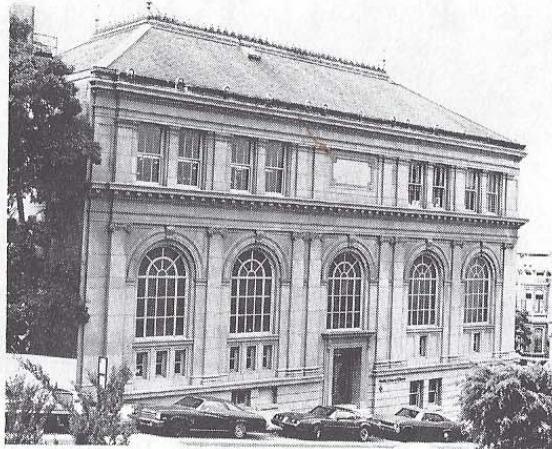


Arthur E. Guedel Memorial Anesthesia Center



The Guedel Center

The center offers an outstanding collection of rare and contemporary anesthesia literature, audiotape and videotape resources, as well as the ability to research specialized topics.

History Day

By Merlin Larson, M.D.

A robust crowd of nearly 300 attended Anesthesia History Day held on September 14, 2002, jointly sponsored by UCSF and the Guedel Anesthesia History Center. The two-hour program was divided into three segments, with the first segment comprising a review of the origins of the Guedel Library and of Arthur Guedel's life, presented by Selma Calmes, M.D., Chair of the Department of Anesthesiology at Olive View Medical Center in Sylmar, California. The middle segment consisted of a historical analysis of the development of anesthesia for thoracic surgery over the past 100 years. The final segment was a presentation by Douglas Varner, curator of the Guedel Library, who described the resources of the Library, the most extensive on the West Coast, available to all members of the California Society of Anesthesiologists. Following the program several members of the audience gathered at the Guedel Library for lunch and a tour of the facility.

Five residents, four of whom dressed up in period costumes to represent personalities from the past (Figure 1), presented a historical analysis of anesthesia for thoracic surgery. Ernst Ferdinand Sauerbruch, enacted to perfection by third year resident Mark Bomann, M.D., traveled from Breslau, Germany, in the year

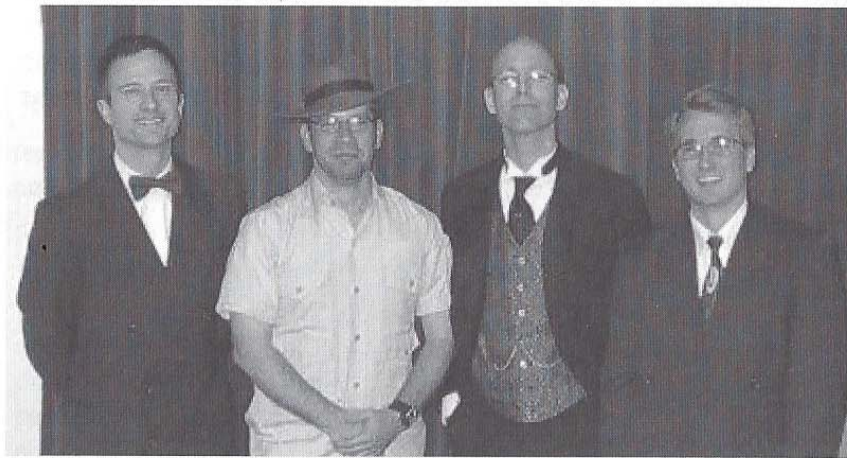


Figure 1: Presenters at the History Day, from left: Dr. Arthur Guedel (Lundy Campbell, M.D.), Mr. Richard C. Gill (Anthony Romo, M.D.), Dr. Ernst Ferdinand Sauerbruch (Mark Bomann, M.D.) and Dr. Lewis Wright (Mark Rollins, M.D.)

1908 to deliver his thoughts on operating within the thoracic cavity. Dr. Sauerbruch achieved international prominence at the young age of 28 by demonstrating a method for operating within the thoracic cavity, a procedure that before his time was 100 percent lethal. Sauerbruch described how the idea came to him that the lung must remain expanded at all times during thoracic surgery, and then proceeded to describe his negative pressure chamber that allowed the chest to be opened safely. His first negative pressure chamber excluded the patient's head by use of a rubber collar, along with the anesthetist who delivered ether or chloroform by mask. The chamber was under negative pressure of 10 cm of water and was large enough to contain the patient (below the neck), two surgeons, the operating table and instruments, and one assistant (Figure 2). He was proud to announce the proliferation of these units around the world and showed us a photograph of an enormous chamber recently constructed at Rockefeller Center in New York City. This chamber permitted up to 17 workers within a negative pressure chamber that also contained a smaller chamber that was under positive pressure. This later positive pressure chamber contained the anesthesiologist and the patient's head, excluded from the larger negative pressure chamber by a rubber collar. Following his presentation he was asked whether the patients had to be ventilated and he indicated that the patients own respiratory efforts were entirely unnecessary because the gas exchange was accomplished entirely by the differential pressures created by the chamber.

Guedel-Cont'd

The next visitor from the past (year 1930) was Arthur Guedel, M.D., who traveled to the meeting in from Los Angeles where he had recently moved from Indiana. The role was played by third year resident, Lundy Campbell, M.D., with all the poise and authority one would expect from Dr. Guedel. He began his presentation with summarily rejecting the need for the cumbersome and expensive apparatus described by Sauerbruch. Guedel presented the audience with how the idea of placing tubes within the trachea developed, and then further described his idea of placing a cuff around the distal portion of the tube to allow positive pressure ventilation during thoracic surgery. Following publication of this innovation in 1928, Dr. Ralph Waters informed him that Dorrance had previously described the idea of a cuffed endotracheal tube 20 years earlier. However, Dr. Guedel pointed out that it was not sufficient just to invent something. Inventions also had to be promoted. Guedel popularized the use of the cuffed tube by anesthetizing and tracheally intubating his pet dog, then completely submerging the animal in a water tank. After several minutes the dog w a s r e m o v e d from the tank and awakened unharmed. The experiment was repeated at national meetings and with this promotion it quickly became the standard of care to use cuffed tubes. The anesthetic agents during Dr. Guedel's era were either flammable or toxic, and these problems prevented adequate relaxation and use of the electrocautery during thoracic surgery. A new approach was needed and

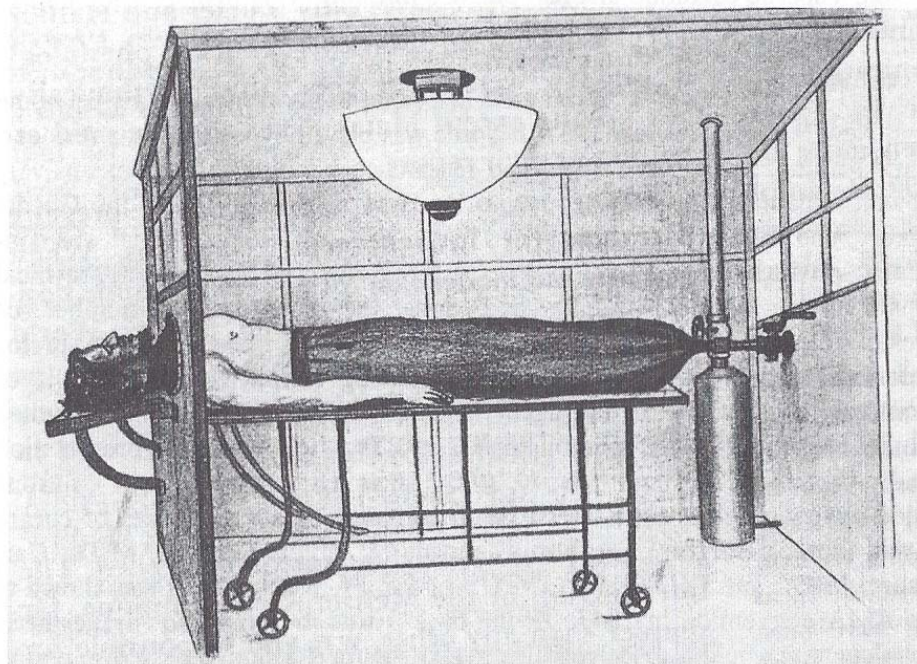


Figure 2. Sauerbruch's Box

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the only non-physician on the program, Mr. Richard C. Gill, played by third year resident, Anthony Romo, M.D., described his role in bringing curare from the jungles of Ecuador into medical research.

Dr. Romo clearly understood all aspects of his character and played the role in grand style, complete with a gun holster, khaki pants, and safari hat. Speaking from the year 1940, Gill described how he and his wife, Ruth, gained the confidence of the native medicine men that made curare from the liana plant *Chondodendron tomentosum*. In 1938 they returned from South America with 25 pounds of the tar-like substance that the natives of Ecuador used to tip their poisonous arrows, and turned it over to E. R. Squibb and Sons for research. Initially there appeared to be no interest in the drug, but a psychiatrist from Omaha, Nebraska, A. E. Bennett, M.D., found a use for the crude drug, which they called Intocostrin, in alleviating the side effects of metrazole shock therapy. Gill showed movies (videotapes) of metrazole shock therapy, first without any pretreatment, then with spinal anesthesia, and then following administration of Intocostrin in a dose sufficient to prevent a head lift. He also showed movies of the famous "rabbit head drop" test that was used to estimate the dose of Intocostrin to use in humans. During the questions that followed, Gill expressed disappointment that his strenuous effort in bringing curare out of the jungle seemed to be somewhat of a failure because the drug appeared to be useless in treating a spastic condition that had plagued him following his fall from a horse in 1932.

The next visitor, Lewis H. Wright, M.D., came to the conference by traveling from New Jersey in the year 1947. His role was played by second year resident, Mark Rollins, M.D. Dr. Rollins had researched his character by extensively viewing videotapes of interviews with Dr. Wright held on file in the Guedel Library, and delivered his material in a matter-of-fact presentation that was consistent with the personality of Dr. Wright. Wright described how, as the medical consultant for E. R. Squibb and Sons, he persuaded a number of anesthesiologists to use curare for relaxation during general anesthesia for abdominal surgery. He succeeded in convincing Harold Griffith, M.D., of Montreal, Canada to use the agent in small doses while patients breathed spontaneously during intraperitoneal surgery. The highlight of his presentation was a movie dating from 1946 showing the use of nitrous oxide/oxygen/morphine anesthesia, with complete paralyzing doses of curare during thoracic surgery. The film was made by Phyllis Harroon, M.D., Carl Fisher, M.D., and Fred Bechert, M.D., of San Francisco, and it was shown at the AMA convention in 1947. At the time it was the only known anesthetic technique that would provide complete relaxation for the surgeon and also permit the use of electrocautery. Carl Fisher, who spent his career at Kaiser Hospital in

Guedel-Cont'd

Oakland and is now 87 years old, was in the audience, and he commented on the making of this movie and the early use of curare in anesthesia.

Third year resident, Sundeep Malik, M.D., then presented a case report of pneumothorax of the dependent ventilated lung during anesthesia for lobectomy, emphasizing the remarkable changes that have occurred over the past 50 years in how anesthesia for thoracic surgery is administered. This case report is described in the September 2002 issue of *Anesthesia and Analgesia*. In the audience were several prominent anesthesiologists who contributed significantly to the advances in the specialty during the period between 1947 and 2002, thereby determining the practice of anesthesia for thoracic surgery today. Some of those present were Doctors Cedric Bainton, Jeffrey Katz, Robert Hickey, Ronald Miller, William Hamilton, John Severinghaus, Edmond I. Eger, II, Richard Mazze, Bill Forrest, Stanley Samuels, Richard Schlobohm, Larry Saidman, Carl Fisher, and George Gregory.

Following the meeting residents, faculty, and retired anesthesiologists exchanged their various perspectives on the anesthetic techniques from 1904, 1947, and 2002. The following comment was frequently overheard: "If these older techniques appear amusing to us today, what are we doing today that will seem archaic, perhaps slightly comical, to the anesthesiologists 50 or 100 years from now?" Undeniably, the residents who presented, and probably the audience, learned a few facts concerning the remarkable history of our specialty. Thanks go to the residents, Dr. Selma Calmes, Mr. Doug Varner, UCSF, and the Guedel Library for making this meeting a success.

Mark your calendar for this great meeting!

CSA Hawaiian Seminar

***Hyatt Regency Hotel
Poipu, Kauai***

October 19-25, 2003

Details will be posted soon @ www.csahq.org