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1898—1981

A Biographical Memoir by
MAURICE B. VISSCHER

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Biographical Memoir

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Owen H. Wangsten

OWEN HARDING WANGENSTEEN

September 21, 1898–January 13, 1981

BY MAURICE B. VISSCHER¹

THOUGH MANY PHYSICIANS attain excellence as clinicians and a much smaller number as research scientists, few—like Owen Harding Wangensteen—can claim preeminence in both. His insatiable curiosity, questioning mind, boundless energy, unselfishness, and uncommon human sympathy made him uniquely suited to a career in academic medicine—and specifically, in surgery. As a researcher he made substantial contributions to current knowledge about the causes of appendicitis, clarified problems concerning intestinal obstructions at various levels of the bowel, and provided important insight into the mechanism of peptic ulcer formation and the control of gastric secretion.

EDUCATION AND EARLY LIFE

Owen Harding Wangensteen was born September 21, 1898, in Lake Park, Minnesota. He attended public schools and received all of his earned degrees from the University of Minnesota: A.B. in 1919, M.D. in 1922, Ph.D. in 1925. His academic competence was recognized early, particularly by Elias Potter Lyon, dean of the Medical School, and by William

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J. Mayo. His rise in local academic status was meteoric, and by the age of thirty-two he was surgeon-in-chief of University of Minnesota Hospitals.

After years spent studying the deleterious effects of increased internal viscus pressure in the stomach and intestines, Wangensteen eventually concluded that a number of conditions, most often requiring surgical intervention, were, in fact, caused by excess pressure from the accumulation of gastric and intestinal secretions in an atonic intestine. To establish (against conventional wisdom) that the pathophysiological mechanism was elevated intraviscus pressure, which caused irreversible damage by obstructing capillary blood flow to the intestinal mucosa, Wangensteen and his students devised a number of ingenious animal experiments. The results of these studies led to the construction and eventual world-wide adoption of the Wangensteen suction technique and the so-called "Wangensteen tube," which has become an indispensable surgical instrument.

In 1944 I estimated that this procedure had saved some 100,000 lives; I would now put that number closer to a million. So well known was the Wangensteen technique to the public that, in 1951, Ogden Nash could quip:

May I find my final rest in
Owen Wangensteen's intestine,
Knowing that his masterly suction
Will assure my resurruction.

As a comprehensive general surgeon, Wangensteen also had a deep interest in cancer. Many of the lower bowel obstructions he studied so intensively were due to malignancy of the rectum or colon. He began, consequently, to concentrate on methods for the management of cancer. He initiated a Cancer Detection Center in his Surgical Department at the

University of Minnesota to discover malignancies early, before symptoms became clinically obvious and metastases had occurred. It was his hope that surgical removal of cancers at an early stage would result in a higher rate of long-term survival. He instituted a so-called "second look" program, designed particularly for patients with cancer of the colon who had lymph node metastases, and found that when recurrent metastases were removed a year after the initial operation, the five-year survival rate was significantly improved.

SURGEON-IN-CHIEF, UNIVERSITY OF MINNESOTA
HOSPITALS (1930–1967)

In 1930 Owen Wangensteen was appointed surgeon-in-chief of University of Minnesota Hospitals, a post he would hold for the next thirty-seven years. Almost immediately his graduate program in surgery achieved a remarkable popularity, and for those aspiring to a career in academic surgery, appointment as a house officer in his department remained a coveted prize throughout his tenure as surgeon-in-chief. Designed in accordance with Wangensteen's belief that physiology and animal research were essential preparations for clinical surgery, the Minnesota graduate program became the prototype and model of a modern, scientifically oriented academic department of surgery.

Greatly assisted in his graduate teaching by the University of Minnesota's pioneering graduate medical program—a program that had made possible his own research and clinical career—Wangensteen never forgot the debt to his *alma mater*. His last publishing effort (the editing of which was completed by his widow, Sarah Davidson Wangensteen) was a collection of essays by the students and colleagues of Elias Potter Lyon, former dean of the University of Minnesota Medical School.²

² *Elias Potter Lyon: Minnesota's leader in medical education*, Owen Wangensteen, ed. (St. Louis: Warren H. Green, 1981).

In the 1930s when Wangensteen took over Minnesota's Department of Surgery, all residents in clinical departments were also required to register as students in the University's general graduate school and to choose a field of basic science pertinent to medicine as their minor field of study. Wangensteen's clinical residents, consequently, spent a significant amount of time and effort in the basic sciences. (I happened to choose physiology, a discipline Owen Wangensteen favored as being most appropriate for prospective academic surgeons.)

Since Wangensteen himself participated in the training of many of his surgical students, I had the opportunity to become familiar with both his scientific work and his educational philosophy. He encouraged his students to develop their own fields of scientific research and surgical expertise. Though not himself a cardiovascular surgeon, for example, he encouraged several members of his department to choose this specialty, several of whom later became innovators in all aspects of open-heart surgery—including cardiac transplantation.

In 1939 he founded the country-wide Society for University Surgeons, where surgeons, particularly young surgeons still in training, could present and discuss research results. This organization enabled these young scientists to get to know their peers in other institutions and to learn about their research interests. An outgrowth of Wangensteen's philosophy of extended graduate education, this national organization helped strengthen the scientific base of clinical surgery throughout the country and, indeed, the world.

In addition to his almost super-human energy and dedication, Wangensteen's extraordinary humanity also deserves special mention. From his early years as head of Minnesota's Department of Surgery he was concerned with the welfare of the patients who came to him rather than with the effect

of high-risk patients on his operative mortality statistics. He always did what was possible for his patients without regard to the obvious risks—a point of view that often embroiled him in controversies and disputes. In fact, at one point in his career, his dean, Richard Scammon, recommended to Lotus Delta Coffman, president of the University, that Wangenstein be demoted. Had it not been for Elias Potter Lyon, who was solidly behind him, and for William J. Mayo's writing Coffman he would resign as a Regent of the University if Wangenstein were demoted, it is likely that humanity would have been deprived of Owen Harding Wangenstein's contributions to science and society and this memoir would never have been written.

I have personal reasons for knowing just how much Wangenstein put the patient's welfare first, for—some twenty-five years ago—doctors at a world-renowned clinic diagnosed my aunt as having cholecystitis but, in view of her advanced age and general frailty, declined to operate on her. My aunt then consulted Dr. Wangenstein, who confirmed the diagnosis and the risk but added that, if she wanted to take that risk, he would do the operation. She took it and subsequently enjoyed another eight years of pain-free life.

Owen Wangenstein was equally selfless and forward-thinking with regard to his personal gain from private practice, as is shown by two policies he devised to insure the viability and health of the surgical research and graduate studies programs under his direction. First, he set a limit on the amount of personal income he would accept from his own practice and turned over any excess to a University Surgical Research Fund. Second, he sent his more affluent private patients a letter saying he preferred not to bill for his services, requesting instead that they send a contribution to the Fund in an amount they themselves deemed appropriate. This resulted in many annual gifts to the Fund, which supported

graduate students' surgical research long before Federal funds became available for such purposes.

Wangensteen's obvious lack of interest in private fortune impressed many and obtained a number of large private donations, not only to the Department of Surgery, but also to Minnesota's entire medical enterprise. His own unselfishness, therefore, significantly contributed to the building of a private support base for medical research and teaching at the University of Minnesota.

Scientific endeavor is, of course, greatly affected by the temper of the times, and during the 1960s and 1970s American science was well—even lavishly—supported by both public and private funds. But with the current drastic reduction of public support, interest on the part of the private sector is of even greater importance to the health and vigor of science. The substantial financial benefits Owen Wangenstein's selfless devotion to surgical research brought to his institution and his department show how much a single individual can influence private philanthropy.

WANGENSTEEN AS MEDICAL HISTORIAN

In the final chapter of his career, Wangenstein turned increasingly to a longstanding interest: medical history. Forty years earlier he had written of the importance of maintaining a knowledge of past triumphs in medical research. More recently, he devoted much of his time to developing Minnesota's Medical History Department and the historical library he had built almost single-handedly.

He also collaborated with his wife on a 785-page reference book on the evolution of surgical practice, *The Rise of Surgery—from Empiric Craft to Scientific Discipline*, which appeared in 1978, three years before his death. The Wangensteens spent years visiting medical history collections at home and abroad, including the National Library of Medicine in Be-

thesda, the libraries of royal colleges and university medical schools in London, Paris, Budapest, Montpellier, Vienna, Edinburgh, Glasgow, and Leeds. With 137 pages of notes and sixty-four of author and subject indices, the volume is a monumental and indispensable work.

As a medical historian, Owen Wangenstein had the great advantage of having been himself a participant in many areas of clinical practice and research. Having a strong bent for scholarly reading, he acquired the knowledge necessary to put together a comprehensive treatise on the emergence of surgery from primitive empiricism to the utilization of modern scientific and technological advances.

HONORS, AWARDS, AND SERVICE TO SCIENCE

Owen Wangenstein's unique talents and gifts were recognized early and often by his peers, and he received numerous honors at home and abroad. Elected to the National Academy of Sciences in 1966, he was also an honorary Fellow of the Royal College of Surgeons of England, Scotland, and Ireland; an honorary member of the Hellenic Surgical Society, the Norwegian Academy of Sciences, the French National Academy of Medicine, the Argentine Surgical Society, the Société Internationale de Chirurgie, the International Academy of History of Medicine, and a corresponding member of the German Surgical Congress. He received, among others, the Samuel D. Gross Award and Medal of the Philadelphia Academy of Surgery in 1935, the John Scott Award and Medal in 1941, the Alvarenza Prize in 1949, the Distinguished Service Award of the University of Minnesota in 1960, the Passano Award in 1961, the Lannelongue Medal of the French Academy of Surgery in 1968, the Distinguished Service Award of the American Medical Association in 1968, and the Scientific Achievement Award of the American Surgical Association in 1976. He received several hon-

orary doctorates from American and foreign universities, including the University of Buffalo, The University of Chicago, St. Olaf College, Temple University, the University of Paris (Sorbonne), Hamline University, Marquette University, and the University of Athens.

He also served as president of a number of medical organizations, including the Minnesota Medical Foundation (1948–1954), the Halsted Surgical Society (1957–1959), the American College of Surgeons (1959), and the American Surgical Association (1969). He was named Outstanding Minnesotan by the Governor's Committee in 1969. He was made a Regents' Professor, the highest honor that can be given to a member of the faculty of the University of Minnesota.

He is survived by his widow, Sarah A. Davidson Wangensteen, and three children by his long-deceased first wife, Helen: Mary H. Wangensteen Brink, Owen G., and Stephen L. Wangensteen. Stephen Wangensteen has followed in his father's footsteps to become an academic surgeon. Sarah Wangensteen, co-author of *The Rise of Surgery*, is a professional medical editor.

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