

# Erie's Link to Space: Astronauts & Astronomy

Erie County is more than one thousand miles from the Kennedy Space Center in Cape Canaveral, Florida and Mission Control in Houston, Texas. So, what links Erie to the moon landings of the 1960's and 70's, or even NASA astronauts?...Erie, Pennsylvania has contributed scientists and technology to several NASA space adventures. Let's blastoff into the past to see what the Erie community has accomplished in the space race, and gaze toward the future to imagine things to come.

## Erie's Own Space Place

Where can you go to view the night sky in any weather and during any time of the day? The Erie Planetarium, of course! The Erie Planetarium, the fifth planetarium to be built in state and one of the oldest continuously running planetariums in Pennsylvania, opened in 1957 in the carriage house of the Watson-Curtze Mansion at the corner of West Sixth and Chestnut Streets. Although funded by the Junior League of Erie, an eighty year old women's organization which promotes volunteerism and community improvement, the Erie Planetarium was managed by the Erie City School District. Over 17,000 people sat under the stars and observed planets reproduced on a domed screen within the first year of operation. Thousands of students experienced the awe-inspiring productions of the planetarium during the "space race" era of the 1960s and 70s, when astronomy became an important science to study.

During its more than forty-five year history, the planetarium has been host to many school children, held astronomy classes for adults and planetarium conferences, hosted NASA astronauts and been used as a place to contact astronauts living in space on the International Space Station! Astronaut Lieutenant Colonel Mike Fincke, who has visited the Erie Planetarium twice, lived in the International Space Station for six months. Lt. Col. Fincke fulfilled his dreams of visiting space when he arrived at the Space Station on April 21, 2004 after spending seven years in training. On May 25th, 2004 at 2:00p.m. several school children listened intently under the dome of the Erie Planetarium as Lt. Col. Fincke answered questions and shared stories of life on the International Space live. A recording of this communication can be heard on the Erie County Historical Society website [www.eriecountyhistory.org](http://www.eriecountyhistory.org).

The International Space Station is the largest object ever assembled in space – it was assembled piece by piece during numerous expeditions scheduled over several years. It is an orbiting laboratory that tells us much about space and prepares us for our steps to the Moon and Mars. On the space station the astronauts are also learning more about our planet Earth. In the process of human exploration we are also inventing new technologies that help us here on Earth.

## Did You Know? Space Spinoffs!

What on Earth have we gotten from space? Many spinoffs have occurred due to our human exploration of space. Here are some: Flat panel television, Thin super-insulating blankets, ultrasound scanner, satellite navigation and communication, energy saving air conditioning, CAT scans, sun blocking sunglasses.

## Erie's Own Astronaut

Paul J. Weitz was born in Erie, Pennsylvania, on July 25, 1932. Married to the formal Suzanne M. Berry of Harborcreek, Pennsylvania. Two children: Matthew and Cynthia. Hunting and fishing are among his hobbies. His mother, Mrs. Violet Futrell, now resides in Norfolk, Virginia.

**Education:** Graduated from Harborcreek High School in Harborcreek, Pennsylvania; received a bachelor of science degree in aeronautical engineering from Pennsylvania State University in 1954 and a master's degree in aeronautical engineering from the U.S. Naval Postgraduate School in Monterey, California, in 1964.

**Organizations:** Fellow, American Astronautical Association.

**Special Honors:** Awarded the NASA Distinguished Service Medal, the Navy Distinguished Service Medal, Astronaut Wings, Air Medal (5 awards), and the Commendation Medal (for combat flights in Vietnam), the Los Angeles Chamber of Commerce Kitty Hawk Award (1973), the Robert J. Collier Trophy for 1973 (1974), the Pennsylvania State University Alumni Association's Distinguished Alumni Award, named a Pennsylvania State University Alumni Fellow (1974), The AIAA Haley Astronautics Award for 1974, the Federation Aeronautique Internationale's V. M. Komarow Diploma for 1973 (1974), the Dr. Robert H. Goddard Memorial Trophy for 1975, the 1974 Harmon International Aviation Trophy for Astronaut (1975), NASA Space Flight Medal (1983), the 1984 Harmon International Award (1989).

**Experience:** Weitz received his commission as an ensign through the NROTC program at Pennsylvania State University. He served for one year at sea aboard a destroyer before going to flight training and was awarded his wings in September 1956. He Served in various naval squadrons until he was selected as an astronaut in 1966. He has logged more than 7,700 hours flying time – 6,400 hours in jet aircraft.

**NASA Experience:** Mr. Weitz was one of the 19 astronauts selected by NASA in April 1966. He served as pilot on the crew of Skylab-2 (SL-2), which launched on May 25 and ended June 22, 1973, SL-2 was the first manned Skylab mission, and activated a 28 day flight. In logging 672 hours and 49 minutes aboard the orbital workshop , the crew established what was then a new world record for a single mission.

Mr. Weitz was spacecraft commander of the crew of STS-6 which launched from Kennedy Space Center, Florida, on April 4, 1983. This was the maiden voyage of the Orbiter *Challenger*. During this mission, the crew conducted numerous experiments in materials processing, recorded lightning activities, deployed IUS/TDRS-A, conducted spectacular extravehicular activity while testing a variety of support before landing Challenger on a concrete runway at Edwards Air Force Base, California, on April 9, 1983. With the completion of this flight , Paul Weitz logged a total of 793 hours in space.

Mr. Weitz was Deputy Director of the Johnson Space Center when he retired from NASA service in May 1994.

### **Space Grub**

Here are some foods that astronauts may take on their journey into space. You should recognize many of them. They're not the space food of the 1960's. Similar foods can basically be found in many grocery stores. Astronaut freeze-dried ice cream can be purchased at the Erie Planetarium's Mini-Milky Way gift shop.

Orange Aide – drink

Beef Patties

Trail Mix

Cashews  
Crackers  
Candy coated peanuts  
Cheddar Cheese spread  
Creamed Spinach  
Beef steak

### **Local Astronomy clubs in the Erie Area.**

There are two astronomy groups in the area that can do anything from help you observe, learn more about telescopes, and occasionally host guest speakers. They are the Erie County Mobile Observers Group and the Erie Astronomical Society.

Anyone interested in joining an astronomy club can contact the Erie Planetarium at (814) 871-5790 for more information.

Right now in the night sky in Erie you can look to the southwest after sunset and find a bright object. That would be Venus. If you see a bright object in the southeast that would be Mars. Some winter constellations that comprise the winter circle can be seen rising at this time of year also. Some of those constellations are Taurus the Bull, Orion, Gemini Twins and Canis Major & Minor (big & little dogs)

### **Timekeeping and Navigation.**

Sextants were just one of the many instruments used to navigate by the stars. Here you can see a sextant that was once used by the U.S. Navy in the 1800's. It is on display at the planetarium. One big problem with using sextants is that sailors, for example had to look at the Sun through dark lenses on the instrument. These dark lenses however were not enough protection from the harmful radiation and the sailors would eventually ruin their eyes.

Anyone can determine their latitude here on Earth by just finding the elevation of the North Star in the sky. You'll need to use an instrument that can measure degrees, then simply measure the height of Polaris, the North Star. Did you know that Polaris was the actual name of our north Star? Do you know what the latitude of Erie is? If you measured the height of the North Star you find it to be about 42 degrees.

### **Erie Industries that made it to space!**

Four Erie County companies provided NASA's Apollo 11 mission with some essential pieces of equipment that made the mission to the Moon a success. Snap-Tite of Union City provided Quick Disconnect Coupling Valves. These unique valves enabled fuel recharging lines to automatically disconnect from the rocket during liftoff as well as providing an easy way for the astronauts to recharge their air tanks during space walks. They can disconnect either by hand or automatically in seconds. Another critical component that Snap-Tite created were Cryogenic Butterfly Valves. These valves are essential for engine restart while in orbit.

The second local industry that had a hand space travel was Lord Corporation. One of their contributions to the space program is specialized mountings. These mountings are used for absorbing shocks and vibrations during liftoff and reentry. Sophisticated delicate equipment is housed in these mountings that need to be protected from the force of liftoff. One of these pieces of equipment is the switch-selector units that control liquid hydrogen re-circulation, engine and retro-rocket operation, stage separation, and telemetry. If these components are damaged it could jeopardize the lives of the astronauts so it is vital that they are protected. Thanks to Lord Corporation they were protected. Lord also developed a camera mount for an external camera on the lunar lander.

Uninterrupted communications between the astronauts and Mission Control on Earth were also vital to the success of the mission. This is where Erie Technological Products, Inc. came into play. They provided NASA with quite a few electronic components and devices. Electronic components were very reliable parts designed to prevent electronic pollution; electronic filters that prevented radio interference in the command vehicle power systems; and life support and communications equipment. The high reliability components enabled astronauts and command central with the ability to abort any number of complex functions on lunar missions safely. Filters that are interference free prevent radio frequencies from setting off anything that shouldn't be set off. For example, they could prevent a certain radio frequency from setting off the engines unintentionally and blasting the astronauts out into space. ETPI also provided NASA with the miniaturized two-way radio headset that Neil Armstrong wore when he first stepped onto the moon. The signals from this radio equipment could be transmitted over a distance of over 30,000 miles. Many of these technologies were accomplished through special ceramic capacitors that ETPI developed.

The final Erie business that contributed and is still contributing to the space program is American Sterilizer's AMSCO Industrial Co. AMSCO provided NASA with sterilizing equipment and products to keep samples, tools, food, and people safe. Thanks to AMSCO, lunar samples were able to be kept in their original environments and free from contamination by earth germs and atmosphere. AMSCO was also able to make sure that nothing from the moon got back to contaminate earth. Thanks to these four companies we have been able to land people on the moon. Their products were essential to the success of these missions.