SPECIAL ANNOUNCEMENT

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ASA Award: Francis F. Foldes

IN PRESENTING Francis F. Foldes the 1988 Award for Excellence in Research, the ASA has again demonstrated its ability to choose from among the most gifted in our discipline. As a contributor to our understanding of the physiology of the neuromuscular junction and the pharmacology of muscle relaxants, narcotics, and local anesthetics, he has few peers.

Francis Foldes was born on June 13, 1910, in Budapest, Hungary. At the age of 18 years, he was awarded a full scholarship to the University of Budapest School of Medicine and for 5 years served as a "student assistant" in the Department of Biochemistry. After obtaining his medical degree in 1934, he began training in Internal Medicine. He entered the private practice of medicine in 1939 and continued research, already begun, in the limited time that his practice afforded. The occupation of Austria occurred in 1938, but it was not until 1941 that Francis Foldes and his wife, Edith, were able to escape the horrors engulfing Europe and enter the United States to settle in Boston.

Shortly after his arrival, the untimely death of Professor Soma Weiss, his soon-to-be sponsor in medical research at Harvard, made him available to accept Henry K. Beecher's offer of a research fellowship in the Department of Anesthesia of the Massachusetts General Hospital. The research fellowship was followed by a residency in anesthesiology. Recruiting the young Francis Foldes to our specialty must be viewed as one of Dr. Beecher's many great contributions to anesthesiology. Completing his residency in 1944, Francis Foldes stayed on at the Massachusetts General Hospital as both Assistant in Anesthesia and Assistant in Medicine at the Harvard Medical School.

In July of 1947, he accepted an offer to Chair the Department of Anesthesiology at the Mercy Hospital of Pittsburgh, where he established a residency program, a research laboratory, and the first mysasthenia gravis clinic in that part of the nation. In 1962, he accepted the Chairmanship of the Anesthesia Department of the Montefiore Hospital of New York and, during a 13-year tenure there, held first the rank of Clinical Professor at Columbia University and, later, Professor at the Albert Einstein College of Medicine. He retired from the Montefiore Chair in 1975, continuing as Consultant and Professor Emeritus.

Francis F. Foldes, M.D.

While the thoughts of many who retire from a chair at age 65 years turn to more leisurely pursuits, Francis continued his active research career, spending the first 15 months of "retirement" as visiting professor at the Catholic University of Nijmegen in Holland, where he continued his work on the neuromuscular junction and muscle relaxants. After returning from Holland, Francis Foldes began to divide his time and investigative energies and talents between New York's Montefiore hospital and the University of Miami, where, as Professor of Anesthesiology, he established a research laboratory for neuromuscular studies. This work continues unabated to this day.

How better could one characterize Francis F. Foldes' range of interests than to quote from Boethius: "Curiosity

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is one of the permanent and certain characteristic of a vigorous mind . . ."[1] And Richard Kitz has written: ". . . it is clear that in the anesthesia community, Dr. Foldes was the catalytic unit and active site in the development of the study of the molecular mechanisms of drugs active at the junction between motor nerves and skeletal muscles. It is unlikely that any other will approximate his influence." In the summary that follows, much detail has been omitted because of the constraints of space.

Clinical Pharmacology and Use of Muscle Relaxants. Francis Foldes introduced the clinical use of succinylcholine (SCh) in the western hemisphere.[2] In addition to popularizing the use of continuous infusion SCh, he reported numerous studies over the next two decades on the metabolic transformation of SCh in normal subjects and in patients who had an inherited abnormality in their plasma pseudo-cholinesterase. In studies on unanesthetized, unpremedicated human volunteers, he demonstrated that the diaphragm is much less sensitive to the non-depolarizing relaxants than are the peripheral voluntary muscles and that partially curarized muscles have a myasthenic like fatigueability.[3]

Narcotics and Narcotic Antagonists. In 1963, Francis Foldes reported on the first use in humans of the only pure narcotic antagonist, naloxone.[4] He emphasized that the patient's naloxone requirements should be carefully titrated because unnecessarily large doses could precipitate acute withdrawal reactions. Francis Foldes was an early advocate of "balanced anesthesia" and was the first to describe a low-flow technique for the administration of nitrous oxide-oxygen.[5]

Local Anesthetic Agents. His discovery that the substitution of a chlorine atom at the *2* position of the benzene ring of procaine caused a fourfold increase in its enzymatic hydrolysis rate led him to clinical trials of 2-chloroprocaine.[6] It remains the only local anesthetic agent that is more potent but less toxic than procaine.

Myasthenia Gravis. Francis Foldes' interest in myasthenia gravis began at the Massachusetts General Hospital where he anesthetized patients for thymectomy. This, coupled with his insights about the pathophysiology of the neuromuscular junction, provided the impetus for the establishment of a myasthenia gravis clinic at the Mercy Hospital of Pittsburgh. This clinic still serves patients who come from a radius of over 100 miles. He published extensively on the diagnosis and treatment of myasthenia gravis and his paper, entitled "Myasthenia Gravis: A Guide for Anesthesiologists," remains a classic.[7] Dr. Foldes is past president and still a member of the Medical Advisory Board of the Myasthenia Gravis Foundation.

4-Aminopyridines. His current primary interest is the structure-action relationship, pharmacology and therapeutic potential of 4-amino and 3,4-diaminopyridine derivatives. Dr. Foldes and his colleague, Dr. I. Lallezari of the Montefiore Medical Center, have developed a 3,4-diaminopyridine (LF14) derivative that, in addition to possessing significant anticholinesterase activity, is expected to be an effective antagonist of presynaptic neuromuscular blockade, not reversible by anticholinesterase, and may be useful for the symptomatic treatment of Alzheimer's disease.

No biographee is perfect. When Francis Foldes witnessed his first halothane anesthetic shortly after its introduction to the United States, he was heard to remark, "It will never sell." His pharmacologic assessment awaits only history to be the final arbiter.

The research of Francis Foldes has earned many previous honors. Among them, he has received the ASA's Distinguished Service Award (1972), the Ralph Waters Award (1976), Honorary Doctorate in Medicine from Hungary's Szeged University (1979), Honorary Fellowships in the Faculties of Anaesthetists from the Royal College of Surgeons both of England (1982) and in Ireland (1979), and the Griffith Medal for delivering the first Harold R. Griffith Memorial Lecture in 1986. If he were asked, however, to describe his most satisfying rewards, he would respond without hesitation that they were the careers of all the young physicians and pharmacologists who had learned their research skills from him.

Francis Foldes' lifetime of prodigous work has literally helped to shape the way in which anesthesiology is practiced today. This commitment of time and energy to the scholarship of research has not kept Francis Foldes from making contributions of a totally different sort. He has held the offices of President of the Pennsylvania Society of Anesthesiologists and member of the ASA Board of Directors, serving as Director of District 6. In 1968, Francis Foldes became the first American to hold the high office of President of the World Federation of Societies of Anesthesiologists (1968–1972). Those who have had the great good fortune to know him as friend and mentor (including this writer) know him as one of the kindest and most caring of people. His perennial admonition to young trainees never varies: "First you must be a lady or gentleman, then a physician, and then an anesthesiologist." He is a role model for the advice he gives.

Although most of his colleagues think of Francis primarily as an investigator, his close friends know that he has always considered himself as, first, a clinician; second, a teacher; and only third as a researcher. His research, however esoteric it may sometimes appear, has always been oriented toward better and safer patient care.

Francis Foldes's claim to have cut back on his work schedule is not borne out by events. His name appears on

five abstracts scheduled for presentation at ASA's 1988 scientific session. In this context, this tribute to Francis represents not a summary, but a progress report on activities that will, hopefully, continue for many years to come.

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