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CHARLES H. RAMMELKAMP, JR.

1911—1981

A Biographical Memoir by

FREDERICK C. ROBBINS

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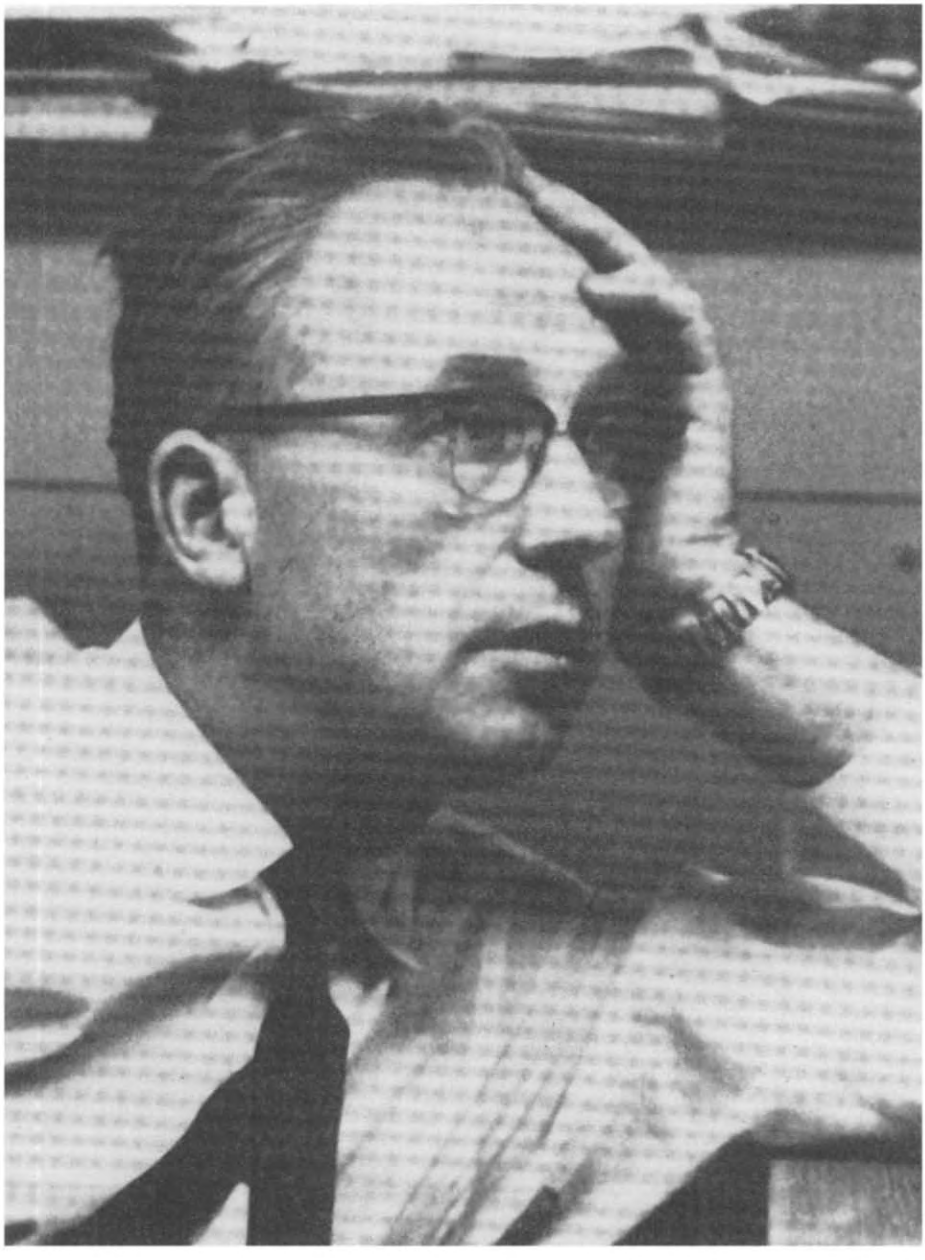

CHARLES H. RAMMELKAMP, JR.

May 24, 1911–December 5, 1981

BY FREDERICK C. ROBBINS

CHARLES H. RAMMELKAMP, JR., died suddenly on December 5, 1981, of a ruptured abdominal aortic aneurysm at the age of seventy. On the night before his death he awakened with abdominal pain and suspected what the diagnosis might be. However, with his characteristic concern for others, he did not bother anyone and waited several hours until his wife awakened at 7:00 am, her usual time. His remark to her was, "I think you had better take me to the hospital, I believe I am going into shock." At the hospital he was indeed in shock, and although surgery was done promptly, he did not recover. At the time of his premature death he had just become emeritus professor and was looking forward to a new and exciting career of scholarly activities. During his career he made exceptional contributions to clinical research, teaching, and patient care. His scientific contributions were largely in the field of infectious disease, most notably early studies on the clinical application and mechanism of action of antimicrobials, i.e. sulfonamides and penicillin, and the epidemiology of streptococcal infections, the non-suppurative complications of streptococcal infections such as rheumatic fever and acute glomerulonephritis, and the prevention of rheumatic fever by treatment of the streptococcal infection with penicillin.

Dr. Rammelkamp, who was known to all his friends and acquaintances as Rammel, was born in Jacksonville, Illinois on May 24, 1911. He grew up in a family with a sister and two brothers. The environment was a scholarly one with a father who was president of Illinois College. Rammel obtained his A.B. degree (1933) at his father's college and upon graduation chose a medical career with the intention of becoming a general practitioner. He attended medical school at the University of Chicago (1937), after which he served as an intern in medicine at the Barnes Hospital in St. Louis (1937–38). After one year at Barnes he returned to Chicago as an intern in surgery at the Billings Memorial Hospitals of the University of Chicago (1938–39). His foray into surgery lasted only one year and he returned to Barnes as an assistant resident in medicine (1939). It was never quite clear why he chose to spend a year as a surgical resident because he had few of the attributes usually associated with a surgeon, but he seems to have enjoyed it and would often comment upon how valuable he found the experience. The course of his career was really determined in 1939 when he went to the Thorndike Memorial Laboratory of Boston City Hospital as resident physician. The Thorndike was an exciting place intellectually. At the time, it was populated by such luminaries as George Minot, hematologist and Nobel laureate noted for his work on pernicious anemia; Soma Weiss, teacher "extraordinaire" and cardiovascular investigator; Maxwell Finland and Chester Keefer, both of whom were distinguished infectious disease investigators. In addition there was a group of young physician-scientists who were to become leaders in academic medicine. Fortunately for the field of infectious diseases, Rammel accepted a position with Chester Keefer rather than Soma Weiss. Had he joined Weiss, cardiology undoubtedly would have benefited greatly.

Rammel's first task in Keefer's laboratory was to group and type beta hemolytic streptococci, a task that he found tedious and uninspiring. Nonetheless, this was the beginning of a lifelong fascination with the streptococcus and the diseases it causes. Next he chose to study an antibiotic, gramicidin, that had been discovered by Rene Dubos. Although effective in the test tube, gramicidin did not prove very useful *in vivo* because of its poor solubility. Along with these studies Rammel was involved in experiments with sulfonamides that were just beginning to be used clinically. His first publication dealt with sulfathiazole, the first sulfanilamide to be introduced in this country. Most of his early work concerned the pharmacology and clinical application of sulfanilamides and the bacterial products, gramicidin and tyrothricin.

In 1940 Dr. Keefer moved to the Evans Memorial Laboratory to establish a department of medicine at Boston University. Rammel joined him there and soon was engaged in exploring the use of the new and exciting antibiotic, penicillin. The studies done by Rammel, Keefer, and associates on the pharmacokinetics and clinical effectiveness of penicillin were critical in providing the basis for its rational clinical use. Penicillin was a precious commodity at that time and Keefer was given responsibility for its allocation nationally. Thus, Rammel was strategically placed to be kept informed about all studies being conducted throughout the country. One of Rammel's more significant contributions was to devise a procedure for quantitating penicillin levels in blood and other biological fluids, a method that became universally used.

Rammel's tenure in Keefer's department was highly productive but did not last long. The United States had entered World War II and the military was experiencing serious problems with acute respiratory diseases. The

Commission on Acute Respiratory Diseases had been established at Fort Bragg, North Carolina, with Dr. John Dingle as its head. Dr. Dingle recruited Rammel along with a fine group of clinical investigators and epidemiologists to conduct studies directed at elucidating the cause of acute respiratory diseases and to develop methods for their control. Rammel's special assignment was streptococcal disease but he was also involved with studies on primary atypical pneumonia (now known to be due to mycoplasma infection), influenza, and other respiratory diseases. During its five-year existence, the commission published extensively on these topics. One of the more significant papers described the relationship of epidemics of influenza with the frequency of pneumonia. This has provided the basis for the influenza surveillance by the Centers for Disease Control, which follows pneumonia prevalence as a surrogate for influenza. The commission adopted a policy of communal authorship of papers; the recorded author was the commission with only a listing of the members, so that a portion of Rammel's bibliography is not identified under his name.

With the war over, Dr. Dingle moved to Cleveland in 1946 along with several members of the commission, including Rammel, in order to establish the Department of Preventive Medicine at Western Reserve University School of Medicine. The department made many important contributions over the years but is best known for the landmark ten-year Family Study program. This careful study provided a gold mine of information about the common illnesses in families and the population at large. Although Rammel was very much involved in the design and conduct of the Family Study, he became intrigued with the high prevalence of streptococcal infection and rheumatic fever in troops serving in the Rocky Mountain area. In 1949 he became the director of the Streptococcal Diseases Laboratory at War-

ren Air Force Base in Wyoming. It was here, in a period of six years, that he and his associates conducted the classical studies on the epidemiology and clinical features of streptococcal infection that demonstrated that rheumatic fever could be prevented if the acute streptococcal infection was treated adequately with penicillin. These studies not only made it possible to prevent rheumatic fever but also provided the clinching evidence of the role of the streptococcus in its etiology. The Ft. Warren laboratory was highly productive scientifically but also served as a training ground for an unusually talented group of young physicians, among whom were Lewis Wannamaker, Richard Krause, Chandler Stetson, Harold Houser, and Floyd Denny, all of whom went on to distinguished careers. The significance of their work was recognized when, in 1954, the Albert Lasker Group Award was presented to the Streptococcal Disease Laboratory.

Rammel had been puzzled by the fact that only a single case of acute glomerulonephritis had occurred among the more than 1,000 cases of streptococcal infection that had been observed at the Warren Air Force Base. The organism recovered from that case was Type 12. This observation he put together with earlier findings from a family outbreak of Type 12 infection in which five members displayed evidence of acute kidney disease and proposed the hypothesis that Type 12, and possibly others, was a nephritogenic strain of streptococcus. This hypothesis on further study did indeed prove to be correct, and Type 12 and a few other types are now recognized as having the peculiar capability of producing acute nephritis. He and his coworkers were interested in why some strains were nephritogenic and others were not, but several lines of investigation did not yield the answer to this intriguing question.

In 1950 Rammel was asked by Dr. Joseph Wearn, then dean of the Western Reserve Medical School, to help develop an academic program at Cleveland City Hospital (later to become Cleveland Metropolitan General Hospital [CMGH], and now MetroHealth Medical Center). Dean Wearn had negotiated with the mayor of Cleveland a new agreement that gave the medical school appointment power for the staff and provided for new facilities including a research building. Rammel was given the titles of professor of medicine, associate director of medicine, and director of research laboratories at City Hospital. He was able to recruit a number of outstanding research-oriented staff and new directors of pediatrics and surgery. The model he had in mind was the Thorndike Memorial Laboratory at Boston City Hospital but, as it turned out, his influence and that of the new recruits affected all aspects of the hospital's functions. Largely through his efforts the City Hospital became the fine academic institution that it is today.

Rammel continued his interest in streptococcal disease and among other activities developed, with his associates, a mail-in system for the rapid diagnosis of streptococcal pharyngitis that allowed the physician to delay treatment until there was evidence that it was indicated, thus forestalling much unnecessary treatment. He also engaged in a series of studies in Chile on the use of penicillin treatment of acute rheumatic fever and valvulitis.

In addition to the streptococcus, Rammel was interested in the staphylococcus. Along with A. J. Gonzaga, Edward A. Mortimer, Jr., and Emanuel Wolinsky, he conducted a series of classical studies on the epidemiology of staphylococcal infections in newborn nurseries. At the time, epidemics of staphylococcal infections were occurring frequently with considerable morbidity and mortality. Their studies showed, quite conclusively, that infection was transmitted

on the hands of the caretakers and that simple handwashing was an effective control measure.

Although Rammel's principal scientific interests were in the field of infectious diseases and streptococcal and staphylococcal infections in particular, he brought the same degree of curiosity and scientific analysis to whatever he was concerned with. He was a strong advocate for the application of basic science to clinical problems and was concerned that basic principles were not being taught adequately in the ambulatory or outpatient setting. He devised and put into effect an ambulatory unit whereby students and their instructors could investigate their patients in more depth than was usual in the clinic. This became an effective and unique teaching unit in which ambulatory patients received exceptionally fine care.

Another example of Rammel's ability to combine a scientific approach with his great concern for teaching and patient care was the "Firm" system of organizing medical care. He had been impressed with the advantages of the "Firm" system as practiced in Great Britain. This consists of a group headed by a senior physician and includes registrars (the equivalent of residents and fellows in the U.S.) and students who are responsible for the total care, on a continuing basis, of a group of patients in the hospital and the ambulatory clinic. This provides for a degree of continuity of care and teaching that does not occur in the usual U.S. system. Although at first he was primarily interested in improving patient care and teaching, he immediately saw its research potential. One can introduce a certain procedure or behavior into one or more firms and not the others and compare the outcome. A key feature of the program is the random assignment of patients to the firms. Since Rammel's death, this unique technique of health care research has been continued at Metro by a cadre of young

physicians. Their studies have evoked interest around the country.

Rammel had a profound interest in education. His inquiring mind was always searching for more effective ways to teach. He was a major force in the construction of the innovative curriculum at Western Reserve. His particular interests were better ways of integrating basic science with clinical teaching and the application of epidemiologic principles. He was one of the architects of the so-called "basic" clerkship which was a four-month period on either a medical or pediatric service and constituted the student's first intensive clinical experience. It was a long enough period so that the student could experience some continuity of patient care and contact with one group of faculty. It also provided the opportunity to do special projects and to give greater attention than is usually the case to biomedical and psychosocial processes underlying disease.

Rammel's concern for the education of his resident staff was great and, as already mentioned, in large part motivated the introduction of the firm system that proved so successful. He was always available to his house staff and fellows and was much concerned with their education and their personal welfare as well. As a result he was much admired and even loved by most of them.

Rammel was married to Helen Chisholm, who was Chester Keefer's secretary, and they had three children: Charles H., III, Colin C., and Anne K. Davies. Rammel was devoted to his family although he did not spend as much time with them as he might have because of his heavy schedule and tremendous devotion to his work. However, they had a cottage on the shore of Lake Michigan and he always found some time each year to spend there. The Rammelkamp family was close but not particularly interested in the social life of the community or faculty.

Rammel very much enjoyed association with his faculty, house staff and fellows and his colleagues throughout the country. Typically, with a cigarette in his mouth (in spite of many efforts, he never succeeded in kicking the habit), he would often be found deep in discourse with a group of colleagues that would continue to all hours. The topics discussed would deal with science, education, or intellectual subjects, and to a limited extent the usual academic gossip. Although Rammel was actively engaged in many professional societies and served as an officer including being president of many, he had little interest in professional politics. Indeed, among his outstanding attributes was a lack of personal ambition for power or prestige and an unselfish concern for his colleagues no matter what their rank or position. He was a warm, enthusiastic man who evoked respect and admiration from his colleagues and peers and exceptional loyalty from those who worked with or for him.

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