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Washington University in Saint Louis School of Medicine and
Barnes Hospital, 1912-1992.**

William D. Owens MD

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Professor Emeritus of Anesthesiology

Washington University in St. Louis

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FORWARD

Investigating and writing about the history of anesthesiology at Washington University in Saint Louis School of Medicine has truly been a “labor of love” and interest for me. To obtain the early history, I had to review the files of the department of Surgery from 1911 to 1971 as anesthesiology was a part of that department for those 60 years. Of note, this document is not the history of nurse anesthesia at Barnes Hospital. The Department of Anesthesiology was formed in 1971 and for the first ten years the Department files were not retained or were not given to the archival section of the Becker Medical Library or turned over to the next Head of the Department. When Dr. C. Ronald Stephen resigned as Chair and Mallinckrodt Professor of Anesthesiology, he destroyed essentially all departmental files. The history from 1971 onward, thus, is from personal observations, papers he handed to me personally regarding his original appointment, personal recollections, from many discussions with Dr. Stephen through the years, and from a chapter he produced for the Wood Library Museum (Reference Number 58).

I am deeply indebted to the archivists and librarians at the Becker Medical Library at Washington University in Saint Louis School of Medicine for their diligence and patience in searching the Department of Surgery archival files for papers related to anesthesiology. I am also indebted to the Becker Medical Library and the Wood Library Museum in Park Ridge, Illinois for the permission to reproduce the pictures of individuals in this manuscript. I also must thank Gary Hirshberg, M.D. and Joe Henry Steinbach, Ph.D. for their critical reviews and comments of the manuscript.

I hope that this attempt to document the history of anesthesiology at Washington University School of Medicine will be followed by someone, perhaps my successor as Head of the Department, Dr. Alex Evers, providing the history from 1992 to some future date.

William D. Owens, M.D.

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Compiled by William D. Owens, M.D.,

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Early Years 1912 - 1919

As was customary in the United States in the early part of the 20th century, Washington University School of Medicine and Barnes Hospital exhibited a constant struggle between anesthesiology and surgery. In America few physicians administered anesthesia and yet surgeons were absolutely

dependent upon it for the success of their practice. Surgeons turned to nurse anesthetists with mixed results. Washington University was not an exception.

In 1912, Fred T. Murphy, MD., became the first head of surgery at Washington University School of Medicine. In a letter dated Sept. 6, 1911 to “Miss Gross”, he asked questions about how to deal with nurses.¹ Ms. Gross was in charge of the Operating Room at Johns Hopkins Hospital and Dr. Murphy was, at that time, at the Massachusetts General Hospital (MGH). In the letter he comments: “Miss (Gladys) Farrar goes out to St. Louis as the etherizing nurse.” He mentions that she has 1 year of experience at the MGH and he asks Ms. Gross for help by “little suggestions as to what to do and what not to do.” He also comments: “Miss Hinckly goes out to take charge of the operating room. She has the Massachusetts General methods pretty well in hand, but I want her to get a broader point of view...” He wants her to spend some time in Baltimore and in Cleveland. Dr. Murphy apparently also contacted Dr. George Crile in Cleveland and Dr. William Halstead in Baltimore about what to do with each of these individuals. Comments by Dr. Murphy indicate that an anesthesia nurse did more than administer anesthesia. He notes in one letter: “ [the] operating chart is used by the anesthetist for her record during the operation, and then at the same time she takes down dictation of the findings of the operator. These are kept in addition to the description of the operation by the students and house officers.”²



Figure 1 Fred Murphy, M.D.

Mallinckrodt Chemical Co. of St. Louis was the supplier of ether for the operating rooms at Barnes Hospital. Apparently, these OR's were also the place to try new formulations. Dr. Murphy comments about a sample supplied in 1915 and indicates that they had tried a total of three samples and that they did not evaporate well. Correspondence from the Mallinckrodt Co. to Dr. Murphy indicates that he was concerned about the cost of ether and that it would probably be cheaper if it were imported.³ There is no evidence that importing ever came to be.

Besides ether, there was apparently some use of local anesthetics. In correspondence, Dr. Murphy mentions the use of novocaine and stovaine (a French product) but not much use for a couple of others: "...hardly use quinine or urea hydrochloride as additives".^{4a}

Some things never changed through the years. The following are notes from the files of the Department of Surgery.⁵ "There was a tremendous nursing shortage in 1915 and there was difficulty getting patients into the hospital because of lack of nursing." Minutes of the Barnes Hospital Committee Meeting (Feb. 15, 1915) indicated that "...the eggs at breakfast were inedible even when fried."⁶ In a budget proposal for 1916 – 17 Dean Phillip A. Shaffer of the Medical School said that each teacher

^a A more complete writeup of anesthetics used in 1915 can be found in Fischel E. Discrimination in the Use of Methods to Produce Surgical Anesthesia. J Missouri Med Assoc. 12: 433-439, 1915.

should have half time for investigation with the Department support either being \$8,000 or \$12,000 per year.⁷ Special grants were to be available to help some departments.

Washington University had a tradition of full-time salaried faculty and part-time non-salaried faculty - the private practice physicians in the city. A full time faculty plan was adopted in 1916 – 17 and for the first time the term “clinical” (as Assistant Clinical Professor) was coined to refer to non full-time faculty.⁸ This policy led to many disagreements in relationship to anesthesiology in the years to come.

A review of the catalogs (Bulletins) of Washington University school of Medicine beginning in 1907 shows that anesthesia was first mentioned in 1918 where, in the instruction for 2rd and 4th year students the following is found: “They assist at operations and with the anesthetic...”⁹ It remained a requirement or an elective (preponderance) thereafter.

Evarts Graham Era

Dr. Murphy’s successor, Evarts A. Graham, M.D., came to St. Louis in 1919 as the Professor and Chairman of the Department of Surgery. Shortly after arriving, Dr. Graham wrote a report to the Barnes Hospital Board of Trustees. In that report, he concluded that the administration of anesthetics should be under the immediate supervision of a physician. This individual was also to be someone who was

capable of investigations in the field of anesthesia and one who could teach anesthesia. He also thought that this should be a full-time position.¹⁰

Perhaps because Graham had previously done some studies with chloroform at the University of Chicago, he thought it was unsafe and prohibited its use at Barnes Hospital except for short-term pain relief in the obstetric area of the hospital. Spinal and caudal anesthetics were also used only occasionally (some would say rarely) in OB areas of the hospital. In 1930 a visiting physician from France administered a spinal anesthetic as a demonstration. The patient had total paralysis and succumbed to the anesthetic. Graham then banned spinal anesthesia until the early 1940's when surgical assistant residents were allowed to administer "low" spinal anesthesia for limb amputations and anorectal procedures.¹¹



Figure 2, Evarts A. Graham, M.D.

The availability of good quality anesthesia administered by individuals employed by Barnes Hospital continued to be a problem in the 1920's and 1930's, to the point that private practicing surgeons hired their own anesthetists. As one might surmise, this action caused considerable strain between the private surgeons and the hospital for it deprived the hospital of income from their own anesthetist's work.

A full-time nurse anesthetist, Helen Lamb, arrived at Barnes Hospital in 1927. Training of nurses to administer anesthesia had become a necessity due to the volume and complexity of the surgery as well as the inadequate number of physicians who could administer anesthesia. Ms. Lamb opened a School of Nurse Anesthesia in 1929 and she then became a hospital department chairman.¹² She never received a title at the medical school.

Ms. Lamb was said to be very strict and she exercised complete control of the anesthetics administered at Barnes Hospital. For instance, she was the only nurse anesthetist who was allowed to perform endotracheal intubations until 1950.¹³ The training of nurse anesthesia students varied between 4 and 24 months, due to the fact that no one could consider their time as a student complete until Ms. Lamb stated that they were satisfactorily trained. Of course, this led to speculation that some were “not completely trained” because there was a shortage of personnel to handle the case load. Charges for anesthesia were made by the hospital of a per case (not time) basis. In 1950 that charge was \$30/case.¹⁴

In 1940, anesthesia experience for medical students was limited to a fourth year elective which consisted of eight weeks full-time, 6 days per week, including call. The summary of the elective, described in the Bulletin, states: “Since the surgical operative schedules begin early each morning the hour to report and test mechanical equipment will be 7 o’clock. This will enable the student to inspect

and test mechanical equipment prior to its use. The student will be assigned to certain night's on-call duty with the supervisor to take emergency cases. The course embraces a special training in the practical administration of anesthetics by approved modern techniques, this instruction taking place daily, except Sundays, during the weekly schedules in which the student participates in the operating room. The theoretical aspects are covered by specific periods of classroom instruction followed by examination at stated intervals. The administration of ether, nitrous oxide- oxygen, ethylene, cyclopropane, and basal anesthetics is taught and practiced."¹⁵

Despite his report to the Board of Trustees in 1920, Graham did not seriously look for a physician to be Chief of Anesthesia until 1944. Some nationally known anesthesiologists were then approached about the position. The first was Francis Foldes, M.D. who was then in Boston and had been recommended by Henry K. Beecher, M.D., the Henry Isaiah Dorr Professor of Anesthesia at Harvard University and the Massachusetts General Hospital. The surgeons at the MGH did not give Foldes high recommendations. In addition, although Foldes had been doing some investigations measuring potassium with a flame photometer, when Foldes met Alex Hartman, M.D. during a visit to St. Louis, he asked Graham whom it was he had just met. He did not know that he had just been introduced to one of the foremost investigators of potassium in the world.¹⁶ This was less than impressive to Graham and Foldes was not offered the position.

At the end of World War II, Graham, Frank Bradley, M.D. (Barnes Hospital Administrator), the members of the Executive Faculty of the Medical School, and the Board of Trustees of Barnes Hospital

all came to the conclusion that an anesthesiologist had to be recruited. This was not unlike the situation in many hospitals in the country at that time. The experiences of working with physicians trained in anesthesia during the war convinced many surgeons that anesthesiologists were a necessity if surgical expertise was to advance and mortality decrease.



Figure 3. Frank Bradley, M.D.

The physicians who returned from World War II as physician anesthetists had a common goal – to be compensated on a fee for service basis and not by a salary from a hospital or medical school. This was a point of contention within the American Society of Anesthesiologists. Some thought it should be a criterion for membership in the ASA. Obviously, this concept was in direct conflict with the full-time salaried faculty policy of Washington University and, later, of the ideas of Frank Bradley as President of Barnes Hospital. He had become the President of the American Hospital Association and this organization had adopted a position that physician anesthetists should be hospital employees.¹⁷ This position at AHA only solidified the position of Barnes Hospital and it was common thought that Barnes Hospital would enforce that position. As an important aside, it was also apparent that Barnes Hospital needed the profit margin provided by would-be physician employees.

Graham sought advice from others about hiring an anesthesiologist. Ralph Water, M.D. and Graham had been associates in the Park Clinic in Mason City, Iowa many years before so it was natural to seek

advice from Waters, now the head of Anesthesia at the University of Wisconsin. Waters suggested



Fig 4 Stevens J. Martin, M.D.

Stevens J. Martin, M.D. in 1946. Martin was still in the armed services and when contacted said that he would be interested, particularly because he wanted to establish an all physician department. Dr. Martin visited St. Louis thinking the job was his but apparently it had never been officially offered. He proposed a department of 2 anesthesiologists and 14 residents. This idea went over like a lead balloon and Graham cautioned him that all the surgery at Barnes Hospital could not be accommodated if all the nurses were to walk out. Graham asked him how he intended to cover the clinical service without nurse anesthetists and he replied that

that was Graham's problem. That was the end of the interview and the potential position.¹⁸ When Dr. Stuart Cullen of the University of Iowa again suggested Martin's name in 1951, Graham responded that he had no confidence in Martin and would not consider him for the position.¹⁹

On October 16, 1946, a centenary celebration for the discovery of ether was held in Boston. Dr. Graham was one of the invited speakers to this event. The title of his talk was "Ether and Humbug".¹⁸ During the talk, Graham first complimented Joseph Lister for his work in trying to conquer infections and then he complimented George Crile for his work on shock. He then moved to the subject of ether and said that it was the third most important advance in surgery over the preceding 100 years. He was quite complimentary about ether and anesthesia in general until the end of his talk when he dropped what many considered to be a "bombshell". His closing remarks described his heretofore unpleasant dealing

with American anesthesiologists and he described his difficulties in recruiting an anesthesiologist to Washington University and Barnes Hospital.

Graham acknowledged that physicians had a superior education in the science of anesthesia and that they were better qualified than nurse anesthetists. He also expressed the opinion that they would more likely advance the fundamental knowledge of the field. But then he described anesthesiologists as unrealistic. He criticized them for wanting to eliminate nurse anesthetists from the provision of anesthesia care. He called this “Humbug” and expressed the thought that the best solution to the problem of securing anesthesia care was to train nurse anesthetists and that the best place to train them would be a teaching hospital.

As one might surmise, this presentation stunned most, if not all, of the anesthesiologists in the audience. Graham had used the term, “art of anesthesia”, which was particularly insulting as the anesthesiologists thought it to be, first and foremost, a science and a practice of medicine. Partly because of the controversy, the talk was published in the Journal of the American Medical Association (JAMA)²⁰ and started a long-term discussion throughout the United States.

The paper brought national attention to the issue of physician vs. nurse anesthesia. The battle was fought at the local medical level, in the media, and at government levels (shades of things to come). Alfred Blalock, M.D. at Johns Hopkins University and Hospital even got into the battle as an officer in the

Southern Surgical Association. He publically disapproved of the actions to discredit nurse anesthetists.²¹ The American College of Surgeons also became involved in the debate and there was movement within the College, instigated by Graham, to admit anesthesiologists as members if they worked with nurse anesthetists.²² At the same time, the American Society of Anesthesiologists was debating the merits of a membership requirement that would make those who worked with nurse anesthetists ineligible for membership. Graham was the Chairman of the ACS Board of Regents at the time and he kept pressure on the Board of Regents to develop a Fellowship for anesthesiologists who worked with nurses. This effort was unsuccessful and ceased in 1956 shortly before Graham died in 1957.

The “Humbug” paper, the faculty salary policy of Washington University and the position of Barnes Hospital concerning anesthesiologists and hospital payroll certainly made it difficult, if not impossible, to recruit a Chief of Anesthesiology at Barnes Hospital and Washington University at that time.

Graham had also contacted E.Q. Rovenstine, M.D. in New York, who did not come forward with any suggestions for a chief.²³ Graham thought that Rovenstine was sympathetic to his position on nurse anesthetists (contrary to the evidence). Others who were contacted by Dr. Graham were Lawrence W. O’Neal, M.D. (a surgery assistant resident at Barnes Hospital)²⁴, Robert Glaser, M.D. (a chief resident of medicine at Barnes Hospital)²⁵, and Seymour Brown, M.D. (a private practice anesthesiologist at St. John’s Mercy Hospital in St. Louis)²⁶. All turned Graham down for various reasons. Glaser went on to become an internist, the Dean at Stanford University, a Trustee at Washington University, and a

member of many corporate boards. One can only imagine what anesthesiology would have been like if Dr. Glaser had taken the training and later the position of Chief of Anesthesiology.

Following the ether centenary trip to Boston, Graham and Beecher struck up a friendship that led Graham to offer Beecher the position of Professor of Anesthesiology at Washington University.²⁷ This obviously was declined. Beecher did, however, suggest that Graham contact Carl A. Moyer, M.D. a surgeon from Michigan who had previously spent 6 months in Beecher's laboratory. Moyer then was at Southwestern Medical School in Dallas where he became known for his work with fluid resuscitation. Graham did, indeed, contact Moyer.

Somewhat prematurely, Graham, in an April 1947 letter to Moyer, thanked him for the decision to join the Washington University staff and asked him about a title.²⁸ It is obvious from the contents of the letter that Graham wanted Moyer to assume the role of Chief of Anesthesiology and he wanted to use "Anesthesiology" in his faculty title. Why? Probably it has to do with an endowed chair since Graham writes of the possibility of an endowed chair for someone in anesthesiology. Graham originally offered the title of Professor of Anesthesiology, but later changed the offered title to Associate Professor since Moyer had no training in clinical anesthesia.

It appears that Moyer was being recruited primarily for the anesthesia position and, since he was a surgeon by training, would have a title in surgery as well. Graham even mentioned that it would be

good for Moyer to have an assistant to actually do the anesthesia part of the job description. Graham thought Moyer should have an office on the 4th floor of Barnes Hospital so that it would be near the OR's located on the third floor and it would "appear" that he would be involved in the day to day part of management of the operating rooms.

Apparently Moyer raised some interesting questions which were answered in a letter by Graham six



Figure 5. Carl Moyers, M.D.

weeks later.²⁹ Graham assured him that there would be opportunities for the nurse anesthetists to perform experiments in physiology and pharmacology and, in addition, there would be no problem getting nurses of "good intellectual caliber". Graham then cautions Moyer about the need for the hospital to be prudent in its anesthesia expenses stating: "Nurse Anesthetists of the technician class are, of course, less expensive to the hospital than an equal number of professional physician anesthetists. It has always seemed to me that much of the administration of anesthesia can be

done by technicians under the proper supervision of those who are superior in knowledge, training, and experience."²⁴ (*Was he thinking "surgeons"?*) He also assured Moyer that the hospital would support three residents in anesthesia. The salary for Moyer was to be \$10,000, which was insufficient in Moyer's judgment, as he wanted \$15,000 to \$17,000 per year.³⁰ Graham would not meet this salary or other requests by Moyer.

Dr. Moyer did not come to St. Louis and remained at Southwestern Medical School in Dallas as the Professor of Experimental Surgery. He continued to work with the Chief of Anesthesia at Southwestern, M. T. "Pepper" Jenkins, M.D. He missed the opportunity to be the first Mallinckrodt Professor of Anesthesiology at Washington University. Instead, the search for a chief of anesthesia continued.

Mr. and Mrs. Edward Mallinckrodt, Jr. endowed the Henry Elliott Mallinckrodt Chair in Anesthesiology in February, 1948 to honor their son who had died.³¹ The terms of the gift stated that only the income from the gift could be used for the support of the professorship in anesthesiology. The principal was to be maintained as a permanent capital endowment at the University. Notice, it was not an endowment within the Department (or Division) of Anesthesiology. If thought necessary by a committee of the Chancellor, the Dean, and the Head of Surgery, the income could be used for research in the School of Medicine and not necessarily in anesthesiology. In fact, that proved to be the case in later years. At the time of the funding in 1948 no one was named to the position of Mallinckrodt Professor of Anesthesiology. Instead, the University announced a national search for someone to fill the chair. The selected individual would teach the subject of surgical anesthesiology but also would supervise the administration of anesthetic drugs, the use of oxygen and other gases, as well as train resident physicians and "nurse technicians" in anesthesiology. University Chancellor Arthur H. Compton prophetically stated, "...probably some time will be required to select the man who will fill the chair".³¹ The original gift was \$100,000, which was later supplemented.

The press release that announced the endowment also stated that James O. Elam, M.D. had recently been hired and he had set up a research laboratory to study applied physiology as related to respiration.³¹ The press release also stated, “In recent years the need has been felt more and more for physicians to devote themselves to a career in the large and complicated subject of anesthesiology.”³¹ There is no evidence that Elam was ever considered for the Mallinckrodt Chair.



Figure 6. James Elam, M.D.

Elam was born in Austin, Texas in 1918 and received his undergraduate degree from the University of Texas prior to getting an M.D. degree from Johns Hopkins University in 1945. He did an internship at a U. S. Naval Hospital and then did physiology training at the University of Minnesota. He pursued studies of oximeters and carbon dioxide absorption systems. In 1947 he decided to enter surgery training and did a “special” internship (no clinical responsibilities) at Barnes Hospital. After this “special” intern year he became a surgical fellow to help organize a diagnostic laboratory for the chest service. It was in this laboratory, which included Albert Roos, M.D., a noted physician and respiratory physiologist, that Elam began to realize that the study of respiratory physiology was his main interest and he reasoned that a residency in anesthesiology was a way to further his research while getting hands on experience. He went to the Massachusetts General Hospital for this training but stayed only a short time because he and Henry K. Beecher did not get along well. Elam then (1949) went to the University of Iowa to study under Stuart Cullen, M.D.³²



Fig. 7, Thomas Burford, M.D.

The local scene in St. Louis was increasing in turmoil. Both academic and private practice surgeons were showing increased dissatisfaction with Helen Lamb as the director of anesthesia services. They especially expressed dissatisfaction with Graham at not being able to recruit a physician to be the chief of anesthesia. Thirteen surgeons, ostensibly led by a cardiothoracic surgeon, Thomas Burford, M.D., challenged Graham for his lack of efforts to secure an anesthesiologist. Graham met with the thirteen and heard their complaints. Burford later sent a three paragraph letter outlining the urgent necessity for changes in anesthesia administration. The letter condemned the situation that existed including the administration of the hospital department.³³ The group of thirteen made three proposals to Graham: 1) a male physician should replace Lamb as the administrator, 2) there should be an increase in the number of nurse supervisors over the students, and 3) the rotation of the supervisors and students through the various surgical specialties should be reviewed.

Birth of a Division

Burford, on his own initiative, contacted Nathan Womack, M.D., who had left Washington University earlier to become Chief of Surgery at the University of Iowa, for a suggestion. Womack recommended Douglas Eastwood, M.D.³⁴ Womack and Eastwood obviously knew each other well for they had collaborated on a study of paravertebral nerve blocks for pain control following cholecystectomy. Burford contacted Eastwood himself and later went to Iowa City to meet with him. Eastwood had been considering becoming an academic chief of anesthesia and had picked out four places as having the least developed anesthesia arrangements and, thus, the greatest possibilities for accomplishments. Washington University was one of the four places. Johns Hopkins, Ohio State, and Michigan were the other three. Eastwood was quoted as saying, "Washington University was the first opportunity and I thought it a pretty good one."³⁴



Fig. 8. Douglas Eastwood, M.D.

When Eastwood visited Washington University Graham told him of his desire to develop a residency program and a physician anesthesia staff with a continuation of the nurse anesthesia program **eventually** (emphasis added) under the direction of anesthesiologists. He did not indicate that there would be a separate Department of Anesthesiology. Other surgeons, with whom Eastwood met, also gave strong support for a physician anesthesia service, with the emphasis on service.³⁵

Eastwood was told that he was being recruited to improve the quality of anesthesia care by providing clinical anesthesia and by instructing nurse anesthetists. Graham assured Eastwood that he would have the authority to make any changes necessary with the understanding that clinical anesthesia coverage must continue to be provided. Eastwood indicated to Graham that he did not wish to be the Director of the Nurse Anesthesia School but would provide lectures to the nurse anesthesia students on subjects of his own choice. He also indicated that he would provide daily instruction and supervision of nurse anesthetists.³⁵

Eastwood arrived in October, 1950 as an Assistant Professor of Anesthesiology in the Department of Surgery and as Director of Anesthesia at Barnes Hospital. Goal number one of the thirteen dissidents had been met. Needless to say, Helen Lamb was not enthusiastic about this appointment, which she considered a threat to her autonomy. She and Eastwood did not get along, to say the least. Lamb retired in 1951 and Dean Hayden, CRNA replaced her as the director of the anesthesia school.

One of Eastwood's earliest introductions to what it was like to be a Chief of Anesthesia at Barnes Hospital was his first attendance at a meeting of the hospital's department chairs. He found that he was the lone physician in the midst of chairs of pharmacology, maintenance, nursing, purchasing, etc. He never attended another department chair meeting.³⁶ (*So much for the respect shown to a physician chief of anesthesia!*)

Eastwood was paid a salary by the hospital and Dr. Bradley, himself, determined what money was spent by the hospital's anesthesia department including supplies, equipment, and personnel. Eastwood was never given a budget but had to justify each and every request. He tried to hire Ken Sugioka, M.D., a trainee at the University of Iowa, the designer of the first treadmill, a former Washington University student, and later the Chair of Anesthesiology at the University of North Carolina. Bradley, who said that he needed the money to pay for laundry, lower the room charge, and pay for the "airline food service", refused Eastwood's request.³⁷

Eastwood had a three year plan that included starting a resident program, recruitment of faculty and residents, and integration of the nurse program into the physician program. Elam was to be an integral part of that plan and he returned from Iowa 8 months after Eastwood made a similar move. Actually, the first clinical recruit was Jack Elder, M.D. from the University of Pennsylvania. He had emphysema and multiple lung infections that hindered his ability to work. Eastwood did get approval for the residency program and the following year (1952) recruited his first two residents.

Graham and Eastwood apparently had a good working relationship as well as a pleasant personal association. They had many formal conferences and "sidewalk" discussions. Eastwood stated that he was a "great admirer and supporter of Dr. Evarts Graham and learned during frequent conversations with him the problems he had faced in providing anesthesia for that large institution".³⁵

Graham stepped down as the Professor and Head of Surgery in 1951. He died in March of 1957 having suffered from diabetes mellitus and, ironically, bronchogenic carcinoma. Graham apparently never comprehended why he was misunderstood for his position in favor of nurse anesthesia. At the time of his death, Barnes Hospital had 12 CRNA's, 33 student nurse anesthetists, 2 anesthesiologists, and 1 respiratory physiologist associated with anesthesia.

After a national search the medical school chose Carl Moyer, M.D. to be Dr. Graham's successor. This occurred despite Moyer turning down a position (described earlier) in anesthesia and later an offer of a pure surgical position. Moyer started at Washington University in 1951. His relationship with Eastwood was less than ideal. The relationship was strained from the beginning. Moyer's dislike for Elam's work was a destructive position for Eastwood and his goal to build an academic division.³⁵

As stated earlier, following residency Elam returned to Barnes Hospital in 1951 as an anesthesiologist. This was in keeping with his prior agreement with Graham. He had Army funding for studying human respiratory physiology. Because the new chair of surgery (Moyer) was hired shortly thereafter and the new chair only wanted animal research there was an immediate problem. Academic life for Elam was threatened. Therefore, Dr. Elam left for the University of Buffalo in 1953 with two residents with whom he was collaborating (Elwin Brown, M.D. and Ray TenPas, M.D.) and two trailer load of laboratory equipment. Included in this equipment was a Liston-Becker CO₂ analyzer – one of the

few in the world.³⁸ At Buffalo, Elam was extremely successful conducting research into carbon dioxide homeostasis and absorption. He was a prolific inventor and helped develop ventilators, airways, CO₂ absorbers, and methods of rescue breathing.

Elam was an investigator employed by the anesthesia department at Roswell Park Medical Institute but he also worked with industry and with the New York Department of Health. He moved to Kansas City, MO in 1964 to become the Chair of Anesthesia at the University of Missouri – Kansas City (UMKC) but he soon found that administrative duties took him away from his research. He resigned and went to the University of Chicago in 1966 specializing in obstetric anesthesia. He continued to do research and to modify devices until his death in 1995.³⁸

Moyer and Bradley could not be convinced to create a formal division or department for anesthesiology. All of the other chairs at Washington University were very supportive of a separate department. Bradley worried about the financial needs of the hospital and Moyer was his usual self – indecisive.

Eastwood sent a letter to Robert A Moore, M.D., Dean, dated August 30, 1952 and signed it as the Chief of the Division of Anesthesiology, Department of Surgery.³⁹ This letter's subject had to do with explosions in the operating rooms. Reference was made to having had three explosions in the past five years; the last one caused injury to two anesthetists – one requiring skin grafts. Other items covered in

the letter included: 1) the need for surgeons to do preoperative history and physical examinations, 2) the scheduling of emergency cases, and 3) the need to have an NPO time of 6 to 8 hours because of aspiration pneumonitis. (*It seems that some things never change.*)

Eastwood had indicated upon his arrival that he wanted to establish a department within three years. He had been unable to do so and he, thus, kept a promise to himself. He resigned his position as Chief, left Washington University, and moved back to Iowa City in October, 1953. Elder remained on the faculty and was, in fact, the acting chief of anesthesia for 18 months despite his ill health.

The aforementioned letter from Eastwood to the Dean and signed as a division chief is not in keeping with the records in the files for the Dean's office. Moyer did not establish a Division of Anesthesiology within the Department of Surgery until Feb. 2, 1955. Apparently the initiative for a separate division began in 1954 or early 1955 when the Barnes Hospital Board of Trustees unilaterally passed a "prospectus of a Division of Anesthesiology of Barnes Hospital and the Department of Surgery of Washington University School of Medicine."⁴⁰ There were complaints from the medical school that there had been no consultation with a member of the medical school faculty until a meeting of Jan. 14, 1955 in Dr. Frank Bradley's office. To add to the confusion in this part of the history, the Jan. 5, 1955 minutes of the Executive Faculty of the School of Medicine described discussions that had been held over the previous few months concerning the establishment of a division.⁴¹ The discussions involved Moyer, Bradley, and the Dean (Carl V. Moore, M.D.) with a written proposal modified slightly by Barry Wood, M.D., an internist on the full time faculty.

A Washington University proposal written by Dr. Wood followed the Barnes Hospital initiative and included an introduction describing the need for the establishment of the division.⁴¹ The reasons given were: 1) to improve the anesthesia service to patients, “now severely criticized by members of the surgical staff”, 2) to provide “real leadership” in the development and application of new techniques of anesthesia of importance in areas like cardiac surgery, 3) to conduct a more satisfactory training program for both physicians and nurse anesthetists so that more trainees will be attracted here, and 4) to organize and maintain vigorous research activities in anesthesiology.

The proposal’s forward indicated that this could be accomplished by establishing a division or by granting departmental status. The principles of this proposal³⁵ included the following:

- 1) The chief should be appointed in the same manner as are the chiefs of other clinical services and he would be responsible for all clinical services of anesthesia at Barnes, Childrens and Allied Hospitals.
- 2) Washington University would establish the salary. The chief would have the privilege of setting and collecting fees for professional services and would remit such fees to Washington University School of Medicine.
- 3) Associate and assistant anesthesiologists would have the choice of employment by Barnes Hospital or the School of Medicine and the employing agent would be the recipient of any collections.

- 4) The fees for services provided by residents, interns, and students would go to the hospitals.
- 5) The problems concerning office space, research facilities, and equipment were yet to be solved.

The Barnes Hospital Prospectus⁴², on the other hand, had a slight, but important, difference and addressed the following:

- 1) Division composition and management: There was to be a Chief who would be responsible for administration of the division with delegation of various functions to his assistants (anesthesiologists, Chief Nurse Anesthetist and her supervisors of students). He would be responsible to the Chief of the Department of Surgery and to the Administration of the Hospital. The medical school was to pay the salary of the Chief of Anesthesia unless their finances were not sufficient to pay the necessary salary to attract a high quality and competent man. In that case the Chief would be permitted to charge fees to private patients to the extent necessary to pay his salary.

- 2) Two assistant M.D.'s could be appointed and these were to be paid by Barnes Hospital at a salary not to exceed the salary of the Chief. They would charge fees for their services but any amount over and above their salary would accrue to Barnes Hospital.

- 3) Additional appointments could be made as the need develops but only with the approval of the chief of Anesthesiology, the Chair of the Department of Surgery, and the Superintendent of the Hospital. (Notice the Dean was left out of the decision making.)

4) The Chief of Anesthesia would be a Professor and the assistants would be given a lesser title.

5) There would be established a residency training program in anesthesiology and places for four in each of two years will be filled as soon as possible. Clinical clerkships will be established in anesthesiology for all students.

6) The operation of the School of Nurse Anesthetists will be maintained or supplemented as the need arises.

7) Additional items included educational programs for students and nurse anesthetists, oxygen therapy, and research and office space.

To advance the proposal for a separate Division of Anesthesiology, Mr. Mallinckrodt supplemented his previous gift of \$100,000 with the pledge of an annual gift of \$14,500 until such time that he could add enough to the endowment fund to provide an annual income for a full professor.

In Feb, 1955 the Executive Committee of the Medical school was presented with the final agreement for approval. The agreement⁴³ was different from that presented in January by two major points: the fees for services rendered by the Chief of Anesthesiology and the assistants would accrue to the hospitals instead of the medical school and Barnes Hospital was to provide the School of Medicine

\$25,000 annually to support the division. No mention was made of the endowment funds. No action was taken by the Executive Committee at that meeting.

In a letter sent to the Board of Trustees of Washington University⁴⁴, Dean Moore discussed the ongoing national dispute between anesthesiologists and hospital administrators. The anesthesiologists in the country as a whole had insisted that they collect their own fees, as did the surgeons or internists. He mentioned that Bradley was the President of the American Hospital Association and, as such, one of the people who had fought this battle for the administrators. Bradley, therefore, could not compromise on this issue. Moore describes the issue as one that “has caused a great deal of adrenaline to be spilled in the country as a whole.” He points out that the hospital needs the fees in order to avoid having a greater deficit. Moore also makes the point that the hospital is concerned that the Medical School would keep adding physician anesthetists and, therefore, decrease the income to the hospital derived from the work of the nurse anesthetists. The Dean stated that the intent was to have no more than three or four anesthesiologists, as he understood the hospital’s need for income.

Dr. Hugh Wilson, a radiologist, wrote a letter to the Dean after the Feb. 2, 1955 meeting of the Executive Faculty and expressed considerable concern in that the most recent anesthesiology proposal gave only lip service to the principle that the monies from medical services provided by physicians accrue to the University.⁴⁵ A quote from his letter expresses his indignation: “This contractual agreement is quite characteristic of usual hospital administrative policy and results in continued medical exploitation to help pay hospital deficits.” He continued with the following: “From long experience in

hospital radiological practice it becomes almost impossible to maintain a department's university responsibilities for teaching and research whenever the contractual policy plows all or most of the professional income back into hospital service or administrative costs." He thought this was introducing a dangerous precedent and that the university would lose control over the relationship between the clinical load and the size of the professional staff. He stated, "...both the hospital and the university should recognize that the medical specialties of anesthesiology, radiology, and pathology are fundamentally part of the practice of medicine, that neither the hospital nor an individual practitioner of any of these specialties has a right to exploit the other."

Dean Moore apparently ignored the comments by Wilson and circulated the proposed agreement for comments before presenting the proposal, once again, to the Executive Faculty. In the Executive Faculty presentation⁴⁴, he stated the following: "Since it is not possible to obtain the agreement of the hospital administrator on the above item (referring to the disagreement as to who get the professional income), since further negotiation would require that the matter be referred a second time to the Board of the University and the Trustees of the Hospital, and in the interest of demonstrating concretely a cooperative spirit in the affairs of the whole medical center, I recommend that we tentatively accept the proposal of the Barnes Trustees and attempt to secure a satisfactory candidate for the position as Henry E. Mallinckrodt Professor of Anesthesiology. If you accept my recommendation, I propose that you do it with the understanding that we object to the principle involved, and reserve the right to reopen the discussion should we find that the arrangement makes it impossible for us to secure a totally satisfactory man, or otherwise proves unsatisfactory. The Advisory Committee (of the Hospital) approves the proposal as here stated."

Following the meeting of the Executive Faculty, Dean Moore wrote a letter to Ethan H. Shepley, the Chancellor of the University⁴⁶. The letter, obviously, shows the concern of the Executive Faculty had with the Barnes Hospital proposal and is looking for a way to save face. He proposed the Chief be a University employee but that the fees go to the hospital rather than the medical school.

The upshot of the whole matter was that the Washington University Trustees accepted the Barnes Hospital proposal and in the letter to Barnes Hospital it only makes reference to the reservations by referring to the Executive Faculty minutes without providing a copy of those minutes⁴³. Obviously then, this was not a very strong reservation despite concerns of members of the Executive Faculty. The final contract called for the Chief of Anesthesiology to be paid by the Medical School and the assistants by the one of their choice with Barnes Hospital getting all fees and underwriting the medical school's salaries. In addition, there was to be a payment of \$25,000 to the Medical School for the Division.

Robert Dodd, M.D. was then recruited from the University of Maryland to become the first Mallinckrodt Professor of Anesthesiology. Dodd had received his M.D. degree from the University of Nebraska in 1945. Dodd came to St. Louis to be the head of the Division of Anesthesiology in the Department of Surgery at Washington University and Anesthesiologist in Chief at Barnes Hospital in 1956. Many of his friends advised against this position because of the administrative control by the hospital and the Department of Surgery. Deaths from anesthesia "were frequent" and "certain

operations cannot be attempted and a number of surgeons are refusing to operate at Barnes”. He was the only anesthesiology faculty on the roster for 1956 and he was also listed under the Nurse Anesthesia Program as the “Director”.⁴⁷

An additional clinical department was not acceptable to the Medical School Executive Faculty as it would upset the balance between basic science and clinical department chiefs and allowing anesthesiology to become a Medical School function was not acceptable to the hospital. Dodd was assured by “representatives of the School that opposition to a Department of Anesthesia is not unalterable.”⁴⁸ He left the University of Maryland, where he had been Head of a growing Department of Anesthesiology” which he had established during his three year tenure. He accepted the offer



Figure 9 Robert B. Dodd, M.D.

to be Chief of Anesthesiology at Barnes Hospital and a Professor of Anesthesiology at the Medical School with the belief that when the first priority of taking care of the clinical problems was solved and he was able to recruit some faculty, an anesthesiology department would be forthcoming.

In 1957 he was told by the Barnes Hospital administration that he would be limited to three anesthesiologists, as they could not afford more. During the ensuing eight years he was able to get them to finance one more faculty but there was a constant turnover primarily due to the difficulties between the School and the Hospital. Recruitment continued to be difficult, as faculty were not

interested in being in a Division of Surgery. “The chain of command connotes dominance of a nonsurgical specialty by surgeons.”⁴⁸ Because possible faculty saw no growth after ten years they thought the climate was unhealthy for the future and would not join Dodd in his endeavors.

In 1964, under the leadership of Dr. Dodd, the student clerkship was revised.⁴⁹ It now stated: “Students will make preoperative rounds on patients who have been assigned to them and assess the risk pertaining to anesthesia and surgery. All types of commonly used anesthetic agents and techniques will be used under supervision. A postoperative summary will be submitted on all patients whom the clerk attends. Clerks will also assist in the intensive care of comatose patients and patients with respiratory and circulatory problems. Attendance at all regularly scheduled anesthesia conferences and surgical grand rounds is mandatory unless specifically excused for clinical duties.” It is of interest to note that Glenn W. Weygandt, M.D. had joined the faculty in 1963 and he had specific interests in respiratory care and ventilator patients. He consulted frequently in the new Respiratory Intensive Care Unit.

The Association of University Anesthetists (AUA) met in St. Louis on March 12 – 13, 1966. Dodd was the host for the meeting. At this meeting Dodd introduced the Dean of Washington University School of Medicine (Denton King, M.D.) and then proceeded to publically berate the school administration for not establishing a Department of Anesthesiology. This public display of resentment was not lost on the Dean and was recalled by him again in 2002.⁵⁰ In 1967, an Ad Hoc Committee of the Executive Faculty⁴⁸ recommended that a Department of Anesthesiology be formed in the school but the Executive Faculty,

itself, took no action as such a step seemed inadvisable until a new chief of surgery was present. Dr. Moyer had been forced to step down in 1965.

Walter Ballinger, M.D. became the new Bixby Professor and Head of the Department of Surgery in 1967. The following year was a momentous one for anesthesiology. The National Halothane Study⁵¹ results reported in JAMA that Barnes Hospital had the seventh lowest postoperative mortality of the 34 teaching hospitals in the study. This was quite an improvement and was thought due to the supervision of anesthesia by physicians. The senior student elective in anesthesiology was oversubscribed because of the excellent reputation for teaching. The anesthesia laboratory was well recognized and the senior investigator, Dr. Roos, received a Career Investigator Award from the National Institute of Health. Another faculty member, Lewis Thomas, M.D., received a Career Development Award from NIH. An additional faculty member, Dr. Robert Miller, was awarded a Public Health Service Fellowship to study the mechanisms of anesthetic action at the subcellular level. Things were really looking up for anesthesiology at Washington University.

Despite these accomplishments (and personal statements to the contrary), the relatively new Head of Surgery “finds no enthusiasm”⁴⁸ among the Executive Faculty for a separate Department. Dr. Dodd took this as a personal affront and resigned as Head of the Division of Anesthesiology effective July 1, 1968. A surgeon, Harvey Butcher, Jr., M.D. became the acting head of the division. In September 1968, Dr. Ballinger asked Dr. Dodd to relinquish the Mallinckrodt Professorship, which he did promptly⁵². Dr.

Ballinger, with the assent of the School, used the income from the endowment to support other activities within the Department of Surgery rather than let the endowment principal increase.

In 1969 one additional faculty member was added but then things began to fall apart. Dr. Dodd resigned his faculty position in 1969 and went to Springfield, IL where he became the first Chair of a Department of Anesthesiology at Southern Illinois University School of Medicine. There was no longer an anesthesia elective for students. The residency program was in disarray. Research endeavors transferred to other departments or were seriously curtailed.

It is interesting that Dr. Ballinger complained to the Dean that the Division of Anesthesiology had deteriorated and it had become a financial drain on the Department of Surgery. He asked the Medical School administration to take on the administrative and financial responsibilities of the Division and the Dean answered in the affirmative.⁵³ However, Ballinger and the Department of Surgery did not give up the Mallinckrodt Professorship Endowment income.

Following the resignation of Dodd, there were some very turbulent times. This turbulence was not limited to the Medical School as it was present throughout metropolitan St. Louis. Hubert Ritter, M.D., an obstetrician/gynecologist, wrote in the December 24, 1969 issue of the St. Louis Medical Society Bulletin that a crisis in anesthesia existed in the area⁵⁴. In an editorial in the March 25, 1970 the St. Louis Medical Society Bulletin.⁵⁵ It was stated that there were 24 board certified anesthesiologists and

35 hospitals in St. Louis. There was one resident in training (which happened to be at Barnes Hospital) in a program whose approval was about to expire. It will “probably not be renewed by the American Medical Association because of present institutional political disagreement.” It was also stated “no other discipline in medicine in St. Louis is without ready access to stimulation from residents in training, research, and clinical conferences.”

Members of the St. Louis Society of Anesthesiologists had written two letters to Washington University to impress upon the Medical School the absolute need for more physicians in anesthesia in St. Louis and to request that the school move to completely serve the community in which it resides. In a letter sent in September, 1969⁵⁶, Ira Dash, M.D., the Secretary of the St. Louis Society of Anesthesiologists, expressed concern about the “present status of anesthesiology services at Washington University and the Barnes Hospital Group.” He also expressed concern not only with the “present state of affairs but with the long history of inept attempts by the University to establish its anesthesia service.” This letter referred to the previous letter from the Society in November, 1968 which pointed out that the linking of anesthesia to the department of surgery was detrimental to achieving the full potential of the anesthesia service at Barnes Hospital.

The 1969 letter⁵⁶ listed five major statements:

- 1) There had been a loss of leadership and impetus in the medical and anesthesia community,

- 2) There had been a loss to medical student teaching of the many facets necessary for their education,
- 3) There had been a loss of an important residency program badly needed to supply more trained anesthesiologists and there had been a loss of stimulation to attract medical students into the specialty,
- 4) The number of anesthesiologists then serving the clinical services at the university hospital is drastically inadequate. “A university center which represents itself to the public as being in the vanguard of medical progress is deceiving that public by permitting such a situation to occur and would be negligent if it did not make every attempt to avoid a repetition.”, and
- 5) The above points add up to a “marked disservice to the community which house the university and to which community the university officers have repeatedly acknowledged the university’s responsibility.”

A Department is Born

Despite the Society’s call for a separation of anesthesia from surgery, in 1971 a proposal for a Division of Anesthesia was being negotiated between Barnes Hospital and Washington University with some degree of urgency as they were trying, once again, to recruit another Chief of Anesthesiology. A draft document⁵⁷ in February, 1971 addressed monetary issues but did not address the separation of

anesthesia and surgery. However, the latter was accomplished when they attempted to recruit C. Ronald Stephen, M.D., an internationally recognized academic anesthesiologist. To his credit, Dr. Stephen refused to take the position unless a Department of Anesthesiology was created within the University. He had previously been “burned” on this issue at Duke University. He moved from Montreal, Canada to Duke with the promise that there would be a separate department and left that institution when the departmental status was not forthcoming. William Danforth, M.D., Vice Chancellor for Medical Affairs of Washington University was instrumental in successfully negotiating an agreement with the hospital and thus Dr. Stephen.⁵⁵ Dr. Stephen moved to St. Louis to become the first head of the Department of Anesthesiology at Washington University and he arrived in February, taking over the reins on March 1, 1971. He was also appointed the Henry E. Mallinckrodt Professor of Anesthesiology.



Figure 10 C. Ronald Stephen, M.D.

Dr. Stephen graduated from McGill University Medical School in Montreal, Quebec, Canada with an M.D.C.M. degree. After an internship, he enlisted in the Canadian Army in 1942 and was selected for further specialty training in anesthesia. He was assigned to three months training in anesthesia in Montreal – his mentors being Dr’s. Wesley Bourne, Harold Griffith, and Digby Leigh (three of the most notable anesthesiologists of that era). In 1944 Stephen was assigned to H21 Canadian General Hospital and for two years thereafter he practiced anesthesia in England, beginning a few days after D-Day. While in England, he received a three month leave to spend time studying under Sir Robert Macintosh at

the Oxford Infirmary. In 1946 he was discharged from the Army and in 1946 and 1947 he served as an anesthetist at the Montreal Neurological Institute. From 1947 to 1950 he practiced anesthesia at the Children's Hospital in Montreal, where he and Harry Slater introduced a non-rebreathing valve (Stephen-Slater Valve) for use in pediatric anesthesia.⁵⁸

In 1950, upon the recommendation of Dr. Bourne, Stephen was appointed as the Chief of the Division of Anesthesia at Duke University in Durham, North Carolina. Along with the appointment was a promise of departmental status in the near future. In 1961, he received an FFARCS from the Royal College of Surgeons in England. The American Board of Anesthesiology also certified him as a specialist in Anesthesiology and he was a Fellow of the American College of Anesthesiologists. He was the founding Editor of "Survey of Anesthesiology" and served in that capacity from 1957 to 1982. Because of the lack of departmental status, as mentioned earlier, Dr. Stephen left Duke University and became the Chief of Anesthesiology at Children's Medical Center which was in the Department of Anesthesiology at Southwestern Medical School in Dallas. A longtime friend, Dr. M. T. "Pepper" Jenkins, was the Chair of the Department. Dr. Stephen was the consummate observer of anesthetic agents, administrations, and equipment. He was the first anesthesiologist to administer halothane to humans in the United States and he was one of the individuals credited with the introduction of ketamine as an anesthetic agent. Halothane was the first safe non-flammable substitute for ether and cyclopropane. He also helped introduce the enflurane anesthetic agent. At the time he moved to St. Louis he had already published 3 books and over 140 scientific, peer reviewed articles. He had also helped develop the first calibrated vaporizer for halothane, the Fabian, Newton, Stephen (FNS) vaporizer, designed and

introduced an inhaler for trichloroethylene (later for methoxyflurane) in obstetric use, and developed the aforementioned non-rebreathing valve for pediatric anesthesia.⁵⁸

Barnes Hospital and Jewish Hospital were separate institutions at the time of Stephen assuming Head of Anesthesiology at Washington University. He was told that it might be possible to merge the two anesthesia groups at a future date, which never happened until the hospitals merged in 1992. Stephen was promised complete control of the Nurse Anesthesia Program to be effective at the time he thought the Department was sufficiently reorganized and staffed to accomplish the educational goals of the medical school and the goals of the nurse anesthesia program.⁵⁹ Although this promise to Stephen was in writing it was never kept. Louise Grove, CRNA and Dean Hayden, CRNA were listed in the catalog of the medical school as faculty instructors. However, the Barnes Hospital School of Nurse Anesthesia was separate from the Department of Anesthesiology at the medical school and the nurse anesthetists remained a department within the hospital hierarchy. It never became a part of the Medical School during Stephen's tenure as Head of Anesthesiology, thanks to the refusal of the Barnes Hospital administration.⁵⁹ This decision was made primarily on economic grounds as the hospital used this program as an income generator. Dean Hayden, CRNA was the Chief Nurse Anesthetist and Louis Grove was the Education Director. Helen Ogle, CRNA, succeeded Dean Hayden at the time of Hayden's retirement.

When Stephen arrived, there were only 6 other faculty members. One was Albert Roos, M.D., (a physician not trained in anesthesiology) who was primarily in the laboratory in the Department of

Physiology and another was Lewis Thomas, M.D., who was almost exclusively in the Laboratory of Computer Science, where he helped develop the first computer-based patient monitoring system for an Intensive Care Unit. There were only three physicians (in addition to Stephen) available for the operating rooms, two for cardiac anesthesia and one for ENT anesthesia.⁵⁷ Stephen immediately started recruiting additional faculty from throughout the United States.

Reorganization of the medical student program was a high priority. Stephen started offering a medical student preceptorship program (sponsored by the American Society of Anesthesiologists) between the 2nd and 3rd years of medical school and a 6 week fourth year elective. The Department was soon dedicated to teaching the clinical applications of anatomic relationships, principles of respiratory physiology, application of pharmacologic knowledge, clinical problems related to acid-base and fluid and electrolytes, and the principles underlying “acute medicine”.⁶⁰ It is interesting to note that these are the strong attributes of those individuals that Dr. Stephen recruited over the next several years. One of his earliest recruits was Leonard W. Fabian, M.D., who had been with Stephen at Duke and later was the Chair of Anesthesiology at the University of Mississippi. Stephen and Fabian had previously collaborated on the clinical introduction of halothane and to the development of the first calibrated vaporizer for halothane administration while both were at Duke University.

A new residency program was accredited and begun in 1971. The first resident to start and complete training under Dr. Stephen was Necita Roa, M.D.⁶¹. One resident completed training before her but he was a transfer from another program and only had one year of training under Stephen’s

tutelage. The daily assignment of cases to residents was performed by Stephen (or his designee). Dean Hayden, CRNA, the Director of Nurse Anesthesia, then assigned the remaining cases to student nurse anesthetists. Surgeons always had the opportunity to request physician anesthesia and/or consultation from one of the anesthesiologists.

Dr. Fabian had been recruited from the University of Mississippi to further basic science research efforts that were already underway with Dr.'s Roos and Weygandt. Unfortunately, Fabian's research never really got started for multiple reasons. Larry Cobb, M.D. came from Dallas Children's Hospital with Dr. Stephen and completed his last 6 months of a year long pediatric anesthesia fellowship in St. Louis. Cobb had been a resident at Parkland/Southwestern Medical School. He then entered the military service and after completing a two year obligation came back to Washington University to head up a pediatric anesthesia service. Prior to 1983, all St. Louis Children's' Hospital patients requiring surgery were operated on in the Barnes Hospital operating rooms. James Jones, D.D.S, M.D. was recruited to Washington University to establish an obstetric anesthesia service. Robert Miller, M.D. was already on the faculty and when he completed some additional training in a research laboratory joined in the clinical service primarily for ENT surgical procedures. Robert Vaughn, M.D. also came from Parkland Hospital/Southwestern Medical School with Dr. Stephen. Other early recruits in 1971 and 1972 were Elsie Meyers, M.D., Ergiment Kopmann, M.D. and James A. Felts, M.D. William D. Owens, M.D. was recruited from the Massachusetts General Hospital in 1973.

The first appointment from the Department of Anesthesiology to any committee in the medical school occurred when Dr. Fabian was named to the Human Studies Committee in 1976. One of the earliest recognitions for an anesthesiologist at Barnes Hospital came was the selection of Dr. Owens as the first Medical Director of Respiratory Therapy in 1975 (hotly contested by Pulmonary Medicine) and later (1978) he was elected to the position of Vice-President of the Barnes Medical Staff and the Faculty Senate Council of Washington University in 1979.

Dr. Stephen remained as the Head of Anesthesiology and the Mallinckrodt Professor of Anesthesiology until March, 1980. During his tenure there had been attempts to establish programs in clinical and basic science investigations with limited success but clinical programs and resident teachings were the mainstays. The basic science investigative efforts were essentially limited to the respiratory physiology work, based in the Department of Physiology, carried out by Dr.s' Roos and Weygandt. The Medical School did not provide an opportunity for anesthesiology to be included in the required medical student curriculum and the Department was limited to electives in the senior year. Stephen was never asked to serve on any committee of the Executive Faculty (which consisted of all the Chairs) and this omission was a severe disappointment to him, personally. It greatly influenced his own negative view of his acceptance by the Executive Faculty.

Dr. Stephen was a superb lecturer. In fact, his lectures were almost an emotional event as he was a powerful speaker with considerable emotion and animation. He came across like an evangelistic preacher when he gave a lecture on clinical care. Showcasing the fast developing department was

essential so Dr. Stephen and Washington University hosted the Midwest Anesthesia Resident Conference in 1975. His devotion to teaching was a major factor in his decision to develop a postgraduate program in geriatric anesthesia. This very successful three day symposium was produced every November for 20 years and put the department on a “national map” for postgraduate education.

Walter Ballinger, M.D., Head of Surgery had previously tried to keep anesthesiology out of the SICU and stated that he would recruit a surgeon to medically direct the SICU. However, the individual recruited was James Holcroft, M.D. and he would only come to St. Louis if there were an anesthesiologist as co-medical director. The medical student elective in Critical Care Medicine was placed under the direction of the Department of Anesthesiology because the Surgery Department tried, repeatedly, to reassign critical care elective students to the OR to help hold retractors. This was unacceptable to the co-medical directors of the SICU and the course master (Owens). This elective became the second most popular senior medical student elective, second only to cardiology. Internal Medicine residents could also spend a month in the SICU as an elective. Surgery residents were permitted to spend time in the SICU only by special permission from the Department of Surgery, which was granted to very few individuals. To the credit of Owens and other Anesthesiology faculty who had established an excellent critical care teaching program, some surgery residents subsequently left surgery to train in anesthesiology and critical care, eventually to take on leadership positions in anesthesiology: Gary Hirshberg, M.D. (eventually to become the Chief of Anesthesiology at St. Louis Children’s Hospital) and William Johnston, M.D. (now at Texas A & M but formerly Department Chair at University of Texas Southwestern).

Stephen retired one year prior to mandatory retirement as a department head (65 years of age) ostensibly because of the lack of support from the university and the hospital but, primarily, because he could never get complete control of the anesthesia services at Barnes Hospital but still was held responsible for the clinical service. At the time of his retirement he had built a Department with 23 faculty providing clinical services for adult and pediatric operating rooms, respiratory care, and critical care medicine. He is remembered primarily for his constant striving towards excellence in clinical care, his intolerance for less than 100% effort in the clinical arena, and as the aforementioned enthusiastic lecturer. Stephen, upon leaving Washington University and Barnes Hospital, became the Chief of Anesthesiology at St. Luke's Hospital, a private hospital in suburban St. Louis. He remained in that position for 5 years before retiring to the life of being a writer and editor of history publications. For his devotion to the specialty and for his many contributions to the advancement of anesthesiology, Dr. Stephen was awarded the American Society of Anesthesiologist's Distinguished Service award in 1981. Stephen died on October 6, 2006 at the age of 90.

Dr. Fabian became the Acting Head of the Department of Anesthesiology in March, 1980 when Dr. Stephen stepped down. The department remained stable under his direction but he had to resign his administrative position in 1982 for health reasons. A national search was already in progress at the time for a replacement for Dr. Stephen but the committee was not yet in a position to make a recommendation to the Dean. William Fair, M.D. was the Chair of the Search Committee and was the Acting Chief of Surgery at that time as Ballinger had resigned in 1980 under duress. Fair was very

supportive of securing a strong anesthesia department chair and interacted with members of the department frequently during the search process.

Academia Takes High Priority

When Dr. Fabian was no longer able to continue as the Acting Head of Anesthesiology due to his health, Dr. Owens was appointed to that position in 1982. At the time he was not a candidate for the permanent position and only did become a candidate upon the urging of Dr. Fair. The University offered the permanent position to Owens in 1983. As part of the offer the University and Barnes Hospital agreed that the School of Nurse Anesthesia of Barnes Hospital would be integrated into the Department of Anesthesiology of the Medical School. The responsibility for all nurse anesthesia activities was transferred to the Department of Anesthesiology in October, 1983. Helen Ogle, CRNA, was replaced by Beverly Krause, CRNA, as Chief Nurse Anesthetist and Laverne Will, CRNA, became the Education Director of the Program in Nurse Anesthesia at Washington University. The anesthesia group of Jewish Hospital was to be integrated into the Washington University department “when the time was right” and an agreement of such was obtained from the President of Jewish Hospital. Administrators changed and the time never became right until the hospitals merged in 1993. After reaching agreement on other issues, Owens accepted the position as Head of the Department of Anesthesiology and Mallinckrodt Professor of Anesthesiology in 1984. He immediately embarked on some new directions in the department.

Owens had graduated from the University of Michigan (1965) and had received anesthesia training in the U. S. Navy prior to taking his residency and fellowship in anesthesiology at the Massachusetts General Hospital (1969 – 72). His fellowship involved anesthesia outcome studies and critical care medicine (not an ACGME recognized fellowship in 1971). Following one year on the faculty at Harvard, he joined the Washington University faculty in 1973 and rose through the ranks from Assistant Professor to Professor prior to being offered the position as the Mallinckrodt Professor and Head of the Department.



Figure 11 William D. Owens, M.D.

With the support of David Kipnis, M.D., Head of Internal Medicine, Anesthesiology was granted 10,000 square feet of space in the new Clinical Research Building. Gerald Fischbach, M.D., Head of Anatomy and Neurobiology, and Philip Needleman, Ph.D., Head of Pharmacology, were instrumental in helping develop a basic science research arm in the department by helping with recruitment and advice. Joseph Henry Steinbach, Ph.D. was recruited from the Salk Institute to establish and lead an Anesthesia Research Unit. Fischbach provided Steinbach temporary laboratory space while the anesthesia research space was being designed, built, and finished. Shortly thereafter, Christopher Lingle, Ph.D. was recruited to strengthen the basic science research efforts. Kipnis and Needleman helped Owens recruit Alex Evers, M.D. from the Massachusetts General Hospital. Evers was immediately placed with Needleman for a three-year post-doctoral fellowship. This was the beginning of a program to develop basic science

investigators by providing young anesthesiologists post-doctoral experience with established investigators in other departments. Walter Boyle, M.D. and Richard Hotchkiss, M.D., among others, followed Evers in this program in subsequent years. Laboratory space was only allocated to those who also qualified for a joint appointment in a basic science department. At the time this was considered a novel approach but time has proven this to be a very valuable program for the department and for the investigators.

A Director of Clinical Research was appointed in 1988. The man recruited from Stanford University for this position was Paul W. White, M.D., Ph.D. He remained in that position until 1992 when he was recruited to the University of Texas Southwestern Medical School as the Chair of Anesthesiology. This became a very productive arm of the Department and was financed primarily by corporate and foundation grants. Several young anesthesiologists developed into clinical investigators with national reputations under White's leadership.

Significant clinical anesthesia improvements were also forthcoming. The Children's Hospital opened a new hospital and operating rooms on April 1, 1984, which necessitated an increased number of subspecialty trained anesthesiologists in the department. At about the same time, Dr. Cobb resigned his position on the faculty and as Chief of Pediatric Anesthesia primarily because of the lack of support from the administration of St. Louis Children's Hospital as it pertained to office space in the new building, presence on hospital committees, and the administrative role of anesthesiologists in the operating rooms and ICU. There was considerable difficulty in securing a new chief of pediatric

anesthesia after the resignation of Dr. Cobb. John E. Forestner, M.D. occupied the position for a short time but the basic difficulty of management of the pediatric anesthesia group persisted throughout the time that Owens was Head of the Department.

The Department was growing in local stature with recognition of faculty members as investigators, teachers, and contributors to the medical school goals and the local medical community. Many became officers in the St. Louis and Missouri Societies of Anesthesiologists and took leadership roles within the American Society of Anesthesiologists. Owens was elected Chair of the Medical Advisory Committee of Barnes Hospital from 1988-89. This election also placed him on the Board of Directors of Barnes Hospital.

The Department began to attain national stature, which was an aid in recruiting clinical and research faculty and residents. Many faculty members served as visiting professors at other institutions and were lecturers at a multitude of postgraduate courses. Owens was elected to the Board of Directors of the American Board of Anesthesiology (ABA) (1984 – 96) and subsequently was appointed to represent the ABA at the American Board of Medical Specialties (1984 – present) and the Residency Review Committee for Anesthesiology (1986 – 1991). Owens also served in several capacities within the Missouri Society of Anesthesiologists and the American Society of Anesthesiologists including being President of ASA in 1998. He was the recipient of numerous awards including the Distinguished Service Award from the Missouri Society of Anesthesiologists (1999) and the American Society of Anesthesiologists (2004) and the Citation of Merit from the Academy of Anesthesiology (2003). He was

also the Treasurer and later the President of the Foundation of Anesthesia Education and Research (FAER) and the President of The Anesthesia Foundation.

Basic research activities based in the new Anesthesiology Department laboratories increased. Scientific papers were published in such journals as Nature, Science, Anesthesiology and Anesthesia and Analgesia. Increased funding from the National Institute of Health helped propel the Anesthesia Research Unit into national prominence. All primary investigators had one or more individual research grants from NIH and a Program Project Grant application, submitted during Owens' tenure, was later funded. The Steinbach laboratory was the site of investigations that led Catherine Ifune to become the first individual to get a Ph.D. within the Department of Anesthesiology (1990). She later secured an M.D. degree, took anesthesia training and joined the faculty. The Anesthesia Research Unit was then productively occupying 10,000 square feet of research space. In recognition of the Department' greatly increased research activities, Owens was invited as a founding member of the Morton Society – a new society limited to chairs of anesthesia departments ranked in the top 20 with federal research dollars.

Demitrios Lappas, M.D., an internationally recognized cardiac anesthesiologist was recruited from the Massachusetts General Hospital in 1988 to be the director of a Division of Cardiothoracic Anesthesia. Lappas was able to recruit many young anesthesiologists into the subspecialty of cardiothoracic anesthesia and this division became a strong and vibrant part of the department. It was noted for its teaching and clinical research. This subspecialty had one of the more popular medical student anesthesia electives outside of critical care medicine and cardiology.

Another early recruit was Carl Nielsen, M.D. , who, after completing a fellowship in regional anesthesia at Virginia Mason Clinic in Seattle, brought enthusiasm for regional anesthesia to the department and, especially, the residents. Patrick Gibson, M.D. and Robert Parker, D.O., took on responsibility for providing obstetric anesthesia and a fellowship program. Rene Templehoff, M.D., trained in Lyon, France, and Miami, Florida, was recruited to establish and direct a fellowship program in neuroanesthesia.

Robert Herold, M.D., and subsequently, Bernard DeLeo, MD., was the Clinical Director of the operating rooms at Barnes Hospital, which had grown to providing anesthesia care in 50+ operating rooms, 5 delivery rooms, and 2 – 3 off site locations daily. St. Louis Children’s Hospital had an additional 10 operating rooms. The Department also took on the responsibility of providing anesthesia services at Barnes West County Hospital – a new facility for the institution and department. Robert Feinstein, Ph.D., M.D., a Washington University trained anesthesiologist, was the first director of that division. The residency had grown to 58 residents and fellows; the faculty had also increased to 58 in number. The nurse anesthesia program was gradually reduced in size from 24 to 10 students per year before it was transferred to Southern Illinois University.

Because there would be considerable cost to converting the nurse anesthesia program to a master’s degree program (mandated by the American Association of Nurse Anesthetists), it was deemed prudent

to transfer the program to another university with an existing School of Nursing and master's degree program. After having discussions with the Schools of Nursing at University of Missouri - St. Louis, St. Louis University, and Southern Illinois University at Edwardsville, it was decided to transfer the school to SIU Edwardsville. This was accomplished in 1992. Barnes Hospital remained the primary clinical affiliate for the program.

In 1980 Gary Hirschberg, M.D. was recruited by Dr's Fabian, Cobb, and Owens to serve as the co-director of pediatric critical care and to develop a critical care program at St. Louis Children's Hospital. Hirschberg was a former Washington University surgery and anesthesiology resident who had completed a fellowship in pediatric anesthesiology critical care at Children's Hospital of Philadelphia. This co-leadership arrangement remained in effect for about 10 years when an agreement was reached between the Departments of Pediatrics and Anesthesiology that there would be a Division of Critical Care Medicine within the Department of Pediatrics. Pediatric anesthesiologists/intensivists including Hirschberg, Meb Watcher, M.D., Michael Connor, M.D., and Barry Markowitz, M.D. continued as attending and leaders in the pediatric intensive care units.

Anesthesiologists throughout the 1980's primarily directed the Surgical Intensive Care Unit of Barnes Hospital. Officially an anesthesiologist was a co-medical director of the unit but most of the decade there was no surgical counterpart. Therefore, the administrative aspects of the unit became the responsibility of the Anesthesia Department. Owens and later Evers (1987) were responsible for the administration and patient care in that unit. The Pediatric Intensive Care Unit was also under the co-

direction of anesthesiologists. Through the years, several specially trained anesthesiologists who were also pediatricians served in that role. This activity greatly improved the image of anesthesiology in St. Louis Children's Hospital. The Cardiothoracic Intensive Care Unit remained under the control of the surgeons but anesthesia played a major role in providing consultations and medical care in that unit.

The first Pain Medicine program in St. Louis was started in 1990 after Robert Swarm, M.D. returned from a one-year Washington University sponsored training program under Dr. Michael Cousins in Australia. Dr. Cousins had established an internationally noted training program which was a highly sought position. The Washington University Pain Medicine Program was soon responsible for all acute and chronic pain medicine consults at Barnes Hospital. The first fellow in Pain Medicine began in 1992. The program was designed as a multispecialty program to better serve patients and to provide greater breadth to the training. A parallel program in acute and chronic pain medicine was developed at St. Louis Children's Hospital.

Samuel A. Wells, M.D. had been appointed the head of Surgery in 1981 having been recruited from Duke University. Although early in his tenure he was publically supportive of anesthesiology, he and Owens had several major disagreements. Wells appeared to think of Anesthesiology as a service to surgeon's needs with less concern for patient needs. He never brought anesthesiology into his planning for such things as a liver transplantation program or a major build up of a trauma program – two services very demanding of anesthesia commitment. Owens first knowledge of establishment of these divisions in surgery came from public relations announcements in the media. Apparently Wells

expected the Department of Anesthesiology to respond to the needs of the Department of Surgery but was not to be part of the planning of expansion into new surgical services. In addition, Dr. Owens proposed a Barnes Hospital-wide critical care program that would encompass the Departments of Anesthesiology, Surgery, and Internal Medicine. This idea was acceptable to Dr. Kipnis (Head of Internal Medicine). Dr. Wells stated emphatically that this was unacceptable as he did not want internists/critical care physicians in the Surgical Intensive Care Unit.

A separate outpatient OR suite was developed in the mid 1980's which catered to the special needs of outpatients. Initially this was under the direction of James. A. Felts, M.D. and followed by Mark Poler, M.D. and Paul White, M.D. Case volume growth was rapid. However, Wells believed that the scheduling of cases should be based on the convenience of surgeons –cases to be scheduled around their inpatient OR schedules. The resulting chaos in scheduling led to the eventual closing of the unit. This widened the chasm developing between the Department of Surgery and the Department of Anesthesiology.

From 1989 to 1992, the Barnes Hospital surgeons, led by Wells, were upset with the Anesthesiology Department primarily because they could not operate at times they deemed desirable. There were severe inefficiencies in the operating room scheduling and management with no one being designated or given authority by the hospital as a medical director. One third of the rooms would close by 11AM due to lack of scheduled cases and then the surgeons would want to open all of them again at 3PM. The Anesthesiology Department could not staff such inefficiencies without financial help from Barnes

Hospital and/ or the School of Medicine. No such help was forthcoming. In fact, the administration of Barnes Hospital responded by saying they would not help anyone or department that took away their nurse anesthesia program. This was certainly a continuation of the bitterness the hospital held for physician anesthesia. Additional problems were developing at St. Louis Children's Hospital with an increasing workload and diminishing compensation there as well. There, too, was little financial help available from the hospital or the medical school. Thus, the anesthesia faculty had increased clinical demands, decreased academic time, and a stagnant pay scale.

With these overriding concerns and being unable to successfully negotiate financial help, Dr. Owens resigned as head of Anesthesiology and as Mallinckrodt Professor of Anesthesiology in June, 1992. In retrospect, the resignation as Mallinckrodt Professor was not necessary as the original endowment does not specify that it be used for the head of a department or division. The Department had a strong national and regional reputation but one that was lacking in reputation within the immediate environment in which it had to operate. Alex Evers, M.D. was appointed the Acting Head of Anesthesiology in 1992. The department remained very active in medical school activities and university affairs as well as the affairs of the hospital. Dr. Evers was appointed to the position of a permanent basis in 1994.

Owens continued on the faculty of the medical school and the staff at Barnes Hospital. He subsequently became the Dean's representative to the Medical School Section of the American Medical Association and served many years on the Admissions Committee of Washington University School of

Medicine. As a faculty member concentrating on clinical and teaching activities, he was selected as the Teacher of the Year in the Department in 1999. He retired from clinical medicine and the faculty in 2004 and was appointed as Professor Emeritus of Anesthesiology. The professional accomplishments that he is most proud of are: 1) the mentoring of many young anesthesiologists when they were residents or faculty members and 2) the laying of a foundation for anesthesia research in the department.

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