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A Tribute to Professor Heinrich Nöth on the Occasion of His Seventieth Birthday

The teacher/pupil sequence Alfred Stock, Egon Wiberg, and Heinrich Nöth marks a great tradition in main-group chemistry. Nöth's first three articles (published in 1953 together with Wiberg) already dealt with a large variety of "heteroatoms": Mg, Ca, Sr, Ba, B, Al, N, P, and As. In the 43 years that have passed since then, Nöth has added many more elements to his list of active interest, and, in this time he wrote more than 600 articles, each of which contributed to our understanding of heteroatom chemistry. Our journal therefore takes great pleasure in dedicating this issue to him on the occasion of his seventieth birthday.

On June 20th, 1928 in Munich, a son was born to the Chamber Virtuoso Hans Nöth and his wife Eugenie. They chose Heinrich for his first name. The time the boy went to secondary school was also the time of World War II. From 1949 on, he studied chemistry at the University of Munich. With a thesis on "Hydrides of Group III Elements," he received the Ph.D. degree in 1954. Before that, at the age of 23, he had married Erika. In the meantime, the two have been blessed with two daughters and seven grandchildren.

In 1956, Heinrich Nöth was Research Officer at the ICI heavy chemical division at Billingham, England, and dealt with calcium hydride and calcium cyanamide. After returning to the Ludwig-Maximilians-Universität, Munich, he became Associate Professor in 1965 and he was appointed Full Professor at the Philipps-Universität, Marburg, in 1966. Three years later, he was called upon to take the former Chair of Egon Wiberg in Munich.

Areas of his research were and still are hydrides and the chemistry of hydrogen compounds; nitrogen compounds of lithium, beryllium, boron, aluminum, phosphorus, and arsenic; low-coordinated boron and aluminum compounds, heterocycles, and cages of main-group elements; coordination compounds with metal-boron linkages; heterocyclic π-complexes; reaction mechanisms by isotopic labeling; IR-laser–induced reactions; multinuclear magnetic resonance investigations; and X-ray structure analysis.

Some of these investigations have their roots way back in Nöth's early work. By his insistent interest, they meanwhile have reached an astonishing

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high state. Boron hydride and tetrahydroborate chemistry, their use in redox and hydroboration reactions, and the structural elucidation of the various systems provide good examples of this.

Another important and long-lasting topic in Nöth's research activities constitutes the boron–nitrogen compounds and their bonding, with the special emphasis of unsaturated systems. Amino groups proved efficient to stabilize boron–phosphorus, boron–arsenic, boron–antimony, boron–silicon, boron–tin, and boron–boron as well as boron–transition metal bonds. Along with low-coordinated BN compounds also came low-coordinated BC and BP compounds.

Rings and cages always exerted their special fascination on him. Borazine chemistry suggested itself, and Nöth succeeded in gaining a good insight into the mechanism of its ligand exchange propensity. The first new system he contributed was a dioxadiborinane. Many other boron heterocycles followed: azadiborirines and diazaborirines; triazadiborolidines and diazatriborolidines, some of which are and some are not 2π- and 6π-electron systems; tetrazadiborinanes, which gave blue radical cations; and, as an example of a condensed system, a BN phenalene. A further highlight is the first homocyclic system of boron, the dimethylamino-substituted cyclohexaborane. It also stands as an example for many more polyboranes from his kitchen.

The extension of the BN heterocycles to the higher homologs led, on the one hand, to the boron–phosphorus rings with their unusual features and, on the other hand, to aluminum–nitrogen and gallium–nitrogen cages of cubane and adamantane structure. Another group of adamantanes had originated earlier from the combinations phosphorus–nitrogen and arsenic–nitrogen.

Recent and remarkable results from X-ray analysis (which he often performs himself) concern the structure of lithium compounds: amides and hydrazides and also—as indicated earlier—hydroborates.

As much as Nöth is dedicated to research, he is also at least as much dedicated to teaching chemistry. Besides that, he has kept and still keeps an incredible number of positions, all for the benefit of science. To the many positions listed in the Editorial of Number 6, Volume 8, of this journal, recently a very distinguished one has been added: He is now president of the Bavarian Academy of Science.

Naturally, Nöth has received many awards, national and international, has obtained lectureships, and has been elected member and honorary member of scientific societies. He has become Doctor honoris causa of the Universities of Marburg and Leeds.

On the occasion of his birthday and on behalf of main-group chemists worldwide and, moreover, the greater scientific community, we wish Heinz Nöth many happy returns of the day.

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