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Pierre Longevialle: Curriculum Vitae

Pierre Longevialle was born on November 28, 1931 in Paris as the sixth of an 11-children family. Pierre spent most of his childhood in Limousin and he liked to enjoy his vacation times all his life in Auvergne, another central region of France. He received his *baccalauréat* in latin, greek and mathematics at Clermont-Ferrand in 1949. After several difficult years where he was treated for a pulmonary disease, Pierre began to study pharmacy. He obtained the title of *Lauréat* of the Faculty of Pharmacy at the University of Paris in 1959. Then, Pierre decided to prepare a Thesis and, for several years, he studied a series of alkaloids of pharmaceutical interest originating from the leaves of Apocynacees. During this period he was an intern in pharmacy in a hospital of Paris and he finally joined the CNRS (Centre National de la Recherche Scientifique) in 1963. Pierre received his title of Doctor in sciences in 1965.

During the preparation of this Thesis, at the ICSN (Institut des Substances Naturelles) in Gif sur Yvette, he mainly did chemical synthesis but he also made use of mass spectrometry and he was immediately attracted by this physical method which, at that time, was in the beginning of its applications to organic compounds. Pierre chose the laboratory of Pr. Burlingame at Berkeley for his postdoctoral education and spent two periods, 1967 and 1971, in the laboratory of Dr. Fales (NIH). Since 1967, the research works of Pierre were concerned with the unimolecular reactivity of organic ions in the gas phase. This research led him to use the mass spectrometers located at the ICSN in Gif sur Yvette (AEI MS9 and MS50) and at the Ecole Polytechnique in Palaiseau (VG ZAB 2F). It must be recalled that Pierre was among the first, in France, to develop the chemical ionisation technique in promoting the construction of a chemical ionisation source on the MS9 of Gif sur Yvette.

A major activity of Pierre, at times underestimated, was the synthesis of the various (regio- or stereo-) selectively functionalised (or labelled) molecules which were needed to corroborate fragmentation mechanisms. The molecules studied by Pierre were mainly stereoisomers of aminosteroids, of aminoalcohols and long chain aliphatic or cyclic amines. This patient and meticulous work was underlying most of the Pierre's research works. The first targets were various series of aminosteroids (amino group in positions 1, 2, 3, 4, 20 and in the angular positions 5, 13 and 14) for which a complete description of the electron impact induced fragmentation modes leading to conjugated ammonium ions had been established by Pierre during the 70s. In the meantime, Pierre evidenced stereochemical effect upon the dissociation of molecular cations produced by electron impact from steroids (conanine, amino-3-cholestane) and alkaloids. Further, he studied the chemical ionisation of β-aminoalcohols and found that the water loss from the protonated molecule was strongly dependent upon the distance between the two basic sites, namely the nitrogen and oxygen atoms. The discovery of dissociations in which the two, ionic and neutral, fragments react before their separation is of course a major finding which must be attributed to the sagacity of Pierre. The origin of this finding is the observation (in 1968!) that the dissociation of ionised diamino-3-20-steroids may produce fragments containing the hydrogen atoms of both functional groups. It takes time before the interpretation of this phenomenon, by the occurrence of a bimolecular reaction between the two incipient fragments, was admitted by the mass spectrometrists community.

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Yet, the first formulation of the existence of ion neutral complexes during the fragmentation of isolated ions was proposed by Pierre in 1980. He didn't rest, during the last 20 years, to champion his understanding of ion neutral mediated reactions and to imagine new systems or new experiments to support his view. No doubt that the concept of ion neutral reaction intermediate challenged by Pierre has opened new discussions and new horizons in the area of gas phase ion chemistry during the last 20 years. The literature now abounds in examples of dissociation processes which are explained by this kind of mechanism, the present special issue of the *International Journal of Mass Spectrometry* brings new stones to this edifice.

Besides his research activity, Pierre was also interested in the teaching of mass spectrometry to organic chemists. He participated in several courses and workshops in organic mass spectrometry and, with the encouragement of Fred McLafferty in sabbatical leave at Ecole Polytechnique in 1979, he wrote the first book devoted to this technique in French language. He intended to prepare a second edition, completely revised, during his retirement, but cancer did not leave him this possibility. Pierre died on August 20, 2000 in Paris and lies in Auvergne, near "Le Planchat" his familial house.

Guy Bouchoux*, Yannik Hoppilliard
Lab D.C.M.R., Ecole Polytechnique,
Department of Chemistry,
91128 Palaiseau, France
*E-mail: bouchoux@demr.polytechnique.fr