DOI: 10.1002/anie.201308367

Carl Djerassi

Carl Djerassi: In His Own Words**

*Jeffrey I. Seeman**

In memory of Diane Middlebrook[†]

"I only hope that curiosity and interest are tempting the prospective reader [to read this] rather than some form of literary masochism or even worse: using it as a possible treatment for insomnia."[1] Carl Djerassi, 2013

Figure 1. Carl Djerassi, a man with a well-defined shadow. According to Djerassi, this photograph "illustrates the realities and illusions of shadows in a person's life," that person being Djerassi himself. Photograph courtesy Karen Ostertag.

Most geniuses are like mountains, towering in a single, given discipline. Carl Djerassi is like a mountain range, achieving heights in a multitude of disciplines. A pharmaceutical scientist and inventor. An academician. A chemist. A corporate executive. An entrepreneur. An author of fiction, nonfiction, plays, and poetry. An active public policy voice. A major art collector and philanthropist. An intellectual. A self-acknowledged workaholic, he is extremely focused and often brash, extraordinarily brilliant, somewhat narcissistic, highly impatient, and strongly driven. These observations are neither disputed nor unrecognized.

What I have sought to do in this paper and its companion paper, a profile entitled "Carl Djerassi's Search for Home"[2] *that appeared in* Chemical & Engineering News, *is to explore more than the facts. "What makes Carl Djerassi tick?" I asked Carl this question, and he responded: "The probable answer is and was my perpetual outsider status and home-seeking refugee complex". The phenomenon that is Carl Djerassi compels one to go beyond the record, beyond the almost unreasonable number of scientific and literary publications and books, beyond his CV, beyond his National Medal of Science and National Medal of Technology, beyond his spectacular philanthropy, beyond his marvelous imagination*

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[†] Diane Middlebrook (April 16, 1939–December 15, 2007) was a biographer, poet, teacher, and Carl Djerassi's third wife whom he always called "la ultima". She wrote, "With a biography there is no straight line; all is muddled. You don't know what you know, you don't know what you don't know; if you find anything you make a note about it because some day it may find its partner. You have to have very good ways of keeping track of what you have found and where you have put it".[5]

[**] This paper is a sequel to my previously published paper "Gilbert Stork: In His Own Words and in the Musings of His Friends"[4] which celebrated Stork's 90th birthday.

Supporting information for this article is available on the WWW under http://dx.doi.org/10.1002/anie.201308367.

and sometimes public bitterness, "to see the private figure behind the public mask".[3] We can obtain a measure of this man by appreciating, for ourselves, his passions as exhibited by his chemistry and by his own words.

Djerassi was born in Vienna on October 29, 1923, 90 years ago. He has been working full time ever since.

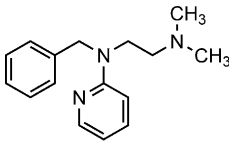
Except as noted, all the quotes herein are by Djerassi himself.

Scientific Achievements—By the Numbers

As of February 2014, Djerassi's CV lists 1248 scientific and 262 literary publications and over 100 patents. They include: 361 papers in the *Journal of the American Chemical Society*, 168 papers in *The Journal of Organic Chemistry*, 52 papers in *Tetrahedron,* 93 papers in *Tetrahedron Letters*, 21 papers in *Helvetica Chimica Acta*, smaller numbers in three dozen other journals, and seven technical books.

Djerassi's Early Days as a Pharmaceutical Chemist: Ciba and Syntex

In December 1939, at the age of 16 and with his Jewish Viennese mother, Djerassi fled Vienna and arrived penniless in New York City. His father, also Jewish, correctly concluded that he would be safe in Bulgaria, though the war separated father and son for ten years. Djerassi completed his undergraduate education at Kenyon College (Gambier, Ohio) in the fall of 1942. Then he began to work for Ciba Pharmaceutical Company in Summit, New Jersey, as a Junior Research Chemist. Within months, Djerassi with his senior colleague Charles Huttrer synthesized Pyribenzamine (also known as Tripelennamine), one of the first two commercial antihistamines.[6]

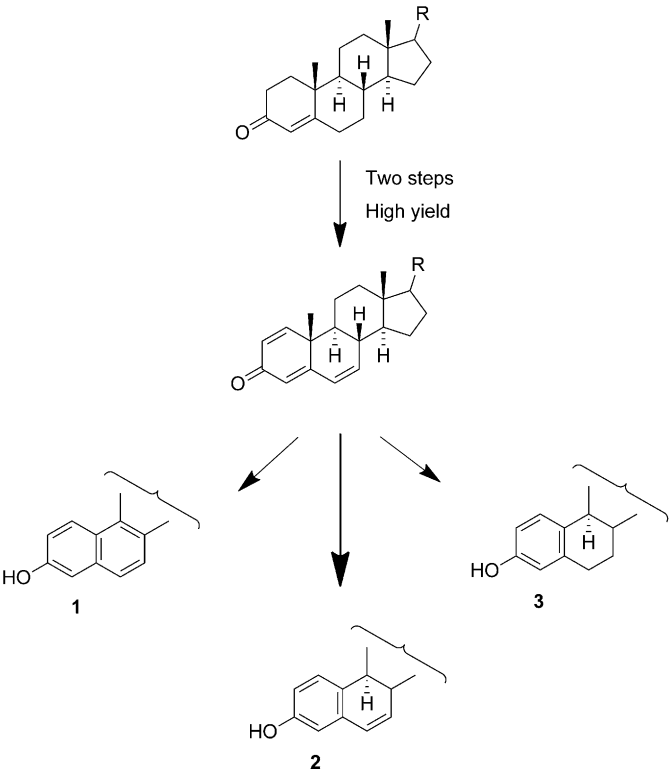


Pyribenzamine
Tripelennamine

Djerassi almost immediately realized that a PhD was a necessity and, after a year at Ciba (1942–1943), began his graduate work at the University of Wisconsin. Within two years, he had received his PhD (1945) under the supervision of Alfred L. Wilds. He rejoined Ciba in New Jersey but, after four more years as a Research Chemist, Djerassi—now demonstrably ambitious and impatient—moved with his wife to Mexico City as Associate Director of Chemical Research at Syntex. In 1949, a job in Mexico City was an unlikely stepping stone en route to a top-tier academic position in the United States. But Djerassi's strategy was brilliant if not fortuitous—being at the right place, at the right time.

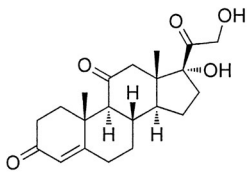
Together with George Rosenkanz, a Hungarian transplant via Zurich with a PhD from Leopold Ružička's group at the Eidgenössische Technische Hochschule (ETH), and Alejandro Zaffaroni, a biochemist from Uruguay via the University of Rochester, Djerassi succeeded in turning Syntex into the world's leading steroid research and development center. Within two years, Djerassi and his collaborators in Mexico City had an extraordinary record of achievements and publications (72) and many patents, including a patent on what would become one of the first commercial birth control pills. What follows are the highlights of Djerassi's pre-academic science.

In 1950, Djerassi and co-workers reported one of the first partial syntheses of the natural estrogens **1**–**3** (Scheme 1).[7]

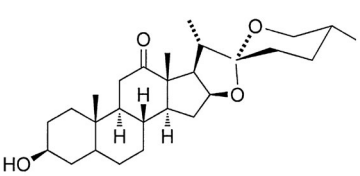


Scheme 1. A partial synthesis of all the major naturally occurring estrogens, subsequently used commercially, was reported in 1950 by Djerassi et al.[7]

In 1951, Rosenkranz, Djerassi et al. reported in the *Journal of the American Chemical Society* (*JACS*) the first synthesis of cortisone from plant raw materials.[8] To illustrate the competition in steroid chemistry at the time, three communications dealing with the synthesis of cortisone were received in the *JACS* offices within 21 days, and all three appeared in the August 1951 issue of the *Journal of the American Chemical Society*: Syntex/Rosenkranz and Djerassi's paper,[8] received June 22, 1951; Woodward's paper,[9] received July 9, 1951; and Merck/Tishler's paper,[10] received July 13, 1951. Djerassi subsequently reported the synthesis of cortisone from hecogenin (from sisal wastes) that became the basis of a process used industrially for many years.[11]

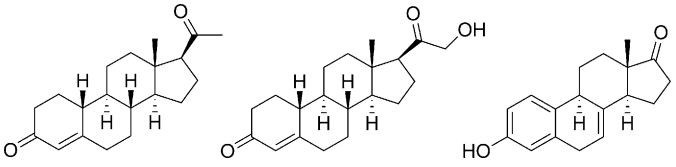


cortisone

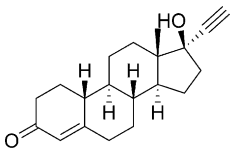


hecogenin

In 1951 and 1953, Djerassi et al. published the synthesis of 19-norprogesterone, of presumed C(10)-β configuration, subsequently proven to be so by optical rotatory dispersion (ORD). These breakthrough results established that a methyl group at C(10) was unnecessary for progestational activity.[12,13] Djerassi et al. also synthesized the first potent 19-nor cortical hormone, 19-nor-desoxycorticosterone (today named 19-nordeoxycorticosterone),[14] and the first synthesis of the natural estrogen, equilin.[15]



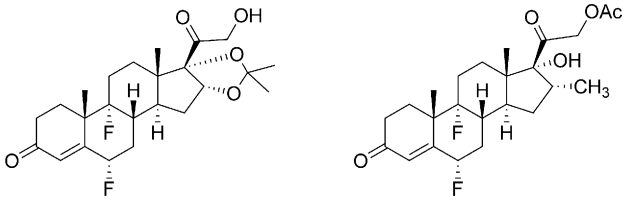
19-norprogesterone 19-nor-deoxycorticosterone equilin



norethindrone

In 1952, Djerassi, Rosenkranz, and Miramontes reported the synthesis of norethindrone,[16,17] the first orally effective superpotent progestational steroid which served, and still serves, as the chemical template for virtually all currently commercial 19-nor steroidal contraceptive agents.

In 1959, Djerassi et al. published the synthesis of a number of difluoro cortical hormones, one of which later became known as Synalar, "the most potent topical corticosteroid known at the time, whose introduction for the treatment of psoriasis and inflammatory conditions was largely responsible for the wide use of topical corticosteroids in medical practice".[18] Shortly thereafter, the Syntex group reported that 6α,9α-difluoro-16α-methyl corticoids (e.g., **4**) were a new class of powerful systemic corticosteroids, useful in the treatment of rheumatoid arthritis.[19]

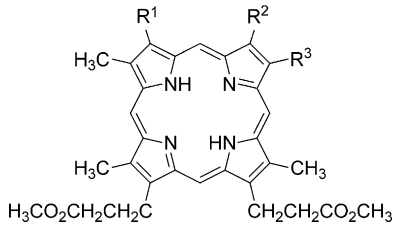


Synalar (fluocinolone acetonide) **4**

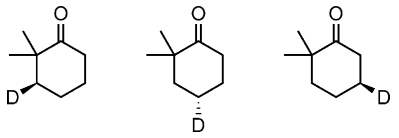
Djerassi's Academic Career: Diverse Areas of Organic, Natural Products, and Analytical Chemistry

In addition to the many publications and patents in steroid chemistry mentioned above, Djerassi published prolifically and in a wide range of subdisciplines of chemistry subsequent to his years with Syntex in Mexico City [eight years at Wayne University, now Wayne State University (Detroit, Michigan); and then at Stanford University (Stanford, California)]. In the second half of the 20th century, many chemists categorized and titled their papers in numerical order. Djerassi's academic research covered at least 12 different areas of focus. The publication year and title of his last paper in each of these 12 areas is listed below along with a key structure, or several key structures that represent the chemistry discussed therein. For example, Djerassi published 266 papers in the area of mass spectrometry, 132 in optical rotatory dispersion, and so forth.

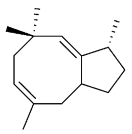
1986: Mass Spectrometry in Structural and Stereochemical Problems [Part 266]. Enhanced Structural Determination of Substituted Porphyrins by Ammonia Desorption Chemical Ionization Mass Spectrometry[20]



1981: Optical Rotatory Dispersion Studies 132. Conformational Isotope Effect in Deuterium-Substituted Cyclohexanones[21]

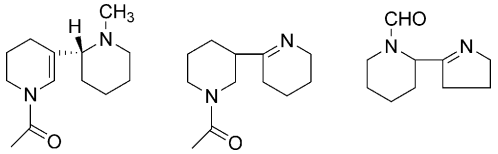


1979: Terpenoids—LXXVI. Precapnelladiene, a Possible Bio-synthetic Precursor of the Capnellane Skeleton[22]

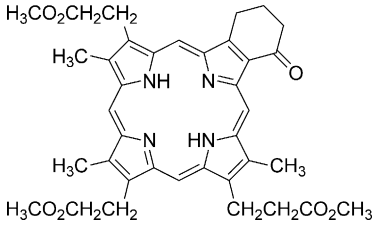


precapnelladiene

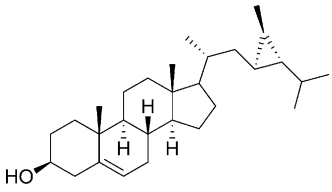
1974: Alkaloid Studies. LXVIII. Novel Piperidyl Alkaloids from *Lupinus formosus*[23]



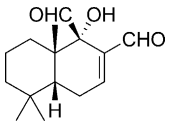
1987: Magnetic Circular Dichroism Studies 68. Substituent Conformational Effects in the Magnetic Circular Dichroism and Absorption Spectra of Free-Base Carbonyl Porphyrins[24]



1992: Minor and Trace Sterols in Marine Invertebrates 65. 23-Epidihydrocalysterol: A New Cyclopropane-Containing Sponge Sterol[25]

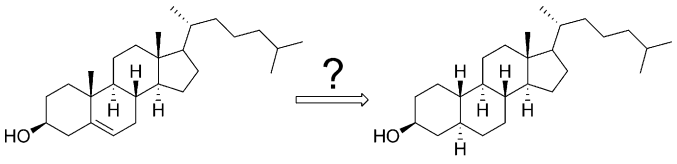


23,24- dihydrocalysterol



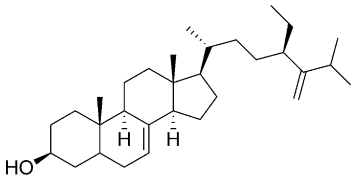
1982: Application of Artificial Intelligence for Chemical Inference XLII. The DENDRAL Project: Computational Aids to Natural Products Structure Elucidation[26]

1992: Biosynthetic Studies of Marine Lipids 39. 19-Norsterols: The Course of C-19 Methyl Elimination[27]



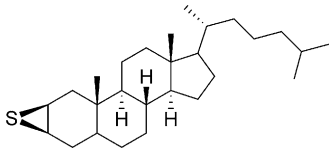
cholesterol 19-nor-5α-cholestan-3β-ol

1991: Phospholipid Studies of Marine Organisms 26. Interactions of Some Marine Sterols with 1-Stearoyl-2-oleoyl Phosphatidycholine (SOPC) in Model Membranes[28]

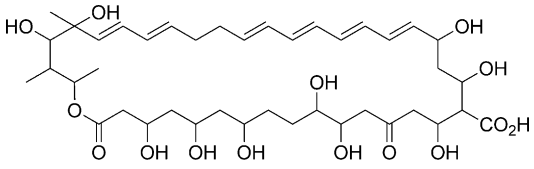


sutinasterol

1965: Studies in Organic Sulfur Compounds XVI. Synthesis and Reactions of Steroid Episulfides[29]

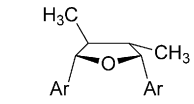


1967: Macrolide Antibiotics XV. Nystatin—The Structure of the Aglycone[30]



Postulated structure of the nystatin aglycone, nystatinolide

1962: Naturally Occurring Oxygen Heterocyclics. XI. Veraguensin[31]



Ar = 3,4-dimethoxyphenyl

veraguensin

Djerassi's Academic Career: IUPAC Lectures

Within a twenty-year period (1961–1982), Djerassi gave ten plenary lectures at IUPAC symposia. Thus, he published ten papers in *Pure and Applied Chemistry* during that period—eight of which were single authored. Below are the titles from each of these 10 papers.

1961: Application of optical rotatory dispersion studies to problems in natural products chemistry[32]
1963: Mass spectrometric investigations in the steroid, terpenoid and alkaloid fields[33]
1964: Isotope labelling and mass spectrometry of natural products[34]
1970: Applications of mass spectrometry in the steroid field[35]
1971: Organic chemical applications of magnetic circular dichroism[36]
1975: Natural products chemistry 1950–1980—A personal view[37]
1978: Recent advances in the mass spectrometry of steroids[38]
1979: Recent progress in the marine sterol field[39]
1981: Recent studies in the marine sterol field[40]
1982: The DENDRAL project: Computational aids to natural products structure elucidation[26]

Literature Achievements—Quantified

Djerassi has published five novels,[41–45] two nonfiction books,[46,47] two collections of poetry,[48,49] nine "theater" plays and two "pedagogic" plays (Figure 2),[50–59] three collections of essays and short stories,[60–62] and an art book.[63]

Figure 2. Djerassi with a Newton wig, from his play CALCULUS,[52] Dresden, 2004. Photograph courtesy Isabella Gregor.

Autobiographies and Memoirs

In addition to one oral history[64] and many interviews[65,66] and TV and other documentaries[66] (for other references, see: http://djerassi.com/), Djerassi has written three autobiographies and one memoir:

- Steroids Made It Possible (1990)[67]
- The Pill, Pygmy Chimps, and Degas' Horse (1992)[68]
- This Man's Pill—Reflections on the 50th Birthday of the Pill (2001)[69]
- Der Schattensammler. Die allerletzte Autobiografie (Treading on Shadows. The Very Last Autobiography) (2013)[1,70]

"I may be the only person in chemistry who has written what amount to three autobiographies [as of 2013]. You'd think one is enough. Two is overkill, but three?" [65]

"Denying any self-promotional motive would be pointless, since nobody would believe this of a multiple autobiographer in spite of any firm denial. So let me turn the argument around and say that only if one has already published some self-reflections or autobiographical accounts two decades earlier, is it worthwhile to revisit them and reinterpret some of their deeper meanings as the end of the author's life is rapidly approaching… " [1]

Who Is Carl Djerassi?

"I was always an intellectually polygamously oriented person… my own behavioral practices, which perhaps are a bit extreme… the last time I went on a vacation was in the middle 1990s. I used to look at vacations in a macho sort of way: 'Aah all they're doing is going on vacation.' But in fact it's stupid of me to say that… workaholism may be productive for science, but not for a full life… even though I don't practice it to any extent. I always hope that I'll improve the next year… " [65]

An excerpt from Djerassi's autobiographical poem *Hairshirt*:

Jew—survivor:
  not native-born.
Affluent—self-made;
  not inherited.
Well-read—though not a poet;
  a scientist (distinguished).
Self-assured—to the public;
  it even fooled her.
Overpowering—to most, at least initially;
  she seemed to cope.
Arrogant—often barely tolerable;
  at times becomingly;
Aesthetically acute—sometimes humorous;
  she particularly liked the humor.
Strikingly impatient—in everything but love;
  at one time she would have agreed.
Elegant—in dress and speech (accented);
  she adored the accent.
Age—past the prime;
  (he thought not too noticeably).
Hair—silver waves;
  (his narcissistic synonym for grey).
Eyes—brown and piercing;
  his best, yet most disturbing feature.
Nose—she called it aquiline;
  (he never did).

Anything else of relevance?
Not really, except his loneliness.
So overpowering,
So persistent,
As to be overlooked by most
(Including her).[48]

Reflections on Personal Happiness

"[My] intellectual bigamy is not necessarily a prescription for unqualified happiness… [but there is] excitement and diversity in such a life." [68]

"Some [of my brutal honesty is due to my] bitterness. And that is perhaps one of the few things that I can learn to improve, and for that I have a spectacular wife [Diane Middlebrook, Figure 3] who is very insightful in that, because this is an enormous advantage I've had, to meet really the love of your life late in life." [71,72]

Figure 3. Djerassi with wife Diane Middlebrook and stepdaughter Leah Middlebrook, 2006. Photograph courtesy David Loveall.

A Refugee

"When my mother and I left Bulgaria [in November 1939], I did not see my father until ten years later because during the war there was essentially no communication during this time

Figure 4. Djerassi with grandson Alexander and son Dale; view from Mount Vitosha, Sofia, 2013. This photograph was taken during their visit to Bulgaria and Djerassi's former high school ("American College of Sofia") which presented him with an honorary high school diploma (he never graduated from high school) on the same day as the "American University in Bulgaria" awarded him an honorary doctorate. "With the deaths of my daughter and Diane, and also of my two previous wives, my immediate family remains only my son Dale, my grandson Alexander, and my stepdaughter Leah Middlebrook, whom I consider my greatest treasures."

between Bulgaria and the United States… My mother and I arrived in New York in early December with something like twenty dollars in our pocket because there was no way of getting any dollars out of Europe." [64] That $20 was immediately stolen during their first taxi ride.

Figure 5. Left: Djerassi with his father, Samuel Djerassi, Sofia, 1939. Right: Djerassi with his mother, Alice Djerassi, New York City, December 1939.

As a Jew

"If I hadn't been born a Jew, I wouldn't have left Vienna and would've doubtlessly ended up as an Austrian physician… but I am a Jew—and never forget it… I did not tell anyone… just as I hardly disclosed anything about my past life. It was my way of attempting to 'pass', which even without my accent would not have been easy in [the] small Midwestern town where I was the only Hitler refugee." [68]

"For years on end, I lived with the self-imposed, but rarely admitted, burden of wondering how to dodge the question 'Are you Jewish?' without lying; of anticipating that question with typical Jewish paranoia, and attempting to change the direction of the conversation, when the other person may never have even thought about the topic; and yet on numerous occasions displaying from my side the same inquisitiveness, 'Is he Jewish?' " [1]

My Mother

"After our immigration into the United States, my mother threatened on numerous occasions to commit suicide—a form of emotional blackmail which eventually made it unbearable for me to respond and led to our estrangement. Yet she lived until the age of 91 to die of dementia." [1]

Ambition

"Ambition and wish for recognition have no time line. With me, my ambitions at 25 and at 90 are very similar." [73,74]

"In fact [many other eminent chemists have] fierce ambition. Just because they hide it—[some] out of inherent [cultural] modesty, [or] Woodward by proud entitlement that did not even allow discussing it because he felt (correctly in my opinion) that he was entitled to it. Just because I am honest about [it]—in my writings and in open discussions with you—does not mean that I am more ambitious. I rather doubt it, except that I am ambitious in many areas, not just chemistry, whereas the others simply focus on their scientific persona." [74]

Figure 6. Woodward, celebrating his prowess in a playful fashion, perhaps as a display of one-upmanship, with Vladimir Prelog (left) and Djerassi. Riga, June 1970. Photograph courtesy D. E. Koshland.

"How Could Someone Be So Prolific?"

"Whenever [I give] lectures for awards or anything like that, it comes out that this man Djerassi has published a thousand and some papers. People will usually laugh, gasp, or sometimes make a comment that is both admiring, envious, and critical all at the same time…" [64]

"You owe it to the students and those who collaborate on work with you, for their own professional advancement. First of all, if you persuaded them to work on a project, you obviously thought at that time that it was worth doing, and they thought it was worth spending a year or X years on it. Presumably, if they completed it, it was good enough to be published. Since at the time it may not be that important to your own career anymore, you should do one of two things. Either you let them publish it themselves and you have nothing to do with it, or you do it with them." [64,73]

Importance of Recognition

"Why is it that people in certain creative areas, such as writers, composers, actors, playwrights, and scientists, are completely dependent in their self-image on the opinion of others… ? Why is it that a great musician will not be convinced he is a great musician without critics or other musicians saying that? Why is it that a great writer depends on book reviews, and why is it important to have them? Can you be a great scientist if other scientists do not believe so? The answer is no, you cannot." [64]

"Name-recognition… lust for recognition beyond the community of [one's] peers.. ego, the ultimate sources of all this hunger for success… " [43]

Figure 7. Djerassi receiving the National Medal of Science from President Richard M. Nixon at the White House, Washington, D.C., 1973. This photograph was taken two weeks after Djerassi had been included in the Watergate "White House Enemies List".

Djerassi—An Immigrant, a Refugee

"Although my mother tongue is German, my literary writing is entirely in English, the only language in which I am truly comfortable since my immigration to the United States as a teenage refugee from Vienna." [75]

Geboren, Vertrieben, Versöhnt (Born, Expelled, Reconciled)

"On October 30, 2003… Dr. Erich Haas, chief of the special issues department of the Austrian Post Office… asked whether I had any objection to a special stamp [honoring me]… The inscription on the stamp's left upper corner [Figure 8] is almost a verbatim translation of the English text that can be found on the base of the Rickey sculpture that is sited just outside the Albertina [Museum in Vienna]. When I made that donation to the museum, I had proposed that instead of German the plaque be written in the language of the country that had accepted me after my forced emigration from Austria, but I had used the somewhat euphemistic expression '1938 exiled'. I would like to give credit to the Austrian Post Office for substituting the more honest '1938 vertrieben' on the stamp, as that German word means 'expelled'." [76]

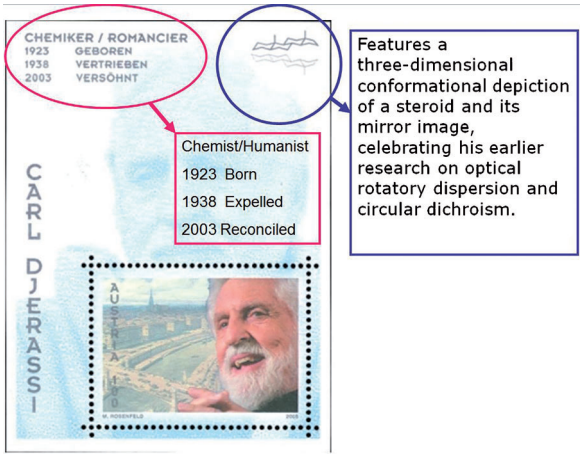


Figure 8. The Austrian stamp honoring Djerassi with notations from a presentation by Richard N. Zare. Photograph courtesy R. N. Zare.

"Since March 8, 2005, people in Austria—by now thousands—have been licking the back of my head and presumably will continue doing so for quite a while. Unless, of course, there are 400000 stamp collectors in the world who would not want this complicated stamp image to be marred by an impersonal post office franking machine in which case I shall remain unlicked." [76]

"I have always made it plain that 'reconcile' does not mean 'forgive' or 'forget', but it does mean moving forward." [1]

"Baggage of Contemporary Science"

"In my own discipline, chemistry, in the 1970s, a research group of 20 under a single P.I. would have been considered very large. Now plenty of 'superstars' are the sole P.I.'s for groups ranging from 35 to 50 graduate students and postdocs. Universities and grant-giving institutions have tolerated or even promoted this tendency, while ignoring the heavy associated nonfinancial penalty… [I propose] imposing an upper limit of 20 to 25 members per single P.I. might liberate millions of dollars of granting funds annually. To provide a true incentive, allow the 'savings' to remain within the university by diverting them exclusively to peer-approved

grant applications by young faculty members or for initial start-up funds for new junior faculty." [77,78]

"Scientists operate within a tribal culture whose rules, mores and quirks are generally not communicated through specific lectures or books, but rather are acquired through a form of intellectual osmosis in a mentor–disciple relationship. Scientific 'street smarts'… are absorbed by observing the mentor's self-interested concerns with publication practices and priorities, the order of the authors, the choice of the journal, the striving for academic tenure, grantsmanship, *Schadenfreude*—even Nobel lust. On their own, budding scientists discover the glass ceiling for women in a male-dominated enterprise, the inherent collegiality of scientific research, and the concurrent brutal competition. Most of these issues are related to the desire for personal recognition and even financial rewards, and each is colored by ethical nuances." [1,79]

Note: [*Schadenfreude* is the pleasure one receives from misfortunes of others.]

National and International Policy Observations and Recommendations

From *Science*, 1970: "Of world crisis problems, only total nuclear or chemical–biological warfare receives higher ratings than the problems arising from the world's burgeoning population,… and only fertility control requires experimentation in humans for its ultimate solution… Fundamentally new birth control procedures in the female (for example, a once-a-month luteolytic or abortifacient agent) and a male contraceptive pill probably will not be developed until the 1980s at the earliest, and then only if…

"Development during the next decade of practical new methods of birth control without important incentives for continued active participation by the pharmaceutical industry is highly unlikely. If none [is] developed, birth control in 1984 will not differ significantly from that of today." [80]

From *Bulletin of the Atomic Scientists*, 1980, promoting and forecasting the eventual development of ICIPE (the International Centre for Insect Physiology and Ecology (ICIPE) in Kenya; see: http://www.icipe.org/): "The question is raised whether a basic research center of an internationally recognized standard of excellence can be created in a country where no such centers exist and where the requisite scientific manpower is not yet available. An affirmative answer is provided by proposing a model which embodies the following three features: (1) an international cadre of postdoctorate research fellows; (2) overall scientific direction by a group of part-time directors from major universities in different "developed" countries; and (3) selection of research areas with a possible ultimate economic pay-off and a maximum multiplication factor—a typical example from Mexico [Syntex and 'the pill'] being cited in support of this thesis."

"From the standpoint of scientific development, a 'developing' country becomes a 'developed' one when original research emanates from it." [81]

From *Angewandte Chemie International Edition,* 2004: "I propose that the major professional chemical societies of the highly developed countries form a steering committee to encourage North/South interaction of new approaches to chemical safety… to raise interest in the chemistry and related science departments of the major universities of these major countries in projects that deal with fundamentally new approaches to chemical decontamination and, perhaps even more importantly, to the development of novel and simple monitoring devices. At present, this type of research carries no prestige whatsoever in the elite universities of the advanced industrialized countries…" [82]

From *Lancet*, 2006*:* "[The technique of sex detaches the offspring] from the domain of tradition… a much deeper issue is illustrated: detachment of the child from traditional procreation may well be the most fundamental ethical issue raised by techniques of assisted reproduction. Neither science nor society has so far adequately prepared us for that consequence of sex in an age of mechanical reproduction." [83]

From *ChemMedChem*, 2007: "The use of performance-enhancing drugs—precisely and appropriately categorized as 'doping'—has spread like a pandemic through sports… Whatever we do in terms of legalizing drug abuse in athletics, we are heading in the direction of changing the Olympics from a competition of athletes to one of chemists, where the emphasis will shift abruptly from body to mind. Will new sport records then be recognized with double gold medals: one to the athlete and the other to the *lusu-chemist* who really made the newest record possible?" [84]

From *How I Beat Coca-Cola*, 1991*:* "[T]he ozone layer, the global greenhouse effect, toxic pollutants, plastics, pesticides—[are all] blamed… on the chemists… eventually, chemistry will also provide most of the solutions… The world might well be better off if we had more chemists and fewer lawyers in our government and legislatures. But the fundamental problem behind all the complicated environmental and ecological issues is not the number of chemists and lawyers but the number of *people* in the world—the extra billion we add each decade… " [75]

One-upmanship

"One-upmanship—trumping competitors and colleagues alike—is endemic among research scientists. Winning an argument is crucial—as is the accompanying admiration and envy it engenders… I have practiced one-upmanship for most of my adult life—often to my detriment… still in full bloom on my ninetieth birthday… " [85]

Who Shall Be Credited for the Oral Contraceptive? The Clinicians or the Chemists?

Djerassi criticized the clinicians' "… bizarre [claim] that the 'birthday' of the Pill should be August 18, 1960, when the oral contraceptive clinical use was first permitted by the FDA,

Figure 9. Djerassi during a 1990 ski excursion in the Sierras, "showing off how to ski with a fused knee."[73]

rather than the day, October 15, 1951, when we synthesized the first clinically useful oral progestational agent [in Mexico City]. Should one declare Mozart's birthday as the day his first symphony was heard by the public or as the day on which he was born?"[86]

On Influences in Djerassi's Life

"The question [you ask is], 'How many people, and who are the people who have had a great impact on me?' I'd say very few people. And this I'd say sadly rather than proudly. And I'd say, if I could do certain things over again in my life, it would be nice if it were different. I have made very few new friends in late life."[71]

On Personal Revelations and Self-Awareness

"A good speaker, but a bit arrogant… "[1] "All scientists are driven by ego."[87]

"But as I had turned in my sixties into a novelist and in my mid-seventies into a playwright, I proceeded on the slippery slope of literary self-promotion… :[76]

"During my long second marriage, I had always held therapy in disdain… a case of misplaced psychic machismo, thinking that I could solve all problems by myself. This attitude may well have rubbed off on my children. Yet years after my daughter's suicide, I wondered whether a neutral professional might not have helped her in a way we all—parents, husband, friends—evidently failed her."[1]

Time

"I think I was always operating at 98% efficiency; so there was only 2% left for other things, for my personal life. I would say 89% efficiency is also doing very well; give yourself at least 11% for doing something else."[88]

Personal Passions as Revealed in Djerassi's Short Stories

"food… sex… art… opera… human companionship… word plays… and, of course, science… "[60]

Sex: Playfulness and Seriousness

"Through years of sexual reality, I dreamed ever so often of a woman lover who's singing while coupling with her man… I was about to ask her whether she could. … But then I chickened out; I was afraid she'd just laugh."[89]

When receiving an honorary doctorate from Columbia University: "In his citation, the president of Columbia alluded to the fact that the most significant impact of our oral contraceptive research had been on the emancipation of women. He had barely finished that sentence when the entire student body of Barnard, the women's college of Columbia, interrupted the president's address by rising in unison and shouting 'Yeah!' As soon as the women had calmed down, a second cresting human wave arose: the graduating seniors of the then all-male Columbia College. 'Yeah!' they thundered, fisted right arms thrust in the air."[67]

On Being an Outsider: As a Refugee

"I was not directly touched by the horrors of the Holocaust. That doesn't mean I wasn't traumatized… I saw questions [as anti-Semitic] that frequently really weren't meant that way and I was always very, very suspicious… To a large extent they were questions stemming from curiosity and based on ignorance. Thus, most of the time I responded in a very evasive way… You also need to remember that during the time when I grew up, acquired a Ph.D. in chemistry, and entered industry, there were many places where Jews were excluded. That was very typical at that time in the United States. There were many companies that had no Jews. There were many clubs that excluded Jews. Columbia University, right in Jewish New York, had a *numerus clausus* for Jewish students wishing to enter medical school… "[65]

On Being an Outsider: In the American Chemical Community

"I always felt that I was in many respects an outsider and a maverick in American chemical circles"[64] … "the buddy system to which I never belonged—always having been an outsider… "[90]

Djerassi was invited only once to speak at the ORGN National Organic Symposia,[91] in 1958, before his 42-year career at Stanford University and where he then wrote some 900 publications. Djerassi recently wrote to Seeman, "If I can ask you a favor. If you will indeed write this article on me, mention the truly bizarre National Organic Symposium

incident as one which truly bothered me… I know it sounds petulant and childish to harp on this topic, but the fact is that this really silly preoccupation with the NOS dwarfs even my disappointment of never having received an ACS award in organic chemistry or mass spectrometry. A refugee from Nazi Times feels an outsider status much more than others… " [90]

Not Having a Heimat

"I use the word *Heimat* from my mother tongue, because it has connotations that simply do not exist in the English word 'home'. For me, *Heimat* emphasizes, to a much fiercer extent than in English, interpersonal connections, rather than some physical attachment… [*Heimat* is] what I lost in 1938 and can never truly regain… While I may lack a *Heimat*, I do have a home, indeed I have four, which sounds like good news. The shadowy aspects will soon become evident…" [1]

Scars from Being an Outsider

My "memoirs have appeared in literary magazines… *The Quest for Alfred E. Neuman*[92] describ[es] the length of [my] psychological scars from Hitler's Vienna." [67]

"I just realized that at least in the SciArtist[93] category I am proudly an outsider… It was gratifying for me to hear the 'laudatio' at my recent (April 2013) hon. doctorate from the University for Applied Arts in Vienna where I was specifically cited not for science but for my literary and theatre work, my art collecting in terms of Paul Klee and the donation of all of it to two museums, and my founding of an artists' colony that by now has supported more than 2000 artists. Some people, probably even you, will consider this typical Djerassi [braggadocio[72]], but it happens to be the only type of balm for my wound that I have found. The fact that this type of recognition has come mostly from Europe and that this also pertains to my current lecture invitations explains my increasing Eurocentricity." [90,94]

My Own Aging

"But while I am not suicidal, I have at times thought of suicide under one very specific scenario. Even though I now live alone and thus would not be a burden to others, the idea of Alzheimer's disease or similar condition of mental incapacity would undoubtedly cause me to kill myself. Indeed, when I closed my laboratory in the 1990s, I took one bottle with me which I hid carefully at home, disclosing its location only to my son. It is a bottle of potassium cyanide, large enough to kill a pride of lions. I asked him to remember that hiding place and show it to me if I ever reached such a stage of mental deterioration. The problem, of course is, that at such a time I would not only have forgotten where the bottle is but would probably also forget to ask my son." [1]

Coda

"On July 4, 1978, the day before she killed herself, [my daughter, my elder child] Pami had hiked over to my home to spend a few hours with me in the sun, talking about her future. Nothing in her tone or conversation had given me any inkling that she was teetering on the edge of the precipice. My immediate response to Pami's death was typical of how I coped at that period of my life with personal disasters: I drowned myself in work. Seventeen-hour workdays insured that when I finally dropped into bed I immediately fell asleep…

"Until then, I'd hardly ever cried as an adult. But that night [when I found her], I cried for hours. Even now, eleven years after the event, I weep uncontrolled as I think back to that night, to the horror of that first sight,…

"Five years after Pami's death, I received another panicky phone call, from the artist who was then occupying her former home and studio, who also found a note, deep in the back of one of the drawers. She was shaking when she handed me the piece of paper with my daughter's handwriting on it, a ghost's message. That night I recorded this in my journal:

My only daughter
I find this note:
'I have nothing left to say,
So I don't talk.
I have nothing left to do,
So I close up shop.'
No date
No address
No signature
Your handwriting.
Written for whom?
Yourself?
To whom it may concern?
Written when?
Days,
Weeks,
Perhaps months
Before you walked into the woods?
If only you'd said these words to me.

"If only, I add in retrospect, your death had not been necessary before I took seriously the patronage of the living." [95]

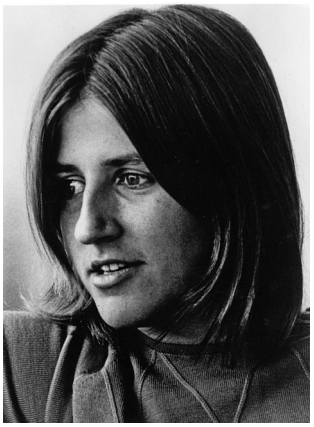


Figure 10. Pamela Djerassi.

Coda to a Coda

"When I first was able to acquire this land, overlooking the [Pacific] Ocean, about half an hour from Stanford… I called it 'Syntex Made it Possible, SMIP.' Then I modified it, I thought it was too corny, and called it 'Steroids Made it Possible.' That was slightly less corny. And then, one day, a very famous physicist Felix Bloch went out there with me, and he saw that sign and said, 'Well, what does SMIP stand for?' And I said, 'Guess! It's an acronym.' And he took one look at me, it was in 1969 or 1970, around the Vietnam War, and said, 'Sic manebimus in pace.' Thus we shall remain in peace. And that's what it says on the big sign that you will see when we enter the ranch.

"So that, in a way, tells you something about the element of peace, and I mean really personal peace as well. If I found it anywhere, I usually found it there… that was a place that meant an enormous amount to my daughter and my son…

"And then, when my daughter committed suicide, I really felt that her part as well as my land (except for a small portion around my ranch home that I retained) should be put into a foundation and support an artists' colony, create something living out of death, and that's what it's become. So there is now an emotional as well as a social justification for the existence of that land which… will never be developed. And yet is used to create and improve the quality of life because that's what I think art is all about…" [71,72,94]

For more details on the Djerassi Resident Artists Program, see: http://www.djerassi.org/.

I thank Melinda W. Davis and numerous scientific, academic, and literary colleagues and friends of Carl Djerassi for helpful discussions. The video production cited in reference [71] was funded by Philip Morris USA which I acknowledge with special thanks. I also acknowledge and thank the various other sources cited and referenced herein for use of photographs and text.

Received: September 25, 2013

Keywords: Djerassi, Carl · history of chemistry · literature · natural products · steroids

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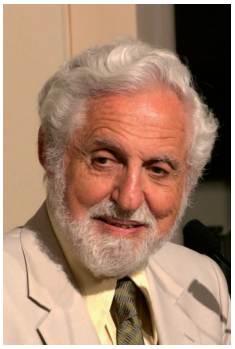
And Finally

Carl Djerassi

J. I. Seeman* _____ ▮▮▮▮–▮▮▮▮

Carl Djerassi: In His Own Words



In honor of the 90th birthday of Professor Carl Djerassi, J. I. Seeman has assembled a collection of poignant quotes and excerpts from Djerassi's writings which embody his remarkable life experiences, his philosophies of life, and his unique personality.

