ACS of Western New York

Double Bond

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

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2007 JACOB F. SCHOELLKOPF MEDAL

Mark your Calendar:

The Western New York Section of the American Chemical Society invites you to be present at the seventy-seventh presentation of the Jacob F. Schoellkopf Medal to Dr. David A. Kofke, on Tuesday, September 18, 2007.

The award ceremony will take place at The Frog Grill (formerly Warren's), 561 Main Street, Tonawanda, NY 14150. The festivities begin at 6:00 PM with hors d'oeuvers and a cash bar. Dinner will be served at 7:00 PM. Formal dress is optional. Reservation and dinner selection details will be forthcoming in the next edition of the *Double Bond*.

See you there.

The Schoellkopf Medal is the oldest local section award in the nation, and was named in honor of chemical industry entrepreneur Jacob F. Schoellkopf, founder of National Aniline Works. This year, and in subsequent years from this time forward, the award dinner and ceremony will take place at our section meeting in September.

LOCAL SECTION ELECTIONS

The next issue of *The Double Bond* will include a ballot for 2008 WNYACS officer positions as well as brief biographical statements from the candidates.

Please keep your eyes open for the arrival of this important opportunity to be involved in local chemistry activities.

ACS PRESIDENT KATIE HUNT PROMOTES LOCAL SECTION VIDEO

A DVD entitled, "*ACS Close to Home: Local Sections Connecting Chemistry and the Community*" is available in streaming and downloadable formats. It captures the many positive things that local sections do to promote chemistry in their communities and serves as a promotional tool to raise awareness, engage potential volunteers, and encourage future industrial partners/sponsors. It can be shown at a local section meeting, especially for new members, or local events with high school teachers and Student Affiliate chapters to actively reach out to the next generation.

The DVD has two components: (1) a 7-minute overview of the outreach and educational programs sponsored by ACS local sections and the critical role they play in positively influencing the public's perception of chemistry and its practitioners; and (2) a message from ACS President Katie Hunt who talks passionately about re-igniting ACS's commitment to science and technology: *Education, Collaboration and Innovation*! She also discusses her goals for her tenure in the presidential succession and how working together can accomplish the ACS Vision: "*Improving people's lives through the transforming power of chemistry!*"

View the video here.

http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=localsections%5cLocal_Section_DVD_page.html

FROM THE EDITOR

Greetings Western New York,

Schoellkopf is coming. See the important announcement about this upcoming celebration of chemistry in our region on the front page and make your plans to attend this year's banquet.

Timothy Gregg
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Canisius College

THIS MONTH IN CHEMICAL HISTORY

Harold Goldwhite, California State U., Los Angeles; hgoldwh@calstatela.edu

A towering giant of the physical sciences, and yet one of the most modest and unassuming of men, was born on September 22, 1791, in Surrey, England, third child of a blacksmith and a farmer's daughter. Michael Faraday has always been one of my scientific heroes. He was essentially self-educated, and born and raised in humble circumstance. By force of character and intellect he became a leader among chemists and physicists. His life is an exemplary one, and well worth recounting.

The Faraday family moved to London when Michael was only 5, and when he was still in his teens his father died. His early education was fragmentary: "consisting of little more than the rudiments of reading, writing, and arithmetic at a common day school" to quote the man himself. At the age of 13 he became an errand boy in the shop of a bookbinder and stationer, and at 14 became an apprentice in the same shop. "Whilst an apprentice I loved to read the scientific books which were under my hands, and among them delighted in [Mrs.] Marcet's Conversations in Chemistry and the electrical treatises in the Encyclopedia Britannica. I made such simple experiments in chemistry as could be defrayed in their expense by a few pence per week, and also constructed an electrical machine ..." We see here the themes of chemistry and electricity which were to become the center of Faraday's scientific work.

In 1812 a customer took Faraday to hear some lectures by Sir Humphrey Davy, Professor at the Royal Institution. Inspired by these, and by his own reading, Faraday made careful copperplate notes of the lectures, embellished with drawings, and eventually sent them to Davy with a request to be considered for a position. Davy interviewed Faraday, gave him a realistic appraisal of the prospects of a career in science: " telling me that science was a harsh mistress and in a pecuniary point of view but poorly rewarding those who devoted themselves to her service"; and eventually appointed him as a laboratory assistant. Davy had recently married a rich widow, and was reducing his involvement with the Royal Institution. In 1813 he and Lady Davy, accompanied by Faraday, made an extended tour of Europe and in Florence, Faraday assisted Davy in combustion of diamond at the focus of a large burning lens. Faraday was promoted in 1815, and in 1816 gave his first course of lectures and published his first paper, analyzing the native caustic lime of Tuscany. In 1817 six publications of Faraday's appeared. His early chemical work included a variety of analyses, and experiments on novel alloys of iron. In 1821 Faraday was promoted again, to the post of superintendent of the laboratory, and this allowed him to marry, since living quarters were furnished for him at the Institution.

By 1824, when he was 33, Faraday had been elected to the Royal Society, had collaborated with Davy on the liquefaction of chlorine and ammonia, and had begun his work on the relationship between magnetism and electricity. He was also involved in some more practical matters. The Royal Society asked him to work on improving optical glasses. Faraday was a hard worker, and unsparing of himself. His laboratory notebooks, which have been published and which are models of note taking, show how hard he drove himself. In 1827 he published a book on Chemical Manipulation, which went through four editions, and is a wonderful source of information about how early nineteenth-century chemistry was actually done. He took few holidays, and suffered periodically from fatigue and exhaustion. In 1833 and 1834, turning to electrical conduction, he established the principles of electrochemistry in what we now call Faraday's Laws. Seeking a nomenclature for this new subject he turned to Whewell at Cambridge, and they coined the terms so familiar to us all: electrode, ion, electrolysis etc.-- all derived from impeccable classical roots. Towards the end of the 1830's Faraday took on yet more public responsibilities, including acting as an elder in his church. The weight of his burdens broke him for a while. He had to stop his scientific work for a year, and for four years he greatly reduced his lecturing and research. However he maintained one important tradition of the Royal Institution, namely the presentation of a lecture course around Christmas time to a juvenile audience. One of these lecture series is one of the classics of popular science, and has remained in print continuously from the time it was first given. I refer, of course, to Faraday's Chemical History of a Candle. If you haven't yet read it, you have a treat in store.

Faraday's last years as a researcher were devoted to studying the effects of magnetic fields on light, and he did further work on gas liquefaction. The last decade of his life saw a great diminution of his scientific work, but he had well earned his retirement. He died on August 25, 1867. Let me end with a quotation from J. R. Partington, the eminent historian of chemistry. “In his time Faraday was a model for scientific men. Of humble origin, he rose by his genius to the highest rank of scientific eminence, and his moral character and integrity were on the same level."

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