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A Personal Reminiscence

Interested both in unimolecular reactions in ions and in quasi equilibrium theory, working more over in very close institutions and being both in the mass spectrometry community, Pierre Longevialle and I met inevitably. It was, for the first time, in the late 1960s. As I had just spent one year in Henry Rosenstock's laboratory at the NBS in Washington DC, Pierre was eager to talk with me about the mechanisms of ion dissociation. However he was working on very large systems compared to the size of the molecules a physical chemist was currently investigating. There was an order of magnitude in size between our centre of interest. I could hardly understand his explanations about the dissociation of large steroid ions where rearrangements could take place before dissociation and about the expected structure of a (or many) reaction intermediate(s) during the fragmentation. I was really afraid the first time. But Pierre was never discouraged, he came back over and again, and he was so friendly and nice that you were obliged to listen to him. Then you were surprised to discover how pertinent were his remarks.

In the 1980s he asked me to review the manuscript of his book on mass spectrometry and I found out that he was able to describe very complicated aspects of mass spectrometry in a very simple and clear way, may be simplified for a physical chemist, but certainly comprehensible for an organic chemist. The most enlightening example of his experimental skill, his talent of observation, his large view of the organic ions reaction mechanisms was when he obtained his first results on the fragmentation of regiospecificaly deuterated bifunctional steroid ions. The results on the deuterium transfer from one function of the molecule to the second function at the other end of the molecule were so surprising that we had day long discussions about all the possible mechanisms. Pierre had always plausible answers to oppose to my remarks about deuterium migration, transfer reactions, geometric deformations, etc., which showed how carefully he had thought the experiment. Finally we arrived at the conclusion that, during the dissociation, the two fragments could rotate and undergo an internal ion–molecule reaction. Pierre had discovered the long lived ion neutral intermediate complexes.

After this discovery, Pierre continued to work on the verification of this new mechanism and confirmed the existence of long lived complexes in many dissociation reactions. Involved in other problems, I regret today to have not continued to work with Pierre, not only for the scientific interest of the problem of the long lived intermediate complexes, but also for his human and intellectual qualities. He was a very nice and delightful colleague with a large culture not only in his scientific domain but in various other fields. He could listen very quietly to other people's arguments but always defended strongly but politely his ideas when he thought he was right. I believe that Pierre is missed by many of us.

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