

The Mercury Thirteen

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In April 1959 NASA announced the “Mercury Seven”—the seven original NASA astronauts. Everyone knows the names of Alan Shepard, Gus Grissom, Gordon Cooper, Wally Schirra, Deke Slayton, John Glenn, and Scott Carpenter. But has anyone ever heard of Jerrie Cobb, Bernice Steadman, Janey Hart, Jerri Truhill, Rhea Woltman, Sarah Ratley, Jan and Marion Dietrich, Myrtle Cagle, Irene Leverton, Gene Nora Jessen, Jean Hixson, and Wally Funk? These 13 women participated in and passed some of the same initial physical and psychological tests as the Mercury 7.^{1,2}

Once Sputnik launched in 1957, the space race was on between the United States and the USSR. The American public was ravenous in their desire for information concerning progress in the U.S. space program and how well we were doing. At one point it was rumored the Russians were considering selecting a female cosmonaut. This spurred *Look* magazine to publish an article titled “Should a Girl Be First in Space” on 2 February 1960. The article featured Betty Skelton, who at one time or another was a three-time national aerobatic champion, world light plane attitude record holder, and world piston engine plane speed record holder. She was dubbed “Mercury 7-1/2” by the Mercury 7 astronauts. The article mentioned that “American and Soviet experts” agreed that women would respond to the rigors of spaceflight as well as, if not better, than men.

Dr. William Randolph Lovelace II was a well-respected Mayo trained surgeon with an interest in aviation. He was a private pilot and had served as a flight surgeon in the Army Air Corp during World War II. He developed oxygen mask related equipment for use in high altitude aircraft. In 1943 he made his first parachute jump by exiting a perfectly functional aircraft at 40,200 ft (12,253 m) to demonstrate the oxygen bailout system he had developed. This research evolved into improved high altitude bailout equipment, which saved many lives. During the 1940s he developed a lifelong friendship with Jacqueline (Jackie) Cochran, a female pilot who held numerous world speed records. Dr. Lovelace, along with his uncle, had established the “Lovelace Foundation for Medical Education and Research” in Albuquerque, NM, in 1947. He was appointed chairman of the NASA Special Advisory Committee on Life Science in 1958 and it was his civilian clinic that had been selected to do the first set (Phase I) of medical exams on the Mercury astronaut candidates. Dr. Lovelace strongly believed that women would perform as well as men during spaceflight.

Dr. Don Flickinger (USAF Brigadier General) was a Stanford trained surgeon turned Army Air Corp flight surgeon with a particular interest in high altitude bailout issues. It should come as no surprise that Dr. Flickinger's and Dr. Lovelace's common interests lead them to be colleagues and friends. Together they were part of the team of physicians that selected the original seven astronauts. From time to time they would discuss women and aviation. This was a natural topic to hit upon as the average woman was smaller and lighter than the average male and cockpits are cramped spaces. The early space vehicles were even tighter spaces.

In 1959, while Lovelace and Flickinger were attending an aviation meeting in Florida, they chanced to meet Geraldine “Jerrie” Cobb. Jerrie was a 28-yr-old female pilot with 16 yr of flying experience and thousands of hours in her logbook. In 1958 she had been named Woman of the Year in Aviation. At the time of this meeting, she already held world aviation records in speed, distance, and absolute altitude. Shortly after that chance meeting, Dr. Lovelace invited Jerri to visit the Lovelace Clinic to undergo the same physical and psychological examinations that had been done on the Mercury astronaut applicants. This testing was under the guise of research.

Full Mercury astronaut testing was a three-phase process. In February 1960 Jerrie completed the initial testing (Phase I) at the Lovelace Clinic. Dr. Lovelace reported the findings of this testing at the Space Medical Symposium in Stockholm. Dr. Hubertus Strughold of the USAF School of Aviation Medicine was the invited lecturer that year. In September 1960 Jerrie completed psychological and psychiatric testing at a VA facility in Oklahoma City. She set a new record of tolerance by enduring the water isolation tank for 9 h and 40 min. Finally, in April 1961, Miss Cobb underwent a 2-wk series of stress tests at the U.S. Navy School of Aviation Medicine, Pensacola, FL, in a third phase of checking out her mental and physical capabilities for spaceflight.

Jerrie was the first of 25 women who were evaluated by Dr. Lovelace's team. These 25 women were recruited through word of mouth and through the “99s,” an international organization of licensed female pilots. The women were to be under 35 yr of age, in good health, hold a second class FAA medical certification, have 4 years of college education, hold a commercial rating or better, and have over 2000 hours of flying time.

This effort was not an official NASA activity; rather it was graciously funded by Jackie Cochran. The women were told to keep this effort secret and their families did not even know why they



From NASA, Houston, TX.

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were traveling. Of the 25 women evaluated, 13 passed "Phase I," as this initial set of medical/psychological tests were called. Up to this point, this effort had been orchestrated by Dr. Lovelace along with Jackie Cochrane's advice and money.

The next step in testing for the rest of the women was to be carried out at the Naval School of Aviation Medicine. Dr. Lovelace, through his significant connections in NASA and the federal government, worked diligently to get this to be an officially sanctioned activity of NASA, but was unsuccessful. A few days before they were to report to Pensacola, they each received a telegram informing them that the testing was canceled. While all these women were devastated by this sudden cancellation, some had given up jobs and other possible futures to pursue this dream. There never was any training involved; all of the activities involved medical screening.

Jerrie Cobb and Janey Hart subsequently charged Capitol Hill to fight for a continuation of this effort and to make it an official NASA program. On 17 and 18 July 1962, Representative Victor Anfuso (R) convened hearings of the Subcommittee of the House Committee on Science and Astronautics.³ While Miss Cobb and Mrs. Hart argued for a continuation of the program, ironically Jackie Cochran testified against continuation. She testified that she had come to be concerned that a special program to train female astronauts could hurt the space program, i.e., slow down the effort to put an American on the Moon first. You might note that at the time of these hearings the United States had been beaten into space by the Russians and now the emphasis was getting to the Moon first.

NASA also had representatives at these hearing. George Low, Director of Spacecraft and Flight Missions, testified that astronaut applicants must meet the following requirements: be a U.S. citizen under 35 yr of age; have a height 6 ft or less and

excellent physical condition; one degree in physical or biological sciences or in engineering; and must have experience as a jet test pilot having attained experimental flight test status through the military services, the aircraft industry, or NASA, or having graduated from a military test pilot school. Preference was given to those who were engaged in flying high-performance aircraft. Applicants also needed to be recommended by their present organization.

The sticking point was the experience requirement. As accomplished as the Mercury 13 were, women were not permitted to become military jet test pilots and thus they were barred from becoming astronauts.

Although the congressional hearing did not find evidence of discrimination, it would seem that in the early 1960s the United States was not ready for women to move from the kitchen to the controls of a space vehicle (author's opinion). This was despite the tremendous contributions many brave and talented women had already made to aviation. In 1963 the Soviets sent Valentina Tereshkova into space. It was not until 1978 that NASA finally selected female astronauts and, in 1983, the United States finally flew a woman (Sally Ride) into space.

REFERENCES

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2. Nolen S. Promised the Moon: the untold story of the first women in the space race. Toronto (Canada): Penguin Canada; 2002.
3. Qualifications for Astronauts. Hearings before the Special Subcommittee on the Selection of Astronauts, U.S. House of Representatives, 87th Cong., 2nd session (1962).

Erratum

Paskoff L. *Development of a geographic information system for risk-informed decision making in aerospace medicine*. *Aerosp Med Hum Perform*. 2016; 87(11):972–975.

In the Science and Technology Watch article noted above, an author was inadvertently omitted. Please add Paul Rogers, Ph.D., as the second author. We apologize for any inconvenience this has caused.

The new citation should read:

Paskoff L, Rogers P. *Development of a geographic information system for risk-informed decision making in aerospace medicine*. *Aerosp Med Hum Perform*. 2016; 87(11):972–975.