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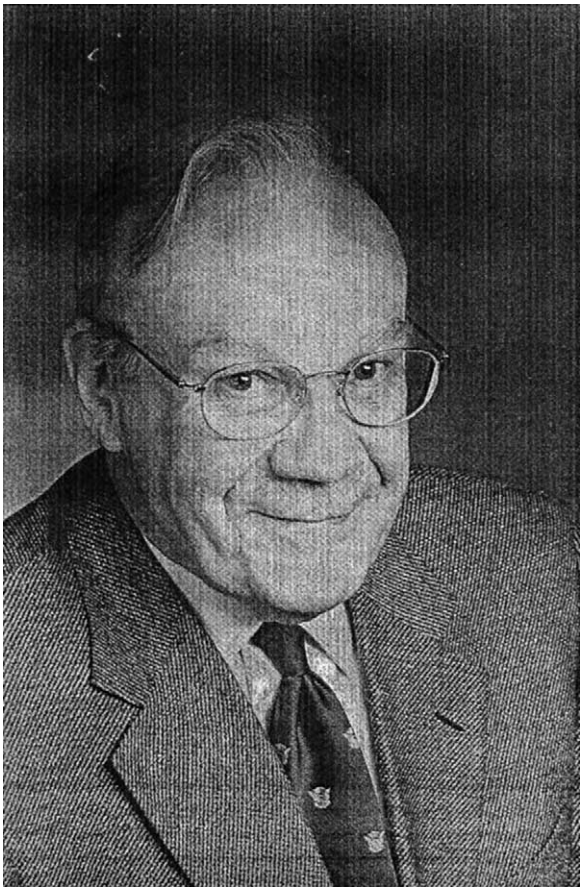
Journal of Organometallic Chemistry 680 (2003) 1–2
Journal of Organometallic Chemistry
www.elsevier.com/locate/jorganchem

Editorial

Introduction: Frontiers in Boron Chemistry Dedicated to Professor M. Frederick Hawthorne in celebration of his 75th birthday



Boron chemistry has come a long way in the last 75 years with many developments in fundamental science, the understanding of bonding in polyhedral clusters, the rich chemistry of heteroatom containing clusters, and a host of applications in inorganic, organic, biological and medicinal, and materials areas. In this issue is a wide range of papers from world leaders in boron chemistry with diverse interests. The inspiration for such an issue is Professor M. Frederick Hawthorne, who has contributed so much to so many aspects of boron chemistry.

Fred Hawthorne was born on August 24, 1928 in Fort Scott, KS. He obtained a B.A. in Chemistry from Pomona College in California in 1949 and his Ph.D. in organic chemistry with Professor D.J. Cram, at the University of California, Los Angeles, (UCLA) in 1953. After postdoctoral work in physical–organic chemistry with Professor G.S. Hammond at Iowa State University, Fred joined Rohm and Haas Co., in 1954 as a Senior Research Scientist. His interest in boron chemistry developed when he organised and became Head of the Metallo-Organic Chemistry Group at their Redstone Arsenal Research Division in Alabama where he made major contributions to the development of polyhedral borane chemistry. In the fall of 1960, Fred was a Visiting Lecturer in Organic Chemistry at Harvard University, the first of many such appointments. After returning to

0022-328X/03/$ - see front matter
doi:10.1016/S0022-328X(03)00607-7

Rohm and Haas, and serving as Laboratory Head in Philadelphia, he accepted a Full Professorship at the University of California, Riverside where he developed many key elements in polyhedral carborane chemistry including the realization of the similarity of *nido*-carborane dianions with the cyclopentadienyl anion, leading to the field of metallacarborane chemistry. In 1969, Fred moved to the Los Angeles campus of the University of California (UCLA) where, since 1998, he has been University Professor of Chemistry.

Fred is the author or coauthor of over 475 paper, 26 patents and 9 book chapters, and has supervised ca. 150 Ph.D. students and postdocs. His coworkers come from over 20 countries, and 35 of them now occupy academic positions. His seminal contributions to boron chemistry have been recognized around the world with numerous awards ranging from the first Boron USA Award for Distinguished Achievements in Boron Chemistry and the first Award for Polyhedral Borane Chemistry presented by the IMEBORON International Committee to the American Chemical Society Award in Inorganic Chemistry (1973), the ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry (1988) and, most recently, the 2003 King Faisal International Prize for Science. He has received several honorary degrees and is, amongst other honours, a member of the US National Academy of Sciences. We will all recall that he was Associate Editor (1966–1968) and then Editor-in-Chief (1969–2000) of Inorganic Chemistry.

Fred's contributions to the fundamental chemistry of polyhedral boranes and carboranes extend over more than 40 years, and his group is always working at the "frontiers in boron chemistry". His recent interests include hypervalent main group (e.g. Si and Al) containing metallacarborane sandwiches, boron-10 labelled antibodies in cancer therapy (he was elected President of the International Society for Neutron Capture Therapy in 1996), f-block element containing carboranes, novel carborane-supported electrophylic mercuracycles as polydentate Lewis acids, antibody-mediated radioimaging of cancer with radiometallacarboranes, carboranes as molecular components of rods, rings and chains, and the very recent and very exciting 12-fold organofunctionalisation of icosahedral boranes. It is likely that this latter work will launch yet another whole new area of research.

Fred's enormous contribution to boron chemistry results from a combination of his background in organic and physical–organic chemistry with his "just go ahead and try it" approach of the synthetic inorganic chemist. We hope that the breadth of his interests are reflected in this special issue of the *Journal of Organometallic Chemistry* on "Frontiers in Boron Chemistry," and we all look forward to many new and exciting contributions from his group.

With all our best wishes for a happy 75th birthday.

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