don't give up. That applies to life as well."

Currently, Sharon takes time out of her schedule to help teach electronics to young girls and has served as a college consultant for Women in Non-Traditional Careers. No longer a 'Tom-boy', Sharon hopes to take the stigma away from *traditionally male jobs*. "Often times, it doesn't even occur to young females to investigate whether they enjoy electronics or auto-mechanics, etc…All I want for future generations of girls is to make an educated decision on the careers they choose. I want them to 'choose' to take on traditional roles because they want to, not because they don't know any different."

No Photo Available

Regena Wood-Jack

Regena (Wood) Jack is an 'Airport Surface Detection Equipment-X' Senior Engineer in the National Airway System s Engineering Division in Oklahoma City, Oklahoma. Early in her FAA career, Regena was the first woman on an Oklahoma City Logistics Center radar overhaul crew. In her next assignment, she served for 8 years as an Academy instructor for automation and radar systems. While serving at Headquarters in the Airway Facilities Operational Support organization, Regena established and served in the position of national Operational Support Training Manager.

Regena's greatest personal satisfaction was participating in the development and growth of the Operation Support organization. She also participated on a planning team to develop a formalized national on-the-job training and quality assurance program. Another fulfilling work assignment was her tenure at the National Operations Control Center in Herndon. In that assignment, doing operations process improvement, she saw 'the complete National Airspace System picture', the collaborative relationship between Air Traffic and Airway Facilities, and the public relations and political aspects of the best airspace system in the world.

There's room for you 'TWO' .... Become a Member

We hope the profiles of these successful TWO members and supporters have inspired you. These profiles demonstrate that where there is a will, there is a way and opportunity exists. We hope you will consider joining TWO and making the organization even more effective.

TWO is primarily comprised of Federal Aviation Administration employees who are creative, energetic, and talented people representing a diverse cross-section of technical organizations within the Agency. We are motivated, as a group, to advance the number and opportunities of women in technical jobs. We are working together, offering our technical expertise and networking to build a supportive community for all employees and making meaningful contributions to achieving the FAA mission.

Ask your regional TWO Representative about joining (See listing of representatives on the first page of this edition or on our website at http://two.faa.gov.

Aviation, Technology and The FAA: A Historical Overview

By Marcia Corey

At the start of the 20th century, two brothers in America experimented with a vehicle that could fly. This set off an era of "flying machines", first for fun, continuing for military use and mail service, and then for public transportation. As air travel grew, the need for air traffic control, communications, navigation, surveillance, and related technical services grew as well. Some services were designed and operated by the city or local airport commission, and others were designed and operated by the military. Some of the services moved to federal control and formed the basis for today's Federal Aviation Administration.

Written below are some of the highlights of service and technology changes over the years. This is certainly not a complete list, but rather a basic picture of the evolution of air traffic facilities and equipment. Please feel free to send any information or thoughts that this general overview brings to mind, and we will use this information for future articles in "The Circuit."

The 1920s - Significant Highlights and Technology

- "Lighted federal airways" – light and radio beacons (low frequency radio range) used for navigation;
- Aeronautical Radio Incorporated (ARINC) created for single aeronautical communications
- Radio Frequencies (RF) used for communication

The 1930s - Significant Highlights and Technology

- Civil Aeronautics Act of 1938 transferred the Federal Civil aviation responsibilities from the Commerce Department to a new agency, the Civil Aeronautics Authority (CAA)
- A consortium of airline companies organized and manned the first Air Route Traffic Control Center (ARTCC) in Newark, then Chicago and Cleveland. A year later, they became federal facilities and the controllers became government employees working for the Bureau of Air Commerce.
- First radio control of air traffic by Cleveland Municipal Airport; approximately 20 cities followed Cleveland's lead in the next five years
- First formal system for the flight inspection of U. S. airway navigation aids
- New type of radio marker beacons with voice signals installed
- Remote control used for navigational radio aids
- A teletype network started

1930s continued…

- An Air Traffic Control Section was created in the Bureau of Air Commerce to standardize airport control tower equipment, operation techniques, and personnel.
- A two-year airway modernization and extension program resulted in the modernization of radio ranges and transmission stations so that pilots could receive voice and range broadcasts.

The 1940s - Significant Highlights and Technology

- Civil Aviation Authority (CAA) split into two separate agencies to become the Civil Aeronautic Administration (CAA) and the Civil Aeronautics Board (CAB)
- CAA began operating airport traffic control towers and providing military support supplied for national defense, Military personnel trained in air traffic control expanded flight advisory and communications service. The CAA was also responsible for various ATC operations, airman and aircraft certification, safety enforcement, and airway development.
- CAB responsible for safety rulemaking, accident investigation, and economic regulation of the airline organizations
- Aeronautical Center planned for Oklahoma City to provide training and equipment maintenance
- First national airport plan developed
- Authorization given to improve air navigation facilities abroad
- Airport approach lighting systems initiated
- First Overseas and Foreign Airways Communications Station (OFACS)
- Two-way radio communications available over the Atlantic
- First ultra high frequency and high-powered low frequency long range navigation system, first Very High Frequency Omni-directional radio range (VHS) Omni Range (VOR)
- First radar equipped control tower designed for civilian flying
- Use of Instrument Landing Systems (ILS) and glide slope
- Ground control approach radar systems and microwave early warning radar started
- Common military-civil air traffic control system created

The 1950s - Significant Highlights and Technology

- Air Route Traffic Control Centers (ARTCC) and airway communications stations consolidated
- Federal Aviation Agency (FAA) and Airways Modernization Board authorized by Congress
- Distance Measuring Equipment (DME) ground stations initiated
- Radar Approach Control (RAPCON) facilities commissioned at military bases for military and civilian air traffic
- Five-year modernization and expansion plan developed
- First use of a microwave link to transfer radar information
- Sperry Univac computers commissioned to prepare flight progress strips, exchange information, and aid in controller "bookkeeping"
- Secondary radar commissioned in New York
- New Air Route Traffic Control Center facilities designed, away from airports with expandable design for new equipment
- Very High Frequency Omni Range (VOR) and Tactical Air Navigation (TACAN) separate civil and military air navigation systems, combined
- Joint Radar Planning Group (JRPG) formed to develop civilian/military joint use program
- Long range radars purchased for En Route travel
- First "narrow band" radio receivers ready for use
- National Aviation Facilities Experimental Center (NAFEC) established at Atlantic City, NJ
- Distance Measuring Element (DMET) approved by the International Civil Aviation Organization (ICAO) to complement VOR

The 1960s - Significant Highlights and Technology

- Department of Transportation formed; independent Federal Aviation Agency moved under DOT as Federal Aviation Administration
- Civil Aero-medical Research Building dedicated at Oklahoma City, OK
- New standard design concept for control towers prepared by I. M. Pei and Associates
- National Airspace Communications System (NASCOM) started, a daily national teleconference on the status of the NAS
- ARTCC modernization began, providing room for more personnel, equipment and training
- Flight inspection responsibilities moved from Defense Dept to FAA
- Use of parallel runways started at O'Hare Airport, Chicago, IL

1960s continued…

- New outage reporting system implemented
- New radio frequencies added
- Solid state equipment designed for small airports
- Expansion of aviation weather services – FAA and US Weather Bureau
- Nationwide use of Distance Measuring Equipment (DME)
- Doppler VOR ready for sites where standard VORs could not be used
- Transponders available for light aircraft (Small Lightweight Altitude-Transmitting Equipment (SLATE)
- Joint FAA-DOD use of worldwide communications network
- First significant funds for hardware procurement to modernize the NAS
- First combined ILS/DME used at Kennedy Airport, New York
- First satellite used for weather, air-ground-air relay, data link for navigation
- First FAA designed and constructed control tower – Lake Tahoe, CA
- Start of automated air traffic control by FAA and Air Force

Emerging Technology:

- Radar Bright Display Systems
- Digital Bright Radar Indicator Tower Equipment (DBRITE)
- Airport Surveillance Radar (ASR-4)
- Visual glide path indicator landing lights
- Airport Surface Detection Equipment (ASDE-2)
- Automatic Data Exchange System for weather communications (ADIS)
- Advanced Radar Traffic Control System (ARTS) – later named Automated Radar Terminal System (ARTS)
- Standby Engine Generators
- Mobile control towers
- Computer Display Channels (CDC) for En Route communications
- Electronic Switching System, a communication link for systems worldwide
- IBM 9020 Simplex Computer
- Data Processing for flight plans
- Automated Airport Data System
- Computerized Alphanumeric Radar System
- Uninterruptible Power System (UPS)

The 1970s - Significant Highlights and Technology

- Central Flow Control facility began for the collection and correlation of nationwide traffic and weather data; Eventually became part of the Air Traffic Control Systems Command Center (ATCSCC)
- Microwave Landing System (MLS) developed for civilian-military use
- First two-way air traffic control satellite communications between San Francisco/Oakland and Honolulu, HI
- Area navigation instrument approach procedures started for instrument approaches without electronic approach aids
- ARTS II designed for low and medium-density terminal control facilities, ARTS III added display of aircraft identity and altitude
- FAA management training school established at Cameron College, Lawton, OK
- National Aviation Facilities Experimental Center (NAFEC) renamed the FAA Technical Center
- FAA Aeronautical Center renamed Mike Monroney Aeronautical Center
- Last airway light beacon decommissioned – Palm Beach, CA

Emerging Technology:

- Electronic Voice Switching System (EVS)
- En Route Weather Advisory Service (EWAS)
- En Route Flight Advisory Service (EFAS)
- New generation Power Conditioning System
- Low Level Wind Shear Alert System (LLWAS)
- Airport Surveillance Radars (ASR-8)
- Radar Data Processing System
- Modular and prefab towers
- New generation of Air Route Surveillance Radars (ARSR-3)
- New generation of Airport Surface Detection Equipment (ASDE-3)

The 1980s - Significant Highlights and Technology

- First Terminal Radar Approach Control (TRACON) facility commissioned – Hempstead, NY
- First Automated Flight Service Station (AFSS) commissioned – Denver, CO
- IBM 4341 began operational use for Central Flow Control
- En Route center expansion began at Seattle ARTCC
- Contract awarded for "Host" computer system to replace IBM 9020s
- New VORTACs became the first FAA systems with remote maintenance monitoring (RMM)
- Center for Management Development (CMD) completed at Palm Coast, FL
- First microwave landing system commissioned – Lebanon, NH

Emerging Technology:

- En Route Automated Radar Tracking System (EARTS)
- Direct Access Radar Channel (DARC)
- Computer Systems for Automated Flight Service Stations (AFSS)
- Automated Weather Observing System (AWOS)
- Integrated Communications Switching System (ICSS)
- New generation solid state Airport Surveillance Radars (ASR-9)
- Oceanic Display and Planning System (ODAPS)
- Precision Approach Path Indicator (PAPI)
- Automated Radar Terminal System ARTS IIA
- National Data Interchange Network (NADIN)
- Flight Data Input/Output (FDIO) equipment
- Second generation radar Common Digitizer (CD-2)
- Long range Air Route Surveillance Radar (ARSR-4)
- Voice Switching and Control System (VSCS)
- Aircraft Situation Display (ASD)
- Terminal Doppler Weather Radar (TDWR)
- Automated Weather Observing System (AWOS)

The 1990s - Significant Highlights and Technology

- Direct User Access Terminal Service (DUATS) provided for weather briefings and flight plans from home computers
- Integrated Product Teams (IPTs) formed for facility and equipment planning, research, and acquisition
- Decision to operate with 5 consolidated TRACONS, 22 ARTCCs, 170-175 stand-alone towers
- New Air Traffic Control System Command Center (ATCSCC) commissioned in Herndon, VA
- Use of Global Positioning System (GPS) and the Wide Area Navigation System (WAAS)
- National Aviation Safety Data Analysis Center (NASDAC) implemented in FAA Headquarters
- FAA changed from competitive to excepted service, the Federal Aviation Service, with personnel and procurement reform
- Free Flight Program inaugurated providing enhanced tools to allow aircraft to fly user-preferred flight paths

Emerging Technology:

- Enhanced traffic management system (ETMS)
- Mode S radar beacon transponder
- Peripheral Adapter Module Replacement Item (PAMRI)
- Meteorologist Weather Processors (MWP)
- Weather And Radar Processor (WARP)
- Leased Inter-facility National Airspace Communications (LINCS)
- Airport Surface Detection Equipment (ASDE-3)
- Display System Replacement (DSR)
- Next Generation Radar (NEXRAD) for weather
- Integrated Terminal Weather System (ITWS)
- Enhanced Terminal Voice Switch (ETVS)
- Small Tower Voice Switch (STVS)
- Display Channel Complex Rehost (DCCR)
- Tower Control Computer Complex (TCCC)
- Airport Movement Area Safety System (AMASS)
- Standard Terminal Automation Replacement System (STARS)

2000 to Present - Significant Highlights

- Administration directs competitive sourcing and contracting of services not inherently governmental
- Congress has significant dialog over FAA reauthorization bill
- FAA hires Chief Operating Officer to direct the formation of an Air Traffic Organization
- FAA Flight Plan emphasizes increased safety, greater capacity, international leadership, and organizational excellence.






Thoughts from the Editor

I wish to thank the many people who so graciously gave of their time and talents to contribute to this special Centennial of Flight commemorative edition of "The Circuit." Thanks to Marcia Corey, Sunny Faith, Sherry Golightly, Marie Meyer, The Noble Pen, Lynn Strazzini, Richard Thoma, Robert A. Wright for their informative and insightful articles. Greatly appreciated are the profiles written by Beverly Anderson, Marcia, Corey, Joan Devine, Elizabeth Doucette, Emily Godinet, Janet Long, Jan McGown, Angela Smith, Lynn Strazzini, Patty Swenor, Mary Thomas, Marilyn Tomko, and Majorie Weeks. Several others provided photos, information, editing assistance, and encouragement - many thanks to them. Thanks to Cynthia Noble for helping in more ways than can be recounted here. And lastly, thanks to Judine Slaughter for the design and layout of the content for this edition. I hope you enjoyed reading the newsletter as much as we enjoyed putting it together.

-- Patricia Walker, Editor --

You are Invited

The FY04 TWO Conference

Reno, Nevada
March 9 – 11, 2004

Being held in conjunction with the WIA Conference

The FY04 Conference Committee is currently working hard at bringing you another rewarding training opportunity in March of 2004. This year's conference is focused on providing technical training for both Airway Facilities and Flight Standards technicians and engineers. The course "Increasing NAS Knowledge" (INK) will also be available. Each year the Technical Women's Organization brings together some of the best leaders in the nation to enhance your knowledge of best business practices, latest technology, and agency programs. We will be discussing the changes and challenges ahead for the FAA.

Watch for more information in the near future.

Conference Committee
Members include:

- Laura Helm
- Susy Peasley
- Debbie Cervantes
- Mary Ann Keller

AVIATION 101: CHALLENGES IN THE 101ST YEAR OF FLIGHT
2004
Technical Women's Organization
WIA Conference in Reno, Nevada

Calendar Items

November 2003

*	Native American Month
10 through 12/8	Health Benefit Open Season Through December 8
12-13	Southern Region Employee Association Groups and Special Emphasis Programs consisting of PWC, FWP, NBCFAE, TWO, GLOBE, NHCFAE, HEP, NCFAED, PWD and NAAN 3rd Annual Combined Training Conference, November 12 - 13, 2003, at the Southern Region Headquarters, in College Park, GA. Point of Contact: Angela Smith, 404/305-6232

December 2003

*	Centennial of Flight
4	TWO Executive Board Telecon
TBD	Commemorative 'Centennial of Flight' Edition of "The Circuit" to be Published
TBD	CD Mail-Out to Members: By-laws, Roles & Responsibilities, Membership, Newsletter, etc.

January 2004

*	TWO Scholarship Application Process Begins. Mail Out Forms to General Membership
8	TWO Executive Board Telecon 1:00 EDT
15	Quarterly Reports Due to the Vice President (Reps & Committees)
19	Martin Luther King Birthday

February 2004

*	Black History Month
5	TWO Executive Board Telecon 1:00 EDT

March 2004

*	Women's History Month
*	TWO Officer Elections – Request for Nominations mailed (1st week of march)
1	Scholarship applications must be post-marked no later than 3/1/04
4	TWO Executive Board Telecon, 1:00 EDT
9-11	TWO National Training Conference • TWO Scholarship winners announced at Annual Training Conference • FY06 TWO National Conference Site Selection