

## **You Can be a Scientist and/or an Engineer**

Updated 1/2/23

### **James A. Abrahamson**

#### **Born in 1933 in Williston, North Dakota.**

He earned a Bachelor of Science degree in Aeronautical Engineering from the Massachusetts Institute of Technology in 1955 and a Master of Science degree in the same field from the University of Oklahoma in 1961. He completed Squadron Officer School in 1958, Air Command and Staff College in 1966, and the Industrial College of the Armed Forces in 1973. After retiring as a general from the U.S. Air Force he served as a designated astronaut, Associate Director of NASA and served as the director of President Ronald Reagan's Strategic Defense Initiative from 1984 until 1989.

### **James Frederick Buchli**

#### **Born on 6/20/1945 in New Rockford, North Dakota.**

James Buchli is a retired United States Marine aviator and former NASA astronaut who flew on four Space Shuttle missions. Buchli graduated from Fargo Central High School, Fargo, North Dakota, in 1963 and received a Bachelor of Science degree in Aeronautical Engineering from the United States Naval Academy in 1967. He also earned a Master of Science degree in Aeronautical Engineering Systems from the University of West Florida in 1975. Buchli became a NASA astronaut in August 1979, selected as part of Group 8. A veteran of four space flights, Buchli has orbited the earth 319 times, traveling 7.74 million miles in 20 days, 10 hours, 25 minutes, 32 seconds. On September 1, 1992, Buchli retired from the Marine Corps and the NASA Astronaut Office to accept a position as Manager, Space Station Systems Operations and Requirements with Boeing Defense and Space Group. In April 1993, he was reassigned as Boeing Deputy for Payload Operations, Space Station Freedom Program. Buchli currently serves as Operations & Utilization Manager for Space Station, Boeing Defense and Space Group, at Houston, Texas.

### **John Howard Disher**

#### **Born on 12/23/1921 in Olmstead, North Dakota.**

He was raised in Devils Lake, North Dakota and graduated from high school there in 1939. He earned a Bachelor of Science in mechanical engineering from the University of North Dakota, Grand Forks, in 1943. As an aeronautical engineer he worked for NASA during the Mercury, Gemini, Apollo, Skylab and Space Shuttle projects.

### **Donald J. Ehreth**

#### **Born on 4/1/1936 in Mandan, North Dakota.**

Developed and established the initial version of Integrated Risk Information System (IRIS). The Integrated Risk Information System (IRIS) is a compilation of reports on specific substances found in the environment and their potential to cause human health effects.

### **Carl Ben Eielson**

**Born on 7/20/1897 in Hatton, North Dakota.**

He learned to fly in the U.S. Army Air Service in 1917; and graduated from UND in 1921. Eielson soon became the sole pilot for the Farthest North Aviation Company which was formed in 1923. In 1924, he flew the first air mail in Alaska from Fairbanks to McGrath, Alaska in under 3 hours, a distance dog sleds took up to 30 days to cover. In March 1927, Australian polar explorer George Hubert Wilkins and Eielson explored the drift ice north of Alaska. They touched down in Eielson's airplane in the first land-plane descent onto drift ice. In April 1928, Eielson and Wilkins flew across the Arctic Ocean in the first flight from North America over the North Pole to Europe. The flight, from Point Barrow to Spitsbergen, covered 2,200 mi and took 20 hours. When Eielson accompanied Wilkins on an Antarctic expedition later in 1928, they became the first men to fly over both polar regions of the world in the same year. During the Antarctic summer of 1928-1929, Eielson and Wilkins made air explorations of the Antarctic, charting several islands which were previously unknown. After his return from the Arctic flight, Eielson was asked to establish Alaskan Airways, a subsidiary of the Aviation Corporation of America.

### **Andrew L. Freeman,**

**Born on 3/10/1909 in Upham, North Dakota.**

He attended UND to become an electrical engineer. The year was 1947, and Freeman, like everyone else in Grand Forks, found that even if he succeeded in getting his car running, it took so much out of the battery that soon the engine was dead. He started experimenting with devices that would heat the engine. In 1947 he invented the headbolt heater; patented in 1947. With two colleagues, Freeman formed the Five Star Manufacturing Company of East Grand Forks to manufacture headbolt heaters. He served as general manager of Minnkota Power Cooperative from 1940 to 1982.

### **Thomas Keith Glennan**

**Born on 9/8/1905 in Enderlin, North Dakota.**

Dr. Glennan earned a degree in electrical engineering from the Sheffield Scientific School of Yale University in 1927. Following graduation, he became associated with the newly developed sound motion picture industry, and later became assistant general service superintendent for Electrical Research Products Company, a subsidiary of Western Electric Company. During his career he was studio manager of Paramount Pictures, Inc., and Samuel Goldwyn Studios, and was briefly on the staff of Vega Airplane Corporation.

Dr. Glennan joined the Columbia University Division of War Research in 1942, serving throughout World War II, first as Administrator and then as Director of the U.S. Navy's Underwater Sound Laboratories at New London, Connecticut.

At the end of the war, Dr. Glennan became an executive of the Ansco Corp., Binghamton, New York. From this position he was called to the presidency of Case Institute of Technology, Cleveland, Ohio. During his administration, Case Institute rose from a primarily local institution to rank with the top engineering schools in the nation. From October 1950 to November 1952, concurrent with his Case presidency, he served as a member of the Atomic Energy Commission. Dr. Glennan was the first Administrator of the National Aeronautics and Space Administration (NASA), formally established on October 1, 1958, under the National Aeronautics and Space Act

of 1958. As NASA Administrator, he presided over Langley Aeronautical Laboratory, Ames Aeronautical Laboratory, Lewis Flight Propulsion Laboratory and two small test facilities. Dr. Glennan incorporated several organizations involved in space exploration projects from other federal agencies into NASA to ensure that a viable scientific program of space exploration. He brought in part of the Naval Research Laboratory in NASA and created the Goddard Space Flight Center. In December 1958 he acquired control of the Jet Propulsion Laboratory and the Army Ballistic Missile Agency (renaming it the Marshall Space Flight Center). While at NASA, Dr. Glennan was president-on-leave of the Case Institute of Technology, Cleveland, Ohio, which he had headed since 1947 and returned to following his NASA experience.

### **Pat Haggerty**

**Born in 1914 in Harvey, North Dakota.**

In 1936, he graduated from the Marquette University School of Electrical Engineering. He was a co-founder and former president and chairman of Texas Instruments, Incorporated. Haggerty is most responsible for turning a small Texas oil exploration company into the leader in semiconductors.

### **Dale Hartz**

**Born in 1961 in Cavalier, North Dakota.**

In 1984, he graduated from the University of North Dakota College of Engineering & Mines. He worked for the Boeing Company for 32 years. Inventor of 5 patents with Boeing, 2 patents with the Bismaleimide Sandwich Structure and received a Special Department of Air Force Recognition for F-22 Life Support System Investigation.

### **Richard James Hieb**

**Born on 9/21/1955 in Jamestown, North Dakota.**

He is a former NASA astronaut and a veteran of three Space Shuttle missions. He logged over 750 hours in space, including over 17 hours of EVA (spacewalk), traveling over 13 million miles. Hieb received a Bachelor of Arts degree in math and physics from Northwest Nazarene College in 1977. He went on to graduate from the University of Colorado at Boulder in 1979 with a Master of Science degree in aerospace engineering. After leaving NASA he worked at Allied Signal and Orbital before spending 14 years as an executive at Lockheed Martin. He served as a faculty member in the University of Colorado Boulder Smead Aerospace Engineering Sciences Department.

### **David Henderson**

**In 1880, at the age of 39, Houston moved west to the Dakota Territory and purchased 480 acres near the town of Hunter in what would one day become North Dakota.** Over the course of his life, he would acquire a total of 4,000 acres and become one of the most profitable farmers in the region. An aspiring inventor who was a farmer by trade, he held patents for inventing the first holders for flexible roll film and for designs of some of the earliest folding and panoramic cameras. In fact, between 1881 and 1902, twenty-one different cameras or camera parts were registered by Houston with the U.S. Patent Office. Most of these items were eventually mass produced, in some variant of his original designs, by the Eastman Kodak

Company in Rochester, New York. In 1887 David Henderson invented a camera. He named it Kodak and later sold the rights of the Kodak camera to George Eastman.

### **Rick Hieb**

**Born on 9/21/1955 in Jamestown, North Dakota.**

He earned a Master of Science degree in aerospace engineering from the University of Colorado, Boulder, and Bachelor of Arts degree in physics and mathematics from Northwest Nazarene College in Idaho. He retired from NASA in 1995 after six years in the Mission Operations Directorate at Johnson Space Center and almost 10 years in the Astronaut Corps. He flew three Space Shuttle missions, serving as payload commander for the second International Microgravity Laboratory mission on STS-65 and as a mission specialist on STS-49 and STS-39. He has logged over 750 hours in space, including more than 17 hours of EVA. After leaving NASA he worked at AlliedSignal and Orbital before spending 14 years as an executive at Lockheed Martin. Following his career at Lockheed Martin he became a faculty member in the Smead Aerospace Engineering Sciences Department, University of Colorado Boulder.

### **Dr. Jerry Roman Hordinsky**

**Born on 8/3/1942 in Drake, North Dakota.**

He graduated from the University of MN, where he focused on engineering and pre-medicine. On September 16, 1963 he began medical school at the University of North Dakota, which at that time was a 2 year program. Upon completion he transferred to Northwestern University in Chicago, receiving his medical degree in 1967. In 1968 he enlisted in the U.S. Army as a flight surgeon. He earned a Master's degree in industrial health from Harvard University then went to the University of Oklahoma to become certified in both occupational and aerospace medicine. He was discharged from the U.S. army in 1971 and become a flight surgeon (primary doctor) for the NASA Skylab space station astronauts (1772-1981). From 1982-1999 he worked for the Federal Aviation Administration. He died Oct 20, 2000.

### **Leon Orris Jacobson**

**Born on 12/16/1911 in Sims, North Dakota.**

He received a Bachelor of Arts degree from North Dakota State University in 1935. He completed medical school at the University of Chicago. World War II saw the establishment at the University of Chicago of war-related research and he was involved in two secret projects: the Toxicity Laboratory, where he served as consulting physician working with chemical warfare agents and protection against them, and the Metallurgical Laboratory. The latter was the local code name for the nationwide Manhattan Project. He became the director of the Biology and Medicine Branch of the Metallurgical Laboratory which became the Argonne Cancer Research Hospital after the war ended. He made tremendous contributions to radiology and hematology, with major impacts on chemotherapy and radiotherapy.

**Ralph J. Krogfoss****Born 12/9/1922 in Binford, North Dakota.**

Oversaw the design and Development of Bailey Polyjet Valve. Bailey pressure reducing valves offer comprehensive pressure regulation for key services, fire hose and pressure systems using steam, air, water, hot water and fine industrial gases.

**Arlen Nordhagen****Born in 1956 in Crosby, North Dakota.**

In 1978, he graduated from the University of North Dakota College of Engineering & Mines. He worked for the Dupont company from 1978-1986; Synthetech, Inc from 1986-1988; and American Business Advisors 1988-1993. He founded the Nord Capital Group in 1993; co-founded SecurCare Self Storage in 1999 and founded National Storage Affiliates in 2013.

**Gilmore Tilmen Schjeldahl****Born on 6/1/1912 in Esmond, North Dakota.**

He was an American businessman and inventor in plastics, adhesives and circuitry. He was awarded 16 US patents and may be best known for inventing the plastic-lined airsickness bag. The G. T. Schjeldahl Company gained national recognition for designing and building Echo I, the first communications satellite. The Schjeldahl Company worked on both the Echo II, Stargazer, and Stratoscope II projects. The company also made the laminate and adhesive materials for the Polaris missile program. Schjeldahl Company products and technology using vacuum deposition and lamination were used on the Pegasus satellite program.

**Mary Shorb****Born on 1/7/1907 in Wahpeton, North Dakota (maiden name Shaw).**

In 1933, Dr. Mary Shaw Shorb received her PhD from Johns Hopkins University. She developed an antigen that proved to be effective in preventing or treating a number of diseases, including pneumonia. In 1947, she identified and isolated the compound cobalamin, which is found in the liver. Cobalamin (vitamin B-12) proved to be the cure for pernicious anemia, a fatal disease. Dr. Shorb became a research professor at the University of Maryland in 1949. She retired in 1972. In 1987, Mary was inducted into the Maryland Women's Hall of Fame, and the following year, a television documentary was made of her life.

**Everett A. Sondreal****Born on 8/26/1935 in Grand Forks, North Dakota.**

UND Bachelor of Arts Chemical Engineering 1957. 1982 US Patent for the Continuous Liquefaction of Coal.

**George B. Thompson****Born on 6/19/26 in Grand Forks, North Dakota.**

UND Bachelor of Arts Mathematics 1954

Mathematician, Computer Support Division, U.S. Army, Aberdeen Research & Development Center. Aberdeen Proving Ground, Aberdeen, Maryland

Worked on the first computers; the Electronic Numerical Integrator (ENIAC), the Ordnance Variable Automatic Computer (ORDVAC) and the Ballistic Research Laboratories Electronic Scientific Computer (BRLESC pronounced burlesque). ENIAC was used to compute ballistic tables and calculations relevant to weather prediction, atomic energy, cosmic ray studies, thermal ignition, random number studies, and wind tunnel design problems. The EDVAC was the first computer with internally stored programs. Its major features were the use of the binary system of numeration, the four address command structure, the serial arithmetic mode and duplicate circuitry for checking purposes. Advances in technology were added to EDVAC: card input-output adapter, magnetic drum to provide additional memory, floating-point arithmetic unit to keep track of decimal points, and a magnetic tape system for additional memory storage. EDVAC was used for a variety of applications including: 1) weapon systems evaluation problems such as war games, lethal area and kill probabilities, anti-aircraft antimissile evaluation and linear programming for Army logistical field problems, 2) ballistic measurement problems which included the computation of satellite orbital principles, 3) Interior ballistic problems such as the computation of detonation waves were reflected shock waves, projectile and launcher behavior, vibration of gun barrels, and propelling efficiency, 4) exterior ballistic problems such as high-altitude solar and lunar trajectories, computation for the preparation of firing range tables, and guidance control data for ordnance weapons, and 5) terminal ballistic problems which dealt with the results of impact when a trajectory hit a target, penetration, disbursement, transfer of heat and the improvement in the shape of the projectile to obtain better results. ORDVAC was designed to perform the same applications as EDVAC at higher speeds using punch card technology. BRLESC started running in 1961 as an exclusively binary number system computer with new technological advances such as reading and writing to magnetic tape (later magnetic disks).

### **Everette Web**

**Born on 9/15/1921 in Grand Forks, North Dakota.**

Chief of Structural Dynamics for 707 and KC 135 aircraft