PREFACE

The history of organic chemistry is punctuated by periodic landmark discoveries which have profoundly influenced the subsequent course of chemical research. Among these, few have had the impact produced by the discoveries of Professor Brown and his coworkers of the hydroboration reaction, and of the many applications of the resultant organoboranes in organic synthesis. Thus, only seldom have new synthetic methods been deemed so important that their discoverers have been awarded the Nobel Prize. However, this happened in 1979 when, for his studies of the syntheses of boron compounds and their chemical reactions, Professor Brown shared the Nobel Prize in Chemistry with Professor Wittig.

Professor Brown's love affair with boron compounds began during his days as a Ph.D. candidate where he investigated the reactions of gaseous diborane with carbonyl reagents. This culminated some thirty five years later in the development of tailor-made selective alkali metal trialkylborohydride reducing agents, which have provided the synthetic chemist with some of his most useful tools for attacking syntheses of molecules involving complex stereochemical problems.

The discovery in 1956 that hydroboration provided a mild and effective procedure for the preparation of organoboranes, was followed by a systematic exploration of their utility as intermediates in chemical transformations. In over 200 papers dealing with organoboranes, Professor Brown has enriched the arsenal of synthetic methodology with numerous unique reactions of broad applicability, such as the anti-Markovnikov hydration of double and triple bonds, methods for formation of carbon-carbon bonds under mild conditions, procedures for elaboration of acetylenes into substituted olefins, dienes, and enynes of defined stereochemistry, and asymmetric syntheses using asymmetric hydroborating agents.

Professor Brown's contributions have not been relegated just to boron chemistry. In fact, it can be said that few living organic chemists have been able to achieve major accomplishments in such a wide variety of areas. Thus, Professor Brown has made fundamental contributions to the theories of steric strain, and to the non-classical carbonium ion problem. His definitive work on steric strain has led to a more quantitative assessment of steric effects in organic chemistry. Also, his

quantitative studies of aromatic substitution resulted in the development of a set of electrophilic substitution constants, δ^+, which correlate aromatic substitution data and a variety of electrophilic reactions.

Finally, this brief accounting of Professor Brown's scientific accomplishments would not be complete without mentioning the considerable influence which he has had upon the lives and scientific careers of his many associates who regard him with admiration and affection. We and the scientific community at large are deeply gratified to be able to take part in this greeting to Professor Brown on the occasion of his 70th birthday.

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