ACS of Western New York

Double Bond

The Newsletter of the Western New York Section of the American Chemical Society

Volume 81 ***October 2009***

2009 JACOB F. SCHOELLKOPF MEDAL

The Western New York Section of the
American Chemical Society
invites you to be present at
the seventy-ninth presentation of the
Jacob F. Schoellkopf Medal
to

John P. Richard, PhD

For his outstanding research in the field of physical organic and bioorganic chemistry; specifically the study of reaction mechanisms of biologically significant enzymatic and non-enzymatic reactions.

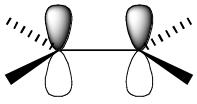
Tuesday evening the seventeenth
of November, two thousand and nine

Cash bar with hors d'oeuvres at six o'clock
Dinner at seven o'clock
Presentation to follow dinner

Salvatore's Italian Gardens Restaurant
6461 Transit Road, Depew, NY

Formal dress optional
RSVP by November 10, 2009

See page 8 for reservation details



CALL FOR OFFICER NOMINATIONS

The Western New York section is actively seeking nominations for the following executive officer positions for terms starting January 2010:

Chair
Vice Chair
Chair-elect
Treasurer
Member-at-large

If you are interested in becoming more active in our section yourself, or wish to nominate someone else, we urge you to contact a member of the current executive board listed at the end of this publication.

Nominations, including contact info for you and the nominee should be sent to Timothy Gregg by email at greggt@canisius.edu or (716) 888-2259 by November 2, 2009.

Elected officers must be members of ACS.

Details concerning this year's elections will be posted in the next issue of the *Double Bond.*

NATIONAL CHEMISTRY WEEK, 2009

October 18–24, 2009

Chemistry--It's Elemental!

Each year National Chemistry Week reaches millions of people with positive messages about the contributions of chemistry.

Join in the celebration of NCW 2009!

http://www.acs.org/ncw

Check out page 8 for information about public NCW events at Canisius College

2009 JACOB F. SCHOELLKOPF MEDAL

The Schoellkopf Medal is the oldest ACS local section award in the nation, and was named in honor of chemical industry entrepreneur Jacob F. Schoellkopf, founder of National Aniline Works. The Jury for the Schoellkopf Award selected Dr. John P. Richard, Professor of Chemistry at the University of Buffalo, SUNY as the 2009 Schoellkopf Medal recipient. In making the selection, the jury cited Dr. Richard

> *For his outstanding research in the field of physical organic and bioorganic chemistry; specifically the study of reaction mechanisms of biologically significant enzymatic and non-enzymatic reactions.*

John P. Richard received his B.S. degree in Chemistry from The Ohio State University. He remained in Columbus to do a Ph.D. under the direction of Perry Frey on the stereochemical course of enzyme catalyzed phosphoryl transfer between nucleoside or nucleotide substrates. This was followed by postdoctoral work with Bill Jencks at Brandeis University where he developed a simple azide ion "clock" to determine carbocation lifetimes in the millisecond to picosecond range. Richard then spent two years at the Fox Chase Cancer Center working with Nobel Laureate Ernie Rose on the mechanism of action of triosephosphate isomerase.

In 1985 Richard was appointed as an Assistant Professor in the Department of Chemistry at the University of Kentucky and was promoted to Associate Professor in 1990. In 1993 he moved to the University at Buffalo, SUNY where he is now a Full Professor in the Department of Chemistry. During his 25 years as an independent investigator, Richard has studied a wide range of problems related to the mechanism for organic reactions in water, the lifetimes of the putative carbocation, carbanion and carbene intermediate of these reactions, and the mechanism for catalysis of biologically important reactions by pyridoxal 5'-phosphate and dinuclear metal cation complexes. This research has been extended to studies of the mechanisms for the stabilization of reactive intermediates at the active sites of enzymes such as β-galactosidase, triosephosphate isomerase and orotidine 5'-monophosphate decarboxylase. Most recently, Richard and coworkers have focused on defining the role of flexible protein loops in stabilizing reactive enzyme-bound intermediates.

Richard has edited 15 books and published more than 160 papers, including 72 in the American Chemical Society flagship journal, *The Journal of the American Chemical Society*. He served six years as the Secretary of the American Chemical Society Division of Biological Chemistry (2002 – 2008). Richard was the editor of

John P. Richard

Annual Reports on the Progress of Chemistry, Section B (1996 – 2001) and since 2000 has served as editor of *Advances in Physical Organic Chemistry*. He is a member of the Editorial Advisory Board of *Biochemistry, Bioorganic Chemistry* and *The Journal of Physical Organic Chemistry*. Richard has participated in various capacities in the organization of local, national and international conferences, including as Co-Chair of the 2006 Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways and as Chair of the upcoming 2010 Gordon Research Conference on Isotopes in the Biological and Chemical Sciences. He will serve as Chair of the 2011 Enzyme Mechanisms Conference. Richard has given numerous invited lectures at national and international meetings, including presentations in the UK, Canada, Brazil, Japan, South Korea, New Zealand, Ireland, Spain, Portugal, France, Germany, Belgium, Italy, Czechoslovakia and Sweden.

Richard is married to Tina L. Amyes, his life-long partner in Chemistry and all things domestic. They reside in the Village of Williamsville and are the proud owners of Lizzy, a husky-shepherd mix who with Tina's guidance (naturally) finished at the top of dog-training class!

2009 JACOB F. SCHOELLKOPF AWARD DINNER

For reservations, please call Alice Steltermann at the Canisius College Department of Chemistry and Biochemistry: (716) 888-2340

Dinner Selections:

Filet Mignon

Penne ala Roma
vegetarian (sauteed in olive oil, wild mushrooms, garlic, tomato, artichokes)

Fresh Poached Salmon
(served with a lobster dill sauce)

Wine served with meal.

$40.00 per person
(Your cancelled check will be your receipt.)

Tickets may be picked up at the door.

Please respond by November 10, 2009.
Make checks payable to:
Western New York Section - American Chemical Society

UNDERGRADUATE STUDENTS CAN NOW PARTICIPATE IN LOCAL SECTIONS

Effective June 2009, all ACS Student Affiliates are now Student Members. Last fall, the ACS membership voted to change the Society bylaws to grant all undergraduates the rights of full membership as Student Members, including membership in ACS Local Sections. For further details regarding the membership categories changes, please refer to the June 15, 2009 article in *Chemical & Engineering News*.

ACS is now actively recruiting undergraduates to become members of the ACS. Undergrad.ACS.org is the primary recruitment tool staff members have developed for this audience. Please refer students to this web site if they are interested in joining ACS. The site describes all of the benefits of ACS membership geared specifically for undergraduates. We hope that by bringing in new undergraduate student members, ACS Local Sections will benefit from an increase in participation and contributions from the next generation of chemical scientists.

Don't forget, every new student member you recruit also applies toward your local section commission claim and the 2009 ACS President's Challenge. Just be sure to have the student select your local section as the referral on the online membership application found on undergrad.ACS.org.

We encourage you to reach out to this audience of new members and welcome them into your local sections. Additional information can be found at http://undergrad.ACS.org. Feel free to send any questions to ACS Membership Marketing by clicking on "Contact Us," which is found at the bottom of every page on the Web site.

NCW ACTIVITIES AT CANISIUS COLLEGE

Saturday, October 24, 2009

To celebrate National Chemistry Week, the Canisius College Student Chapter of the American Chemical Society will present two spectacular chemical demonstration shows. The shows will incorporate this year's National Chemistry Week Theme: "Chemistry - It's Elemental".

Each show is FREE and open to everyone **and their families** and will take place on Saturday, October 24th on the 1st floor of the Horan O'Donnell Building at Canisius College. The first show will start at 3PM and last approximately 45 minutes and the second show (a repeat of the first) will start at 4:15PM. Liquid Nitrogen ice cream will be available and many great prizes from the American Chemical Society Store will be raffled.

A flyer, a campus map and information about parking can be found at:

http://www3.canisius.edu/~acs/ACS/ncw.html.

GET INVOLVED IN IYC 2011

Support the U.S. Commemorative Stamp Campaign

The ACS is working to urge the United States Postal Service to adopt chemistry as a theme for a commemorative stamp in 2011 in view of the contributions of chemistry to the well-being of humankind in the U.S. and worldwide and on the occasion of the 2011 International Year of Chemistry. The USPS gets 50,000 subject requests per year and awards only 25 commemorative stamps per year. Your efforts to contribute to this cause this year are very important and very much appreciated!

How to get involved: Visit www.acs.org/iyc2011 to download the petition. Distribute the petition for signature among your colleagues, students, and friends (all chemists and friends of chemistry are encouraged to sign!). Mail or FAX completed petitions to the ACS Office of International Activities no later than November 1, 2009. To learn more about IYC 2011 and to contribute ideas to the ACS celebration of this historic event, visit: www.acs.org/iyc2011.

60 YEARS AGO IN *THE DOUBLE BOND*

The following excerpt appeared in the September, 1939 Double Bond

Contemplating two days and two nights on a Pullman enroute to Texas in the middle of July made it every easy to think of a plane trip, especially as there would be possibilities for taking pictures. Obtaining a reservation was even easier than obtaining a Pullman reservation as a telephone call to the American Airlines office in Buffalo resulted in the C.O.D. delivery of my ticket by the Postal Telegraph in Niagara Falls the next day. The fare is only slightly more than Pullman fare, the difference depending on how much allowance one makes for meals and hotel accommodations at the end of the trip.

A car, making the circuit of the important hotels, delivered me at the airport about 10 minutes before plane departure. Forty pounds of baggage is carried free but although my Gladstone bag seemed quite heavy, it weighed only 37 pounds. The weather conditions at various cities on the route are posted in the waiting room of the airport and before taking off the pilot receives the general flight instructions. As one gets on the plane the hostess introduces herself and asks your name. Immediately before taking off a sign flashes, indicating that you should adjust your seat belt and that you should not smoke. The hostess diplomatically checks these regulations. The take offs are quite smooth and it is impossible to tell when you have left the ground unless you look out the window.

As we left Cleveland it was 8:35 A. M. and we were offered orange juice, coffee and Danish pastry. Later, the morning newspapers and cigarettes were passed around. The plane was a 14 passenger Douglas with a cruising speed of 175 mph. On board were 13 men, 1 woman, the hostess and 2 pilots. Stops of about 5 minutes were made at Columbus, Dayton, Cincinnati, Louisville, Nashville, Memphis, etc. The landings were slightly more rough than the take offs but not enough to be uncomfortable. At each stop a portable air-conditioning unit was connected to the plane. A portable, auxiliary storage battery was also used for starting the motors in order to conserve the power of the smaller storage batteries on the plane.

There was some discomfort from pressure on the ear drums, when landing and for several minutes thereafter. This was somewhat relieved by swallowing and somewhat by chewing the gum which was offered prior to each landing. Most relief was obtained by clearing the passages between the mouth and the ears. At Nashville I changed to a 24 passenger Douglas Sleeper plane, 200 mph cruising speed, which had left New York about the same time we left Cleveland. Immediately after leaving Nashville we were served lunch (gratis) which consisted of tomato juice, crackers, several kinds of bread, butter, pineapple and cream cheese salad, steak, sweet potatoes, celery, olives, coffee and cake.

Now for some random observations during the flight.

"Beautiful Ohio", Bah, looks like brick plants could pump slip directly from river.

Saw no birds while we were in flight but a housefly played around the inside of the window as far as Louisville.

Hostesses are very attentive, pleasant and smart but best looking ones are in air line advertisements.

After leaving Memphis the next stop is Dallas only 426 miles away.

Temperatures over Texas were as follows: outside plane 57˚ F, inside plane 70˚ F, on ground 104˚ F.

Passed through several 5-minute showers but it rains horizontal when you are traveling at 200 mph.

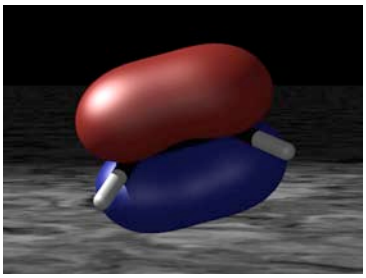
There is little sensation that you are moving at 200 mph but the wind seems to be blowing against you all the time as the clouds all come at you quickly from directly in front. However, on the ground the shadows of the clouds seem to be motionless.

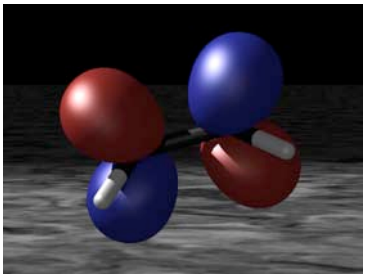
It must be pretty hard to drop a bomb accurately from 10,000 feet, for at this elevation people are invisible and houses and barns look like pin points.

Only one passenger of the approximately 30 who were on the plane from time to time was air sick.

The weather was hazy at the take off, but most of the flight was in brilliant sunshine, over patches of billowy white clouds which were 1,000 to 2,000 feet above ground.

Would I go by air again? I surely would unless we were in the stormy season of the year.





THIS MONTH IN CHEMICAL HISTORY

By Harold Goldwhite

Some of my most prized acquisitions of material related to history of chemistry – perhaps because they cost very little – have been obtained at thrift shops and flea markets. In early 2008 I was browsing at a thrift shop in Eugene, Oregon when I came across one of these treasures and snapped it up for a quarter. It is titled "Nuclear Milestones": speeches by Glenn T. Seaborg, Chairman U.S. Atomic Energy Commission 1961-1971. This particular compilation was presented to participants of the 1990 "Instrumentation" Institute for Chemical Education held at the Lawrence Hall of Science and the Department of Chemistry, University of California at Berkeley. My copy (perhaps all the copies?) is autographed by Seaborg. In this column and the next I will be looking at some of the interesting contents of this paperbound volume. It is generously illustrated with many photographs of historical interest; the frontispiece shows some of those present at the Atomic Pioneer Award Ceremony in February 1970. The awardees at this unique ceremony were Vannevar Bush, James B. Conant, and General Leslie Groves – certainly among the most important of the U.S. pioneers in support of nuclear research – and the presentation was made in the presence of Seaborg and President Richard M. Nixon, both of whom are in the photograph.

The first section of the book, "307 Gilman Hall …Some Reminiscences" is a talk given in February 1966 at the dedication of this modest room at UC Berkeley as a National Historic Landmark (long before the ACS began its Historical Chemical Landmark program). The date of this dedication was the 25th. anniversary of the discovery of plutonium not only in Room 307 but in adjacent laboratory spaces. As Seaborg said "a less significant or historical looking room hardly existed on the campus .... The little cubbyhole with its low slanting ceiling directly under Gilman Hall's roof, where we kept our electroscope and various samples, is still an appendage to the room".

Seaborg's story of the discovery of plutonium is attractively personal, and he dates it back to 1936 when he gave a graduate student seminar reporting on the now-famous work of Fermi and Segre in Rome and Hahn and Strassman in Berlin on the radioactivities observed when uranium was bombarded with neutrons. The accepted explanation at the time was the production of new transuranium isotopes. It was not until 1939 that the explanation of the new activities in terms of fission was put forward by Meitner and Frisch. Seaborg became fascinated by this new research and appreciated in 1939 that in fact no transuranium isotopes had yet been identified. Other workers at Berkeley were not so sure! McMillan and Abelson observed that some of the radioactivities behaved anomalously, in particular a beta-decay with a half-life of about 2.3 days. In further work they confirmed that they did indeed have in hand an isotope of element 93 and by spring 1940 they had isolated and discovered the first isotope of a transuranium element, which came to be called neptunium. This followed a tradition of naming some heavy elements after planets, like uranium after Uranus. McMillan began to look for other transuranium elements, and began experiments on bombarding uranium with deuterons in the Berkeley cyclotron, but he was called away to work on radar at M.I.T. and agreed that his close colleague Seaborg should continue the search.

Seaborg and Wahl in December 1940 bombarded a target of uranium oxide on a copper plate with fast moving deuterons. They detected a plutonium isotope plus another material that was, significantly, an alpha emitter. They deduced that they had produced an isotope of element 94 with a mass number of 238 and a half-life of under 100 years; it was consequently strongly radioactive. In late January 1941 they sent a note, with authors McMillan, Wahl, Kennedy, and Seaborg, which was later published in "Physical Review". By late February Wahl and Seaborg had produced chemical evidence, via oxidation studies, that element 94 was chemically different from 92 or 93. These experiments were described in a manuscript sent in March 1941 that confirmed that a new transuranium element had been discovered. By March 1942, after a year in which the new element was called variously just element 94 or even "copper", for security reasons, it was decided to name the new element after the then-planet Pluto. After lengthy discussions trying to decide between "plutium" and "plutonium" the latter, more euphonious, name was chosen along with the symbol Pu. By this time the Seaborg group had also isolated the more stable and fissile isotope of plutonium of mass 239 and half-life 24,000 years.

In a report to the "Uranium Committee" in March 1942, by which time the US was at war, Abelson wrote: "It is probable that the cost of isotope separation will be great. The decision to spend perhaps a million dollars on a separation plant may well hinge on the results of these experiments". As Seaborg observes: "We had no idea that our work would play a major role in a program that would eventually cost more than two billion dollars within a few years."

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