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HAPPY BIRTHDAY TO THE PILL

REVIEWED BY RANDALL E. WEDIN

Oct. 15, 2001, is the 50th birthday of the birth control pill. Fifty years ago, Carl Djerassi and Luis Miramontes, working at Syntex in Mexico City, synthesized the first steroid oral contraceptive, 17 α -ethynyl-19-nortestosterone.

There's something ironic about celebrating the birth of the birth control pill. But then, as two just-published books illustrate, the story of the birth control pill is full of ironies, as well as colorful characters and intriguing subplots. Although written from two very different perspectives, these books find much common ground as they explore the complex relationship between the science of contraception and the worlds of politics, religion, commerce, and sexual behavior.

"Sexual Chemistry: A History of the Contraceptive Pill" is written by Lara Marks, a senior lecturer in the history of medicine at Imperial College, London. In clear and straightforward academic prose, Marks carefully documents the development of the Pill and makes the case that the Pill is a product of both culture and science.

From a cultural perspective, Cold War concerns about overpopulation and world stability paved the way for the development of an oral contraceptive. Two women--Margaret Sanger, leader of the American birth control movement, and Katherine McCormick,

SEXUAL CHEMISTRY: A HISTORY OF THE CONTRACEPTIVE PILL, by Lara V. Marks, Yale University Press, 2001, 372 pages, \$29.95 (ISBN 0-300-08943-0) and THIS MAN'S PILL: REFLECTIONS ON THE 50TH BIRTHDAY OF THE PILL, by Carl Djerassi, Oxford University Press, 2001, 308 pages, \$22.50 (ISBN 0-19-850872-7)



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philanthropist--played leading roles in this effort. From a scientific perspective, developments in endocrinology, steroid chemistry, and reproductive physiology led to the synthesis, clinical testing, and final regulatory approval, in 1960, of an oral contraceptive.

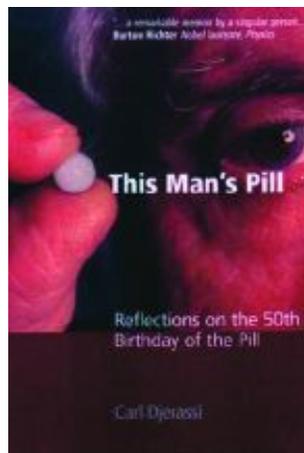
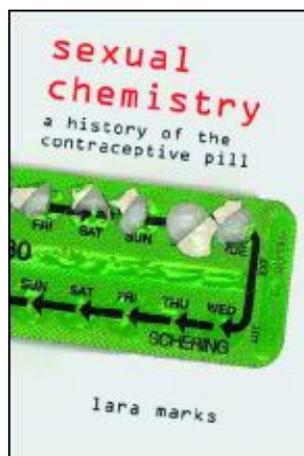
In the second half of her book, Marks follows the interactions of the Pill and society since it was introduced. At first, the Pill was rapidly embraced in the U.S. and Northern Europe, but not so quickly elsewhere. By the late 1960s, however, the public began to grapple with emerging news about health risks, including links between the Pill and thrombosis, breast cancer, and cardiovascular problems. More recently, those risks have been balanced by evidence of health benefits such as the prevention of ovarian and endometrial cancers. Marks makes the case that the Pill has led to far-reaching changes in many different sectors of our society, all the way from how women interact with their doctors to how individual Catholics feel about the hierarchy of the Catholic Church.

"Sexual Chemistry" is even-handed, thoughtful, and meticulously referenced. The book includes over 100 pages of end material, featuring nearly 1,200 notes and a bibliography of more than 500 sources. As discussed further below, the one area in which chemists may be disappointed with this book is the historian's failure to credit fully the critical role that chemistry and chemists played in the development of the Pill.

Although touching on many of the same topics as the book by Marks, "This Man's Pill: Reflections on the 50th Birthday of the Pill" could hardly be more different in its perspective, style, and format. Djerassi, who was awarded the National Medal of Science in 1973 for the first synthesis of an oral contraceptive, has written a memoir about the impact of the Pill on the world at large and on him personally. Everything about this book--from its eye-catching cover and unusually small page size (5 inches by 7 inches) to its lively narrative style and eclectic format of first-person prose, poetry, and excerpts from plays and novels--highlights the personal focus of the book.

The first half of the book chronicles the discovery and development of the Pill, or as Djerassi refers to it--the "genealogy and birth of the Pill." Using the metaphor of conception and birth, Djerassi notes that "one of the ironies of the Pill's career is that its own conception has been so hard to pin down." He highlights the contributions of many scientists, assigning them roles such as grandfather of the Pill (physiologist Ludwig Haberlandt), maternal grand-uncle (steroid chemist Russell Marker), maternal uncles (organic chemists Maximilian Ehrenstein and Hans Inhoffen), mother (Djerassi himself), father (endocrinologist Gregory Pincus), and obstetrician (physician John Rock). Djerassi goes on to present his perspective on wide-ranging issues such as health effects, regulation, litigation, cultural differences regarding contraception, the reasons we won't soon be seeing a male Pill, and ethical dilemmas associated with emerging techniques of in vitro fertilization.

In the second half of "This Man's Pill," Djerassi shifts focus and explores the many ways that his role in the discovery of the Pill has changed the course of his professional and personal life. Wrestling with the social, political, and



ethical issues involved in contraception and fertilization, Djerassi found himself transforming from a "hard" scientist ("the proudly macho adjective employed by chemists and other physical scientists") to "A Softer Chemist" (the title of Chapter 9). As he became more involved with exploring these issues, the style and content of his teaching at Stanford University changed dramatically. He became the only chemistry professor to join the faculty of Stanford's Human Biology Program, teaching a popular course called "Biosocial Aspects of Birth Control." Djerassi describes this experience as jumping the self-imposed disciplinary walls of chemistry, "the most insular of the hard sciences."

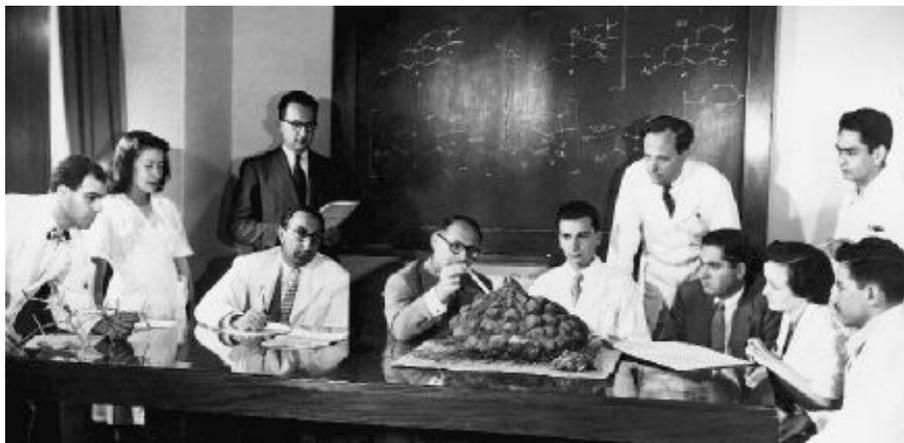
Soon, not only his teaching but also his professional writing began to change. In addition to the usual research articles, he published policy papers directed to a general audience. And before long, he was writing short stories and novels, inventing a new genre he calls "science-in-fiction." Most recently, his creative writing has led him to the theater, including a play titled "Oxygen," cowritten with Roald Hoffmann ([C&EN, April 30, page 34](#)).

Djerassi's multifaceted professional life provides a broad canvas for "This Man's Pill," but Djerassi goes even further, giving us a glimpse into some of the most private and personal events of his life. In one particularly poignant chapter, "The Pill and Paul Klee," Djerassi reveals why he turned from being a patron of the arts (collecting the works of Klee and other famous artists) to providing patronage of living artists (through the establishment of the Djerassi Resident Artists Program, an artist's colony in the Santa Cruz Mountains near Stanford).

The pivotal point in that transition was the suicide in 1978 of his artist daughter, Pami. Djerassi's grief--"If only, I add in retrospect, your death had not been necessary before I took seriously the patronage of the living"--reminds us that chemists are humans, too.

Both books offer a cautionary tale about the complex relationships between science, ethics, and society. Anyone who thinks that the birth control pill represents a one-time anomaly when the world of science happened to collide with other segments of society should consider the current debate about agricultural biotechnology. The reactions today to genetically modified (GM) food are just as complicated and diverse as the reactions to the Pill a generation ago. Maybe the parallels between the two stories shouldn't be such a surprise, because if there's one subject that's just as intertwined as sex with culture, religion, and medicine, that subject is food.

Even though the two books are so different in style and format, they reach many similar conclusions. Both authors delight in telling the story of Marker's discovery of the wild Mexican yam as a source of steroids (C&EN, Oct. 25, 1999, page 78). Both authors debunk the "feminist myth" that the Pill was invented solely by men. While Marks and Djerassi both acknowledge that the Pill certainly hastened the Sexual Revolution of the 1960s, both argue convincingly that the Pill did not cause it. Citing the example of Japan, where the birth control pill was not legalized until 1999, both authors emphasize that political, economic, and religious factors contribute to very significant differences around the world in the acceptance and use of the Pill. And both point to the same lasting legacy of the Pill--it separated the act of contraception from the act of sex, forever changing the ways we think about contraception, sex, and conception.



COURTESY OF CARL DJERASSI

CHEMISTS AND THE PILL Syntex team in 1951. On the table are Mexican yams that provided source for steroids. Djerassi is fourth from right.

There is, however, one important topic where Djerassi and Marks seem to see the world very differently--the importance of chemistry and chemists in the development of the Pill. The title of Marks's book, "Sexual Chemistry," is a bit misleading. Although it's a clever play on words, the title doesn't really reflect the amount of chemistry in the book, because only one of the book's 10 chapters deals with chemistry and chemists. Here, the creative work of organic and medicinal chemists, including Djerassi and colleagues at Syntex and Frank Colton and colleagues at G. D. Searle, is given short shrift when compared to the many pages in other chapters devoted to figures such as McCormick, Pincus, Rock, and Sanger.

Apparently, Djerassi also believes that histories of the Pill written in recent decades fail to give chemistry and chemists the credit they deserve. For example, he points out that "annointing Katherine McCormick as one of 'the indisputable mothers of the Pill' is as far-fetched as calling John D. Rockefeller one of 'the fathers of the Pill.' Financial support, valuable as it may be, can never be equated with creativity; otherwise the Medicis would be considered the greatest artists of the Renaissance." At another point, Djerassi wonders why did Pincus "make not a single reference to any chemist in his 1965 opus magnum, 'The Control of Fertility'?" Why does his book make no mention of how the active ingredient of the Pill actually arrived in his laboratory?"

I'm sure that a portion of my complaint (and Djerassi's complaint as well) is just the perennial lament of the chemist: "Why don't they appreciate us?" But I believe there's more to the story than just the natural human yearning for recognition and respect. One inadvertent clue to understanding the problem can be found in a typographical error in the otherwise-excellent "Sexual Chemistry." As a reviewer, I'd normally overlook a single typographical error, but this one is both egregious and, perhaps, instructive. On page 74, Marks includes chemical structures of the first two steroid oral contraceptives. The chemical structures are very awkwardly drawn, and in one case the oxygen atom in a carbonyl bond can be found floating alone in space, nearly a half-inch from the rest of the structure.

To a chemist, this mistake shouts out for correction. If a word had been misspelled in the title of a chapter, I'd bet that an editor or proofreader would have caught it. But the simple truth is that the language we are so familiar with as chemists--the language of structures, numbers, and formulas--is a language that the general public, including the highly educated public, does not understand. And it's probably naive for us to expect the public to understand our particular specialized language.

We are left, then, with a serious communication problem. As chemists, how can we illustrate our creativity, our accomplishments, and our passions to others if we can't use our native language?

Fortunately, Djerassi's memoir points the way to one solution to this problem. By telling stories that capture the attention of a broad range of readers, by sharing the details and emotions of his personal life, and by experimenting with other forms of writing, Djerassi has jumped the self-imposed disciplinary wall of chemistry. He's shown us a new language we can use to communicate the science and profession of chemistry to a general audience.

Maybe it's time for a few more chemists to write their memoirs.

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