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## Phosphorus, Sulfur, and Silicon and the Related Elements

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#### **Preface**

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### **PREFACE**

# SOME TRENDS IN PHOSPHORUS CHEMISTRY IN 1983

Since the International Conference on Organophosphorus Chemistry in Heidelberg in 1964, phosphorus chemists have adopted the habit of congregating, and since Halle in 1979 and Durham in 1981, on a regular periodical basis. Roughly 400 of them from both industrial and academic research laboratories — among which were 270 from abroad — gathered in Nice, and most of them attended the lectures assiduously, in spite of the appealing azure sky and enticing turquoise sea. The liveliness of the discussions that took place constantly everywhere — in the lecture rooms, poster exhibitions, corridors and gardens, and the joyous atmosphere that prevailed at the fête champêtre, where people mingled cheerfully on the lawns of Parc Valrose — attest that phosphorus chemists not only have multiple common scientific interests, need to exchange information and engage in active collaborations, but also form an expanding community that finds an obvious pleasure in meeting, and among whom links of mutual esteem and friendship are being forged over the years.

The number of countries represented in Nice — thirty-two — also is evidence of an increasing awareness of the extraordinary potential of the applications of phosphorus chemistry. Particularly noticeable was the presence of strong delegations from the far eastern countries, as well as the high quality of their contributions. Also gratifying is that several countries are now prepared to host the conference in the near future.

Despite the (short) two-year interval since the Durham conference, the harvest of new chemistry that was presented in Nice is impressive. Even more striking is the evolution of the themes. The boom in reports on "phosphorus in lower coordination states" is in this respect particularly spectacular, with the emergence of a diversity of neutral as well as ionic compounds with multiply-bound mono- or di-coordinated phosphorus atoms, and of an array of methods to attain them. At least 13 oral and 8 poster presentations can be related to this theme, which obviously constitutes the new "new frontier" of phosphorus chemistry — somewhat like penta- and hexacoordinated phosphorus a decade ago — and certainly was one of the highlights of the 1983 ICPC.

Also strongly represented were the themes of "phosphorus-based ligands, their coordination chemistry and applications" — 17 oral and 30 poster presentations — and of "biologically relevant phosphorus compounds" — 17 oral and 20 poster presentations. These two themes correspond to interfaces between phosphorus chemistry and other disciplines, as well as to some of its most promising domains of application: catalysis, metal extraction and separation, pesticides, pharmaceuticals, etc.

The particular emphasis that was given to phosphorus compounds as ligands and more generally to metal-bound phosphorus compounds, may of course reflect the individual interests of the organizer; but the results presented attest to the creativity that has been manifested in the past few years in this area: not only are phosphorus compounds used — in a more and more sophisticated way — as tools to modulate the properties of the metal, but the reciprocal use of metal derivatives to induce new phosphorus chemistry and produce new, sometimes unexpected, structures and properties also fired the imagination.

The role of phosphorus compounds in biological processes, the evaluation of their therapeutic indications, and the use of phosphorus as a probe to investigate them, has aroused considerable interest and effort.

At the same time polyphosphanes, polyphosphazenes, phosphorus-based reagents including the now 30-year old Wittig-Horner reaction, and higher coordination states, continue to provide their crop of new developments.

The format of the conference, with its 30-minute oral presentations complemented by poster presentations, with no plenary lectures or short oral communications, initiated in Durham, appears to have met with general approval, and it was the International Scientific Board's unanimous opinion that it should be preserved in future conferences.

With this format, the oral presentations are long enough to embrace an extensive range of results with their context and implications and numerous enough to permit a large variety of topics to be treated, and to give an equal opportunity to most research teams to present their newest results. The Scientific Program Committee's initial objective of limiting to two the number of parallel sessions, in order to favor cross-fertilization through the mixing of participants with widely different research interests, could not always be attained, in spite of the harrowing process of selection: 98 oral presentations were retained from about 150 proposals.

The role of the poster presentations, which were sandwiched between the oral sessions, must be emphasized: by their number — 154 — as well as by their excellent average quality, it is certain that they contributed immensely to the success of the conference. The attendance in the poster rooms and the intense discussions that could be heard there attest that this mode of presentation has become a major means of scientific communication at the ICPC's. Although it was known that the abstracts of the posters would appear in the published proceedings, there was a general feeling that still more space and time should be devoted to them.

We are pleased that an agreement could be reached with IUPAC in order that these proceedings be published in Phosphorus and Sulfur. They consist of dense 4-page synopses of the lectures — so as to share the bookspace equally among all the contributors — as well as half-page abstracts of the posters that were presented. The tables of contents and subtitles have been rearranged so as to group the papers that have the same theme but which during the conference had to be divided into several sessions to meet the requirements of the timetable. The proceedings constitute a logical prolongation of the conference: they reflect the most recent advances and present trends of our discipline and, with the addresses of the 684 authors listed in the index and a brief survey of their interests, will undoubtedly constitute a valuable tool in the hands of all phosphorus chemists.

Finally, the Editors wish to express their deep appreciation to all those who contributed to making this conference a success. The speakers, the chairmen, the sponsors, the gardeners, and maintenance personnel and the members of the International Scientific Board, the organizing committee and all those who in Nice had the privilege and formidable task of playing host. We hope that the Nice-1983 ICPC has contributed to the strengthening of bonds among phosphorus chemists, and we are looking forward to our next meeting, in Bonn in 1986.

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