

Jacques B. Hadler

Researcher, educator, mentor, and professional

BY VICKY DLUGOKECKI



Jacques Hadler is a winner of both the David Taylor Medal and the Webb Medal. That makes him one of just three people who have had career achievements that afforded them the opportunity to be awarded not one, but two of SNAME's most prestigious honors.

Born Jacques Bauer Hadler in 1918, he and his family were the only residents of the town of Arndt, a rural village in North Dakota. To put the time frame and the area into perspective: when he was young, the family home had no electricity, so all lighting was by kerosene or gas lamps. Hadler studied and read by gaslight until electricity came in about 1929, when he was 11 years old. His primary education was in a one-room schoolhouse until he was 14 years old, and then he entered 8th grade in a school located 7 miles from his home.

From earliest childhood, he liked to make things. One of his most memorable summers occurred when

he was 12 years old and helped his cousin and his sea scouts troop build a motorboat to operate on Lake Bemidji—a foreshadowing of his future career. His first great travel adventure was a trip to the 1933 World's Fair in Chicago, which whetted his appetite for travel; he has since had the good fortune to be able to continue with trips to many different places all over the world. These include a six-week trip through the South Pacific, including the High Lands of Papua New Guinea, the Solomon Islands, Fiji, Western and American Samoa, Tahiti, Morea, and Hawaii. He also had the opportunity to sail on the maiden voyage of the Russian nuclear-powered icebreaker *Yamal* on a 17-day trip from Murmansk, Russia (above the Arctic Circle) to the North Pole to observe icebreaking operations.

Most of the high schools in North Dakota were created under the land grant act of 1862 and were oriented towards agriculture. While Hadler became very adept at crop planning and animal husbandry, his other classes prepared him poorly for a college education. In his senior class in high school, only two pupils went on to college after graduation, and Hadler was one of them. He had read an article on the United States Naval Academy (USNA), and he was hooked. Similar to today, you had to be sponsored by a senator or congressman, but you also had to take a competitive exam to be considered for admission. Some 400 applicants took the exam for the two positions available, sponsored by the state's two senators. Just two passed the exam, and on July 9, 1936, Hadler reported to the USNA as a plebe in the class of 1940. But that didn't last long: a failing grade in French sent him home after his second semester. A college level French tutor helped him over the summer, and he was able to return to the USNA as a member of the class of 1941. With the advent of World War Two in Europe, his senior year was compressed by a half year; on February 7, 1944, he graduated from the USNA, ranking 21st in a class of 403.

Early navy career

Hadler started his professional career, as he will end it, as a teacher. After failing an eye exam to qualify to receive his commission (15/20 uncorrected) as

His first great travel adventure was a trip to the 1933 World's Fair in Chicago, which whetted his appetite for travel.

an ensign in the United States Navy, he was assigned teaching duties while he waited to re-take the eye exam. He taught marine engineering, which was one of his best subjects at the academy. From that experience, he found that he liked teaching, which laid the groundwork for the later part of his career. Failing the eye exam again, he was commissioned as an ensign in the United States Naval Reserve. He was put into a new, eight-month short course in naval architecture at the Post Graduate School at the USNA, but not before a temporary summer assignment at Philadelphia Naval Shipyard. He graduated on February 21, 1942, and married Caryl on the same day in St. Andrews Chapel at the USNA. While the other graduates from his class went on to engineering duty only roles, mostly with the Bureau of Ships, Hadler stayed on at the school to help teach the next class of naval architects, further reinforcing his interest in teaching.

When he completed his teaching assignment in November 1942, he joined the Preliminary Design section of the Bureau of Ships, analyzing the war damage to naval ships. He found this work fascinating, as he had a ringside seat on the progress of naval warfare, particularly in the Pacific. During this two-year assignment, he participated in or wrote eight war damage reports, the most noteworthy being on the aircraft carrier *Yorktown*. The first of these focused on the damage sustained by the carrier in the battle of the Coral Sea in May 1942, and the second on its subsequent sinking during the battle of Midway in June 1942.

After two years, in November 1944, Hadler was transferred to Hunter's Point Naval Shipyard in San Francisco, where he worked as a ship superintendent. In May 1945, the shipyard commander informed him that he had been selected to go to the Massachusetts Institute of Technology (MIT) to complete his education in naval architecture. It was at the shipyard that his interest in architecture was first awakened, by an officer assistant who had recently

graduated from Yale School of Architecture. If Hadler hadn't been granted the graduate education at MIT, he believes that he probably would have gone into some facet of home design and construction. In fact, this interest culminated in the design of his beach cottage on the Chesapeake Bay and his home on one of the steepest hillsides in Bethesda, MD. For both projects, he was the contractor, finish carpenter, and cabinetmaker.

David Taylor Model Basin years

Although they had a fixed academic program negotiated between the navy and MIT, Hadler found ship structures to be most interesting and chose a thesis in that area. He completed his education at MIT in spring 1947 with a master of naval architecture degree, and transferred to the David Taylor Model Basin (DTMB) intending to work in the Ship Structures Laboratory. But when he reported there, he was told that he was needed as the head of the Ship Trials Group in the Hydrodynamics Division. Hadler says this was unfortunate, because (believe it or not) hydrodynamics was his weakest subject while at MIT. The rest, as they say, is history: he did 4 years as head of the Ship Trials Group; a year as head of the Surface Ship Model Test Group; 16 years as head of the Ship Powering Division (with 6 branches composed of 80 scientists, engineers, and technicians); and 4 years as head of the division on sea-keeping and maneuvering. It was during this period that he was asked to direct DTMB's effort to salvage the Russian rogue submarine that sank in the Pacific in 1968. In fact, Hadler is mentioned in David H. Sharp's 2012 book, *The CIA's Greatest Covert Operation*, a first-hand account of the Hughes Glomar Explorer mission entitled "Project Azorian," a six-year effort to recover the submarine and learn its secrets.

During his time as the head of the Ship Powering Division at David Taylor, Hadler worked with an

Jacques B. Hadler *continued*



Jacques Hadler and his wife, Caryl, have attended many SNAME maritime conventions through the years, always making time to visit with friends and colleagues.

was invited to come to Webb Institute of Naval Architecture as the director of research. He was hoping he would also have an opportunity to teach, and he got his chance after a couple of years, when the senior professor of naval architecture, Cedric Ridgely-Nevitt, went blind one year before retirement. Hadler's first class at Webb was a course in marine propeller design, a subject with which he was very familiar, and which he taught for many years thereafter. During his time at Webb, he has taught ship resistance and propulsion, ship design, marine propellers, and propeller-induced vibrations to more than 30 classes of Webb students. He also is the most sought after adviser for Webb senior theses. (As an aside, he was this author's advisor for a towing tank thesis on the effect of hull separation on the resistance of catamarans.)

Hadler has served as dean of the faculty at Webb on two separate occasions. He also has occupied, since its introduction in 1989, the first named faculty chair at Webb Institute, the James J. Henry Professor of Naval Architecture. In 1993, Webb bestowed upon him an honorary doctorate degree. Although he officially retired at the end of the school term in 2011, Professor Hadler—as he is known to more than half of Webb's living graduates—continues to be a presence at the school, mentoring young faculty and continuing to serve as an adviser on senior theses.

Industry recognition

Jacques Hadler's SNAME recognitions and accomplishments span decades. In 1962, he published his first SNAME paper, with his DTMB colleagues, Dr. Pao C. Pien and George Stuntz, on the propulsion characteristics of Series60, a systematic series of single-screw commercial vessels. Most recently, he was a co-author with MIT Professor Emeritus Jake Kerwin, of *Propulsion*, one segment of the new Principles of Naval Architecture Series, published by SNAME in November 2010. In between, he was the author of dozens of technical papers published in major

outstanding group of scientists and engineers focused on the hydrodynamics of ship propulsion, some of whom were considered world leaders. These included such men as Dr. Herman Lerbs, Dr. P.C. Pien, and Dr. William Morgan. Some of the most notable scientific advances coming out of DTMB during Hadler's tenure there include:

- the development of a rational hydrodynamic model to design marine propellers
- the discovery and development of supercavitating and ventilated propellers for application to high-speed vessels
- the development of a rational method for the design of contra-rotating propellers
- the development of the high-skew propeller to reduce ships vibration, cavitation, and blade rate noise
- the development of a rational method for the design of ducted propellers
- experimental development of the partially submerged propeller for high-speed ship propulsion
- the development of rational methods for the design of bulbous bows

- the development of the streamlined hull form of today's submarines
- the development of a rational method for designing catamaran hulls to reduce drag, which lead to the development of the SWATH (small water plane twin hull) concept
- the development of rational hydrodynamics for predicting the power performance of planing hulls.

Hadler stayed at DTMB until 1978, the last four years as a "civilian." When he retired from civil services, he was able to consult on international work. Highlights included an invitation from Admiral Soong, commander in chief of the Taiwanese Navy, to help them design new destroyers, and engagement by the United Nations to serve as an International Maritime Organization consultant to Korea, which was designing and building its first model basin.

Webb years

In 1978, aided by his extensive research and development background from DTMB, Hadler

In 1966 and 1975, he was awarded the American Bureau of Shipping Captain Joseph H. Linnard Prize for best paper presented at the SNAME annual meeting.

transactions or journals. In 1966 and 1975, he was awarded the American Bureau of Shipping Captain Joseph H. Linnard Prize for best paper presented at the SNAME annual meeting. The first, a paper entitled, "Analysis of Experimental Wake Data in Way of Propeller Plane of Single and Twin-Screw Ship Models," with Henry Cheng, describes their pioneering work on wake surveys. The second, "Ocean Catamaran Seakeeping Design Based Upon the Experiences on U.S.N.S. HAYES," describes how he helped solve a cross-structure slamming problem on the navy's first oceangoing catamaran by inserting a foil between the two hulls to dampen the pitching motion.

Hadler was made a fellow of the society in 1978, and he is still a member of the Propulsion Hydrodynamics (H-8) T&R Committee, and was its chairman for many years. He is also an honorary member of the society, a recognition that is bestowed upon very few members. He also has been the recipient of numerous honors from other professional societies, including the 2003 Harold E. Saunder's award, given by the American Society of Naval Engineers for lifetime achievement.

SNAME has recognized him twice for his contributions to the profession. At the 90th annual banquet, with the New York Hilton Hotel's grand ballroom filled to capacity, the 1982 David W. Taylor Medal was awarded to Hadler for "Notable Achievement in Naval Architecture." The presentation was made by John J. Nachtsheim, president, fellow of the society, and Taylor medalist. The 2011 William H. Webb Medal for "Outstanding Contributions to Education in Naval Architecture, Marine or Ocean Engineering" was presented to Hadler by

Roger H. Compton, who succeeded him as dean of the faculty at Webb.

At 96 years young, Jacques Hadler has led a truly extraordinary life. His long and distinguished career is a testament to a man with an endless thirst for knowledge, a curiosity about all things marine, and a wish to pass along to others all that he has learned. Researcher, educator, mentor, professional: all of these describe his relationship with SNAME. But when people think of Jacques Hadler and SNAME, they

often picture he and his wife of 72 years, Caryl, attending the annual SNAME meeting, year after year, always with a smile on his face and always happy to catch up with you. **MT**

For a self-written, personal history, see Jacques Hadler's "From the Prairie to the Shining Sea," at <http://www.webb.edu/assets/files/HadlerPERSONAL%20HISTORY.pdf>

Vicky Dlugocki is an engineering and management consultant and a member of the (mt) magazine editorial board.

SAFER, SMARTER, GREENER

DNV-GL

NAVIGATING COMPLEXITY



©Gettyimages/Gary S Chapman

DNV GL, providing leadership with:

- Rules for Gas Fuelled Ship Installations (1st issued: 2000)
- RP, Dev. & Ops. of LNG Bunkering facilities (2013)
- Competence Std. for onboard use of LNG as fuel (2013)

World's most experienced service provider in solving your environmental emissions issues and ship performance efficiency.

www.dnvgl.com