Anesthesia History Summer Meeting

June 22-24, 2006

Mayo Clinic Course Director
Douglas R. Bacon, MD, MA

Geffen Auditorium, Gonda Building
Mayo School of Continuing Medical Education

Welcome you to

Anesthesia History Summer Meeting

June 22 - 24, 2006

Geffen Auditorium
Gonda Building
Mayo Clinic
Rochester, Minnesota
Mayo Clinic
Anesthesia History Summer Meeting
Geffen Auditorium
Gonda Building
Mayo Clinic
Rochester, Minnesota
June 22 - 24, 2006

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Thursday, June 22, 2006
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Kerry D. Olsen, MD

6:00 PM     Bus to Mayowood
Bus will depart from Mayo Clinic downtown campus - Gonda Building

6:30 PM     Welcome Reception................................................................. Mayowood

8:00 PM     Buses return to Mayo Clinic downtown campus – Gonda Building

Friday, June 23, 2006
Geffen Auditorium - Gonda Building, Subway Level

Moderator: Sandra L. Kopp, MD

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Rafael Ortega, MD

10:00 AM  Refreshment Break

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A Measure of Gold: Hong Kong Anesthesia at 50
Patrick Sim

Noel Gillespie's American Tour 1935
Mark Schroeder, MD

The First One Hundred Years of Caudal Anesthesia
Mark Mandabach, MD

11:15 AM  Bus to Foundation House depart from Mayo Clinic downtown campus -
Gonda Building

11:30 AM  Lunch ................................................................. Mayo Foundation House
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12:15 PM  Luncheon Plenary Session: William J. Mayo ......................... 41
Matthew D. Dacy, Director of Heritage Hall

1:15 PM  Bus to Mayo Clinic return to Mayo Clinic downtown campus
Gonda Building

1:30 PM  Tours of the Mayo Clinic

3:00 PM
Saturday, June 24, 2006
Geffen Auditorium – Gonda Building, Subway Level

Moderator: David E. Byer, MD
8:00 AM Plenary Session: Mississippi and the Mayo Brothers
Dennis M. Robertson, MD

AHA Resident Essay Contest Winners

Moderator: Doris K. Cope, MD
9:00 AM Many Men, Three Wars, and One Question: Foundations for the Modern Understanding of Pain
Christian D. Gonzalez, MD

9:20 AM James Young Simpson: The Voice of Reason for the Rights of Women in Labor 158 Years Later
Lori D. Conklin, MD

Free Papers*

Moderator: N. Martin Giescke, MD
9:40 AM Barnell R. Brown, MD, PhD, FFACS, Halothane Hepatotoxicity Untangled
Adolph Giescke, MD

10:00 AM Historical Development of Rapid Infusion Devices for Liver Transplantation: Necessity was the Mother of Invention
Abram Burgher, MD

10:20 AM Medical Equipment Identification: How can You be Sure What You See in a Picture is What You Think it is? And How is it Used?
Burdett Dunbar, MD

10:40 AM Refreshment Break

Free Papers*

Moderator: Mary E. Marienau, CRNA, MS
11:00 AM Edith Graham Mayo
Darlene Bannon, CRNA, MNA

11:20 AM Magaw and Henderson: Notable Anesthesia Nurses to the Mayo Brothers
Joan Hunziker-Dean, CRNA, MNA

11:40 AM Why Would a Librarian Write Anesthesia History? Tom Keys, John Lundy and the Army Medical and Mayo Clinic Libraries
Selma Calmes, MD
12:00 PM  Lunch ................................................................. Nathan Landow Atrium
................................................................. Gonda Building, Subway Level

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Jason McKeown, MD

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Free Papers* ................................................................. 79
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2:10 PM  A Fascinating Relationship: Isabella Herb, MD and William J. Mayo, MD
Allison Christie, MD

2:30 PM  The Other Great Clinic: Dr. Frank Lahey and the Anesthesiologists
Gerald Zeitlin, MD

2:50 PM  Pioneering Cardiac Anesthesia: The Life and Work of Emerson Moffitt, MD
Adam Jacob, MD

3:10 PM  Plenary Session: History of Pain Medicine at Mayo ......................... 87
David P. Martin, MD, PhD

4:10 PM  Meeting Adjourns

6:00 PM-  Gala Black Tie Dinner
10:00 PM  Nathan Landow Atrium

*Free papers are not solicited but detail a specific incident within the history of anesthesiology that has clear implications either clinical or professional to the current practice of the specialty.
Mayo Clinic
Anesthesia History Summer Meeting

Geffen Auditorium
Gonda Building
Mayo Clinic
Rochester, Minnesota
June 22 - 24, 2006

Course Description and Objectives

A three day meeting presenting both the leading edge of research in the history of anesthesiology combined with an overview of the history of the Mayo Clinic, stressing the Clinic’s role in the history of medicine in the United States. A method of using this scholarship to teach professionalism will be a centerpiece of the conference.

By the end of this conference, participants should be able to:

- Identify the contributions of the Mayo Clinic to the history of American medicine.
- Develop knowledge of current scholarship in the history of anesthesiology.
- Define professionalism within its current and historical context.
- Apply knowledge of the current scholarship and history of Mayo Clinic to the teaching of professionalism to medical students, student nurse anesthetists, residents, nurse anesthetists and consultant Anesthesiologists.
- Construct an initial curriculum using existing educational forums within the disciplines of anesthesiology for teaching of professionalism using historical examples.

Continuing Education Credit

This activity has been planned and implemented in accordance with the Essentials and Standards of the Accreditation Council for Continuing Medical Education through the joint sponsorship of

Mayo Clinic College of Medicine, History of Anaesthesia Society and Anesthesia History Association. Mayo Clinic College of Medicine is accredited by the ACCME to provide continuing medical education for physicians.

Mayo Clinic College of Medicine designates this educational activity for a maximum of 9 AMA PRA Category 1 Credit(s)™. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

Application for CE credits will be submitted to the American Association of Nurse Anesthetists’ Department of Continuing Education.
Disclaimer

Attendance at this Mayo course does not indicate nor guarantee competence or proficiency in the performance of any procedures that may be discussed or taught in this course.

Smoking Policy

In keeping with Mayo Clinic policy, smoking is not permitted in any of the meeting rooms or course facilities during Mayo-sponsored activities.

Taping of Sessions

Audio or visual taping by participants is not permitted.

Faculty

Course Director - Douglas R. Bacon, MD, MA

Mayo Faculty
Douglas R. Bacon, MD, MA
Matthew Dacy
David P. Martin, MD, PhD
Kerry D. Olsen, MD
Dennis M. Robertson, MD
Dale C. Smith, PhD
Peter A. Southorn, MD
Mark A. Warner, MD

Free Paper Presenters
Darlene Bannon, CRNA, MNA
Abram Burgher, MD
Selma Calmes, MD
Alison Christie, MD
Lori D. Conklin, MD
Pejman Davoudian, MD
Burdett Dunbar, MD
James Erickson, MD
Sarah Garber, MD
Adolph Giesecke, MD
Christian D. Gonzalez, MD
Joan Hunziker-Dean, CRNA, MNA
Adam Jacob, MD
Christopher J. Jankowski, MD
Mark Mandabach, MD
Jason McKeown, MD
Rafael Ortega, MD
Dennis M. Robertson, MD
Mark Schroeder, MD
Patrick Sim
Gerald Zeitlin, MD

Moderators
Neil Adams, MD
David Byer, MD
Doris Cope, MD
Timothy B. Curry, MD, PhD
N. Martin Giescke, MD
Christopher J. Jankowski, MD
Sandra L. Kopp, MD
Mary E.S. Marienau, CRNA, MS
David P. Martin, MD, PhD
Bradly Narr, MD
Mary Warner, MD
Francis X. Whalen, Jr., MD
FACULTY DISCLOSURE FOR
Anesthesia History Summer Meeting
June 22 – 24, 2006

As a provider accredited by the Accreditation Council on Continuing Medical Education (ACCME), Mayo Foundation must ensure balance, independence, objectivity and scientific rigor in its educational activities. All faculty participating in a Mayo Foundation activity are required to disclose commitments to and/or relationships with pharmaceutical companies, biomedical device manufacturers or distributors, or others whose products or services may be considered to be related to the subject matter of the educational activity. Faculty also will disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of these commitments and/or relationships will be published in course materials so participants may formulate their own judgments regarding the presentation.

Listed below are the Anesthesia History Summer Meeting faculty who have disclosed (a) relationship(s) with industry:

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Type</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doris Cope, MD</td>
<td>Purdue Pharma L.P.</td>
<td>Honorarium</td>
<td>Speaker</td>
</tr>
<tr>
<td>Training</td>
<td>Cephalon</td>
<td>Honorarium</td>
<td>Speaker</td>
</tr>
</tbody>
</table>

Listed below are the Anesthesia History Summer Meeting faculty who have disclosed they will be referencing off-label usage(s) of pharmaceuticals or instruments in their presentation:

The following faculty members responded with nothing to disclose:

- Neil Adams, MD
- Douglas R. Bacon, MD
- David Byer, MD
- Selma Calmes, MD
- Allison Christie, MD
- Lori d. Conklin, MD
- Timothy B. Curry, MD, PhD
- Matthew Dacy
- Burdett Dunbar, MD
- James Erickson, MD
- Christian D. Gonzalez, MD
- Joan Hunziker-Dean, DRNA, MNA
- Adam Jacob, MD
- Christopher J. Jankowski, MD
- Sandra L. Kopp, MD
- Mark Mandabach, MD
- Mary E. S. Marienau
- David P. Martin, MD, PhD
- Jason McKeown, MD
- Bradly Narr, MD
- Kerry D. Olsen, MD
- Rafael Ortega, MD
- Dennis M. Robertson, MD
- Mark Schroeder, MD
- Patrick Sim
- Peter A. Southorn, MD
- Gurinder M. Vasdev, MD
- Mark A. Warner, MD
- Mary Warnier, MD
- Francis X. Whalen, Jr., MD
This course is supported in part by the following companies in accordance with ACCME standards:

Merk, Inc.
Thursday, June 22, 2006
5:00 PM - 6:00 PM

William W. Mayo and the Beginnings of the Clinic

Kerry D. Olsen, MD
William Worrall Mayo – “Never Look Backward – Never”

William Worrall Mayo, a “little” country doctor, was the man who started it all – the patriarch of the Mayo Clinic. Unfortunately, history is often not kind, and the contributions of the father were soon overshadowed by the accomplishments of his sons, Will and Charlie. Many remember the elderly Mayo as only a strange, restless, wild-eyed man. His influence on his sons, however, remained strong. As Charlie said, “One of the best things that Will and I ever did was to pick the parents we had.”

This presentation, “Never Look Backward – Never”, tells us why this later statement was so true. W. W. Mayo was indeed a remarkable man. Uniquely educated and with many diverse talents, he was brought up in England during times of great social unrest, which strengthened a deep devotion to caring for and about his fellow man. We follow him across America, traveling throughout the early frontier regions of Minnesota until he eventually settles in Rochester. This explorer, tailor, farmer, newspaper editor, politician, riverboat operator, veterinarian, and daring surgeon became known as the one to see for medical care when others could not help.

As a civic and political activist, he gave much to the city of Rochester. As a pioneer physician on a life-long quest to improve his craft, he gave too; all who have been touched by Mayo Clinic owe him much. Though Dr. Mayo was devoted to the development and expansion of the medical knowledge of his sons, perhaps even more important were the values and character he lived and taught to his boys. This presentation helps us to truly understand the man and discover his many influences on his sons and Mayo Clinic. The team concept of medicine, a clinical practice supported by education and research, the availability of the latest technology in diagnosis and therapeutics, and mutual respect and support of his staff are but a few of his lasting influences.

His penchant for treating everyone respectfully and with the best care possible is alive today at Mayo. Picturing him standing in suit and top hat by his horse and buggy, ready to see his patients, those who work at Mayo will fondly smile and say thanks. Everyone will enjoy getting to know this man a little better. It is time to give him his credit.

Kerry D. Olsen, M.D.
Consultant, Department of Otolaryngology – Head and Neck Surgery
Professor, Mayo Clinic College of Medicine
Plenary Session: Overview of the History of the Anesthesiology Department at Mayo

Peter A. Southorn, MD and Mark A. Warner, MD
The Leadership of John Lundy and Albert Faulconer, Jr.

The two historical figures most responsible for the reputation of the Mayo Clinic Anesthesiology Department are John Silas Lundy and Albert Faulconer, Jr. From the opening of St. Mary’s Hospital in 1889 until Lundy’s arrival in 1924, anesthesia at the Mayo Clinic Hospitals had been mainly provided by nurse anesthetists using the open drop ether technique. Their skill in doing this was a vital ingredient to the growth and reputation of the Mayo Clinic in this era. Continued advances in anesthesia impacting surgical progress, particularly during the First World War, are probably what motivated Dr. William J. Mayo to recruit John Lundy. Not everyone welcomed Dr. Lundy’s coming to Mayo, but his enthusiasm, optimism, drive and continued friendship with Dr. Mayo lead him to establish himself and his department. Lundy had many attributes, and of particular importance in this regard was his organizational ability.

The Army sent Albert Faulconer, Jr. to Mayo in 1943 during World War II for three month’s training in anesthesia. After completion of the war, he entered the Mayo Anesthesia Graduate Program and quickly impressed everyone with his intelligence and special scientific capability. He was appointed to staff in 1947, and became the chairman in 1953.

In total, Lundy was Chair of the Department for 28 years and Faulconer for 18 years. Each also served a leadership role in many anesthesiology related organizations.
Lundy was the founder of the American Board of Anesthesiology and Faulconer served this body as a Director and President. Lundy was also a founder and president and received a Distinguished Service Award form the American Society of Anesthesiology. He was the founder of the Anesthesia Travel Club. Faulconer was the founder and President of the Association of University Anesthesiologists. Faulconer also shared the rare distinction of being appointed to the Mayo Clinic Board of Governors.

Lundy’s research was extremely productive and based mainly on astute patient observations whereas Faulconer’s research employed a more rigorous, scientific method and discipline. Examples of Lundy’s research includes his into exploring the use of ethylene as an anesthetic, using carbon dioxide during anesthesia, the introduction of Pentothal, establishing blood transfusion services and advances in regional anesthesia. Faulconer performed ground-breaking scientific research measuring the inspired anesthetic gas and vapor concentrations and examining the effects of these anesthetic concentrations on the patient’s oxygenation. He was amongst the first to examine in detail the effects of anesthesia on the electroencephalogram and used the information he gained from these studies to design a servo controlled anesthesia system. He also was responsible for original research into neuromuscular block reversal and exploring the anesthetic properties of nitrous oxide and xenon.

As regards educational initiatives, both men made original contributions. Lundy established a graduate resident anesthesia program at the Mayo Clinic through the
University of Minnesota and Faulconer did much to strengthen this in helping many of the residents with their Master of Science thesis. Lundy maintained Nurse Anesthesia and Faulconer formalized the training of Nurse Anesthetists.

Lundy's personality may have contributed to the Board of Governors relieving him of his Chair in 1952. Faulconer was to retire voluntarily in 1971. It can be said that both men were remarkable, and they each had special abilities. Lundy's organizational ability helped establish the department and, indeed, the specialty nationwide so that it was no longer a stepchild of surgery and became an independent discipline in its own right. Faulconer’s leadership abilities and his scientific acumen helped create our department as we know it today on the foundation laid by Lundy.
Mayo Clinic's Department of Anesthesiology:

In the Cornfields of Minnesota, But Innovative Nonetheless

Mark A. Warner, M.D.

Although many of us here in Rochester wish that in 1863 William Worrell Mayo had settled his medical practice further south of the often-frigid U.S. Midwest, we are amazed at the work productivity and innovation that comes from being buried in snow, bitter cold, and darkness for much of the year. How else would a small group of physicians, far from the vigorous medical communities of Europe and the American East Coast, have developed so many "firsts" in the early years of Mayo's Department of Anesthesiology?

A Sampling of Important First-Time Innovations

- **Department:** The Mayo Brothers and their Board of Governors enticed Dr. Gaston Labat to travel from Paris to Rochester in 1920 and develop a Section on Regional Anesthesia. It becomes the first department in this country devoted to anesthesia.

- **Blood bank:** The Mayo Clinic Section of Anesthesia began to collect and transfuse blood in 1933, superseding the "first" blood bank claimed in Chicago at Cook County Hospital circa 1935.

- **Sodium pentothal and other barbiturates:** In 1935 Dr. John Lundy published his work on sodium pentothal. Controversy existed over the "first" application of sodium pentothal (in a hotly debated disagreement between Dr. Lundy and Drs. Tatum and Waters at the University of Wisconsin). Subsequent letters and publications, along with correspondence with Abbott Laboratories, confirm that Dr. Lundy first introduced sodium pentothal to clinical practice.

- **Master's of Science degree in Anesthesia:** In 1936 Dr. Ed Tuohy became the first U.S. physician to receive an M.S. degree in anesthesia.

- **Post-anesthesia recovery or care unit:** Although Florence Nightengale advocated it in the late 1800's for a recovery area for surgical patients, it wasn't until 1942's publication by Dr. Lundy that the PAR or PACU was established.

- **The Tuohy needle:** Designed originally to provide continuous spinal anesthesia, the innovative needle by Dr. Ed Tuohy in 1945 subsequently was adapted for placement of extradural catheters.

- **Plastic intravascular needles:** In 1950 Dr. David Massa published his report of the first modern plastic needle (with needle in a plastic catheter). The new needle
and catheter combination is manufactured by the Rochester Product Company for many years.

- **Extracorporeal circulation:** Although Dr. John Gibbon performed the first successful procedure with the assistance of cardiopulmonary bypass in 1953, subsequent attempts failed. Mayo physicians and engineers, especially Mr. Richard Jones and Drs. Earl Woods, Jeremy Swan, Bob Patrick (anesthesiologist), Jim DuShane, and David Donald, worked with IBM to improve the Gibbons heart-lung machine. The new Mayo-Gibbons vertical screen, mechanical pump-oxygenator system was successfully used on 8 initial cardiac cases. Its use subsequently altered cardiac surgery.

- **Neuroanesthesia:** Drs. Jack Michenfelder and Ed Dows describe air embolism in patients undergoing neurosurgical procedures while anesthetized in sitting positions. Subsequent descriptions of anesthesia for neurosurgical procedures, along with rare complications, new practices (e.g., use of transthoracic Doppler), and basic science findings led to an *Anesthesiology* article in 1969 by Drs. Michenfelder, Jerry Gronert, and Kai Rehder entitled “Neuroanesthesia.” This term subsequently was adopted worldwide.

- **Intrathecal application of morphine:** Drs. Joe Wang, Lee Nauss, Fred Kerry, Jurgen Thomas, and Tony Yaksh study and report the clinical use of intrathecal narcotics for the first time.

- **Biotransformation of volatile anesthetics and hepatotoxicity:** In 1966 Dr. Kai Rehder first postulated and proved the biotransformation of halothane in humans. He subsequently joined with Dr. Russell Van Dyke to elucidate the interactions of hypoxia, cytochrome P-450, and halothane in hepatotoxicity.

**Summary**

Clearly, the Mayo Clinic Department of Anesthesiology has many reasons to be proud of the accomplishments of its early staff members. The “firsts” noted above represent a number, but not all, of the major contributions of the department. The department and its leaders also contributed significantly to the development of organized anesthesiology in the U.S. (e.g., the contributions of Drs. Lundy, Ralph Tovell, Ed Tuohy, Ralph Knight, Charles McCuskey, and others to the early development of the ASA). Many of these same individuals were major contributors to the American Board of Anesthesiology. Mayo anesthesiologists have served as directors of the ABA for 58 of its first 68 years. Similarly, Mayo anesthesiologists have been editors of *Anesthesiology* continuously since 1940. All in all, the department is spurred on by its heritage, with hopes to continue to make important contributions to the specialty.
Free Papers
Friday, June 23, 2006
9:00 – 10:00 am

Anaesthesai: Literature of 1906
Pejman Davoudian, MD

The Keystone Founders of the Long Island Society of Anesthetists: Erdmann, Sanders, Tong and Sammis
James Erickson, MD

The Ether Monument
Rafael Ortega, MD
Anaesthesia: Literature of 1906

Dr. Pejman Davoudian, West Suffolk Hospital, Bury St Edmunds, UK
Dr. Neil Adams, West Suffolk Hospital, Bury St Edmunds, UK
Professor Douglas R. Bacon, Mayo Clinic, Rochester, Minnesota

As an arbitrary point in history, 100 years is often used as a benchmark for comparison. This paper will examine some aspects of anaesthesia in 1906 from a study of the literature of that year. It will also look at a selection of events that will give social context to the year. Particularly pertinent to the specialty of anaesthesia was the Pure Food and Drugs Law passed by Congress in 1906, which required the Coca-Cola Company of Atlanta, Georgia, to remove cocaine from its product. In April, the Great Earthquake and Fire in the City of San Francisco shocked the World.

Over seventy-five letters and articles are identified from the Index Medicus. These have been evaluated together with textbooks published at the time. The literature on general anaesthesia in 1906 was focused mainly on the application of Scopolamine-Morphine and Ethyl Chloride as an anaesthetic.

The main area of interest in regional anaesthesia was spinal administration. Topics include the application of Stovain or Cocaine in spinal anaesthesia for various types of surgery, including abdominal operations. Some published literature discussed the use of magnesium sulphate via the spinal route in several series of experiments on monkeys. Preparation of local anaesthesia, “Electrical Orientation,” and most interestingly, the use of water as a local anaesthetic were all the subjects of papers.

A number of published articles were related to post general anaesthesia complications. A more esoteric report published in 1906 was on the subject of ‘Blue Light’ analgesia.

Finally we reviewed the Seventeenth Annual Report of St. Marys Hospital, Rochester, Minnesota, and records held by West Suffolk Hospital, Bury St Edmunds,
West Suffolk, which take account of all types of operations conducted under general or local anaesthetic.

James C. Erickson, Ill, MD, MSc, Northwestern University, Chicago, Illinois

Four of the men who attended the first anesthesia meeting in America continued their involvement in the growth of the profession of anesthesiology. Adolph Frederick Erdmann, MD, is well known to most of us as the person who issued the call for "a few physicians practicing anesthesia in the area [of Brooklyn] to get together and form a society to promote the art and science of anesthesia."¹ They met at the Long Island College Hospital (LICH) on October 6, 1905 and formed the Long Island Society of Anesthetists (LISA)—second only to the London Society of Anaesthetists, which was founded in 1892. Dr. Erdmann, an 1897 graduate of the LICH, was an energetic participant and leader of the fledgling society, serving as its secretary and president during the next decade. His active participation in the growing stature of anesthesia led to his being proclaimed the "Life Active Member No.1" of the American Society of Anesthetists in 1937, and he received the Distinguished Service Award of the American Society of Anesthesiologists in 1947.

A less well known participant in the LISA was Harold A. Sanders, MD, a 1905 graduate of the New York Homeopathic Medical College and Flower Hospital. He continued his involvement in the nascent society, serving as president and secretary during the years following the inaugural meeting. During a term as LISA secretary in 1911, his home and all original records of LISA were destroyed by fire. He continued his involvement in the society, demonstrating various anesthetic techniques at local meetings and writing papers related to general anesthesia. He resigned from the New York Society of Anesthetists in 1924. A diligent search has failed to unearth his later activities and his fate.¹

George W. Tong, MD, graduated from LICH in 1903 and devoted his career to the practice of anesthesia in Brooklyn hospitals. He wrote several papers, often addressing problems of anesthesia relating to neurosurgery, and developed an
eponymous oropharyngeal airway. Dr. Tong was feted in 1956 by the International Anesthesia Research Society as the only surviving member of the nine founders of the LISA.¹

Although a medical student in 1905, George F. Sammis, MD, attended the first LISA meeting. His curiosity and involvement in anesthesia grew and he continued to administer anesthetics after graduation from the LICH in 1907. He developed a surgical practice and continued to present demonstrations of anesthesia during the next few years. Dr. Sammis eventually specialized in plastic surgery and was listed as being board certified in that specialty.¹

The science and organizations of Anesthesiology have developed and are built on the energy and devotion of these and other early practitioners. Their contributions to medicine and to our specialty during the early years of the last century must be remembered and accorded all due honor.

The Ether Monument
Rafael Ortega, MD, Boston University School of Medicine
Bruce Vrooman, MD, Boston University School of Medicine

The Ether Monument in Boston is arguably the most universal landmark for anesthesiology. It is located in a public park and honors the discovery of anesthesia. While in the 1920's every Bostonian knew that a monument had been erected to commemorate the discovery of ether as an anesthetic, in recent times that has hardly been the case.¹ Today, even some anesthesiologists are not aware that such a tribute exists.

The Ether Monument is in poor condition, and city officials have stated that “little can be done” about its failed fountains.² In the past, anesthesiologists have organized in an attempt to repair this symbol for the specialty.³ Indeed, the Massachusetts Society of Anesthesiologists has funds dedicated for this purpose, yet the last successful restoration was led by the late Leroy Vandam, MD, over three decades ago. This is explained by the high cost of maintaining historical monuments and by the complexities of municipal administration. Today, unfortunately, a literature search on the subject may yield results such as “there are papers amid brushes and beer cans near the Ether Monument.”⁴

The City of Boston has authorized a budget of approximately one quarter of a million dollars to restore the monument. Even if the monument were to be completely restored, an endowment is needed to assure its maintenance against graffiti, trash and acid rain.

This abstract focuses on the history of the Ether Monument and on the continuing need to educate anesthesiologists of its importance. The sources used include newspapers, newsletters, journals, and personal letters. Help is urgently needed to maintain the Ether Monument.


A Measure of Gold: Hong Kong Anesthesia at 50  
*Patrick Sim*

Noel Gillespie's American Tour 1935  
*Mark Schroeder, MD*

The First One Hundred Years of Caudal Anesthesia  
*Mark Mandabach, MD*
A Measure of Gold: Hong Kong Anesthesia at 50
Patrick Sim, Wood Library-Museum of Anesthesiology, Park Ridge, Illinois

Origin
Organized anesthesia in America celebrated its centennial in 2005. Hong Kong anesthesia marked its golden anniversary at the same time, half a century younger. The unique hybrid culture in Hong Kong impacted its medical tradition. After its discovery in Boston, medical anesthesia was introduced to the British colony in mid-19th century. A century later, British anaesthetist Zoltan Lett arrived in Hong Kong as staff anaesthetist for the government medical and health service. In fifty years, he helped transform colonial anesthesia service to a professional medical specialty in Hong Kong.

Zoltan Lett, Epitome of Hong Kong Anesthesia
Dr. Zoltan Lett, the Father of Hong Kong Anesthesia, was trained in Czechoslovakia and in the U.K. He enlisted in the RAMC in WWII, followed by an outstanding military medical career in the Far East. He joined the National Health Service (NHS) in post-war England, and was later recruited to become the first specialist anaesthetist with the Hong Kong Government Medical and Health Service (GMHS) in 1954. A modest and sincere physician, Dr. Lett had a focused vision to elevate anesthesia from a colonial medical service to a professional medical specialty in Hong Kong. His gregarious nature attracted friendship and goodwill worldwide to advance his mission, and his dedication to professionalism has won him admiration and appreciation of his peers, as he witnesses the maturation of a medical specialty he has nurtured in fifty years.

Hong Kong Anesthesia at 50
Dr. Lett’s training and persona conveniently provided an impetus to a budding concept of professional anesthesia in colonial Hong Kong. Oxford-trained Hong Kong pioneer anaesthetist Horatio Ozorio had gained sympathetic acceptance of quality anesthesia by dominant surgeon of the time, G. B. Ong. With Dr. Ozorio, Dr.
Lett laid the foundation for training and education of a new generation of Hong Kong anaesthetists who would become future leaders. The strategy was to dispatch bright young physicians to train in the U.K. and Australia, increase cooperation between hospitals in clinical service, promote academic anesthesia to facilitate recruitment and training, enrich clinical anesthesia education through visiting lectureship by world anesthesia leaders traveling past Hong Kong, collaborate with regional anesthesia training programs to raise professional standards of the specialty, and finally, establish professional organization, and create certifying mechanism to set specialist standards.

_Hong Kong Anesthesia, a Measure of Gold_

Pragmatic measures to suit indigenous needs have brought professionalism to anesthesia in Hong Kong. The embryonic vision of Dr. Lett has been realized and expanded to new horizons. Increasing professional exchanges and associations with the mainland, Taiwan, Southeast Asia and the rest of the world accelerate scholarly pursuit and clinical excellence. Repatriating leaders trained abroad have further enriched the specialty. A fusion of the best in world anesthesia with native excellence helps distinguish medical anesthesia in a metropolis long hailed as the Pearl of the Orient. The first fifty years of Hong Kong anesthesia has prepared it well to the challenges of the new century.
Noel Gillespie's American Tour 1935

Mark E. Schroeder, MD, Wood Library-Museum of Anesthesiology, Park Ridge, Illinois
Rod Calverly, MD, Wood Library-Museum of Anesthesiology, Park Ridge, Illinois

Noel Alexander Gillespie, MA, DM, DA, FFARCS (1904-1955) was educated at Oxford University and London Hospital where he was elected Honorary Assistant Anaesthetist in the summer of 1934. He resigned his position to become a colleague of Ralph M. Waters at the University of Wisconsin in 1939. Gillespie authored the classic text, *Endotracheal Anaesthesia* (1941), and was co-author of the centennial monograph, *Chloroform* (1951).

Ralph Waters visited England in 1936 leading some to believe that Gillespie and Waters initially met during this period.\(^1\) Gillespie’s papers and letters at the Wisconsin Historical Society Archives and a Gillespie diary, recently acquired by the Wood Library-Museum of Anesthesiology, describe that initial meeting during an American tour when Gillespie visited prominent anesthetists in 1935.

In autumn 1934, Gillespie writes, “Meantime it had been settled that in late March I should leave for a three-months’ trip around the States; primarily to visit colleagues, make their acquaintance, and see what was going on there.”\(^2\) The unanticipated death of his mother, a profound influence in his life, in January 1935, made the trip a means of taking his mind off his grief. Contacts were made: Ralph Waters writes on February 1, “May I assure you that you will be very welcome to come to Madison and spend as much time as you wish?”\(^3\) He sailed on the RMS *Aurania* to New York on March 23, arriving on April 3, 1935. A letter received in New York from F. H. McMechan offers a proposed itinerary including equipment makers and prominent anesthetists in New York, Baltimore, Philadelphia, Cleveland, Toledo, Chicago, Madison, Toronto, and Buffalo.\(^4\)

Gillespie’s diary gives his impressions of the personalities he met and their hospitality, anesthetic skills, working conditions, attitudes toward surgeons and anesthetic technicians. He makes comparisons between British and American anesthetic practice.
Arriving in Madison the evening of May 6, Gillespie was met on the train platform by Waters, “a sturdily-built dark man of about 50...as natural and friendly as you please.” The next morning he found the operating rooms of the Wisconsin General Hospital “about as small and inefficiently planned as...possible...” but having, “on the other hand, the usual lavish supply of machines....”5 As he departed on May 19, Gillespie wrote, “I’m never likely to meet a finer man than Waters: utterly keen on his job, with an amazing knowledge of physiology and grasp of the literature. Withal quite the most lovable man I have met in the subject. Quiet, of moderate views, judging nothing hastily, he stands almost unique.”6

Gillespie completed his tour with a short visit to the Mayo Clinic before returning to Atlantic City for the Fourteenth Annual Congress of Anesthetists.

His friendship with Waters, begun in 1935, would have substantial impact on Gillespie, Waters, and the future of academic anesthesia.

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3 “R. M. Waters letter to NAG,” February 1, 1935. Wisconsin Historical Society Archives, Wis Mss UR.

4 “F. H. McMechan letter to NAG,” April 5, 1935. Wisconsin Historical Society Archives, Wis Mss UR.


The First One Hundred Years of Caudal Anesthesia

Mark G. Mandabach, M.D.
University of Alabama, Birmingham, Birmingham, Alabama

Caudal anesthesia has been available for over a century. This presentation will review the available world literature in order to explore contributions that have either escaped attention or have been hidden from view, to show the relationships among the contributors during their efforts, and to systematize the chronology of progress for this type of anesthesia.

The earliest local anesthetic was cocaine hydrochloride, which was isolated and purified in Europe from the coca leaf by Dr. Albert Nieman in 1860.

In 1885, J. Leonard Corning performed the first epidural block. Accidental in nature, he was attempting a spinal block with misguided knowledge of the lumbar spinal region’s anatomy. In 1898, August Bier, a German doctor, performed the first spinal block.

In 1901, Jean-Athanase Sicard and Fernand Cathelin published their work on caudal anesthesia. They were looking for an alternative to spinal anesthesia. Cathelin attempted four inguinal hernia repairs under caudal anesthesia with cocaine hydrochloride, without success.

With the advent of procaine in 1904, caudal anesthesia for surgery and obstetrics became feasible. In 1909, the German physician Walter Stöckel introduced caudal anesthesia for obstetrics. Arthur Läwen, another German, published a paper in 1911 that illustrated his success with a variety of operative procedures done under caudal procaine anesthesia. William T. Lemmon introduced continuous spinal anesthesia in 1942 utilizing a malleable silver needle, continuous tubing, special syringes and stopcocks, and a dedicated, unique operative table that allowed the spinal needle to remain in place throughout the operation. Patterned after this technique, Waldo B.
Edwards and Robert A. Hingson developed a method for delivering continuous caudal anesthesia for obstetrics. In 1943, Adams, Lundy and Seldon reported their method for performing continuous caudal anesthesia with a ureteral catheter. It would have a wide range of applications and was the precedent to the modern epidural catheters in use today.

Meredith F. Campbell of New York City published the first report of pediatric caudal anesthesia in 1933. She cited 83 cases utilizing caudal anesthesia for urological examinations and minor surgical procedures involving children. In 1962 Dr. Peter Spiegel of Rio de Janeiro, Brazil published the next paper on pediatric caudal anesthesia. He used caudal anesthesia for 124 children ranging in age from two days to 14 years. In 1964, Dr. F. G. Ruston of Hamilton, Ontario, Canada, reported four cases of caudal anesthesia in children. The majority of Dr. Ruston’s experience was with lumbar epidural anesthesia; he published three papers on this subject between 1954 and 1962. In 1967, Dr. Armando Fortuna, another Brazilian physician, published a series of 170 caudal blocks performed on infants and children who underwent a variety of operations.

By the 1970s, caudal and epidural anesthesia had been combined with general anesthesia for a wide range of procedures including upper and lower abdominal surgery and genito-urinary operations. In 1975, Dr. Estela Melman and her colleagues published their experience with pediatric regional anesthesia. Over 200 cases of caudal anesthesia were reported retrospectively, encompassing five years of clinical practice.

In Great Britain, experiments with caudal anesthesia were ongoing since Fortuna’s first article was published in 1967. In 1974, Dr. B. Kay of the Derbyshire Hospital for Sick Children was doing caudal blocks for circumcisions. E. N. Armitage of Great Britain published a half-page report in Anaesthesia in 1979 entitled “Caudal block in children.” He outlined his use of caudal block for surgery below the umbilicus in
combination with general anesthesia. Only light general anesthesia was required, and the children remained pain free for several hours after the surgery ended.

In 1977, Dr. Shakeela Z. Hassan of the University of Chicago published a report of 70 cases of caudal anesthesia for a variety of surgical procedures. Infants ranged in age from four weeks to two years of age.

By the 1980s, caudal anesthesia was in widespread use. In 1982, Dr. R. G. McGown reported his first five hundred caudal blocks in children. Dr. McGown practiced in Zimbabwe and performed his first pediatric caudal block in a ten-year-old child after doing approximately 500 caudal blocks in adults. His patients ranged in age from newborn up to ten years of age. In 1989, Dr. Bernard Dalens and Dr. Abdou Hasnaoui of the Hotel-Dieu Hospital in Clermont-Ferrand, France reported 750 cases of pediatric caudal anesthesia. Their report was a retrospective study involving consecutive caudal blocks done exclusively by two pediatric anesthesiologists. Ninety-four percent of the blocks were performed under general anesthesia, usually utilizing inhalation anesthesia with halothane, enflurane or isoflurane. A few were done under intravenous pentothal anesthesia. After the block was placed, most were maintained under general anesthesia without endotracheal intubation. Forty-six patients did not receive general anesthesia.

The rapid transition from limited acceptance to widespread use of pediatric caudal anesthesia can be attributed to: (1) knowledge of the technique spread by word of mouth; (2) the technique was relatively simple and easy to learn; (3) it could be used for a wide range of procedures; (4) and it could be combined with general anesthesia and often obviated the need for supplemental narcotics.

Today caudal anesthesia is rarely practiced in the adult population for surgical procedures, having been supplanted by general anesthesia and other regional techniques. Caudal blocks are utilized in contemporary chronic pain management. They are also a common and useful pediatric technique, usually combined with
general anesthesia for a balanced anesthetic that offers a smooth intraoperative course and superb postoperative analgesia.
Luncheon Plenary Session: William Mayo

Matthew D. Dacy, Director of Heritage Hall
Plenary Session: Mississippi and the Mayo Brothers

Dennis M. Robertson, MD
Many Men, Three Wars, and One Question: Foundations for the Modern Understanding of Pain

Christian D. Gonzalez, M.D.

James Young Simpson: The Voice of Reason for the Rights of Women in Labor 158 Years Later

Lori D. Conklin, MD
Many men, three wars, and one question: Foundations for the Modern Understanding of Pain

Christian D. Gonzalez, MD, Baylor College of Medicine, Houston, Texas

This article explores the enduring influences of luminary men and unique wars on the modern understanding of pain. It draws the reader into the minds of great scientists, whose work had major impact on pain and its mechanisms, and describes how their work was shaped by the horrors of war.

The essay is based on archival books, journals, letters, and on reports of the seminal experiments performed by these scientists. We found that the Civil War, World War I and World War II lead to major advances in the understanding of pain. It also highlights the role three scientists played in the creation of Pain Medicine: Silas Weir Mitchell, Rene Leriche and William K. Livingston. We reason that these three men and three wars were the core for the modern understanding of pain and the origins of Pain Medicine.

"I would like to thank Dr. Burdett Dunbar and Elizabeth Borst White for their guidance and collaboration with my essay."
James Young Simpson: The Voice of Reason for the Rights of Women in Labor 158 Years Later

Lori D. Conklin, MD, Baylor College of Medicine, Houston, Texas

Many scholars have studied and written articles describing James Young Simpson's extraordinary contributions to obstetrical anesthesia. Since ancient times, relief had been sought to alleviate or at the very least lessen labor pain. When Dr. Simpson used ether, and then chloroform, in his midwifery practice to accomplish this very thing, he was faced with many obstacles—religious opposition, moral opposition, and the unknown effects of these agents on the uterus, the mother, and the unborn child. As a clinician, Dr. Simpson devoted his entire career to alleviating labor pain; as a scholar, Dr. Simpson demonstrated the importance of teaching the next generation, of having a life outside the hospital, and of caring for the poor. This essay examines the struggles—religious, moral, physiological, personal—Dr. Simpson faced in his medical practice and what lessens we can learn as educators, parents, and caregivers 158 years later.
Barnell R. Brown, MD, PhD, FFACS, Halothane
Hepatotoxicity Untangled
Adolph Giesecke, MD

Historical Development of Rapid Infusion Devices for Liver Transplantation:
Necessity was the Mother of Invention
Abram Burgher, MD

Medical Equipment Identification: How can You be Sure
What You See in a Picture is What You Think it is?
And How is it Used?
Burdett Dunbar, MD
Burnell R Brown MD, PhD, FFARCS, Halothane Hepatotoxicity Untangled

Adolph H. Giesecke MD, University of Texas Southwestern Medical Center, Dallas

Burnell R. Brown (1933-1995), was born in Dallas TX, received his MD from Tulane in 1958, and finished a residency at Parkland Memorial Hospital in 1969. He took a PhD in pharmacology at Southwestern after which he spent a year at Peter Bent Brigham Hospital in Boston before becoming the founding chairman of anesthesiology at University of Arizona in 1972. His most important scientific contribution was unraveling the mechanism of halothane hepatotoxicity, which required 18 years.

Halothane, which was introduced to clinical practice in the USA in 1956, was a quantum leap in safety of anesthetic drugs because of its potency, lack of flammability, and general smoothness of administration. Its introduction was quite rightly followed by an explosive increase in its clinical use. By the early 1960’s it was the most commonly used anesthetic in the western nations. The dark side to halothane, however, soon began to emerge. Its repeated use was rarely followed by jaundice, hepatic failure and death.

The enigma of halothane hepatotoxicity was revealed slowly like the untangling of a severe backlash in a fishermans reel. It required revolutionary changes of previously held dogma relating to metabolism of inhalation anesthetics. It required highly skilled scientific research from widely dispersed investigators spanning oceans, continents and years. Brown’s scientific and literary brilliance was always in the middle of it.
In 1988 the investigators in the laboratory at the University of Arizona unveiled their solution to the mystery of halothane hepatotoxicity.¹ The oxidative biotransformation of halothane produces trifluoroacetyl chloride (TFC). The biotransformation is inhibited by high concentrations of halothane so only the drug, which is stored in the fat at the end of an anesthetic is subject to biotransformation. The TFC covalently binds to the lysine residues on proteins in the cell membrane. This altered liver protein acts as an antigen and antibodies are produced. On subsequent exposure the antibodies attack the trifluoroacetyl-protein complex causing rupture of the membrane and death of the cell. Eureka, the mechanism has been revealed and is so elegant. It serves as a model to study future inhalation anesthetic drugs for organ toxicity before they are a threat to human beings.

Historical Development of Rapid Infusion Devices for Liver Transplantation: Necessity was the Mother of Invention

Abram H. Burgher, MD, Mayo Clinic, Rochester, Minnesota
Gurinder M. Vasdev, MD, F.R.C.A, Mayo Clinic, Rochester, Minnesota
Steven R. Rettke, MD, Mayo Clinic, Rochester, Minnesota

Introduction: Rapid infusion systems (RIS) are common place today; however, the impetus to develop them for a commercial market was fueled by the transfusion needs during liver transplant surgery. In the 1970’s significant mortality was associated with acute blood loss, yet the market was devoid of high volume RIS. The aim of our study was to determine the events and inventions that led to the development of current RIS.

Methods: Using departmental and institutional archives the sequence of introduction of RIS to our practice was determined. Personal correspondence was reviewed and the events delineated.

Results and Discussion: Liver transplant surgery required a system that could transfuse large flows of warmed blood at relatively low pressures. Key in the development of these devices was the work conducted at the University of Pittsburgh Health Center by John Sassano, M.D. (Dr. Sassano’s work on RIS has now been developed into the Haemonetics RIS™.)¹ His early drawings are shown in Figure 1. After successful use of this device, other medical institutions implemented the use of RIS for liver transplantation programs. However, when the liver transplant began at Mayo (early 1980’s) there were no commercially available RIS. In 1984, the Mayo RIS was developed by the engineering department with the guidance of Steven Rettke, M.D.² This early model used a water bath heated to 42°C and had a split 10g tubing system to deliver up to 1.43 l/min of crystalloid at 37°C through 8.5 Fr. cannula at 300 mmHg in-line pressure (Electromedics Inc., Englewood, IL). By using a second 8.5 Fr G IV, infusion rates could easily be doubled. A roller pump from a cardiopulmonary bypass machine was employed. Evidence for the success of
this pump was immediately clear; further adjustments of flow, air detection, fluid warmers, and electronics resulted in additional modification. By 1985 two such pumps had been manufactured by Mayo Clinic's Engineering Department (Figure 2). The system was characterized by a 2.8 L cardiomyotomy reservoir with 150 micron sleeve filter (Sci-Med Life Systems, Minneapolis, MN) and use of a DeBakey precision roller pump (Cardiovascular Instrument Corps, Wakefield, MA). The success of this invention culminated in the ability to conduct liver transplants successfully in patients even with 120 units of blood loss. The followup of 100 transplants revealed no loss from hypovolemia, a befitting acclamation for the manufacturers and designers of these machines. The Mayo Pump modification 3 continued to see service until 1995 when the advances in Haemonetics RIS™ electronics and FDA requirements necessitated the switch to the commercial pump. Our historical review highlights that the advances in liver transplant surgery led to the development of RIS. Additionally, the basics of current pumps are based on the design by the pioneers of anesthesia in this field.

Fig. 1. The original diagram of the University of Pittsburgh Health Center, pump designed and annotated by Dr. Sassano.


Medical Equipment Identification: How Can You be Sure What You See in a Picture is What You Think it Is? And How is it Used?

Burdett S. Dunbar, M.D. Texas Children's Hospital

I attempted to identify several pieces of equipment, which had been attractively sketched for display in one of our department's public areas. The drawings were made from a series of pictures of antique anesthesia equipment obtained off the web by a non-medical searcher. The goal was to name and briefly describe the use of the devices. The author's personal memories were not sufficient to the task. This presentation will outline aspects of the search necessary to accomplish the aim.

A variety of web sites are available to assist one in this endeavor using Google as the search engine for such terms as these: Medical equipment, anesthesia equipment and historic medical equipment. My first searches were complicated because the original searcher was no longer available to identify the site(s) used.

A bit more sleuthing linked me to a web site showing some, but not all, of the pieces drawn. However, a medical catalog source in London, Allen & Harbury's, was identified with a catalog date of 1930. A senior anesthesiologist was able to identify one or two of the pieces as masks used in the administration of open drop ether or chloroform along with a series of vaporizer bottles, probably Boyle's bottles. However, the anesthesia delivery systems shown were of unknown origin and their use wasn't obvious because of their antiquity. For individuals interested in collecting old equipment precise provenance as to date of manufacture and details of the uses of the equipment are essential.

Uncertainty about precise identity led to inquiries at the ASA Wood Library Museum. Judith A. Robins, WLM Collections Curator, was invaluable in helping the project along. Her help in accurately identifying the pieces, as well as placing them as to the manufacturer and the catalog entries was essential to this project and solved
many of the mysteries. As is often true in quests of historical nature, more questions were raised, even though the original question—what is it?—was answered.

In my presentation I shall cover the following: Useful web sites, as well as those less useful; the importance of resources like the WLM; the current availability of some of these antique pieces on the web and, most importantly, questions raised during this search, e.g. Why did a manufacturer continue to list as a purchasable item in a 1930 catalog, equipment designed for use as much as 50 years before? And, why were there so many varieties of the same piece of gear? What changes were happening in anesthesia practice? My further aim is to describe and understand better these and related questions.
Free Papers
Saturday, June 24, 2006
11:00 – 12:00 pm

Edith Graham Mayo
_Darlene Bannon, CRNA, MNA_

Magaw and Henderson:
Notable Anesthesia Nurses to the Mayo Brothers
_Joan Hunziker-Dean, CRNA, MNA_

Why Would a Librarian Write Anesthesia History?
Tom Keys, John Lundy and the Army Medical and Mayo Clinic Libraries
_Selma Calmes, MD_
Edith Graham Mayo
Darlene Bannon, Mayo Clinic Rochester

In every pioneering achievement there are visionaries, those who theorize and dream beyond the safe haven of the present. However, the visionary's dreams would not be realized if not for the activist: one whose thoughts flow into action, is flexible and accommodating, and has the drive to achieve and influence. Edith Graham Mayo was born both visionary and activist. A historical review of Edith Graham Mayo - the Anesthetist highlights a previously neglected aspect of her life. Edith's life has been explored as the wife of Dr. Charles Mayo, with mere mention of her professional life as an anesthetist. We elucidate her role as Saint Marys Hospital's first anesthetist and an integral part of the visionary team that founded what we know today as the Mayo Clinic.
Magaw and Henderson
Notable Anesthesia Nurses to the Mayo Brothers
Joan Hunziker-Dean, CRNA, Mayo Clinic Rochester

Purpose: To offer a perspective of the contributions of two pioneer nurse anesthetists, Alice Magaw and Florence Henderson, and their technique of ether administration during the early surgical practices of Drs. Charles H. and William J. Mayo.

Significance/Rationale: To recognize the role of anesthesia nurses, their art of ether administration, and their teaching and publications that led to the advancement of both surgical and anesthesia practice.

Methodology: This is a historiography based on examination and analysis of sources such as historical nurse anesthesia texts, history of nursing texts and papers published by Magaw and Henderson.

Primary Sources: A Review of Over Fourteen Thousand Surgical Anaesthesias by Alice Magaw (1906), Ether Anesthesia by Florence Henderson (1914), Handbook of Suggestive Therapeutics by Henry S. Munro (1913) and Mayo archive photographs.

Secondary Sources: Nurse anesthesia texts, History of Anesthesia with Emphasis on the Nurse Specialist by Virginia S. Thatcher (1953), Watchful Care by Marianne Bankert (1989) and early hospital records of Saint Marys Hospital, Rochester, MN.

Findings: Magaw and Henderson were early advocates of specialty practice in nursing. Alice Magaw, called “The Mother of Anesthesia” by Charles H. Mayo, expertly administered anesthetics at Saint Marys Hospital for both the Mayo brothers beginning in 1893 until 1904 when she was joined in practice by Florence Henderson. Their open-drop ether technique incorporating the power of suggestion as an adjunct allowed them to use a fraction of the ether dosage normally
administered. They were influential teachers of ether administration and their techniques were notably reviewed by physicians throughout the world. Surgeons who came to see the Mayo brothers’ practice noticed the skillful either administration and sent selected nurses to Rochester to be taught by Magaw and Henderson.

**Conclusions:** Satisfactory anesthesia, aiding surgeons’ efforts in the early 20th century depended upon the skill of the anesthetist. The anesthetic skills of Magaw and Henderson were considered an art form. Their ability to gain the patient’s confidence through the power of suggestion during the ether induction resulted in using a fraction of the usual ether dosage, improved the outcome of the anesthetic and greatly contributed to the safety of surgery.
Why Would a Librarian Write Anesthesia History? Tom Keys, John Lundy and the Army Medical and Mayo Clinic

Selma Harrison Calmes, MD, David Geffen School of Medicine, UCLA, Los Angeles

For more than 50 years, former Mayo Clinic Librarian Tom Keys' book, The History of Surgical Anesthesia (1945), was the only American book summarizing the entire history of anesthesia. It was the reference text for those interested in all aspects of anesthesia history and was the place to start a project. It also served as the defining example of how to write anesthesia history. Its importance cannot be emphasized enough; nothing else like it existed. The few books that were available then focused only on the discovery period or were for the public; Keys went on to modern times and wrote for a medical audience. This paper documents how the book came to be. It also is a tribute to Keys' leadership in writing the history of anesthesia.

Keys (1908-1995) was always interested in history. After graduation from Beloit College in 1931 and several library positions, he was appointed Assistant Librarian at the Mayo Clinic in 1934. This put him in physical proximity to Dr. John Lundy, head of the Section on Anesthesia. Lundy was writing a textbook on anesthesia and suggested that Keys contribute a chapter on anesthesia history, although Keys had no knowledge of this subject. The chapter was to be a simple list of events and a few suggested references. This textbook appeared in 1942, with a history chapter of 11 pages and 13 references.

Keys accumulated much reference material for the book chapter and, at the suggestion of the editor of the new journal Anesthesiology, he expanded the simple list into five narrative articles. These appeared in Anesthesiology between September 1941 through July 1943 and were well received. Keys meanwhile had entered the Army and was stationed at the Army Medical Library in Washington. When the 75 tons of rare books and other valuable items were moved to Cleveland in 1942 to insure their safety in case of attack, Keys was sent to Cleveland as the rare book librarian. He spent the rest of the war in this position. He returned to
Mayo Clinic as its Librarian, retiring in 1972. The Mayo Clinic library was remodeled and the collection grew from 30,000 volumes with 4 staff to 120,000 volumes and 40 staff during this time.

After the final journal article was published, all the reprints were assembled into a simple book titled *The Development of Anesthesia*, with cardboard covers and a plain, typed title. This was released in 1943, and copies were given to people Keys thought would appreciate it. Pharmacologist Chauncey Leake, a close friend, urged Keys to further develop the material into a real book. Keys agreed—if Leake would write an introductory chapter. He also convinced another friend, anesthesiologist Noel Gillespie (then at the University of Wisconsin), to write a concluding chapter on the future of anesthesia. Yale’s Medical Library Librarian John Fulton, another close friend, did an Appendix. It was released in 1945 and was quickly out of print. It was revised in 1963, translated into Japanese in 1967, translated into German in 1968 and then reprinted in English in 1978.

Anesthesiologist Dr. Arthur Guedel was quite upset about how his work was presented in Keys’ book. He wrote to Chauncey Leake the year after publication and listed errors of interpretation of Guedel’s work in two typewritten, single-spaced pages. Guedel felt the errors gave Ralph Waters too much credit for Guedel’s achievements. Leake urged Guedel to be calm about this and to realize that he had indeed made many contributions to humanity. Guedel continued to ruminate over these errors and ten years later finally wrote to Keys listing his grievances. Keys incorporated many of Guedel’s comments into the 1963 edition and specifically stated it includes “corrections that had been pointed out to me.”

Keys, a librarian with no scientific or medical background, was able to become the outstanding anesthesia historian of the mid-20th century. His long-time interest in history, his exposure to the rare items in the Army Medical Library and the Mayo Clinic Library, his physical nearness to Dr. John Lundy at Mayo Clinic and his
friendships with many notable anesthesiologists all combined to lead him to write anesthesia history.

In appreciation for his work, he was made an Honorary Member of the American Society of Anesthesiologists in 1945, was invited as a special guest at the First World Congress in 1955 and he gave an ASA meeting refresher course in 1956 and the Wright Lecture in 1968. He was also the obvious choice to become the first Honorary Member of the Anesthesia History Association. Tom Keys' work was an impressive example of writing anesthesia history, and we should not forget him.
Friday, June 24, 2006
12:20 PM - 1:20 PM

Plenary Session: Using History to Teach Professionalism

Douglas R. Bacon, MD and Dale Smith, PhD
Using History to Teach Professionalism: The Nuts and Bolts

Douglas R. Bacon, M.D., M.A.
Professor of Anesthesiology and the History of medicine
Mayo Clinic

Dale C. Smith, Ph.D.
Professor and Chair
Medical History
Uniformed Services University of Health Sciences

Professionalism is one of the “hot topics” in medical education in the beginnings of the 21st century. Brought about by a shift in the expectation of society in general and patient’s specifically, the teaching of professionalism has been mandated in the United States by the AAMC and the undergraduate level and the ACGME at the graduate level. This presentation will explore the use of history as a “basic science” for professionalism. Examples of the use of history for teaching medical students will be discussed.

On the graduate level, the use of common teaching tools for professionalism will be discussed. An example of a journal club formatted to teach the cognitive knowledge of professionalism using historical examples is the cornerstone of this part of the presentation. Finally, methods for evaluation of professionalism will be demonstrated.
Abuse, Addiction and Anesthesia

Jason McKeown, MD

Two Physicians Fight

Sarah M. Garber, MD
Abuse, Addiction and Anesthesia
Jason L. McKeown, M.D., University of Alabama, Birmingham

Modern-day anesthesiologists owe a profound debt of gratitude, and in many cases, condolences, to the forefathers of our specialty who unsuspectingly sacrificed their lives in the process of advancing our field. For over 200 years self-experimentation was a critical part of the discovery of the therapeutic effects of anesthetic drugs. Humphry Davy experimented with nitrous oxide; Frederick Satunner with morphine; Long, Wells and Jackson with ether; James Simpson with ether, chloroform and other inhalational agents; Koller, Freud and Knapp with cocaine; Altounian and Moore with ketamine. The transformation of anesthesia and surgery into modern-day medical sciences essentially depended on such experimentation. However, men were left in the wake of the wave of scientific progress, their lives shattered by drug dependence: many became “accidental addicts.” William Halsted, the first Chief of Surgery of Johns Hopkins, is possibly the most famous case of addiction as a consequence of self-experimentation. He developed a life-long dependence on cocaine (and subsequently morphine due to the treatment of his cocaine addiction) because of self-injection of cocaine while developing peripheral nerve blocks. Robert Glover was more a victim of self-administration of addicting drugs—opium and chloroform—for dysentery acquired in Scutari during the Crimean War. Glover, nonetheless, became addicted and tragically died of an apparent chloroform overdose.

When anesthesia was in its infancy, the risks of self-experimentation and self-administration were largely unknown as were the effects of the drugs themselves. Today however, increased knowledge of pharmacology may actually increase the risk of addiction in physicians. Self-prescribing is commonly practiced by physicians who may believe their understanding of pharmacology somehow protects them against addiction. It is well known that anesthesiologists with addiction problems are identified in higher numbers in drug treatment groups than other specialists. One reason for this disparity may be that detection is better among anesthesiologists.
The ASA Task Force on Chemical Dependence has increased awareness and education. While alcohol is the most commonly abused drug among all physicians, anesthesiologists have much higher rates of opioid addiction as well. Several trends have been identified: availability of highly addictive drugs in the workplace would seem to place anesthesiologists more at risk. Availability for physicians is also easier because of the ability to self-prescribe. Occupational stressors in healthcare workers such as high pressure situations involving life or death decision-making and disrupted life-style due to unpredictable work hours are linked with substance abuse. These two particular stressors are familiar to anesthesiologists. But self-prescription, access in the workplace, and occupational stress may be less important than thought previously in development of addiction. Genes for specific addictions have been demonstrated to play a part along with environmental exposure. Understanding of neurobiology has also led to the theory that second-hand micro-exposure to addicting drugs, even as minute as exhaled fentanyl from an anesthetized patient may sensitize neurons of the nucleus accumbens and predispose the anesthesiologist to addiction. Thus, addiction in those who practice anesthesia today is a multifactorial disease, just as it was in the self-experimenting pioneers of the field.

References
Two Physicians Fight
John C. Sill, MD, Mayo Clinic Rochester
Sarah M. Garber, MD, Mayo Clinic Rochester

Two Battles. It was just before dawn one cold February morning in revolutionary 1643, when Parliament's cavalry swept across the frozen fields outside Weymouth, to drive a Royalist expeditionary force from this quiet English coastal town. Thomas Sydenham, then a 19 year old medical student carried the Puritan colors. Within the city, 20 year old Richard Wiseman, a barber-surgeon of Noble origins, tended to the Royalist wounded. Sydenham and Wiseman were to become 17th century England's greatest physicians and both ultimately would established themselves in medical history.\(^1,2\) They were to fight again - at Worcester in 1653. At Worcester, the aristocratic classes made a final attempt at restoring monarchist absolutism. Sydenham was by now a cavalry officer in Cromwell's "New Model Army" - a force with radical egalitarian politics in search of an England freed from oppression by the rich. Wiseman, in contrast, remained on the side of the crown. Parliament won.

Two Physicians. Thomas Sydenham (1624-1689), the son of a "country gentleman" studied at Oxford and practiced in London. He was influenced by the modernism of the Revolution, with its emphasis on empirical enquiry rather than blind faith and by Christian radicalism. He studied and reported on epidemics, including those of smallpox and the "Great Plague" and described improvements in medical care - including mercury for syphilis, quinine for ague (malaria) and the opioid "laudanum" for pain. Richard Wiseman (1623 – 1676), had aristocratic origins, probably being the illegitimate son of Sir Richard Wiseman. At age 15 he became an apprentice at the Company of Barber-Surgeons in London. Wiseman's legacy included the use of outcome as a guide to practice. More specifically, he provided accounts of the principals underlying surgery, with details of his skills learned in battle and applied to general surgical practice.
Why Opposing Sides in the Conflict. The civil war represented a conflict between the old feudal order of aristocrats, Kings and Queens and a newly emerging class of bankers, merchants, owners of small factories and "gentleman" farmers. The prize, of virtually incomprehensible value, was control of the means of production. Sydenham was of "the middling sort," farmers who owned moderate tracts of land and who were subject to punitive Royal taxes and interference from the King. Curiously, most historians suggest England's physicians sided with the King, fighting as "Cavaliers" (i.e. royalist thugs and bully boys). Examination of the social composition of the College of Physicians in 1650 shows however, that members were educated men of modest origin – the sons of yeomen, artisans and farmers – the very class that had most to lose from Royalist victory. Wiseman had origins in the ruling aristocracy. As an apprentice in London, he would have been exposed to and frightened by the emerging radicalism of the working poor and their aspirations for an egalitarian England.

A Happy Ending? The years following the Civil War were scientifically glorious and provided Sydenham and Wiseman a milieu in which they flourished. However, for England, the ending was not necessarily so happy. Cromwell had become a despot, having defeating not only the Crown, but also the parliamentary Presbyterian conservatives and the radical populists within the New Model Army. Furthermore, Cromwell permitted partial restoration of the Crown and a new conservatism. Sydenham cautiously pursued his investigations while Wiseman was appointed as England's Principal Surgeon.

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1Thomae Sydenham Methodus Curandi Febres London 1666.
2Richard Wiseman. Several Chirurgical Treatises. London 1676.
Free Papers
Saturday, June 24, 2006
2:10 – 3:10 pm

A Fascinating Relationship:
Isabella Herb, MD and William J. Mayo, MD
Allison Christie, MD

The Other Great Clinic: Dr. Frank Lahey and the Anesthesiologists
Gerald Zeitlin, MD

Pioneering Cardiac Anesthesia:
The Life and Work of Emerson Moffitt, MD
Adam Jacob, MD
A Fascinating Relationship:  
Isabella Herb, MD and William J. Mayo, MD  

Allison Christie, MD, Mayo Clinic Rochester  
Terese T. Horlocker, MD, Mayo Clinic Rochester  
Douglas R. Bacon, MD, MA, Mayo Clinic Rochester  

Isabella Herb, MD was the first physician hired at the Mayo Clinic in Rochester, Minnesota as a specialist in anesthesia. She arrived in 1899, and permitted the opening of a second operating room at Saint Marys Hospital. With Dr. Herb anesthetizing patients for Dr. Charles H. Mayo, and Alice Magaw performing the similar duties for Dr. William J. Mayo, the brothers could operate simultaneously for the first time. In addition to her operating room duties, Dr. Herb also worked as a pathologist. During her time in Rochester, she published one case series on hypernephroma. In late 1904, Dr. Herb left Rochester and went to Europe. Returning to the United States in 1905, she became the chief anesthetist at Rush-Presbyterian Hospital in Chicago.¹  

From then until 1922, she carried on a correspondence with Dr. William J. Mayo. These letters are preserved in the Mayo Foundation Archive.² The letters are most often hand written by Dr. Herb, and typed by Dr. Mayo’s secretary. Several letters in the series appear to be missing, as there is a response from either party or a comment not covered in the previous letter. What is even more curious is the lack of letters from Dr. Charles H. Mayo to Dr. Herb, although Isabella was Charles’ primary anesthetist during her time in Rochester.  

The correspondence between Dr. William J. Mayo and Dr. Herb is warm, personal and friendly. There are many instances where Dr. Herb attempts to arrange additional training for young physicians she has worked with in surgery in Chicago. She also asks for advice on many matters, from travel to car repair. In many ways, this correspondence symbolizes the ultimate good relationship between an employee and one’s former boss.
Yet, there are some unanswered questions in the correspondence. Dr. Herb is the same age as Dr. Charles H. Mayo, Dr. William J. Mayo's younger brother. Did this account for their relationship? Dr. Herb laments the fact that Dr. Mayo did not call upon her during many of his visits to Chicago. She often writes that she wishes to consult with him about personal matters when they meet. Given the time period, these issues most likely were financial or personal health or perhaps seeking employment for a friend who wished her efforts to remain confidential. However, as the correspondence trails off, it is clear that Dr. Herb feels slighted perhaps, as Dr. Mayo does not write nor visit as frequently as she would like.

What remains even more tantalizing is that Dr. John Lundy, hired to head anesthesia at the Mayo Clinic in 1924, did work with Dr. Herb during medical school. Lundy relates that it was his interest in ethylene anesthesia, the agent Dr. Herb introduced to the world of medicine, that peaked Dr. William J. Mayo’s interest at the medical society meeting where Lundy and Mayo first met. Was Dr. Mayo familiar enough with Dr. Herb's work to realize that Dr. Lundy was a bright, capable physician specialist and hired him to fulfill the role Dr. Herb left in 1904? While there is no apparent connection, it remains a tantalizing possibility.

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2 "Letters between Dr. Isablella Herb and Dr. William J. Mayo." The Collected Correspondence of William J. Mayo, M.D., The Mayo Foundation Archive, Rochester, Minnesota.

The Other Great Clinic: Dr. Frank Lahey and the Anesthesiologists

Gerald L. Zeitlin, MD

In 1923, Dr. Frank Lahey, a surgeon, founded the first multispecialty medical clinic in New England. It is probable that he modeled his clinic on the Mayo Clinic established 20 years earlier.¹

Unlike other multispecialty clinics of that era, the Lahey Clinic employed physician anesthetists from its early days. When Dr. Lahey founded the clinic in 1923 the first physician he hired was Dr. Sara Jordan, a gastroenterologist. Next he hired Dr. Lincoln Sise, an anesthesiologist, at that time working at the Boston City Hospital. A recently published paper describes Dr. Sise’s career.² It emphasizes Dr. Sise’s ingenuity and his attention to the needs of Dr. Lahey’s patients.

Subsequent to Dr. Sise, Dr. Lahey employed a series of anesthesiologists many of whom made contributions to the development and improvement of the clinical care of patients in the perioperative period. It is this aspect of Dr. Lahey’s career that will be examined. In the era from the 1920’s to 1940’s few surgeons paid attention to the quality and professionalism of their anesthesia providers.

This paper will contend that three factors in Dr. Lahey’s outlook led to this attitude. First was Dr. Lahey’s attention to the careful management of surgical outcome. He often and publicly stated that expert anesthesia was an important part of this. Second, he insisted that all the members of his medical staff including the physician anesthetists, publish at a minimum two papers each, annually, in peer-reviewed journals. Third, he clearly understood that anesthesia was a separate medical specialty that relied on its own scientific discipline.³


Boyd, D. Anesthesia in the 1930’s. Unpublished from the archives of the Lahey Clinic (courtesy Dr. Robert E. Wise).
Pioneering Cardiac Anesthesia: 
The Life and Work of Emerson Moffitt, M.D. 

Adam K. Jacob, MD, Mayo Clinic Rochester 
Hugh M. Smith, MD, PhD, Mayo Clinic Rochester 
Douglas R. Bacon, MD, MA, Mayo Clinic Rochester 

In 1954 Emerson Moffitt, MD, left a general practice in Nova Scotia, Canada and ventured to the Mayo Clinic in Rochester, Minnesota. At that moment, the University of Minnesota in Minneapolis-St. Paul, and the Mayo Clinic were the only two places performing cardiac surgery with heart-lung bypass. Moffitt was intrigued, not only by the novel surgery, but by the anesthetic challenge. Working with the second forty-five patients to undergo successful open heart procedures, Moffitt had faced several unique challenges. How should these patients be monitored? What do the measured values mean and how does the deranged physiology of bypass affect anesthesia and the patient? 

Answering these questions would become a life long quest for Dr. Moffitt. As he began his career in cardiac anesthesia, the Mayo Clinic was able to supply a physiologist, Jeremy Swan, to be a part of the operative team. Left atrial pressure was directly measured, and it was up to Swan and the team to figure out the significance of the value obtained. How should clotting be managed? Anticoagulation was necessary during bypass but needed to be quickly and reliably reversed at the end of surgery. How could hemodynamics be supported while the myocardium recovered from the effects of bypass? These questions intrigued Moffitt, and after completing his anesthesia training he joined the Mayo Clinic staff and continued his search for answers. 

His quest for information led him to a month’s sabbatical in Europe where he studied at the leading heart centers of the day. During his trip he shared his ideas with his European colleagues, and in turn, they with him. Moffitt returned to Rochester, Minnesota with several new avenues of investigation and new ideas to try. Over the
next fifteen years, his work would pay great dividends as he produced over seventy-five peer reviewed journal articles and book chapters.

In 1972, Moffitt left the Mayo Clinic and returned to Nova Scotia to chair the department of anesthesiology at Dalhousie University. He developed a strong department, with a research focus, quite naturally in open heart and vascular anesthesia. Once firmly established, Moffitt took an eight month sabbatical to work with his old mentor, Jeremy Swan and Swan's "new" associate, Willie Ganz. This fertile time yielded fifteen peer reviewed publications. Always studying and working, by the time of his retirement, Moffitt produced over one hundred forty-eight professional publications.

The career of Emerson Moffitt stands as quiet testimony to the spirit of life-long learning so necessary to the successful physician. Moffitt strove to better understand the unique physiology of cardiac bypass, and having witnessed the procedure from almost the beginning, he had a unique perspective. His career also clearly illustrates the need to seize opportunities when they arise to better patient care. Emerson Moffitt remains a classic model of a career in anesthesiology, demonstrating the highest forms of professionalism.
Plenary Session: History of Pain Medicine at Mayo

David P. Martin, MD, PhD
History of Pain Medicine at Mayo
David P. Martin, MD, PhD
Assistant Professor of Anesthesiology
Mayo Clinic, Rochester, Minnesota

This lecture will focus on the development the subspecialty of pain medicine with an emphasis on the Mayo Clinic experience. We will review several examples that illustrate Mayo’s tradition of innovative practice, education, and research. In each case, we will discuss how the example applies to the growth of professionalism in the subspecialty.

The welfare of the patient is the core value of Mayo Clinic. We will describe the early practice of pain medicine by John Lundy, MD, and specifically explore evidence of his application of this value. We will also explore how the multidisciplinary approach to pain problems was applied to difficult cases – a tenet that was later popularized by John Bonica, MD.

Education of future specialists is a hallmark of professionalism. Mayo has contributed to the continued education of residents, fellows, and visiting clinicians. We shall review several examples of medical education and discuss the impact that these training efforts have had on the subspecialty of pain medicine.

Basic research provides the foundation upon which many medical advances are constructed. We will review the discovery of cortisone at Mayo and discuss how this advance has helped a plethora of pain problems. The professional respect between basic scientists and clinicians was instrumental to this discovery.

Clinical research allows the translation of basic discoveries to patient care. We will review the discovery and application of intrathecal administration of morphine for the treatment of pain. This discussion will link the historic to the modern challenges of pain medicine.
Anesthesia History
Summer Meeting

June 22-24, 2006

Mayo Clinic Course Director
Douglas R. Bacon, MD, MA
Geffen Auditorium, Gonda Building

Call for Papers

The Mayo Clinic College of Medicine invites papers on the historical aspects of anesthesiology, critical care medicine, and pain management. Papers are invited from anesthesiologists, residents, nurse anesthetists, student nurses, and all other areas of study which relate to this increasingly important area of medicine.

SPECIAL PRESENTATION FEATUREING...
Hugh Butt, MD
First Assistant of Dr. William J. Mayo

During his residency training at Mayo Clinic, Dr. Hugh Butt spent 3 months in 1936 as Dr. William J. Mayo's First Assistant. Dr. Mayo was 74 years old at the time and still rounded on patients. Dr. Butt will share stories of his experiences with Dr. Will, and other reflections of how this opportunity influenced his subsequent distinguished career at Mayo Clinic.

In collaboration with Anesthesia History Association and History of Anesthesia Society
CALL FOR PAPERS

The Mayo Clinic College of Medicine invites papers on the historical aspects of anesthesiology, critical care medicine, and pain management. Papers are invited from anesthesiologists, residents, nurse anesthetists, student nurses, and all other areas of study which relate to this increasingly important area of medicine. Abstracts should be printed in 12-point font size and fit on one 8-1/2" × 11" sheet of paper. If possible, abstracts should indicate the research problem, sources used, methodological approach and may contain no more than ten references. Abstracts may be submitted by regular mail, fax or e-mail. The deadline for abstracts is Wednesday, March 1, 2006. We look forward to receiving your paper at: Feldman, Lori@mayo.edu or send an electronic version of the papers to Mayo Clinic College of Medicine, Attn: Lori Feldman, Plummer 2-60, 200 First Street SW, Rochester, MN 55905

INTENDED AUDIENCE

All those interested in the history of anesthesiology and the unique contributions of the Mayo Clinic to the history of medicine including but not limited to medical students, residents, student nurse anesthetists, nurse anesthetists and consultants.

COURSE DESCRIPTION

A three day meeting presenting both the leading edge of research in the history of anesthesiology combined with an overview of the history of the Mayo Clinic, stressing the Clinic’s role in the history of medicine in the United States. A method of using this scholarship to teach professionalism will be a centerpiece of the conference.

COURSE LEARNING OBJECTIVES

By the end of this conference, participants should be able to:

• Identify the contributions of the Mayo Clinic to the history of American medicine.
• Develop knowledge of current scholarship in the history of anesthesiology.
• Define professionalism within its current and historical context.
• Apply knowledge of the current scholarship and history of Mayo Clinic to the teaching of professionalism to medical students, student nurse anesthetists, residents, nurse anesthetists and consultant Anesthesiologists.
• Construct an initial curriculum using existing educational forums within the disciplines of anesthesiology for teaching of professionalism using historical examples.

CREDIT

This activity has been planned and implemented in accordance with the Essentials and Standards of the Accreditation Council for Continuing Medical Education through the joint sponsorship of Mayo Clinic College of Medicine, History of Anesthesia Society and Anesthesia History Association. Mayo Clinic College of Medicine is accredited by the ACCME to provide continuing medical education for physicians.

Mayo Clinic College of Medicine designates this educational activity for a maximum of 8.75 category 1 credits towards the AMA Physician’s Recognition Award. Each physician should claim only those credits that he/she actually spent in the educational activity.

Application for CE credits will be submitted to the American Association of Nurse Anesthetists’ Department of Continuing Education.

EDUCATIONAL GRANTS

This course is supported in part by unrestricted educational grants in accordance with ACCME Standards.

At the time of this printing, a complete listing of commercial supporters was not available. Appropriate acknowledgment will be given to all supporters at the time of the meeting.

DATE AND LOCATION

The Anesthesia History Summer Meeting will be held Thursday, June 22 through Saturday June 24, 2006. The course will commence on Thursday with a Welcoming Reception at 4:00 pm and end with a Gala Black Tie Dinner from 6:00pm - 10:00pm on Saturday.

Course headquarters will be located in Geffen Auditorium, Gonda Building, Mayo Clinic, 100 Third Avenue Southwest, Rochester, Minnesota. Meeting facilities are easily accessible by skyway and pedestrian subway, which connect Mayo Clinic to shops, restaurants, and hotels.

REGISTRATION

To register, complete the attached registration form and return by mail, fax or register on-line at http://www mayo.edu/cme/anesthesiahistory.html.

The registration fee of $200 includes:

• Course tuition
• Comprehensive course syllabus
• Continental breakfasts and refreshments breaks
• Gala Black Tie Dinner
• Tours of the Mayo Clinic Historical Unit and History of Medicine Library

Early registration is strongly advised to ensure course availability. A letter of confirmation will be sent upon receipt of payment and completed registration form. Please present this letter when checking in at the meeting registration desk.

CANCELLATION POLICY

Your registration fee, less a $75 administrative fee, will be refunded when written notification is received by the Mayo School of Continuing Medical Education before June 8, 2006 (fax#: 507-284-0532). No refunds will be made after June 8, 2006.
TRAVEL
Rochester, Minnesota, is a friendly city that greets thousands of visitors from around the world each year. The city is serviced by a modern international airport with multiple flights daily from Chicago and Minneapolis via American or Northwest Airlines. Access to and from the airport is provided by taxi cab and hotel shuttle service. The airport is located approximately 10 miles from the Mayo Clinic complex.

American Airlines is the official carrier for this Mayo course. Reduced airfares are available for participants by calling American Airlines at 800-433-1790/817-267-2222 or the designated travel agency, AAA, at 800-888-9908. Please reference this course under star file #9988. AAA can also assist you with ground transportation. Ask about special car rental rates.

Rochester is approximately 90 miles South, Southeast of the Twin Cities of Minneapolis and St. Paul and is served by a direct state highway. The Mayo complex is well sign posted.

 LODGING ACCOMMODATIONS
A block of guestrooms have been reserved with special course rates at the Rochester Marriott Hotel downtown Rochester. To ensure accommodations and the discounted rate, please make your reservations by June 1, 2006, and identify yourself as a participant of the Anesthesia History Meeting.

Rochester Marriott Hotel
101 First Avenue SW
877-623-7775 or 507-280-6000
$115 single/double

The hotels listed above are connected by skyway and pedestrian subway to conference facilities, downtown shops and restaurants. You may also wish to visit the Rochester Convention and Visitors Bureau website (www.rochestervb.org) for additional accommodation options.

PARKING
Parking is available in hotel, city, and Mayo patient/visitor ramps. The cost for parking is not included in the registration fee. A map indicating the location of downtown parking facilities will be mailed with the registrant confirmation letter.

SOCIAL PROGRAMS
In your free time, feel free to explore Minnesota. Below are a few options.

Mayo Clinic Tour Public tours of Mayo Clinic are provided each day of the week beginning at 10:00 am, except for holidays. The tours originate from Judd Auditorium, Subway Level of the Mayo Building, and last approximately 1.5 hours. The tour includes a 20-minute film on the history and operation of the Mayo Clinic plus visits to points of interest in the Mayo, Plummer and Hilton Buildings. Please make advance reservations by calling 507-538-0440

There are magnificent attractions, theatres, restaurants, sporting events, and entertainment located in the heart of the city. Plan to come and enjoy the multitude of options available. There is truly something for everyone!

- Mall of America
- Historical Heritage House
- Masque Youth and Rochester Civic Theatres
- Rochester Art Gallery
- Amish Tours
- Exploring the Mississippi River
- Visiting Mystery Cave and Historic Forestville
- Treasure Island Resort and Casino

For more information on any of these activities and more events happening throughout the area, please visit the Rochester Conventions and Visitors Bureau at www.visitrochestermn.com and click on “visitors”, then click “things to do”.

FACULTY
Course Director - Douglas R. Bacon, MD, MA

Mayo Faculty
Douglas R. Bacon, MD, MA
Hugh R. Butt, MD
David P. Martin, MD, PhD
Kerry D. Olsen, MD
Dennis M. Robertson, MD
Dale C. Smith, PhD
Peter A. Southorn, MD
Mark A. Warner, MD

FACULTY DISCLOSURE
As a provider accredited by ACCME, Mayo Clinic College of Medicine (Mayo School of CME) must ensure balance, independence, objectivity and scientific rigor in its educational activities. Course Director(s), Planning Committee Members, Faculty, and all others who are in a position to control the content of this educational activity are required to disclose all relevant financial relationships with any commercial interest related to the subject matter of the educational activity. Safeguards against commercial bias have been put in place. Faculty also will disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of these relevant financial relationships will be published in course materials so those participants in the activity may formulate their own judgments regarding the presentation.
**REGISTRATION FORM**

**Anesthesia History Summer Meeting**

Thursday, June 22 – Saturday, June 24, 2006 • Rochester, Minnesota

The registration fee includes tuition, comprehensive course syllabus, continental breakfasts, refreshment breaks, simulations, and receptions. A letter of confirmation will be sent upon receipt of payment and completed registration form. Enrolment is limited, early registration is encouraged.

**Mail form and payment to:**
Mayo School of Continuing Medical Education
P.O. Box 240
200 First Street SW
Rochester, MN 55905
P: 507-284-0532
E: cme@mayo.edu
W: www.mayo.edu/cme

Online registration available at http://www.mayo.edu/cme/anaesthesiology/html

**Contact Information**

Name of Registrant - first name, middle name or initial, and last name

- MD
- PhD
- DO
- PA
- NP
- Other - specify

Name of Institution

Medical Specialty

Preferred Mailing Address - select one
- Work/Business
- Home

Work/Business Address - street address

Work Phone - include all country and city/town codes or extension along with complete phone number

City

State or Province

ZIP or Postal Code

Country

Home Address - street address

Home Phone - include all country and city/town codes or extension along with complete phone number

City

State or Province

ZIP or Postal Code

Country

Email Address

ROL - include all country and city/town codes or extension along with complete phone number

ROL Location - select one
- Work/Business
- Home

**SPECIAL NEEDS**

If you have special assistance needs or dietary restrictions, describe here:

**Registration**

Registration Fee: $200

Optional:
- Yes, I will attend the Welcoming Reception on Thursday, June 22, 2006
- Guest fee for the Welcoming Reception $20/person
- Yes, I will attend the Lunch at the Foundation House on Friday, June 23, 2006
- Yes, I will attend the Gala Black Tie Dinner on Saturday, June 24, 2006
- Guest fee for the Gala Black Tie Dinner $40/person

**Payment Information**

- Check is enclosed in the amount shown at right - mail checks payable to Mayo Foundation
- Payment Total

Credit Card - select one
- Discover
- MasterCard
- Visa

Account Number

Exp. Date - mm/yy

Name of Cardholder - as appears on the card

Signature of Cardholder - required

Check enclosed for a total of $____

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