



American Chemical Society

Nebraska Section Newsletter

<http://nebraskaacs.nebrwesleyan.edu>

MARCH, 2008

OFFICERS

CHAIR

Neil Heckman
Hastings College
nheckman@hastings.edu
402-461-7452

CHAIR-ELECT

Andrea Holms
Doane College
andrea.holms@doane.edu
402-826-6762

SECRETARY

Moses Dogbevia
Hastings College
mdogbevia@hastings.edu
402-461-7466

TREASURER

Carrie Wolfe
Union College
cawolfe@ucollege.edu
402-486-2600 X2366

COUNCILOR

Scott Darveau
UNK
darveusa@unk.edu
308-865-8491

ALTERNATE COUNCILOR

Michael Mosher
UNK
mosherm@unk.edu
308-865-8385

BOARD MEMBERS

Fred Mattes
Hastings College
fmattes@hastings.edu
402-461-7383

Kim Richman
Central Community College
krichman@cccneb.edu
402-461-2489

Peggy Ruhn
MDS Pharma
pruhn@neb.rr.com
402-437-1181

WEB MASTER

Nathanael Fackler
Nebraska Wesleyan University
nfackler@nebrwesleyan.edu
402-465-2261

Speakers

March 26, 2008

Speaker:

W.H. "Jack" Breazeale
College of Charleston/
Laboratory Safety Institute



Venue: Nebraska Wesleyan University, Lincoln, NE. Dinner will begin at 6:00 pm at the dining hall. The cost is \$2 for student ACS members, \$5 for all other ACS members, and \$7.25 for nonmembers. We will meet in the Conestoga room located adjacent to the main seating area of the dining hall. The presentation will follow the meal.

Title: The H. L. Hunley: Recovery and Preservation

Abstract: On the night of February 17, 1864 the Confederate submarine, the H.L. Hunley, attacked and sank the USS Housatonic. The attack occurred in Charleston Harbor on the South Carolina coast. The Hunley and its crew never returned from the mission. That is, until 8:37 am on August 8, 2000, when the submarine and its crew were recovered off the South Carolina coast. Work is complete on the recovery of the crew and continues on the preservation of the vessel. The talk will include a brief history of the Hunley, explain the search and recovery process, and a brief discussion of the continuing preservation process of the submarine.

April 21, 2008

Speaker:

Conrad Stanitski
Franklin and Marshall College



Venue: University of Nebraska-Kearney, Kearney, NE. Social begins at 5:30pm with dinner at 6:00pm and the speaker to follow. Cost is \$2 for students and \$5 for adults.

Title: Chemical Literacy: An Oxymoron?

Abstract: Nearly 100% of U.S. secondary school graduates have taken a biology course in high school. That number drops by half with respect to chemistry, and half again in terms of physics. Using data, humor, examples, and perspectives, this talk describes several aspects of chemical literacy (and scientific literacy in general) among the general American public. But, the American public is not alone in those who misinterpret or fail to understand chemical and other scientific concepts. The talk also features several examples of major errors committed by noted scientists in making predictions regarding newly discovered scientific phenomena.

Directions:

Detailed maps for directions to these speakers can be found on our web page at:

<http://nebraskaacs.nebrwesleyan.edu>

Other Events

April 18, 2008

The 118 Annual Nebraska Academy of Sciences Annual Meeting

Venue: Nebraska Wesleyan University, Lincoln, NE.

Web page: <http://www.neacadsci.org/>

October 8-11, 2008

Event: 43rd Midwest Regional Meeting

Venue: Kearney, NE

Web page: <http://chem.unk.edu/mwrm2008/>

Local Section Notes

As you may have noticed, both speakers are different than what was advertised last month in the newsletter. Because of unusual circumstances both original speakers had to cancel their tours and we were fortunate enough to secure both of the speakers shown in this newsletter. Sorry for any confusion this may have caused.

The executive committee would also like to congratulate Dr. Andrea Holmes for approval of her grant proposal for work with Project SEED at Doane College.

This Month in Chemical History

Harold Goldwhite, California State University, Los Angeles - hgoldwh@calstatela.edu

Since 1903 the Chemical Society of London has been publishing annual reports on the progress of chemistry. This series was possibly based on the example of Berzelius, the great Swedish chemist, who for many years early in the 19th. Century single-handedly compiled his annual personal review of significant work in chemistry. We are near the beginning of a new year, and I have before me Volume V of the Chemical Society's reports for the year 1908 (published, naturally, in 1909) just 100 years ago. It is striking that this report is economically contained in fewer than 300 pages including both name and subject indexes. I plan to devote this column and the next to an overview of my selections from this report.

But before I get into specifics, let's examine the historical context. The electron was discovered by Thomson only ten years ago. Radioactivity is, if you'll pardon the pun, the hot new research area. Rutherford and his students Geiger and Marsden have just begun their experiments on the interactions between alpha particles and metal foils that will lead to the concept of the nuclear atom. Gilbert N. Lewis is sketching in his notebook at Berkeley his first notions of the octet rule.

In this context the comments by Alexander Finlay on the structures of atoms make fascinating reading. He begins at the beginning: the evolution of the heavier elements from lighter ones as deduced from the spectra of nebulae. "...[These] consist of lines recognizable as those of hydrogen and helium, as well as two other lines not belonging to any known substance. From these four initial substances or protons [note the different meaning of the word from our current usage; hg] all the other elements are regarded as being evolved by the condensation round these protons (themselves formed of corpuscles) of corpuscles so as to form stable systems capable of separate existence. Whatever the internal structure of these atoms may be, they may be regarded as being built up of concentric "rings", or assemblages of corpuscles."

Finlay is here drawing on theoretical speculations of A.C. and A.E. Jessup which led them to propose the existence of two new elements, as yet undiscovered terrestrially, which they called proto-glucinum (glucinum was the generally accepted name for the element we now call beryllium) and proto-boron. These elements occupied the first row of the Jessup's periodic table at the head of Groups 2 and 3.

Turning from the evolution of the elements to the electronic theory in chemistry we see again the early stirrings of what would become a new view of chemical reactivity and reactions. Sir William Ramsay, discoverer of the noble gases, and in 1908 President of the Chemical Society, outlined his views in that year's Presidential Address. "Electrons are atoms of the chemical element electricity; they possess mass; they form compounds with other elements; they are known in the free state, that is, as molecules; they serve as the 'bonds of union' between atom and atom. The electron may be assigned the symbol E". In Ramsay's view the reaction forming sodium chloride from its elements can be symbolized as $ENa + Cl = NaECI$, with the electron E as the bond of union between the sodium and chlorine. "On solution the electron remains with the chlorine giving chloridion." Arrhenius' views on dissociation into ions of electrolytes in aqueous solution, first enunciated in his thesis some 20 years earlier, are by now widely accepted; but not yet carried over to the structures of ionic solids. That had to wait another decade for the Braggs' X-ray diffraction results.