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Celebrating 50 Years of Coeducation

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Remembering
Dr. Stanley Dudrick '57

Special coverage
of COVID-19

*Payne Fellowship winner
Taina Perez '20'*

THE LEGACY OF DR. STANLEY DUDRICK '57 CARRIES ON IN MEDICINE—
AND IN THE MILLIONS OF LIVES HIS RESEARCH HAS SAVED

celebrating a

MEDICAL PIONEER





In the mid-1940s, deep in the coal region of northeast Pennsylvania, a 10-year-old boy began working six days per week on his grandfather's farm.

For 10 hours each day—and for 10 cents an hour—the boy had a wonderful time planting seeds, growing crops, nurturing them, and ultimately harvesting the vegetables he'd grown.

For Stanley Dudrick, it was a fascinating childhood. He learned the value of hard work, developed a deep respect for nature, and acquired a passion for nurturing the living.

Putting in long hours of a daily grind was in his blood. His father and eight uncles worked in the anthracite coal mines from the age of 13 into adulthood. Studying on their own by candlelight and lanterns after days of backbreaking work, his father and one of his uncles earned the equivalent of high school degrees and were accepted to the University of Pennsylvania.

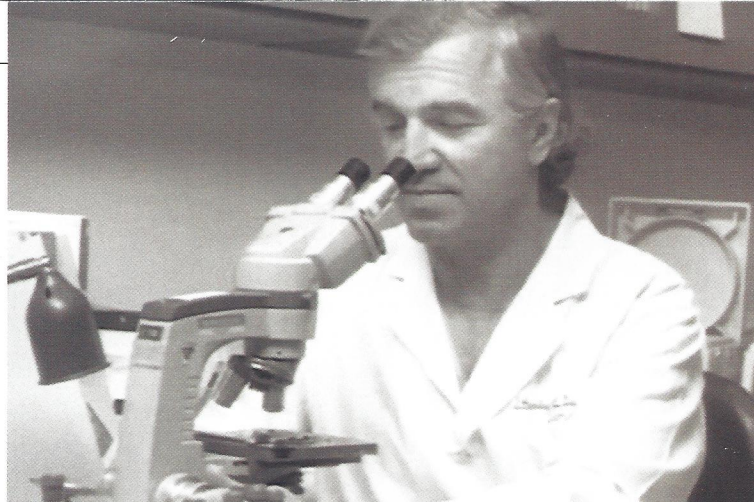
These were the roots of a medical science pioneer, Stanley Dudrick, M.D., '57, P'88, G'10, G'19, who died in January at the age of 84 after a career marked by a tenacious desire to improve the quality of human life. Dr. Dudrick was innovative in the development of intravenous hyperalimentation, the technique of feeding a person intravenously—through their blood stream—that bypasses the normal process of eating and digestion. His work at the University of Pennsylvania in the

1960s revolutionized post-operative patient care, earning him accolades and worldwide recognition for his accomplishment and research.

The Journal of the American Medical Association characterized his efforts as “one of the four most significant accomplishments in the history of modern surgery.” The others were: discovery and development of asepsis and antisepsis, antibiotic therapy, and anesthesia. His intravenous feeding system, known as Total Parenteral Nutrition (TPN), also has been recognized as one of the three most important advances in surgery, along with open-heart operations and organ transplantation.

“With the passing of Dr. Dudrick, medicine has lost one of its most inspirational leaders,” American Society for Parenteral and Enteral Nutrition (ASPEN) President Lingtak-Neander Chan, PharmD., B.C.N.S.P., said about the first president and founder of ASPEN. “Dr. Dudrick will be remembered as a healer and visionary whose kindness has deeply touched many people, and whose achievements have changed the lives of many.”

Journey to a MEDICAL CAREER



The stimulus for Dr. Dudrick's interest in medicine was his mother, who contracted rheumatic fever when her son was 6. The young boy was impressed by the doctors who came to see her because they made house calls. "Everyone was whispering that I have to take a bath, I have to put on my Sunday clothes," Dr. Dudrick said in a 2014 interview with Professor Claude Yoder '62, editor of the *F&M Scientist*. "These doctors must really be important. Those are still very vivid memories for me. I was 6 or 7 years old when I decided, 'When I grow up, I want to be one of them.'"

Dr. Dudrick worked at Skytop Lodge in the Pocono Mountains for five summers to pay his tuition for F&M. After he arrived in Lancaster, he found several mentors and role models who encouraged his career in medicine: Richard Winters '41, dean of admission; James McCown "Mac" Darlington '30, chair of biology; Harry Lane '28, professor of anatomy and embryology; Fred Snavely '49, professor of inorganic chemistry; and Robert Cross, chair of chemistry who taught organic chemistry.

"The very best four consecutive years of my life were those that I spent at Franklin & Marshall," Dr. Dudrick said in 2014.

He undertook his first research project in F&M's Fackenthal Laboratories under Snavely's supervision, growing tomato plants hydroponically and studying the effects of various magnesium doses in the fluid. The research foreshadowed his renowned work on TPN, as he undertook attempts to nourish humans exclusively with liquid being infused into their veins.

Dr. Dudrick graduated cum laude with a degree in biology with honors and was awarded the Williamson Medal, the highest honor for student achievement at F&M. He later served on the Board of Trustees, chaired the College's previous capital campaign, and was awarded an honorary doctorate from the College in 2013.

The BREAKTHROUGH

Dr. Dudrick's formal research on nutritional therapy began at the University of Pennsylvania School of Medicine. During an internship in 1961 with Dr. Jonathan Rhoads, three patients died following complicated re-operative procedures. Dr. Rhoads explained to Dudrick that the common denominator was multiple complex problems combined with severe malnutrition.

"I responded, 'Well, Dr. Rhoads, then why didn't we feed them better?'" Dr. Dudrick said.

The doctor-in-training had a difficult time accepting the patients' deaths. But he went from a low point of frustration and despair to wanting to go to the laboratory as soon as possible to try to solve the problem. He spent several months in the laboratory trying to formulate intravenous-complete nutrient solutions—based on what information he had gleaned from literature—and attempted to replicate the nutrients in the portal vein after a balanced meal.

"I spent hours at the swing balances, just as we did at F&M in quantitative analysis, until I measured the precise amounts of each of the chemicals required," Dudrick said in 2014.

Using the solution to feed beagle puppies turned out to be a success; the intravenously-fed puppies grew and developed comparably to their litter mates. Dudrick's method was then introduced to clinical practice, initially to critically ill surgical patients and later to human infants—changing the way medicine has been practiced ever since.

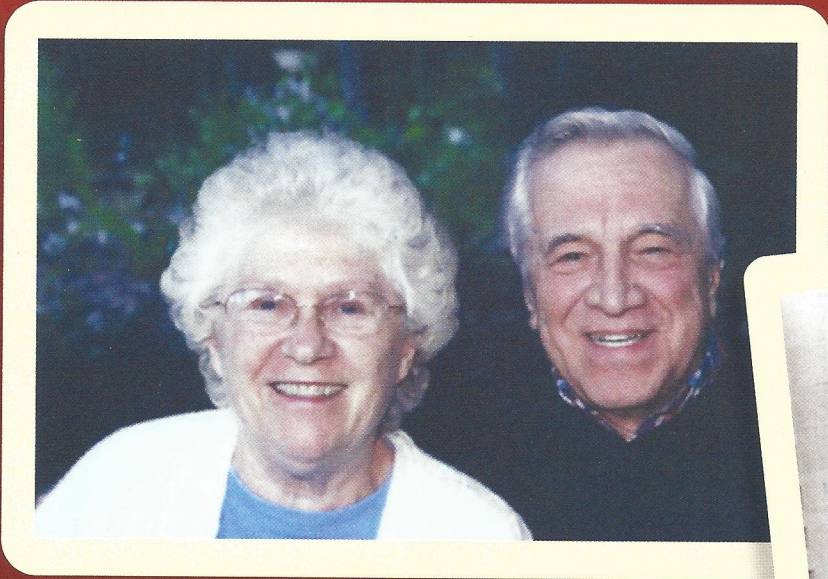
After his training, he joined the faculty at Penn and within five years ascended in rank

from instructor to professor of surgery at his alma mater. He would serve hospitals and universities around the country, including the University of Texas Medical School at Houston, where in 1972 he was first professor and, later, founding chair of the Department of Surgery; Yale University School of Medicine; and chair of the department of surgery at Saint Mary's Hospital in Waterbury, Conn.

"What drives me is the philosophy of Benjamin Franklin, which is to work every day to discover and produce new, useful knowledge," he said. "I'm addicted to the basic concept of producing new knowledge overall, but especially if we can make it useful and relevant to maximally improve the human condition."

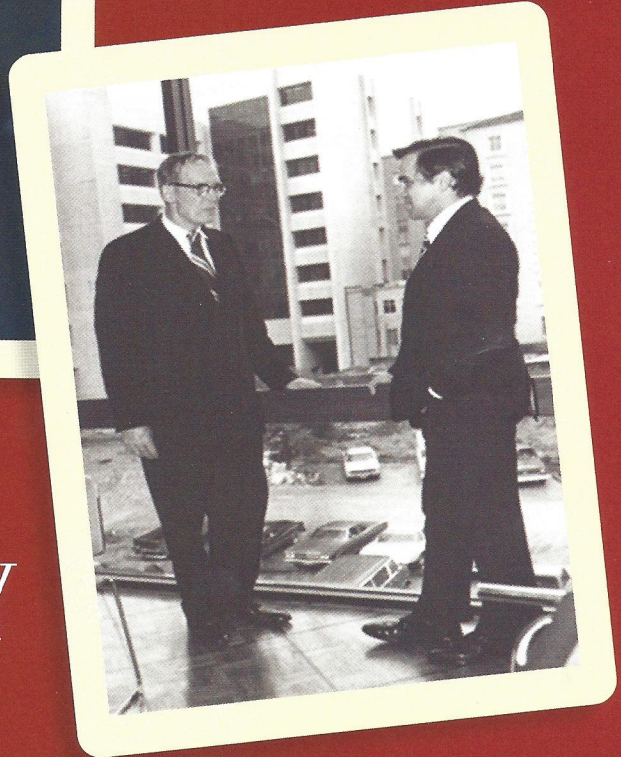
Dr. Stanley Dudrick is survived by his wife, Theresa (Keen) Dudrick; their daughters, Susan Burkholder, Carolyn Henry, Holly Dudrick and Anne Dudrick Spivey '88; their sons, Paul, a surgeon, and Stanley; 16 grandchildren, including Genevieve Keeton '10 and Robyn Dudrick '16; five great-grandchildren; a sister, Irene, and a brother, Daniel. **F&M/Chris Karlesky '01**

Special thanks to Claude Yoder '62, F&M's Charles A. Dana Professor of Chemistry Emeritus, whose interview with Dr. Dudrick in 2014 helped to shape this story.



Left: Stanley Dudrick and his wife, Theresa (Terry)

Below: Jonathan Rhoads visits his former student, Stanley Dudrick, at The University of Texas Medical School in the mid-1970s.



The DUDRICK LEGACY

Some of the numerous honors bestowed on Dr. Stanley Dudrick include:

In 2016, Medscape named him one of the 50 most influential physicians in history, ranking him 42nd among his historical peers in medicine.

The American College of Surgeons named him a “Hero in Surgery” in 2014, one of only four people to receive the distinction.

The American Society for Parenteral and Enteral Nutrition established the annual Stanley J. Dudrick Research Scholar Award in 1985.

ASPEN, which he established with 34 other health care professionals in 1975 as an interdisciplinary association

for the purpose of providing optimal nutrition to all people, presented him with the organization’s inaugural Lifetime Achievement Award in 2017.

St. Mary’s Hospital, a Yale-associated teaching hospital, named its Department of Surgery after him in 2009.

The American Surgical Association bestowed its highest honor in 2009 by awarding him the Medallion for Scientific Achievement for Distinguished Service to Surgery.

In 2011, Dr. Dudrick received the Legends of Neonatology Award and the Nathan Smith, MD Distinguished Service Award from the New England Surgical Society for his scientific and clinical contributions.

A hospital in Skawina, Poland, was named the Stanley J. Dudrick Hospital in 2012.

The City of Nanticoke and local state legislators celebrated Dr. Dudrick Day in his hometown on July 19, 2017, marking the 50th anniversary of his invention of total parenteral nutrition.