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Obituary: Carl Djerassi

por Benjamin Gilbert

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Carl Djerassi, the American professor of chemistry who contributed most effectvely to the development of chemistry in Brazil, died in San Francisco on January 30 at 91. The son of two doctors, his father Bulgarian and his mother Austrian, he emigrated at the age of 16, with his mother, from Austria to the United States, fleeing from the Nazis. At 22 years of age, he had already completed his doctorate at the University of Wisconsin, Madison and started work in the pharmaceutical industry, first at CIBA and later at Syntex, Mexico.

The company Syntex came into being as a result of the discovery by the American chemist Russell Marker that progesterone, previously only available from the urine of pregnant mares, could be obtained from a saponin, diosgenin, present in certain ' yams ' of the Dioscoreaceae family. The possibility of extending the process of Marker for the production of cortisone resulted in the hiring of Djerassi, who with colleagues, established not only synthetic routes to cortisone but also to the sexual steroid hormones, birth control pills and anti-inflammatory medicines. As a result of the research directed by Djerassi, the Mexican steroid industry dominated the world market. In Mexico Djerassi became fluent in Spanish and started touring Latin America visiting chemists like Herbert Appel in Chile, Venancio Deulofeu in Argentina and, by indication of the Rockefeller Foundation, Walter Mors in Brazil. He criticised the lack of chromatography in Walter Mors' natural products laboratory at the Institute of Agricultural Chemistry-IQA, an agency of the Ministry of Agriculture in Rio de Janeiro, and as a result took Walter to Wayne State University in Detroit, Michigan, where he had just taken over the Chair of chemistry, based on the reputation that he had acquired through the development of an industrializable route to cortisone at Syntex..

Back at the IQA, Walter Mors began, with fellow worker Oscar Ribeiro, a program of natural products chemistry, supplementing the old manual UV spectrophotometer with a new Infracord (infrared spectrophotometer). He appealed to Prof. Djerassi, to send one of his chemists to Brazil to aid them in this p rogram.

In the meantime, Carl Djerassi, together with his recently appointed Wayne colleagues in physics and mathematics, rebelled against the presidency of Wayne State University for not having started building promised new science facilities while investing heavily in the arts. The three announced a year's sabbatical, and Djerassi returned to Syntex in Mexico. He continued directing his group in Detroit, including the present author, by phone, a precarious process in the state of telecommunication at that time. He suggested that his students should go to Mexico, to discuss their work, when he, Djerassi, would organize for them, an excursion of collecting plants with a professional botanist. At the end of this tour of collection, Dr. Benjamin Gilbert, one of the three who accepted the invitation, was invited by Prof. Djerassi to go to Brazil on a scholarship to fill the need of Walter Mors. Accepting, he became the first of a series of young post-doctoral researchers to be established in Brazil.

This collaboration with the IQA persisted until 1962 and made the group known in the outside world by the fact that Prof. Djerassi, now transferred to Stanford University, California, was expanding his program, already started in Detroit, of applying new physical methods to organic chemistry for the elucidation of structures and absolute configurations of molecules of natural origin. Optical Rotatory dispersion-ORD was one of the first, sometimes with Circular Dichroism-CD associated, techniques dating from the previous century but not applied to organic chemistry. There followed nuclear magnetic resonance-NMR, in precisely those years being developed in Palo Alto (Stanford) by Jim Shoolery and colleagues from Varian. After that Djerassi got a mass spectrometer Consolidated, evidently spurred by the pioneering work of John Beynon at Imperial Chemical Industries – ICI. This spectrometer was one of the first that appeared on the market and produced a spectrum on thermally sensitive paper from one to two meters in length, much more informative than the computerized traces of current instruments. The IQA began to publish papers on natural product structures based on NMR and mass spectrometry w hen, with the exception of Stanford, these techniques were not generally available in laboratories dealing with natural products elsewhere in the world.

Carl Djerassi was able, with the financial support of the Rockefeller Foundation in conjunction with the Brazilian National Research Council-CNPq, to maintain a number of young post-doctoral fellows initially in the IQA and, when the research program of this lab was disabled, in several universities in Brazil, starting in Rio at the Faculty of Pharmacy of UFRJ, where Walter Mors, Benjamin Gilbert and Bernard Tursch among others transferred. Prof. Djerassi by now had become a member of the Secretariat for Latin America of the National Academy of Sciences of the United States and through a Covenant of this American Academy and the CNPq managed to expand the program to universities in various parts of the country.

Many of the young people who came to Brazil opted to stay, among them Keith Brown, initially in Rio, later at UNICAMP; Campinas, Bruce Kover and David Nicodem in the Institute of Chemistry of the Federal University of Rio de Janeiro - UFRJ; and Timothy Brocksome, initially at USP, São Paulo, later at the Federal University of São Carlos. In addition to these organic chemists Prof. Djerassi recruited prominent American scientists in other disciplines to extend the National Academy-CNPq program to inorganic, physical and polymer chemistry, etc. Up till 1976 both Prof. Djerassi and his colleagues, regularly visited their ex-pupils who settled in Brazilian universities and maintained technical, and often material, support for several research groups. The result was the elevation of the pattern of chemical research in the country to a level comparable with that of the universities of origin of the participants.

The rapid development of the chemical sciences in the country in the period 1958 onwards, is due in large part to this initiative of Carl Djerassi and this is a monument to his memory that will last.

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