EDWIN ALBERT LINK

1904–1981

BY HAROLD E. EDGER TON

EnwIN A. LINK died on Labor Day, September 7, 1981. He held thirty-three patents for his inventions in aviation, navigation, and ocean engineering. His reputation spans heaven, ear th , and ocean; he was best known for his 1929 development of the Link Flight Trainer and his developments of lock-out submersibles of the J ohn-son-Sea-Link type.

Born in Huntington, Indiana, onJuly 26, 1904, he soon moved to Binghamton, New York, where his father manufactured organs. The young Link worked with the organ controls and began a life time as the quintessential Yankee tinkerer. He saw the beauty in tools-in wrenches and drills and lathes-and what they could fix and fashion. He loved working alone, late at night, gnawing at a problem until he had mastered it. Not for him the committee approach; he was guided by the light of a singular flame, burning brightly within his head.

Ed Link barn stormed with the aces of the Lafayette Escadrille and passed the time of day with Orville Wright. He will always be famous for the Link Trainer , which he developed in the 1920s when he was determined to learn to fly but lacked funds for the airbo rne hours flying required . The first Link Trainer was built in his father's basement. With this device an aviator can be trained in instrument flying without the complications introduced by an actual airplane.

There were few customers for the Link Trainer until 1934, when the U.S. Army Air Corps was abruptly given the task of carrying

airmail. The Corps pilots, trained to fly by watching the ground, could not handle the job. After ten pilots crashed, the Air Corps turned to Link's invention.

During World War II the Link Trainer was used to teach more than half a million airmen. Today Link Trainers are produced for pilots, astronauts, and maritime vessel opera tors . A sophisticated offspring, controlled by computers, rehearsed men for the Moon. Visitors to the Smithsonian's National Air and Space Museum can take a five-minute simulated flight in one of three Link General Aviation Trainers that are on display there .

Ed Link was two men: one with a tool box in his fist, the other with dreams in his head. He never forgot his dreams. Even while he was putting together the company that would build the Link Trainer-Link Aviation, Inc.-and then guiding its expansion into a large corporation that became General Precision Equipment Corporation and eventually part of the Singer Company, he never forgot one of the dreams of his youth-to go to sea.

A vagabond at heart, he took off into the Caribbean with his wife, Marion-the pillar of his life-and his two young sons. He loved the act of diving, of descending to marvel at the ocean's innermost secrets. Like most visionaries, Ed Link had the capacity to hitch his dreams to a purpose: He would design and build things so that men could work beneath the sea-to salvage sunken ships and survey drowned seaports, to weld pipelines and study sea life.

He designed and built an oceanographic research vessel, *Sea Diver,* which he used for many archaeological research expeditions in the Aegean and Caribbean seas. In 1960 he commenced the task of developing equipment that would "put man in the sea." In 1962 he built the world's first submersible decompression chamber for marine science. Lightweight and able to lock onto a deck decompression chamber, it would become the forerunner of the hundreds of diving bells currently working in the Far East, North Sea, and Gulf of Mexico.

Shortly after it was built, he took to the water to test it himself. "The final test of a man's beliefs, ... " he said as he settled into its aluminum shell and closed the hatch behind him. In the clear blue

waters of the Mediterranean off the coast of France, he stayed at 60 feet for eight hours, swimming outside while breathing a mixture of oxygen and helium. Not bad for a fifty-eight-year-old man.

Over the years Ed Link did more than any other individual in building the diving systems that would support man under water. He designed pressure chambers, small manned stations, and a pair of lock-out submarines known as the Johnson-Sea-Link class. Into the last he incorporated a brilliant concept-a transparent acrylic shell. Scientists could sit on the seafloor at a thousand feet and have a panoramic view.

Much of the world was unaware of his tremendous contributions. Unlike Jacques-Yves Cousteau, whose fame was burning with its own brilliance, Ed Link was shy in public and not deft with films or self-publicity.

His younger son, Clayton , died in a diving accident when strong currents swept the minisub into a tangle of cable and debris. Ed Link led rescue efforts from the deck for thirty-one hours, but the acrylic bubble was freed too late. He gathered himself up as best he could and pressed on with his work. "We're not going to stop," he vowed, and two years later he developed a submersible that would prevent the kind of accident that took his son's life. The Cabled Observation and Rescue Device (CORD) is an unmanned submersible equipped with television cameras, hydraulically powered claws, and cutters to rescue divers trapped under water. A man is measured not only by his successes but by how he handles his tragedies.

Ed Link had a residence in Binghamton, New York, and at the Harbor Branch Foundation near Fort Pierce, Florida. It was at this latter location that he carried forth his remarkable developments of underwater research projects. He helped direct a staff of 150 scientists, engineers, and support personnel at Harbor Branch Foundation, Inc., a unique oceanographic center where research and engineering have united to create the hardware needed to explore and study marine life.

His interest in technical education led to the establishment in 1953 of the Link Foundation to support research and education in the fields of aeronautics and oceanography. Link Foundation grants

have been awarded to more than 120 universities and nonprofit organizations. Its first Ocean Engineering Fellowships were established in 1962.

He received honorary doctorates from Tufts University, Hamilton College, Syracuse University, and Florida Institute of Technology. Numerous honors include the Franklin Institute's Howard N. Potts Medal; Wakefield Gold Medal from the Royal Aeronautical Society of London; Underwater Society of America NOGI Award for Science; Matthew Fontaine Maury Medal from the Smithsonian Institution; and International Oceanographic Foundation Gold Medal Award. He was elected to the National Academy of Engineering in 1965.

The 1980 Lindbergh Award was presented to Edwin Link with this citation: "A truly Renaissance man: engineer, inventor, explorer, philanthropist, businessman, pilot, archeologist, oceanographer, conservationist." Dr.Joseph Maclnnis, President of Undersea Research, Ltd., of Toronto, Canada, and a recipient of a Link Foundation Fellowship, said, "Some ofus were fortunate enough to work for him. Whatever task, he would bend his back to it, toiling alongside us ... he made us feel like we were young men on a young frontier. Looking back, decades later, it was an apprenticeship to genius."