



# The Anesthesiologist and the Arts

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

### Part 1

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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 one 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:

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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 to 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,

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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 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

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year from now on? I have achieved all my previous 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 inadequacy 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 uninformed 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 biographics 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

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its silences and wonder at what might be there. 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 an 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 has 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

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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.

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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

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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.

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