

IN MEMORY OF ANTON BURG

Anton Behme Burg, born October 18, 1904, was the first American-born, American educated boron chemist. He is our link to the distinguished past, to Herman I. Schlesinger and through him to Alfred Stock, the pioneer of research on the boron hydrides.

At the University of Chicago in Schlesinger's group, he imaginarily applied the precise high-vacuum methods developed since 1912 by Alfred Stock for preparing and studying very small quantities of reactive materials. Stock's research is ably summarized his own 1933 book, *Hydrides of Boron and Silicon* (Cornell University Press).

Characteristic of Burg's methods were astute observations in ordinary experiments revealing unexpected new chemistry illustrated by his Ph.D. thesis in 1931 (*JACS* **53**, 4321 (1931)). In an attempt to make pure boron from boron trichloride and hydrogen in an electric arc, B_2H_6 was found as a component, thus allowing a new, and more convenient synthesis of diborane.

Burg discovered in 1934 the hydroboration of the double bond in carbonyl groups present in acetaldehyde, acetone and methyl formate. In 1937 Herbert C. Brown arrived, inspired by Stock's book (p. 59 refers to the diborane-ethylene reaction), and was at that time particularly interested in the research project involving reaction of diborane with organic compounds containing a carbonyl group (Brown, Schlesinger and Burg (*JACS* **61**, 673 (1939))). The rest is history. This sequence of events is confirmed by Brown in a letter to *Chem. Engr. News*, June 8, 1981, p. 4.

Burg, was instructor at U. Chicago from 1931 to 1939, when he joined the faculty at U. Southern California. While maintaining his strong interest in boron chemistry, including particularly the higher boranes, he expanded his research to include unusual donor-acceptor complexes, aprotic ionizing solvents, fluorine chemistry (SF_5Cl , ONF_3) d-orbital bonding, analogues of transition metal compounds, CF_3 phosphines, homocyclic polyphosphines $(RP)_n$ and especially inorganic polymers.

In 1962 Burg received the Tolman medal of the Southern California Section of the ACS, and in 1964-5 the USC Associates Award for Creative Scholarship. In 1969 he received the ACS award for Distinguished Service in the Advancement of Inorganic Chemistry.

In a talk at the Boron Chemistry Symposium at the Loker Hydrocarbon Institute, March 14, 1985, Anton Burg brought together the research areas of boron chemistry and fluorocarbon phosphines, and also revealed his sense of humor. He reports a conference on the possibility of high temperature stable polymers, and quotes Henry Eyring and Peter Debye, as follows:

Eyring: "The answer to this problem, only the devil knows".

Debye: "Yes Henry, ven ve are in trouble, ve call on you".

I have spared the listener/reader from Anton's poetry, which he refers to as "litterature" (a spelling from a work of Lewis Carroll). Nevertheless, I made a sentence of Anton's into poetry, relating his 1934 discovery to the major developments of Herb Brown, who changed chemistry:

The pebble
Which I had cast aside
On Newton's beach
Proved to be
An acorn

William N. Lipscomb