IN THE MEMORY LANE OF BORONICONS
FROM 1981 – 2011
(WHO ARE NO LONGER WITH US!)

Presented by
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On behalf of IMEBORON-XIV Organizing Committee

September 11, 2011

“Yesterday is History. Tomorrow is Mystery. Today is a Gift. That is why it is called Present”
- Kung Fu Panda
Ralph Rudolph  
(1940-1981)

Earl Muetterties  
(1927-1984)

Ralph Fairchild  
(1935-1990)

Hiroshi Hatanaka  
(1932-1994)

Stanislav Heřmánek  
(1929-1999)

Robert Brotherton  
(1928-2001)

William Sweet  
(1910-2001)

Anton Burg  
(1904-2003)

Herbert C. Brown  
(1912-2004)

John H. Morris  
(1937-2005)

Robert W. Parry  
(1917-2006)

Clinton F. Lane  
(1944-2007)

Jaromir Plešek  
(1927-2010)

Lee J. Todd  
(1936-2011)

F. Gordon A. Stone  
(1925-2011)

William N. Lipscomb, Jr.  
(1919-2011)
William N. Lipscomb, Jr.
The Colonel
Nobel Laureate Professor
(December 9, 1919 – April 14, 2011)

Born in Cleveland, Ohio on December 9, 1919
B.S. degree in 1941 from University of Kentucky at Lexington and the Ph.D. degree in 1946 from the California Institute of Technology (under Linus Pauling)
University of Minnesota (Assistant Prof., 1946 – 1950; Associate Prof., 1950-1954; Professor, 1954-1959)

Selected Honors and Awards

Guggenheim Fellow – 1954
Fellow of the American Academy of Arts and Sciences – 1960
Member of National Academy of Sciences – 1961
ACS Distinguished Service in the Advancement of Inorganic Chemistry – 1968
George Ledlie Prize from Harvard University – 1971
Peter Debye Award in Physical Chemistry, American Chemical Society – 1973
Foreign Member of the Royal Netherlands Academy of Arts and Sciences – 1976

Nobel Prize in Chemistry – 1976
The Linus Pauling Medal from Stanford University - 1978/79
Senior U. S. Scientist Award, Alexander von Humboldt-Stiftung - 1979/1980
Boron Americas (BUSA) Pioneer Award – 2002
The Erice Prize. Elected by the members of the World Federation of Scientists - 2008.

Books Dedicated to Lipscomb

Electron Deficient Boron and Carbon Clusters (Eds: Olah, Wade & Williams) – 1989
With Margaret (daughter-in-law), Jean Evans (wife), Jim (son), Dorothy (daughter), Friend and Jenna (adopted daughter)

Lipscomb’s 90th Birthday Celebration

With a Former Associate at Harvard

With Hosmane Research Group at SMU, 1995

With Hosmane NIU Research Group & Nina at the BUSA-VII Workshop in Pittsburgh, PA, 2000

With Hosmane Family in Dallas, TX, 1995

With Hosmane and Cowley at the Main Group Symposium of the ACS Regional Mtg in Austin, TX, 1993

With Hosmane Research Group at NIU, 1999
F. Gordon A. Stone

CBE, FRS, FRSC

Robert A. Welch Distinguished Professor

(May 19, 1925 – April 6, 2011)

Born in Exeter, England on May 19, 1925
B.A. degree in 1948 and Ph.D. degree in 1951 from Cambridge U. (under Harry Emeléus)
University of Southern California (Postdoctoral Research with Anton Burg 1952 – 1954)
Harvard University (Instructor, 1954-1957; Assistant Prof., 1957-1962)
Bristol University (Professor and Chair of Inorganic Chemistry, 1963-1990 until mandatory retirement in 1990)
Baylor University (Robert A. Welch Distinguished Prof., 1990 until retirement in 2010)

Selected Honors and Awards

Elected Fellow of the Royal Society – 1976
Vice-President of the Royal Society – 1989
Royal Society’s Davy Medal – 1989
Royal Society of Chemistry’s Longstaff Medal – 1990
American Chemical Society’s Award in Inorganic Chemistry – 1985
The Royal Society of Chemistry’s Sir Edward Frankland Prize Lectureship - 1988
Chugaev Medal of the Kurnakov Institute (Russian Academy of Sciences) – 1978

Appointed CBE by Her Majesty the Queen of Great Britain – 1990
Boron Americas (BUSA) Award for Distinguished Achievement in Boron Science – 2002
Honorary Doctorate Degrees from Six Universities in Three Countries.

Volumes Edited by Gordon Stone

Co-edited with R. West some 50 volumes of Advances in Organometallic Chemistry
With Abel and Wilkinson edited the volumes of Comprehensive Organometallic Chemistry I & II.

Courtesy: Tom McGrath, Aug. 2011
From Left to Right: Bruce Hodson, Tom McGrath, Robin McCown (last Grad Student) and Krishna Akella
Gordon’s Research Group in 2011

Gordon Receiving BUSA Award in Death Valley in 2002

BUSA-IX in San Marcos, Texas, 2004

Gordon at the BUSA Workshop Banquet, 2008

Gordon Attending the Boron in the Americas (BORAM-XI) Meeting in Saint Louis, MO, 2008
Lee J. Todd
Professor at Indiana University at Bloomington
(1936 – March 22, 2011)

Born in Indiana in 1936
B.S. in 1958 (U. Notre Dame). M.S. in 1960 (Florida State U.) and Ph.D. (under Riley Schaeffer) in 1963 (Indiana U.)
MIT (Postdoctoral Research under Dietmar Seyferth, 1963-1964); University of Illinois (Assistant Prof., 1964-1969)
Indiana University-Bloomington (Assistant Prof., Associate Prof., Professor and Emeritus Prof., 1969-2011).

Research Accomplishments

Lee was passionate about boron chemistry with unusual borane and carborane cages incorporating main group elements, forming the corresponding heteroborate anions as the ligands for converting them to metallaphospha- and azacarboranes. His tin chemistry was novel. He was active in using boron compounds to attempt to sequester and precipitate radioactive cesium from nuclear reactor wastes, to immobilize them so that they would be rendered “fixed” for long term nuclear waste disposal. Lee was also interested, later in his career, making compounds for BNCT research. He received the BUSA Award in 2008 at the Saint Louis meeting.

Courtesy: Ken Caulton & Lol Barton, Sept. 2011

Jaromir Plešek
Institute of Inorganic Chemistry at the Czech Academy of Sciences – Řež
(September 21, 1927 – April 2, 2010)

Born in Tábor, Bohemia on June 13, 1929
M.S. in 1950 and Ph.D. in 1952 (The Institute of Chemical Technology near Prague)
The Institute of Chemical Technology (Assistant Prof. of Organic Chemistry, 1952-1958)
Polymers for Human Medicine Co. (Research Chemist, 1958-1961)
Laboratory for Special Inorganic Chemistry - Řež (Scientist, 1961 –1972); Institute of Inorganic Chemistry at the Czech Academy of Sciences (1972 until his death)

Research Accomplishments

He is active in the syntheses of boranes and heteroboranes including practical applications and has published over 201 papers, 50 patents, and co-authored a book on sodium hydride in practical chemistry. **He was a co-founder of the IMEBORON conferences and the chairman of the organizing committee of the first meeting in 1971.** He never had the opportunity to work in a laboratory outside of Czechoslovakia.

Courtesy: Bohumir Grüner, Aug. 2011
Clinton F. Lane
Research Professor at Northern Arizona University
(January 29, 1944 – May 19, 2007)

Born in Iowa in 1944
B.S. in 1966 (Iowa State University) and Ph.D. (under H. C. Brown) in 1972 (Purdue University)
Aldrich Chemical Company – Milwaukee, WI (Research Chemist, 1972-1991; Executive Vice
North Arizona University (Research Professor, 2003 until his death in 2007)

Research Accomplishments
He worked for more than 30 years as a chemist for Aldrich Chemical Co. and remained an independent research and
development contractor for industrial companies, as well as for the U.S. Department of Energy. As part of his duties, Lane
was responsible for product management, marketing, technical services, publications, promotions, and purchasing. He
joined Aldrich Chemical in 1972 as a chemist in Research and Development and held positions of increasing responsibility
through the years, becoming Executive Vice President in 1991. Dr. Lane received the American Chemical Society,
Milwaukee Section Award in 1994, and was honored as a Purdue University Old Master in 1995. He was a member of
the American Chemical Society, the New York Academy of Sciences, the Royal Society of Chemistry, London, and the
Chemical Society of Japan. He also served as a member of the External Advisory Committee for the Department of
Chemistry. At Northern Arizona University, Clinton Lane continued his research in organoborane chemistry until his death
in 2007.

Courtesy: North Arizona University News Archive
Robert W. Parry
Priestly Medalist and Emeritus Professor
(October 1, 1917 – December 1, 2006)

Born in Ogden, Utah, on October 1, 1917
B.S. in 1940 (Utah State Agriculture College). M.S. in 1942 (Cornell U.) and Ph.D. in 1946 (University of Illinois)
The University of Michigan (Assistant Prof., Associate Prof. and Professor, 1946-1969)
The University of Utah – Salt Lake City (Distinguished Professor, 1969-1997; Emeritus Professor, 1997 until his death)

Research Accomplishments

For his extraordinary accomplishments as an educator and his research distinctions, as well as his lifelong service to the profession of chemistry, Bob Parry received numerous awards and honors. These include the ACS Award for Distinguished Service in Inorganic Chemistry (1965); Manufacturing Chemists Award for Excellence in the Teaching of College Chemistry (1972); ACS Award in Chemical Education (1977); Alexander von Humboldt Senior U.S. Scientist Award (1980, 1983); First Governor’s Medal in Science, State of Utah (1987); Honorary Doctor’s Degrees from Utah State University (1985) and the University of Utah (1997). These recognitions culminated in his receipt of the ACS Priestly Medal (1993). Robert Parry was extremely active in the American Chemical Society. He served as its president-elect in 1981 and president in 1982. He was the founding editor of Inorganic Chemistry (1960 – 1963). Parry received the Boron in the Americas (BUSA) Pioneer Award in 2002.

John H. Morris
Reader of Inorganic Chemistry at University of Strathclyde in Glasgow
(1937 – 2005)

Born in Cardiff, Wales in 1937
B.S. in 1958, Ph.D. in 1961 and D.Sc. In 1985 (University of Nottingham)
University of Newcastle (Senior Research Associate, 1962-1965)
Kingston College of Technology (Senior Lecturer,1965 –1968); University of Strathclyde in Glasgow Senior Lecturer to Reader, 1969 until his death)

Research Accomplishments

He made many new molecules of significant interest in the field and established an international reputation among Boron Chemists. John had many collaborators throughout the world, particularly in America and Russia. He also became interested in the use of boron compounds in boron neutron capture therapy (BNCT) for cancer. To obtain access to suitable neutron sources, he made many trips to Eastern Europe and in particular to Russia. He was an excellent preparative chemist with a lifelong fascination with the chemistry of boron. His major research interests are in chemical and electrochemical studies of boranes, metallaboranes, and boron heterocycles.

Courtesy: American Chemical Society

Courtesy: Robert E. Mulvey, U. Strathclyde
Herbert C. Brown
Nobel Laureate Professor
(May 22, 1912 – December 19, 2004)

Born in London, England on May 22, 1912
B.S. degree in 1936 and the Ph.D. degree in 1938, University of Chicago
Postdoctoral Fellow with Professor M. S. Kharasch, 1939
University of Chicago (Instructor, 1939 – 1943)
Wayne University (Assistant Prof., 1943-1946; Associate Prof. 1946-1947)
Purdue University (Professor, 1947 – 1979)
Retired in 1979 but remained research active until his death.

Selected Honors and Awards

Harrison Howe Lecturer in 1953; Centenary Lecturer of The Chemical Society (London) - 1955
National Academy of Sciences – 1957; Nichols Medal - 1959
ACS Award for Creative Research in Synthetic Organic Chemistry - 1960
American Academy of Arts and Sciences - 1966
Linus Pauling Medal - 1968; Honorary Doctorate of Science (University of Chicago) - 1968
Roger Adams Medal – 1971; Charles Frederick Chandler Medal – 1973
Madison Marshall Award – 1975; CCNY Scientific Achievement Award Medal - 1976
Honorary Fellow of The Chemical Society-1978; Allied Award-1978; Ingold Memorial Lecturer and Medal - 1978; Elliot Cresson Medal
- 1978; Foreign Member of the Indian National Academy of Sciences - 1978

National Academy of Sciences Award in Chemical Sciences – 1987
Emperor's Decoration (Japan) – 1989; Order of the Rising Sun, Gold and Silver Star – 1989
Oesper Award (Cincinnati Section ACS) – 1990
ACS Herbert C. Brown Medal and Award for Creative Research in Synthetic Methods – 1998
Honorary Doctorate Degree from Northern Illinois University – 2002

Courtesy: George Kabalka, Aug. 2011
90th Birthday Celebration at Purdue University Gathering of Former Students and Colleagues

Kabalka & Brown at 80th Birthday Celebration

Sarah Brown holding the cake at Brown’s 90th Birthday Celebration at NIU President’s House in May 2002

Brown, Narayan & Sarah at 90th Birthday Celebration at NIU
Anton B. Burg
Distinguished Emeritus Professor at The University of Southern California
(October 18, 1904 – November 18, 2003)

Born in Dallas City, Illinois, on October 18, 1904
B.S. in 1927 and Ph.D. in 1931 (University of Chicago under Schlesinger)
The University of Chicago (Instructor, 1931-1939)
The University of Southern California (Assistant Prof. to Professor, 1939-1980 and Chairman, 1940-1950; Distinguished Emeritus Professor, 1980 until his death)

Research Accomplishments
Anton Burg 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. In 1969 he received the prestigious American Chemical Society Award for Distinguished Service in the Advancement of Inorganic Chemistry. Anton Burg’s real passion, however, was studying boron compounds, a field in which he was a pioneer and a leader. He synthesized many boron compounds that eventually found wide use in organic chemistry as tools for creating more complex molecules. Among his many graduate students was Herbert C. Brown, who went on to win the Nobel Prize. Burg remained active in research long after he had officially retired and maintained a productive lab until he was in his nineties. A bicyclist who never drove a car, Burg was both a scholar and a nationally ranked track star as a student at the University of Chicago.

William H. Sweet
Reader of Inorganic Chemistry at University of Strathclyde in Glasgow
(February 13, 1910 – January 22, 2001)

Born in Kerriston, Washington State in 1910
B.S. in 1930 (University of Washington), M.D. in 1936 (Harvard Medical School) and Residency in 1939 (Billings Hospital, Chicago – Neurosurgery/Neurology).
Harvard Medical School – Massachusetts General Hospital (Professor & Neurosurgeon to Emeritus, 1946-2001)

Research Accomplishments
Bill Sweet’s clinical research interests are Boron Neutron Capture Theory (BNCT), Treatment Syndromes of Facial Pain, Treatment of Persistent Pain in General, Diagnosis and Treatment Cranioopharyngiomas, Diagnosis and Treatment Optic Gliomas. He is a co-inventor (with MGH's Gordon Brownell) of positron emission tomography (PET Scanning in 1953), originator and major proponent of BNCT for brain tumors (1952) and the developer of the most frequently used procedure for the treatment of trigeminal neuralgia (radiofrequency lesioning of the trigeminal ganglion in 1974). He performed one of the first successful carotid bifurcation reconstructions (with Drs. Hamlin and Lougheed) on June 11, 1953.
Robert J. Brotherton  
Vice President for Research at Borax Co.  
(1928 – 2001)

Born in Ypsilanti, Michigan in 1928  
B.S. in 1949 (University of Illinois) and Ph.D. in 1954 (Washington State University)  
University of Minnesota (DuPont Fellow, 1954-1955); Union Oil California (Research Chemist (1955-1957)  
U. S. Borax (Research Chemist – Vice President for research, 1957 –1993 until retired)

Research Accomplishments

Bob Brotherton was a co-founder of Boron in the USA (BUSA) organization. His expertise was high energy boron fuels as part of Project ZIP. He pioneered diboron compounds and was first to make tetra(hydroxy)diboron, tetra(aminodiboron, and tetra(dimethylamino)diboron, which are now important synthetic reagents. He co-authored two books: Organoboron Chemistry, John Wiley & Sons, 1966 and Inorganic Boron Chemistry. His achievements were recognized with the Boron in the USA (BUSA) award in 1992.

Stanislav Heřmánek  
Professor at the Czech Academy of Sciences-Řež  
(June 13, 1929 – August 16, 1999)

Born in Tábor, Bohemia on June 13, 1929  
M.S. in 1952 (Prague Technical U.) and Ph.D. in 1966 (Technical University, Pardubice)  
Research Institute of Natural Drugs, Prague, 1958-1960  
The Institute of Chemical Technology (Assistant Prof. – Professor, 1961 –1974); Charles University (Professor, 1996 until his death)

Research Accomplishments

Stan Heřmánek (one of the founders of IMEBORON) developed more sophisticated multinuclear NMR methods to identify new substances. A key early breakthrough was his recognition that the kinetics of the thermal gas-phase conversion of diborane into higher boranes, and ultimately decaborane. The value of his contributions was recognized in 1968 by a Czechoslovak Academy of Sciences Award, and most recently by the award of the highly prestigious Heyrovsky Medal of the Academy of Sciences of the Czech Republic, a belated tribute to his lifelong achievements in boron science.
Hiroshi Hatanaka
Professor and Neurosurgeon at Teikyo University, Tokyo
(1932 – 1994)

Born in Tokyo, Japan in 1932
M.D. in 1957 (Tokyo University)
Harvard Medical School – Massachusetts General Hospital (Fulbright Scholar, 1964-1967 under Dr. William Sweet)
Teikyo University, Tokyo (Professor & Neurosurgeon, 1968-1994 until his death)

Research Accomplishments
Hiroshi Hatanaka successfully applied the boron neutron capture therapy (BNCT) concept in Japan, where he began clinical trials in 1968. Hatanaka used improved boron compounds, known as BSH, and applied radiation directly to surgically exposed tumors, rather than attempting to radiate the tumor through the patient's skin and skull. He was internationally recognized for advancing the brain tumor treatment through BNCT.

Ralph G. Fairchild
Professor at the School of Medicine at SUNY-Stoney Brook
(1935 – 1990)

Born in Trenton, New York in 1935
B.S. in 1957 (Lawrence University), M.S. (Nuclear Engineering) in 1959 (Cornell University) and Ph.D. (Physics) in 1961 (Adelphi University)
Brookhaven Medical Department (BNL) (1961 –1990 until his death)
State University of New York (SUNY)–Stony Brook School of Medicine ( Research Associate Prof. 1979-1990)

Research Accomplishments
Internationally recognized as a leading American investigator in boron-neutron-capture therapy (BNCT), Dr. Fairchild helped develop a new type of neutron beam at Brookhaven's Medical Research Reactor. The goal of neutron-capture therapy is to attract radiation to cancer cells, destroying them while leaving neighboring healthy cells undamaged.
Earl Leonard Muetterties
Professor at The University of California-Berkeley
(June 23, 1927 – January 12, 1984)

Born in Elgin, Illinois, on June 23, 1927
Central Research Department at Du Pont, 1952-1965; Associate Director, 1965
(Professor, 1978 until his death)

Research Accomplishments
At Du Pont, Muetterties’ boron hydride work led into one of the most exciting periods of Earl's career, the discovery of polyhedral borane anions such as $\text{B}_{12}\text{H}_{12}^2-$. Walter Knoth, who was exploring decaborane chemistry in Earl's group, discovered that the dimethyl sulfide complex $\text{B}_{10}\text{H}_{12}(\text{SMe}_2)_2$ was easily converted to the $\text{B}_{10}\text{H}_{10}^2-$ ion. The most exciting aspect was that $\text{B}_{10}\text{H}_{10}^2-$ displayed a substitution chemistry like that of aromatic hydrocarbons. Professor Muetterties’ legacy is a web of ideas, patterns, and understandings that permeates modern Inorganic Chemistry.

Ralph William Rudolph
Professor at The University of Michigan
(July 14, 1940 – May 11, 1981)

Born in Erie, Pennsylvania on July 14, 1940
B.S. in 1962 (Penn State), M.S. in 1964 and Ph.D. (under R. W. Parry) in 1966 (University of Michigan)
University of Michigan (Assistant Prof., 1969 –1973; Associate Prof. 1973-1979; Professor, 1979 until his death)

Research Accomplishments
At the University of Michigan, Professor Rudolph continued his phosphine chemistry (the one he learned from his Ph.D. work), particularly the chemistry of compounds having phosphorus-phosphorus bonds. However, he quickly proceeded to develop an active program in polyboranes and carboranes. During the period from about 1970 through 1977, his efforts not only resulted in further metallocarboranes with “naked metals”, but also produced the synthesis of thiaborane in which a sulphur atom was incorporated into a cage structure of boron atoms. This compound proved to have a rich and interesting chemistry. Although still in the early stages of his career, his bibliography included over 60 research papers. A number of these are regarded as landmarks in the broad field of boron chemistry.

Professor Rudolph’s achievements at the University of Michigan brought considerable lustre to the department.
WHAT DID WE LEARN FROM THEM?
Invaluable “Quotes”!

Einstein – “Imagination is More Important than Knowledge”

The Colonel Lipscomb – “Imagination Leads to Creativity”

Bob Parry – “Creativity Leads to Crazy Ideas”

Harry Emeléus – “Crazy Ideas leads to New Knowledge”

H. C. Brown – “Nothing is Impossible Unless You Give Up”

Gordon Stone – “Crazy Ideas Leads to Unusual Results”

Anton Burg – “Unusual Results Challenges One’s Mind”

Thank You