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JAMES BUMGARDNER MURPHY

1884—1950

A Biographical Memoir by

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Biographical Memoir

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Geo. B. Murphy

JAMES BUMGARDNER MURPHY

August 4, 1884–August 24, 1950

BY C. C. LITTLE

JAMES BUMGARDNER MURPHY was born on August 4, 1884, in Morganton, North Carolina. He was the third child of Dr. Patrick Livingston Murphy, who was the Director of the Western State Sanatorium, and Bettie W. Murphy of Staunton, Virginia. He died of a cerebral hemorrhage at Bar Harbor, Maine, on August 24, 1950, sixty-six years later.

His childhood was passed chiefly at Morganton, where he attended the Horner School, which was a military preparatory school. His keen appreciation and intelligent utilization of discipline throughout his life as a natural habit in his own work and as a basic requirement in his evaluation of the work of others may well have been derived from, and have been consolidated by, that experience.

This seems all the more probable since, as a child, he was described as being quiet and shy. He remained throughout his life restrained and nonassertive in his social and scientific contacts and wasted very little effort in nonessentials. This does not mean that he lacked any enthusiasm or vitality in his approach. He merely exercised an innate sense of proportion and propriety with great charm and effectiveness.

After graduation from the University of North Carolina, he entered the Johns Hopkins Medical School in 1905. Almost at once his interest in research was evidenced by his publication on two topics, anatomy and physiology. This forecast his future by indicating the two broad fields in which his research activities would be developed through the years that followed.

His great skill in manual techniques led to an amusing incident after he had been only a few weeks in medical school. In those days anatomy was largely self-taught by individual dissection of a cadaver, and Murphy with unusual dexterity successfully completed an extremely difficult dissection of the nerves of the nasal system. His drawings of the nerve complex were placed on the bulletin board along with the selected drawings of certain other students.

One morning a very young-looking man—apparently an upper-class medical student—expressed interest in the drawings and invited Murphy to tea.

“Do you live across town?” asked Murphy.

“Yes,” said the man.

Murphy, thinking that this older student was going to try to get him to do some work for him, replied, “Well, I’m awfully busy and don’t get a chance to get across town much, but thank you very much anyway.”

The man smiled and departed and Murphy was surrounded by several people who rushed up and said, “Do you know who that was?” “No,” said Murphy. “Well,” they almost whispered, “that was Harvey Cushing.”

Cushing, at that time already of marked distinction, was collecting data on enervation and functional losses from a large series of brain operations and had found that Murphy’s drawing was an exact substantiation of some of his own recent observations.

Quite naturally they later became good friends and often recalled with amusement the circumstances of their first meeting.

Murphy’s love of animals and for detailed and meticulous care of them was shown strongly throughout his boyhood. This was another indication of one of his especial skills later developed in experimental work. Instead of being actively interested in hunting and fishing, as were most small boys of his neighborhood, he enjoyed caring for squirrels, dogs, monkeys, raccoons, canaries, and other animals as pets. He took an intimate, personal, and, in fact, clinical interest in them. He made small clothes for the mammalian pets, “dressed them

up," and attended with great solicitude to their injuries or ailments. It is interesting to note that in later life he was superlatively skillful and exact as an animal surgeon in every case of the thousands of experimental animals on which he operated.

In 1907, in the middle of Murphy's medical school career, the death of his father produced a sudden and serious financial crisis. Always keenly aware of his family ties and responsibilities, Murphy found it impossible to continue in medical school. This called for a major decision and the facing of where his duty lay. With characteristic self-reliance, unselfishness, and responsibility he made preparations to leave for home. As he actually was in the act of leaving he was stopped in the hall by Dr. Hurd, then Director of Johns Hopkins Hospital, who obtained from him an account of the situation and of his decision. Without hesitation, Dr. Hurd offered to provide funds for Murphy to continue his medical education, an offer which was accepted with lasting gratitude.

This early experience with deep sorrow and near personal tragedy by the narrowly avoided loss of his scientific career brought out and consolidated one of James Murphy's outstanding characteristics, that of loyalty to principle. After repayment of Dr. Hurd, Murphy showed his appreciation of the principle of generosity during periods of stress by his own aid to and support of several young people during their medical training. This he did happily and with a high degree of continuing personal interest in, and of fruitful contacts with, the students so helped.

The vitality and transferability of his imagination was one of his outstanding qualities. Having passed through a personal crisis, he analyzed the elements in it and instantly recognized their appearance in the lives of others. Immediately and naturally, with no sense of doubt or of artificiality, he would do what he could to provide for others on any level of need the support and security which they lacked.

The personal satisfaction which resulted was never paraded or abused. It settled into the fabric of his own intimate being without

appearing on the surface. It was, in fact, difficult to discover and to unearth his help to others for it was accomplished with complete modesty and self-effacement as far as the world was concerned. In fact, the students whom he was helping were received at his home as though they were his own family. There were many easy and delightfully informal social contacts there, arranged quietly by him in order that his friends and contemporaries could meet and chat with the youngsters in whom he was interested.

After his graduation from Hopkins, Murphy became assistant to Dr. Adolph Meyer at Ward's Island. Here, with Alec Henderson and Macfee Campbell, Meyer was brilliantly working out basic principles of psychiatry. It was an unusual opportunity for the young medical graduate and Murphy took such good advantage of it that in 1911 he was asked by Dr. Meyer to take the position of resident at Hopkins, to which Meyer was returning as professor.

At the same time, however, there was an opportunity to do research work at the Rockefeller Institute with Dr. Peyton Rous, whose exciting discovery of the filterable agent in fowl tumors had just begun to develop important results. A very basic love of discovery or perhaps better of the hunt for new knowledge decided the issue and Murphy joined the Institute staff in 1911.

A strong personal factor also influenced his choice. This was the advice of Dr. Florence Sabin, who later came to work at the Institute. This remarkable woman—a vital and avid scholar and research worker—had been his instructor in anatomy at Hopkins. A mutual understanding and respect had early developed between them. This quickly ripened into a close and sympathetic friendship which endured and which influenced greatly his attitudes and standards in research.

Almost immediately after his arrival at the Rockefeller Institute the accuracy and technical skill which Murphy had long developed began to supplement and implement his imagination to produce two very important and lasting advances.

One was the demonstration that the Chicken Tumor No. 1 agent

could be transmitted in material that had been frozen and dried. This process, which is known as lyophilization, insures the elimination of all living cells. It is probable that Murphy's work was the first successful application of that new basic method.

The second advance was the development, for the first time, of a successful technique for growing the virus of the chicken tumor in embryonated hens' eggs. Today this technique is of paramount importance in virus research throughout the world.

The use of the egg as an incubator for inter-species grafts of mammalian tumor tissue was also developed by him and was analyzed with interesting and important results which had direct bearing on our understanding of the process of susceptibility and of nonsusceptibility to transplants of tissue *within* the species as well as *between* species. Tissue specificity and the factors that determined it was one of his permanent scientific interests, of major emphasis in his thinking and work. From his first contacts with this problem Murphy developed industriously and logically a mass of new and vital evidence of the important and basic role which the lymphocytes play in the course of events following transplantation of tissue.

At this stage of his work one can readily imagine his frequent discussions and correspondence with Sabin, first at Hopkins, then at the Institute, and the stimulus which the long exchange of views and counter-questioning must have provided to both.

At this stage also Dr. John J. Morton, later to become the distinguished head of surgery at the University of Rochester, worked with Murphy at the Institute. Together they investigated the effects of x-ray irradiation on the fate of tumor transplants by modifying quantitatively the degree of receptivity on the part of the host animal.

At the same time, a skilled and devoted associate of Murphy's began to make his contribution to the rapidly developing program. This was Ernest Sturm, who from 1919 to 1950—a period of thirty-one years—was an invaluable technical aide in the diversified and voluminous experimental work which that period spanned.

Taken as a whole, Murphy's exhaustive research on lymphocytes as an influence on nonsusceptibility, as well as his investigation and analysis of the various factors that affected the lymphocytic participation in that process, represents a major scientific contribution of lasting value and application. It is a comprehensive study of the biological reactions by which an organism recognizes and rejects implants of foreign tissue, and while it did not attempt to discover or explain the genetic differences which "trigger" the response, it provided a mass of fundamental facts on how the mechanism of detection, isolation, and elimination of transplants actually operated. Many later investigators have found the foundation of sound information provided in his study an invaluable guide for development of their own work.

During the First World War, Murphy was a major and an aide to the Surgeon General in Washington. Here he followed up the work of Doctor Hans Zinsser in organizing mobile laboratories for our hospitals in France and arranging the training of their personnel. He also finished the writing of the Army's "First Laboratory Manual" which Zinsser had begun.

In Washington he met his future wife, Ray Slater of Boston, who was working there as secretary to William Bullitt, later our Ambassador to France. They were married in April of 1919 and spent their honeymoon in China. Two sons were born—Dr. James Slater Murphy in 1921 and Ray Livingston Murphy in 1923. The former is today on the staff of the Rockefeller Institute engaged in research on genetic and other aspects of viruses. The latter died in 1953. He was curator of rare books at the Library of Yale University.

Murphy's physique was always delicate, and in order to carry out the mass of work to which he was impelled it was necessary for him to bear that fact in mind. This he did with great intelligence and with such skill and courage that those who knew him casually were probably ignorant of the fact that he often did not feel physically well.

In fact, early in his married life he experienced a very serious illness. It began when he became extremely faint while at a medical

banquet and was taken to a hospital suffering from a severe hemorrhage caused by a peptic ulcer. After the acute stages of this illness had receded he was examined at the Johns Hopkins Hospital and a diagnosis of possible cancer of the stomach was made. It was decided to allow a six-month period to pass before a recheck and possible operation.

This period Murphy spent in Florida. He described it to his family as "the most miserable of my life," as well it might have been. The physical discomforts which continued and the nervous strain to a keen and sensitive mind which was well aware of the possibilities involved were components of a tremendous cross to be borne.

On his return to Hopkins an operation revealed no ulcer. Unfortunately and almost tragically, however, there was some technical error in closing the incision. An obstruction resulted. From this point on there followed six months of severe general peritonitis. When the crisis had been met and recovery began he weighed only ninety pounds.

On the advice of an old friend, Dr. Dunham, Murphy went in June, 1920, to Seal Harbor, Maine, for his convalescence and recuperation. Here in the bracing air and beautiful surroundings of Mount Desert Island he was close to an adequate hospital and to an excellent surgeon, his friend Dr. James Mitchell. This was a necessary safeguard in the event of a recurrence of obstruction and the required surgery. Fortunately no such unhappy occasion arose and Murphy made a rapid and complete recovery. In so doing he became captivated by the charm of the Island and developed for it a deep affection which brought him back to it almost every summer for the rest of his life.

Murphy's talents and activities were not confined to research. On at least three national bodies he made an extraordinary record as an executive and administrator.

The first of these was the American Society for the Control of Cancer, which became the American Cancer Society. He was a member of its Board of Directors and of its Executive Committee from its

reorganization in 1929 until 1945. During this period the Society was under medical and scientific leadership in which Murphy played an outstanding part. Those who worked with him rapidly became aware of his complete fairness, his uncompromising honesty, and his direct and fearless methods of attacking the many problems of organization and development which arose. These qualities were so naturally a part of his character that they were not befogged by unclear thinking or diverted by doubts.

As a member of the first Advisory Council of the National Cancer Institute when the Cancer Act of 1937 was passed, he again brought into play the same basic and clarifying qualities with great effectiveness. The breadth of his concepts concerning the origin and nature of cancer successfully avoided entanglements with or coloring by any partisan interpretation or requests for support.

A similar service was given by him to the Committee on Growth of the National Research Council, on which he served for several years from its organization. This body was from 1945 to about 1956 the adviser to the American Cancer Society in the field of research grants to cancer research projects. Murphy's wide knowledge of the whole field made him an invaluable source of advice and guidance.

At the same time he was a hard-working and constructive member of the Board of Trustees of Memorial Hospital in New York. He admired greatly and was very fond of Dr. James Ewing, the Director and motivating spirit of that institution. In many ways the two men thought alike and subconsciously agreed on standards and ideals. The association was a tower of strength to both of them.

During the period of Murphy's active scientific career there was a great change in the attitude of the public and of sources of financial support for research in relation to the whole problem of cancer. Owing to confusion with certain symptoms of venereal disease, until the 1930s disgrace and a certain amount of social opprobrium were connected with cancer. It was concealed by patients and their families

and by sympathetic doctors. It could not be mentioned on the radio. In addition there was grave doubt on the part of many—and perhaps most—doctors as to its curability. Radiologists, using radium or x-rays, often thought little of surgery as a therapy, although the opposite feeling was enthusiastically expressed by many surgeons.

In this period of transition from hopelessness to courage, from fear to cooperative rationality, and from isolated research to a planned and continuing attack against the disease, idealistic and yet practical leadership was needed. To an outstanding degree Murphy's intelligence, vision, and confidence made him one of the really great "statesmen" of that period—a figure that will not be forgotten.

His great conscientiousness was a dominant trait. It would not let him rest from early childhood until his death. Even when only ten year old he asked for and received the responsibility for a summer's care of a two-year-old cousin who he felt was being neglected because of competitive pressures within a large family. He fulfilled this task naturally and effectively. Throughout his life he also accepted cheerfully and graciously the major responsibility for care of his mother and a constant participation in the welfare of his sister and brothers.

In his daily contacts there was present a very appealing, almost boyish, manner of quiet gentleness that won him many devoted friends. He was not easily aroused to real anger but did not hesitate to adopt positive positions either in criticism or support. He abhorred sham, deceit, and injustice, and it was the last-named that really turned loose his wrath in the very few instances on record.

The design and pattern of his professional life was original, vivid, and durable. It won him well-deserved academic recognition in the form of honorary degrees from his alma mater, the University of North Carolina, and from Louvain. He was decorated with the Order of Leopold and with the Chinese Medal of Honored Merit. His work brought to his laboratory distinguished students such as Claude, Duran-Reynals, and Porter, to whom he gave complete freedom of opportunity, sympathetic support, and quiet inspiration.

His great and generous spiritual strength expressed itself in the rich rewards which his friendship and affection generated in the lives of many people on many levels of social, economic, or intellectual attainment.

Because he was a man who loved and sought fearlessly for Truth, she came to him gladly and shone in his life as a beacon.

KEY TO ABBREVIATIONS

- Acta, Union Internat. contre Cancer=Acta, Union Internationale contre le Cancer
- Am. J. Roent.=American Journal of Roentgenology
- Am. Nat.=American Naturalist
- Anat. Rec.=Anatomical Record
- Arch. Int. Med.=Archives of Internal Medicine
- Berl. klin. Woch.=Berliner klinische Wochenschrift
- Bull. Am. Soc. Control Cancer=Bulletin of the American Society for the Control of Cancer
- Bull. Assn. franc. Étude Cancer=Bulletin de l'association française pour l'étude du Cancer
- Cancer Res.=Cancer Research
- Compt. rend. Soc. Biol.=Compte rendu Société Biologie
- Internat. Cong. of Scientific and Social Campaigns against Cancer=International Congress of Scientific and Social Campaigns against Cancer
- Internat. Med. Cong. Trans.=International Medical Congress Transactions
- J. Am. Med. Assn.=Journal of the American Medical Association
- J. Exp. Med.=Journal of Experimental Medicine
- J. Gen. Physiol.=Journal of General Physiology
- J. Radiol.=Journal of Radiology
- Johns Hopkins Hosp. Bull.=Johns Hopkins Hospital Bulletin
- Nat. Acad. Sci. Biogr. Mem.=National Academy of Sciences Biographical Memoirs
- N. C. Med. J.=North Carolina Medical Journal
- N. Y. Med. J.=New York Medical Journal
- Occ. Pub. Am. Assn. Adv. Sci.=Occasional Publications of the American Association for the Advancement of Science
- Physiol. Rev.=Physiological Review
- Proc. Nat. Acad. Sci.=Proceedings of the National Academy of Sciences
- Proc. N. Y. Path. Soc.=Proceedings of the New York Pathological Society
- Proc. Path. Soc. Phila.=Proceedings of the Pathological Society of Philadelphia
- Proc. Soc. Exp. Biol. Med.=Proceedings of the Society for Experimental Biology and Medicine
- Proc. Staff Meet. Mayo Clinic=Proceedings, Staff Meetings, Mayo Clinic
- Pub. Health Repts.=Public Health Reports, U.S. Public Health Service
- Trans. Assn. Am. Physn.=Transactions of the Association of American Physicians
- Trans. Coll. Physn. Phila.=Transactions of the College of Physicians of Philadelphia
- Tufts Coll. Med. J.=Tufts College Medical Journal

Union Med. du Canada = Union Médicale du Canada

Weekly Bull. St. Louis Med. Soc. = Weekly Bulletin of the St. Louis Medical Society

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