



### On the Cover

Welcome to Montreal where, one block away, you will find yourself on the McGill University campus, where Osler worked (and played) as a student and young professor. This collage includes the first medical building on the McGill campus (1872-1907) , a photograph of Osler as a young professor, a box of histology slides produced by F.S. Greenwood during the first course Osler taught on that subject in 1877, and a Faculty of Medicine staff photo from 1882. The background is a diploma from the Montreal Veterinary College signed by Osler in 1879. [Designed and produced by Alan Forster]

—Pamela J. Miller, Local Arrangements Chair

Thirty-Seventh Annual Meeting  
of the  
**American Osler Society**

The Hôtel Omni Mont-Royal  
Montreal, Quebec  
Monday to Thursday, 30 April to 3 May 2007

## Some Overall Learning Objectives

1. *Medical Ethics*. Relate the concept of *primum non nocere* to today's understanding of beneficence vis-à-vis nonmaleficence, and discuss whether *primum non nocere* carries historical validity. Weigh the physician's duty to country during time of national crisis against his/her other professional obligations. Discuss the physician's position pertaining to alternative practices such as acupuncture.
2. *Cardiovascular disease*. Review the evolution of diagnosis and surgical management of congenital heart disease during the twentieth century. Explain the importance of the discovery of the sinus node. Describe the impact of the electrocardiogram on diagnosis and patient management. Discuss the extent to which progress in cardiovascular medicine in North America influenced that in Latin America, and vice versa.
3. *Medical Professionalism*. Give five examples illustrative of the continuing value of medical biography (understood as analyzing and honoring the lives of notable figures in medicine) to medical practice. Give at least three examples illustrating the value of studying cultures and disciplines other than one's own. Discuss whether the views of social critics such as H.L. Mencken hold relevance to how physicians define their work.
4. *Medical Humanities*. Give at least three examples of how art, whether expressed in paintings or in other media such as stained glass windows, can inform the practice of medicine. Discuss the value of creative writing for physicians. Explain why some knowledge of etymology, emphasizing especially Greek and Latin roots, remains important to medical practice.
5. *Medical Education*. Trace today's prominence of women in medicine to its nineteenth- and twentieth-century origins. Explain the significance of the insistence by a group of Baltimore women that members of their sex be admitted to the new Johns Hopkins University School of Medicine on equal terms with men. Analyze the careers of at least three women who influenced North American medicine during the twentieth century.
6. *Medical Therapeutics*. Discuss the occasional disconnect between recommendations as found in textbooks and actual daily practice, as exemplified by the history of bloodletting during the nineteenth and early twentieth centuries. Review how therapeutic progress is often non-linear, as exemplified by the history of blood transfusion. Contrast empiric remedies such as Basham's mixture with breakthrough drugs such as penicillin.



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## Monday, 30 April 2007

- 3:00-5:00 pm      Readings (FRANCISA. NEELON, organizer)
- 5:30-6:30 pm      Committee on Professionalism Meeting
- 7:00-9:00 pm      Board of Governors Meeting

## Tuesday, 1 May 2007

General Session No. 1 (JOCK MURRAY, Chair)

- 7:45      JOCK MURRAY  
Welcome and Announcements
- 8:00      WILLIAM FEINDEL AND WAYNE LEBEL  
Sir William's "Astral Self": The Osler Niche in the Osler Library
- 8:20      C. JOAN RICHARDSON  
Osler, Trotula, and Gertrude Flumerfelt
- 8:40      CHARLES F. WOOLEY  
William Osler, Maude Abbott, and Helen Taussig: The Origins of Congenital Heart Disease in North America
- 9:00      DAVID K.C. COOPER  
The Surgical Treatment of "Blue Babies": Alfred Blalock and Russell Brock, the Southern Gentleman and the English Lord
- 9:20      MARK E. SILVERMAN AND ARTHUR HOLLMAN  
The Discovery of the Sinus Node by Keith and Flack: On the Centennial of Their 1907 Publication
- 9:40      *REFRESHMENT BREAK*
- 10:10      CHARLES T. AMBROSE  
On the Origin of *Primum non Nocere*—Osler Never Said That
- 10:30      WILLIAM S. HAUBRICH  
H. L. Mencken Looks at the Johns Hopkins Quadrumvirate
- 10:50      MICHAEL BLISS  
The Last Latch-keyer: The Tragedy of John Fulton
- 11:10      ABRAHAM VERGHESE  
John P. McGovern Award Lectureship  
"Touching Where it Hurts": The Role of the Bedside Exam in a Technological Age

Noon *LUNCHEON*

General Session no. 2 (FRANCISA. NEELON, Chair)

1:00 SIMON HANFT

"This Inner Frontier": A Literary Appreciation of Wilder Penfield's *The Torch*

1:20 WILLIAM H. JARRETT, III

Raising the Bar: Mary Elizabeth Garrett, M. Carey Thomas, and the Johns Hopkins Medical School

1:40 ROBERT I. LEVY

William Osler's Mention of Basham's Mixture in the Treatment of Bright's Disease: Who was Basham and What was his Mixture?

2:00 CLYDE PARTIN

Dropped Beat: Sir William Osler's Tenuous Embrace of the Electrocardiogram

2:20 *REFRESHMENT BREAK*

2:50 DARRYL D. BINDSCHADLER

Florence Sabin—Colorado Woman of the Century

3:10 PETER WARREN

The Clinical Training of Doctors—A Monograph by Philippe Pinel, 1793

3:30 BARBARA DE LA TORRE

More Than a Couch: Transforming a Clinical Space into a Therapeutic Environment

3:50 ROBERT P. TURK

Norman Bethune at Saranac: The Influence of Illness on Career Decisions

4:10 ALISDAIR G.G. GIBSON

Galen and the *Rhetor*: The Physiology and Therapy of Broken Speech

4:30 H. MICHAEL JONES

Medicine and the Progress of Wheels—Osler's Two Automobiles

4:50 *ADJOURN*

6:30 *BANQUET*

## Wednesday, 2 May 2007

- 7:30 Annual Business Meeting of the American Osler Society  
(JOCK MURRAY, Presiding)
- General Session no. 3 (JOSEPH W. LELLA, Chair)
- 8:00 DONALD BOUDREAU, PAMELA MILLER AND ABRAHAM FUKS  
William Osler and McGill: A Continuing Remembrance
- 8:20 J. MARIO MOLINA  
William Sydney Thayer, the Bard of Johns Hopkins
- 8:40 ANAND DATE  
"A Very Interesting Story to Tell": William Osler and the Tomb of Avicenna
- 9:00 BARRY COOPER  
Bloodletting in Osler's Time
- 9:20 CHARLES S. BRYAN  
Osler's Advocacy of Bloodletting: An Evolving Perspective
- 9:40 *REFRESHMENT BREAK*
- 10:10 ALLEN B. WEISSE  
Greek, Latin, English, and All That: The Language We Live In
- 10:30 HECTOR O. VENTURA  
The Birth of Cardiology in Argentina: From Chronic Pulmonary Heart Disease to Angiotension II
- 10:50 MARVIN J. STONE  
The Checkered History of Blood Transfusion
- 11:10 JOCK MURRAY  
*Presidential Address*  
The Images of Medicine and Healing in Stained Glass Windows
- 12:00 *LUNCHEON*

General Session No. 4 (JOHN NOBLE, Chair)

- 1:00      MAKINI CHISOLM-STRAKER  
*William B. Bean Award Student Lectureship*  
Human Trafficking: Recognition and Management in the Emergency Department
- 1:20      SARA E. WALKER AND JERRY BERNECHE  
Magic Scrolls, The Healing Art of Ethiopia
- 1:40      JOSEPH B. VANDER VEER, JR.  
The Osler-Whipple Connection
- 2:00      CYNTHIA DE HAVEN PITCOCK AND BILL J. GURLEY  
A Young Doctor's Military Case Book, 1860-1865
- 2:20      *REFRESHMENT BREAK*
- 2:50      ARTHUR GRYFE  
Flouridating Toronto's Water: A Gordian Knot and a Pyrrhic Victory
- 3:10      GABRIEL SHAPIRO  
Disease and Difference: How Otherness is Projected in Opera and the Arts
- 3:30      BARBARA LAWSON AND PAMELA MILLER  
Sleeping Sickness and the Colonial Encounter: J. L. Todd, William Osler, and the McGill Connection
- 3:50      JOHN S.G. BLAIR  
Osler's Unfilled Slot
- 4:10      BILLY F. ANDREWS  
A Tie That Did Bind: Wilder G. Penfield, Wilburt C. Davison, and Sir William Osler and Lady Grace Osler
- 4:30      SANDRA MOSS  
The Doctor as Weatherman: Medical Meteorology and Topography in Nineteenth-Century New Jersey
- 4:50      *ADJOURN*
- 6:00      *BUSES BEGIN LEAVING HOTEL*
- 7:00      *RECEPTION, MONTREAL MUSEUM OF ARCHAEOLOGY AND HISTORY*

## Thursday, 3 May 2007

General Session No. 5 (CHARLES S. BRYAN, Chair)

- 8:00 STEVEN J. PEITZMAN  
Another Notable Book of the 1890s: Gould and Pyle's *Anomalies and Curiosities of Medicine* (with a letter from Osler to its authors)
- 8:20 ROBERT A. KYLE  
The Discovery of Penicillin: Was Alexander Fleming the First?
- 8:40 ROBERT R. NESBIT, JR.  
Charles Granville Rob, A Surgeon of "The Greatest Generation": His Early Years (and a Montreal Connection)
- 9:00 ANDREW SEAL  
Vesalius and the Myth of Apollo and Marsyas
- 9:20 RICHARD J. KAHN  
"Dear Bigelow," or Bibliomania, Buddhism, and Botany
- 9:40 REFRESHMENT BREAK
- 10:10 MICHAEL E. MORAN  
Thomas Young, Physician Polymath
- 10:30 OLUDARE A. ODUMADE  
Two Paintings, Two Physicians, One Message: Goya and Fildes
- 10:50 SAMUEL A. SHELBURNE  
Polio and Osler's *Principles and Practice of Medicine*
- 11:10 FRANCOIS P. RETIEF  
Was Marcus Aurelius a Drug Addict?
- 11:30 TARA NEUBRAND AND SANDRA CALDWELL  
Science or Charlatanism: The History of Acupuncture in the West
- 11:50 H. MICHAEL JONES, ALEXANDER D. JONES, AND FRANCIS A. NEELON  
*Aequanimitas* Electronica: The Start of a Searchable Oslerian Database
- 12:10 ADJOURN

## Sir William Osler's "Astral Self": The Osler Niche in the Osler Library

WILLIAM FEINDEL AND WAYNE LEBEL

*William Feindel, Professor of Neurosurgery and Director Emeritus of the Montreal Neurological Institute, McGill University, is a member of the Board of Curators of the Osler Library of the History of Medicine, as well as Honorary Osler Librarian and Curator of the Wilder Penfield Archive. Former President and Honorary President of the Osler Society of McGill, he is an Honorary Member of the Osler Club of London, England. Wayne LeBel received a BA in 1967 and a Master in Library Science in 1972 from McGill University; he served as Assistant Librarian at the Osler Library of the History of Medicine from 1985 to 2001.*

The Osler Niche refers to the handsome centerpiece of McGill's Osler Library which catches the eye and interest of every visitor to the Osler Room, that houses most of Osler's original book collection. The Niche is highlighted by Frédéric Vernon's bronze bas-relief of William Osler in profile, on either side of which are glazed cabinets; those on the right contain elegantly bound editions by some of Osler's favorite authors—Browne, Burton, Rabelais—and two on the left held, until recently his own notes, monographs, and papers.

The Osler Niche fulfills Osler's wishes, expressed in his paper titled "Burrowings of a Bookworm," written between 1902 and 1908 and signed "Egerton Yorrick Davis," Osler's alter-ego. In this essay Osler mused:

I like to think of my few books in an alcove of a fire-proof library in some institution that I love; at the end of the alcove an open fire place and a few easy chairs, and over the mantelpiece an urn with my ashes and my bust or my portrait, through which my astral self.... could peek at the books I have loved, and enjoy the delight with which kindred souls still in the flesh would handle them.

While the Osler Niche meets some of Sir William's wishes, other elements of his fantasy—"my few books", "an open fire place," and handling of the books by "kindred souls"—call for conditions difficult or impossible to match in modern husbandry of an historical library. Osler's idea for "an alcove" no doubt was influenced by his celebration in 1905 of the 300<sup>th</sup> anniversary of Thomas Browne and his fine library and his involvement a few years later in the restoration of Robert Burton's library at Oxford.

Lady Osler directly influenced the design of the Osler Library and its Osler Niche through correspondence with McGill's architect Percy Nobbs. She held firm views on the selection and finish of the woodwork, the type of glass for the windows and particularly the choice of the Vernon plaque.

Osler's ashes in a small marble sarcophagus behind the central oak panel of the Niche, were later joined by the ashes of Lady Osler and those of Dr. William Francis, who served as the Osler Librarian for thirty years.

Sir William Osler's enhanced collection, now running to over 50,000 volumes, continues to enthrall students of the History of Medicine and Science; the Osler Niche expresses the quintessence of its renowned patron.

### Learning Objectives:

1. Identify three elements that make the Osler Niche unique in the world of medical libraries.
2. Explain how Sir William's familiarity with the libraries of Robert Burton and Sir Thomas Browne may have generated his desire for "an alcove" in his own library.
3. Cite examples of Lady Osler's direct influence through McGill's architect Percy Nobbs on his design of the Osler Library and its Osler Niche.

## Osler, Trotula, and Gertrude Flumerfelt

C. JOAN RICHARDSON

*C. Joan Richardson is Professor of Pediatrics and Director of Neonatology at the University of Texas Medical Branch, Galveston, where she is also a Scholar in the John P. McGovern Academy of Oslerian Medicine.*

William Osler had a special fondness for nicknames. His wife was the “Widow Gross”; his son was “Isaac”; and his own alter ego was E. Y. Davis. To Miss Gertrude Flumerfelt, a serious minded medical student from British Columbia, he bestowed the nickname “Trotula”. Gertrude was one of Osler’s favorites, and it delighted him that her nickname mystified her medical friends. Just who was Trotula?

In the 11<sup>th</sup> century, Salerno, Italy, was the epicenter of medieval medicine in Europe and the home of a great medical university. At Salerno, the cultural influences of Arabs, Jews, Greeks, and Romans coalesced to support an environment of academic achievement and tolerance. Women were allowed to study and teach at the medical school. The most famous was Trotula di Ruggiero. She was the Magistra of Medicine at Salerno. Her practice focused on gynecology, obstetrics, cosmetics, and skin disease. She wrote about nutrition, the effects of emotional distress, and discussed birth control and infertility, explaining that infertility is as common in males as females. She taught how to repair perineal tears after childbirth, how to prevent them, and how to reposition a breech birth. She advocated drugs to make labor less painful, in opposition to religious teaching that women were ordained to suffer through childbirth.

Trotula authored several textbooks. *De Passionibus Mulierum* (The Diseases of Women) was referred to as “Trotula Major” and served as the primary source on women’s health for more than 400 years. Its content included problems of conception, embryogenesis, pregnancy, and childbirth. Two other works, *De Ornatu Mulierum* (known as “Trotula Minor”) and *Practica Secundum Trotam* dealt, respectively, with cosmetics and complexion care and general medicine. Trotula wrote that she was called to the practice of medicine because she had too often witnessed the suffering of women who were too ashamed to discuss their maladies with a male physician. Her writings were clear and practical. She wrote with frankness about sex and celibacy and how an experienced woman might pretend to be a virgin. Trotula trained her students to be observant, to conduct a thorough examination of the patient, and to listen to what they had to say about their ailments.

Osler refers to Trotula in *The Evolution of Modern Medicine*, a series of lectures delivered at Yale in April, 1913. He also refers to Trotula in remarks made at the funeral of Dr. Mary Putnam Jacobi in 1907, likening her to a modern day Trotula.

Gertrude Flumerfelt went on to become a psychiatrist. In 1914, she married Geoffrey Jefferson, also a physician, who went on to become a pioneer and dominating figure in British neurosurgery. Gertrude never shed her nickname, and to her friends and colleagues was known as “Trotula” throughout her life.

### Learning Objectives:

1. Describe Trotula’s medical university.
2. Name her most well known textbook.
3. Explain why Trotula specialized in women’s diseases.



## William Osler, Maude Abbott, and Helen Taussig: The Origins of Congenital Heart Disease in North America

CHARLES F. WOOLEY

*Charles F. Wooley is Professor of Medicine Emeritus, Heart Lung Research Institute, The Ohio State University, Columbus, Ohio. Widely published as a cardiologist, he is a past president of the American Osler Society.*

The path from yesteryear to the present frequently runs through unexplored territories. In 1965 Helen Taussig traced the evolution of knowledge of congenital heart disease (CHD) during the 20<sup>th</sup> century. She began with Maude Abbott and the Osler-Abbott lineage in the McGill Medical Museum in Montreal. When Abbott met Osler in Baltimore in 1900, his encouragement led her to devote her energies to the museum and extend Osler's earlier CHD pathologic observations. Abbott's extensive CHD experience prompted Osler to ask her to contribute to his 1908 "System of Medicine." Abbott's 1934 London Exhibit of her work served as prototype for her classic text "Atlas of Congenital Cardiac Disease" in 1936. Taussig next described her extended friendship with Maude Abbott beginning in 1935. They met in Boston, shared their mutual CHD interests and Abbott arranged to take Taussig to Dr. Paul Dudley White's home for dinner. White, in his definitive text *Heart Disease* (1931) had already featured Abbott's work including a large foldout section with her original data.

Taussig's growing CHD interest prompted her visit to Abbott in Montreal in 1938; after studying the collections she returned to her research at Johns Hopkins. While Abbott took a statistical approach to the post-mortem malformations, Taussig's interest lay in the rationale of specific findings in a particular patient; she was most concerned as to why the CHD babies died. Taussig knew that as early as 1927 Abbott had suggested CHD surgery might be possible in valvular pulmonary stenosis, as well as the feasibility of a surgical approach to a patent ductus arteriosus (PDA), i.e., persistence of the fetal connection between the aorta and pulmonary artery. Taussig conceived of *creating* a PDA type shunt (arterial to venous) to relieve lack of blood flow to the lungs and improve oxygenation in a cyanotic "blue baby". After the surgeon Alfred Blalock arrived in Baltimore he and Taussig collaborated successfully with the blue baby shunt operations in 1944-45, opening up the field of cardiac surgery in cyanotic babies and children. Taussig's renowned *Congenital Malformations of the Heart* textbook followed in 1947. These sequential contributions and texts by Osler, Abbott, White and Taussig were landmarks in the evolution of knowledge of CHD in North America.

### Learning Objectives

1. Trace the sequence of major steps in the evolution of knowledge of congenital heart disease and the origins of pediatric cardiology in North America beginning with Osler (1849-1919), his early work in Montreal, Abbott (1869-1940) meeting with Osler in Baltimore in 1900, the medical museum in Montreal, and the interactions between Maude Abbott and Helen Taussig (1898-1986).
2. Outline the developmental steps-the initial pathologic observations, the statistical study of specimens with new classification schemes, and the introduction of physiological principles and surgical techniques as documented in their individual texts.
3. Illustrate how Osler's early descriptive CHD observations and Abbott's statistical approach set the stage for Taussig's physiological concepts that eventually resulted in the heralded Blalock-Taussig "blue baby" surgery in Baltimore in the 1940s and the beginnings of pediatric cardiology in North America.

# The Surgical Treatment of “Blue Babies”: Alfred Blalock and Russell Brock, the Southern Gentleman and the English Lord

DAVID K.C. COOPER

*David Cooper studied medicine in the United Kingdom, where he was one of Lord Brock's last house surgeons. His career has been largely in cardiac transplantation and related research. His book on the pioneering surgeons who developed heart surgery is currently undergoing final editing.*

Alfred Blalock and Russell Brock made major contributions to the surgical management of babies and children with Fallot's tetralogy, a collection of four cardiac abnormalities, including congenital pulmonary stenosis, for which there was previously no effective treatment. Blalock was an outwardly relaxed man, socially charming and very much at ease, who surrounded himself with gifted young surgical residents. Brock was introspective and much more reserved socially, and yet with a streak of showmanship about him, who strove for professional perfection throughout his life. Both men had complex personalities and highly successful careers.

Blalock was born in 1899 in Culloden, Georgia. He did very well in school and also enjoyed sports. Indeed, “Playboy Al” was a popular young man. After college, he progressed to Johns Hopkins Medical School in 1918. A career at Vanderbilt University in Nashville was interrupted by treatment for pulmonary tuberculosis. He became chairman of surgery at Hopkins in 1941. At the suggestion of Helen Taussig, Blalock and his African American research technician, Vivien Thomas, developed a shunt operation to direct more blood to the lungs (bypassing the stenosed pulmonary valve)—the “Blalock-Taussig” shunt. The concept of performing an operation to correct abnormal physiology was revolutionary. Blalock's operation to a large extent corrected the function of a structurally abnormal heart. It was one of the first *constructive* operations, rather than *destructive*. News of the first successful operation in 1944 spread rapidly throughout the western world, and patients with cyanotic heart disease began to be referred in huge numbers. Blalock received immense professional and public acclaim. For several years, his various medical advisors, who included several of the brilliant young men he had personally trained, misguidedly treated him for various conditions, whereas, in fact, he had an undiagnosed cancer that had spread to his liver, from which he died in 1964. It is ironic that someone who did so much to train surgeons died from an undiagnosed condition.

Russell Brock was born in 1903, and was a brilliant medical student at Guy's Hospital in London. He had a shy personality, and found it hard to establish social relationships. He was relatively short, had slightly bandy legs, and wore heavy spectacles. After a fellowship with Evarts Graham in St. Louis, Brock became a surgeon at Guy's in 1936. In 1948, Brock performed his first *direct* pulmonary valvotomy through the right ventricle (the Brock operation), demonstrating the tolerability of the heart towards direct surgical intervention, in contrast to Blalock's *indirect* operation. This approach also allowed correction of infundibular pulmonary stenosis. He realized that the problems of cardiac surgery were very simple—obstructions and abnormal communications that needed to be rerouted. Although an outstanding clinician, operating for Brock was very stressful. He demanded very high standards, was a hard taskmaster, and did not always treat his juniors fairly. He gave the impression of perpetual disappointment at the unattainability of universal perfection. He had a great fund of aphorisms and quotations with which he would lace his teaching. He was initially given a knighthood, and subsequently elevated to a peerage, one of the few British surgeons to be so honored. Lord Brock died aged 76 in 1980.

Between them, Alfred Blalock and Russell Brock did much to establish “closed” heart surgery for congenital cardiac defects.

## Learning objectives:

1. Describe the problems presented by Fallot's tetralogy.
2. Explain how this congenital cardiac defect was initially surgically “corrected.”
3. Examine the personal skills and circumstances that allowed Blalock and Brock to make their respective important surgical advances.

## The Discovery of the Sinus Node by Keith and Flack: On the Centennial of Their 1907 Publication

MARK E. SILVERMAN AND ARTHUR HOLLMAN

*Mark E. Silverman is Emeritus Professor of Medicine at Emory University, Chief of Cardiology at the Fuqua Heart Center of Piedmont Hospital in Atlanta, past-president of the American Osler Society, and co-editor of The Quotable Osler. Arthur Hollman was formerly Consultant Cardiologist at University College Hospital, London and Archivist to the British Cardiac Society. He is a member of the Osler Club of London and a biographer of Sir Thomas Lewis.*

Before the electrical system of the heart was discovered, physiologists were divided over the question “Why does the heart beat?” One side believed that the heart muscle itself initiated the stimulus; the other asserted that external nerves or local ganglions were in charge. This debate—the myogenic versus the neurogenic controversy—was eventually resolved by the discovery of the electrical system of the heart. In 1839, Jan Evangelista Purkinje discovered a net of gray, flat, and gelatinous fibers in the subendocardium of the heart which he thought was cartilaginous tissue. Walter Gaskell, a British physiologist working at Cambridge University in the 1880s, observed that the impulse of the heart began in the sinus venosus and also noted that this region had the most rhythmical ability. A conducting bundle between the atrium and the ventricle was found by Wilhelm His, Jr. in 1893. In 1906, Sunao Tawara found a “complex knoten” of tissue at the proximal end of the His bundle. He concluded that this was the inception of an electrical conducting system which continued from the AV node through the bundle of His, divided into the bundle branches, and terminated as the Purkinje fibers. The summer collaboration of Arthur Keith, an eminent anatomist and anthropologist, and Martin Flack, a young medical student, working together in a cottage in Kent, England to discover the sinus node finalized the discovery of the electrical system of the heart and provided an anatomical answer to the baffling mystery: “Why does the heart beat?” Their work, completed in 1906, was published 100 years ago in 1907.

Learning objectives:

1. Describe the electrical system of the heart and its discoverers.
2. Explain the myogenic versus the neurogenic theory.
3. Tell how the sinus node was discovered by a medical student and its importance to the future of cardiac physiology.

## On the Origin of *Primum non Nocere*—Osler Never Said That

CHARLES T. AMBROSE

*Charles T. Ambrose trained in infectious diseases in Boston, was a research immunologist at Harvard Medical School, and is currently at the College of Medicine, University of Kentucky, Lexington, where he teaches medical microbiology and gives elective courses in the history of medicine and of microbiology.*

Of the various aphorisms/maxims credited to Hippocrates, “first do no harm” has recently gained considerable currency in the U.S. press, notably in business and political articles and even in the comic strips. There the phrase has commonly been misattributed to the Hippocratic Oath. However, scholars have ascribed it to a clinical work most likely written by Hippocrates and entitled *Epidemics I*. In 2005 Cedric M. Smith, a clinical pharmacologist, published a paper arguing that the sentiment of the Latin expression, *primum non nocere*, did not begin with Hippocrates and was unknown to Galen. According to Smith, the triadic Latin version first appeared in 19<sup>th</sup>-century writings. This AOS talk is a commentary on his provocative paper.

I have examined the originals or photocopies of eight 16<sup>th</sup>-century Latin translations of *Epidemics I*, including the first Latin printed edition (1525) and others published between 1538 and 1597. In none of these was *primum non nocere* used; instead, equivalent Latin expressions were found, such as *non noceas* (“you should not harm”), etc.

The same sentiment can also be found in Thucydides’ *The History of the Peloponnesian War*, where in 415 BC it was voiced by Nicias, a conservative Athenian politician. In a speech opposing a proposed military expedition to conquer Sicily, Nicias compared the president of the Athenian Assembly to a physician and said that office holders should “do all the good to help their country,” but “in any case never do any harm that can be avoided.” In spite of Nicias’ caution, the Sicilian Expedition was undertaken in the midst of the long war with Sparta. It ended disastrously two years later, foreshadowing Athens’ ultimate defeat in 404 and its subsequent decline. The possibility is raised that the epigrammatist who coined *primum non nocere* may have been inspired not by Hippocrates but by Thucydides.

For nearly 40 years another noted pharmacologist (Louis Lasagna) has questioned the value of this maxim in medicine and recommended discarding it. Whatever its relevance for medicine, *primum non nocere* has merit in the fields of American business and international politics in view of recent problems there.

Learning objectives:

1. Cite the commonly accepted origin of the maxim “first do no harm” in *Epidemics I*.
2. Explain the uncertain genesis of the Latin version, *primum non nocere*.
3. Identify a possible inspiration for this Latin maxim other than Hippocrates.

## H. L. Mencken Looks at the Johns Hopkins Quadrumvirate

WILLIAM S. HAUBRICH

*William S. Haubrich is Senior Consultant Emeritus at The Scripps Clinic, La Jolla, California, and Clinical Professor of Medicine at the University of California at San Diego. An accomplished linguist, he is the author of Medical Meanings: A Glossary of Word Origins (now in its third edition) and has been a consultant to the editors of The American Heritage Dictionary of the English Language.*

At the turn of the 19<sup>th</sup> to the 20<sup>th</sup> century, Baltimore was home to a galaxy of prominent figures in the spheres of literature and medicine. Among the literati was the journalist H. L. Mencken, widely known as “the sage of Baltimore”; among the medical stars was the quadrumvirate assembled to guide the destiny of the newly established Johns Hopkins Hospital and medical school: Welch, Osler, Halsted, and Kelly. Mencken was acquainted with all of these men and had something to say about each.

Not surprisingly, Mencken had the least to say about Halsted whom he respected but found little in the staid surgeon to lampoon. Mencken pictured Welch as somewhat of a caricature. One might suppose that Mencken would have been drawn particularly to Osler as a fellow bibliophile. Such appears not to be the case, although Mencken published a complimentary tribute to Osler in a popular magazine on the occasion of Osler’s departure to England. There is no record of Osler making mention of Mencken. It was in Kelly that Mencken found his perfect foil. Kelly’s religiosity was grist for Mencken’s iconoclastic mill. While acknowledging Kelly’s surgical acumen, Mencken was confounded by Kelly’s unabashed proselytizing: “How is it possible for a brain to be divided into two insulated halves, one functioning normally, rationally, and even brilliantly, and the other capable of ghastly balderdash?”

Mencken’s “take” on Welch, Osler, Halsted, and Kelly gives a fascinating, if arch, view of how the Johns Hopkins quadrumvirate was regarded by their discerning contemporary.

Learning objectives:

1. Cite references to H. L. Mencken’s appraisal of Welch, Osler, Halsted, and Kelly.
2. Assess the fairness of Mencken’s appraisals (or lack thereof).
3. Give examples of H. L. Mencken’s unique felicity of expression.

## The Last Latch-Keyer: The Tragedy of John Fulton

MICHAEL BLISS

*Michael Bliss, who is considered by many to be the greatest medical biographer of all time, is now emeritus from the University of Toronto and enjoying life as an independent scholar. His books include The Discovery of Insulin, William Osler: A Life in Medicine, and Harvey Cushing: A Life in Surgery. This paper suggests why he is not working on a biography of John Fulton.*



*Lucia and John Fulton aboard the Queen Mary, 1935 (reproduced courtesy of the Medical Historical Library, Yale University).*

John Farquhar Fulton (1899-1960), a young physiologist, made himself at home at 13 Norham Gardens in the 1920s, charming Lady Osler, and becoming a posthumous “latch-keyer”, a kind of St. Paul to the developing cult of Oslerians. Fulton seemed to personify Osler’s values, possessed enormous intellectual and literary ability, and became a protégé and surrogate son of Harvey Cushing. In 1930 Fulton was appointed to a Sterling chair at Yale, where he developed a major primate laboratory for neuro-physiological research. He eventually wrote Cushing’s official biography and made many contributions to medical history, physiology, and the creation of the great medical history library at Yale.

Tragically, Fulton could not achieve the goals he set for himself as an heir to Osier and Cushing. His and other collections of personal papers at Yale disclose a very sad story of a young man spreading himself too thin, making an apparently faustian marriage (à la Tertius Lydgate), and eventually being destroyed by alcohol and other dissipations. A kind of F. Scott Fitzgerald of American medicine, Fulton not only failed to achieve his great potential, but may have done great harm. One could not follow successfully in Osler’s footsteps without an inner balance and professional dedication that John Fulton apparently lacked.

### Learning Objectives:

1. Examine the significant scientific and literary career of John Fulton.
2. Discuss problems encountered in mentoring in the context of scientific training.
3. Examine Oslerian values, and the problems they raise, through an unusual prism—failure.

*John P. McGovern Award Lectureship*

“Touching Where it Hurts”

The Role of the Bedside Exam in a Technological Age

ABRAHAM VERGHESE

*Abraham Verghese is Marvin Forland Distinguished Professor of Medicine and Director of the Center for Medical Humanities & Ethics at The University of Texas Health Science Center at San Antonio. His first book, My Own Country: A Doctor's Story, describes the initial years of the HIV-AIDS epidemic and received wide recognition; Time magazine called it one of the best books of 1994. His second book, The Tennis Partner (1998), was also widely acclaimed. He is now working on a novel. Although best known nationally for his writing including publications in The New Yorker, The Atlantic, The New York Times, and other prestigious periodicals, he is also an accomplished clinician and bedside teacher.*

In the explosion of technology and imaging, the bedside exam and bedside rounds no longer hold the preeminent position they once held in American medical education. Indeed, in the 21<sup>st</sup> century, the anthropologist walking through our teaching wards will be forgiven for thinking that the patient in the bed is merely an icon for the real patient who exists in the computer. “Bedside” rounds now often take place in a conference room far from the patient. Very soon, a generation of teachers who learned and taught at the bedside will be replaced by another generation with less familiarity, faith or confidence in the physical exam. This lecture seeks to explore the relevance of the bedside exam in a technological age.

A wise clinical adage advises the clinician seeing a patient to be sure to “touch the place that hurts.” The author argues that the careful and skilled bedside exam goes beyond diagnosis; it allows more than the judicious ordering and interpretation of diagnostic tests, and it has a role beyond that of educating new medical students. Such an exam conveys an attentiveness that patients often complain is missing from modern medicine. When patients view their admission as revolving largely around being shunted from one diagnostic suite to another, they sense that care is impersonal, focused on their disease and not on them. Osler said, “Care more particularly for the individual patient than for the special features of the disease.” Bedside rounds, and the careful exam, are an important way to demonstrate our care for the individual in a technological age.

Learning Objectives:

1. Describe how the context and relevance of the bedside examination has changed.
2. Explain new rationales for bedside rounds and bedside examination.
3. Discuss the importance of touch apart from diagnosis, as a therapeutic tool in itself.

## “This Inner Frontier”: A Literary Appreciation of Wilder Penfield’s *The Torch*

SIMON HANFT

*Simon Hanft is a fourth-year medical student at Stanford University. As the 2005-2006 recipient of the William B. Bean Student Research Award, he presented at the 2006 meeting of the American Osler Society in Halifax. He plans to become a neurosurgeon and, continuing in the tradition of Wilder Penfield, Dee Canale, and many others, pursue the history of that specialty.*

Few people think of Wilder Penfield as a novelist. His exploits as a neurosurgeon, which include the establishment of the Montreal Neurological Institute in 1934, more immediately come to mind. One is also inclined to regard his pioneering work in the fields of functional neuroanatomy, where he helped develop the homunculus, and epilepsy. But Penfield was indeed a writer, and his authorship was by no means limited to his scientific papers or even to his autobiography. Penfield wrote two novels, one of which, *No Other Gods*, was a lengthy re-imagining of a biblical plot that formed the crux of a manuscript written by Penfield’s mother. The other novel and the subject of my current study is *The Torch*, a work of historical fiction that recounts a series of intertwined events during a brief moment in the life of Hippocrates.

Penfield’s merits as a novelist are much less well known than his triumphs in the operating room and discoveries in the research laboratory. Even in Penfield’s autobiography, *No Man Alone*, there is scant mention of his two novels. It is my intention, through a close reading of *The Torch*, to highlight Penfield’s oft-neglected strengths as a writer. My project is twofold: (1) to reveal the ways in which Hippocrates, Penfield’s protagonist in *The Torch*, represents his notion of the ideal physician; and (2) to examine Penfield’s use of the metaphor of the torch, a symbol with a literary history all its own that goes well beyond the limits of the novel bearing its name.

Towards the first end, I will attempt to show how Hippocrates is in many ways a stand-in for Penfield. Hippocrates’ work with an apparently epileptic patient, his musings on the mind-body problem, philosophical asides, ethical conduct, and responsibilities to the art and method of medicine all find their equivalents in Penfield’s belief system and career. In a sense, *The Torch* is a subtle autobiography, a sort of idealized version of *No Man Alone*, and as such opens a different window onto the life and values of Penfield. As for the second aim, I hope to trace the literary lineage of Penfield’s symbol of the torch in an effort to understand its peculiar significance to him. Its most immediate forbear is the torch of Dr. John McCrae’s World War I poem, “In Flanders Fields.” On a fundamental level, was Penfield inspired to write by the example of McCrae’s fine lyric? McCrae himself was a physician, friendly with close associates of Penfield, and was Canadian-born. Furthermore, was Penfield’s appropriation of the torch an homage to McCrae, in effect a nuanced embrace of the literature of the physician-turned-author? In essence, what deeper symbolic resonance did the torch possess for Penfield? Doubtless, Penfield’s use and conception of the torch is rather complicated, and I hope to address these questions and others as I proceed in this work.

### Learning Objectives:

1. Discuss the merits of Wilder Penfield as a novelist.
2. Explain the basis for Penfield’s deeply felt admiration for Hippocrates as the model physician.
3. Describe Penfield’s use of the symbol of the torch, which not only figures prominently in his novel but is a metaphor for Penfield’s link to the physician- authors of the past.



## Raising the Bar: Mary Elizabeth Garrett, M. Carey Thomas, and the Johns Hopkins Medical School

WILLIAM H. JARRETT, III

*William H. Jarrett, III, is a native of Baltimore and was educated at Yale University and The Johns Hopkins University School of Medicine. After ophthalmology training at the Wilmer Institute, he moved to Atlanta where he practiced as a retinal specialist for 35 years. He is now retired and enjoys travel, tennis, and both medical and civil war history.*

Most medical historians are aware of the fact that a wealthy Baltimorean named Mary Elizabeth Garrett gifted a large proportion of her wealth to Johns Hopkins in order that the Medical School could open its doors in the face of severe financial reversals. In return, she exacted several concessions from the school which have had enormous repercussions in medical education in the ensuing one hundred years.

Mary Garrett was the daughter of the president of the B&O Railroad and a powerful and influential figure as America emerged as an industrial nation. Early in life, she formed life-long friendships with several other Baltimore women, all of whom enjoyed wealth and prominent social position. In addition, their fathers were important members of the Johns Hopkins Board of Trustees. These women were: M. Carey Thomas, Mamie Gwinn, Bessie King, and Julia Rogers. As a group, they proved to be a formidable team, able to organize themselves to accomplish lofty and idealistic goals which reflected deeply-held convictions.

Their over-riding ambition was to improve the educational status of women. Their first project was to found a school for girls in Baltimore, The Bryn Mawr School, named for the Philadelphia college of which Thomas was initially the dean, and then the president. That school is thriving to-day.

They then recognized the opportunity afforded them by the financial constraints of Hopkins. They formed a nation-wide Women's Medical Fund Committee and raised \$100,000, which they offered to Hopkins in exchange for a commitment to admit women to the medical school. When the university upped the ante to \$500,000, they raised that sum, too, most of it from Garrett, but also raised their demands, as follows:

- 1) that the school of medicine be a full-fledged graduate school with a four year course leading to the M.D. degree.
- 2) that all applicants to the school must have a bachelor's degree with demonstrated proficiency in biology, chemistry, and physics, plus a reading knowledge of French and German.

The purpose of this presentation is to tell the fascinating story of how all this came about.

### Learning Objectives:

1. Name the women who were pivotal to the opening of The Johns Hopkins University School of Medicine.
2. List the demands made of the University by these women in return for their monetary gift.
3. Discuss the importance of these stipulations for medical education to-day.

## William Osler's Mention of Basham's Mixture in the Treatment of Bright's Disease: Who was Basham, and What was his Mixture?

ROBERT I. LEVY

*Robert I. Levy, a retired nephrologist, is working on the history of nephrology both before and after the salient work of Richard Bright. He has thus far evaluated the contributions of Robert Christison in Scotland, Jonathan Osborne in Ireland, and Pierre Rayer in France, all of whom followed Bright.*

William Osler in his 1892 edition of the Principles and Practices of Medicine under the heading of Chronic Bright's Disease recommends that, "Basham's mixture given in plenty of water will be found beneficial." Who was Basham and what was his mixture that it should be mentioned in Osler's textbook?

William Richard Basham (1804–1877) was born in Diss a small town in northeastern England in Norfolk. He was a generation after Richard Bright and was a student at Westminster Hospital. He graduated in 1832 from Edinburgh with a M.D. degree, as did most of the physicians of that time. He took a tour of the continent, as did Bright and became a physician at the Westminster Hospital. He became interested in renal diseases and wrote a beautiful dedication to Richard Bright in one of his publications, *Diseases of the Kidney, Heart, Lungs and Liver* published in 1858, which happened to be the year of Bright's death. Like Richard Bright, Basham was an accomplished water-color painter and draughtsman and many of his illustrations are drawn from microscopic appearance of tubular casts and epithelial lining cells. It was in his Croonian lectures of 1864 entitled *The Significance of Dropsy* that Basham outlines the importance of the microscope and the emerging concept of cellular pathology, furthering the concepts Bright had emphasized in his 1827 *Reports of Medical Cases*.

Rather than gross pathological description of renal disease, Basham credits the epithelial lining cells of the tubules and glomeruli, examined under the microscope, as being a major factor in the in the explanation of the underlying disease. He credited Virchow and Henle in Berlin as well as the English school of Bowman and Lionel Beale with changing the direction in thinking of the pathology of diseases. (William Osler used as a student Beale's *The Microscope in Medicine* and wrote Beale's obituary in *The Lancet* in 1906).

Basham's emphasis on the cellular changes in the kidney lead directly to his concept on management of renal disease. Providing adequate nutrition including iron for the anemia was considered much preferred over bleeding, then the most revered treatment for "inflammation". Basham recognized that the patients with renal disease were already pale and anemic and rather than bleed them further, the damaged epithelial cells of the kidney could be best redressed by nutritional means and using measures to enrich the blood with iron containing products.

This is where Basham's Mixture comes in to play. Quoting in part from Basham's Croonian Lecture of 1864: *The preparations of iron have long been justly regarded as an instrument in helping to enrich the blood with red corpuscles...the rapid and beneficial restorative action of chalybeate medicine or steel (chalybeate and steel implies ferrum or iron) particularly in conjunction with animal food and wine is universally acknowledge and confirmed by daily experience. It is the tincture of the sesquichloride (FeCl<sub>3</sub>). But it is not as the sesquichloride alone that its efficacy is most perceived ...It is as an ammonio-chloride, kept in solution by acetic acid that its beneficial influence become most apparent. A beautiful sherry-red fluid is produced, which is neither unpalatable nor liable to decomposition...the tincture of the sesquichloride has long possessed the favorable opinion of physicians in most cases of renal or genitor-vesical disorder.*

There it is: *Liquor Ferri et Ammonii Acetatis* or Basham's Mixture that made its way into William Osler's text book.

The anemia of chronic renal disease is not primarily an iron deficient anemia but rather a lack of erythropoietin as was shown in the 1980s. William Basham and William Osler I am sure would have welcomed this improvement on *Liquor Ferri et Ammonii Actatis* or Basham's Mixture.

### Learning Objectives:

1. Discuss Basham's new adaptation of the new concepts of cellular pathology to problems of renal disease.
2. Define Basham's mixture.
3. Describe Basham's advocacy of nutritional support, nutritional support, including use of iron preparation to support the damaged epithelial cells of the kidney, rather than emphasis of bleeding, sweating, purging, cupping, etc. advocated by Bright and his early followers.

## Dropped Beat: Sir William Osler's Tenuous Embrace of the Electrocardiogram

CLYDE PARTIN

*Clyde Partin was born at Emory University Hospital and now serves as an Associate Professor of Medicine at the same institution. He spent six years in the United States Air Force as a flight surgeon. He remains an aspiring but (by his own account) unusually unpromising poet.*

The seminal years of the electrocardiogram (EKG) coincided with the last decade of Sir William Osler's life. As the avatar of modern clinical medicine and premier medical educator of his time, with a keen grasp of cardiac pathophysiology, it is curious that Osler's prolific pen rarely mentions the EKG. Why is this the case? Three main reasons are postulated. First, the technical and practical realities of the EKG in this time frame—1909 to 1919—were formidable obstacles preventing routine use. Secondly, the primary clinical use of the EKG in this era was almost exclusively for the evaluation of dysrhythmias. Lastly, a variety of political and personal factors beyond Osler's control conspired against incorporating information about the EKG into his textbook, *The Principles and Practice of Medicine*, and other writings.

In regard to the *initial* reason alluded to above, the first commercially available EKG machine was the 1908 Cambridge model. The apparatus was cumbersome, finicky, filled a room and took several people a matter of hours to perform an EKG on a cooperative and hemodynamically stable patient. Osler was time-strapped, a man in a hurry with a full agenda. Combined with his self-described ineptitude for operating technical equipment, it is easy to see that he was not going to be personally involved in obtaining an EKG. Understandably, he was likely reluctant to advocate routine use of the EKG. Elaboration of the *second* reason reveals that it was not until 1917 that Herrick reported the original diagnosis of a myocardial infarction facilitated by an EKG. While today's practitioner associates the EKG with atherosclerosis, Osler's last decade of life overlapped a period in the development of the EKG that was focused on the basic science, physiology and electrical understanding of EKGs. What clinical application did exist was primarily concerned with evaluating rhythm disturbances. *Thirdly*, the advent of World War I, the death of Osler's son Revere in battle, the lag time inherent in the assimilation of new data, and the drain of aging may have just sublimated the EKG in the sad reverie of Osler's last few years. The war prevented the usual triennial edition of his textbook. Nine printings of the 8<sup>th</sup> 1912 American edition of the textbook occurred through 1920, representing revisions and not true new editions. None mention the EKG.

There are a handful of anecdotes linking Osler to the EKG. He played a role in bringing the first EKG machine to Canada in 1914. In one incident at the Military Heart Hospital in Colchester, England, he asked Sir Thomas Lewis to do an EKG on a patient which confirmed Osler's clinical impression of a primary cardiomyopathy. Both Lewis and Maude Abbott mention the EKG in their section of Osler's *Modern Medicine*, 2<sup>nd</sup> edition, published in 1915. There is good evidence that Osler had a keen grasp of the intricacies of the EKG and its potential clinical value.

### Learning Objectives:

1. Discuss possible reasons why Osler made such scant reference to the electrocardiogram in his published works.
2. Examine the formative years of the electrocardiogram and discuss how it played a role in the rise of the modern hospital.
3. Review the available writings in which Osler included information regarding the electrocardiogram.

## Florence Sabin—Colorado Woman of the Century

DARRYL D. BINDSCHADLER

*Darryl D. Bindschadler trained at the University of Washington, Barnes Hospital in St. Louis, the University of Rochester, the National Institutes of Health, and the University of Colorado. He then practiced pulmonary medicine in Cheyenne, Wyoming, for thirty years.*

Florence Rena Sabin was born in 1871 in Central City, Colorado. She graduated from Smith College. Unable to afford medical school tuition, Florence taught school for three years before entering Johns Hopkins Medical School in 1896, one of 14 women in a class of 45. Early on she was noticed by Franklin Paine Mall who became her mentor and friend. Her early research produced an *Atlas of the Medulla and Midbrain* that became a standard for Neurology courses for many years. Her most outstanding research involved the origin and development of the lymphatic system and blood vessels. Almost a century later researchers refer to her work as establishing the foundation for their attempts to control malignant growth by interfering with tumor angiogenesis.

Florence Sabin and Dorothy Reed finished near the top of their medical school class in 1900 and were awarded two of the four Osler internships in Medicine at Hopkins, the most prestigious of the Hopkins internships. During the internship Florence produced two clinical reports based on Osler Clinic cases. Later she would write about Osler's improvements in his Baltimore Clinic and pay tribute to his skills and his vision.

Following internship she returned to work under Mall and her official teaching career began. She had a profound influence on the thousand plus students she taught, exuding enthusiasm mixed with kindness and maternal protection and adhering to the His-Ludwig-Mall philosophy of teaching—concisely stating a problem followed by a general plan of solution—then leaving all the details to the student and monitoring with constructive criticism. By 1905 she was an Associate Professor and in 1917 became the first woman Professor at Johns Hopkins Medical School.

In 1925 she became the first woman to be elected to life membership in the National Academy of Science and became the first woman full Member on the Staff of the Rockefeller Institute. She and her coworkers spent the next thirteen years studying cellular responses to infection with particular attention to the monocyte in Tuberculosis. After mandatory retirement at age 67 she returned to Colorado.

In 1944 she began her third career as the driving force behind the "Sabin program," six legislative measures that brought about badly needed Public Health reform in Colorado. In the late 1950's a bronze statue of Florence Sabin, seated at a laboratory work table with her beloved Spencer microscope, was placed in the National Statuary Hall with the notation: Teacher, Scientist, Humanitarian, a tribute to Colorado's Woman of the Century.

### Learning Objectives:

1. List the three distinct careers of Florence Rena Sabin.
2. Define the three improvements Dr. Sabin noted that Dr. Osler brought to his Baltimore clinic.
3. Discuss Florence Sabin's philosophy of teaching.

## The Clinical Training of Doctors— A Monograph by Philippe Pinel, 1793

PETER WARREN

*Peter Warren is a retired professor of medicine and now a graduate student in the Master's program of the History Department of the University of Manitoba. He originally graduated from Cambridge University and Guy's Hospital.*

In 1908 William Osler spent three months in Paris and the next year published an account of his impressions on the teachers, students and the hospital clinic in *JAMA*. He described a pilgrimage to the tombs of Louis and Bichat in the account. This paper will focus on a teacher of Bichat. The purpose of this paper is to present an essay by Philippe Pinel entitled on 'The Clinical Training of Doctors.' As it was only discovered in 1935 Osler was ignorant of it—but its content would have intrigued him devoted as he was to the subject. Philippe Pinel is remembered for his freeing of the insane from their chains and he is viewed as the father of psychiatry. But he was an internist who had submitted his essay on "The Clinical Training of Doctors" to the French Academy of medicine in whose archives it languished for 142 years. His recommendations resonate with Osler's principles of medical education. Pinel wrote that clinical medicine must be taught in hospitals not lecture theatres and that busy general hospitals are not suitable for teaching because the volume of work swamps the staff. Pinel went into considerable detail as to the site of hospitals, their design, and the curriculum taught within them. He stressed that observation was the most important skill to be taught and "to facilitate observation, nothing should interfere with the course of the illness nor the progress of its nature." For medicine a medium sized hospital was needed admitting 20 to 30 well defined illnesses to the ward and the number be such that "Painstaking care must be expended on each disease: therefore their number must not exceed the time limit of medical rounds not the physician's attention span." He continued: "[and] train their judgment rather than their memory and inspire them with that noble enthusiasm for the healing art that masters all difficulties." The teacher was the key for he should "devote himself to teaching as one of the most sacred and noble tasks as to be fulfilled in society." The teacher should "teach the student to perceive facts objectively" and the teacher should not "crush them with his superiority." He criticized lectures. The teacher "will give his lessons at the sickbed, emphasize the symptoms and signs that characterize the illness." Somewhat pessimistically Pinel finished his essay thus: "What exquisite judgment, cultivated talents, and deep knowledge of ancient and modern medicine such a professor must possess to be equal to his task. I dare say that, only once in a hundred years will such a supremely difficult position be filled in a worthy manner." Surely Osler, nearly 100 years later, met this standard!

### Learning Objectives:

1. Discuss the best ways to teach students how to observe patients and their illnesses
2. Determine the appropriate number of patients for whom a student can be responsible so as to ensure learning occurs effectively.
3. Evaluate the relative importance of lectures and bedside teaching in clinical training.

## More Than a Couch: Transforming a Clinical Space into a Therapeutic Environment

BARBARA DE LA TORRE

*Barbara de la Torre is a second-year psychiatry resident at Oregon Health & Science University in Portland, Oregon. She graduated from University of Texas Medical Branch at Galveston, Texas, where she was a recipient of the John P. McGovern Student Scholarship in Oslerian Medicine and a finalist for UTMB's Gold Headed Cane Award. Dr. de la Torre plans to integrate her former experience in the visual arts with the fields of psychiatry and design.*

Our home is our sanctuary. After a long day in the hospital or in the clinic, we look forward to returning to a place that is calm, welcoming, and familiar. However, a small change in the environment has the potential to challenge our sense of security. Take, for example, new next-door neighbors moving in without an awareness of their decibel levels, or a sudden loss of electricity in the home. A sense of belonging rings true in most, and when we invite others into our sanctuary, our attention focuses on making a guest feel at home.

Yet, how discriminating are we about our work environment? Hospitals are designed primarily for functionality, and clinical spaces are often the subject of scorn: poor lighting, disruptive sounds, and lack of aesthetics. If we do not create a safe haven for ourselves at work, imagine how our patients must feel in a clinical environment when their lives are disrupted by illness.

Patients who are ill seek refuge from their disease, but often entering a physician's office increases their fear and distress. The traditional medical office décor is likely to be cold and impersonal, and imparts a rehearsed stress response when entering a medical environment. The healing should start *before* a patient sees a physician. It's time to create a universal level of comfort in the clinical setting that makes every patient feel like a special guest and further enhances their own healing potential.

### Learning Objectives:

1. Describe common environmental pitfalls in health-care facilities today.
2. Examine the definition and rationale for paying special attention to the clinical environment.
3. Cite design factors that can contribute to creating a therapeutic space.

## Norman Bethune at Saranac: The Influence of Illness on Career Decisions

ROBERT P. TURK

*Robert P. Turk graduated from the Medical College of Alabama and did a General Surgery residency at Fitzsimmons Army Hospital in Denver. He retired from the Air Force in 1979 with 24 years of service including France, Spain, Vietnam and the Philippines. He joined the faculty at Wright State University and was an Associate Program Director in Surgery for 20 years and for the past six years has been the Surgery Clerkship Director.*

Norman Bethune is the best known surgeon in the world, since most of China's one billion population are required to read Chairman Mao's essay on Bethune's service to the Chinese people. He was born in Gravenhurst, Ontario where his father was a Presbyterian minister. He entered the University of Toronto Medical School in 1912 but dropped out to serve as a stretcher bearer in France. He was wounded in the leg, hospitalized in England and returned to the accelerated medical school curriculum to graduate in 1916 as a classmate to Fred Banting, the discoverer of Insulin. Norman then served in both the British Navy and the Air Force before finishing his surgical training in the U.K. and becoming a Fellow of the Royal College of Surgeons, Edinburgh. He married a British socialite and spent most of her money on an extended European vacation. Finally he set up a private practice in the red light district of Detroit.

In 1927, Bethune was diagnosed with tuberculosis. He divorced his wife in anticipation of death and became a resident of the Lake Saranac Sanitarium. He was less than a model patient and was discouraged by his lack of improvement. He was housed in a cottage with other physician patients, one of whom was Alfred Blalock. During this time, Norman used his artistic talent to draw a mural on brown paper which he entitled "The Progress of T.B."

The fate of these nine panels has become a mystery in themselves as they have been reported to have appeared in a number of places including a radiology department in Michigan and the Army's Fort Detrick in Maryland. In a drawing of a graveyard Bethune predicted his own death as occurring in 1932. After reading a paper on the use of artificial pneumothorax as a treatment for tuberculosis he insisted on receiving this treatment and improved. He made the statement that there were two forms of TB— "rich TB" and "poor TB". The rich went to a sanitarium and lived, the poor died.

On leaving Saranac Bethune went to the Old Victoria Hospital in Montreal where Dr Archibald was a pioneer in surgery for tuberculosis. While there Bethune wrote several papers and invented numerous instruments and became a facile thoracic surgeon. In 1935 he attended a Physiologic Conference in Russia and returned a Communist. The Medical-Surgical Society of Montreal took away his membership when he espoused socialized medicine. He was in the Spanish Civil War on the Republican side in 1936, and went to China in 1938 to serve with the Army of the North. He died of septicemia, leading Mao to write the essay that immortalized Norman Bethune.

### Learning Objectives:

1. Describe the medical socio-economic milieu between WWI and WWII.
2. List some of the innovations in medicine attributed to Norman Bethune.
3. Discuss the influence of personal experiences on career choices.

## Galen and the *Rhetor*: The Physiology and Therapy of Broken Speech

ALISDAIR G.G. GIBSON

*Alisdair Gibson has spent the last two years as a teaching Fellow in the University of St. Andrews and is now a Research Associate there. His doctoral thesis at the University of Edinburgh was a detailed analysis of the illness and dysfluency of the Roman emperor Claudius. His next research project is on dysfluency in antiquity and this paper forms part of this work.*

Dysfluency has been recognized as a condition since antiquity, the terms used can be problematical such as *ischnophonos*. There has been earlier scholarship on speech and physiology but this paper will outline one area of physiology that requires re-assessment and integration into the history of speech pathology, an area that has a direct connection to modern therapy.

Galen uses *ischnophonos* for voice disorders and carefully separates them from *leptophonos* and outlined symptoms that may be chronic stuttering. He cited a case history: a *rhetor* who had suffered severe difficulty initiating words during a speech. Galen's method to assist the professional speaker was to release contracted chest muscles, based on his knowledge of voice from dissection of the trachea and throat.

Galen's technique will be compared to current methods in speech pathology such as Fluency Shaping Therapy, as well as to alternative methods proposed in antiquity. This will show that Galen's approach had an acute understanding of speech production and dysfluency and offered a viable treatment.

Dysfluency is an enormous area of research for modern speech pathologists and the surviving treatises of Galen offer a credible link from antiquity to the present.

### Learning Objectives:

1. Outline Galen's understanding of the physiology of speech production.
2. List words used by Galen to describe speech will be given context in antiquity.
3. Discuss similarities between the therapy proposed by Galen for the *rhetor* and principles used in modern speech pathology concerning stuttering.



## Medicine and the Progress of Wheels— Osler's Two Automobiles

H. MICHAEL JONES

*H. Michael Jones attended the University of Texas and Washington University Medical School before a clinical internship and pathology residency in Philadelphia. Before retiring from community hospital practice in North Carolina, he was a member of the Surgical Pathology Committee of the College of American Pathologists and Adjunct Professor of Pathology at the University of North Carolina.*

In 1975, E.H. Bensley published the only known photograph of Osler in an automobile and cited letters indicating Osler's 1908 purchase of a Renault car (Cushing's biography mentions that Osler enjoyed motor trips during the summer of 1908). While browsing the Osler Library archives in 2005, I discovered a previously unpublished photograph of Osler in a chauffeur-driven automobile. The photograph is identified as having originated in the Davison papers at Duke University, and was contributed to the Osler Library by Dr. Ivan Brown, Jr. in 1988. A notation on the reverse says this was Osler's personal Renault, driven by his long-time chauffeur, Benning; also pointed out in the back seat with Osler is an "unidentified physician in a Red Cross officer's uniform."

This photograph provoked a series of questions. Was this the same car purchased by Osler in 1908? If not, what was the make and model, and when was it acquired? How did the photo come to be in the Davison papers? Had Davison taken it? Was the chauffeur indeed Benning? And, who was the unidentified man with Osler? These ruminations prompted communications with the Renault company, with experts on Renaults in England and France, and with Dr. Brown in an attempt to clarify the issues raised. Finding the photo stimulated a desire to learn more about the early development of the auto, how Osler used the auto compared to other physicians of his day, and the relationship of the Oslers with their chauffeurs.

Inarguably, the automobile was a major factor shaping the culture of twentieth-century industrialized society. There was a period of initial mechanical development from the 1860 combustion engine patent through vexing runabouts in 1893, to about 1906, when autos gained reliability enough to pave the way for general acceptance. Initially, bad roads and tires were major deterrents, especially in rural areas. In cities, autos owned by physicians outnumbered the total of all commercial vehicles except public cabs. Auto authorities identify physicians as the most ardent early adopters. In 1903 (when only 150 miles of paved road existed in the US), the first great cross country automobile trip was undertaken by a Vermont physician, Horatio Nelson Jackson, and his bulldog, Bud. Jackson's exploits captured the popular imagination, and proved the feasibility of long-distance travel by auto. The *Journal of the American Medical Association* featured auto issues in 1906, 1908 and 1910, in which physicians related their generally positive experiences, and vigorously defended various choices of engines, cooling systems, tires, and transmissions. Many physicians quickly came to the conclusion that the auto was cheaper than horses to maintain and saved much time, even considering the tinkering required. Despite such inconveniences, the auto quickly came to be regarded as a necessity, not a luxury, since responding more quickly was felt to enhance position in the marketplace. For visiting patients, most physicians chose small runabouts. Larger touring cars were sometimes chosen to project status or success, just as with carriages in prior centuries.

Since Osler lived at the dawn of the Automobile Age, it is not surprising that he was enthused by this mode of travel. Both of Osler's vehicles were "touring cars." His life suggests that he fully enjoyed touring by any means, and the auto's cost did not dissuade him. But the Oslers contended with all the problems confronting car owners. Grace's letters reveal considerable dissatisfaction with their chauffeur's abuse of the car until they engaged Willie Morris (later Lord Nuffield) as mechanic and began a satisfying personal and professional relationship cemented over many years.

### Learning Objectives:

1. List signal events and timing in the development and adoption of the automobile.
2. Explain how society and physicians of Osler's era viewed the automobile.
3. Discuss how automobile ownership might affect professional status.

## William Osler and McGill: A Continuing Remembrance

DONALD BOUDREAU, PAMELA MILLER, and ABRAHAM FUKS

*Donald Boudreau Director of the Physicianship Program and the Osler Fellows Program, Pamela Miller is the History of Medicine Librarian, and Abraham Fuks is the erstwhile Chair of the Board of Curators of the Osler Library, all at McGill University.*

Were there to be a means of “googling” the spoken word, Osler’s name would score many “hits” at McGill’s Faculty of Medicine. The legacy continues to reverberate to the present and has a direct impact on the faculty and students. The examples and mechanisms include the following specific activities and programs:

1. The Osler Society, founded in 1921 is McGill’s oldest student society. The student members meet several times per year for special lectures and presentations on the history of medicine and allied subjects.
2. The Osler Lecture and Banquet: an annual event, inaugurated in 1977 and organized by the Osler Society with support of the Department of Social Studies of Medicine. The evening banquet attracts over one hundred medical students, primarily from the first and second year classes and the celebration includes drinking port from Osler’s loving cup and eating chocolate truffles handed around in Osler’s cigar-box.
3. The White Coat Ceremony is an annual “rite of passage” for members of the second year class that includes the presentation to each student of a collection of essays by Osler and a specially bound copy of *Aequanimitas*.
4. “Osler Fellow” is the name we have chosen for those faculty mentors who participate in a small group mentorship activity with medical students that spans the four years of the medical curriculum.
5. The Osler Library: This wonderful academic resource is also a concrete physical presence for faculty and more importantly, for the medical students who are aware of Osler through regular displays, the accessibility of the library itself, and the “relics”, e.g. Osler’s desk and desk set, stethoscope, and early editions of his great textbook.
6. The Department of Social Studies of Medicine, founded thirty years ago and until recently, situated in physical proximity to the library, is one of two such departments in North America. Its founders used the Osler Library as the resource “magnet” to recruit the original members.
7. The day of registration for the first year medical class includes a light-hearted lecture on the history of the Faculty and its teaching hospitals— Osler is a leading figure in the anecdotes and historical overview.

The lessons we have learned include the following: the history of medicine and Osler in particular can have a continuing impact on contemporary (faculty and) students; the physical presence of the library and Oslerian memorabilia are important iconic mnemonic devices; role models in this, as in all other pedagogy, are a significant factor; and repeated activities are needed to ensure a lasting impact.

### Learning objectives:

1. Evaluate the impact of Osler on one Faculty of Medicine.
2. Discuss mechanisms used to accomplish this “presence.”
3. Discuss whether and how such activities may be generalized.

## William Sydney Thayer, the Bard of Johns Hopkins

J. MARIO MOLINA

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In his essay entitled “Chauvinism in Medicine,” William Osler wrote: “It helps a man immensely to be a bit of a hero-worshipper.” Perhaps no other physician has done more to fulfill the role of hero for 20th century physicians than Osler himself. Yet this might not have happened without two of his most devout disciples, W. S. Thayer and Harvey Cushing.

Hopkins drew men from far and wide, but few had the background of William Sydney Thayer. His father was a law professor; his mother was Ralph Waldo Emerson’s cousin. Thayer was fluent in French, German, Italian and Russian and a member of Phi Beta Kappa.

Thayer was study in paradox. He was a fastidious dresser properly attired on every occasion often with a carnation in his lapel at the same time that he was an avid outdoorsman. His diagnostic skills were second only to Osler’s, yet he could pass a friend in the corridor without a flicker of recognition. He would quote Russian poetry and compose verse while sitting in a “ducking blind”.

In 1926 he published a volume of original verse entitled “America—1917”. I discovered a number of his unpublished poems written between 1926 and 1930 tucked into a copy of this book given to a friend in Boston. None of these poems appear among Thayer’s papers in the archives at Hopkins. Some of Thayer’s poems eulogized friends while others dealt with hunting themes.

Osler and Thayer split much of the bedside teaching at Hopkins until Osler’s departure in 1905. Thayer continued Osler’s tradition of bedside teaching. Even when passed over for Osler’s job as chief of the department in favor of Lewellys Barker, Thayer cheerfully continued his clinical work. Indeed, like Osler, he remained the “doctor’s doctor”, chosen by medical students over Barker in times of illness. It was through his teaching and example that the legacy of Osler was perpetuated at Hopkins over the next 26 years. The legacy might have died with Thayer had it not been for three things.

Thayer wrote a number of biographical pieces about Osler (including a poem); some were published as *Osler and Other Papers*. Cushing’s biography of Osler published in 1926, inspired generations of physicians, and Osler’s own words were popularized by Eli Lilly & Co by distributing copies of *Aequanimitas and other Essays...* to medical students at graduation.

In medieval times, a bard eulogized heroes in story and verse telling their stories before they were recorded writing. Thayer fulfilled this role before Cushing’s book memorialized Osler for all time. Thayer’s skill with anecdote and story perpetuated the Osler legends; the stories have been told, recorded and retold. We all need role models to hold fast to higher ideals. Our heroes remind us that we can be better than we are. And for that role, Osler fits the bill.

### Learning Objectives:

1. Describe Thayer’s role in perpetuating Osler’s legacy.
2. Define the word “bard”.
3. List three publications important in perpetuating Osler’s philosophy of medicine.

## “A Very Interesting Story to Tell”: William Osler and the Tomb of Avicenna

ANAND DATE

*Anand Date is Professor of Pathology at the Sultan Qaboos University at Oman in the Arabian Peninsula, and formerly at the Christian Medical College, Vellore, India. He has studied and published on various aspects of Osler's Eastern interests and connections.*

Osler's fascination with the great Persian physician, philosopher and poet Avicenna extends over the millennium encompassing Avicenna's life (980 - 1037), the dominance of his great medical textbook the *Kanun* for centuries, and two contemporary projects: collecting manuscripts of Avicenna's works and, the renovation of his tomb in Iran. The greatest Oslerian suggested that this latter project would be “Someday a very interesting story to tell.”

The tomb begins to feature in Osler's correspondence early in 1912 and soon involved an increasingly wide circle of people in North America, Europe and the Middle East whom he enthused to work for the project of renovating the neglected and dilapidated tomb by writing articles, giving lectures, forming committees, recruiting sponsors, and collecting funds.

The growth of Osler's interest in the project, his increasing commitment to bring it to fruition, his persistence in moving the process along, his excitement as it neared attainment, and the disappointment when his plans were frustrated by the Great War that enveloped the area can be felt when reading this “correspondence without end” in the “sheaf of letters on the subject” that “he had prepared.” Then, the final chapter, in which Osler, now much older than his years, from bearing the terrible wound that the War had inflicted upon him, bravely takes up the task once more as the sands of time run out.

Though Osler's project remained unfinished, it was not completely abandoned and even when his involvement was forgotten, the impulse for a better tomb lingered on and now, perhaps his shade will be content with the magnificent structure that stands there today.

What moral does this story contain? Is it just an example of the cross cultural bridge that links the world wide guild of physicians? Perhaps more relevant to our time is that it reminds us that this beautiful tomb, so modern —yet so Islamic, stands in Iran, even while tombs are forbidden in Saudi Arabia, demonstrating the variety which is encountered in Islam and cautioning us against the error of stereotyping its believers.

*Acknowledgement.* The presentation was made possible by the patient unstinting help, encouragement and hard work of Pam Miller and Lily Szczygiel.

### Learning Objectives:

1. Review Osler's interest in the life and works of the great Persian physician Avicenna.
2. Describe how Osler organized support for his plan to repair the tomb of Avicenna.
3. Explain how this project was overwhelmed by the Great War of 1914 – 1918.

## Bloodletting in Osler's Time

BARRY COOPER

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Therapeutic bloodletting dates to the doctrine of four humors, postulated at the time of Hippocrates about 400 BC. The basis for this practice is not fully understood. Fahraeus, a 20<sup>th</sup> century Swedish physician, suggested that blood clotting in a vessel could have been interpreted to form four layers: deoxygenated red cells (black bile), oxygenated red cells (blood or sanguis), cellular elements and fibrin (phlegm), and serum (yellow bile). Imbalance of these four humors would be noted in some patients sick with inflammatory conditions, especially an increase in the components of phlegm (white cells and fibrin). It was likely assumed this imbalance caused disease rather than being a manifestation of illness.

This practice continued until the 19<sup>th</sup> century. The Philadelphia physician Benjamin Rush was an ardent proponent of bloodletting during the yellow fever epidemic in 1793, likely contributing to this disease's high mortality. In his initial edition of *The Principles and Practice of Medicine* in 1892, Osler referred to a quote from Rush stating that 144 ounces (about 9 pints) of blood over 6 days was removed from a newly arrived Englishman with yellow fever. Nevertheless, in Osler's initial edition he advocated the use of bloodletting in cardiac congestion, valvular heart disease, strokes, emphysema, sunstroke, and pneumonia. Most telling are Osler's comments on the treatment of pneumonia by "cupping or leeching" to treat pleuritic chest pain. He noted: "During the first five decades of this century the profession bled too much, but during the last decades we have certainly bled too little." These comments were made in spite of the French physician Pierre Louis' statistical analysis in 1836 that seemed to prove that venesection was not only useless but harmful in the management of lobar pneumonia.

In the last edition of his textbook in 1910, Osler's recommendations for bloodletting had not changed although he noted that "we employ it nowadays much more than we did a few years ago" in the treatment of pneumonia. Also in the last edition, Osler categorized the disease Splenomegalic Polycythemia with Cyanosis (Vaquez Disease) in a section on Disorders of the Spleen not present in his first edition. This disease was first described by Osler in 1892; no mention is made in the textbook concerning bloodletting as therapy for this disorder. Hemochromatosis had not yet been recognized as a disease entity in Osler's time, albeit descriptions by Trousseau and Troisier were published in 1865 and 1871. Bloodletting as a treatment modality was still in widespread practice during Osler's time, likely because of anecdotal responses in select cases, such as congestive heart failure, rather than the basis espoused over two thousand years earlier.

### Learning Objectives:

1. Explain the various rationales for bloodletting since the time of Hippocrates.
2. Review techniques of bloodletting applied for over 2000 years.
3. Assess recommendations for bloodletting during the time of Osler.

# Osler's Advocacy of Bloodletting: An Evolving Perspective

CHARLES S. BRYAN

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**Problem.** During the early years of the nineteenth century physicians made liberal use of bloodletting and especially venesection for numerous diseases. By mid-century bloodletting had virtually disappeared from everyday practice. In a previous study ("Bloodletting in American Medicine, 1830-1892," *Bull Hist Med* 1964; 38:516-529), I showed (1) that the rate at which advocacy of bloodletting declined in textbooks of medicine was much more gradual than the rate at which physicians abandoned the practice; and (2) that Osler in the first edition of Osler's *Principles and Practice of Medicine* (1892) understood the rationale for venesection in pathophysiologic terms much as it would be understood today. The purpose of this study is to examine the extent to which Osler modified his views on bloodletting in successive editions of his textbook, especially in the context of claims that Osler was a therapeutic nihilist.

**Methods.** In the first edition of the textbook, Osler included bloodletting in the therapy for 11 entities (Table). The extent to which bloodletting was advocated for each condition was scored on a 0 to ++++ scale as developed previously (Bryan [1964], *op cit*). Later editions of the textbook were examined for new indications for bloodletting.

**Observations.** Although Osler made minor editorial changes through the years, the extent to which he advocated bloodletting did not vary between the first, seventh (1910), and eighth (1918; with Thomas McCrae) editions:

CONDITION	1ST ED.	7TH ED.	8TH ED.	COMMENTS
Hypostatic congestion of the lungs, severe	++++	++++	++++	No change
Pulmonary edema with cyanosis	++++	++++	++++	Minor editing
Pneumonia, severe	+++	+++	+++	Major editing
Emphysema, severe, with hospitalization	++++	++++	++++	Minor editing
Pericarditis	+	+	+	No change
Chronic valvular heart disease, compensated	+++	+++	+++	Minor editing
Dilatation of the heart	+++	++++	++++	No change
Cerebral hemorrhage	+++	+++	+++	Major editing
Myocardial disease, with pulmonary edema	+++	+++	+++	No change
Arteriosclerosis, with dyspnea and heart failure	++++	++++	++++	No change
Sunstroke	+	+	+	No change

All of the five conditions in which the score was consistently ++++ essentially reflected acute left- and/or right-sided heart failure, situations in which today's physicians would accomplish the same goals with drugs such as diuretics and vasodilators. In the eighth edition, Osler's understanding of the efficacy of bloodletting in pneumonia became much more specific with the addition of these two sentences: "Late in the course marked dilatation of the right heart is the common indication[for venesection]. The quantity of blood removed must be decided by the effect; small amounts are often sufficient." Beginning with the sixth edition (1905), Osler invoked experimental observations by Harvey Cushing in discussing indications for bleeding in cerebral hemorrhage with hypertension. Today's physicians would accomplish the same goals with drugs such as sodium nitroprusside. In the eighth edition, Osler and McCrae recommended venesection for selected cases of polycythemia vera "when there is much fullness of the head and vertigo." Osler did not recognize a benefit for bloodletting for hemochromatosis, and he never discussed porphyria cutanea tarda as a distinct disease entity.

**Discussion.** Osler's discussions of bloodletting evince an ongoing interest in rational therapy based on pathophysiology. These observations add to the evidence that Osler was not a therapeutic nihilist in the strict sense of that term.

## Learning Objectives:

1. Explain the disconnect between advocacy of bloodletting in textbooks and its actual use in practice.
2. Summarize criteria for evaluating strength of recommendations of bloodletting.
3. Give three examples of how advances in pathophysiology informed Osler's evolving perspective on venesection.

## Greek, Latin, English, and All That: The Language We Live In

ALLEN B. WEISSE

*An academic cardiologist, Dr. Weisse began extending his research activities into medical historical and related subjects over 25 years ago. Books emerging from such efforts have included oral histories related to medical advances in general as well as progress in cardiovascular disease; collections of essays on a variety of medical subjects; and, most recently (2006), a collection of true medical stories entitled Lessons in Mortality. Doctors and Patients Struggling Together.*

Although knowledge of Greek and Latin, as well as some modern foreign languages had long been considered essential for professional careers in medical history, a relaxation of such requirements over the past 50 years or more has been noted. What effect has this had upon the medical history research currently being performed? One clue to this might be found in the changing reference sources appearing in published medical historical articles. To examine this, reference sources in 100 articles appearing in *The Bulletin of the History of Medicine* between 1939 and 1941 (Group A) were compared with those found in a recently published 100 articles appearing between 2000 and 2005 (Group B).

There was a striking difference in the average total number of references per article over time (Group A: 34.8 vs. Group B: 79.1) suggesting more intensive background research in recent years. On the other hand, there was a marked increase in the number of English reference only papers (18 vs. 38); the percent of English references among the total (50% vs. 84%) with a marked reduction in Greek/Latin references (14% vs. 2%) and other non-English references (35% vs. 14%).

Although such findings may have no bearing on the quality of current research, assuming the continued importance of classical as well as other non-English sources in medical history, questions might be raised about a narrowing of focus on the part of English speaking historians over the past half century.

Whatever the effect of such trends may have on the writing of medical history even more profound effects might be observed on the cultural spectrum in which we exist and wherein English has become the dominant language. Despite this trend there are glimmers of hope that cross-fertilization of words as well as ideas will continue to nourish our future global intellectual lives.

### Learning Objectives:

1. Document changes in language reference in the writing of medical history.
2. Describe ways to encourage the continuation and expansion of language studies.
3. Discuss how more critical evaluation of published medical historical research might be accomplished in the context of diminished use of foreign language resources.

## The Birth of Cardiology in Argentina: From Chronic Pulmonary Heart Disease to Angiotensin II

HECTOR O. VENTURA

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**Background.** The high level of diagnostic and therapeutic sophistication in the management of cardiovascular disease today has truly been one of the most remarkable achievements of humanity. This level of excellence, as in all human enterprises, relies upon conceptions founded in the past through investigations from different countries of the world.

**Objective.** To analyze and review the development of cardiology in Argentina from the beginning of the 20<sup>th</sup> century.

**Results.** The birth of cardiology in Argentina starts at the beginning of the 20<sup>th</sup> century when Dr. Ayerza describes heart failure associated with cyanosis in patients with chronic pulmonary disease (cardiacos negros de Ayerza). Although this description carries the name of Abel Ayerza, it was one of his disciples, Francisco Arrillaga, who published the clinical scenario in his doctoral thesis, named "Clinical findings of the secondary sclerosis of the pulmonary artery" in 1912. Arrillaga wrote his thesis of several clinical cases that Dr. Ayerza described in a class August 20, 1901. Dr. Ayerza was Professor of Medicine at "Hospital de Clinicas" in Buenos Aires and studied in France with Potain, Jaccoud and Babinski. It was said that "Ayerza's legacy was his contributions to the practice of medicine and his disciples... and because his was a superb teacher..."

Dr. Bernardo Houssay, the first Argentinean recipient of Nobel Prize of Medicine, was also a major contributor to the development of cardiology in Argentina. Under his initiative, the physiology section of the University of Buenos Aires purchased the first electrocardiograph. The ECG was an Eggleman and it was of one string. This was used as a tool for experimental physiology.

Professor of Medicine Dr. Escudero brought the first clinical electrocardiograph in 1924. It was the two-string French Boullitte and in 1930, several centers started to record phonocardiograms, apexcardiograms and arterial and venous pulses utilizing the polygraphs. The work of Dr. Orias and Dr. Braun Menendez on cardiac sounds was recognized around the world.

Dr. Braun-Menendez was another important figure of Argentinean cardiology. He trained under Dr. Houssay and in 1934, he became with Dr. Moia Director of the first outpatient cardiology clinic at Hospital Ramos Mejia. In 1935, he was also the founder of the *Argentinean Journal of Cardiology* and in the same year, he dedicated his medical career only to research in physiology as Director of the Cardiovascular Research Institute and was in that position when Braun-Menendez and his co-workers discovered a pressor substance that they called hypertensin. At the same time, American investigators led by Dr. Irvine Page discovered the same pressor substance and called it angiotonin. Dr. Braun Menendez and Dr. Page met years later and changed the nomenclature of this pressor substance and called it angiotensin, utilizing the beginning of the name given by the American investigators (angio) and the end of the name given by the Argentinean investigators (tensin). Another important figure in cardiology was my professor, Dr. Carlos Taquini, who was part of the group that discovered the pressor substance hypertensin and was Professor of Physiology and Internal Medicine and Director of the Cardiovascular Research Institute. Between 1938 and 1939, Dr. Taquini was part of the Cardiology Unit of Massachusetts General Hospital in Boston. He was a founding member of the Argentinean Society of Cardiology. Many other physicians worth mentioning are Dr. Pedro Cossio who was the first to perform a cardiac catheterization in the American continent, Dr. Rodolfo Kreutzer a pioneer of pediatric cardiology and Dr. Clemente Alvarez who was the first to publish a book in 1909 entitled *Heart Failure and Its Treatment*. In 1936, 33 cardiologists from around the country founded the Argentinean Society of Cardiology. More recently, physicians such as Mauricio Rosembaum and Rene Favaloro were also important contributors to electrophysiology and cardiovascular surgery.

**Conclusion.** T. S. Eliot wrote: "...the historical sense involves the perception not only of the pastness of the past, but of its presence..." Thus, one cannot appreciate the present separate from the milieu of the past. The successes of Argentinean cardiology in present days are rooted in the past and that it is why a historical overview is crucial to recognize not only how far we have come but also how much we can accomplish in the future.

### Learning Objectives:

1. Name the principal physicians who developed cardiology in Argentina.
2. Review the creation of the Argentinean Society of Cardiology.
3. List some major discoveries by Argentinean cardiologists.



## The Checkered History of Blood Transfusion

MARVIN J. STONE

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The checkered history of blood transfusion includes centuries of fanciful theories, bold experimentation, repeated catastrophes, and frequent condemnation. Transfusion of animal blood into humans dates from the mid-seventeenth century and occurred almost simultaneously in France (Denis) and England (Lower). Surprisingly, the first patients survived. However, subsequent patient deaths led to a moratorium on transfusing blood in both countries for the next 150 years. In 1824, James Blundell, a physiologist and obstetrician, performed the first human-to-human blood transfusions and emphasized that the prime indication was hemorrhage rather than rejuvenation or treatment of insanity. William Osler, an advocate of bloodletting, wrote about experimental transfusions in 1886. He recognized that vascular collapse following severe hemorrhage was not due to loss of blood *per se*, but to a quantitative reduction in fluid vascular contents. Blood transfusion was finally put on a solid scientific foundation with the discovery of the ABO blood groups by Karl Landsteiner in 1901, work for which he received the Nobel Prize. Advances in transfusion technique and preservatives occurred during WWI. Plasma fractionation, the precursor of component therapy, was developed by Cohn et al during WWII. In 1937, the first blood bank in the United States was established at Chicago's Cook County Hospital. The American Association of Blood Banks had its first meeting at Baylor Hospital in Dallas in 1947. Since the 17<sup>th</sup> century, a rollercoaster of anxiety has characterized public response to blood transfusion—initially because of fatal hemolytic reactions and later because of transmission of infectious diseases. This rollercoaster reached new heights in the 1980s due to the emergence of AIDS. During the past 20 years, sensitive tests for HIV, hepatitis viruses, and other organisms have made the blood supply safer than it has ever been. It will never be perfect, however, and a number of potential complications remain. Despite these limitations, blood transfusion is claimed by some to be among the greatest therapeutic advances in the history of medicine.

### Learning Objectives:

1. List risks associated with blood transfusion during the past 340 years.
2. Outline the scientific advances in the 20<sup>th</sup> century that permitted blood transfusion to become an important part of the medical armamentarium.
3. Examine limitations in maintaining safety of the blood supply.

*Presidential Address*

## The Images of Medicine and Healing in Stained Glass Windows

JOCK MURRAY

*Jock Murray is former Dean of Medicine and Professor of Medical Humanities at the Dalhousie University, Halifax, Nova Scotia. He is the recipient of numerous awards and is a world authority on the diagnosis, treatment, and history of multiple sclerosis.*



*Physicians healing at the bedside in a stained glass window in Canterbury Cathedral, Canterbury, England.*

The history of stained glass windows is focused mainly on two eras: the 12th-14th centuries and 1850 to the present. In this presentation, I will review the history of telling stories in stained glass using images of windows that represent physicians, nurses, caregivers, illness, healing, and other medically related topics. The windows are from 1100 to the present and from the travels of the author and his wife in England, Scotland, Wales, Spain, Greece, Australia, the United States, Canada, and other countries. The windows are in churches and cathedrals, as expected, but also in medical schools, homes, hospitals, medical association offices, and some unexpected sites. Through these illustrations we will review the history of stained glass and its use in telling medical stories and glorifying the art of healing and the role of healers.

## Learning Objectives:

1. Explain why there were two distinct eras of stained glass use (12th-14th centuries and 1850 to the present), with relatively little use of this medium in the four hundred years in between these eras.
2. Identify reasons why there are so many images of healing in stained glass windows.
3. Describe how to look for medical images in stained glass windows.

*William B. Bean Student Research Award Lectureship*  
**Human Trafficking: Recognition and Management  
 in the Emergency Department**

**MAKINI CHISOLM-STRAKER**

*Makini Chisolm-Straker is a rising third-year student at Brown Medical School, where she co-coordinates the Brown Chapter of Medical Students for Choice and belongs to Physicians for Human Rights.*

The U.S. State Department reports that about 17,500 individuals are brought annually into the United States and held against their will as victims of human trafficking. Additionally, migrants who are already in the country or individuals from the U.S.—runaways, displaced persons, those from oppressed and marginalized groups and/or the poor—are also victims in this industry. Combating human trafficking is a daunting but not insurmountable task and healthcare providers have an important role to play. Emergency care providers are on the frontlines, with the most frequent opportunities to identify these victims, but are not currently formally and systematically trained to recognize the clinical presentation typical of human trafficking victims and are not knowledgeable about appropriate treatments.

An anonymous survey of 110 emergency department (E.D.) attending physicians, residents, PAs, nurses and other staff at an urban Level I trauma center and a university tertiary referral center was conducted from July 12-July 17 2006. While 75.7% of providers reported some awareness of human trafficking, only 2.8% and 1.9% said they had been trained in the clinical presentation and treatment, respectively, of trafficked patients. To fill this void, we developed an on-line case-based curriculum to train individual providers to recognize and treat trafficked patients.

The website, [www.humantraffickingED.com](http://www.humantraffickingED.com), provides a basic introduction to human trafficking and whom it affects; clinical signs and symptoms; local anti-trafficking advocacy groups; guidelines for E.D. providers who suspect or confirm trafficking; three illustrative narratives of survivors; and further suggested readings. A separate, interactive page contains teaching cases to help learners think critically about their future actions as emergency healthcare providers for this patient population and to assess their comprehension and ability to practically apply the new information. An instructional module for faculty use includes: a background information document, a pre-training knowledge assessment survey, an abbreviated survivor narrative, a 20-minute PowerPoint presentation, a post-training evaluation and an instructor's guide.

This 20-minute case-based PowerPoint presentation summarizes the definition and types of human trafficking, the populations at risk, the difficulties in identifying such patients, the signs and symptoms of trafficking in patients and what actions to take and not take when suspected or confirmed trafficking victims present as patients. This didactic module was piloted in July 2006 at the Mount Sinai Emergency Medical Residency Program and with the Elmhurst Hospital Emergency Medicine Nursing staff. The instruction was well received and resulted in a marked increase in participants' confidence in their ability to identify and correctly treat patients who are trafficking victims. Prior to the instruction, 12.1% were confident, 51.5% hesitant and 33.3% were not confident in their ability to identify a trafficked patient; after the training, 3.0% were very confident, 57.6% confident, and 39.4% were hesitant in their ability to identify such a patient. Similarly, prior to the training, 18.2% were confident, 36.4% hesitant, and 45.5% were not confident in their ability to correctly treat a trafficked patient; after the session, 6.3% were very confident, 46.9% confident and 43.8% hesitant about their ability to correctly treat a trafficked patient. Widespread use of this instructional tool may improve providers' ability to save lives.

**Learning Objectives:**

1. List, when presented with a trafficking victim case, the clinical signs that point to human trafficking as the disease.
2. Explain the importance of presumptive treatment in sexually exploited trafficked patients.
3. Identify the national hotline to call when a trafficking victim has been identified in one's emergency department.

## Magic Scrolls: The Healing Art of Ethiopia

SARA E. WALKER AND JERRY BERNECHE

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Scientific medicine in the West developed relatively recently, in the past two centuries. In contrast, ancient and primitive societies have held their own beliefs about illness since prehistoric times. We describe and illustrate the use of traditional words and images as tools against illness in Ethiopia, an east African country with a strong Christian tradition.

Many Ethiopians believe that sickness results from possession by a bad spirit, and healing will occur if the spirit exits the body. "Magic" scrolls are used as healing articles and talismans, based on a tradition that strong words and images will drive out devils. It is thought that supernatural beings originally revealed healing messages to man, and the messages are therefore to be reproduced on the scrolls. Magic scrolls probably originated from phylacteries worn in antiquity and books of protective prayers that appeared in the fourteenth century. The earliest scrolls date from the eighteenth century.

A scroll is made for one individual and has little power for others. A sheep or goat chosen for the sick person is sacrificed and a strip of hide measuring the length of the patient's body is cut and sewn from the animal's skin by a dabtara, a non-ordained cleric in the Ethiopian Orthodox Church. Prayers and invocations are written on the strip in Ge'ez, the archaic precursor of Amharic, the language of Ethiopia. Text designed to drive out demons is warlike—"Likewise strike their necks, blind their eyes, deafen their ears, break their teeth and their legs, confound their minds ...that they may not come close..." and includes names for God, angels and devils in order to give mastery over spirits. Magic scrolls usually have drawings at the top, middle and bottom that portray holy persons, symbols of evil (snakes, the devil) and signs of victory (angels, a king, the powerful queen, Judith). Important symbols are eyes (a sign of power), crosses, 8-pointed stars, nets and rings.

Many wear their scrolls for a lifetime. Women are more frequent users and wear the rolled up scroll in the left axilla. Men use scrolls folded like an accordion and worn around the neck in a square book-like holder. A scroll may be unrolled so the sick person can pray before it and gaze into the eyes drawn on the scroll. This healing gaze may induce a trance in which the invading spirit shouts and speaks and hopefully, will depart.

In conclusion, it is not known if Ethiopian spiritual writings and images have any effect on disease, but magic scrolls do serve as a means of coping with fearsome diseases and an uncertain future in a land with few medical resources.

### Learning objectives:

1. Explain the process by which magic scrolls are made.
2. List symbols commonly inscribed on magic scrolls.
3. Describe the methods used by owners of magic scrolls to treat and protect from disease.

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## The Osler-Whipple Connection

JOSEPH B. VANDER VEER, JR.

*During the year before his fourth year at Rochester, Joseph Vander Veer was a Student Fellow in Pathology in the department of George Whipple. He then went west to take his internship and surgical residency in Portland, Oregon. He taught on the faculty at Oregon and later at the University of Arizona, where he practiced for the last 13 years of his career.*

Two bachelors, Johns Hopkins and George Eastman, funded two medical schools—Johns Hopkins and Rochester—where two prominent physicians, William Osler and George Hoyt Whipple, served with distinction, Osler as Hopkins' first Professor of Medicine and Whipple as Rochester's first dean and its first Nobel Prize recipient.

Whipple came under Osler's sway as a member of the last class he taught before leaving Hopkins for Oxford, an influence that Whipple recounts in a 1966 letter to Bill Bean, first president of the AOS. "He was very kind to medical students and, while we were on medicine, he had that particular group to his house for weekend meals. I have a photograph which he was kind enough to autograph for me. It hangs over my desk in the laboratory. I must say that I disagree completely with Singer's conviction that Osler was a melancholy man. He was after the death of his son. Students were always talking about his practical jokes and some of them were really wonderful."

Osler—a short affable man who enjoyed practical jokes—and Whipple—who was tall and taciturn, almost autocratic—were different in many ways. But they were similar in their love of teaching. Whereas Osler "taught medical students on the wards," Whipple was known for his "organ recitals" in the autopsy suite, and for instituting the year-out student fellowship program at Rochester, in which about ten per cent of each class participated. Both showed great magnanimity toward their peers, residents and students, and both were mentors for many who later became teachers and leaders in their chosen fields of medicine.

Hopkins under Osler set new standards for medical education, and Rochester under Whipple was one of the first schools organized and built after the Flexner Report. Osler's impact on Whipple is apparent in this paper, which is punctuated by vignettes about these influential teachers.

### Learning Objectives:

1. State the connection between William Osler and George Hoyt Whipple.
2. List three accomplishments of George Hoyt Whipple.
3. Discuss two similarities and two differences between these two great educators.

## A Young Doctor's Military Case Book, 1860-1865

CYNTHIA DE HAVEN PITCOCK AND BILL J. GURLEY

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The centerpiece of this study is an unpublished medical case book kept by Henry Dye, a young surgeon in the Army of the Confederate States of America. A Texan, Dye graduated in 1860 from the University of Pennsylvania School of Medicine in Philadelphia. The case book is remarkable for two reasons. First, it illustrates clearly the trend in American medicine toward pragmatic empiricism, away from the medicine-by-protocol of the eighteenth century. Second, Dr. Dye illustrated each case with drawings and sketches of his wounded patients, with notes describing his methods of care as well as the final outcomes. This document is unique in the fields of the history of medical therapeutics and medical history.

The American Civil War, 1860-1865, fractured the new nation in irreparable ways, and caught medical therapeutics in the process of fundamental change. Henry Dye's case book demonstrates the magnitude of injuries caused by modern weaponry and by the ravages "total war," showing as well his search for new surgical techniques.

After four years of warfare and the loss of 360,000 young men, the American public demanded reform of medical education and medical practice. In the decades following the American Civil War, Europe became the model, widely acclaimed and closely followed by practitioners and medical educators alike. The empiricism so carefully noted and uniquely illustrated in Henry Dye's small case book evinces a modest beginning of the movement toward scientific medicine.

### Learning Objectives:

1. Discuss the trend in American medicine toward pragmatic empiricism and away from the medicine by protocol of the 18<sup>th</sup> century.
2. Explain the impact of the civil war on the American public and their call for the reform of medical education and medical practice.
3. Examine the magnitude of injuries caused by modern weaponry.

## Flouridating Toronto's Water: A Gordian Knot and a Pyrrhic Victory

ARTHUR GRYFE

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For more than 40 years the Health League of Canada was the most influential public health organization in Canada. Created in 1919 to combat the post-war venereal disease problem, it soon expanded its mandate to include a host of public health issues, including immunization, maternal and child care, pasteurization of milk, nutrition, food handling, cancer prevention, industrial health, artificial respiration, and aging. Largely due to the Health League's efforts, tertiary syphilis became virtually unknown in Canada, Ontario became Canada's first province to legislate pasteurization of milk, and Toronto became the first city in the world with a population of over 500,000 to go a whole year without a case of diphtheria. The Health League also led the successful campaign for fluoridation of Toronto's water supply, which proved to be a pyrrhic victory.

Dr. Gordon Bates, a small, feisty, aggressive physician, was the lifeblood of the Health League. He initiated the programs and carried them to fruition. He was a public health crusader, a man of vision with boundless energy, but had no patience for opposing opinions. No one could stop him or the Health League until fluoridation of Toronto's water supply became his *cause célèbre* and Gordon Sinclair his chief antagonist.

Gordon Sinclair, Toronto's most visible and vocal anti-fluoridationist, was a very popular broadcaster and journalist. World traveler, author, provocateur, Sinclair thrived on controversy, bluntly stating his views on a wide variety of topics, and usually oversimplifying them to black and white issues. His huge following responded enthusiastically to his opinions, whether meritorious or outrageous. Through him, as a frequent host and commentator on Toronto radio and television, the anti-fluoridationists had massive exposure and an almost unfettered platform.

This paper describes the vitriolic fluoridation battle between the two men named Gordon. It also describes the participation of the United Appeal, forerunner of the United Way, in this battle, and how this resulted in the demise of the Health League of Canada.

### Learning Objectives:

1. Describe the methods employed to disseminate propaganda favoring fluoridation.
2. Discuss the political implications involved in instituting a public health measure.
3. Discuss the power of a non-medical association over a public health organization.

## Disease and Difference: How Otherness is Projected in Opera and the Arts

GABRIEL SHAPIRO

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When we are threatened by illness or difference, anxiety develops. As Sander Gilman has noted, we project our anxiety about disease and difference outward to someone else—the “Other”—and we develop stereotypes of the Other to perpetuate this needed sense of difference. Stereotypes are necessary fictions, since they are potential aspects of ourselves we cannot abide. In art, particularly visual art, we can view disease and difference as being contained—as images inside a frame or on a stage—external to our sense of self. These images are the visual representations of the inner world of the artist and may convey societal stereotypes through the artist’s message to a specific targeted audience. When the visual, auditory and textual come together, a powerful message may be delivered through opera, cinema, and stage drama.

Because pathology is the antithesis of order and control, disease and difference distinguishes and distances the healer from the patient, the healthy from the sick. The plague was the first disease model of cultural devastation, and the threat of social chaos created the notion of divine wrath. The work of Linda and Michael Hutcheon expands the view that many plague equivalents have projected stereotypes through opera and other formats. These have included tuberculosis, syphilis, mental illness, ethnicity, cancer, and AIDS.

In Verdi’s 1853 opera *La Traviata*, consumption doomed the courtesan Violetta because of her moral values and female seductiveness. Despite Koch’s 1882 discovery of the tubercle bacillus as the contagion in consumption, Puccini’s fragile Mimi died in the 1896 opera *La Boheme* because consumption was powerfully linked to both poverty and sexuality. Syphilis, first reported in 1495, infected males as victims while females were considered as those who infected but did not suffer. Stravinsky’s *The Rake’s Progress* (1951) embodied cultural disgrace and suffering by contraction of syphilis and death by syphilitic dementia, “the general paresis of the insane.” Richard Strauss composed the opera *Salome* to represent the hysteria of the Princess of Judea as decadence, and thus he became the composer of the avant-garde in *fin de siecle* Germany.

A counter-revolution has begun whereby the “Other” has rejected the stereotype. In the area of cancer Susan Sontag declared that illness “is not a metaphor,” and in Tony Kushner’s *Angels in America* he countered the assertion of AIDS as divine punishment.

One of the goals of medicine is to be aware of socio-cultural meanings attached to disease and to combat stereotypical and discriminatory attitudes in our profession as well as in society. One of the main goals of all members of society is to understand and make room for the Other that resides within us.

### Learning Objectives:

1. Discuss how opera and other media formats may convey disease as difference.
2. Explain how these formatted messages convert the diseased person into a stereotype.
3. Recognize that representations of those diseased as different may convey stereotypes having moral and ethical implications for health care professionals.



## Sleeping Sickness and the Colonial Encounter: J. L. Todd, William Osler, and the McGill Connection

BARBARA LAWSON AND PAMELA MILLER

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John Lancelot Todd, B.A. 1898, M.D. 1900 (McGill) was awarded a scholarship in 1901 to attend the Liverpool School of Tropical Medicine. One year later, he accompanied Dr. John Everett Dutton to Senegambia to study trypanosomes and their effect on the local population as well as surveying sanitary conditions of the principal towns. In 1903 both men travelled to the Congo Free State (present-day Democratic Republic of the Congo) at the special request of King Leopold II of Belgium to carry out intensive research on trypanosomes and their relation to sleeping sickness. The scientific and practical achievements of both expeditions were considerable and are well documented in published reports. The personal challenges and physical rigors of these endeavors (endless hours examining patients, taking samples, and performing post mortems, and the accompanying administrative travails) have been gleaned from Todd's personal correspondence (Fialkowski [1977], Smith [1977, 1978], Lechat [1964]).

A variety of "navigation" skills (riverine, terrestrial, and cultural) were required by expedition doctors, their African guides, and the populations they met along the way. Sections of Todd's letters document not only his astute observations related to medicine, but also those concerning nature and culture. Knowledge in these three domains contributed to the success of the medical investigation, the richness of Todd's experience, and no doubt to his survival under very difficult circumstances. Diligent note taking and medical samples gathered were complemented by jotted observations of local people, photographs, and collections of African material culture—a personal interest that might be overlooked were it not for the evidence offered by over 550 objects and accompanying catalogue donated to McGill University's Redpath Museum.

In 1905, J. L. Todd just back from his two year expedition to the Congo was invited to lecture at the Medical Society of Oxford. While in Oxford, he was the guest of Dr. William Osler, recently appointed Regius Professor of Medicine, and of his wife Grace. The results of his work attracted the interest of medical authorities and trading interests deeply concerned with the devastating effects of this tropical scourge. The study of parasites, as we know, was one of Osler's youthful interests, reflected in his collection of entozoa, his medical thesis and early publications. Promoting the search for a cure for contagious diseases became a life-long passion. He would therefore have been excited by Todd's discoveries, probably having been alerted to his potential by Professor George Adami, McGill University's Professor of Pathology, who had been one of Todd's teachers. Osler actively promoted the establishment of a Department of Medical Zoology at McGill and after the visit in 1905, may have gained the impression that Todd could be lured back to McGill. In 1908, Todd began his appointment as Associate Professor of Parasitology at McGill.

### Learning Objectives:

1. Examine the importance of J. L. Todd's involvement in the Liverpool School of Tropical Medicine's expeditions to study trypanosomes in Africa.
2. Evaluate William Osler's influence on the development of Parasitology in Canada, within the framework of his life-long crusade to eradicate contagious disease.
3. Discuss Todd's collections of material culture made in Africa (1902-1905) and gain a unique insight into the human side of these early medical expeditions.

## Osler's Unfilled Slot

JOHN S.G. BLAIR

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*William and Edward Revere Osler in uniform during the Great War; Lieutenant Revere Osler's grave in Flanders*

Charles Bryan has described Osler's Address on "The Army Surgeon" as "one of his classic addresses." Osler himself made it clear that he was "one who is unhampered by too particular knowledge" in his introduction. This paper will begin by reporting the views of a wide range of Armed Forces medical officers, from juniors to generals, on how useful it would have been to them had they heard it given.

Osler mentions John Morgan, but his choice of William Beaumont seems a strange one. Why did he choose to describe the work of Beaumont? The second part of the paper will continue with an account of the US medical officers of the period, whose contribution he must have been aware of—John Shaw Billings, William Hammond, Jonathan Letterman, Hunter Holmes McGuire, and Samuel Moore.

The third part will assess the value of Sir William Osler's contribution to the work of the Royal Army Medical Corps in the First World War.

Osler's greatness filled many fields of Medicine. This paper describes the one slot he did not fill—Military Medicine.

## Learning Objectives:

1. Examine military medicine as a valuable part of medical history
2. Evaluate the need for best possible initial training for Armed Forces medical officers.
3. Contrast the life scene of a career Service medical officer with that of a civilian counterpart.

## A Tie That Did Bind: Wilder G. Penfield, Wilburt C. Davison, and Sir William Osler and Lady Grace Osler

BILLY F. ANDREWS

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John P. McGovern extended the opportunity for me to spend an afternoon at the Osler Library of McGill University, Montreal, Canada, with Wilder G. Penfield one year following the death of Wilburt C. Davison of Duke who had been his classmate at Princeton, Oxford and Johns Hopkins. Davison met Sir William and Lady Osler one year before Penfield. Both were Rhodes Scholars and good athletes; Penfield an all American in football, Davison in hockey and rowing. Both were great readers and enjoyed wide areas of interest outside science and entertainment. Both were indelibly impressed by Sir William's teaching, humor and philosophy and enjoyed his *A Way of Life*. There were also duly impressed with Lady Osler's beauty, charm, philosophy and nurture. All continued a lifetime of special interests and correspondence.

The visit with Penfield was intended to last one hour but turned into four hours, of course including a tour of the library and the room with Osler's urn. There were four general areas of topics he discussed: First, about the great experience with Davison he had in college at Princeton, post graduate at Oxford and then the clinical years at Johns Hopkins with Davison. Secondly, Penfield discussed his and Davison's high regard for the Oslers and the hospitality of "The Open Arms," 13 Norham Gardens, Oxford. He was thoroughly impressed with all of the efforts of Lady Osler during his recovery from an accident at sea and the relationship of the Oslers and love for their son Revere, who was killed in France. Osler's Library greatly impressed him as it had Davison, along with his bibliographic memory of medicine, many other fields and his scholarship. His main concern and sympathy was for the patient. His human being of highest praise was Osler. Thirdly, he discussed points of his wonderful career and mentors, and that Montreal was his Mecca. Mapping the brain and the Montreal procedure for epilepsy were his major contributions. He mentioned that his associate Cohen had not received due credit for his work and had meant much to him. He said he had operated on his sister at her insistence without a very successful result which had bothered him for life. Fourth, Penfield began to instruct and direct me in my life's work as had Davison. He even suggested ways to study, work, rest and how to enjoy the outdoors. He even suggested that I buy a farm, have a lake and cabin where I could write. "You must certainly have another book or two in you, maybe poetry." When mentioning an article he had written about Dave that Hopkins had not published, he said, "You should write about Osler and Dave." He ended with, "Keep me informed and remember the patient is what it's all about, what medicine is for."

I will try to condense and convey the appreciation and great friendship between Wilder G. Penfield, Wilburt C. Davison and the Oslers, and the strong memories and influence on their lives and those who continually meet to honor Osler, a great physician for all seasons.

### Learning Objectives:

1. Discuss the impact of the Osler's upon the lives of Wilder G. Penfield and Wilburt C. Davison.
2. Show the bonds of friendship of students with mentors who help them to realize their potential.
3. Illustrate the compelling influence of Osler upon succeeding generations.

## The Doctor as Weatherman: Medical Meteorology and Topography in Nineteenth-Century New Jersey

SANDRA MOSS

*Dr. Sandra Moss is a retired internist and former clinical associate professor of medicine at the University of Medicine and Dentistry of New Jersey. She recently earned a masters degree in the history of medicine. Her major interest is in 19<sup>th</sup>-century health and medical practice in New Jersey. She is a past president of the state medical history society.*

Intellectually active 19<sup>th</sup>-century physicians participated in a national and international research endeavor known as medical meteorology or medical topography. The premier example of this kind of medical science was Daniel Drake's epic work, *Principle Diseases of the Interior Valley of North American* (1850), which has been called "the high water mark in many ways of medical natural history in America." In the century before the maturation of the germ theory, medical teaching maintained that contagions were the result of miasmas — toxic exhalations of decomposing organic matter in the soil. For example, physicians had long been aware that malaises such as malarial fevers were more common near swampy, low-lying areas, thus supporting the study of medical topography. It made sense for the physician to be attuned to local climate and topography.

The present research utilizes reports submitted by New Jersey physicians, both rural and urban, to their local and county medical societies. Prior to the mid-19<sup>th</sup> century, medical topography in New Jersey was applied to the investigation of local disease outbreaks, as doctors turned to such concepts as "the reigning constitution of the atmosphere" and "epidemic influences" to explain seasonal epidemics. As the 19<sup>th</sup> century progressed, soil and climate conditions were marshaled as evidence of the salubrity of cities such as Newark. With the rise of the germ theory, investigations by local physicians into subjects such as elevation and drainage near the heavily polluted Passaic River fit in well with the new sciences of sanitation and bacteriology.

Many town and county physicians faithfully took their own meteorological readings and prepared tables of daily weather data; some prepared lengthy monographs on the topography of their locality. As they communicated their local weather and soil conditions to colleagues in the county and state medical societies, some physicians attempted to correlate their observations with the prevailing diseases in their particular locales.

Close personal observation of weather and topography was a scientific endeavor that helped provincial practitioners, often isolated in rural or town practice, feel part of a new scientific medical community. Investigations of climate and soil conditions helped organize and explain, however imperfectly, the confusing array of fevers and epidemics that constituted much of daily practice. Medical topography resonated in complex ways with mid- and late-19<sup>th</sup>-century advances in public health and germ theory.

### Learning Objectives:

1. List a number of ways in which older concepts of medical topography dovetailed with newer concepts of sanitation and the germ theory of disease.
2. Explain the role of medical meteorology in the image of the scientific practitioner of the early 19<sup>th</sup> century.
3. Outline the role of Daniel Drake in the development of American medical theory and practice.

## Another Notable Book of the 1890s: Gould and Pyle's *Anomalies and Curiosities of Medicine* (with a letter from Osler to its authors)

STEVEN J. PEITZMAN

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In 1897, Philadelphia ophthalmologist and editor Geroge M. Gould, and his friend and fellow eye physician Walter Pyle, published a massive and amazing text, *The Anomalies and Curiosities of Medicine* (hereafter, *A&CM*). It has remained available to the present day, now with the so-called “popular edition” on line. It is worth talking about at the American Osler Society, because the book can be seen as falling broadly in the realm of descriptive pathology cultivated by Osler, and, in addition, because Osler seems to have loved the tall story. It’s also worth considering why such a book would be created.

The *A&CM* stands in a lineage of medical writings about monsters that goes back at least to the *Monsters and Marvels* of Ambroise Pare. In his day (the 1500s), the appearance of the conjoined twin, or a two-headed calf, represented a *portent*, a sort of coded note from God that He had registered a bit too much human sinning, and was not happy. Pare, however, offered “naturalistic” causes, and such anomalies became increasingly “naturalized” over time, as obviously seen in the *A&CM*. One also sees over the centuries a narrowing willingness to give credence to some purported anomalies of nature, though even in 1897 Gould and Pyle take some instances seriously that later generations would not. To them, by the way, the criterion for inclusion was that the oddity had been reported originally by medical persons.

The authors of the *A&CM* believed that their work would have practical value, both clinically and forensically, and I will review their justification for creating such a book, which is astounding both in its content and in the comprehensiveness of the searching that must have gone into its making. I will also place the authors’ proposed uses of the book in the context of two expanding enterprises in the medicine of the 1890s—publishing, and surgery. The *A&CM* was also the first entry in the tradition of monster books that included a new tool for claims of reality—the photograph; for the photoengraving process had only recently been perfected. I will conclude by presenting an amusing letter from Osler to Gould, congratulating him on the book’s appearance, while pointing out one or two trifling omissions.

### Learning Objectives:

1. List at least three reasons why physicians have paid attention to monsters and anomalies.
2. Discuss the concept of physician as story-teller, and why it’s important in our lives.
3. Relate the publishing and use of the book here discussed to other aspects of medical publishing.

## The Discovery of Penicillin: Was Alexander Fleming the First?

ROBERT A. KYLE

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"I discovered penicillin accidentally, but Ernest Duchesne discovered penicillin by the scientific method" stated Sir Alexander Fleming in Lyons, France in 1945. Fleming, born in Scotland, studied medicine at St. Mary's Hospital Medical School in London. After graduating with honors in 1908, he entered the Bacteriological Research Laboratory of Sir Almroth Wright. Following service in World War I, he returned to St. Mary's Hospital as Professor of Bacteriology. In 1922, he discovered lysozyme which has potent antibacterial properties. While examining discarded culture plates, Fleming noticed that "around a large colony of a contaminating mold the staphylococcus colonies became transparent and were obviously undergoing lysis." In these words, Fleming announced the discovery of penicillin in 1928. He tried to isolate penicillin, but the project was dropped. In retrospect, Fleming was lucky, but he did correctly interpret the experiment of nature. In 1938, Howard W. Florey of Oxford University became interested in lysozyme. Florey suggested to Ernst B. Chain, a German-born biochemist in his department, that he investigate the effects of lysozyme. While reading Fleming's papers, Chain became interested in his discovery of penicillin. He found that penicillin was not an enzyme but an organic molecule. Florey and Chain demonstrated that penicillin was nontoxic in mice and protected them from otherwise fatal staphylococcus or streptococcus infections. These studies were made possible only by a grant of \$5,000 per year from the Rockefeller Foundation. In February 1941, six patients with staphylococcus or streptococcus infections were treated successfully with penicillin. The major challenge was to produce enough penicillin for a clinical trial. Florey and Norman Heatley traveled to the United States in June 1941, and were directed to the Northern Regional Research Laboratory in Peoria, IL, which had a large Fermentation Research Laboratory for the production of chemicals by using brewing techniques. Deep fermentation, new culture media, and new strains of *Penicillium* were developed in the laboratory. It is said that the new fungal source came from a spoiled cantaloupe from a Peoria market. They calculated that the filtrate from 200 liters of mold would be needed to treat 100 patients. The first patient treated with penicillin in the United States was Anne Sheafe Miller who was treated with penicillin in March 1942 at the New Haven Hospital for a severe streptococcal infection. She lived until the age of 90 years.

Ernest A. C. Duchesne was a young military physician finishing his studies in Lyons, France in 1886. Professor Gabriel Roux, Director of the Public Health Institute where Duchesne worked, advised Duchesne to work on the antagonism between bacteria and fungi. Duchesne used *Penicillium glaucum*, which forms beautiful colonies, and grew it on a piece of moist food. He inoculated guinea pigs with *Bacterium coli* or *B. typhosa*, and all died within 24 hours. The guinea pigs that were inoculated with the same *B. coli* or *B. typhosa* cultures to which a culture of *Penicillium glaucum* had been added survived. Duchesne was aware of the practical importance of his observation and stated that further studies could lead to new developments which could be very useful for therapy. The results of these studies were published and sent to the Pasteur Institute in Paris, but he was transferred to a military unit where he was unable to continue his studies. He developed tuberculosis and died at the age of 38 years. In 1945, Fleming stated that he had noticed the antibacterial effect of fungi by chance while Duchesne did so by methodic investigations. Thus, it was Duchesne who discovered penicillin while Fleming named it and Florey and Chain convinced the world of its great therapeutic benefit.

### Learning Objectives:

1. Examine the contribution of Duchesne to the discovery of penicillin.
2. Evaluate the contribution and the failure to proceed on the part of Fleming.
3. Outline the contributions of Florey and Chain and contrast this with those of Duchesne and Fleming.

## Charles Granville Rob, A Surgeon of “The Greatest Generation”— His Early Years (and a Montreal Connection)

ROBERT R. NESBIT, JR.

*Robert R. Nesbit, Jr., was Chief of Vascular Surgery at the Medical College of Georgia until his retirement in April 2000. Although he is no longer involved in patient care, he continues to be active teaching at the Medical College. He has been a member of the American Osler Society since 2003.*

Charles Rob (1913-2001) was one of the true pioneers of modern vascular surgery. In 1954, with Eastcott and Pickering, he reported the first successful carotid artery reconstruction for symptomatic stenosis. In 1958 he introduced the term “thoracic outlet syndrome” and in 1959 he performed the first in-situ non-reversed vein grafts. In 1960 Rob was the University of London’s Professor of Surgery and Chief of Surgery at St. Mary’s Hospital and was recognized as a leading vascular surgeon in Europe when he accepted the position of Chair of the Department of Surgery of the University of Rochester School of Medicine. After he retired as chair at Rochester, in 1978 Dr. Rob joined the faculty at East Carolina University, a department chaired by Walter Pories, one of his former residents. In 1983 he became a member of the Department of Surgery of the Uniformed Services University of the Health Sciences where he was remained as Distinguished Professor until his death. Rob published more than 200 papers and with Rodney Smith edited a multi-volume text of operative surgery which was internationally popular and went through many editions.

Dr. Rob completed his training during the early years of World War II in London during the Blitz. He became a surgical specialist with a parachute brigade, was air-dropped into Tunisia and received Britain’s Military Cross for bravery. He kept a diary of sorts and in his later years used that as the basis for autobiographical notes which have been partially transcribed by his wife. I will review the section on his life before 1960 and will present information on his education and training and on his military and early medical careers.

### Learning Objectives:

1. Describe Dr. Rob’s importance in the history of vascular surgery.
2. Describe the influence of World War II on Dr. Rob’s training.
3. Describe life in London during the Blitz.

## Vesalius and the Myth of Apollo and Marsyas

ANDREW SEAL

*Andrew Seal is Associate Professor of Surgery in the Department of Surgery at the University of British Columbia, Vancouver Canada. He is past Associate Dean of Student Affairs in the Faculty of Medicine at UBC, and was a visiting scholar at St. Catharine's College Cambridge in 1999-2000 studying the linkages between the history of medicine and the history of art. His surgical interest is inflammatory bowel disease and he has given introductory lectures on the history of medicine to medical students for many years.*

The first edition of *De Humani Corporis Fabrica* by Andreas Vesalius was published in Basel in 1543. Each chapter of this landmark treatise on human anatomy is headed by a small historiated initial, which serves to illustrate some aspect of sixteenth century medicine or anatomy. In 1555 a second edition of the *Fabrica* was published in which the type used was larger, necessitating the re-cutting of these initial letters.

The historiated initial that opens the 1543 *Fabrica*, the letter Q, "*Quantumvis*", begins the dedication of the book to the Emperor Charles V. The accompanying illustration is that of a live pig being dissected and is a possible reference to the work of Galen. In the 1555 edition, however, this first initial has been changed to the letter V, "*Utcunque*", set against a background illustrating the ancient myth of Apollo and Marsyas. This small image shows the musical contest between the satyr and the god, and Apollo's punishment of Marsyas for his impertinence by having him flayed alive.

This paper will review the historiated initials of the two editions of the *Fabrica*, illustrating the differences between them. In particular the unique initial V will be discussed in detail with a review of the myth of Apollo and Marsyas, together with a presentation of its iconography from antiquity to the sixteenth century. Although Vesalius's reasons for choosing the myth and placing it at the beginning of the second edition of the *Fabrica* are unknown, possible explanations will be explored.

### Learning Objectives:

1. Outline the contribution of Vesalius to the teaching of human anatomy.
2. Recognize the imagery of the historiated initials in the *Fabrica* and *Epitome*.
3. Explain the myth of Apollo and Marsyas and recognize its iconography.



## “Dear Bigelow,” or Bibliomania, Buddhism, and Botany

RICHARD J. KAHN

*Richard J. Kahn practices internal medicine in Rockport, Maine. He has held numerous leadership positions in medicine and in the history of medicine at the state and national levels. He and his wife, Patricia, continue to collaborate on historical ventures.*

A 1914 letter from William Osler to William Sturgis Bigelow in Boston sends us on a winding road from books and Buddhism to botany. Osler's bibliomaniacal letter provides a starting point for an examination of three generations of Bigelows at Harvard Medical School. William Sturgis Bigelow (1850-1926) studied in Europe under Pasteur and others after completing medical school. After several years of bacteriology in Boston, he left medicine, went to Japan for seven years, and became an expert of Japanese art, literature, and Buddhism. "Buddhism and Immortality" was the title of his 1908 Ingersoll Lecture. He later donated his massive collection of Japanese art and artifacts to the Museum of Fine Arts in Boston.

William's father, Henry Jacob Bigelow (1818-90), studied under Pierre Louis, practiced surgery in Boston, and announced Morton's results (ether anesthesia) to the world in the *The Boston Medical and Surgical Journal* of 18 November 18, 1846.

Osler was also interested in William's grandfather, Jacob Bigelow (1787-1879), Professor of Materia medica at Harvard Medical School 1815-1855. Jacob published "Self-Limited Disease" in 1835 but I will focus on his *American Medical Botany*, 1817-21, "regarded by many as the first American color plate book and probably the first color-printed (rather than hand-painted) botanical book ever produced." (British Library). The review of the book was published in the *The Boston Medical and Surgical Journal* of January 1818 and included one of the mechanically printed color plates; probably "the first instance of a color printed illustration in an American periodical." (Wolfe, 1979, p. 64) The definitive source on the publication of this important book was written by Richard J. Wolfe almost thirty years ago. I will discuss Jacob Bigelow's *American Medical Botany* in the context of early American color lithography.

### Learning Objectives:

1. Describe how three generations of Bigelows contributed to medicine and the humanities.
2. Define "lithography."
3. Identify the author of the first color-printed book in the United States.

## Thomas Young, Physician Polymath

MICHAEL E. MORAN

*Michael E. Moran, a urologist, has spent most of his career trying to develop methods of surgical intervention that minimize the trauma to his patients. He actively participates in teaching and research and is a Clinical Associate Professor at the Albany Medical Center. He was asked to present with a select group of investigators at the Whitney Symposium on the future of Healthcare.*

“And finally come his observations of the colors of thin films as the origin of the next great theoretical advance, which had to await, over a hundred years, the coming of Thomas Young.” Thus quipped Albert Einstein regarding this relatively unheralded physician and polymath. Young is a spectacular physician and thinker from almost any viewpoint, with an array of intellectual output that is singular. Young entered medical practice via the association with his uncle during the first two decades of the 19<sup>th</sup> century at the famous London hospital, St. George’s. His academic interests were huge and he was referred to by his Cambridge University peers as “Phenomenon Young.” He is not widely recognized for many of his most significant contributions because he chose to write anonymously. Young was frightened by the prospect of being recognized by his peers and patients for his many interests. He was almost overly aware that others might be intimidated or reluctant to use him as a physician if they knew about all of his outside interests. For instance, in the 1816 edition of the *Encyclopaedia Britannica* Young was the expert contributor on the following: alphabets, annuities, attraction, bathing, bridges, capillary action, carpentry, cohesion, color, dew, double refraction, Egypt, eye, focus, friction, fluents (integrals), Herculaneum, hieroglyphics, hydraulics, languages, life preservers, motion, resistance, road making, ships, sound, steam engines, strength, tides, waves, weights and measures, a host of medical topics, and numerous biographies. Young though trying to maintain a low profile nevertheless has managed to glean laurels from such scientific greats as Lord Rayleigh (the first British physicist to receive a Nobel prize), Hermann Helmholtz, James Clerk Maxwell and Einstein.

Despite a wealth of data regarding Young’s contributions or sentinel insights in many fields, his accomplishments as a physician pale. He published two textbooks on medicine that were widely acclaimed during his own lifetime. His first scientific presentation and publication was on the physiology of the eye, with particular attention to the lens and accommodation. He never lost interest in the eye and would later expand his investigations to include astigmatism and the 3-color theory of vision. He published an encyclopedic compendium on medical literature entitled *An Introduction to Medical Literature, Including a Practical Nosology* in 1813. Two years later he published *A Practical and Historical Treatise on Consumptive Disease* (1815), heralded as the definitive text on this disease.

Chronology has been relatively unkind to polymaths, as so often, many of us can appreciate a small fraction of the intellectual outputs of these individuals. Young is no exception to this observation by the great English scholar, Alexander Murray who stated “No biographer will readily tackle a subject whose range of skills far exceeds his own...” A comparison of Young to other well known polymaths including the following: Aristotle, da Vinci, Francisco Redi, Rene Descartes, Gottfried Leibnitz, Goethe, Hooke, Franklin and Priestley reveals that he stood second to none of these luminaries. Young’s modern scientific legacy probably outshines his medical contributions, but the phenomenon of his brilliance in so many fields has almost no peer.

### Learning Objectives:

1. Outline some of the scientific accomplishments of Thomas Young.
2. Name two of Young’s medical contributions.
3. Explain some of Thomas Young’s most significant modern contributions.

## Two Paintings, Two Physicians, One Message: Goya and Fildes

OLUDARE A. ODUMADE

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“One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient.” —Francis W. Peabody (1927)

In 1889, William Osler delivered a speech as a valedictorian to graduates of the Pennsylvania School of Medicine. He urged toward the essential bodily virtue of “imperturbability” (calmness regardless of circumstance) which would be appreciated but very likely misunderstood by our patients. Every physician must acquire imperturbability, an element of professional distance, to ensure our patients’ confidence, but not to the extent that any would think of us as hardened. We must be firm and courageous while keeping the soft compassion of our human hearts. He further urged the essential mental virtue of “aequanimitas” (a calm equanimity) with clear knowledge of our relation to our “fellow-creatures.” Osler’s essential virtues are among many other physician qualities depicted in art. Ideally, medical humanities aim to inform about the practice of medicine via literature, art, poetry, and music. Therefore, by analyzing artwork, one can infer the changing or static beliefs about the physician-patient relationship.

What do paintings such as “*Self-portrait with Dr Arrieta*” and “*The Doctor*” say about physicians? Years before Osler’s time, in 1820, Francisco de Goya painted “*Self-portrait with Dr Arrieta*” in gratitude to his doctor for his recovery from a serious illness. The gloomy background is warmed by the active supportive care of Dr Arrieta who holds Goya upright as he offers him a potion. However, anyone who studies past artwork by Goya may remember his depiction in 1797 of a doctor as a donkey in a suit and shoes in “*Los caprichos, plate 40, De que mal morira.*” What changes in the physician-patient relationship during Goya’s time are reflected in this 1820 self-portrait? Could this be what inspired the new patient-centered medical education pioneered by Osler? On the other hand, is Osler’s view of a doctor’s virtue more congruent with that depicted in Sir Luke Fildes’ (1891) “*The Doctor*”? Fildes also uses similar colors and shadows but here the doctor is contemplative, rather than active. The imaging used by Fildes is one that depicts a lack of hope but also tranquility. What similarities are held by the doctors depicted?

As we compare and contrast these paintings, the presentation will investigate the changing physician-patient relationships. Which doctor is preferred, the active or the calm? Does technology allow physicians to be more active and has this created a move from Fildes toward Goya? If so, is this a good move?

### Learning Objectives:

1. Discuss Dr. William Osler’s understanding of the doctor-patient relationship as discussed in “Aequanimitas.”
2. Compare and contrast the attitudes of the doctors in “The Doctor” and “Self-Portrait with Dr Arrieta.”
3. Evaluate the impact of technology on the doctor-patient relationship and the virtues held by today’s physicians.

## Polio and Osler's *Principles and Practice of Medicine*

SAMUEL A. SHELBURNE

*Samuel A. Shelburn is Clinical Professor of Neurology and Pediatrics at George Washington University, Washington, D.C. He is former chairman of the Departments of Neurology at Children's Hospitals in both Cincinnati and Washington, D.C.*

In the first edition of Osler's textbook (1892) there is an excellent description of the clinical characteristics of poliomyelitis. The disease was commonly seen in the first 3 years of life. There was abrupt onset of flaccid paralysis with rapid progression in 3-5 days and it was associated with fever. There was gradual improvement but complete recovery was rare. Pathology revealed necrosis of the anterior horn cells of the spinal cord. The cause of the disease was not known but a vascular etiology was most likely. A report of an epidemic of 29 cases in Sweden in 1887, by Medin, was mentioned.

In the second edition, 1901, again no cause was determined, but again a vascular etiology was most likely. There had been a major epidemic of 119 cases in 1894 in Rutland Vermont. By the time of the third edition (1909), there had been large scale epidemics of polio in New York City in 1905-1908. In this edition clearly polio was an infectious disease occurring in epidemics.

Prior to the first recorded epidemic in Sweden in 1881 polio was known as infantile paralysis, and had been known since antiquity. Subsequent research revealed that polio was a virus and the virus multiplied in the gastrointestinal tract and was transmitted person to person by the oral-fecal route. In most children the infection was not associated with clinical symptoms and only a few developed paralysis. Prior to the Sanitation Movement in the later 1800s essentially all children under the age of five years acquired the infection and developed antibodies. Thus the population as a whole was immune. With improvement in sanitation fewer children were exposed to the virus and the population became vulnerable and epidemics arose. It is postulated that older children and adults are more likely to develop paralysis. It is ironic that the first epidemics occurred in Sweden known for its cleanliness. With polio, poor sanitation did not lead to epidemics and individual cases in infants was less of a public health problem. The vaccine was developed in 1955 and eventually eliminated polio epidemics.

It is an axiom that the latest information is delayed in getting into textbooks, and this was certainly true of Osler's textbook.

### Learning Objectives:

1. Explain how polio became an epidemic disease.
2. Discuss the time it took for polio to be recognized as an infectious disease in Osler's textbook.
3. Explain the pathophysiology of polio.

## Was Marcus Aurelius a Drug Addict?

FRANCOIS P. RETIEF

*Francois Retief was inter alia, founding Dean of the Medical Faculty, University of the Free State, Bloemfontein (1970-1978), founding Principal / Vice-chancellor of the Medical University of Southern Africa, near Pretoria (1979-1983), Director-General of the National Dept. of Health (1983-1988), and Principal / Vice-chancellor of the University of the Free State (1989-1997). On retiring in 1997, he joined Prof. Louise Cilliers (Head, Dept of Classics) as research fellow in a project on diseases of antiquity, and they have published more than 50 joint papers. The South African Academy of Arts and Science awarded them the Stals Prize in Literature for interdisciplinary research (2006).*

Marcus Aurelius, last of the “five good emperors,” ruled the Roman Empire at its zenith. A learned man, an able administrator and a dedicated soldier, he was also a very lenient man for his age, forgiving towards his enemies and wayward wife. His *Meditations*, written while fighting barbarian invaders on the Empire’s borders, embodied a Stoic philosophy. For the greater part of his life Marcus Aurelius suffered from an affliction characterized by chest and abdominal complaints. Galen, his court physician, treated him with a daily dose of the universal antidote, theriac, which contained up to 70 ingredients, including poppy latex. In this paper arguments for and against the possibility that he was an opium addict (explaining *inter alia*, his humane behavior towards subjects and enemies), are reviewed. Comments from Galen and from contemporary historians suggest that he was indeed physically dependent on the theriac. Quantitative calculations based on Galen’s recorded drug recipes, however, would not support the diagnosis of opium addiction. He probably suffered from chronic abdomino-thoracic tuberculosis, but most likely died of small pox.

### Learning Objectives:

1. Describe the extraordinary psyche of Marcus Aurelius.
2. Review the composition of theriac, universal antidote and tonic, in medical use for close on 19 centuries.
3. Evaluate the role of Galen (the greatest physician of Roman times) in this episode.

## Science or Charlatanism? The History of Acupuncture in the West

TARA NEUBRAND AND SANDRA CALDWELL

*Tara Neubrand and Sandra Caldwell are both second year medical students at the University of Texas Medical Branch at Galveston and have been named Osler Student Scholars. Tara has an interest in complementary medicine and may pursue pain management as a career. Sandra is interested in pursuing a career in Family Medicine.*

The evolution of acupuncture in the West has followed a circuitous route from its original introduction by Jesuit Missionaries returning from China to the modern emphasis on academic rigor and clinical study. With a 4000 year history, acupuncture is one of the most consistently utilized methods of medical treatment, and as its use has grown in popularity in recent years, so has the scientific scrutiny afforded it. Today's practitioners demand not only anecdotal evidence on the efficacy of this ancient treatment but also controlled, rigorous scientific studies that demonstrate both utility and safety for patients.

The history of acupuncture dates back to 2000 BC during which time stone needles were first used as surgical instruments. As early as 200 BC, *The Yellow Emperor's Classic of Internal Medicine* discussed acupuncture therapy in considerable detail including the locations and use of various acupuncture points and meridians. The first life size human models, on which 367 acupuncture points were located, were cast in bronze sometime between 960 and 1280 AD.

The West was not introduced to acupuncture until the 17<sup>th</sup> century when Jesuit missionaries and medical officers employed by the Dutch East Indies Company brought the practice to Europe. However, because the modus operandi could not be explained and because the concept of "meridians and humors" was in conflict with Western medical knowledge, the practice was slow to be utilized. Despite this, various European and American physicians set out both to test and to recommend acupuncture for diseases as varied as myofascial pain, rheumatism, surgical analgesia, asthma, and cardiovascular diseases. Most prominently, Sir William Osler recommended the use of sterilized "common hat pins" for acupuncture in the treatment of lumbago in several versions of his textbook, *The Principles and Practice of Medicine*.

In the 19<sup>th</sup> century, acupuncture declined in popularity in the West as better forms of surgical analgesia were discovered and as concern about the spread of infection increased. It was not until Nixon's visit to China in 1971 that acupuncture re-emerged as a popular treatment and public interest grew exponentially.

Among physicians, increased understanding of nociceptors and endogenous opioids and their relationship to pain has given acupuncture increased viability as a legitimate scientific investigation. Several peer review journals and funding by the NIH has permitted increased research into both the efficacy and the modus operandi of acupuncture. As further scientifically based research is completed, both physicians and patients will be better able to evaluate the proper use of acupuncture in treatment.

### Learning Objectives:

1. Describe the ancient history of acupuncture and its introduction to the West.
2. Name the influential Western physicians who have researched and advocated for acupuncture treatment.
3. Describe current theories on acupuncture and how these theories are being pursued.

## *Aequanimitas* Electronica: The Start of a Searchable Oslerian Database

H. MICHAEL JONES, ALEXANDER D. JONES, AND FRANCIS A. NEELON

*H. Michael Jones, a graduate of Washington University School of Medicine, practiced as a pathologist in Henderson, North Carolina, for 30 years. Alexander D. Jones is a student at UNC-Asheville. Francis A. Neelon is retired from Duke University and is Medical Director of the Rice Diet Program.*

Appropriately configured electronic databases make the search for specific textual citations easy and quick. The techniques used by the legal profession to locate and retrieve legal precedents can be used to identify and corroborate specific citations from any literary corpus that is encoded in an electronic database. Furthermore, the database makes a library of material available at a keystroke, and can easily answer simple statistical queries about the database material (e.g., how often are certain terms cited? in how many locations? do specific items ever appear in the text or not?), and can search for exact or “fuzzy” renditions of particular words or names, or for the proximal coupling of two terms.

The entire body of written material by and about William Osler is voluminous and sometimes difficult to obtain. McGovern and Roland’s three-volume *Collected Essays of Sir William Osler*, and a number of other annotated bibliographies, collections of quotations and aphorisms are helpful to Osler scholars, but their indices are incomplete and cannot always answer all appropriate inquiries. We believe that an electronic database of Osler’s writings would fill a void in scholarly material, and so we used the askSam database program to create a searchable electronic version of the essays in Osler’s “*Aequanimitas*.”

We will use this database to provide nearly instantaneous answers to queries of the kind noted above. For example: in how many essays does Osler refer to “nurses”? (9 essays); in how many does he cite Sydenham? (4) and which essay contains Sydenham’s advice to Blackmore? (“Internal Medicine as a Vocation” — but that might be hard to glean from McGovern and Roland because their index does not cite Blackmore). Does *Aequanimitas* offer evidence that Osler was familiar with *Tristram Shandy*? Well, Shandy’s name does not appear as such, but Osler does refer to Uncle Toby in “The Master-Word in Medicine,” so he must have been familiar with the book. In addition to its searchableness, the database essays are easily exported into text documents than can be printed or transmitted electronically. This pilot project demonstrates that a searchable database of Osleriana is an achievable goal; it provides a valuable resource for all who are interested in Sir William Osler.

### Learning Objectives:

1. Describe the power and speed of searching with the askSam database.
2. Demonstrate the use of the database for finding answers to real-time queries.
3. Describe the value of an electronic library of Osleriana for personal and research purposes.

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1988	JOANNE TRAUTMANN BANKS
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HOWARD B. BURCHELL\* (1972)  
*St. Paul, Minnesota*

DAVID K. C. COOPER (2006)  
*Pittsburgh, Pennsylvania*

JEREMIAH A. BARONDESS\* (1975)  
*New York, New York*

DEE J. CANALE (1985)  
*Memphis, Tennessee*

CHRISTOPHER CRENNER (2005)  
*Kansas City, Kansas*

R. DENNIS BASTRON (2003)  
*Tucson, Arizona*

RICHARD M. CAPLAN\* (1988)  
*Iowa City, Iowa*

JOHN H. CULE\* (1973)  
*Llandysul, Wales*

STEVEN L. BERK (1988)  
*Amarillo, Texas*

JOHN C. CARSON (1987)  
*La Jolla, California*

BURKE A. CUNHA (2002)  
*Minneapolis, New York*

PAUL E. BERMAN (2002)  
*Amherst, Massachusetts*

MICHAEL W. CATER\*\* (2001)  
*Santa Ana, California*

MARTIN L. DALTON (2000)  
*Macon, Georgia*

\*Emeritus

\*\*Associate

## Elected Members (continued)

PETER E. DANS (2002)  
*Cockeysville, Maryland*

SAKTI DAS (1998)  
*Lafayette, California*

ANAND P. DATE (2002)  
*Muscat, Oman*

ALLAN J. DENNIS (2005)  
*Augusta, Georgias*

NICHOLAS DEWEY (1981)  
*Santa Barbara, California*

LAUREL E. DREVLOW (2006)  
*Minneapolis, Minnesota*

JACALYN M. DUFFIN (1998)  
*Kingston, Ontario*

PAUL G. DYMENT (1982)  
*Cumberland, Maine*

GEORGE C. EBERS (1985)  
*London, Ontario*

RICHARD EIMAS (1986)  
*Iowa City, Iowa*

ARNOLD EINHORN (2002)  
*Chevy Chase, Maryland*

MICHAEL EMMETT (2003)  
*Dallas, Texas*

LYNN C. EPSTEIN (1999)  
*Providence, Rhode Island*

JONATHON ERLIN (2002)  
*Pittsburgh, Pennsylvania*

WILLIAM H. FEINDEL\* (1977)  
*Montreal, Quebec*

ANDREW Z. FENVES (2005)  
*San Francisco, California*

GARY B. FERNGREN (1996)  
*Corvallis, Oregon*

REGINALD H. FITZ\* (1981)  
*Woodstock, Vermont*

EUGENE S. FLAMM (1998)  
*New York, New York*

HERBERT L. FRED\* (1984)  
*Houston, Texas*

ABRAHAM FUKS (1999)  
*Montreal, Quebec*

CONRAD C. FULKERSON (2001)  
*Durham, North Carolina*

W. BRUCE FYE (1975)  
*Rochester, Minnesota*

CHRISTOPHER G. GOETZ (2000)  
*Chicago, Illinois*

JOHN T. GOLDEN (1999)  
*Roseville, Michigan*

RICHARD L. GOLDEN\* (1980)  
*Centerport, New York*

JAMES T. GOODRICH (1982)  
*Grandview, New York*

RALPH C. GORDON (1998)  
*Kalamazoo, Michigan*

JOHN L. GRANER (1997)  
*Rochester, Minnesota*

STEVEN B. GREENBERG (1997)  
*Houston, Texas*

ARTHUR GRYFE (1999)  
*North York, Ontario*

DAVID R. HABURCHAK (2002)  
*Augusta, Georgia*

JAMES F. HAMMARSTEN\* (1981)  
*Melrose, Minnesota*

WALTER D. HANKINS\* (1972)  
*Johnson City, Tennessee*

WILLIAM HAUBRICH\* (1994)  
*La Jolla, California*

H. ALEXANDER HEGGTVEIT (1982)  
*Hamilton, Ontario*

PERRY HOOKMAN (1999)  
*Potomac, Maryland*

JOEL D. HOWELL (1987)  
*Ann Arbor, Michigan*

ROBERT P. HUDSON\* (1970)  
*Kansas City, Kansas*

J. WILLIS HURST\* (1985)  
*Atlanta, Georgia*

K. GARTH HUSTON, JR. (1992)  
*Leucadia, California*

EDWARD J. HUTH\* (1988)  
*Bryn Mawr, Pennsylvania*

BRUCE J. INNES (2001)  
*Macon, Georgia*

M. GEORGE JACOBY\*\* (1999)  
*Patchogue, New York*

D. GERAINT JAMES\* (1972)  
*London, England*

WILLIAM H. JARRETT, II (1998)  
*Atlanta, Georgia*

H. MICHAEL JONES (2006)  
*Henderson, North Carolina*

ROBERT J. T. JOY\* (1981)  
*Chevy Chase, Maryland*

RICHARD J. KAHN (1981)  
*Rockport, Maine*

ANAND B. KARNAD (1998)  
*Johnson City, Tennessee*

JOHN A. KASTOR (2004)  
*Baltimore, Maryland*

ELTON R. KERR (1989)  
*Dayton, Ohio*

JACK D. KEY\* (1979)  
*Sandia Park, New Mexico*

ROBERT C. KIMBROUGH, III (1987)  
*Lubbock, Texas*

MARY E. KINGSBURY (1986)  
*Chapel Hill, North Carolina*

PAUL D. KLIGFIELD (1980)  
*New York, New York*

S. ROBERT LATHAN (2002)  
*Atlanta, Georgia*

JOSEPH W. LELLA (1998)  
*London, Ontario*

PHILIP W. LEON (1996)  
*Charleston, South Carolina*

LAWRENCE D. LONGO (1976)  
*Loma Linda, California*

KENNETH M. LUDMERER (1983)  
*St. Louis, Missouri*

PAUL R. McHUGH (1990)  
*Baltimore, Maryland*

NEIL McINTYRE (1995)  
*Wembley, England*

WILLIAM O. McMILLAN, JR. (1995)  
*Wilmington, North Carolina*

ROBERT L. MARTENSEN (1997)  
*Kansas City, Kansas*

ROBERT U. MASSEY\* (1980)  
*Avon, Connecticut*

ROBERT G. MENNEL (1999)  
*Dallas, Texas*

M. ALAN MENTER (2004)  
*Dallas, Texas*

PAMELA J. MILLER (2003)  
*Montreal, Canada*

MICHAEL E. MORAN (2004)  
*Albany, New York*

DANIEL D. MORGAN (2000)  
*Freemont, California*

ROBERT H. MOSER\* (1974)  
*Green Valley, Arizona*

SANDRA W. MOSS (2002)  
*Metuchen, New Jersey*

PAUL S. MUELLER (2003)  
*Rochester, Minnesota*

SEAN B. MURPHY (2002)  
*Montreal, Quebec*

T. JOCK MURRAY (1992)  
*Halifax, Nova Scotia*

ANDREW T. NADELL (1986)  
*Burlingame, California*

FRANCISA. NEELON (1992)  
*Durham, North Carolina*

ROBERT R. NESBIT, Jr. (2003)  
*Augusta, Georgia*

JOHN NOBLE (1993)  
*Boston, Massachusetts*

ROBERT K. OLDHAM (1982)  
*Franklin, Tennessee*

MICHAEL F. O'ROURKE (1996)  
*Sydney, Australia*

BRUCE R. PARKER (1995)  
*Houston, Texas*

CLYDE PARTIN, JR. (1999)  
*Atlanta, Georgia*

G. R. PATERSON\* (1981)  
*Barrie, Ontario*

STEVEN J. PEITZMAN (2002)  
*Philadelphia, Pennsylvania*

EDMUND D. PELLEGRINO\* (1975)  
*Washington, District of Columbia*

CLAUS A. PIERACH (1991)  
*Minneapolis, Minnesota*

CYNTHIA D. PITCOCK (1992)  
*Memphis, Tennessee*

MABEL L. PURKERSON (2003)  
*St. Louis, Missouri*

TONSE N. K. RAGU (1999)  
*Chicago, Illinois*

ROBERTE. RAKEL (1983)  
*Houston, Texas*

MICHAEL A. E. RAMSAY (2006)  
*Dallas, Texas*

P. PRESTON REYNOLDS (1998)  
*Baltimore, Maryland*

HARRIS D. RILEY, JR.\* (1990)  
*Nashville, Tennessee*

CHARLES S. ROBERTS (2004)  
*Winchester, Virginia*

WILLIAM C. ROBERTS (2000)  
*Dallas, Texas*

LORENA A. ROLAK (1995)  
*Marshfield, Wisconsin*

LEON Z. SAUNDERS\* (1988)  
*Wynnewood, Pennsylvania*

OM P. SHARMA (1985)  
*Los Angeles, California*

CHRISTOPHER B. SHIELDS (1989)  
*Louisville, Kentucky*

BARRY D. SILVERMAN (1997)  
*Atlanta, Georgia*

MARK E. SILVERMAN (1987)  
*Atlanta, Georgia*

RUSSELL L. SILVERSTEIN (2005)  
*Dallas, Texas*

WILLIAM SMITH, JR. (2000)  
*Fulton, Kentucky*

WILLIAM A. SODEMAN, JR. (1998)  
*Toledo, Ohio*

R. TED STEINBOCK (1994)  
*Louisville, Kentucky*

MARVIN J. STONE (1990)  
*Dallas, Texas*

HERBERT M. SWICK (2000)  
*Missoula, Montana*

JAMES F. TOOLE\* (1976)  
*Winston-Salem, North Carolina*

JOHN T. TRUMAN (2000)  
*New York, New York*

JOSEPH B. VANDER VEER, Jr. (2003)  
*Devon, Pennsylvania*

HECTOR O. VENTURA (1999)  
*New Orleans, Louisiana*

FERNANDO G. VESCIA\* (1986)  
*Palo Alto, California*

JOHN W. K. WARD (2003)  
*Abingdon, Oxon, England*

C. PETER W. WARREN (1996)  
*Winnipeg, Manitoba*

THOMAS A. WARTHIN\* (1982)  
*Silverdale, Washington*

ALLEN B. WEISSE\* (1997)  
*Newark, New Jersey*

MARK E. WEKSLER (2004)  
*Tenafly, New Jersey*

DENNIS K. WENTZ (2003)  
*Chicago, Illinois*

JOHN B. WEST\* (1995)  
*La Jolla, California*

STEWART G. WOLF\* (1979)  
*Bangor, Pennsylvania*

CHARLES F. WOOLEY (1984)  
*Columbus, Ohio*

W. CURTIS WORTHINGTON (1999)  
*Charleston, South Carolina*

JAMES B. YOUNG (1992)  
*Cleveland, Ohio*

## Deceased Members of the American Osler Society

### Honorary Members

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(1891-1976)

LLOYD G. STEVENSON  
(1918-1988)

ALASTAIR H. T. ROBB-SMITH  
(1908-2000)

EMILE F. HOLMAN  
(1890-1977)

HAROLD N. SEGALL  
(1897-1990)

GEORGE W. CORNER  
(1899-1981)

EDWARD H. BENSLEY  
(1906-1995)

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A. McGEHEE HARVEY  
(1911-1998)

THOMAS M. DURANT  
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WILLIAM B. BEAN  
(1909-1989)

WILLARD E. GOODWIN  
(1915-1998)

WALTER C. ALVAREZ  
(1884-1978)

R. PALMER HOWARD  
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GEORGE T. HARRELL  
(1908-1999)

CHAUNCEY D. LEAKE  
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(1912-1993)

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(1909-2002)

EARLE P. SCARLETT  
(1896-1982)

THOMAS F. KEYS  
(1908-1995)

PALMER H. FUTCHER.  
(1910-2004)

SAMUEL X. RADBILL  
(1901-1987)

CÉCILE DESBARATS  
(1907-1998)

## Elected Members

ARTHUR D. KELLY  
(1901-1976)

MARSHALL N. FULTON  
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I. N. DUBIN  
(1913-1981)

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LAWRENCE C. McHENRY, JR.  
(1929-1985)

GEORGE E. BURCH  
(1910-1986)

K. GARTH HUSTON  
(1926-1987)

GORDON W. JONES  
(1915-1987)

CHARLES S. JUDD, JR.  
(1920-1987)

ROBERT J. MOES  
(1905-1988)

S. GORDON ROSS  
(1899-1990)

MAURICE A. SCHNITKER  
(1905-1990)

JAMES V. WARREN  
(1959-1990)

NICHOLAS E. DAVIES  
(1926-1991)

PETER D. OLCH  
(1930-1991)

JOHN Z. BOWERS  
(1913-1993)

WILLIAM B. SPAULDING  
(1922-1993)

LEWIS THOMAS  
(1913-1993)

RODERICK K. CALVERLEY  
(1938-1995)

DYKES CORDELL  
(1944-1996)

LUTHER C. BECK  
(1909-1996)

HASKELL F. NORMAN  
(1915-1996)

JOHN W. SCOTT  
(1915-1997)

IRVING A. BECK  
(1911-1997)

EDWARD W. HOOK, JR.  
(1924-1998)

JAMES A. KNIGHT  
(1918-1998)

NORMAN SCHAFFTEL  
(1914-1998)

DANIEL B. STONE  
(1925-1998)

ALVIN E. RODIN  
(1926-1999)

GARFIELD J. TOURNEY  
(1927-1999)

R. CARMICHAEL TILGHMAN  
(1904-1999)

STANLEY W. JACKSON  
(1920-2000)

SAUL JARCHO  
(1906-2000)

LLOYD W. KITCHENS, JR.  
(1946-2001)

ROBERT E. BEAMISH  
(1916-2001)

ARNOLD G. ROGERS  
(1925-2001)

FREDERICK W. BARNES  
(1909-2001)

ROY SELBY  
(1930-2002)

E. CARWILE LEROY  
(1933-2002)

ROBERT M. KARK  
(1911-2002)

DAVID M. MUMFORD  
(1927-2003)

ALEX SAKULA  
(1917-2003)

FREDERICK B. WAGNER, JR.  
(1916-2004)

CLARK T. SAWIN  
(1934-2004)

A. BENEDICT SCHNEIDER  
(1914-2004)

G. S. T. CAVANAGH  
(1923-2005)

G. R. PATERSON  
(1919-2005)

W. WATSON BUCHANAN  
(1930-2006)

CHESTER R. BURNS  
(1937-2006)

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THE AMERICAN OSLER SOCIETY has been founded for the purpose of bringing together members of the medical and allied professions who are, by their common inspiration, dedicated to memorialize and perpetuate the just and charitable life, the intellectual resourcefulness, and the ethical example of William Osler (1849-1919). This, for the benefit of succeeding generations, that their motives be ever more sound, that their vision be on ever-broadening horizons, and that they sail not as Sir Thomas Browne's Ark, without oars and without rudder and sails and therefore, without direction.

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This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the South Carolina Medical Association and the American Osler Society. The South Carolina Medical Association is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The South Carolina Medical Association designates this educational activity for a maximum of 17.0 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.



**South Carolina  
Medical Association**  
*Voice of One. Power of Many.*