

# Crosby's "Man-High II" balloon flight helped launch America's space program

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Back in the 1950s, before NASA was America's space program, there were pre-astronauts with imaginative and courageous ideas. These pioneers were the doorsteps of the future with their budding interest in manned space flights.

The military had little interest in space research before mid-1950. Not many military experts thought man could reach space as described in novels and comic books. It took intelligent, curious, risk-taking mavericks that dared pursue their dreams.

Very little funding was available, because investing in space travel was "crazy." Yet in the 1950s post-WWII nuclear age, America was in a Cold War with Russia. There was a lot of competition to outshine the USSR, or at least be on equal footing.

According to the Air Force Museum of Space Flight, "Project Man-High began in December 1955 to obtain data on the behavior of a balloon in an environment above 99% of the earth's atmosphere and investigate cosmic ray effects on humans."

Dr. John P. Stapp, project coordinator at Holloman Aeromedical Field Laboratory, studied G forces on the body. He often was his own guinea pig. Previous Air Force experiments had only included animals sent up inside a rocket nose cone.

Dr. Stapp and his researchers wondered what would happen to humans in almost zero atmosphere for 24 hours at "the edge of space." Stapp recruited Major David Simons, a 35-year-old aeromedical doctor who had supervised animal flights in balloons. Before long, Simons wanted to go up in a capsule.

Project Man-High, the top-secret mission of the 1950s,

thus became a series of three manned flights in helium-filled, polyethylene balloons, thinner than a piece of paper. Winzen Research of Minneapolis designed the space capsule (gondola) about the size of a telephone booth. With no atmosphere, the sun would heat the aluminum container to at least 260°. At night, temperatures dropped to between 60-100° below zero, so it also had to be heated. Thus, they came up with a crude air conditioning/heating system.

The gondola's engineers used a mixed gas atmosphere, rejecting using 100% oxygen, because of an enormous fire risk. They combined 60% oxygen, 20% nitrogen and 20% helium, although helium made pilots' voices squeaky, like Mickey Mouse.

Navigational equipment for an airplane and a parachute were included. If the balloon failed, the pilot could unhook, open his chute and fall to earth. The navigator wore one of the first space suits - pressurized, heated, and with its own air system. If the capsule air failed, he could still survive. Another requirement was that the pilot must have a balloon pilot's license.

**Man-High I:** Captain Joe Kittinger, a 29-year-old test pilot, navigated the first Man-High flight. On June 2, 1957, Kittinger's balloon launched from Fleming Field near St. Paul. Problems developed very quickly when his radio transmitter broke and he could only communicate by Morse code. The balloon rose to a record-breaking height of 97,000 feet, but the capsule quickly lost oxygen. Kittinger was ordered down. "Come and get me!" was his humorous retort, but he did obey the order.

Nine hours after launch, Kittinger landed in what

was considered a successful flight. He was probably only minutes from death by lack of oxygen because of an error in the installation of an oxygen valve.

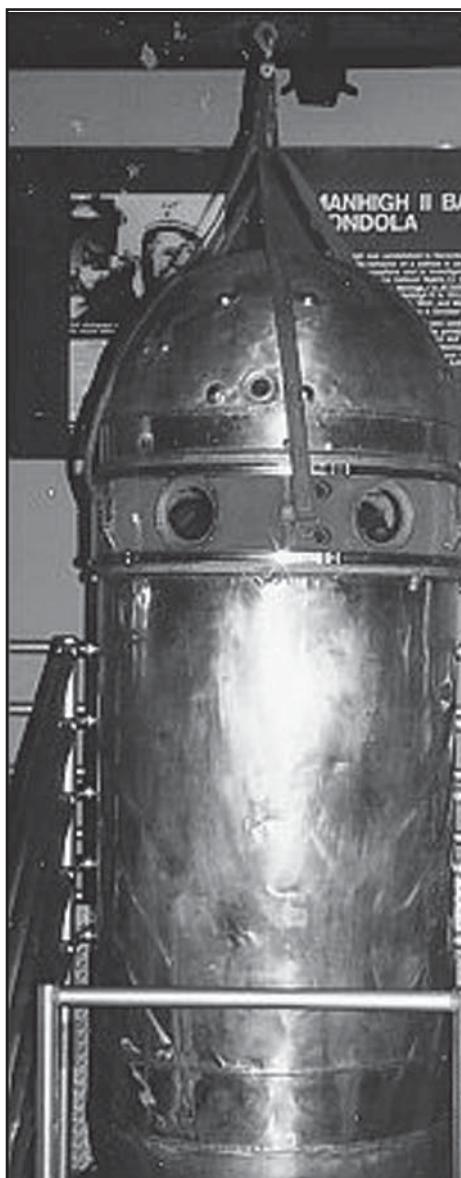
**Man-High II** was the second top-secret mission, launched from the Portsmouth mine pit in Crosby. Dr. David Simons piloted the Man-High II balloon on August 19, 1957. Setting up at the bottom of Portsmouth mine pit protected the flimsy helium-filled balloon from surface winds during inflation. If wind blew it on the ground, the balloon would shatter like confetti.

Statistics from the AF Museum of Space Flight indicate: "Simons' flight lasted 32-hours and reached a record-breaking 101,516 feet (about 20 miles), setting an altitude record for manned balloons. Including pilot and equipment, the gondola weighed 1,648 pounds. At maximum altitude, the balloon expanded to a diameter of 200 feet with a volume in excess of 3,000,000 cubic feet."

Dr. Simons must have watched in awe as he saw the curvature of the earth and the sun rise and set over it. His field of vision was about 400 miles. On earth, on a good clear day, we see about ten miles. Then

a major problem occurred. A powerful thunderstorm began over western Minnesota.

At night, without the sun reflecting to heat the balloon and add to the helium to keep it nearly 20 miles high, Dr. Simons fell to about 70,000 feet, right in the midst of the thunder-



David Simons rode in this gondola, the size of a telephone booth.

storm. Turbulence tossed the capsule further and into colder air than anticipated. The balloon was extremely brittle. Simons also feared a deadly lightning strike in his metal capsule. He tossed everything he could spare over the side to reduce weight, including extra batteries. That got him back up above the thunderstorm. When the sun rose in the morning he sailed up to over 100,000 feet.

But, by morning, the crew noticed Simons was slurring his speech. Carbon dioxide levels had risen dangerously high. He was ordered to breathe pure oxygen from his helmet and descend immediately. In Simons' severely impaired judgment, he never noticed an emergency. The ground crew guided Simons into a field in South Dakota just across the line from Minnesota. He had survived without any physical problems and completed about 40 different tests.

Simons had made history. He was the first man to survive 24 hours at the edge of space, or as he called it, "the edge of destiny." Simons later documented the experience in a cover story

for *Life* magazine. However, their space budget was just about shot. Additional money for more flights would not be likely.

Then, a month after David Simons' record-breaking flight, in early October 1957, a major worldwide event changed everything. Russia launched Sputnik. The race to space was on. Overnight, Air Force policy toward space research changed. People no longer thought it foolish. Like magic, funds materialized.

Man-High III suddenly was a priority. A goal in August, 1958 was to collect human data for the upcoming Mercury space program at the newly created NASA. After Simons' impaired in-flight experience, Man High II was re-evaluated. It was decided that pilots should not be given complete control. A panel of experts would be the brains to make critical decisions and minimize errors during the exhilaration of flight.

Manned by 26-year-old Lieutenant Clifton McClure, Man-High III launched October 8, 1958 from New Mexico. McClure was an engineer, test pilot, and amateur astronomer. He reached peak altitude at 99,700 feet. But somehow the vital dry ice to cool his capsule was forgotten! The capsule began overheating, turning into an oven.

When McClure's body temperature reached 102°, the command crew ordered him down. Grudgingly, McClure

(continued on page 14)

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# Crosby's "Man-High II" balloon flight helped launch America's space program *(from p. 10)*

complied. The capsule, however, continued to swelter. McClure's temperature soared, creating a life-threatening situation. Then McClure's radio went out. With McClure's body temperature registering at 106° and no communication, no one knew if he was still alive.

McClure was more than just alive; he had been navigating his balloon into a dangerous, deadly descent over the San Andréa's Mountains. When his crew reached him, McClure removed his helmet and grinned. With the overheating capsule, Man-High III had accidentally learned a crucial lesson, providing vital data for the future of the space program.

A short time after McClure's flight, the Man-High program ended. NASA had acquired a 100 million dollar space budget. Rockets would take over the new space program.

But Project Man-High gave NASA advantages over Russia. We had first-hand experience of space effects on the pilots' physical conditions



This balloon was inflated at the bottom of the Portsmouth Mine Pit in the Cuyuna Range to avoid high winds that would have torn the balloon into confetti. Since this project was top secret, local residents thought this was a weather balloon.

and observed their stamina and capabilities under intense stress. The three high-altitude balloon experiments showed NASA that pressurized spacesuits worked.

Much of what was gleaned was helpful to select and train future astronauts.

One glaring error, however, was the critical discovery in the balloon flights of using a mixed gas atmosphere, which was ignored by NASA in favor of 100% oxygen.

Clifton McClure tried hard to convince Mercury engineers not to use highly flammable pure oxygen. McClure's voice was ignored, since NASA thought oxygen

was not as heavy to lift into space. That decision proved fatal for three Apollo I astronauts who died in a fire after they were trapped in their oxygen-filled capsule during a practice launch.

Man's research into space was then, and still is, a tremendous risk. It would not have happened, however, without personal sacrifices of many brave pioneers willing to take chances with their lives. Risk-takers like three

pilots who rode primitive Man-High balloons launched to the edge of space.

For more information on Project Man-High, check out the following websites: [www.cyunaheritage.org](http://www.cyunaheritage.org); [www.wpafb.af.mil/museum/space\\_flight/sf.htm](http://www.wpafb.af.mil/museum/space_flight/sf.htm); and [www.hq.nasa.gov/office/pao/History/afspbio/part2-4.htm](http://www.hq.nasa.gov/office/pao/History/afspbio/part2-4.htm).

### Simple as a turn of the key

DNR Conservation Officers Greg Verkuilen (Garrison) and Dan Perron (Onamia) were able to demonstrate their outboard motor repair skills recently.

Two anglers were seen coming off Mille Lacs Lake at 4 a.m. and they claimed both of their boat motors had failed them. The officers suggested a mere turn of the key and pull of the starter rope would have resolved the motor problems.

The anglers were cited for violating the Mille Lacs night ban and no boat lights.

### Be involved!

Get involved in the 2007 celebration of the first man to reach the edge of space! Cuyuna Country Heritage is planning a major celebration of this historic event. The 50-year anniversary will be observed Aug. 17-19, 2007. Plans are being coordinated by Jim Nelson of the CCHPS Governing Board. Get involved by contacting him at: 218-678-2505 or cell 612-801-1180.

There are many ways to become involved. Send photos and written memories of the balloon launch. Help with the planning. Make a donation to help pay for the cost of the celebration. Let planning committee members know if you can connect them with dignitaries and others to invite. Cuyuna Country Heritage Preservation Society, Lower Level, Unity Bank of Crosby, P.O. Box 68, Ironton, MN 56455, office phone: 218-545-1166. Phones: 218-546-5996 or 218-546-5233, email: [cchps@emily.net](mailto:cchps@emily.net). Website: [www.cyunaheritage.org](http://www.cyunaheritage.org).

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