

the Alembic



Chair's Corner



This issue of the Alembic includes ballots for the 2004 secretary-treasurer and chair-elect position. In addition to those listed on the ballot, we also welcome any write-in candidates. The elected positions are one way of serving the ACS local section; however, there are many other ways to get involved. One good way to get involved is to host a meeting. This involves contacting the speaker and helping them with directions and accommodations as needed, arranging for dinner and a meeting place. Alternatively, you could volunteer to be a speaker at one of our meetings. Don Showalter will be putting together next year's meetings. I'm sure he would be happy to hear from any one wanting to help.

National Chemistry Week is another opportunity to get involved with the local section. I highlighted this year's activities in another article. You can serve as National Chemistry Week Coordinator or organize a group to visit schools, nursing homes, or participate in mall or museum events. We also host the Chemistry Olympiad every year and could use help getting more schools involved. Awards are given every May; you could help by coordinating collecting nominations.

Another way to serve the section is to contribute an article to the Alembic. Finally, we also need help getting more publicity for our local section.

Please remember to make any additional nominations at the November meeting and return your ballots and our election chair Don Showalter. I look forward to seeing you in Marshfield where Dr. Kevin Lang will speak on Monoclonal Antibodies and Crohn's Disease: Stealth Technology in the War on Inflammation.

Robin

Thoughts to Ponder.....

The true test of character is not how much we know how to do, but how we behave when we don't know what to do.-John Holt

If you think you can, you can.□If you think you can't, you're right.--Mary Kay Ash

Listening is the most potent talent of a leader, especially to what may be unsaid.--Cal Turner, Jr.

When your work speaks for itself, don't interrupt.--Henry John Kaiser

ACS - CWS Mini-Directory

Chair

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Chair-Elect

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Secretary - Treasurer

Tip Randall

Councilor

C. Marvin Lang

Alternate Councilor

Dave Lewis

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American Chemical Society

Central Wisconsin Section



"Monoclonal Antibodies and Crohn's Disease: Stealth Technology in the War on Inflammation"

by

Dr. Kevin Lang, Marshfield Clinic

Thursday, November 20, 7:30 pm
Aldo Leopold Science Building Room 130

UNIVERSITY OF WISCONSIN - MARSHFIELD/WOOD COUNTY

MARSHFIELD WI

Dinner: 6:00 pm

China Chef, 233 S. Central Avenue (downtown Marshfield)

Abstract:

Crohn's disease is an incurable inflammatory condition of the gastrointestinal tract that is difficult to treat. Despite early setbacks, treatment for Crohn's Disease has advanced rapidly within the past five years with the development of monoclonal antibodies. These monoclonal antibodies are the "smart bombs" in the war on inflammation, targeting the key players in the inflammatory cascade and unleashing incapacitating blows on the mediators of inflammation. This presentation overviews the clinical features of Crohn's disease and shows first-hand how monoclonal antibody therapy is changing the face of this disease.

The Speaker:

Dr. Kevin Lang graduated cum laude from the United States Air Force Academy with a B.S. in Chemistry. From there he received his M.D. from the University of Wisconsin-Madison and went on to serve fourteen years in the Air Force attaining the rank of Lt. Colonel and serving as an Associate Professor of Medicine, University of Texas Health Sciences Center, San Antonio. His final position was Chairman, Department of Gastroenterology at Wilford Hall Medical Center in San Antonio, Texas. He and his wife, Pam, with their four children relocated to Marshfield in the summer of 2002. Dr. Lang is a gastroenterologist at the Marshfield Clinic.

Dinner with our guest speaker will be at the China Chef, 233 S. Central Avenue (downtown Marshfield) at 6 pm.

Reservations may be made on or before Wednesday November 19th by contacting:

Dana Haagenon (715)389-6526 dhaagens@uwc.edu

ACS - Central Wisconsin Section 2003 Meeting Schedule

DATE	LOCATION	SPEAKER	TOPIC	HOST
Sept 10	Wisconsin Rapids	Robert Radel	Chemical Weapons: What, Where, How	Dave Thiel
October 15	Stevens Point	Robert Bates	The Chemistry and Alchemy of Brewing	Tom Zamis
November 20	Marshfield	Kevin Lang	Monoclonal Antibodies	Dana Haagenson
December 9	Stevens Point	Doug Moore	Agate Über Alles	Steve Bondeson

ACS-CWS Web Page

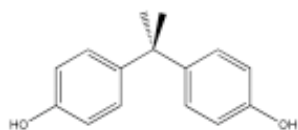
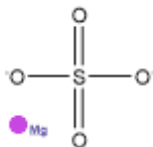
www.uwsp.edu/chemistry/acscws/

Contains the most up-to-date information about section activities including all issues of the Alembic and meeting notices.

Molecules of the Month

(see the entire collection by visiting www.chemistry.org)

A good soak in an Epsom Salt (**magnesium sulfate**) bath is just the thing for tired, aching muscles. Magnesium sulfate dilates blood vessels, and this property may help prevent further brain injury in stroke victims. A study is currently underway to determine if stroke victims recover better when paramedics administer magnesium sulfate before taking them to the hospital.



The term "coke-bottle eyeglasses" is falling out of use, in a large part because polycarbonate plastic lenses achieve the same vision correction with lenses that are much thinner than their glass predecessors. **Bisphenol A** is the basic building block from which polycarbonate plastics are assembled.

National Chemistry Week 2003

by Robin Tanke

There were several activities across the Central Wisconsin Section celebrating National Chemistry Week and this year's theme "Earth's Atmosphere and Beyond."

Students from the University of Wisconsin-Stevens Point (UWSP) visited elementary and middle schools as well as YMCA after school programs. Dyan Issacson, Cassie Van Berkel, and Bethanie Stanton discussed acid rain at St. Stephens Elementary School. The students discussed a number of ways to prevent acid rain and also why the paper mills sometime smell funny. Lori Marten, Sharon Schneider, Will Hexom and students in the YMCA after school program at Jefferson Elementary investigated the varying amounts of iron in cereal and counted with the iodine clock reaction. Sharon said their demonstrations brought cheer to the students and herself. The student demonstrators also found out how to deal with a "failed" reaction demonstration. Katie Mras, Sarah Schneider, and Kathy Olejnick made volcanos with students in YMCA program at McKinley Elementary. Thanks to the UWSP Chemistry and Art Departments, students were able to make and keep their own volcanos with different colored lava. Katie noted that although the students were excited about the volcanos some of their parents were less than thrilled. Amber Barbee, Katy Deutsch, and Yan Luo visited 30 kindergarten students and 4 teachers at St. Stanislaus school. The young students took on the subject of acid rain while witnessing the effects of vinegar or water on antacid tablets. Amber noted that the students actually liked wearing safety goggles. Jenni Van Cuyk, Doug Van Cuyk, Katie Knoedler, and Alex Ryan demstrated the properties of gasses

with the 4th grade class at Mosimee Middle School.

Again this year the SPASH high students and their teacher Tom Corcoran had several hands on activities at the Children's Museum in Stevens Point. The museum was free encouraging many to visit the NCW celebrations.

The American Chemical Society-Student Affiliate at the University of Wisconsin-Eau Claire (UWEC) under the guidance of Phillip Cannon hosted daily activities to celebrate National Chemistry Week. Notices of UWEC planned activities were included in the Spectator (the local student newspaper), the EC Leader-Telegram (the local city newspaper), we had 200 table tents made up for the student union, signs posted around the science building, and notices on our website (<http://www.uwec.edu/acssa/ncw.htm>).

On Monday, October 20th, Dr. Paul Thomas, professor of physics and astronomy, discussed the 1908 explosion over Tunguska, Siberia. On Tuesday, Dr. Jim Phillips, associate professor of chemistry presented a talk about the Earth's atmosphere, what is happening to it, and what the future looks like for the atmosphere. On Wednesday October 22nd, 12 students attended a joint 'Grillin and Chillin' activity. This was planned along with the biochemistry student group (the Molecular Movement); they grilled out some burgers, ate some cake, and watched "Race for the Double Helix," in joint honor of the 50th anniversary of the DNA structure elucidation and of NCW. On Thursday Oct 30, 10 students and 4 faculty members staffed the Chemistry Department table at the annual Majors Fair.

Spectroscopy Down on the Farm

(excerpts from the article by Nancy K. McGuire in TODAY'S CHEMIST AT WORK, October 2003)

The big red combine rumbles across the cornfield, churning up a brownish-yellow cloud as it cuts the stalks and separates the grain from the husks. The farmer sits in the airconditioned cab, listening to the Dixie Chicks on her CD player. She watches a multicolored image take shape on her video screen, plotting data from a small infrared analyzer mounted in the grain stream at the back of the combine onto a map of the field generated using a Global Positioning System (GPS). She smiles as the oil content analysis comes up for Field 23. That new high-oil hybrid is really going to pay off this year. A scene from the latest sci-fi movie? No, near-infrared (NIR) analysis, in the field and in the lab, has emerged as a useful method for determining important crop plant components, including moisture, oil, protein, and fiber. This information is valuable not only in setting prices for agricultural products, but also for assessing their value as food, medicine, and fiber. The infrared analyzer in question, called the ProSpectra Grain Analyzer (Textron Systems) is a shoebox-sized unit withstands heat, vibration, dirt, and debris as it collects real-time NIR reflectance spectra from cereal grains during harvesting. Oil, protein, and moisture content data are extracted from the spectra and plotted on a map of the field or printed as a numerical report that can be presented to a grain buyer during price negotiations.

Despite all the recent bad publicity about dietary lipids, fats and oils play an essential role in human and animal nutrition. Oilseed crops are a source of vegetable oil, high-nutrition human food, and meal products used in animal feed. Over the past 30 years, Brassica (a classification

that includes Indian mustard, Ethiopian mustard, and the rapeseed used in canola oil) has gained importance as an oilseed crop. Researchers have devoted considerable effort to breeding plants that have seeds with high oil and protein content and low fiber content. Reducing fiber in the seeds is important because fiber is negatively correlated with oil and protein content, and it makes ground meal products harder to digest. Acid detergent fiber (ADF) is made of lignin and cellulose. It is partially digestible, but it decreases the overall digestibility of animal feed products. Researchers at the Institute of Sustainable Agriculture (Córdoba, Spain) developed an NIR spectroscopy method as a less cumbersome means of analyzing ADF in Brassica oilseeds.

Most people associate agriculture with food plants, but plants are also cultivated for medicine. Cajuput oil is widely used as a folk medicine in Southeast Asia. This oil is extracted from the leaves of the *Melaleuca cajuputi* (paperbark) tree by steam distillation. It stimulates blood circulation near the point of application, and it has been used to ease the discomfort of bruises, sprains, and pulled muscles. Tree breeders would like to improve oil yield by selective breeding, culling the trees to allow only the most productive genotypes to cross-pollinate. Recently, researchers from Australia and Indonesia developed an NIR method to measure 1,8-cineole, the active ingredient in *M. cajuputi* leaves, extending a previous study that measured this compound in leaves and oil from the eucalyptus tree, a close relative. 1,8-Cineole is largely responsible for the camphorlike odor of leaves from members of the *Melaleuca* genus, which includes paperbark, eucalyptus, and tea trees.

High fiber content is detrimental to digestion, but it is a desirable trait in the varieties of flax used in linen textiles, as substitutes for glass fiber in composites, and as components of fine papers. European

flax cultivars, grown especially for fiber, differ from flax grown for linseed in Canada and the United States. Straw left over after the linseed harvest has little commercial value and is usually burned, but efforts are under way to find better uses for the straw. Flax fiber is separated from the rest of the plant stem material in a process called "retting". The flax straw can be left in the field, where naturally occurring microorganisms in the soil break down the pectic materials surrounding the fiber (dew retting), or anaerobic bacteria can be introduced to digest the pectic materials (water retting). A mechanical process then separates the fiber from the cuticle and shive (core) parts of the stem. Fiber content and quantity can vary greatly, depending on the cultivar, retting conditions, and growing conditions. Therefore, it would be useful to have a method to evaluate the fiber content of flax stems in the field before they are processed. NIR spectroscopy has been used for many years to determine fiber content in forages, and it is an official method of the AOAC International (www.aoac.org) for determining ADF in grasses. However, only recently a group of researchers from several organizations (including the U.S. Department of Agriculture) tried to measure the fiber content of intact straw. The results of the NIR study compared well enough with those obtained using standard methods "to allow fiber processors to determine the value of a standing fiber crop, the extent of processing needed to recover the fiber, and the stability of the fiber for various uses," according to a recent research article.

Farmers probably won't be wearing lab coats anytime soon, but they are making good use of instruments that were once found only in the laboratory. Taking the instruments to the crops instead of the other way around has started to pay off in reduced guesswork, faster results, and new uses for familiar crops.

Nancy K. McGuire is a senior web associate with chemistry.org.



American Chemical Society

Central Wisconsin Section



2004 Section Officers Ballot

Mark the box next to your selection for each office.

Return the completed ballot by **November 28, 2003** to
the Chair-designate of the Nominations and Elections Committee:

Don Showalter
Chemistry Department - Science Building
740 Reserve St.
University of Wisconsin
Stevens Point, WI 54481-3897

Please indicate your choice by marking the box to the left of the candidate's or write-in's name.

Chair Elect 2004 Chair 2005 Past-Chair 2006			
<input type="checkbox"/>	Steve Nieland	<input type="checkbox"/>	writein _____
Secretary/Treasurer 2004			
<input type="checkbox"/>	Tipton Randall	<input type="checkbox"/>	writein _____