

PRESENTATION

Ricardo de Carvalho Ferreira was born in Recife, on January 16th, 1928. He was the son of Antônio Ferreira, a business representative, and Luiza de Carvalho Ferreira, a grade school teacher.

Since his early years he was interested in literature and scientific investigation. He used to read everything that would fall into his hands, and showed a particular liking for Monteiro Lobato, Eça de Queiroz and Euclides da Cunha, the last two he received the influence of his father.

Starting in 1942, he had Dr. Tolentino de Carvalho and Dr. Newton Maia as, respectively, teachers of physics and mathematics in school and they proved to be a marked influence. At the same time he started reading popular scientific books such as "*The Birth and Death of the Sun*", by Gamow, and "*The Mysterious Universe*" by James Jean. He received from David B. Moore, an old english friend of his father, a subscription for the journal "Nature". This was in 1945, the year of the atomic bomb and he had in school a course of physical chemistry given by Dr. Hervásio G. de Carvalho. He also attended two remarkable lectures on nuclear energy by this scientist. By this time or a bit before, he had, with his friend Ruy Maia, set up a small chemistry home laboratory, which confirmed inclination towards chemistry.

Ricardo Ferreira published his first paper when he was nineteen years old. Later in 1952, when he finished his under-graduate course in chemistry at the "Universidade Católica de Pernambuco", he had already eight publications. From this period it is worth noticing his articles, "*Acidity and the Systems of Acids and Bases*" and "*Sur l'Inexistence de l'Ion Perbromique*", published respectively in the J. Chem. Phys. 19, 794 (1951) and in the Bull. Soc. Chim. France 17, 135 (1950).

The optical activity was his first interest in the study of molecular biophysics. In the beginning of the 50's he published in "Nature" his paper "*Resolution of Racemic Mixture by Symmetrical Agents*" (Nature 171, 30, 1953). In the following years, between 1964 and 1971, as a visiting Professor of the Indiana University and of the Columbia University, as well as a Chemistry Professor at Earlham College, he began to occupy himself more systematically on themes dealing with the chemical bond and of several problems related to optical activity of biologic molecules. Part of the results obtained were not published in the specialized literature of that time, but are registered in his intensive scientific correspondence. Among these problems we find themes of present interest, important to the understanding of molecular evolution and biogenesis, and even immunology. His interest on the theory of evolution lead him to write his recent book "*Henry Walter Bates and the Theory of Evolution*", which will be published by the "Editora da Universidade de Brasília". The development of these ideas shows the pioneerism and chemical and physical intuition as some of the remarkable characteristics of Professor Ricardo Ferreira.

Since the 70's Prof. Ferreira has published more than twenty papers on enzymatic activity, on structure and evolution of hemoglobins and on molecular evolution and biogenesis, besides having advised three doctorate theses in Molecular Biophysics. Still in the 60's and 70's a large number of his papers on the chemical concept of electronegativity in atoms, molecules and metallic phases, and on the connection of this concept with the character of the molecular orbitals and with physical and chemical observables was published. In this period Prof. Ferreira dedicated himself as an adviser of several thesis on theoretical problems in chemistry and physics and published several papers on the electro-optical effect in molecules, on transuranic elements, on molecules and ions in superintense magnetic fields, on violations of Koopman's theorem and on electronegativity, among others.

In is interesting to notice that in Prof. Ferreira's extensive list of contributions, there is no privileged scale of molecular sizes. We find works which deal with the H_2^+ and H_2 species, the biopolymers as the hemoglobins, the serinoproteases and the nucleic acids, going through a whole range of intermediate systems, as the boron compounds, the fluorine compounds, the chlorine compounds, the bromine compounds, the mercury complexes, the rare earth ions, the compounds of noble gases, and the alkaline halides.

Due to the value of his scientific production, there is an intense correspondence which scientists from other countries try to keep with him. He has also received inumerous invitations to participate in symposia, in national and international meetings, and often to present plenary conferences. In the past 35 years, Prof. Ferreira has been associated with several research and teaching institutions in Brazil and foreing countries such as: the California Institute of Technology, Indiana University, Columbia University and Earlham College, in the United States; l'Université de Genève and Oxford University in Europe; the "Centro Brasileiro de Pesquisas Físicas", the "Universidade de São Paulo", the "Universidade de São Carlos", and the "Universidade Federal de Pernambuco" in Brazil.

It is worth mentioning that his presence in the Brazilian Universities has also been characterized by a constant worry about the social and political aspects of his time. He took part in the original group which worked together with Anísio Teixeira and Darcy Ribeiro in the creation of the "Universidade de Brasília", and was working for that university, while he was in the United States, when the military coup of 1964 interrupted his plans.

Prof. Ricardo Ferreira's contributions to chemistry, physics and molecular biophysics does not end in his original papers. It goes into the formation of his students of post-graduate courses, which have received his strong influence, as have all the students from every center in which he has been. His concern with the methodological aspects of these sciences, and also with the interaction between science and the society, is reflected in the great number of papers that he published in the past 40 years.

Among his academic honours and relevant functions which have been granted to him, we should mention: Fellow of the Academia Brasileira de Ciências in 1977; Fellow of the Academia de Ciências do Estado de São Paulo in 1980; Honorary Fellow, Magdalen College Oxford in 1975; member of the Editorial Board of the magazines "Inorganica Chimica Acta", "Química Nova", "Ciência Hoje" and "Ciência e Cultura"; was president of the "Sociedade Brasileira de Química", member of the Advisory Committee of Chemistry of the CNPq, 1976-77, and of the CCTC/CNPq, 1984-85.

"A writer that does not write his memories has the right to ask others not to write them". These words by Eça de Queiroz are still a reminder for whoever risks making any type of biographic report. We believe that this is valid not only for writers, but also for scientists, regardless of the differences between the artistic and scientific activities, as Prof. Ferreira said a few years ago in his article "*Criação Artística e Criação Científica*" (Ciência e Cultura, 25, 1123, 1973). We hope that one day Prof. Ferreira will give us the pleasure of writing his memories. When this happens, we will certainly have an enriched view of the historic, social and conceptual aspects of Chemistry, Physics and Biology, in the development of these sciences in our country.

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