

HORIZONS

A publication of the Massachusetts Air and Space Museum

The Massachusetts Air and Space Museum inspires new generations to explore, experience, and pursue interests and opportunities in science and technology

Vol. 7 Issue 4

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December 2021

Win an Airplane that can Land Anywhere!

MASM Raffle On Now!

The Massachusetts Air and Space Museum (MASM) is thrilled to announce its inaugural raffle fundraiser to support the Museum and its educational activities. In addition to supporting a wonderful cause, every ticket purchased will have the opportunity of winning one of the three prizes listed below. No more than 5,000 tickets will be sold, so act now. The drawing will be held on July 12, 2023 or earlier if all tickets are sold before then.



GRAND PRIZE

The grand prize is a classic 1970 Thurston Teal Airplane (N501ME). This is a 2/3 place all aluminum amphibious

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The Last Man

We seldom have trouble remembering who was the first person to accomplish something. Everyone knows that Neil Armstrong was the first human being to set foot on the moon. But few remember who was the last man to place his boot on the moon's surface.



B-29 Superfortress "**Bockscar**"

The same holds true for the dropping of the atomic weapons that brought World War II to a close. Most aviation enthusiasts and history buffs know that it was Col. Paul Tibbets, commander of the 509th Composite Group flying the now-famous B-29 Superfortress known as **Enola Gay** that dropped the first bomb. In the pre-dawn hours of August 6, 1945, Tibbets and his crew climbed aboard the aircraft he named after his mother and flew into history over Hiroshima Japan by dropping the first nuclear weap-

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From the Cockpit

Despite a pandemic, The Massachusetts Air and Space Museum opened its doors this year to visitors from far and wide. Our exhibits continue to grow in number and complexity, and our operation has become one of the family of fine museums on Cape Cod.

Although the museum will be on hiatus for a short time, we are still working behind the scenes to give museum-goers a great experience in 2022. If you haven't yet visited the museum, I strongly urge you to plan a trip this coming season. There will be lots of fascinating things for you to experience.

Meanwhile, on behalf of the entire staff, the dedicated docents, and all the members of the board of directors, we wish you the happiest of holiday seasons!

Bob Segal, President



Chairman of the Board Joe Dini jdini@massairspace.org
 President Bob Segal rsegal@massairspace.org
 Curator Barbara Jagla bjagla@massairspace.org
 Operations Manager Bryan McKay bmckay@massairspace.org

Museum location: To Be Announced

Museum Hours:

Museum is closed during the move to new quarters

MASM Mailing Address:

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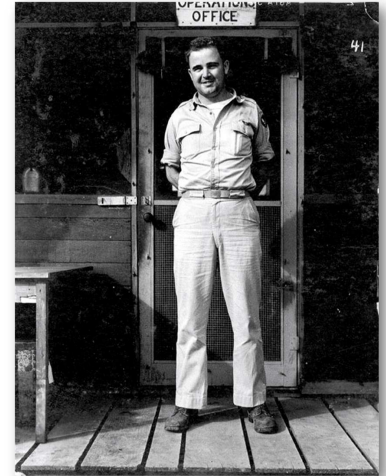
email: paul@berkshirecottage.com or: horizons@massairspace.org

on, [Little Boy](#), ever used in combat.

Three days later another young Army Air Force pilot climbed aboard another B-29 named [Bockscar](#), named after the regularly assigned pilot Captain Frederick C. Bock. But Captain Bock would not be flying this particular mission. It was his immediate superior, commanding officer of 393rd Bombardment Squadron, Major Charles Sweeney of North Quincy, Massachusetts who did it.

Sweeney and Bock swapped airplanes for the Nagasaki run because all the scientific instruments were already aboard Sweeney's airplane [The Great Artist](#), coincidentally the only aircraft to fly both of the nuclear missions.

Charles Sweeney's regular crew joined him aboard [Bockscar](#) along with Navy Commander Fred Ashworth, Navy Lieutenant Philip Barnes, and Army Air Force Lieutenant Jacob Beser who handled radar countermeasures and was the only person who flew both atomic missions. Their job was simple: deliver [Fat Man](#), the last atomic bomb ever dropped in combat, to Nagasaki.




Major Charles Sweeney

Major Sweeney was among the most trusted and revered subordinates of Col. Tibbets, so it was understandable why he would be chosen as the mission commander for the second atomic mission. Just prior to that fateful flight, Tibbets and Sweeney learned that the fuel pump that allowed access to the 640 gallon reserve tank of fuel was inoperable. Changing aircraft at that point would take considerable time and pose substantial risk transferring the nuclear device as it was already armed. Despite this glitch in the equipment, the two officers jointly decided that Sweeney would go ahead and fly the mission even though he couldn't access the reserve fuel if it were

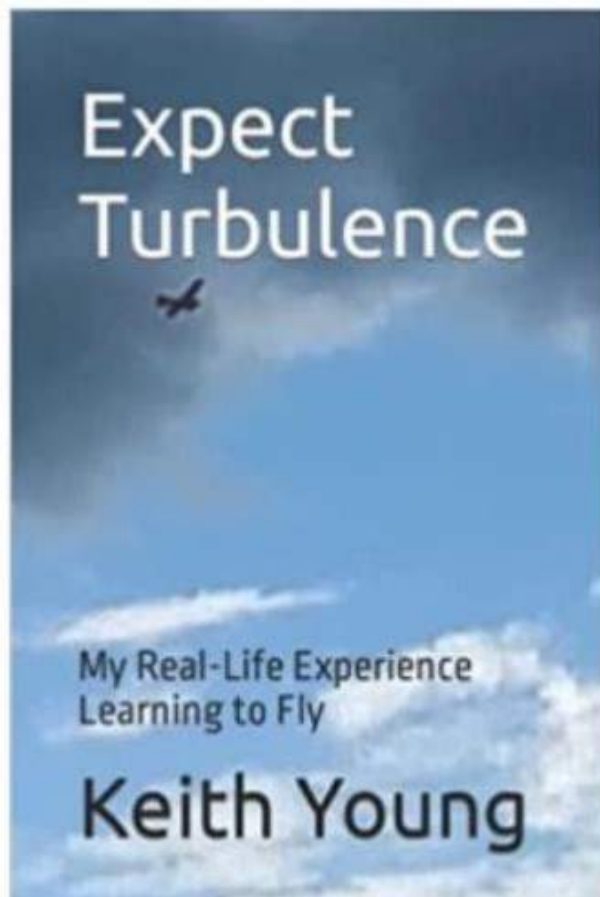
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needed. Both he and Col. Tibbets realized that flying this mission as scheduled could very well mean an end to World War II. Paul Tibbets figured if any pilot could bring a B-29 back from Japan without having to tap into a fuel reserve it was Major Charles Sweeney.

At 03:49 hours on the 9th of August 1945, Sweeney and his flight of six aircraft took off from the North Field on the island of Tinian. Almost 1,600 miles to the North-northeast lay their target: Nagasaki, Japan. Unlike the bomb used at Hiroshima which utilized Uranium 235, Fat Man relied upon Plutonium for the fissionable reaction. Bockscar started for the

primary target of Kokura, but weather threatened to obscure proper sighting at the target. Nagasaki was the secondary target and weather there appeared to be favorable. At 11:02 hours Fat Man detonated some 1,600 feet above ground level over Nagasaki with a yield estimated to be 40% greater than the blast at Hiroshima. The Mitsubishi factories were the primary target and were wiped out. But the nearby hills helped concentrate the bomb's energy resulting in devastation throughout the entire city including the loss of thousands of lives. Japan surrendered six days later. Mission accomplished! 

MASSACHUSETTS **AIR AND SPACE** MUSEUM



Keith Young, MASM's own Director of Public Relations has recently published [Expect Turbulence](#)

Expect Turbulence is the story of setting a goal and overcoming obstacles. A twice over recipient of kidney transplants, Keith Young always dreamt of becoming a pilot.

In 2013 he set out to make that dream come true despite concern that his health situation could prevent it.

This is a story of what it takes to go for it when you have responsibilities to family, work, and budget and have to deal with age and health concerns.

Keith candidly shares his triumphs and disappointments while placing you in the cockpit and inside his head as he struggles through what is required to become a private pilot.

[Available now on Amazon](#)

In Memoriam




John Wright Wood, Jr.

It is with great sadness that we report the passing of a great friend and supporter of the Massachusetts Air and Space Museum, John W. Wood, Jr. Aside from many professional accomplishments, John generously donated to the museum the desk he created from the complete cockpit of his Albatross airplane. It has been one of the most talked-about exhibits since it arrived.



John was an accomplished pilot of both aircraft and many business ventures. He traveled extensively throughout the world and was highly proficient when it came to hangar talk.

He not only restored a Waco UPF-7 tail number NC29923, he chronicled the aircraft's entire history in his book [As The Prop Turns](#).

John had planned on joining the MASM Board of Directors in early 2022 and his absence will truly be missed. His spark, his love of life and all things aviation will truly be missed. 




William J. Deane

We have the sad duty of also reporting the death of Bill Deane a founding member of MASM, who passed away August 21, 2021, after a lengthy illness.

Bill had spent his career in the banking industry but as result of his service in Marine Corps aviation, he developed an unbounded love of aviation and its history. It can rightfully be said that Bill possessed more knowledge and facts about the history of aviation in New England than perhaps all other "experts" combined. Bill manifested this avocation in serving as President of the New England Aviation Historical Society. **Al Mundo**, another founding member of MASM, mentioned that he had learned that Bill had been contemplating the prospects of founding an aviation museum, which Al had also been pursuing as a Board member of the closed MA Air Guard Museum at Otis. Bill and Al agreed that it could be a common goal, and in the course of further deliberations they learned from **David Graham** of the Aero Club of New England that **John Garabedian** had also been considering a similar venture.

So, on a cold December day the four met at John's home in Southborough and MASM was born. Only through their dedication, and through the contributions of many inspired others, has the Museum reached its present level of success.

William J. Deane will long be remembered and honored for his inspiration and dedication as an aviation pioneer and as a founding member of the Massachusetts Air and Space Museum. 



The dream of man's ability to enjoy the thrill of individual flight was suggested in the James Bond classic film *Thunderball* starring Sean Connery. Bond soared over the spires of a French villa with a Bell Rocket Belt strapped to his back making flight seem effortless. That flight lasted but a few seconds and was only considered useful as a quick escape method for the fictional



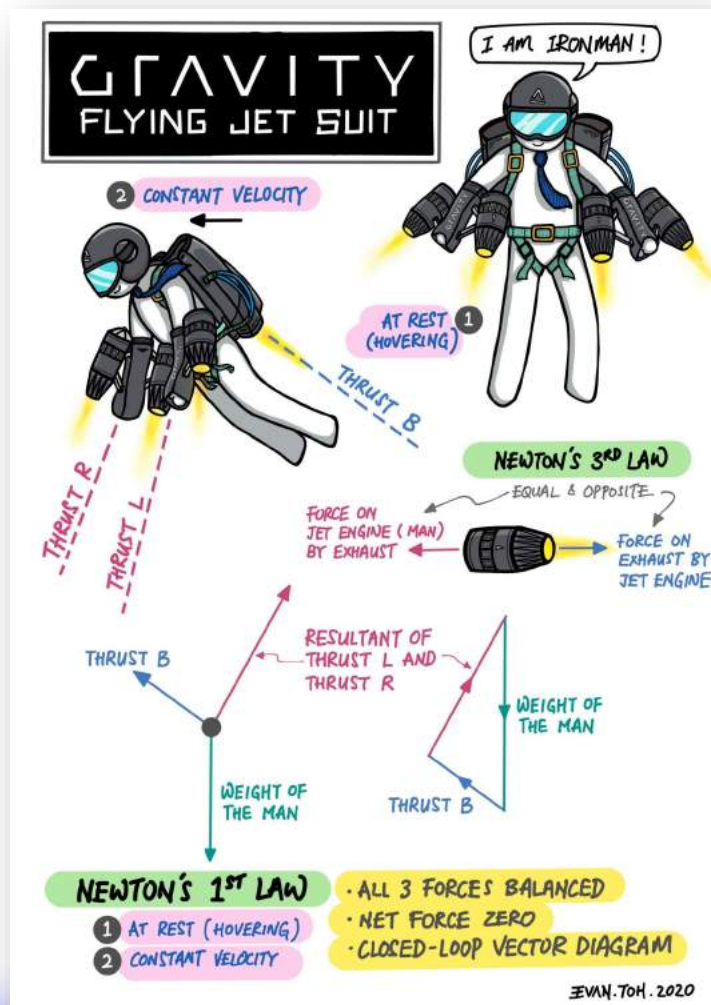
British spy. To-day, there is a whole new generation of personal flight equipment that reaches far beyond the pioneering jet-pack era which now allows man incredible flexibility of movement and unheard-of speeds. The Jet Suit by [Gravity](#) has arrived and has already been deployed with Britain's Royal Marines as a useful tool in both rescue and hostile boarding operations at sea. Man can literally fly like a bird using a five-thruster system that is controlled with simple body movements. The best part is a sustained flight time of between 5 and 10 minutes contingent upon weight and other critical factors. It is reported to be capable of speeds up to 55 MPH, and has reached a record speed of 85 MPH.

Gravity's equipment isn't just available to the United Kingdom's military forces—anyone with sufficient

financial resources can rent or even buy this revolutionary apparatus. Like most things to do with flight, having surplus big bucks is the key to ownership.

Gravity's Jet Suit is merely the next logical incarnation beyond Leonardo da Vinci's proposed flying machine. Time will help improve on this concept resulting in longer flight times, greater speeds and ranges, and even improved maneuverability. Given enough time, maybe they'll even be able to come up with an electrically powered version that will be quieter and more efficient than this fossil-fuel burning version. An added benefit to an electric version would be virtually no heat signature compared to the current jet-powered edition.

With the holiday of giving soon upon us, you have time to consider purchasing this dream of flight for the flying enthusiast in your household. It is claimed the learning curve for the Jet Suit is very short and apparently no licensing is required. So, have fun as you take to the skies!






6 Second Take-off Roll 65 Yards To Lift-Off The Antonov AN-2 Upgrade

While the airframe looks like a throw back design from the late 1930s, and in fact is, this particular tail-dragging biplane is truly different. A five-bladed 1,100 shaft horsepower Honeywell turbine engine prop in the nose, and eight electric motors with folding props fixed to the leading edge of the lower wing, this twelve to fourteen passenger/cargo airplane has some of the most desirable characteristics of a STOL aircraft.

While this particular Russian offering was a hit at this year's Russian Air Show in July, and offering an aged airframe a new lease on life, the show-stopping sixty meter take-off and landing space needed was unique. Even absent the fuel and battery specifications needed to make these almost aerobatic feats possible, this could prove to be a valuable tool for remote area supply and for rescue efforts where space to get in and out is extremely tight. Of course, the potential for military applications can't be overlooked, either.

Russian designers haven't kicked the requirement for fossil-fueled propulsion to generate the oomph necessary to get this airframe aloft, but they have embraced the coming age of electric powerplants to provide at least some of the thrust needed to get off the ground. As an added bonus, this version of this venerable old airplane generates only a fraction of the noise the former AN-2 produced with its Schvezow ASch-62IR nine-cylinder 1,000 HP radial engine. 

James Means

by MASM Curator, Barbara Jagla


James Means, (1853 Dorchester, MA - 1920 Boston, MA) was a co-founder of the Boston Aeronautical Society in 1895.

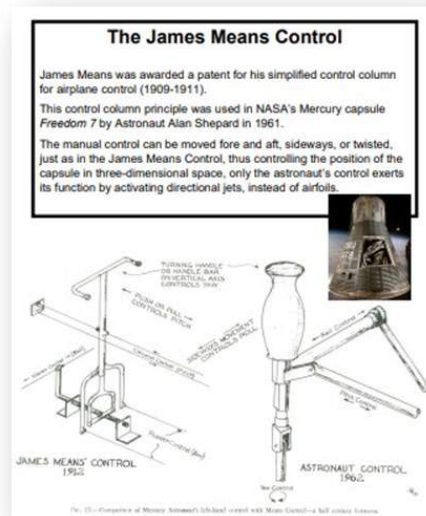
Determined to disseminate information on flying, Means collected and edited the most significant works of Otto Lilienthal, Octave Chanute, Samuel Langley and others, producing the 'Aeronautical Annual' which appeared in 3 volumes in 1895, 1896 and 1897.

In 1910, Orville Wright wrote a letter to Means acknowledging the part "Aeronautical Annuals" had played in spurring and sustaining the Wright Brothers' interest in aeronautics.

Means also wrote The "Problem of Manflight" in 1894, which among other matters, offered a design for a large model "Soaring Machine" with which people could experiment.

James Means was awarded a patent for his simplified control column for airplane control 1909-1911. This control column principle was used in NASA's Mercury capsule Freedom 7 by Astronaut Alan Shepard in 1961.

The manual control can be moved fore and aft, sideways, or twisted, just as in the James Means Control, thus controlling the position of the capsule in three-dimensional space, only the astronaut's control exerts its function by activating directional jets, instead of airfoils. 





KIX is Sinking!

That's right, Kansai International Airport in Osaka, Japan—or more appropriately in Osaka Bay, Japan—is not-so-gradually or gracefully sinking into the sea. But then, it was actually designed to sink when the project was first conceived. The problem is that it is sinking much faster than the original design had called for. The question now becomes: *will it remain above sea level when the sinking process has finished?* Only time will tell.

While major mitigation measures have been undertaken that involve hydraulically jacking up the under-structure of the two square mile man-made island upon which the airport sits, the overall cost of this airport is not only the most expensive airport construction facility in the realm of aviation, it is actually the most costly public works project in the history of the entire world. The original estimate to build was \$8 Billion back in 1987. Time and construction cost overruns brought the final figure in at a whopping \$20 Billion. And the costs continue to add up as they have yet to arrest the sinking of the 2-square mile island or even slow the process to what was originally estimated when the idea was conceived back in the 1980s.

While the Japanese engineers work feverishly to find a solution to the problem, Osaka might have to consider a rebirth of the flying boat era if the Kansai airport continues to sink into the bay. Let's keep our fingers crossed! 节新市

Continued from Page 1

airplane with fewer than 1,350 hours of total time. The 150 HP Lycoming engine and Hartzell prop have ~130 hours since overhaul. The aircraft will include a new annual inspection and new tires. Also, included are instruments and avionics as follows: ADS-B, a PJ2 COM Radio, Electronics International model R-1-4 digital RPM/TACH, model M- 1 digital manifold pressure gauge, King KLX 135 GPS/Moving Map/Com, KT 76A transponder, PS Engineering PM 1000 2-place intercom system. In addition, the winner will receive \$3,000 for his/her tail wheel rating and/or seaplane rating. The airplane value is estimated at \$58,500.

SECOND PRIZE

Second prize is a Bose A20 Aviation Headset that is valued at \$1,095.95.




THIRD PRIZE

Third prize is an iPad MINI with 256 GB and Wi-Fi, plus a one-year subscription to ForeFlight Pro-Plus. This prize is valued at \$689.98 (cellular service is not included).



Tickets prices are \$65 for a single or \$150 for a block of three and may be purchased at the links listed below. Additional purchasing and raffle information may be found by visiting our website at www.massairspace.org.

The Thurston Teal was designed by David Thurston and manufactured in Sanford, Maine at the [Thurston Aircraft Corporation](http://www.thurstonaircraft.com). Mr. Thurston had a long and productive career in developing aircraft for water use. During World War II he worked for Grumman Aircraft and later on helped create the [Lake Buccaneer](http://www.lakebuccaneer.com), [Colonial Skimmer](http://www.colonialskim.com), and the [AeroMarine Seafire](http://www.aeromarine.com) as well as the [Thurston Teal](http://www.thurstonaircraft.com). 

[Click here for Raffle Tickets](http://www.massairspace.org/airplane-affle/)

Or visit: <https://www.massairspace.org/airplane-affle/>

CAV.U

Most people familiar with aviation know that the abbreviation “CAV.U” stands for “Ceiling and visibility unrestricted.” In this recurring feature of **Horizons**, your ability to see clearly into the history of aviation will be tested through identification of flying machines that once were. The first reader who submits the correct answer will be entitled to bragging rights and have their name and answer published in the subsequent edition of **Horizons**. Submit your name, the name of the aircraft, the type or version (if applicable), and the country where it was manufactured to the editor-in-chief of **Horizons** at: horizons@massairspace.org

Here is your challenge for this edition:

For additional content, click on any of the photos in this edition except this one.
You'll find videos and links for more information!



Answer to the mystery posed on Page 1 about the last man to set foot on the moon: the answer is Harrison H. “Jack” Schmidt, NASA astronaut, geologist, university professor, and former US Senator from New Mexico!

September 2021 Edition’s Answer:

Vickers VERNON - Great Britain

Commercial/Military transport—**Max. speed:** 118 MPH (190 km/h)

Ceiling: Could climb to 6,000 ft (1,830 m) **Radius:** 320 miles (515 km)

Dry weight: 7,890 lbs (3,579 kg) **Max. take-off weight:** 12,500 lb (5,670 kg)

Dimension: Wing span: 68 ft 1 in (20.75 m); length 43 ft 8 in (13.31 m); height 15 ft 3 in (4.65 m); wing area 1,330.0 sq ft (123.56 m²)

Powered: two 450-lb (336 kW) Napier Lion II inline piston engines

Payload: 12 troops or +/- 4,500 lbs (2,041.2 kg)

Correct Answer: No guesses submitted.

