INTRODUCTION

It is appropriate that this memorial volume, dedicated to Sir Derek Barton, should be published by the Press of Imperial College where Derek spent most of the forty years of his life between 1938 and 1978 as undergraduate, research student, ICI research fellow, lecturer (in Physical Chemistry) and Professor (of Organic Chemistry), with brief interludes at Harvard, Birkbeck College and as Regius Professor at Glasgow University.

His final twenty years as Director of the Natural Products Institute (CNRS) at Gif, and then at Texas A & M University, were as fully occupied as ever, especially with the chemistry of radicals, and he was still publishing his "Chemical Inventions" right up to the time of his death, when his papers numbered well over one thousand.

I knew Derek Barton for much of his time in London and I was able to enjoy his hospitality and his enjoyment of good food and wine, for which he had the perfect companion in his French wife Christiane. After she died he married Judy, with whom he shared happily his last years, most of them in Texas.

Although he was most distinguished as an organic chemist, and I was a physical chemist far removed from the mysteries of organic synthesis, we shared our interest in chemistry of all kinds and neither of us liked to be labelled too specifically. In fact Derek's first lectureship was in Physical Chemistry and we both were particularly interested in photochemistry, albeit in rather different aspects, with Derek's emphasis being on photochemical routes in organic synthesis. The Barton Reaction for example, which he developed, involved the photolysis of nitrite and led to a remarkable synthesis of the steroid hormone, aldosterone. He collaborated with chemists in many countries and in a wide range of problems and I was delighted, in 1972, to share with him (and my student, at Imperial College, Jack Wirtz) a little paper in photochemistry on "The Mechanism of Thiobenzoic Acid O-Ester Photolysis".

Barton first became celebrated very early (1950) for his work on "the Conformation of the Steroid Nucleus". This showed how the reactivity of functional groups in steroids depends on their positions — axial and equatorial — in a given conformation and so was born "conformational analysis" for which he, along with the Norwegian chemist, Odd Hassel, was awarded the Nobel Prize in 1969. It was the key to the development and understanding of three-dimensional chemical reactivity.

Barton was one of an exclusive international band of organic chemists who, in the latter half of this century, travelled in the world of chemical meetings throughout the world. They understood and knew each other in a great successful "college" whose members stimulated each other in their revolutionary developments of chemical science. They lectured widely but almost exclusively to fellow members of this college, including their students. There were very few members of the group who were popularisers of their science of organic chemistry, such as one finds among physicists and physical chemists. This is probably because it is a very difficult subject to popularise to audiences who do not have considerable chemical knowledge.

Nevertheless Barton did recognise the importance of presenting his science to the public and especially to young people and when he took on the task he took great pains in preparing his lecture. I remember in particular a lecture given to students, mainly from Germany, at one of the Lindau conferences of Nobel Prize winners. It was a sterling effort, greatly appreciated by the students for whom it was principally designed but always addressed to organic chemists, and Nobel Laureates, at his own level.

This is what he is doing in this volume. I know that it will be welcomed by those familiar with Barton and his works; I hope that it will be read and enjoyed by a wider audience of chemists at every level.

George Porter