

# Arthur E. Guedel Memorial Anesthesia Center

## Stuart C. Cullen, M.D., and the First Academic Anesthesia Department in California

*By Merlin D. Larson, M.D., and Walter L. Way, M.D.*

### Introduction

This year marks the 50th anniversary of the first academic department of anesthesia in the state of California, founded at the University of California, San Francisco (UCSF). The following article is a review of the events surrounding its early development, with an emphasis on the biography of Stuart C. Cullen, M.D., the first chair. Several other California medical schools followed UCSF by recognizing the benefits of separating the anesthesia department from the department of surgery. Subsequent articles of the Guedel section of the *CSA Bulletin* will recount the early years of other anesthesia departments in the state.

### UCSF Anesthesia prior to 1958

Herbert M. Hathaway, M.D., was recruited in 1940 to direct the Division of Anesthesia at UCSF by Howard C. Naffzinger, M.D., chair of the Department of Surgery. Hathaway was a promising graduate of Ralph Waters' anesthesia residency at the University of Wisconsin, where many of the leaders in the emerging specialty received their training. At UCSF, several obstacles prevented Hathaway from developing a program similar to Waters', which emphasized research, teaching, and clinical service. The war effort drafted many of the eligible medical school graduates just after graduation, thus eliminating potential candidates for anesthesia residency. In addition, Hathaway had been promised departmental status, which was never granted. These many problems led Hathaway into a state of severe depression and drug abuse that eventually led to his dismissal on July 1, 1946.

The problems were not solved by Frank J. Murphy, M.D., who replaced Hathaway in 1947. Murphy also was unable to attract adequate numbers of residents, only minimal research was performed, and the teaching program was weak. By 1957 Murphy was employing some physician anesthetists, but the pay was very low and not commensurate with the workload, causing these unhappy physician employees to seek work elsewhere and making it even more difficult to provide a consistent quality of service. Waters' visions of how an academic department should be managed were clearly not being realized.

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Also at that time, the UCSF residency was judged to be unsuitable for certification by representatives of the American Board of Anesthesiology.

The eventual solution to the quagmire at UCSF was to bring in a new chief to replace Murphy. This new appointment was given to Stuart C. Cullen, M.D., from the University of Iowa, where he served as Chief, Division of Anesthesia of the Department of Surgery. The following narrative outlines Cullen's career and describes how he was able to vitalize anesthesia services at UCSF and lay the foundation for what has become one of the preeminent anesthesia departments in the world.

### **Stuart C. Cullen, M.D.**

The career path that Cullen followed began at the University of Wisconsin, where he matriculated after growing up in Milton Junction, Wis. He received a bachelor of science in 1930 (Figure 1), his M. D. in 1933 at Wisconsin, and then traveled to Oregon for a rotating internship at Portland's Multnomah General Hospital (1933-1934). He returned to Wisconsin General Hospital to complete a surgical internship (1934-1935), and then opened a general practice



in Janesville, Wis. During this time he frequently was asked to give anesthetics for surgical cases. Cullen related that this was a welcome source of income for a new practitioner with few patients. His anesthetic skills were honed during his surgical internship at Wisconsin General, where Dr. Waters had come in 1933 to head the Division of Anesthesia. During his internship, Cullen was allowed rotations on Waters' anesthesia service.

**Figure 1:** Stuart C. Cullen's graduation photograph from the University of Wisconsin, 1930. (Courtesy of Mrs. Lynn Cullen Callender and Dr. Bruce Cullen, Professor Emeritus, Department of Anesthesiology, University of Washington.)

Cullen recognized opportunities in a field not yet accepted as a medical specialty and traveled to Madison, Wis., to talk with Ralph Waters about becoming a resident in Waters' program. Unfortunately, Waters had no openings, but he suggested that Cullen speak with Emery A. Rovenstine, M.D., who had just



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started a new anesthesia training program at Bellevue Hospital in New York City. Cullen decided to train with Rovenstine at Bellevue starting in 1936.

After completing his residency in 1938, he accepted a position at the State University of Iowa as the chief of the Division of Anesthesia. There he assumed the responsibility of providing for anesthesia services, and the teaching of residents and medical students. He also began research activities to investigate the scientific basis of anesthesia. Cullen proved up to these tasks by approaching them in his usual manner, which meant hard work, cooperation with all parties, and firm rules that applied to everyone, including himself. Because of World War II, these must have been very difficult times for Dr. Cullen.

Several individuals played an important part in Cullen's move to San Francisco in 1958. One was John Severinghaus, M.D., who started his anesthesia residency with Robert Dripps, M.D., at the University of Pennsylvania in January 1952. During his first year, Severinghaus was encouraged to become involved with basic research. This occurred when Severinghaus worked with Julius Comroe, M.D., a prominent respiratory physiologist at the University of Pennsylvania. This association lasted a year, after which Severinghaus left to spend two years at the NIH in Bethesda, Md. Severinghaus met Cullen at meetings in Washington, D.C., and he decided to enter Cullen's Iowa anesthesia program. He completed his residency there in 1957.

In the interim, Comroe had been appointed to the UCSF faculty to head the newly formed Cardiovascular Research Institute (CVRI). In the fall of 1957, the American Physiological Society met in Iowa City, and both Comroe and Severinghaus attended. Comroe invited Severinghaus to join him at the CVRI in San Francisco, but Severinghaus wanted to continue in an anesthesia department with research potential. The UCSF Division of Anesthesia was under control of the Department of Surgery, now chaired by Leon Goldman, M.D. Goldman was not inclined to support anesthesia research or grant an independent anesthesia department. Moving rapidly, Comroe asked about possible anesthesia chairs for UCSF, and Severinghaus mentioned Cullen (Iowa) and Dripps (Pennsylvania). Comroe quickly contacted Cullen, who replied that he would come to UCSF only if anesthesia was recognized as an independent department. On the same day he recruited Cullen, Comroe negotiated again with Goldman and convinced him to allow a department of anesthesia to be established. Immediately, Cullen asked Severinghaus to join the UCSF anesthesia faculty.

An interesting note is that when Comroe asked Severinghaus for possible candidates for the UCSF Anesthesia Chair, he suggested Stuart Cullen and Robert Dripps. Comroe asked, "Stu who?" Later, when Cullen was told of this,

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he found it very amusing and eventually “STUWHO” appeared on his auto license plate!

Severinghaus joined Ernest P. Guy, M.D., and Jack Williams, M.D., who came from Iowa. These three joined two existing faculty—Neri Guadagni, M.D., and Frank DeBon, M.D. Johannes Bartels, M.D., a colleague of Severinghaus at Pennsylvania, became the sixth faculty member. As of July 1, 1958, these six faculty, along with Chairman Cullen oversaw four second-year residents and four first-year residents (author W.W. was one of the first-year residents).

The department was organized as a two-year residency program, with all experience at UCSF-Moffitt, but soon to include two-month rotations at East Bay Children's (1959) and six-month rotations at San Francisco General Hospital. Cullen worked diligently from the beginning to provide educational opportunities for the resident staff. This included daily preoperative rounds for review of the next day's cases, grand rounds on Saturdays (8-10 a.m.), and Wednesday evening lectures by invited speakers, both local UCSF faculty and



visiting professors. These included Robert Dripps, M.D., Henry Beecher, M.D., James Eckenhoff, M.D., Leroy Vandam, M.D., and Emanuel M. Papper, M.D., among others. This allowed the residents to learn from the leaders of this relatively new specialty.

**Figure 2:** Stuart C. Cullen demonstrating the use of an anesthesia machine with a circle absorber, the so-called “jumbo canister,” which was widely used circa 1960.

Cullen had a unique approach to teaching students at all levels (Figure 2). He believed that patient care in anesthesia must include the use of all the knowledge that a student learned as he/she progressed through medical school and postgraduate training. This meant using basic science information from many areas, including physiology, pharmacology, anatomy, and biochemistry. Clinical skills such as those gained during internal medicine and surgical rotations also played an important part in the successful practice of anesthesia. He emphasized that “book learning” was of little value when one did not know how to use it. He wanted his students to learn by inquiring about topics and he encouraged them to ask questions to further their understanding. He didn't want students to learn rigid



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drug doses or only one way to administer an anesthetic, but rather to observe the patient following each intervention in order to achieve a successful clinical outcome. In his opinion, rote learning and spoon-feeding of facts were not effective methods for learning.

Cullen conducted laboratory experiments with the newly discovered drug d-tubocurarine that was brought back from the Amazon jungle by Richard Gill. These studies were conducted in collaboration with E.G. Gross, Ph.D., professor and chair of pharmacology at Iowa. This example with curare research illustrates important qualities that Cullen used as he came upon questions to which he wanted answers. In E.G. Gross, he sought an individual with the basic knowledge that would help define the pharmacology of d-tubocurarine. The next step for Cullen was to determine whether the new drug would be useful in clinical practice. Several of his clinically oriented publications in the mid 1940s attest that he accomplished his goal.

Cullen had a rare ability to associate with basic science colleagues, realizing that these associations benefited both parties. During his tenure as chair of anesthesia at UCSF, many such collaborative activities occurred with the CVRI



and the Departments of Physiology and Pharmacology. Several anesthesia faculty were rewarded with joint appointments in the CVRI and basic science departments.

**Figure 3:** Stuart C. Cullen at UCSF grand rounds, January 1972.

Cullen became a diplomate of the American Board of Anesthesiology in 1939; his diploma was Certificate #55. He was elected a member of the American Board of Anesthesiology in 1950, and he became the ABA's vice president in 1960 and president in 1961.

Cullen received numerous honors and awards, all pointing to his many achievements in academic anesthesia. He was on the editorial board of *Anesthesiology* from 1951-1965 and an advisor to many organizations and committees. Notable are his consultative services to the National Research Council (Subcommittee on Anesthesia) and the NIH Surgery Study Section. After World War II, he served as a member of the

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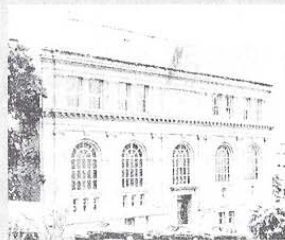
World Health Organization Anesthesiology Training Center in Copenhagen (1950-1958), and as a member of the WHO Unitarian Service Committee. He was a member of a team of visiting medical scientists to India (1953), and in 1962 the World Health Organization again asked him to survey facilities for anesthesia training centers in several Middle Eastern countries.

Cullen was appointed dean of the School of Medicine at UCSF in 1966 and served in this post until 1970. During his tenure as dean he led the school through a difficult era that included extensive changes in the curriculum and confrontation with the issues of affirmative action. In 1970, he returned to the Department of Anesthesia (Figure 3) until 1973, when he retired as an emeritus professor. He was recognized for his service to UCSF when he received UCSF's highest honor, the UCSF Medal in 1979. He left minimal correspondence, so we know him today primarily from his publications, which included over 200 manuscripts and several books. His most popular book was *Anesthesia: A Manual for Students and Physicians*, which went through six editions. We also admire him through reports from his extensive circle of friends and colleagues, many of whom are alive today. These individuals relate to us his ideas and thoughts on the scientific foundation and the teaching of anesthesiology. His passing at age 70 on August 11, 1979, from an apparent heart attack was mourned by thousands, and his legacy remains as one of the first leaders in California to bring respect and honor to our specialty.

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### **The Guedel Memorial Anesthesia Center Needs Worker Bees!**

Dr. Selma Calmes is asking for volunteers to work at the Guedel Memorial Anesthesia Center in San Francisco. If you are able to donate some of your time to the Guedel, please contact the CSA office at **650-345-3020**.