Okay all you trick or treaters, since you already have masks on, we have some real treats for you in these pages. Here’s a synopsis: New SpaceX Exhibit, Voyager Exhibit on approach. Even though we are not able to get together in person, we have been very fortunate to enjoy the talents of a variety of experienced experts who have been sharing their knowledge and histories with us via our virtual media. Since we are not able to physically appear at one another’s doorways, hold those sacks open and we will keep the electronic treats coming! This new illustrative SpaceX exhibit is the brainchild of Jason Lucas, our student volunteer from CSULB. This is a first step toward updating our space exhibit to acknowledge the accomplishments of innovative companies that are independently pursuing space exploration. Photo: Cindy Macha

Editor's Notes
James Keniston

While assembling this issue I was struck by the diversity of experiences shared by our contributors this month and how the aviation industry has touched our lives - whether as a pilot battling the demons of fate to bring an aircraft to earth safely after mechanical failure, or working in a manufacturing plant building the tools that built the aircraft that have carried us. Or applying your talents as a volunteer or contributor to a unique aviation organization. I think that this is something that we can all relate to. For
me, I am always intrigued by the global connections that aviation provides. Not just in terms of commercial air travel, which of course is a very useful element, but the way in which the Southern California aviation industry has helped shape aviation around the world - past, present, and no doubt, future. If you walk onto an airfield in Europe, or a museum in Australia, I have no doubt that you would see the products of our amazing industrial landscape and heritage.

Volunteer Spotlight - Ahmad Hassan

Ahmad is part of our restoration team here at the museum, but by day works as an Additive Manufacturing Technician at SpaceX. He is motivated to learn about aerospace innovations that have evolved through history. He enjoys learning about aircraft restoration. His specific ambition is to develop applications of 3D printing for the function of replicating components of historic aircraft for which replacement parts are no longer available.

Director Receives Award

Museum Director Cindy Macha has been acknowledged for her long-time contributions to yet another aerospace-oriented organization. The Grampaw Pettibone Squadron of the Association of Naval Aviation has recognized Cindy for her work as Operations Officer for the past several years. In this role she has ensured that each meeting of this professional council provides an interesting and informative insight into a significant technological or historical feature of importance to the mission of the organization.

Photo: Director Macha receives a bust from Squadron Commander, Tim Brown. Grampaw Pettibone is the fictional sage of naval aviation.

RCAF Mustang Memories

Fred Petersen

In May of 1956 I was twenty years old, fresh out of T-33 jet school. I arrived at 402
(F) Sqn (Aux), based in Winnipeg, Manitoba, Canada, on May 1st. The squadron had four AT-6 Harvards, two T-33s, and six P-51D Mustangs. We did not know at that time that two months later, on June 30, the Mustangs would be retired from RCAF service.

Three weeks later, after twenty Harvard and T-33 flights, I was sent off on my first Mustang flight - solo, of course. Over the next four weeks I got in eleven more Mustang flights - local practice, height climb, low-level nav, cross-country, formation work.

On June 17th, with 19 hours on type, my thirteenth Mustang flight was in a four-plane formation with three of my wizened, experienced squadron buddies. We climbed up through a hole into clear on-top conditions above an almost-solid stratus layer. Forty-five minutes later, while I was number 4, my engine cut out, and I alerted the others of the issue. Our leader proclaimed “There’s a hole. Follow me.” and the three peeled off. That’s the last I saw of them until I was on the ground.

I got down under the 1,200-foot cloud cover, decided to keep the wheels up due to the soft plowed-field conditions under me, and put the Mustang down in a farmer’s field seven miles N of the base. A farmer came by, then my three buddies roared overhead, then a crew from the base showed up, and the CO called my wife to tell her I would be late for dinner.

I had two more Mustang flights before they went out of service and we converted to C-45 operations. I’ve always figured I’m the most fortunate guy alive, to have had the opportunity to fly the P-51D Mustang. My Mustang had RCAF tail number 9273 when I flew it. It was originally built by North American at Inglewood, California circa 1945 as a P-51D-30-NA. It was taken on strength by the USAF with s/n 44-74908 and placed in storage. In 1951 it was acquired by the RCAF as SN 9273. After 1956 it sat in storage for a while and then had a series of different civilian owners and registration numbers, arriving at Palm Springs Air Museum (PSAM) in 1997. In 2014-15 PSAM had it restored by California Aero Fab in Chino, CA, and it now displays red-tail markings honoring the Tuskegee Airmen. An excellent detailed history of this airplane can be found at: http://www.aerialvisuals.ca/AirframeDossier.php?Serial=21094

In 2016, I visited the Palm Springs Air Museum to touch base and compare notes with the staff/docents. During our visit my old Mustang was on display at an air show
near Thermal, and we went out there to see it. We met with a number of folks including the late Lt. Col. Bob Friend, who was the foremost spokesman of the Tuskegee Airmen and an old WWII Mustang pilot.

Photos, from top:
- After engine failure and subsequent belly landing in a farmer's field in 1956. (Author's collection)
- Author's P-51D Mustang as 'Bunny' in tribute to the Tuskegee Airmen in Thermal CA. Author pictured with Tuskegee pilot Lt. Col. Bob Friend and Carol Kahler. (Author's collection)

Burgmaster: Machining for Aircraft
Paul Ginsburg

I have been a member of the Western Museum of Flight for several years but I have really never had any interest in aircraft. I was not in the military and I never worked in the aircraft/aerospace industry. However, I do have a connection with the museum because my family founded and operated a machine tool manufacturing company, and some of the machines produced by that company were used in the production of aircraft.

In the early 1940’s, my grandfather, Fred G. Burg, invented the six-spindle turret drill press. He called it the Burgmaster. Once my uncle and father returned from WWII (my father was a B-17 Bombardier, 384th Bomb Group), they fabricated a prototype Burgmaster, obtained a patent, and then started Burg Tool Mfg. Co. (later known as Burgmaster Corp.). Various models of six spindle, and later eight spindle, Burgmasters, were designed and built, and then sold to many different manufacturers, including a number of aircraft manufacturers.

In 1956, the weekly half hour, Ch 11 TV show, Success Story, toured and filmed at the Burg Tool factory in Gardena, and as part of the show, also filmed Burgmasters inside Bendix Aviation, Douglas Aircraft, Long Beach, and Parker Aircraft, near LAX. Approximately 23 minutes of this black and white show can be seen on YouTube.
I worked at Burg Tool, later Burgmaster, summers and Saturdays, from about age 12 until about age 20, learning the business by working in assembly, in the machine shop, in inspection, and later in the front office. I learned how to do NC programming, with the long paper punch tapes, and, at age 18, I learned how to mate a GE Numerical Control to a large Burgmaster with a three-axis table.

**Burgmaster Notes:**
- The very small, wood mock-up, Burgmaster shown and discussed by my grandfather near the end of the video, went into production in about 1960, as a small and low-priced bench model, and was called the Burgmaster Model “O”. For probably two summers I worked in what was called the Burgmaster Small Tool Division, assembling Model “O” Burgmasters. I have a Model “O” Burgmaster in my hangar. *Pictured with the author above. Photo: Cindy Macha*
- Burgmaster Corp. became a division of Houdaille Industries, in about 1965, when I was still in college. Ten years later Houdaille Industries was acquired by Kolberg, Kravits and Roberts (KKR) in a leveraged buyout. In 1985, KKR decided to shut down Burgmaster and auction the assets.
- Max Hollander, a college professor, and the son of a long time Burgmaster employee, wrote a book about the founding of Burg Tool/Burgmaster, its operations, the Houdaille merger, the KKR purchase of Houdaille, and the shutdown of Burgmaster. The book is called *When the Machine Stopped*, and was published by Harvard Business Press. A copy of the book is in the Western Museum of Flight library.
- If you own or have flown in an aircraft manufactured between about 1950 and 1990, it probably had at least one component, or section, which was manufactured using a Burgmaster.

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**Archive Extra**

Last month we heard from Neil White about his service in the Air Force as an engine specialist, and his 4 years of service with the Douglas C-124 Globemaster II. His affection for this aircraft took him on travels across the world serving with 28th Logistic Support Squadron. Read the article here.

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**Can You Quiet A Sonic Boom?**

Did you know that by law it is illegal for aircraft
to break the sound barrier over the United States (and most of Europe too)? There are only certain flight corridors over lightly populated areas where this is possible. This was a great question posed and funded by DARPA (Defense Advanced Research Projects Agency), with Northrop Grumman holding the contract for researching and testing the hypothesis. Using an F-5 aircraft with a modified forward section this project ran from 2001-2004. In the 9th episode of our Private Tours series, Northrop test pilot Roy Martin gives a fascinating insight into how this happened and what the project accomplished. Watch the presentation here.

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**Donations to Brokerage Account**

SCHAF/WMOF now offers the option for a donor to transfer stock, mutual funds, or cash directly to our brokerage account. Direct transfers may provide the donor with additional tax benefits. For specific instructions, please contact our Treasurer, Rhon Williams at 310-595-5955 or at treasurer@wmof.com.

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**Become a Contributor**

We know that many of you reading this are former members of Southern California's aerospace industry and may have some interesting stories and experiences from your careers. We ask you to consider sharing some of these stories with us, whether about a particular company's aircraft project/program or during the course of military service associated with one of the many aircraft types built in SoCal. An example is this month's story about his service with the RCAF by Fred Petersen. We look to preserve these stories before they are lost to time.

Our mission is to preserve the histories of the aircraft built here in Southern California, primarily airframes in earlier times, for the defense of our nation, experimental research air vehicles, spacecraft and commercial airliners. **Lockheed** (Burbank, Palmdale); **Douglas/McDonnell Douglas** (Santa Monica, El Segundo, Long Beach), **Hughes** (Culver City, El Segundo), **North American Aviation/Rockwell/Boeing**
(LAX, Downey, Palmdale), Boeing (Long Beach), Northrop Grumman (Hawthorne, El Segundo, Palmdale), Vultee (Downey), Consolidated/Convair/General Dynamics (San Diego), TRW/Northrop Grumman (Redondo Beach), SpaceX (Hawthorne), Robinson Helicopters (Torrance), these amongst all the larger companies.

We look to the future as well, as history continues to be written with new initiatives and opportunities for further space exploration. We'll help to polish up the words if you are not a professional writer. Or it may simply be an interesting photo(s) with a caption added to tell the story.

Please contact us directly via email: edit@wmof.com, with your thoughts and comments.

The Western Museum of Flight honors and champions the Aerospace Industry Heritage of Southern California and inspires, motivates, and educates the dreamers and creators of today and tomorrow.

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