

Remembering Dr. William Randolph (Randy) Lovelace II

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Dr. William Randolph (Randy) Lovelace II, his wife Mary, and their charter pilot, Milton Brown, died on December 12, 1965, from injuries received in a plane crash near Aspen, CO. His tragic death at age 57 left a legacy of vision, bravery, clinical care, innovation, research, leadership, and service to country. His path to this medical career began during high school when he lived with his physician uncle who started the Lovelace Clinic in Albuquerque, NM. While in undergraduate school at Washington University, he took a night course in flying offered by the U.S. Naval Reserve in St. Louis, MO. At age 20, he completed primary flight training and obtained his wings at the Great Lakes Naval Training Station in Illinois. He was asked to continue with further flight training at Pensacola, but his family did not want him to pursue further pilot training. Therefore, some of his greatest accomplishments eventually came from his medical care of aviators and astronauts.

Following medical school at Harvard and a surgical fellowship at the Mayo Clinic, he quickly advanced to become the Chief of Surgery at the Mayo Clinic.⁸ In 1937 he attended the Army School of Aviation Medicine at Randolph Field and became a flight surgeon. He noted that the aircraft accident rate was increasing due to higher altitude flights and hypoxia. Military aircrew suffered from cold and hypoxia at high altitude and were unable to safely egress turbocharged planes such as the B-17 due to the aircraft's advanced performance envelope. The Mayo Clinic developed a high-altitude research unit and Randy joined it as a commissioned officer and became the chief of the unit. While serving on active duty at the Aeromedical Lab at Wright Field in Dayton, OH, Dr. Lovelace and his fellow Mayo colleagues, Walter Boothby and Arthur Bulbulian, developed an oxygen delivery mask (BLB Mask using their names) which was soon incorporated into high altitude operations. They published their breakthrough findings in the *Journal of Aviation Medicine* in multiple articles between 1938 and 1944² and for their accomplishment, Boothby and Lovelace shared the Collier trophy with Harry G. Armstrong in 1940. In order to learn first hand about the problems faced in combat, he tested a pressure breathing mask on a B-17 mission over Czechoslovakia. During this mission his plane was damaged by enemy fighter aircraft, but returned safely.

As a member of the U.S. Army Air Corps, Lt. Col. Lovelace was aware that it was not yet possible to safely parachute from planes at high altitude. He determined that combining the new rebreathing mask with two portable Type H-2 oxygen cylinders attached to his leg might make such a jump feasible (Fig. 1). He had difficulty getting a test jump approved. However, following a previous test that employed a dummy, on June 24, 1943, he convinced B-17E pilots from Boeing Aircraft Corporation at Boeing Field in Seattle, WA, to take him to a density altitude of 40,200 ft. (12,253 m) and -44°C , where he set an altitude record for bailout—in his first and last parachute jump! The static line jump out of the B-17 bomb bay doors wasn't without complications. The plane had been higher in altitude but lost the number 4 engine and



Fig. 1. Lt. Col. Lovelace wears a rebreathing pressure mask, type H-2 oxygen bottles, and type T-5 parachute before his high-altitude jump on June 24, 1943.

had started a descent. Opening shock from the 28-ft. circular canopy knocked him unconscious and caused the loss of the inner and outer glove on one hand. Later it was learned that lower opening altitudes were much preferred for several reasons. Luckily, during the 23 min and 51 s descent, he regained consciousness and landed near Ephrata Army Air Base without injury except for frostbite on the exposed hand.⁷ While he could have been reprimanded for his actions, instead he received the Distinguished Flying Cross.

Randy and Mary had 5 children, but while serving at the Mayo Clinic, his two sons died of polio in 1946. He was deeply affected by this loss and in 1947 decided to join his uncle in Albuquerque

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AEROSPACE MEDICINE HISTORY, *continued*

as long as he would opt for the Mayo system of care that featured the triple paths of health care, research, and education. As part of the new system, the Lovelace Foundation for Medical Education and Research was instituted.⁵ While at the Lovelace Clinic in 1958, he was appointed by the NASA administrator T. Keith Glennan as chairman of a Special Committee on Life Sciences and carried out the medical examinations of the 32 Mercury astronaut candidates using medical and privacy experience previously obtained during evaluations of U-2 pilots.⁴ While not a NASA initiative, he later coordinated the examination of 13 women using the same selection protocol. This group later came to be known as “The Mercury 13.”

Dr. Lovelace was appointed by president Lyndon Johnson as the Director of Space Medicine for NASA on April 20, 1964. At the time of the appointment Johnson stated, “The nation is the beneficiary today of a good man and great talent who places his skills and his courage at the disposal of his fellow countrymen.” Unfortunately, his term was cut short by his untimely death due to the plane crash described below.

On Sunday December 12, 1965, Dr. Lovelace and Mary boarded a Beech B95 Travel Air for a 12:30 p.m. charter flight to return to Albuquerque following a visit to their new vacation home in Aspen. Albuquerque-based Cutter Flying Service provided the charter flight. Since the late 1950s, Randy’s family and the Lovelace Foundation Board preferred that he use a charter service instead of flying himself. The pilot, 27-yr old New Mexico native Milton Brown, was chosen by Randy since he had previously flown around 25 h with him. Mr. Brown was a commercial pilot, instructor, and certified for flight into instrument meteorological conditions. The weather was clear and no flight plan was filed. A flight plan was not required for charter flights at that time, and most flights, including this one, did not carry any special survival equipment or blankets. Both Randy and the pilot were in relatively light clothing.

Following departure from Aspen at about 13:00, the plane first circled near the Lovelace’s new home. Then it headed east where it entered a narrow snow-covered horse shoe shaped boxed canyon called Grizzly Gulch that sits in the Independence Pass vicinity on the western slopes of the Continental Divide.¹ While attempting a turn, the aircraft struck the canyon rim in a 20° left bank, nose low attitude at an altitude of 11,600 ft and 1300 ft below the crest. Postflight analysis of the propellers showed that both engines were developing power at impact. Following initial impact, the plane reached the canyon floor, bounced once and then cart-wheeled and broke apart after its second snow contact. The occupants were thrown clear of the aircraft. After the accident, the injured pilot was able to move about and initially tried to walk a short distance for assistance. He moved Mary to Randy’s location and covered both. There were some clothes that were scattered from the suitcases. For warmth, he apparently started a fire with aircraft debris and sat near the fuselage where his body was subsequently found. There was considerable delay in search and rescue since there was no flight plan plus low ceilings and fog. Concern for the flight started a day after the accident when Dr. Lovelace failed to appear for work on Monday when he had patients scheduled. Cutter Flying Service thought that they had stayed in Aspen or flew to a different destination. When the plane was noted overdue at midday Monday, a few of Dr. Lovelace’s pilot friends in Aspen did a short unsuccessful search before dark. The

search and rescue efforts were hindered by the extreme cold, mountainous terrain, and snow associated with a predominately white aircraft with brown trim stripes. On Wednesday a search with 80 planes and 15 ground units was initiated but low ceilings prohibited search of the prime crash area. A skier and an elk hunter had reported seeing the plane enter a canyon. The



Fig. 2. Dr. William Randolph Lovelace, II

crash site was found by a helicopter on Wednesday, but the bodies could not be recovered until the next day when they were removed from the scene strapped to pieces of the shattered aircraft. The Civil Aeronautics Board report in March 1967 listed pilot error as causal, and the Board noted that based on footprints in the snow, at least one and possibly all three passengers survived the initial impact and died of exposure. Randy and Mary were survived by 3 daughters who were not on the flight.

Dr. Lovelace served as the president of the Aerospace Medical Association and was a long-time member of the Space Medicine Branch (Fig. 2). The Society of NASA Flight Surgeons (founded in 1976) annually presents the William Randolph Lovelace II Award in recognition of exceptional contribution to space medicine. He had been promoted to Brigadier General in the Air Force Reserves in 1961 and posthumously in 1966 was promoted to Major General.³ After his death, Charles Berry, then the director of medical operations at the Manned Spacecraft Center described him as, “A great pioneer in aerospace medicine—highly respected throughout the world. I have always looked up to him through my career.” Interestingly, on the day the death of Dr. Lovelace was confirmed, NASA completed the first rendezvous in space with Gemini 6 and Gemini 7. At an event associated with this important success on the road to a lunar landing, NASA-JSC center director Robert Gilruth stated, “This day of achievement has a very sad note. Dr. Lovelace worked very closely with us in the manned flight program since the earliest days. One of the first things I did when organizing Project Mercury was ask Randy Lovelace to come work with us. It is with great regret that we get this news.” In his statement on the success of the rendezvous, President Johnson said, “A great day of achievement in space was marred by the news of the death of William Randolph Lovelace II. His life was too short, although his legacy to space medicine will endure and will be a

resource to future astronauts whose names and deeds are yet unknown⁶.”

In remembering Randy Lovelace’s legacy, John Loosbrock, who was the editor of *Air Force and Space Digest*, said in the *Digest* in January 1966, “In widening circles, the full import of Randy’s untimely death becomes apparent. The Air Force Association and the Aerospace Education Foundation have lost a distinguished leader. The medical profession is poorer for the passing of a brilliant surgeon and imaginative researcher. The U.S. Air Force will miss his sound advice and pioneering efforts in the special kind of medical knowledge that is required for those who fly—in air and in space. NASA must find new leadership for its space medical effort. The entire nation and the world itself will find that Randy Lovelace’s death leaves a large and well-nigh unfillable niche.”

Following this accident, legislation was introduced to require charter flights to file flight plans. Cutter Flying Service is still in existence as Cutter Aviation and offers a variety of sales, service, avionics, charter, and management at seven locations in six major cities. The Lovelace Health System and Lovelace Respiratory Research Institute continue as major research and health care organizations in New Mexico.

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