



Peter Goldman



Peter Goldman was an accomplished scientist, a deep thinker, a gifted teacher, and a compelling writer.

Listen, for example, to the first two sentences of his last review article, entitled, “Herbal medicines today and the roots of modern pharmacology.”

Peter wrote:

The desire to take medicines is one feature which distinguishes man, the animal, from his fellow creatures . . . Thus, did William Osler express skepticism about remedies available in the early

20th century and an avuncular indulgence toward patients who wanted them.

Why don't more of our colleagues write like that?

Peter's dear friend and colleague Irv Goldberg wrote of his personal qualities:

Peter developed an interest in the role of the intestinal microflora [microbiome, in today's terminology], in the metabolism of drugs and other compounds of biological interest. I believe that it is accurate to say that his contributions beginning in the 1960's established Peter as a pioneer in the field. Peter, who was particularly critical of puffery in science, would have to agree with me. . . Peter was modest in accepting praise; he was devoted to clear, honest thinking in his research and in his lecturing to HMS students. His lectures were models of clarity, but also challenging for the best of the students, many of whom would come up to him at the end of a lecture to thank him for the rigor of his presentation. He accepted praise cautiously, such as when he was called (at our house at the Cape one summer) by Joseph Califano, Secretary of HEW under President Jimmy Carter, to offer him the position as head of the FDA — I was more pleased than he was. He later turned it down.

Peter trained in engineering physics at Cornell, and in “straight” physics at Harvard. Needless to say, even

before training in medicine at Johns Hopkins, where he was at the head of his class, he was well on his way to excelling in science.

Peter completed his internship and residency in medicine at Columbia-Presbyterian, where he also had an outstanding record. He was highly regarded as a devoted physician who applied critical scientific thinking to clinical care.

Following his residency at Columbia, Peter went to the NIH in the laboratory of Earl Stadtman, working with Roy Vagelos on aspects of fatty acid biosynthesis. Peter brought to this work an insight into the use of specific microorganisms to clarify the biochemical intermediates in fatty acid metabolism in higher species. To prepare himself for this undertaking, Peter enrolled in the summer course run by the eminent Dutch microbiologist, C.B. van Niel, at the Hopkins Marine Station (affiliated with Stanford University) in Monterey, California. Since 1930, this annual course had been designed to teach American students the methods and concepts of microbiology and comparative biochemistry developed by the Delft School. Many well-known biochemists, including Arthur Kornberg, took this course.

Peter was then invited to start his own laboratory at the NIH, where he conducted groundbreaking research for a decade. At the NIH, one of Peter's trainees was Mark Peppercorn, who wrote,

. . . in July 1970, when I entered his lab at NIH as a clinical associate in the Arthritis and Metabolic Disease Division. . . [it became] quickly apparent to me that I would be mentored by someone with extraordinary intelligence and insight as well as a healthy skepticism for existing norms. Over the ensuing two years I came to admire and appreciate his personal qualities of enormous warmth, caring, and patience as well as his wonderful sense of humor and in particular his devotion to his wife Peggy and his daughters Ruth and Mary. I came to his lab with no preconceived notions of a research project, but on day one he suggested we might look into the role of intestinal bacteria in the metabolism of drugs. This insight proved to be incredibly prescient for, as time evolved, the now so-called microbiome has been the subject of intense research worldwide and its role not only in drug metabolism but in a wide variety of human disorders including diabetes, cancer, obesity and dementia, has been well documented. His initial suggestion led us to study the metabolism of sulfasalazine, then the most widely prescribed drug for ulcerative colitis. We demonstrated that the intestinal bacteria alone are responsible for the cleavage of the azo bond linking the sulfapyridine moiety to 5-aminosalicylic acid (5-ASA). Subsequent studies revealed that the 5-ASA portion of the drug is solely responsible for the drug's efficacy, while the sulfa portion is responsible for 80% of the drug's side effects but serves as a carrier delivering 5-ASA to distal disease sites. These findings have led to a new generation of drugs, the 5-ASA agents, which remain the first line of therapy for ulcerative colitis. This work has recently been cited as one of the seminal contributions to the microbiome field and serves as a testimony to Peter Goldman's importance in scientific medicine.

Peter was recruited to Harvard Medical School by Irving Goldberg in 1972, and shortly thereafter

became the Maxwell Finland Professor of Clinical Pharmacology. Peter was also a Physician at the Beth Israel Hospital from 1972 through the end of his academic career. And he served on the faculty of the Harvard School of Public Health, where he was Acting Chairman of the Department of Nutrition for seven years.

Peter's research on reactions carried out by intestinal microorganisms led him to study the chemical transformation of a number of interesting agents, including metronidazole (Flagyl) and compounds containing highly stable carbon-halogen bonds. His work on the stability of the carbon-fluorine bond was acknowledged by Louis Sokoloff to have led him to use fluorinated glucose as tracer in his Lasker Award work on PET-scanning.

Lowell Schnipper, writing last year about Warner Slack, noted:

How I smile at the memories of Warner, Peter Goldman and me, a rumples triumvirate, having lunch on a regular basis in order to "solve the problems of the world." The shared laughs, keen insights, over-the-top idealism, astonishing accomplishments, infectious enthusiasm coupled with humility will forever be [among] my cherished memories of this special man . . .

And one of the many graduate students who worked with Peter noted:

More than most scientists, Peter Goldman cared about good scientific writing. The data mattered, of course, but what mattered too was how you wrote about them. Note here that "data" is a plural word, and Peter would have been the first to correct you had you failed to recognize this.

In 1980, I was a young graduate student at MIT, needing to test a hypothesis in germ-free rats. Peter allowed me to do so using his germ-free rat facility at the Beth Israel. My hypothesis turned out to be entirely wrong, as most do, but demonstrating its incorrectness, and doing so precisely, turned out to be of some interest.

So, I set about writing up our results. My first draft wasn't good, and Peter let me know it, in detail. Ditto for the second, the third, and more. Each set of Peter's comments on my draft manuscripts was insightful, though this being the era of the typewriter, and me being the typist, I'm not sure I relished having to start over again and again.

When Peter was finally satisfied, at draft number eight, as I recall, I submitted the paper to Science. It was accepted without revision. This has not happened to me since. It's the best paper I have ever written, and of course it would have not been so but for Peter.

I don't know why Peter spent so much time teaching and thinking with me, or why he cared so much about my paper being the best it could be. After all, I wasn't his student; I wasn't even a Harvard

student. I'll never know, but I'll always be grateful.

Peter was unusually widely read, broadly curious, and always succinct. About his research interests, Peter wrote simply, “Applications of basic sciences to problems related to clinical pharmacology and nutrition.” Indeed.

This medical school, this school of public health, this community of scientists and physicians were all enriched by the presence, work, friendship, and scholarship of Dr. Peter Goldman. We all are grateful, and we miss him.

Respectfully submitted,

David Golan, *chair*

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