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Fallacies and Useful Truths: An Overview of History and Science for the Anesthesiologist... or Lust, Torture and Depravity: The Anatomy of Derangement

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This article is from the 2003 Lewis H. Wright Memorial Lecture of the Wood Library-Museum of Anesthesiology, presented on October 14, 2003.

I'd like to thank Dr. Susan Vassallo for her kind introduction and Dr. McGoldrick and the Wood Library-Museum folks for inviting me to give this prestigious lecture. The Wright Memorial lecture is the largest star in the firmament of anesthesia history, and I am truly humbled by the opportunity to join my name with the luminaries of the past. Imagine – Chauncey Leake, John Lundy, David Little, Leroy Vandam, Albert Betcher, Betty Bamforth, John Severinghaus, Nicholas Greene, Foldes, Eckenhoff, Caton, Calmes, Safar, whom we recently lost, Siker and so many others!

Chauncey Leake gave the first of these lectures in 1967. He was a brilliant pharmacologist and chemist – in at the birth of the Department of Anesthesia at the University of Wisconsin – and founder of the Department of Pharmacology right here at UC San Francisco. He also helped to develop M.D. Anderson hospital and Baylor Medical School – somewhere in Texas. His life was full of wisdom and insights, one of which I'll share:

Science is a great adventure. It is the cumulative effort on the part of peoples all over the world to get *verifiable knowledge* about themselves and their environment. There is nothing more important than seeking the truth about ourselves and our environment, even if we do not like it when we find it. It may take time to realize that *unwelcome*

truth is better than cherished error.

Dr. Leake was pointing out an important characteristic of the *scientific mind* – the capacity to let go of assumptions, of “truths,” when their usefulness has been undermined by phenomena that they can no longer explain. The *historical mind* also needs the discipline to let go of the nice stories and beautiful facts that keep the past from speaking its sometimes clear, sometimes puzzling truths to us. The past must not be deprived, however, of sharing with us the fact that it also had its mistaken beliefs, its silliness, its ferocious horrors, and its multitude of ignorances.

Dr. Leake died in 1978 the very night he had received a tumultuous ovation from his colleagues after he spoke to them here in San Francisco. I trust that you will keep your adoration for me on the modest side, and spare me a similar fate.

Here I have embedded the first of the fallacies I will be discussing today: the *post hoc ergo propter hoc* fallacy. **Sequence** and **consequence** are not the same. Things happen in time, but not necessarily as a consequence of what preceded that thing or event. So you can probably adore me, and I won't die.

As another example of the *post hoc, ergo propter hoc* fallacy, I recall that Catherine of Braganza, the infertile queen of Charles II of England, lay near death in 1663, having been carried from spa to spa in search of a cure for her failure to provide a legitimate heir to the throne and contracting a fever in the process. All efforts to save her

life were of no avail until her doctors shaved her head and tied dead pigeons to her ankles. She recovered. I have suggested this therapeutic modality from time to time and, curiously, historians seem more receptive to the idea than some of my doctor friends.

As I said, I feel true humility to be counted in the presence of such as Chauncey Leake in honoring the memory of Lewis H. Wright. Feeling humble in the presence of others' accomplishments is not a new experience for me. My friends tell me that I have much to be humble about. Indeed, I have had so many occasions in my life to feel unworthy and small, that I've come to be rather good at being humble. It has given me great comfort and, in fact a complacency bordering on arrogance – almost. I have even come to feel a certain pride in my humbleness and wonder in moments of repose if anyone else could match me in humility. I doubt it – but I doubt it with great humility.

I know that this afternoon many of you have been lured like reptiles to a warm, dark spot in which to digest your lunch, and some of you may have succumbed, unlike reptiles, to something fermented to go with your noonday meal. I expect that you don't wish to be disturbed by loud noises or sudden movements. I can assure you that I am slow and old and unlikely to do either. So find a comfortable spot on your neighbor's shoulder and I will

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WLM 2004 Laureate of Anesthesia History Named

The 2004 Wood Library-Museum Laureate Historian of Anesthesia was elected on Tuesday, October 14, 2003. Donald Caton, M.D., was named the 2004 Laureate just prior to the Lewis H. Wright Memorial Lecture at the American Society of Anesthesiologists Annual Meeting in San Francisco, California. Investiture will occur at the ASA 2004 Annual Meeting in Las Vegas, Nevada.

The Laureate of Anesthesia program, established in 1994, has as its purpose increased recognition of the richness and importance of the history of the specialty by recognizing the work of scholars who have made singular contributions to the field. The honor is awarded every four years by the WLM Laureate Committee to an individual who has a demonstrable

record of contributing over the years outstanding, original materials related to the history of our specialty as reflected by articles published in peer-reviewed journals, and/or in monographs. The first Laureate, Dr. Gwenifer Wilson of Sydney, Australia, was honored in 1996. The second Co-Laureates were Norman A. Bergman, M.D., F.R.C.A., and Thomas B. Boulton, M.D., Ch.B., F.R.C.A. in 2000.

Dr. Donald Caton has published extensively in anesthesia history. He won the Anesthesia History Association's David M. Little Award and the British Medical Association Commended Award in 2000, for his book *What a Blessing She had Chloroform*, which was nominated for a number of other awards. Eleven of his 67 peer-

reviewed articles focused on history, including his first article in *Anesthesiology* on the history of obstetrical anesthesia.

Dr. Donald Caton is well known in anesthesia history, not only through his numerous publications but also as a teacher and speaker. As the 1997 Lewis H. Wright Memorial Lecturer, he spoke on "Feminists and the Early Development of Obstetric Anesthesia." Dr. Caton has given over 62 lectures on the history of anesthesiology and has mentored 39 medical students in the study of the history of medicine.

The Laureate was elected by an international panel of judges who are known historians and active contributors to the history of medicine.

The Anesthesia Foundation 2003 Book/Multimedia Award to be Given in April 2004

The winner of The Anesthesia Foundation's 2003 Book/Multimedia Education Award was announced on October 13, 2003, at the American Society of Anesthesiologists Annual Meeting in San Francisco, California. Julie M. Fenster received the award for her book, *Ether Day*. Ms. Fenster will be presented the award of \$10,000 at the Academy of Anesthesiology 2004 Spring meeting in Vancouver, British Columbia.

This prestigious award is awarded triennially for excellence and innovation in books or multimedia with significant im-

pact on the science and practice of anesthesiology, critical care, or pain medicine. Previous award winners include Dr. B. Raymond Fink (1978-1979) for *Laryngeal Biomechanics*, and Dr. David L. Brown (1991-1993) for the *Atlas of Regional Anesthesia*.

Historian and author, Julie M. Fenster has written several books on business history as well as many articles on general topics for *American Heritage* and its associated publications. She has also contributed articles to other publications, including *The New York Times*, *The Los Angeles*

Times and many magazines. While at *American Heritage*, she began to focus on medical history, with pieces on sickle-cell anemia and the development of artificial organs, among other subjects. One of her articles for *American Heritage*, a major piece regarding the tragic circumstances surrounding the discovery of anesthesia, inspired her to write *Ether Day*.

Since the book's publication in August 2001, it has received excellent reviews in a number of journals including *The New York Times*, *American History*, *Journal of the American Medical Association*, and *The Journal of Anesthesiology*. In January 2002, Julie Fenster was invited to speak at Harvard University Medical School on *Ether Day*, a talk that was later broadcast on C-SPAN.

Anesthesia History Association Ninth Annual Resident Essay Contest 2004

The Anesthesia History Association (AHA) sponsors an annual Resident Essay Contest with the prize presented at the ASA Annual Meeting.

Three typed copies of a 1000-3000 word essay written in English and related to the history of anesthesia, pain medicine or critical care should be submitted to:

William D. Hammonds, M.D., M.P.H.
Professor of Anesthesia
Director of Pain Outcomes Research
Department of Anesthesia
University of Iowa
200 Hawkins Drive, 6JCP
Iowa City, IA 53342-1079
U.S.A.
william-hammonds@uiowa.edu

The entrant must have written the essay either during his/her residency or within one year of completion of residency. Residents in any nation are eligible, but the essay MUST be submitted in English.

This award, which has a \$500.00 honorarium, will be presented at the AHA's annual dinner meeting to be held in October, 2004, in Las Vegas, NV. This dinner is always held during the annual meeting of the American Society of Anesthesiologists.

All entries must be received on or before August 23, 2004.

Editorial Staff Note: Dr. Henry Rosenberg's affiliation information was unfortunately omitted from the article he wrote with Jean Axelrod, "The Introduction and Popularization of Endotracheal Intubation into Anesthesia Practice," published in the October 2003 issue. Dr. Henry Rosenberg is Director of the Department of Medical Education at Saint Barnabas Medical Center in Livingston, New Jersey.

BMA Medical Book Competition

The British Medical Association established an annual BMA Book Competition in 1996 to encourage and to reward excellence in medical publishing. All entries are individually reviewed and appraised by doctors and educators interested in medical publishing with respect to accuracy, currency, originality, book production quality and whether the title meets the needs of its audience. These appraisals and the books themselves are then evaluated by panels of three or four to determine a prize winner, highly commended and commended awards in each category. Prizes are awarded in nine categories with an overall BMA Medical book of the year award made from the category winners. The Basis of Medicine category, in which *Notable Names in Anaesthesia* was the prize winner, included management, health services, politics, ethics, medico-legal, history of medicine, education, research, communication, medical informatics, audit, dictionaries, and directories.

Number of entries to 2003 competition

Category	Entries
Basic and clinical sciences	82
Basis of medicine	42
Electronic media	17
Medicine	110
Mental health	52
Non-commercial publication	9
Popular medicine	55
Primary health care	30
Public health	29
Surgery and anaesthesia	41
TOTAL	467

The 2003 awards ceremony took place on November 5 in London. Dr. Tom Boulton, the 2000 Wood Library-Museum Laureate, received the certificate on Roger Maltby's behalf.

The North American distributor for *Notable Names in Anaesthesia* (\$40 USD + \$6 UPS) is:

Balogh International
1911 North Duncan Road
Champaign, IL 61822
Tel (217) 355 9331
Fax (217) 355 9413
Website www.balogh.com



AHA 2003 David M. Little Prize Winners

Each year the Anesthesia History Association awards the David M. Little Prize for the best work of anesthesia history published the previous year in English. The prize is named after Dr. David M. Little, longtime Chair of Anesthesia at Hartford Hospital in Connecticut. Dr. Little, who died in 1981, also wrote for many years the "Classical File" series of history columns for Survey of Anesthesiology. At the Anesthesia History Association annual dinner meeting in San Francisco, California, on October 13, 2003, the Little Prize Nominating Committee, chaired by Mark G. Mandabach, MD, announced the following winner and honorable mentions.

A listing of all winners since 1998 can be found at www.anes.uab.edu/aneshist/littleprize.htm.

2003 Winner

Maltby JR, ed. *Notable Names in Anaesthesia*. London: Royal Society of Medicine Press, 2002. 254pp.

2003 Honorable Mentions

Bacon DR, Gaston Labat, John Lundy, Emery Rovenstine, and the Mayo Clinic: the spread of regional anesthesia in America between the World Wars. *J Clin Anesth* 14:315-320, 2002 [6 portraits, 18 refs.]

Jacob MC, Sauter MJ. Why did Humphry Davy and associates not pursue the pain-alleviating effects of nitrous oxide? *J Hist Med Allied Sci* 57(2):161-176, April 2002 [54 refs.]

Severinghaus JW, Priestley, the furious free thinker of the enlightenment, and Scheele, the taciturn apothecary of Uppsala. *Acta Anaesth Scand* 46:2-9, 2002 [4 illus., 2 refs.]

More information about the Anesthesia History Association can be found at www.anes.uab.edu/anesthesia_history_association.htm.

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The *Bulletin*, formerly indexed in Histline, is now indexed in several databases maintained by the U.S. National Library of Medicine as follows:

1. Monographs: Old citations to historical monographs (including books, audiovisuals, serials, book chapters, and meeting papers) are now in LOCATORplus (<http://locatorplus.gov>), NLM's web-based online public access catalog, where they may be searched separately from now on, along with newly created citations.

2. Journal Articles: Old citations to journals have been moved to PubMed (<http://www.ncbi.nlm.nih.gov/PubMed>), NLM's web-based retrieval system, where they may be searched separately along with newly created citations.

3. Integrated History Searches: NLM has online citations to both types of historical literature -- journal articles as well as monographs -- again accessible through a single search location, The Gateway (<http://gateway.nlm.nih.gov>).

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carry on a quiet conversation with the remaining insomniacs. The usual crowd for talks on history are a slow-moving population recognizable by their shiny pates or snowy thatches and their corrugated faces. They seek, largely, to be nourished by comfortable stories of the past, they seek snug corners in a shrinking universe, and they resign themselves to entropy. I am here to see that they get what's coming to them.

I would like to take a moment to remind you why this lecture is dedicated to Dr. Lewis H. Wright. Dr. Wright was a pioneer in the introduction of muscle relaxants and cyclopropane to clinical anesthesia. He practiced obstetrics and anesthesia for five years before joining the E. R. Squibb Company in 1930. Although some leading anesthesiologists were disappointed in the laboratory use of Squibb's new muscle relaxant, he persuaded his friend Harold Griffith at Toronto to study the first clinical curariform drug, Intocostrin in the early 1940s. After World War II he became involved in anesthesia organizationally, serving for many years in the New York SSA and the ASA. He was a founding member of the Wood Library-Museum and the World Federation of Societies of Anesthesiologists. He received the ASA Distinguished Service Award in 1955. Imagine how different the world of anesthesia would look today without his vision, energy, and determination! He was a good-natured, friendly, enthusiastic, and yes, humble man. As his beneficiaries, we honor him and his memory annually.

Now, back to work. I'd like to begin by talking about the "useful truths" that can be obtained in science and by the study of history. But first . . .

Let me tell you a story: There once was a man in his early fifties. He looked about and saw his life and the years remaining and asked himself a few questions. "My children are grown and my parents are still up and doing. Have I reached a plateau in my life, and will I be doing the same thing every year from now on? I have achieved all my objectives except two. Could I do something else or have I defined myself permanently by the profession I have chosen and the life I have lived so far?" So the man, at his wife's encouragement, signed up for a night class at a local university. And, seeking enlightenment (under cover of darkness), he found himself in a class with a dozen Asian students studying Asian history. "Great," he said, "let me find new ways to recapture all the embarrassments and feelings of inad-

equacy I had as a boy." But as the years wore on, he took more courses, found ever-expanding areas of personal ignorance which he remedied, and gradually morphed into a professional historian. In completing his sixty-two year educational program, he came to know the loneliness of the long distance runner – not one of the kids, exactly, and certainly not an equal with the faculty. No longer a member of his old tribe, but not quite a member of the new one. Finally completing his dissertation, he got a university job earning a fraction – but a delightful fraction – of his old livelihood. And now he preys upon the unformed and impressionable minds of America's youth.

Where was I? Oh yes, **useful truths**. I thought that it would be a good idea to begin with a demonstration of one kind of truth, the story or narrative, which I have just presented. Historical narrations are one of the easiest genres to read and understand, but there are problems with their truth-content. There are several ways in which they can stray from the "reality" of the past if indeed the past can be said to have a "reality." I would suggest that reality can only exist in the present and that the past is only known by a series of evaluations, interpretations, and a sort of faith whereby historians affirm that there is some "correspondence" between what he or she writes and a past which they "claim to reconstruct and make more comprehensible." (Roger Chartier) Little biographical bits such as the one I've just given tend toward a personal bias: the best possible light is employed, the warts and blemishes are covered up, and a story of progressive perfection is created for purposes of self-congratulation or to encourage the reader to derive a moral from the story or to emulate the subject. Autobiography, it has been said, is "the revelation of one's greatest love affair."

Gertrude Himmelfarb warns historians of science, medicine, and I suppose anesthesiology, that biographies walk a tightrope between hagiography and statistically stagnant reportage. That is, the subject may take on the appearance of a saint or just end up endlessly boring. There is a constant tension between dry facts and heroic stories. I think that lectures should aim for at least a bit of heroism. And, in listening to the past, we must remain aware of its silences and wonder at what might be there. The dog that didn't bark, the bell unring. To write *anything* about the past is to assert that the subject chosen has some significance. We begin, of necessity, with an inherent bias. It's hard

to imagine that someone would say "I have decided to study this subject which has no value." Evidence is stagnant without interpretation.

I began graduate school looking for **stories** in history. History is poised uncomfortably between the need to tell a story and the need to tell the truth (Burgess). I had an affection for well-told tales, but I also wanted them to be factual. I spent at least a year looking for **facts**. I had to settle instead for **evidence**. Historians usually find what they refer to as evidence in documents. Literary types may look at the same things but they call their sources "texts" not documents. The two are farther apart than a normal person would think. I have witnessed mystifying conversations between historians and literary scholars, and it is amusing how well they talk past and around one another without making serious contact.

If we consider how long there has been a written record of human activity on this planet – 6,000 years or so – the length of time that *literal* readings and *rational* interpretations of "the word" have prevailed is relatively brief. I don't mean to suggest that language hasn't always been used to make what scholars call "truth claims" of a literal and rational nature, but it is also true that we have always found truths through allegories, metaphors, myths, and fables. If you think about it, we do our first learning as children this way with tales and rhymes and religious stories. And as adults we experience the same thing in scriptural parables, in sagas such as "Moby Dick," and political tracts like "Animal Farm." We all teach by using examples, similes, and analogies – useful tools for patching new facts onto the mind. Similes can be tricky and, rather than serve as tools for clarifying new ideas, they can take on a life of their own. They can turn on you. For example: "She grew on him like she was a colony of E.coli and he was room-temperature beef." Or: "She had a deep, throaty, genuine laugh, like that sound a dog makes just before it throws up."

I begin with these examples of simple ways in which barriers can come between us and the truths we wish to know and to convey to others. I believe it is important for those of us who spend most of our thinking in the realm of rationality and the literal understanding of things to remember that lateral and subjective approaches to truth constitute an enduring part of human understanding. If you listen to young people talking to one another – as I have too often the opportunity to do – you will hear a set of semaphores

encoded in a context of associations, gestures, and shared intuitions that allows a somewhat alien culture in our midst to enjoy a certain degree of autonomy. I think I just said that kids have their own language. But I also meant to imply that the ways we humans communicate are no more constant than human nature. Truths are sometimes subtle — glimpsed out of the corner of our eye. They are blurred and evanescent and many of them remained un-captured. As scientists we can't function without a high degree of confidence that we are guided by certain truths. Some historians have observed that "science begins with criticism and ends with self-affirmation." I think it makes better sense to think that both scientists and historians begin with a question that is as clear and precise as they can make it and that they must never succumb to complacency.

There is clearly a relationship between the ways in which science depends upon measuring, quantification — weights, volumes, numbers and degrees — and the way it views and values the world — the way it understands it. I have often thought that science values those things it can measure and that it is relatively less concerned with those things that it cannot. I wonder if I might be wrong about that. Is it not just as possible that "the instrumentalization of science is consequent to the process by which scientific 'thought' becomes commodified?" (concept taken from Horkheimer and Adorno). Perhaps the Scientific Revolution and the so-called Enlightenment began a conceptual process and metrification ensued, not the other way around. The "Either/Or" sort of explanation, however, is seldom the way things work in practice. It was probably a reciprocal set of interactions.

In any case, the scientific enterprise would not be possible if we did not believe in the certainty of our data. That said, I would like to point out that the "confidence" of which I speak comes from the Latin meaning "with faith," and the **certainty** we have in our data is indeed a matter of belief. The hypotheses we use in science are fragile, tentative, and collapsible. They are disposable tools. In our passion for science, it is important to recall that the discovery of anesthesia had nothing to do with the scientific method, hypotheses, or methodical thinking. It was a series of inductive processes and random events. But, as Pasteur says, fortune favors the prepared mind.

So here I am "doing history" — exercising a particular kind of new power. Trading my life as an anesthesiologist in which

there was a relatively high degree of predictability between what you do and what happens as a result. I have traded that for a new profession noted for a kind of punishing uncertainty. As scientists, we impose order upon and we demand compliance of Nature. Diseases have certain defining characteristics. Medical procedures can be structured along the lines of decision trees. And there are dose/response curves with all the seductive assurance that they give you that you are indeed in control. History, on the other hand, operates upon evidence, not upon many facts, upon persuasion, not conviction, and is more tentative and cautious in the conclusions it draws. Science and history do have this in common: they try to contextualize the questions that they ask. They try to define the variables and understand the particular contesting forces in play. Philosophy and religion, on the other hand, seek to understand concepts independent of context. (Toulmin)

So, as I began my new life, the questions that came to me as a novice in history included: Why bother? Who cares? Most people in this country take their last history class before they turn fifteen. College types take one if it's required and if it fits into their schedule. No one's looking to a bunch of dead losers to light the way to the future. Our predecessors have sucked all the juices out of the past, why pity them for the mistakes they made or blame them for all the questions they weren't clever enough to ask? (Namier) One historian has characterized history as "a visit of condolence." Why didn't they discover penicillin in the fourteenth century, for example? Why did ether sit on the shelf for five-hundred years before someone began to do a bit of sniffing? Besides, why waste time on a subject you can't change?

But wait! Who says you can't change history? We can't change the past, that's fairly certain, **but changing history is the never-ending enterprise of the professional historian**, rearranging the furnishings of the past and feeding off the mistakes of all those historians who have gone before us. Changing history is our oxygen, our nourishment, the electricity that brings us to life. One of the wonderful canards regarding history is that of George Santayana: He committed what is known as the "didactic fallacy," that is, the assertion that the purpose of the past is to instruct the present. "Those who cannot remember the past are condemned to repeat it." Note he does not say "learn from the past" or "learn from history," but he clearly

implies that memory has some tutorial power. Since when are remembering and learning the same? Santayana was a philosopher, not a historian, so he may be forgiven for implying that a perfect memory would guarantee a mistake-free future. One would obviously have to find brand new mistakes to make. Euripides was probably closer and more useful in his observation than Santayana in saying that "Whoso neglects learning in his youth, loses the past and is dead for the future." In either case, useful historical thinking consists in an understanding of the contexts in which decisions are made, but it also must keep a wary eye on the fact that circumstances change and so does human nature. History is not repeatable like a scientific experiment. Somewhere between the skeptic who denies the knowability of the past and the teller of beautiful stories, there is a space for the historian. Between neutrality and excessive bias there is space for the historian.

But I'm not going to pile glib aphorism upon aphorism. I believe that a solid grasp of the past is useful in dealing with the present. Grappling with the present is difficult enough. We don't want to make it worse by burdening it with historical misunderstandings.

I'd like to say a few things about ONE, the good old days for the historian — some of the players and the uses to which they put their scholarship; TWO, the current state of history and historians generally — is history as a discipline losing touch with the world in which it operates or should operate? *Let me tell you what I think*; THREE, In the course of this, I will discuss certain historical mistakes, errors, and fallacies — how they appear in the historical landscape and how they can be remedied; and finally, FOUR, "Lust, Torture, and Depravity" and how they factor into my thinking.

What about the "good old days?" If you are one who believes that the value of history is in what it teaches the present, then I admire your optimism even if I don't necessarily respect your opinion. The early historians in the Western tradition, Herodotus and especially Thucydides, thought that getting the "facts" on paper as events unfolded would give future generations a more accurate but — more importantly, an instructive, useful, set of directions from the perspective of an eyewitness in how to avoid what my daughter-in-law refers to as "consequences." This is another example of the **Didactic Fallacy**. The problem in this case is com-

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pounded by the fact that journalism and history are not the same. The trouble with eyewitnesses, as you all know, is that perceptions and recollections are tricky things. The difficulty with historians like Thucydides who try to instruct the future is that they don't just record the facts, they manage the evidence, draw the conclusions, and select the lessons most worth teaching — in their opinion. They also take as a given that human nature and human motivation are constant over time. As I have said, human nature is not fixed, it is mutable. Further, didactic historians imply strongly that certain acts produce predictable effects or consequences. There is too little attention given in this kind of history to the external variables and the multitude of unintended consequences that abound in the past and which follow deliberate acts. Finally, Thucydides inserted whole speeches in his book that were never given, or, if given, he could not have heard. In today's university system he would get an "F." And a warning from the dean.

Fallacies are not just mistakes, they are ways of falling into error. They are errors in reasoning, OR in the use of organizing assumptions, OR false procedures used in persuasion OR in the demonstration of a scientific or historical truth. One historical error, the **moralistic fallacy**, occurs when history is written as a primer on how to be virtuous and courageous. Cicero said that history that teaches lessons is probably always dishonest. All historians make value judgments. If they didn't, they would hardly improve our understanding of the past. The problem arises when they impose their own moral standards upon the past, praise or condemn it on that basis, and don't even realize their transgression. This kind of history sometimes links the decline of a society or civilization to an unraveling of the moral fabric of that society. The myth of a Golden Age lost because of the venality of man (and woman, if we are to be correct and give equality to all), smells more of sermon or rhetorical representation than of history. The **aesthetic fallacy** consists in seeing the past as a collection of beautiful facts — the good bits are selectively presented and the rest is ignored. It has been said of this kind of cosmetic presentation of the past that its proponents "subordinate historical precision to the demands of character and plot." Poetry and art have their own truths, history and science operate in an empirical reality, not in the seductive light of

aesthetic intuition. Sensational stories are no substitute for historical significance.

Historians ought not write moral history or triumphant history or the history of progress. These views of history are flawed in being driven either with a view to requiring the past to serve the present or by what is known as **determinism**. This comes from what I think is the best fallacy and the most useful. It is called *the teleological fallacy* and it comes from Aristotle's view of purpose and cause. He taught that the universe was rationally ordered and that things tend towards their natural ends. This supposes that things "stand to reason." We often say that things "make sense" when we mean "stand to reason." It is our rational faculty, not our senses, that lead us to truth.

History from the point of view of the determinist is driven by the insistence that historical evidence demonstrates an inevitable outcome. For the **Marxist**, it is control of the means of production by classes in conflict and the ultimate triumph of the proletariat. For the **Whig** historian, it is the steady march of representative government, particularly parliamentary hegemony and democracy. Often, the historian of science commits this error and views the terrain of the past from the mountaintops, seeing a sequence of discoveries and scientific insights, while ignoring the so-called irrelevancies. Galileo DID write about religion and spent much effort in explaining the Bible to churchmen. Newton DID write more about alchemy than he did about physics. The historian must not be content merely finding what he's looking for.

A few other fallacies that infect scientific thought processes, **in particular**, include:

1] **The Baconian Fallacy.** Sir Francis Bacon in the seventeenth century worried that the deductive reasoning of Aristotle that had dominated western thought for nearly a thousand years was freighted with so much error that it was unfixable and needed to be replaced. He proposed that preconceived notions, absolute and abstract thinking, be replaced by a process of inductive reasoning. Building knowledge from the ground up, avoiding hypotheses, and piling fact upon collective fact would result in a body of knowledge that included everything knowable. Bacon assumed that everything can be known about everything. If you're smart you'll disagree and recognize that the best we can do is to know something about something. Bacon's system pursues an impossible object by an impracticable method. It assumes that the

indiscriminate collection of small truths will somehow reveal the **significance** contained therein. He was correct, however, in observing that we too often fall into error by basing our judgments on prior knowledge, assumptions, personal biases, and the expectations of others. I was recently reminded of this when my department Chair asked if I could translate this Latin phrase: . I puzzled over what he calls his "Pretension Detector" until he read it to me.

It is a form of idealism to believe that sturdy scholarship will conquer nature and triumph over ignorance as Bacon thought. H.L. Mencken may have had Bacon in mind when he observed that "an idealist is one who, on noticing that a rose smells better than a cabbage, concludes that it will also make a better soup." Science certainly has to be cautious of hypotheses, as Bacon warned us, but hypotheses cannot be avoided. Science is selective and seeks the truths that matter most. It depends upon hypotheses that are carefully framed. Hypotheses must be tailored to include the greatest probability of conclusions, that is, they must be flexible enough to uncover the evidence or results that are **not** expected. Scientific pursuits must remain disciplined, exacting, and reproducible in method, and hypotheses are the tools of that pursuit.

2] **The Tautologic Fallacy.** A tautology is a question or statement containing its own answer. It asserts the same thing twice. For example, Coolidge's "When people are out of work, unemployment results." I think Yogi Berra had a few of his own. His AFLAC ad says: "That insurance is the kind that, if you don't have it, you need it." A tautology is a form of circularity — it says something, but it goes nowhere and adds nothing. I'll leave it to you to decide if some published scientific papers in the anesthesia literature don't fall into this category. My own opinion is that many do. Perhaps editors might reflect upon Samuel Johnson's reply to a potential author: "Your manuscript is both good and original; [pause] but the part that is good is not original and the part that is original is not good."

There is the **fallacy of simple distraction**. Sometimes we just miss the point, wander about distracted, or enter the woods without a compass. We need to pay attention to where we're going. And if I were not in California and a Californian, I might say something about how we choose our leaders

The Either/Or Fallacy. The either/or fallacy exists when choices are 'neither

mutually exclusive nor collectively exhaustive.' The test to be applied to the assertion of an either/or is: to demonstrate the possibility that the two can coexist, **or** show that a third possibility is possible, **or** repudiate one or both alternates **or** take the question head-on and produce a better alternative. I mentioned earlier that, at least in history, there is usually a range of positions and opinions. **Either/or** constructions exclude or ignore the 'middle.' Whether it is the silent minority, the apathetic millions, or the conflicted bystanders in a contest, room must be given for those who are on neither side. Scientific enterprises should avoid simple dichotomies as much as possible. Science should certainly try to resolve problems empirically. It should be open-ended but still structured. It should seek facts that answer the questions posed, but it may not dictate the answers to its questions by posing those questions fallaciously or by limiting the possibility of finding a truth 'in the middle.' If science is to be both precise and explicit, yet operational, it must discipline itself along lines of logical question-framing, but science must remember to allow room for the **neither either/or**.

4] **The Fallacy of Plausible Proof.** This is another that crops up in our own literature from time to time. There has to be some correlation between the question posed and the evidence that purports to answer that question. The correlation must not only provide an evidentiary link between the question and the conclusion, it must provide a real estimate of its **probability**. Correct facts are not enough in this case, the facts must fit the question they presume to answer. The evidence must also be affirmative, that is, the absence of a contradiction is not an affirmation of the assertion— if there is little or no positive, authentic evidence the author is NOT allowed to make something up. [DHF]

The measure of success in science and history is not ultimately to answer the question 'is it true,' as much as we treasure those precious moments when we encounter and embrace a recognizable truth, but to respond to the query 'is it meaningful?' The explanatory power of science and history depend in their own ways upon their power of explanation and their ability to reveal the significance and the value of their results.

Two more fallacies and I'll conclude.

5] **The Fallacy of Anachronism.** This sounds simple but it's not. It is the act of putting an event at the wrong time. This is not just a matter of getting the date wrong. It is a mistake of associating val-

ues, attitudes, knowledge, and beliefs with people and events with which they could not have an association. For example, "Good-bye, Mother, I'm off to the Thirty Years' War!" (I had the great pleasure of saying that to my wife two weeks ago, but I was **actually** off to give a lecture on the Thirty Years' War!) More seriously, the seventeenth century has been taken to task for its failure to achieve toleration in religion or liberal views in government, concepts with which they were unfamiliar as those concepts are understood today. Definitions and word meanings have shifted and the passage of time has produced changes that they could not have anticipated. One historian has asked that everyone associated with the French Revolution sit down so we can see the seventeenth century. This is not just an attempt at humor, it is a recognition that the concept of 'citizen,' toleration, property rights, sovereignty, and a multitude of other concepts that arose with or after the French Revolution were unknown earlier.

My last fallacy is

6] **The Antiquarian Fallacy.** Voltaire warns us that everything that happened is not worth knowing. David Hackett Fischer, an historian from whom I've stolen shamelessly for this talk, describes those who, quite the contrary of those who believe the past exists to serve the present, believe that the past is all that matters. He describes them thus: "An antiquarian is a collector of dead facts, which he stuffs full of sawdust and separately encloses in small glass cases. Often, he is a gentleman (or lady) of respectable origins who is utterly alienated from the present. The past serves him as a sanctuary from a sordid world which he neither accepts nor understands. . . . At the Boston Athanaeum, one may discover flocks of tiny birdlike old gentlemen, who nest in eery piles of dirty yellow paper and brood their myths and memories into monumental Lives-and-Letters. In every New England town library, there is likely to be an ancient Puritan virgin, shriveled and dried in the snows of sixty Massachusetts winters . . . who has been at work for the last twenty years on the story of her home town from 1633 to 1933, when Franklin Roosevelt was inaugurated and history came to an end."

The Current State of History

I would like to give you a few examples of the current state of history and the historian from the other side of the divide. I wish I could tell you that historians are so smart that they have not only solved the problems and avoided the fallacies I've

been talking about, but they have performed prodigies of scholarship that are both wonderful and beautiful. Alas, I am about to give you a demonstration of the direction things have taken recently and make some suggestions as to how **you** should channel your energies if you wish to enjoy history without entering this unnecessarily forbidding terrain. I did my dissertation for a Ph.D. on Sir Henry Vane, Jr., a remarkable Puritan gentleman of the seventeenth century. If I were to tell you of him, you would – most of you – abandon the practice of anesthesiology and devote the rest of your days to a study and appreciation of him. I will not tempt you further, but I want to give you a snippet of another historian's view of him. As I tell you this, I want you to know that these words were penned by a rugby playing Aussie who is the same age as my – our – oldest daughter. David Parnham studied Vane's writings and had the following to say about him "Vane was a spiritual allegorist, a proponent of pneumatological politics and he would condemn chiliastic fleshliness while ruminating on the legitimacy of prevailing eschatologies. Vane was meditating in the public gaze at a moment of gathering eschatological climax; (perhaps here is where we might meditate upon "lust") he could assimilate a prophetic strategy of high contemporaneous resonance for the crafting of scenarios of continuity and change."

And another historian has shared this insight with posterity: "By a slow movement whose necessity is hardly perceptible, everything that for at least some twenty centuries tended toward and finally succeeded in being gathered under the name of language is beginning to let itself be transferred to, or at least summarized under, the name of writing."

The examples of the ways in which historians write for one another are too numerous and too depressing. The late Oscar Levant just gave up. He said "I have stopped reading books; I find it takes my mind off myself."

History today has in many ways become a commodity. It is founded less upon its fact content than upon its entertainment value. If it is treated as a diversion, as a toy, it will lose its power to provide us with a serious engagement with the past. We are not here to amuse ourselves to death.

But now it is time to speak of **lust, torture, and depravity**. It would, of course, have been wrong of me to advertise a lecture that did not deliver what it promised. I thought that a perky, if slightly dishon-

Fallacies. . . *Continued from Page 7*

est, subtitle for the talk would attract another population of anesthesiologists – perhaps those with abnormal chemicals in their limbic systems, those endowed with a robust circulation, bristling with vigor, and alive on the cusp of turgid expectation. Usually someone stops me when I want to say something provocative. My wife says, “You can’t say that!” For years, Glenn Johnson would say “Are you sure you want to say that?” My usual restraints have left me and I have slipped my moorings. However, to deliver on the irrational exuberance of my subtitle . . .

Let me urge those of you who **lust**: do not let a carnal appetite be your only appetite. The big satisfactions in this life come from the small connections that are based upon values, relationships, and significance. Keep the passion and lose the lust. Let us live life **lustily**, not lustfully. Relationships require an energetic commitment. Living without vitality and enthusiasm would be a betrayal of the precious heritage we have received from the past. It would also be a disservice to our posterity. We are born in innocence and we treasure the reminiscence of that birthright when we see our children. We grow to adulthood, in power, confidence, and self-interest and sometimes see ourselves as the completion of a historical process. We are links in that process. Remember to forgive your parents and to apologize to your children. Or – apologize to your parents and forgive your children. Be happy, and remember that **pleasure** is no substitute for happiness. Remember also that happiness comes from the recognition that letting go of self – self as a central organizing principle — is the perfect release.

Let us visit the subject of **torture**. The whole idea of doing history is a form of self-torture. It has been compared with flagellation. It can certainly be painful for professional historians, but they have the delicious opportunity to seek release in teaching. “There is something obscene in an argument that justifies the pedagogic torture inflicted upon millions of helpless children, year after year, on the ground that it is jolly good fun for the torturer.” DHF, 310.

Depravity. What can I say about depravity? Here we are in San Francisco. Who would dare be anti-depravity? Well, I would I’m against it? It’s a corruption of nature, a deformity, a de-generation. Worse still – it is pessimistic in its view of human nature and in its preoccupation with

sensory indulgence or in its indifference to the suffering of others. **Worst of all** – it goes nowhere. I think that scientists and historians cannot function without the sense that what they do matters. That improvement if not perfectibility, is the only program that has a chance of success. I believe in possibilities, in looking out and up. I am an optimist because I am convinced that no other attitude is useful in dealing with the future. As a historian, I remain persuaded that the story of our past has value, that we operate in a universe where useful truths, small though they may be, survive despite the fallacies that sometimes obscure them.

It’s time to nudge your neighbor, gently, back to consciousness and get back in “scientific” mode.

I have returned, metaphorically, from the other side. I have seen the camp of the historians and seen them at work. I have mastered their tools, learned their discourse, and have become, as you have seen, slightly addled. I’ve enjoyed being with you, but it’s time for me to return to the world of inky fingers, elbow patches, intellectual pretensions, and perpetual bewilderment. The world I now call home.

Thank you.

AHA 2003 Resident Essay Award Winners

Each year the Anesthesia History Association conducts a resident essay contest, offering \$500 and publication in the Bulletin of Anesthesia History to the winning essay’s author. Other entries may be published in the Bulletin as well.

At the AHA’s annual dinner meeting, held October 13, 2003, in San Francisco, California, during the ASA, the following winners of the 2003 contest were announced by William D. Hammonds, M.D., M.P.H., Chair of the Resident Essay Contest Committee:

First Place

Jason G. Ramirez, M.D.
“Modern Chemical Warfare: A History”

Second Place

Kalyan S. Lingam, M.D.
“‘The Masked Marvel’—Pioneer of Pain Management”

Third Place

Laurie Wright, M.D.
“The Anlet: Anesthesiology’s Response to the Needs of the Armed Forces in World War Two”

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Blue Skies Forever: The Enduring Legacy of Sir C. V. Raman and the Origins of the Ohmeda Rascal II

by Senthilkumar Sadhasivam, M.D.

Resident

Department of Anesthesia and Critical Care

Beth Israel Deaconess Medical Center

Harvard Medical School

and

David Lai, M.D.

Staff

Department of Anesthesia and Critical Care

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Harvard Medical School

This article won third place in the 2002 AHA Resident Essay Contest Award and has been peer reviewed and accepted for publication in the Bulletin of Anesthesia History.

Prologue

After his first trip abroad (to Oxford), C. V. Raman boarded the SS Narkunda in Southampton, UK. During the journey back to India, the blue of the sky intrigued him. This inspired him on September 26, 1921 to explore the revolutionary idea of *scattering of light by water molecules* which he detailed in a letter to *Nature*, written aboard the SS Narkunda, Bombay Harbor. This simple observation set him off on the path of optics, which led to the discovery of the Raman effect and the 1930 Nobel Prize for Physics.

Biography

Chandrasekhara Venkata Raman was born in Trichy, Southern India on November 7, 1888 into a house of learning.¹ From his childhood he was immersed in an academic atmosphere, as his father was a professor of mathematics and physics. As a student, young Raman did his earliest researches in optics and acoustics - the two fields of science to which he later dedicated his entire career. Raman went on to obtain both his bachelors and masters degrees in physics from Presidency College, Madras with the highest distinctions.

At that time in India science as a career did not hold a promising future for bright young minds like Raman's. As a result, he joined the Indian Finance Department in 1907. Although his official duties took up most of his time, a motivated Raman still found opportunities to do experiments in the laboratory of the Indian Association for the Cultivation of Science at Calcutta¹ (of which he became Honorary Secretary in 1919.) Raman's hard work earned him a return to the sci-

entific spotlight.

In 1917 Raman accepted the position of the newly endowed Palit Chair of Physics at Calcutta University.¹ Raman made more money as a civil servant, and the Colonial Administration had high hopes for him in the government. Why then would he commit professional suicide and become a full-fledged academic? Raman simply believed in the pursuit of knowledge over material gain. This crucial turning point of his career is best summarized by his hiring announcement:

For the chair of Physics created by Sir Taraknath Palit, we have been fortunate enough to secure the services of Mr Chandrasekhara Venkata Raman, who has greatly distinguished himself and acquired an European fame by his brilliant researches in the domain of Physical Science, assiduously carried on under the

circumstances amidst the distraction of pressing official duties . . .

I shall fail in my duty if I were to restrain myself in my expression of the genuine admiration I feel for the courage and spirit of self-sacrifice with which Mr Raman has decided

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Fig. 1. 1994 Ohmeda Rascal II advertisement, Anesthesiology

Continued on Next Page

Raman. . . Continued from Page 9

to exchange a lucrative official appointment for a University Professorship, which I regret to say, does not carry even liberal emoluments. This instance encourages me to entertain the hope that there will be no lack of seekers after truth in the Temple of Knowledge which it is our ambition to erect.²

Raman wasted no time in making the most of his new appointment. In his own field, he was the founding editor of the *Indian Journal of Physics* in 1926.^{1,2} Nationally, he sponsored the establishment of the Indian Academy of Sciences and served as its first President. Raman also initiated the *Proceedings* of that academy, in which much of his work was published. He was also President of the *Current Science Association*, Bangalore which publishes *Current Science (India)*.^{1,2} Raman was becoming internationally recognized. In 1922, he published his work on the "Molecular Diffraction of Light." This effort ultimately led to his discovery, on February 28, 1928, of the radiation effect which bears his name.³ He was awarded the 1930 Nobel Prize in Physics for this discovery.^{1,2} After 15 fruitful years at Calcutta, Raman became Director and Professor at India's most prestigious scientific institution, the Indian Institute of Science at Bangalore, from 1933 to 1948. In 1948, he established, endowed, and became the first Director of the Raman Institute of Research at Bangalore.

Raman also carried out studies on the diffraction of light by acoustic waves of ultrasonic and hypersonic frequencies, and studies on the effects produced by x-rays on infrared vibrations in crystals exposed to ordinary light. His other scientific interests included the optics of colloids, crystal dynamics, electrical and magnetic anisotropy, and the physiology of human vision. The numerous honorary degrees and memberships of scientific societies bestowed upon Raman validate his glowing reputation among his fellow scientists. Few can match Raman's incredible triumvirate of accomplishments within a seven-year period: Fellow of the Royal Society (1924), Knighthood (1929), and Nobel Laureate (1930). After a long and productive career, Sir C.V. Raman died on November 21, 1970 in Bangalore; he was cremated on the grounds of the Raman Research Institute.^{1,2}

Nobel Prize

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Fig. 2. 1995 Ohmeda Rascal II advertisement, Anesthesiology

The Royal Swedish Academy of Sciences awarded the Nobel Prize in Physics for 1930 to Sir Venkata Raman for his work on the scattering of light and for the discovery of the "Raman effect."^{3,4} Raman sought to find the explanation of the anomalies in asymmetry observed in molecules. In 1928, he made the surprising discovery that scattered light showed not only radiation derived from primary light, but also radiation that contained wavelengths foreign to the primary light. When a photon from a light source collides with a molecule of gas, it may be re-emitted (scattered light) with no loss of energy (Rayleigh scattering). Alternatively, there may be absorption of some of the kinetic energy from the photon, resulting in the scattered photon having a lower energy level and hence a longer wavelength (Raman scattering). In Raman scattering, the amount of energy absorbed by a molecule from incident photons depends upon molecular weight and structure. As a result, spectral analysis of the scattered light (Raman lines) may be used to measure individual components of a gas mixture.⁵ The discovery of Raman lines has greatly improved our knowledge of the structure

of molecules. In the past, the study of ultra red oscillations was difficult, because that part of the spectrum lies outside of the photographic plate's sensitive region. Raman's discovery provided a simple and exact method of investigating the whole spectrum of oscillations.

Clinical Anesthesia

Anesthetic and respiratory gases may be simultaneously measured by Raman scattering with accuracy comparable to a mass spectrometer.⁶⁻⁸ This was first demonstrated in 1986 by the Rascal I monitor, Albion Instruments, Salt Lake City, Utah. Ohmeda assumed production, and their version debuted in 1994 as the Rascal II.⁸ Representative advertisements are

seen from 1994 (Figure 1) and 1995 (Figure 2). As a single wavelength of light passes through the sample gas, the light interacts with the gas molecules. If energy is absorbed or emitted, the wavelength of the light is changed. This new wavelength is transformed into a spectrum of various wavelengths depending on the gases present. A detector then measures these wavelengths and converts the data into anesthetic and respiratory gas concentrations. Raman scattering has the advantage over infrared gas analysis in its ability to measure all anesthetic and respiratory gases. This includes symmetric molecules like nitrogen and oxygen, which infrared analysis cannot measure.

Although Raman scattering might appear to be the ideal gas analysis technology, there are limitations. First, it cannot be used to identify single atoms since it involves only vibrational and rotational energy states. Second, a high intensity (argon) laser light source (488 nm wavelength) is required. The complexities of visible laser excitation are part of the reason why Ohmeda has stopped manufacturing the RASCAL II December 31, 1998. Although many anesthesia technicians

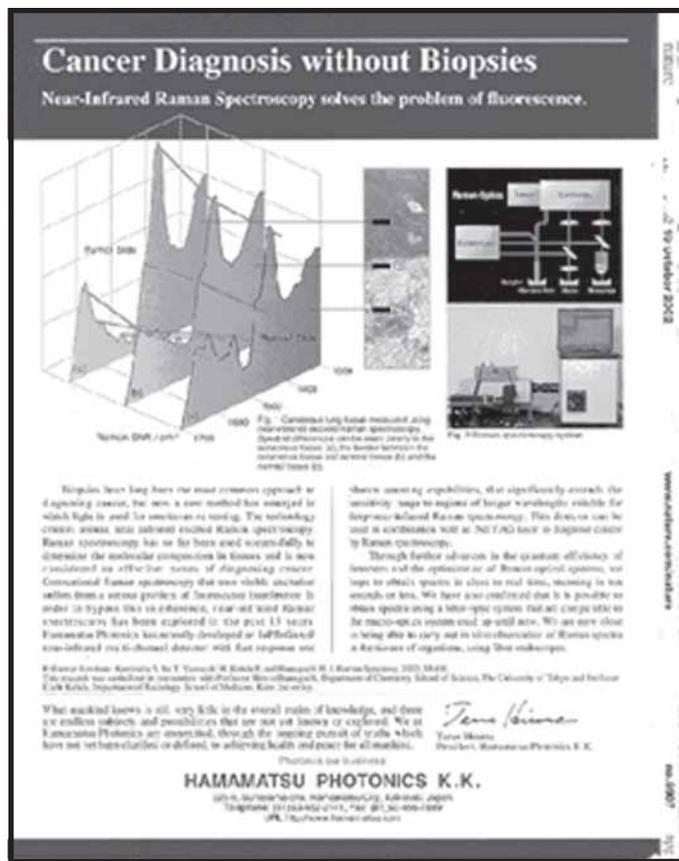


Fig. 3. Hamamatsu Photonics K.K. advertisement, *Nature* 2002; 10 October: no. 6907

were happy when the finicky “Little Rascal” was retired, a valuable monitor for sitting craniotomies and pre-oxygenation was also lost. Because most anesthetic gas analyzers today utilize infrared technology, it is no longer possible to measure end-tidal nitrogen for air bubble detection or “de-nitrogenation” during pre-oxygenation prior to induction of anesthesia. (Mass spectrometry and Raman spectroscopy can measure nitrogen, unlike infrared analysis.) With advancements in laser technology (e.g. near infrared excitation) and charge coupled device array detection, Raman scattering analysis may come back in anesthesia, and a new generation of anesthesiologists may appreciate its advantages. One recent example involved the detection of a bronchial-gastric fistula with a Raman Scattering Analyzer.⁹

There are other anesthetic uses for Raman scattering. For example, Raman analysis may be used to confirm a unitary hypothesis relating general anesthesia to lipid perturbations.¹⁰ Additionally, Raman spectroscopy has made rapid, automated chemical analyses and identification of narcotics and other substances in solid mixtures possible.¹¹

Clinical Medicine

Just as the scope of anesthesiology has extended beyond its traditional boundaries, Raman technology has clinical applications outside of the operating room. Raman spectroscopic analysis has many other potential biomedical applications, including noninvasive *in-vivo* glucose monitoring, identification of tissue types, *in vivo* cancer diagnosis by differentiating benign from malignant lesions and normal from abnormal lesions (Figure 3), *in vivo* cytological analyses (e.g. endocervical, breast tissue, brain tissue in Alzheimer’s disease), *in vitro* tissue analyses, retinal visual field and other ophthalmologic evaluations, and deep tissue functional imaging.¹² There are also applications in forensic medicine. By distinguishing and identifying drugs, explosives and even different types of ballpoint inks, Raman analysis may help forensic pathologists and crime scene investigators solve challenging cases.¹³

Conclusion

Raman founded the Raman Research Institute in 1948 (Figure 4), which continues today to work on areas of physics that were of particular interest to him. Raman demonstrated that a Nobel Prize

could be earned through hard work and determination *without* the need of expensive, sophisticated equipment. Leading by example, Raman inspired countless scientists during his lengthy career.

Sir C.V. Raman’s enduring legacy is that he still continues to motivate budding scientists around the globe. Raman’s memory and work live on through various worldwide institutions including his Raman Research Institute and the Massachusetts Institute of Technology. It may be anticipated that additional practical clinical tools will emerge from the discovery of this great man.

References

1. Venkataraman G. The Spirit of a Giant. Raman Research Institute. Golden Jubilee Lecture, 1998.
2. Biographical Memoirs of Fellows of the Royal Society, London. 1971; 17:565-91.
3. Raman CV. A new radiation. *Indian J. Phys* 1928; 2: 387.
4. Raman CV, Krishnan KS. A new type of secondary radiation. *Nature* 1928; 121:501.
5. Venkataraman G. Journey into Light. Life and science of C.V. Raman. Indian Academy of Sciences, Bangalore, 1988, pp 219-54.
6. Westenskow DR, Smith KW, Coleman DL, et al. Clinical evaluation of a Raman scattering multiple gas analyzer for the operating room. *Anesthesiology* 1989; 70:350-5.
7. Van Wagenen RA, Westenskow DR, Benner RE, et al. Dedicated monitoring of anesthetic and respiratory gases by Raman scattering. *J Clin Monit* 1986; 2:215-22.
8. Lockwood GG, Landon MJ, Chakrabarti MK, Whitwam JG. The Ohmeda RASCAL II. A new gas analyzer for anaesthetic use. *Anaesthesia* 1994; 49:44-53.
9. Murray DJ. A sudden increase in expired nitrogen: diagnosis and management of a bronchial-gastric fistula. *Anesthesiology* 1998; 539-541.
10. O’Leary TJ, Ross PD and Levin IW. Effects of anesthetic and nonanesthetic steroids on dipalmitoylphosphatidylcholine liposomes: a calorimetric and Raman spectrometry investigation. *Biochemistry* 1984 September 25; 23(2):4636-41.
11. Ryder AG. Classification of narcotics in solid mixtures using principal component analysis and Raman spectroscopy. *Journal of Forensic Science* 2002 March; 47(2):275-84.
12. Hanlon EB, Manoharan R, Koo TW, et al. Prospects for *in vivo* Raman spectroscopy. *Phys Med Biol* 2000; 45(2):R1-59.
13. Claybourn M, Ansell M. Using Raman Spectroscopy to solve crime: inks, questioned documents and fraud. *Sci Justice* 2000; 40:261-71.



Fig. 4. Raman Research Institute mailing logo

APRIL 30, 2002 OR OCTOBER 16, 1846

by Gerald L. Zeitlin, M.D.

Last Spring Dr. Elliott Miller of the Massachusetts General Hospital Department of Anesthesia led a tour of the famous location of William T.G. Morton's public demonstration of the use of ether for painless surgery, the Ether Dome, for members and guests of the Anesthesia History Association.

After the visit Dr. Miller and the visitors left and I stayed behind in the silence. I looked at the statue of Apollo in one corner of the room (Figure 1). In the gap between the plinth to which he had been glued, and the wall, I noticed some old dusty and yellowed papers. I fished them out. They were some old anesthesia records of no particular interest except for the one you can see in Figure 2.

It purports to be a contemporaneous record of Dr. Morton's anesthetic; obviously a fake. Why would the faker waste his or her time and energy on such nonsense when he could have spent that time doing something useful for mankind. Since that question did not seem to have an answer my curiosity got the better of me and I looked at it with the eye of a fake historian.

Morton does not record the presence of Charles Frederick Heywood who was the House Surgeon to Dr. J.C. Warren who performed the operation. It was Heywood who actually wrote the letter to Morton on October 14, 1846, inviting Morton "to administer the preparation which you have invented to diminish the sensibility to pain." One should not forget that Warren was risking his reputation in allowing this unknown dentist to give his patient this potentially dangerous substance and wanted to distance himself a little.¹

Morton was quite precise in naming the operation. Was he also prescient? Today we have to be accurate in describing the operation so we can be properly paid according to the Relative Value Guide. Maybe he was, because the rest of his life was largely spent in a struggle for recognition and the financial benefit that would have accompanied that recognition. Despite a recent book that exposes Morton as a petty crook *before his* demonstration, I at least feel sympathy toward him. Three times in Morton's youth, his father, an honest hardworking farmer in Western Massachusetts went broke through no



Fig. 1. Statue of Apollo. Note papers behind statue.

fault of his own. And each time William suffered horribly.

As to the operation itself, one witness described the tumor as being "the size of a large chestnut" and said that only a single ligature was placed by Warren. One of the other surgeons present, Henry J. Bigelow, described the operation as "comparatively slight". Yet Morton described it as "Ligation of Vascular Tumor". That is, he did not write what he saw; he wrote what the surgeon told him he had done – just as we do today.^{2,3,4}

Morton's handwriting is remarkable steady considering the great stress he was under. He and Mr. Chamberlain, the instrument maker, had been working feverishly up to the last minute making improvements to the inhaler. And if the traffic in Boston in 1846 was anything like today he would have had a terrible time getting a horse-drawn cab.⁵

Although we know that Morton com-

²Eavey RD. First Operation Under Ether: A Correction. Letter to the Editor, *New England Journal of Medicine*, October 1983.

³Rice NP. Trial of a Public Benefactor. New York: Pudney and Russell, New York, 1859.

⁴Wolfe RJ. Tarnished Idol; William Thomas Green Morton and the Introduction of Surgical Anesthesia. 2001; Norman Biography Series, Novato, CA.

⁵Rice NP. Ibid. Page 91

⁶Vandam LD. Edward Gilbert Abbott: Enigmatic Figure of the Ether Demonstration.

ported the patient before induction this is not recorded here nor is there any note of a preoperative examination. "None" in the space for Preop. Medication is a reflection of the much later introduction on Morphine with or without Hyoscine before surgery. Morton does record the patient's height and weight; clearly he was very thin. Perhaps he was already suffering from the tuberculosis from which he died 10 years later.⁶

Morton wrote "Letheon" on the record as the name of the volatile liquid he used. At that stage he was still trying to conceal the nature of the agent in order that he could patent it. He actually colored the ether red and scented it with "eau de mille-fleurs." Although eau de mille-fleurs was then, as now, the name of a scent made by distilling a mixture of wildflowers, the French had earlier distilled the urine of cows that grazed upon a field of fragrant flowers as a remedy.

Contemporary scholars believe that the real reason why Morton was not invited back to the Massachusetts General Hospital until November 7, except for a minor operation on October 17, was the accepted prohibition against the use of secret remedies or 'nostrums'. Only when he revealed that Letheon was simply di-ethyl ether, did Warren accept his services again.⁷

One can see that Abbott inhaled the ether for about 5 minutes. Warren did not start the operation until after Morton had withdrawn the inhaler from Abbott's lips. So we can reasonably speculate that Abbott was in Stage 2 anesthetic depth, that is, he was analgesic.⁸

Morton recorded both Abbott's pulse and respiratory rates. He must have done what many of us still do because of the exigencies of surgery; complete the record after the patient wakes up, because he likely obtained the information from Heywood, the House Surgeon who is shown in the famous painting by Hinckley as monitoring the right radial pulse.⁹

One wonders whether Morton was being tactful when he wrote "moderate" in

⁷Duncum B. The Development of Inhalation Anaesthesia. London: Oxford University Press, 1947.

⁸Warren JC. Transactions of the American Surgical Association. 1897; 15:16.

⁹Vandam LD. Robert Hinckley's The First Operation Under Ether. *Anesthesiology* 1980; 52:62.

¹Vandam LD. *Anesthesiology* March 1995;82(3)

MASSACHUSETTS GENERAL HOSPITAL

RESIDENTS/CRNA'S ID#S L OR AREA OR RM # TEL. EXT.

PRIMARY SURGEON *Abbott, Edward G.*

PREOP *Tumor under jaw*

PROB. *Ligation of parotid tumor* DATE OF SURG. *10/16/46*

ABBOTT, EDWARD G. DOB: 09/02/25 10/16/46 CAMBRIDGE PORT, MA J. C. WARREN

PATIENT DATA: ASA CLASS *2* Age *21* Ht *5'11 1/2* Kg *142* Lb *315*

PREOP MEDICATION, DOSE and TIME *None*

ALLEGIES: *None*

STAFF SIGNATURE *Morton*

ANESTHESIA RECORD

MACH: SM M LG

DRUGS: *Lethron*

BLOOD LOSS: *Moderate*

NOTES:

- Commence inhalation
- End inhalation
Commence operation
- End of operation
- Patient coherent - pulse steady and strong

BP: 120/80, 110/70, 100/60, 90/50, 80/40, 70/30, 60/20, 50/15, 40/10, 30/10, 20/10

ECG: *1. 2. 3. 4.*

Fig. 2. Found fake record of Dr. Morton's anesthetic.

the Blood Loss column. Perhaps, for once, this was the truth because the operation was quite brief and superficial.¹⁰

One may excuse Morton for not describing or even mentioning his inhaler on the record. Obviously he could not find an appropriate space to do so. He must have been puzzled by the "check-offs" on the modern record. He must have wondered

why giving an anesthetic was less worthy of a literate description than any other medical procedure because, given the opportunity in the lower left-hand corner of the record he lists the key events in plain English.

The author of this paper is uncertain what to do with his find. Clearly it would be an insult to the Trustees of that august institution to offer it to the Wood Library-Museum. He therefore welcomes polite suggestions.

The author wishes to thank George Battit M.D., for his assistance.

¹⁰Rice NP. Ibid. page 92.

Wood Library-Museum Friends Tea at the ASA Annual Meeting in San Francisco, CA, October 13, 2003



*Left to right: Burdett Dunbar, M.D.;
Robert Buechel, M.D.; and friend*

*Left to right: Roger Eltringham, F.R.C.A.;
Dr. Shigehito Sato; Naosuki Sugai, M.D.;
and Mrs. Lorna Eltringham*



*Left to right: Mrs. Sue Adams, Dr.
Michael Goerig, Dr. Neil Adams, and
Dr. Gerald Zeitlin*



Jonathan Berman, M.D., with Sylvia Marshall, M.D. (left), and Mary Ellen Warner, M.D. (right)

Douglas R. Bacon, M.D., and Tom Bruckman, F.A.E.R. Executive Director



Dr. and Mrs. John E. Steinhaus (left) with Dr. William K. Hamilton



Selma H. Calmes, M.D., and Andranik Ovassarian, M.D.



Mark Warner, M.D. and Martin Giesecke, M.D.

Doris K. Cope, M.D., with Ron Booker, J.D., C.P.A. (left), and Kerry Lowery (right)



Photos by Patrick Sim.

A Sequel to “Surgery in Hitler’s Bunker”

by Ray J. Defalque, M.D.

Professor (Ret.), Dept. of Anesthesia
University of Alabama at Birmingham

A few weeks after publishing “Surgery in Hitler’s Bunker”¹ the author read in CIA Director Helms’ memoirs² that the nurse Erna mentioned in his article was named Erna Flegel and that she had been questioned by F. Staider, an OSS officer in November, 1945. The OSS was then investigating the fate of Hitler and his circle.

The seven-page report³ of Erna Flegel’s interrogation is in the files of the CIA. It was declassified in January, 1989, and is available upon request.

Helms signed the report but the questioning was done by one of his officers, who is unnamed in the document. Helms was then the chief of the Berlin detachment of the OSS.

The report mentioned that nurse Flegel was born in 1911. She was thus 34 at the time of the battle of Berlin. She was a surgical nurse at the University hospital, where Professor (and SS Lt. Colonel) Haase was chief of surgery. During each air raid after January, 1943, she was driven to the bunker’s first aid station to treat the wounded. After the encirclement of the Chancellery in mid-April, 1945, she remained in the bunker and assisted in 500 operations until she was captured by the Russians.

Erna Flegel repeatedly mentioned Professor Haase to her interrogator but never said a word about Dr. Schenck. According to Schenck’s memoirs, however, he practically was the only surgeon with whom she worked at that time.¹

Nurse Flegel frequently saw Hitler and his assistants when she visited his quarters to fetch supplies for her operating room. Many of her statements consist of observations on Hitler and his entourage, mixed with her admiration for her Fuehrer and sadness over his present fate. She had become a friend and admirer of Martha Goebels, the wife of the propaganda minister and approved of Mrs. Goebels’ decision to poison her six children. She was critical of Eva Braun, Hitler’s mistress, whom she found dull and silly. Whilst Dr. Schenck repeatedly deplored the unhealthy conditions in the bunker, Flegel insisted that electricity and water had remained amply available until the end, thanks to the modern equipment and the skill and dedication of the large technical staff.

Shortly after midnight, on April 30th, Hitler summoned Professor Haase, nurse Flegel and their medical helpers to his quarters to thank them for their care of the wounded. Again Flegel fails to mention Dr. Schenck. She grieved over the Fuehrer’s ghastly appearance and added that during the visit a “brown sister” (a Nazi nurse?) suddenly became hysterical, broke into tears and loudly assured Hitler that she believed in him and in the final victory. The Fuehrer quietly answered that “everyone should hold out and fall if required by fate.” Throughout the whole day Flegel repeatedly questioned Professor Haase about Hitler’s fate and when he ignored her last inquiry around 6:30 that evening, she knew that Hitler had killed himself. On May 1st, the people in the bunker, released of their oath to their leader, committed suicide or tried to escape through the Berlin inferno.

In the late morning of May 2nd, the Russian soldiers entered the bunker. They behaved correctly and respected the medical quarters which had been decorated with large Red Crosses. The Soviet commanding officer allowed the German nursing staff to lock their doors at night as he could not vouch for his men’s conduct, a puzzling admission for the disciplined Germans.

On May 3rd, nurse Flegel was taken to the OGPU headquarters in the nearby German Institute for the Blind. (She did not know that the OGPU had been renamed NKGB in 1943). She was lodged in the cellar and interrogated daily until May 10th, when the Russians took her to two Berlin hospitals (first the Kreuzberg then the Koenigwusthausen) to attend German wounded POWs under Soviet supervision.

The report ended at that time and did not explain how Erna Flegel fell into American hands in November, 1945, nor what happened to her after she was released by the OSS.

A commentary was added to the report. It was written after 1978, as it quotes O’Donnel’s book which was published in 1978.⁴ The name of the commentator has been blackened by the CIA censor. The writer comments on how faithful to, and admiring of, her Fuehrer Flegel had remained and suggested that she probably was the hysterical “brown sister,” as stated

by O’Donnel in his book.⁴ O’Donnel based his claim on his interviews with Dr. Schenck in West Germany in the 1970s. In his books and his correspondence with the present author, however, Dr. Schenck claimed that the hysterical nurse was his nurse anesthetist whose name he had forgotten. Was his memory failing him or was he protecting nurse Erna? Was Flegel also protecting Schenck when she omitted his name to her interrogator?

The fate of Erna Flegel is unknown. Her name disappeared from the annals of WW2 after November, 1945.

References

1. Defalque RJ. Surgery in Hitler’s Bunker. *Bull Anesth Hist* 2003; 21(2):1-6.
2. Helms R. A Look over my Shoulder. New York: Random House, 2003, p. 61.
3. Helms R. Statement of Erna Flegel, RN. Document MORI 47356. CIA Library.
4. O’Donnel JP. The Bunker. Boston: Houghton Mifflin, 1978, pp. 160-161.

MedNuggets

by Fred J. Spielman, M.D.

Professor

Department of Anesthesiology, University of North Carolina

Some of you ask why it is necessary to talk with the patient or his relatives regarding the anesthesia. We answer this by saying that in some communities we are forced to give anesthetics in the presence of relatives or their friends. It would be most unfortunate for the anesthetist if he decided to give a patient a spinal anesthetic and when he started the procedure in the operating room either the patient or the observers expressed their objections.

—George S. Mechling

Southern Medical Journal 35:83, 1942

With this form of anesthesia (spinal) the most frequent complication encountered is postoperative headache. Occasionally, the headache is quite severe and the patient is very uncomfortable. The application of the magnesium sulphate enema method for lowering the cerebrospinal pressure used in head injury cases immediately controls the headache in almost all instances.

—Harry Koster

Surgery, Obstetrics, and Gynecology
49:617, 1929

When possible, blood should be brought to room temperature by exposure to room air. Blood being given through infusion, if cold, causes veins to contract and definitely slows the flow of blood. Hot towels or packs over the course of the vein will dilate and facilitate the flow of blood through it.

—Max S. Sadove

Surgery Clinics of North America
February 1951; 55

The fear of litigation must not permit us to be deprived of this useful technique (spinal) in those circumstances where it is indicated.

—Editorial

British Journal of Anaesthesia 31:141,
1959

To speak of only one of the after effects of anesthesia: it causes vomiting at times to such a degree as to enhance profound systemic disturbances which may result fatally, to say nothing of causing extreme distress and suffering extending over a period of days. No wonder then that bright minds of medicine have persistently endeavored to get at the etiological factors

of the vomiting following anesthesia and if possible to find some means to overcome it.

—H. Grad

American Journal of Obstetrics and Diseases of Women and Children 49:594,
1904

Introduction in America ninety years ago, enthusiastically received throughout the world, and impelled by the ever increasing needs and opportunities for its application, one would have predicted that the development of this specialty would have been systematic, logical and continuous. Contrary to this expectation its progress has been apathetic. For this apathy the medical school has been chiefly responsible, the surgeon particularly and the anesthetists specifically.

—Arthur M. Wright

American Journal of Surgery 34:407,
1936

In some hospitals it is the practice, after the patient returns to his room, for the nurses to try to get him to react. This is done by their gently slapping the patient's face, asking him his name and address, or engaging in any other sort of *tomfoolery* that comes into their heads. I strongly believe that a patient's recovery from an anesthetic should be as smooth and uneventful as possible. This will not be the case if he is to be annoyed and subjected to asinine questioning.

—Amos R. Koontz

American Surgeon 21:78, 1955

The enormous advance in the science of anaesthesia over the past few decades has not always been accompanied by increased consideration for the patient's attitude to anaesthesia.

—Mark Swerdlow

Anaesthesia 6:96, 1951

Relief from the pain of childbirth has to be the anticipated privilege of every parturient.

—O.C. Phillips

Anesthesiology 26:440, 1965

The financing of an organized department of anaesthesia should not involve an additional cost to the hospital. Anaesthetic agents which are expensive, such as gas

and spinal preparations, should be changed directly to the patient, but ordinary agents such as ether, chloroform or ethyl chloride should not bear a separate fee but should be absorbed in the operating room fees.

—B.C. Leech

Canadian Medical Association Journal
31:226, 1934

Perhaps there are few human relationships fraught with such important consequences as that between the anxious frightened patient and the anesthetist.

—Henry G. Mehrtens

Current Researches in Anesthesia and Analgesia 13:41, 1934

Anesthesiology will grow in stature as it increasingly provides knowledge and skills which are unavailable elsewhere in the medical apparatus.

—William E. Porter

Anesthesiology 25:436, 1964

In cesarean section local anesthesia is almost 90 per cent successful. In arguing with the surgeons regarding local as opposed to spinal anesthesia, I always ask this question: granted that local anesthesia is practical, and there is no doubt that it is, which is safer, to inject Novocain into the spinal canal or into the skin?

—Joseph DeLee

American Journal of Obstetrics and Gynecology 20:845, 1930

It has been an inevitable result of the growth of anaesthesia in knowledge and technical achievement that the activities of the anaesthetist have ceased to be confined to the operating theatre, and that he has gradually come to the position of being a collaborator with, and at times a consultant to members of the medical profession working in other fields.

—R.A. Gordon

Canadian Medical Association Journal
60:251, 1949

Our own specialty has been negligent in exhibiting an interest in this fascinating field and too often obstetrical anesthesia is left to a most inexperienced group.

—Virginia Apgar

Bulletin of the New York Academy of Medicine 26:474, 1950

Book Review

Diz JC, Franco A, Bacon DR, Ruprecht J, and Alvarez J: *THE HISTORY OF ANESTHESIA*, Proceedings of the Fifth International Symposium on The History of Anesthesia, Santiago Spain, September 19-23, 2001, Excerpta Medica, International Congress Series, Elsevier Science B.V., Amsterdam, The Netherlands, 2002, 623 pages, \$75 US.

by Adolph H. Giesecke, M.D.

*Professor of Anesthesiology and Pain Management
Former Jenkins Professor and Chairman
and*

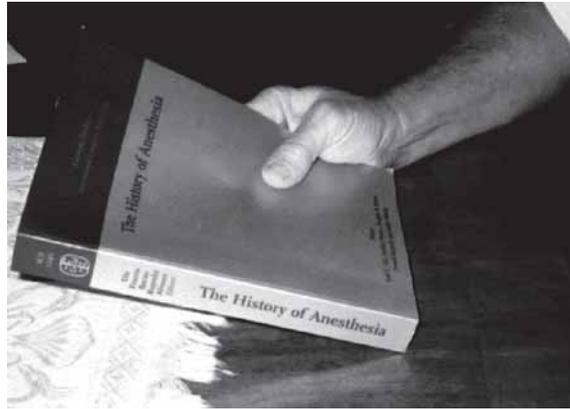
Donald Wallace, M.D.

*Professor of Anesthesiology and Pain Management
University of Texas Southwestern Medical Center*

We jumped at the chance to write a review of the proceedings of this important meeting even though we admitted a serious conflict of interest. We attended and presented papers at the meeting, which are included in the proceedings. For that reason we will refrain from comment on our contributions. This was truly a memorable international Symposium, with contributions by historians from many countries. Like the pilgrims of the past, many traveled to this peaceful historic Spanish venue; a journey completed just days after the horror of the terrorist attack of 9/11 on the World Trade Center towers.

The meeting was a grand production and so is the book. Like the sessions at the meeting the book is divided into ten sections: Introduction, Anesthesia in Antiquity, Oxygen and anesthesia, Spinal anesthesia, Resuscitation, Pioneers in anesthesia, Society and education, Spanish anesthesia, Anesthesia and the arts, and Miscellaneous. Each section is a collection of papers that fit roughly into the category. Altogether 92 papers are included. English language is used throughout, although articles come from all corners of the earth.

In the introduction, J. Ruprecht of Rotterdam traces the history of the Symposia from the first in Rotterdam 1982, in London 1987, in Atlanta 1992, in Hamburg 1997, and finally to Santiago de Compostela, Spain 2001. Each meeting has revealed significant historical material, some confirming existing knowledge and some refuting the traditional historical dogma with powerful new revelations. After each of the five symposia, proceedings have been published to provide a valuable resource to research historians. The quality of all of the publications has been good but this one is excellent. The cover, paper



and illustrations are superb.

The section "Anesthesia in the Antiquity" has papers on the widespread use of the poppy for relief of pain in ancient civilizations. From Hellenic to Byzantine times, significant knowledge existed of plants with analgesic, sedative, and anticholinergic properties. From Epidauros in the 4th century BC, stone inscriptions depict acts of healing by temple priest/physician and a priestess/nurse captured in a fine black and white photograph. Interestingly another photograph of stone inscriptions from the sanctuaries of Asclepieion shows cures performed under sleep induction, a ritual act known as "enkoimesis". Elsewhere in the book, heterogeneous evidence from many papers reveals the human preoccupation with the search for pain relief in domestic artifacts and jewelry, poppy symbols, coins, and philately.

Of great interest is a history of clinical oxygen monitoring, introduced with an article by John Severinghaus. Beginning with the discovery of oxygen by Scheele in Sweden (1772) and Priestley in England

(1774) advances in techniques and knowledge of oxygen analysis in solutions and tissues are continuously described. Another paper discusses the discovery and early uses of oxygen in France. Lavoisier studied the reaction of oxygen with metals and many other substances, and named the "most healthy part of the air - oxygen".

The "Evolution of the pulse oximeter" is illustrative of a truly international

history of endeavor. In a most informative paper, Yaksh Pole mentions the discovery (1864) by Hodde-Sevler that oxygen changed the color of a part of the blood, which he later crystallized, and called "Hemo-Globin." Karl Matthes of Austria constructed the first continuously reading oximeter, and stated its principle. The pioneering work of the Japanese, Takuo Aoyagi the inventor, and Susumu Nakajima, evolved into the modern pulse oximeter. Finally the well-known contributions of William New, Mark Yelderman, and Jack Lloyd brought the pulse oximeter into the operating rooms.

Donald Caton presented a new era in anesthesia for obstetrics, which began more than 100 years ago. This was the first use and careful evaluation of spinal for vaginal delivery by the Swiss obstetrician Oskar Kreis. Caton emphasized the physiological implications of Kreis' work, which confirmed that spinal anesthesia is clinically useful, and observed that uterine contractions were hardly changed. Contractions continued even in the presence of the neuraxial block. After Kreis' paper

a whole series of new studies of the innervation of the uterus followed with suggestions to block the sensory nerves specific to the pain of parturition. Another outgrowth of Kreis' work was the subsequent introduction of epidural anesthesia.

Carlos Parsloe gathered from the early literature unusual reports of high or total spinal anesthesia for operations on the arms, neck, and cranium. The enthusiastic reports described complete recovery without any special measures.

The paper titled "Researches on supine hypotension in pregnancy" contributed by A.G. McKenzie recognizes the work of Frank Holmes, who explained the cause of sudden deaths with spinal anesthesia for Cesarean delivery, and worked to overcome severe prejudice in Britain against the use of spinal in the 1950's. Holmes was aware that Texas physicians McRoberts in Houston, and Howard in Dallas had identified caval compression as the cause of supine shock in pregnancy. Howard had originated the term "supine hypotensive syndrome". Holmes published his findings on 500 women during the last month of pregnancy. In 8.2% there was severe hypotension if the woman was supine. In a classic paper Holmes reported that tilt and forward displacement of the uterus under spinal anesthesia gave complete relief of grave hypotension.

A multidisciplinary group of consultants in Edinburgh: anesthesiologist, D. Bruce Scott; obstetrician, Melville G. Kerr; and radiologist E. Samuel measured caval pressures and provided radiological evidence of caval compression in late pregnancy. Subsequently, studies with obstetrician Martin M. Lees detailed changes in cardiac output, heart rate, arterial, and right atrial pressures. Other studies by Bieniarz of Caldeyro-Barcia's team in

Montevideo, Uruguay revealed the gravid uterus also compressed the abdominal aorta completing the picture of aorto-caval compression, which is relieved by uterine tilt.

Dr. Doris Cope presented the article titled "Development of cardiopulmonary-cerebral resuscitation in the twentieth century" by Peter Safar, who was unable to attend the Symposium. We expected and received an insightful historic account of this important medical advance. Late 19th century anesthetists could correct some complications of inhalational general anesthesia, for example airway obstruction, apnea, and pulselessness. However, an effective system of CPR had not evolved, because of an absence of communications between laboratory researchers, clinicians, and rescuers. Before World War II, open-chest CPR was practiced in some operating rooms. Pioneer work in trauma resuscitation progressed during the war, and finally in the 1950's, modern cardiopulmonary - cerebral resuscitation replaced methods of artificial ventilation taught for 100 years. Safar mentions that his interest in resuscitation research was ignited after his meeting in 1956 with James Elam who was interested in first aid, and had made measurements in anesthetized patients with mouth-to-mask or tube ventilation. By 1961 an effective CPR system had been assembled, and community-wide cardio-pulmonary resuscitation subsequently reported. Reversal of airway obstruction, apnea, and cardiac arrest accomplished with the combination of steps A-B-C was to be followed by steps D-E-F of advanced life-support and restoration of spontaneous circulation. At the millennium Safar proposed CPR 2000, with the specific recommendation, "Act rapidly; seconds count!" The extensive reference

list reveals many publications by Safar and associates of advances in knowledge of the mechanisms of modern CPR.

The anesthesiologists major role in the development of intensive care/critical care medicine is illustrated. In the 1980's and 1990's key reports by Safar and other investigators confirming a breakthrough - simple and safe mild resuscitative post-arrest hypothermia. Clinical trials of mild hypothermia are now being reported with positive results. Finally, the practice of resuscitation medicine during 20th century is recognized as a positive force in human evolution. Safar concludes with a call for ongoing dialogue to address ethical dilemmas and resuscitation.

The book has many notable papers on the discovery of anesthesia, education and safety issues, and of the lasting impact of the work of many pioneers; for example, the unique contributions of Sir Robert McIntosh, M.T. Pepper Jenkins, Virginia Apgar, Henry Boyle, Jean Henley, Jose Usubiaga, Paul Zweifel, Massey Dawkins, Hugo Knipping, August Bier and many others to anesthesia in many countries. International interest is created by contributions of authors from the European nations, South American nations, Asia, Australia, New Zealand and the United States.

The book is a well-edited, high quality publication of modest price, and should find a place on the shelves of anesthesiologists, and anesthesia teaching departments. It is of compelling general interest to many specialists and practitioners. It is strongly recommended to medical libraries, and is an excellent reference resource. It should be popular with all who attended the 5th International Symposium on the History of Anesthesia, Santiago, Spain.



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From left, seated: Dr. Neil Adams; William D. Hammonds, M.D.; Kathryn E. McGoldrick, M.D.; Douglas R. Bacon, M.D.; Jonathan C. Berman, M.D.; and George J. Sheplock, M.D. From left, standing: Mary Ellen Warner, M.D.; Alan D. Sessler, M.D.; Lydia A. Conlay, M.D.; William D. Owens, M.D.; Doris K. Cope, M.D.; Elliott V. Miller, M.D.; John B. Neeld, Jr., M.D.; Susan A. Vassallo, M.D.; George S. Bause, M.D.; Adolph H. Giesecke, Jr., M.D.; and Patrick Sim, M.L.S.



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All papers and presentations are to be in English which will be the language of the Symposium. All papers must be received by Dr. Adams by 11th January 2005

Further information from:

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The winner will receive a cheque for £1000 and an item of engraved glass, the runners up will receive £300 and £200 respectively. These awards have been kindly donated by Mrs Regina Bullough to commemorate her late husband, Dr. John Bullough. A Consultant Anaesthetist at the Dartford Group of Hospitals in 1963 he successfully resuscitated a young woman at the road side following a traffic accident, an event which gained national media coverage.



Dr. John Bullough

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Bulletin of Anesthesia History

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