

St. Louis Section, American Chemical Society



George Gokel 2007 St. Louis Section ACS Midwest Regional Award Recipient The St. Louis Section of the American Chemical Society and the St. Louis Community College at Florissant Valley are pleased to announce the 2007:



Battle of the Burets

This contest, for high school chemistry students, will match teams from local high schools against one another in a test of titration speed and accuracy. Teams will be run in preliminary rounds with the winner of each round will advance to the championship. Trophies will be awarded to the preliminary round winners and the winning school.

The contest will be held **Wednesday, October 24th** on the Florissant Valley Campus of the St. Louis Community College. Come join us for a few hours of not too serious competition as we celebrate National Chemistry Week using one of the most basic techniques of analytical chemistry.

For more information on how to enter a team from your high school contact: Bruce Ritts

314-290-4744 bruce_ritts@steris.com

Chemical Bond

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In this issue . . .

- 4 Meetings & Seminars
- 6 George Gokel: Midwest Award Winner
- 7 Call for Nominations: St. Louis Award
- 7 Call for Nominations: St. Louis Chemical
- Science & Technology Award
- 8 St. Louis: Over 100 years of Chemistry
- I2 Nominaees for 2008 Officers
- 14 The 2nd Annual ACS St. Louis Section Picnic
- 15 National Chemistry Week

Meeting Seminars

Board of Directors

St. Louis Section-ACS Board of Directors meets on the second Thursday of each month, at the **Glen** Echo Country Club (map available on website). Meetings are open to all members, and all are encouraged to attend. Elected officers and chairs of major committees have the right to vote; others in attendance have voice but no vote. If you want to attend the dinner, please contact Steve Kinsley (kinsley@wuchem.wustl.edu) at least one week prior to the meeting date. The cost of dinner is \$20. Members wishing to become active in section activities are welcomed to their first dinner for free, compliments of the section.

> **Date:** November 8 **Social hour:** 5:30 pm **Dinner:** 6:30 pm Business Meeting will start during dinner.

NMR Discussion Group

November 9 **Rob Schurko** Univ. of Windsor Onterio, Canada *Seeing the invisible nucleus: ultra-wideline NMR*

For more information contact: Sophia Hayes (Chemistry) at 935-4624 or hayes@wustl.edu

University of Missouri-St. Louis

Seminars are held on Mondays at 4:00 pm in Room 451 Benton Hall unless otherwise specified. Refreshments 15 minutes prior to seminar time. Please check the website at: *http:// www.umsl.edu/chemistry*.



Receive e-mail reminders of upcoming ACS events and activities! To subscibe to the Reminders Listserve, send your e-mail address to Alexa Serfis at BARNOSKI@SLU.EDU.



Chemical Bond

Pick up

rotating

Mass-Vac ad

from p. 10 of February 2007



George Gokel 2007 St. Louis Midwest Award Recipient

George Gokel was born in New York City but grew up in Florida. He earned the B.S. in chemistry at Tulane University in 1968 and his doctorate in chemistry at the University Southern California in 1971 (with Ivar Ugi). He worked as a post-doctoral fellow with D. J. Cram at UCLA from 1972-74 and spent a brief period at Dupont Central Research. He has held

chemistry department faculty positions at the Pennsylvania State University, the University of Maryland, and the University of Miami (Florida). He was Professor and Director of the Bioorganic Chemistry Program at the Washington University School of Medicine from 1993-2006 when he assumed the positions of Distinguished Professor of Science and Associate Director of the Center for Nanoscience at the University of Missouri - St. Louis. Dr. Gokel won the Izatt-Christensen International Award in Macrocyclic Chemistry in 1996 and was elected a Fellow of the American Association for the Advancement of Science in the same year. He received the St. Louis Award from the St. Louis Section-ACS in 2003.

In the past five years, Dr. Gokel has developed a new family of anion-selective channels that are amphipilic peptides. The initial reports of chloride-selective transport were featured on Nature's "Science Update" web site (www.nature.com/nsu/), March 2002, and www.ChemWeb.com, March, 2002. The compounds have been demonstrated to mediate chloride transport in vital lung epithelial tissue. Efforts are underway to develop an aeosol drug delivery system for these compounds in the hope that they may be useful for symtomatic relief of cystic fibrosis. More than 30 research groups are now involved in one way or another in synthetic ion channel design and study.

Simultaneous with these efforts, Dr. Gokel was working to solidify the question of cation-pi interactions involving alkali metal cations. Mass spectral and computational studies made clear that such interactions were possible, but the solid state structures available were all opportunistic. It could be argued in most, if not all, cases that the cation was located in the observed position by crystal packing forces. Dr. Gokel designed a receptor system that could be systematically varied structurally, sterically, and electronically that permitted him to probe the details of these cation-pi interactions. Much of the work is summarized in a review in Accounts of Chemical Research (2002, 35, 878-886).

Dr. Gokel is active in the scientific community. He is on the editorial boards on Chemical Communications, the New Journal of Chemistry, Supromolecular Chemistry, Letters in Organic Chemistry, and other journals. He served as editor of several journals for various periods, recently ending a three-year term as editor of New Journal of Chemistry. Indeed, the Journal recently honored his work with a first ever special issue of the Journal.

Nominate a Colleague for the St. Louis Award

The St. Louis Award, sponsored by the Monsanto Company, is presented to an individual who had made outstanding contributions to the profession of chemistry and demonstated potential to further the advancement of the chemical profession. The award, consisting of a \$1,500 honorarium and a plaque, is presented at the St. Louis Award Banquet, the final event of Chemical Progress Week in April.

Please help the Awards Committee identify outstanding chemists in the St. Louis Section by submitting your nominations to the St. Louis Award Chair. The nominations should include a nominating letter, two or more seconding letters from individuals who have had a close professional affiliation with the nominee, a brief biography, a description of the nominee's accomplishments, and a list of publication and patents.

At the time of the nomination, the nominee must not have previously received the Midwest Award or any national ACS-sponsored award. The nominee must be a member or affiliate of the St. Louis Section of the ACS. The deadline for nomination packets to be received is December 7, 2007. Please send nominations and inquires to: Dr. Joseph Ackerman, St. Louis Award Chariman

Dr. Joseph Ackerman, St. Louis Award Chariman Department of Chemistry, Campus Box 1134 Washinton University, 1 Brookings Drive St. Louis, MO 63130-4899 Phone: 1-314-935-6593 / ackerman@wuchem.wustl.edu

St. Louis Chemical Science & Technology Award Call for Nominations

The St. Louis Chemical Science and Technology Award will be presented to a chemist in the St. Louis area who has demonstrated a high degree of professionalism and scientific contribution. Criteria used to judge the award include technical proficiency, presentations, coaching/teamwork and additional professional activities. The award will consist of a plaque, a check for \$500.00 and dinner for the awardee and a guest at the annual Chemical Progress Week Awards Night. The award will be presented at the Awards Night event, which will be held in April of 2008. This award will be presented to a person whose training includes successful completion of an Associate, Bachelor or Masters Degree in a chemistry or chemistry-related curriculum. Letters of nomination must be received by Sue Dudek, Pfizer Corp., mail code T2A, 700 Chesterfield Parkway West, Chesterfield, MO 63017 by December 22, 2007. Nominations, including seconding letters, must not exceed six pages. The nominating letters should address the criteria above. A current work address, phone number and fax number must be provided for each nominee. Please include an e-mail address. Nominees need not be a St. Louis Section member to be eligible for this award. This award is administered by the St. Louis Section of the American Chemical Society (ACS). For more information contact Sue Dudek 314-274-2464 FAX 314-274-4426 susan.dudek@pfizer.com

St. Louis: Over 100 Years of Chemistry

by Lisa M. Balbes and Lucinda F. Buhse

With the rich history of chemistry in St. Louis, it is not surprising that there has been a local section of the ACS for100 years. Local colleges and universities have provided education, including advanced degrees. Chemists and chemical engineers in this area have had employment opportunities from industry, academia and government. Below are some brief histories of some of the organizations that have been part of the chemistry landscape of St. Louis, many for more than the 100 years of our local section.

Industry

In 1852, the Bavarian Brewery was established on Carondolet, between Lynch and Dorcas. In 1860, Eberhard Anheuser acquired the brewery and renamed it Anheuser & Co. In 1861, Adolphus Busch married Eberhard Anheuser's daughter, and started working at the brewery. In 1876 Budweiser was introduced, in 1877 they developed and used the industry's first refrigerated railroad car, and in 1879, the name was changed to **Anheuser-Busch** Brewing Association (AB). By 1901, they were making over one million barrels of beer annually. In the 1920s, during prohibition, they diversified into ice cream, ginger ale, root beer, corn syrup, and many other things. In 1933, prohibition ended and the famous Clydesdales were introduced. By 1964, 10 million barrels were being produced annually, and in 1980 AB was listed on the New York Stock Exchange.

Mallinckrodt was founded as G. Mallinckrodt & Company, Manufacturing Chemists in 1867 by 3 brothers working from their family farm, with \$10,000 in capital. Their plan was to supply "goods of the highest quality". As the only chemical manufacturing company west of Philadelphia, they were able to capture much of the newly emerging western markets. By 1877 they employed 40 people, and in 1882 they incorporated as Mallinckrodt Chemical Works. Many important products were added to their line over the years, including anhydrous ammonia and narcotic analgesics in the 1890s, and ether in 1914. World War I was a period of turmoil, which eventually opened up the market for Mallinckrodt to compete more directly with the German chemical industry. During the Great Depression, Mallinckrodt did not lay off employees, but instead put them to work maintaining the grounds, painting fences and fixing equipment. During the 1930s, they moved into production of medicinal narcotics, and more partnerships with pharmacists. In 1942, they started refining uranium for secret work on a war project, and this continued through the 1950s. During the 1960s, the company was decentralized into three business units (medicinal, industrial, and nuclear), and employee investment in the company was emphasized. It is now a business unit of Tyco Healthcare.

Monsanto was founded in 1901 by John F. Queeny, to make saccharine. By 1945, they were producing agricultural chemicals, including 2,4D – a chlorinated phenoxy compound that functions as a systemic herbicide. In 1960, the agricultural division was established and the herbicides Ramrod (1964), Lasso (1968) and Roundup (1976) were commercialized. By 1981, Monsanto was a biotechnology

company. In 1982, scientists there were the first to genetically modify a plant cell, and in 1987 they conducted the first US field trials of plants with biotechnology traits. In 1994, Posilac (bovine somatotropin) for dairy cows became their first biotechnology product to win regulatory approval, and went on sale in the US. In 2000, Monsanto entered into a merger and changed its name to **Pharmacia** Corporation.

POLYMER STANDARDS FOR GCP/SEC MOLECULAR WEIGHT ANALYSIS GPC/SEC COLUMN REPACKING American Polymer Standards Corporation 8680 Tyler Boulevard, Mentor, OH 44060 Phone: 440-255-2211 Fax: 440-255-8397

(Pharmacia became a subsidiary of **Pfizer** in 2003.) In 2002, a new Monsanto Company was spun off from Pharmacia. This Monsanto is focused on agriculture and supporting farmers around the world.

During the Great Depression, Aaron and Bernard Fisher founded Midwest Consultants, based on the belief that they could sell anything with high quality and exceptional service. They helped local companies produce cosmetics, shoe polishes, adhesives and inks. Very quickly they hired Dan Brioda, who believed in "doing whatever it takes to get the job done", which helped to expand the business. During World War II, saccharin was a highly desired sweetening agent. In 1946 they hired chemical engineers Leo Bressler and Walter Stern, worked out a production process, and launched Sigma Chemical Company. At first, distributors bought saccharine as fast as they could make it, but before too long Monsanto moved into this market, and Sigma was pushed out. Since they had a fully equipped lab, Sigma started working on other product possibilities, including gold plating, embedding things in plastic, cosmetics, and more. Since they had some extra lab space, they allowed one of Drs. Carl and Gerti Cori's (Nobel prize, 1947) students to use it for isolating and purifying ATP. Sigma scientists realized the commercial potential for ATP, learned how to isolate and purify it, and started selling it to research scientists all over the world. Biochemical production became their sole focus, along with their unprecedented level of customer service. During the 1960s sales increased throughout Europe, and Sigma began making more of its own

Continued on next page.



October 2007

starting materials. In 1972, the company went public, and in 1975 they joined with the Aldrich Chemical company to become **Sigma-Aldrich**.

Education

The universities and colleges in and around St. Louis have provided both employment and education opportunities for chemists and chemical engineers living in this area. Four institutions provide advanced degrees in Chemistry and/ or Chemical Engineering: two public universities, **University of Missouri-St. Louis** (UMSL) and **Southern Illinois University – Edwardsville** (SIUE), and two private universities, **St. Louis University** (SLU) and **Washington University in St. Louis** (WU).

UMSL was established in 1963, and SIUE in 1965. Both offer ACS certified Chemistry BS degrees, as well as Masters degrees. UMSL also has a PhD program. For the 2005-2006 academic year, UMSL granted 17 Bachelors, 11 Masters and 4 PhD degrees in chemistry, and SIUE granted 12 bachelors and 2 masters degrees in chemistry.

The private universities, SLU and WU, have been in St. Louis for much longer. SLU, founded in 1818, is the oldest university west of the Mississippi. It offers an ACS accredited bachelors degree, as well as a masters degree, in chemistry. For 2005-2006, SLU granted 19 bachelors and 8 master's degrees. In this same academic year, Washington University granted 27 bachelors' degrees, 32 masters and 12 PhD's in Chemistry. Washington University also offers degrees in Chemical Engineering with 20 bachelors, 10 masters and 10 PhD's granted in 2005-2006.

SLU School of Medicine professor and WU faculty of medicine, Edward A. Doisy won the 1943 **Nobel Prize** in Physiology or Medicine for discovering the



chemical nature of vitamin K. Washington University has a history of association with Nobel Prize winners. The following are Chemistry Nobel prize winners: Luis Leloir (1970, faculty of medicine), Paul Berg (1980, faculty of Medicine), and Aaron Ciechanover (2004, professor of pediatrics). Other faculty or research fellows have received Nobel prizes in Physiology or Medicine including Carl and Gerty Cori (1947), whose son Tom Cori was president and CEO of Sigma-Aldrich in the 1980s and 90s. Dr. William S. Knowles won the 2001 Nobel Prize in Chemistry for asymmetric hydrogenation work conducted at Monsanto in 1968. Samuel Weissman, Professor of Chemistry at WU, was elected to the National Academy of Sciences. According to the Academy of Science of St Louis, there have been a total of 22 Nobel laureates who have lived, studied, or worked in St Louis.

Faculty from all these universities have supported the local ACS section over the years. The immediate past chair, Alexa Serfis, is at SLU; the current chair, Steve Kinsley, a graduate of SLU, is at WU, and Keith Stine, the chair elect, is at UMSL. UMSL hosts the St. Louis ACS local section website.

Government

Local and federal governments maintain chemistry laboratories here in St. Louis including the **Food and Drug Administration** (FDA) and the **St. Louis Metropolitan Police Department (SLMPD) Forensic Lab**.

The FDA has its **Center for Drug Evaluation and Research (CDER) Division of Pharmaceutical Analysis (DPA)** laboratory in downtown St. Louis. The laboratory began in 1909 and was originally responsible for FDA analyses (food and drug) for Missouri, Arkansas, 2/3 of Illinois and Tennessee. In 1967, the laboratory became the premier pharmaceutical surveillance unit, analyzing more than half the pharmaceutical samples collected by FDA through 1985. In the 1980s the laboratory also manufactured thalidomide for treatment of Hansen's Disease (Leprosy), since liability concerns stopped pharmaceutical companies from manufacturing this product. The DPA now evaluates analytical methods submitted by drug manufacturers, evaluates new technology, and develops new methods for assessing drug quality.

Evaluating fingerprints as a crime solving technique was introduced to the world here in St. Louis during the 1904 World's Fair. The **SLMPD Forensic Lab** was opened in the 1930's under Dr. Rutherford B. Gradwohl, coroner. A new state of the art facility was opened in 2005. Now, primary techniques include FTIR, mass spectrometry, and electrophoresis for DNA analysis. Harold Messler, currently manager of criminalistics, was ACS chair in 1990.

With such a rich history in industry, academics and government, it is no wonder that the St. Louis ACS section has thrived for 100 years.



Nominees for Office - 2008

The Nominating Committee presents the following candidates for office to the St.Louis Section-ACS for 2008. All members of the St. Louis Section are eligible to vote. Please mark the enclosed ballot, following the instructions printed on the reverse side, and return no later than October 31, 2007. Ballots postmarked after that date will not be counted.

Chair-Elect (vote for one)

William F. Doub: No bio available.

Secretary (vote for one)

Jeffrey Cornelius: Professor of Chemistry, Unit Head for Math and Natural Sciences (2004-Present), Principia College. Education Committee Chair (2001-2006). Undergraduate Research Symposium Chair (2000, 2004) Section Secretary (2007-present).

Treasurer (vote for one)

Theodore C. Gast: Professionally affiliated with the Carl F. Gast Company, Arch Paper LLC, and Soulard Artist's Guild: Section activities include: Chair of the St. Louis Sections ACS 2005 (Best Local Section 2005 - large category); hosted ACS president Bill Carroll on whirlwind tour and chemical round table; the development and promotion of Kids & Chemistry (since its inception in 1996); serving as Science Fair Jundge for the past several years; and liaison for TIE (Teachers Industry and Environment), SAS (Society for Applied Spectroscopy), and AIChE (American Institute of Chemical Engineers). Ted has been more recently involved in fundraising activities for the Section through the American Chemistry Council (since November of 2002). He is currently the treasurer of the St. Louis Section.

Director (vote for three)

Samir El-Antably: Founder and President, Camela Medical Equipment Company. Section Activities include: Chair of several committees; Director; Alternate Councilor; Section Chair (1982); St. Louis Section Distinguished Service Award recipient (1996).

Eric Ressner: Technical Information Specialist, Sigma-Aldrich Corporation. Section activities include: Editor, Chemical Bond (1995-2003); Director (2003-2004); Webmaster (2004-present).

Alexa Serfis: Professor of Chemistry at Saint Louis University and the Director of Pre-Professional Health Studies. She served for many years as the faculty advisor for the ACS Student Affilliates group, which has earned national recognition for their activites. As Chair of the Section in 2006 she worked to student affiliation encourage participation with Section members in joint activites. Section activities include: Chair, St. Louis Section ACS (2006); National Chemistry Week Coordinator (1995, 2001, 2002); Alternate councilor (1997-2000, 2007); Director, ACS Board (2003); Awards Committee Chair (2002-2004); Undergraduate Research Symposium Chair (1999, 2003); Undergraduate Programming, Midwest Regional Meeting Chair (2000); Science Fair Awards Chair (2001); ACS Peer Mentoring Workshop, Washington D.C., (2000).

Councilor (vote for one)

Lol Barton: Professor of Chemistry, University of MO, St. Louis. ACS activities include the following: Service in ACS National Offices: Elected to ACS Committee on Committees (2005-2007) Committee on Local Section Activities (1998-2004); Committee on Membership Affairs (1992-1997); Committee Associate (1991). Service in Local ACS: Member ACS since 1966; St. Louis Section Councilor (1990-2004); Alternate Councilor (1987-89, 1979-81); Section Chair (1980); High School Career Day Organizer (1993-1998, 2000); Board of Directors (1981-89, 1977-79, 1993present); Steering Committee member (1980-81, 1996-98); Midwest Award Jury (1983-89, 1992-present); Continuing Education Committee (1972-74); Education Committee Chair (1973-75); St. Louis Award Jury (appointed 1975); High School Chemistry Contest Organizer (1976, 1977); Member Special Committee to Review the Midwest Award (1987); St. Louis Award Symposium Chairman (1983); Section Historian (2000-present). Membership in: Royal Society of Chemistry, Chemistry and Physics on Stamps Study Unit; ACS Divisions: Chemical Education, History of Chemistry, and Inorganic Chemistry.

Greg Wall: Recently retired from Sigma-Aldrich Corporation, Greg is a 27 year member and has been with the St. Louis Section for 22 years. Section activities include: Chair (1996); General Topics Chair (1994-1995); Chair of Public Outreach and coordinator of National Chemistry Week (6 years) and Chemist Celebrate Earth Day (3 years). He is currently a Councilor for the Section and serves on the Committee for Communicty Activities and Communications and the Public Relations Committee.

Alternate Councilor (vote for two)

Tom Layloff: Local ACS activities include: Member of Education Committee Long Range Planning Group (1967); General Meetings Program Chair (1968); Program Committee Chair (1969); **Community Relations Committee Chair** (1970); Crime Lab Advisory Committee Chair (1969-71); Professional Activities Committee Chair (1971); Steering Committee Chair (1972); Chair (1973); Board of Directors (1974-76, 1978-79, 1981-84); Centennial Committee Chair (1975-76); Centennial Sunday Supplement Committee Chair (1975-76); Nominating Committee (1978, 1980, 1981); Midwest Award Jury Member (1980-83, 1987-1991); Chair 75th Anniversary Program (1982): Organizing Committee for the 1984 National Meeting in St. Louis (1982-84); Alternate Councilor to the National Society (1978-86, 2005); Councilor to the National Society (1987-2004). National ACS activities include: Task Force on Establishing Mentoring Programs for Minorities and Women (1996-1998); Task Force on Environmental Analyst Accreditation (1996-1999); Local Section Activities Committee (1987-88, Associate, 1996-2004); Local Section Development Subcommittee (1987-88); Council Policy Committee (1988-89); Meeting and Expositions Committee (1990-95);Regional Meetings Subcommittee Chair (1990-91); Expositions Subcommittee Chair (1992-95); SCICOM Task Force on Non-Publication on Scientific Communication (1979-80).

Chris Spilling: No bio available.



The Second Annual St. Louis Section ACS Picnic

The Second Annual ACS St. Louis Section picnic was held June 2, 2007 at Tower Grove Park in the city of St. Louis. With showers predicted, a small but faithful group attended the festivities. Chair Steve Kinsley cooked up a storm (literally!) of chicken, hamburgers, and bratwursts. It was a delicious feast, and just



when the last bites were taken, the skies let loose with all their fury. The group huddled together in the pavilion, wrapped in tablecloths to stay dry. After about



ten minutes, the skies cleared, and the party continued in the bright sunshine. A good time was had by all!

National Chemistry Week 2007 Celebrate the Many Faces of Chemistry

20th ANNIVERSARY October 21 - 27, 2007



"The Many Faces of Chemistry" is the 2007 theme and will focus on giving children of all ages the opportunity to have fun and learn about the diverse careers possible in chemistry, as well as the diverse people in those careers. The St. Louis Section of the American Chemical Society will observe National Chemistry Week on October 27, 2007 with a Chemistry Expo at the St. Louis Science Center Center Stage from 10am until 4pm with hands-on activities and chemical demonstrations. This year marks the 20th anniversary of National Chemistry Week and the 100th anniversary of the St. Louis Section. Come join us and bring your chemistry face by participating in the event. To volunteer or be a presenter, please contact Greg Wall by phone at 314-435-6487 or by e-mail at gwall37@msn.com.



Can't wait for Snail Mail? Get the Chemical Bond at http://www.umsl.edu/~acs/

October 2007

Pick up back cover

from back of previous issue

Pick up Sigma adverstisement from file:

Sigma-Ad-Lecture-Bottle high res.pdf