MACTLAC

MIDWESTERN ASSOCIATION OF CHEMISTRY TEACHERS IN LIBERAL ARTS COLLEGES

2010 Annual Meeting Report
The 58th Meeting of MACTLAC
Chemistry on the Fringe
Luther College, Decorah, IA
October 15-16, 2010

General Session 1, Friday Afternoon, 1:00 PM

Dr. Olga Rinco opened the 2010 Annual Meeting by welcomed everyone to Luther College. After a few opening remarks and announcements, Dr. Rinco then introduced the speaker for the first plenary session, Dr. Joseph Lambert. After the plenary address, Iowa, Minnesota, Missouri, and Illinois participants met to elect new state representatives.

Plenary Address

Traces of the Past: The Chemistry of Archeology
Dr. Joseph Lambert
Northwestern University
Evanston, IL

Dr. Lambert discussed how today's analytical chemistry has changed the field of archeology, as well as how chemistry was involved in making into the human beings that we are today, as man is unique in that we are the only species that can chemically process materials.

In archeology, chemistry is used as a dating tool, which gave archaeologist a time line for historical events. Chemistry is also used to find sites and find features within sites. Most chemical methods here are magnetic in nature, but elemental surveys (like phosphorus) can be done as well. Chemistry is used quite a lot in artifact analysis: conservation of artifacts, movement of raw materials and their provenance, the technology of manufacture, and economics (chemical composition of coinage).

Provenance: Chemistry became part of the evolution of man with the discovery of how to make fire and cook food, but we still evolved slowly. Things sped up when fire began to be used to make other products (e.g. fire polishing of stones). Things sped up even more with pottery, glass, and metal making. This makes us human and separates us from other organisms. On can use inorganic

analysis (elemental profiles), isotopic analysis, and carbon functionalities here, which can be used on a wide range of inorganic materials, as well as some organic materials (amber, in particular).

Technology of manufacture: Chemistry is central to making dyes, pigments, pottery, glass, and metals. People conquered others via better technology, which gives us a time line: first came dye and pigments, then pottery, then glass, and finally metallurgy. Pottery, glass, and metallurgy are the third, forth, and fifth chemical mile stones. This is also a list of increasing temperatures needed to make the chemical transformation.

Dyes and Pigments: (Note: Dr. Lambert defined dyes as organic compounds and pigments as inorganic compounds.) Early dyes and pigments came from the ground and non-living world: reds, yellows, oranges, etc. Blues and greens were not used since they weren't easily available or easy to transport (azurite ($2CuCO_3 \bullet Cu(OH)_2$), cobalt blue ($CoO \bullet Al_2O_3$), Lapis lazuli or ultramarine (FeS silicates)). Early people (Egyptian and Maya) learned how to make blues from cheap local raw materials: Egyptian blue: cuprorivaite, sand, calcium carbonate, malachite, and flux; Maya blue: indigo vegetable coloring and white clay.

Pottery: Dr. Lambert described some of the many types of chemistry involved in pottery: types of clay, structure of slip or glaze, cause of color, firing temperature, and firing atmosphere (presence or absence of air). All affect the pottery.

Glass: Older technology is based on silica. People used then used modifiers to make better glass such as soda-lime, potash, lead, and manganese to change the properties of the glass such as its color and opacity. Cameo glass and dichoric glass came later, and were used to make carved cameos and glass that has different color depending on the lighting conditions, respectively.

Metal: Dr. Lambert described how humans first worked with elemental metals like silver and gold, then learned how to make and use alloys like bronze and brass. Learning to make and use alloys lead to better fabrication, smelting, and refining techniques.

Organic technology: Dr. Lambert considers organic chemistry technology the highest level of technology development in humans. Archaeologist have learned to use GCMS analysis for organic archaeological materials.

Analysis of human remains: Dr. Lambert briefly described the types of analyses that can be done with human remains, such as soil analysis, bone analysis (isotope, elements), bodies and coprolite (natural products, feces), amino acid dating, and DNA sequence analysis and comparison. Bone analysis, for instance, can be done with C-13 to C-12 ratio, which can tell you what the human ate before death: corn has a different ratio than meat or other hunter/gatherer foods, for example. One can use this to learn when a people started to farm, and stopped being hunter/gatherers.

General Session 2, Friday Evening, 8:00 PM

Plenary Address

Art Historical and Archaeological Chemistry for Undergraduates

Dr. Mary Virginia Orna
Adelphi University
Garden City, NY

Dr. Orna spoke about how art historical and archaeological chemistry can easily be ported into the undergraduate chemistry curriculum, and gave several examples of such, along with an extensive bibliography (members can get a copy of her slide notes by e-mailing her at mvorna@cnr.edu).

Non-traditional chemistry courses: Dr. Orna gave several examples of typical non-traditional chemistry courses like forensics based courses, art based courses, materials based courses, environmentally based courses, "Chemistry in Context" based courses, and "Chemistry in the Community" based courses. Each has the usual goals and student types found in non-traditional courses. Lots of non-lecture based teaching techniques have been used in these courses.

An art-based non-traditional chemistry course that she teaches is "Application of Chemistry to Examination of Works of Art", with goals of development of technical skills, research skills, and chemical knowledge on a need to know bases, cross-disciplinary research. All engender interest the nature of materials, teamwork, making connections, and generate a positive attitude toward science. Art history majors could take this course to meet a lab science requirement (other non-art history majors could also take the course to meet the lab science requirement). Some outcomes would be understanding techniques used to create art, how we see color, how we make and mix colors, how art deteriorates, and how instruments and chemistry can be used in art history, and more.

Dr. Orna described two topics from this course, and how she uses them to meet the goals of the course mentioned above. The first topic involved the study of old manuscript pigments, which Dr. Orna used to teach students about the history of pigmentation chemistry, particularly blue pigments, and how the chemistry of blue pigments changed over time. She then used the old manufacturing techniques as labs for the students where they had to recreated the old pigments using the old techniques. (See slide notes for particular labs and manuscript techniques.)

The second topic from Dr. Orna's course involved studying the The Archaic Mark manuscript (ca. 1250AD), a gospel of Mark written in an archaic form of Greek. She asks her students to determine if a copy of this manuscript is a fake. She has her students use IR to determine if the blue in the manuscript was Prussian blue (if it was, then it was a fake as Prussian blue was not in wide spread use until the 15th century). Students do additional paper testing, which suggests that the manuscript paper was from the 15th century. Further student analysis suggests other modern paper compounds like cellulose nitrate.

Another course that Dr. Orna teaches is "Applications of Chemistry to Examination of Archaeological Artifacts" with the same goals as the art course, but with outcomes that fit with archaeological studies instead of art studies. As a result of the different outcomes, the topics discussed are different from the art historical course topics.

Dr. Orna again described two topics from this course. The first topic centers around working with stained glass, a common archaeological situation. Stained glass needs to be releaded about every 100 years. To do this, you need to match the original glass has been lost and or damaged with modern counter parts. To make the match, you need to know where the original glass came from (knowledge of where the glass came from tells you how it was made) so that you can make or match the glass as closely as possible. Her students use atomic absorption to do this analysis, since this is a good technique for doing so.

Dr. Orna's second example from this course incorporated putting together broken pottery shards. Again, using atomic absorption allowed students to match the various pottery pieces so that they knew which piece had which neighbors. Once the students had this information, they completely restored entire pottery piece.

Dr. Orna closed her talk with a brief description of her bibliography. (See the slide notes for detailed information about the bibliography.)

General Session 3, Saturday Morning, 8:30 AM

Plenary Address

Chemical Clues in Ocean Sediments: Reconstructing Past Climate Change
Dr. Laura Peterson
Luther College
Decorah, IA

Dr. Peterson began her plenary lecture by first discussing the need to study climates, from the past to the future. The bottom line is to know how the temperature and precipitation is going to change. Geochemists do this by looking at past climates as well as the current climate to make a guess as to how the climate will change in the future.

One way to do this is by climate modeling. Models can then be compared with past climates that we know about. This can be used to validate the climate models, since there has been much climate change in the past. We've been on a cooling trend in the last 16 million years, for instance. There has been much change within this period, however: only in the last 3 million years have we had permanent ice sheets in the north and south, for example. Past climates are studied by looking at ice cores, sediments, rocks, tree rings, cave formations, coral growths, etc. Living things are good for short term past, and sediments, cores, and rocks are past for long term past. Resolution decreases as you go into the past (that is the error bars get bigger as you go into the past).

Dr. Peterson gave several examples of paleoclimate recorders: Glacial deposits, evaporite deposits, biological climate recorders (fossils mostly, but can also use living things like pollen and slow growth organisms), and isotope ratios. For instance, O-16 is trapped in ice, but not in soils, while O-18 is trapped in both. Thus ratio between O-16 and O-18 can be measured in ice and soil samples. These data tell us that glaciation periods are cyclic with periods of slow cooling followed by rapid warming. Other recorders are biomarkers like 2-methylhopanes and alkenone unsaturation ratios. 2-Methylhopanes are biomarkers for cyanobacteria, and have been found in sediments 2.7 million years old, suggesting that cyanobacteria were some of the first oxygen based photosynthesizers. Alkenone unsaturation ratios (monounsaturated to diunsaturated) in sediments are biomarkers for coccolithophorid bacteria, which are widely found on the surface of all oceans. These data tell us something about surface temperatures of the oceans at high latitudes.

Dr. Peterson's own work has focused using alkenone ratios to determine past climate in tropical regions of the world since there was little other work that tells us about the tropics. Another reason is to answer the question of whether the tropics drive climate changes or the high latitudes drive these changes. She described how reconstructed temperature changes at five sites in the tropics looked very similar to latitude temperature cycles of slow cooling and rapid warming. She believes the reason for this is that both cycles are being driven by greenhouse gases since the local energy budget does not explain the linkage of tropics and high latitudes as the temperature changes are the opposite of the local energy budget. In addition, at the high latitudes, temperature changes occur before or after changes in the tropics, so there is not definite pattern. When comparing the amount of greenhouse gases with temperature changes, however, it is evident that the gas cycle is lockstep with the temperature changes in both the tropics and the high latitudes. So, greenhouse gases are the cause of the linkage between the high latitudes and the tropics. The gas lockstep cycle first appears 2.7 million years ago, which is the same time that northern hemisphere glaciation really took off, and suggests that ice formation feeds back into to green house gas concentration.

Dr. Peterson closed her lecture by briefly describing historical carbon dioxide levels based on biological markers like plankton shells and the amount of boron in their shells (boron levels are dependent on CO_2 levels). Past CO_2 levels have also varied quite a bit, but it seems to cycle in the same way as long term temperature cycles do. Since the CO_2 data resolution is very low, however, more work needs to be done in this area.

MACTLAC Business Meeting

1. President Claude Mertzenich called the meeting to order at 9:38 AM.

2. Mark Sinton gave the Treasurer's report (see below). There was a brief discussion about why we went back to checks as the method of payment at the Luther meeting, as we tried on-line payment at last year's Hope meeting. Mark described the main reasons for doing so: ease of use for the Secretary-Treasurer and the host institution. A motion was made and seconded to accept the Treasurer's report. The motion passed.

Year	2006	2007	2008	2009	2010
Beginning Assets					
Checking	$7,091.60	$5,992.71	$5,416.19	$4,453.08	$5,041.70
Savings	$0.00	$0.00	$0.00	$0.00	$0.00
Total Beginning Assets	$7,091.60	$5,992.71	$5,416.19	$4,453.08	$5,041.70
Income					
Dues	$919.00	$482.00	$370.00	$673.00	$2.00
Annual Meeting	$3,555.00	$3,397.00	$3,075.00	$464.27	
Interest	$46.88	$146.04	$1.79	$10.81	$7.33
Other	$0.00	$0.00	$0.00	$0.00	$51.00
Total Income	$4,520.88	$4,025.04	$3,446.79	$1,148.08	$60.33
Expenses					
Postage, copying, website	$135.80	$321.98	$51.70	$163.10	$74.55
Annual Meeting	$4,423.19	$4,261.34	$4,358.20	$376.96	
Placement, Archives	$1,060.78	$18.24	$0.00	$19.40	
Other	$0.00	$0.00	$0.00	$0.00	
Total Expenses	$5,619.77	$4,601.56	$4,409.90	$559.46	$74.55
Ending Assets	$5,992.71	$5,416.19	$4,453.08	$5,041.70	$5,027.48
Asset Change	-$1,098.89	-$576.52	-$963.11	$588.62	-$14.22

3. Mark Sinton gave the Archivist's report for John Zimmerman (see below), since John has only recently become Archivist, and is still in the process of transferring the Association's documents from Tracy Thompson. The work begun by Tracy to archive our documents will be continued by John once the document transfer is complete. A motion was made and seconded to accept the Archivist's report. The motion passed.

No additional work has been completed in the preservation of archive material this year. The balance on the $1000 archive fund started in Fall 2005, remains the same as last year at

$375.87. I have put together photos from the 2009 meeting for display at this year's meeting. The approximate cost of this is $25 dollars. I will inform you of the exact cost at the 2010 meeting.

4. Larry Ferren presented the Placement Officer's report (see below). A motion was made to accept this report. The motion was seconded and passed.

   In 2010, 6 applicants used the Placement Service, and 26 positions were listed with the Placement Service. Of all the positions advertised, all 26 were MACTLAC Colleges. All the positions advertised were either located by way of advertisements placed with the Placement Service, *C & E News*, the Internet, or electronic notices forwarded to me by various sources. The 26 MACTLAC positions were advertised only to those who had e-mail capabilities. Of the 26 MACTLAC positions listed, 8 % were Inorganic Chemistry, 20 % were Organic Chemistry, 16 % were Analytical Chemistry, 20 % were Physical Chemistry, 24 % were Biochemistry, and 12 % were other areas of chemistry (Computational and General).

   All MACTLAC schools with positions open had their advertisements forwarded to Craig Bieler who placed them on the MACTLAC web page. I do not know how many people accessed the employment information by referring to the MACTLAC web page on the Internet, but the MACTLAC website has had 976 visitors in the last 11 months.

   Applicants to the Placement service were of several groups -- graduate students, Ph.D.'s, post doctorates, and visiting professors, but the largest group would have been graduate students. This past year **one** new candidate came into the Placement Service, and **no** candidate had their name removed from the service. I am not aware of any candidate who secured a position in a MACTLAC school this year. Presently, (September 30, 2010) **eight** candidates are in the Placement Service looking for employment since two people have joined this new (2010-2011) year.

   This past year no schools requested resumes or specific information related to qualified candidates from the Placement service. Electronic mail was sent to the e-mail candidates as positions were sent to me.

   The MACTLAC schools are very good at sending me notices of open positions. I appreciate the notices and try to respond promptly when a notice come in to get it out to everyone on the electronic list and to get it to Craig for posting on the web page.

   What we need now is word of mouth advertising of the Placement Service so prospective candidates will contact me and make use of the service to get in contact with MACTLAC schools.

5. President Claude Mertzenich presented Dr. Clifford Meints with an Emeritus membership certificate.

6. President Claude Mertzenich next introduced the new Iowa, Minnesota, Missouri, and Illinois State Representatives: Adam Hoffman (Iowa), Jamie Muller (Minnesota), Bernard Hansert (Missouri) and Pairs Barns (Illinois).

7. Claude Mertzenich next opened the for nominations for President-Elect and Secretary-Treasurer. Elizabeth Jensen was nominated for President-Elect, and Mark Sinton was nominated for Secretary-Treasurer. There being no other nominations for either office, Claude closed the nominations. Both Elizabeth and Mark were elected to their respective offices by a majority vote.

8. A motion to have the Secretary-Treasurer send letters of thanks to the following individuals and organizations was then made. The motion was seconded and passed.

   Out going officers: President Claude Mertzenich
   Outgoing state representatives: Erin Dahlke, Brian Johnson
   Host organizer: Olga Rinco
   Host institution: Luther College

9. George Lisensky invited the Association to Beloit College, Wisconsin, on Oct 21st and 22nd for the 2011 Annual Meeting. The meeting theme will be on energy, with the title to be determined at a later date. Olga Rinco next passed the MACTLAC meeting poster to George. The President then mentioned possible future meeting sites: Albion in 2012 (east), Westminster in 2013 (west), and Alverno in 2014 (central).

10. President Claude Mertzenich completed his duties as the Association's President by handing the meeting over to the President-Elect, Larry Ferren.

11. Larry Ferren began his duties as the Association's President by asking if there was any other business. Olga Rinco described the remainder of the meeting schedule, and asked that all fill out the meeting evaluation form. She lastly asked that everyone return their name badges to be recycled if they don't want their name tag.

12. There being no other business, the meeting adjourned at 10:04 AM.

Respectfully submitted
Mark Sinton
MACTLAC Secretary-Treasurer

Discussion Groups

Ask Dr. Safety

Friday, October 15, 2011

2:30-3:30 PM

Harry J. Elston, Midwest Chemical Safety, LCC, Session Leader

The session began with a power point presentation about recent incidents at UCLA and Texas Tech. Dr. Elston indicated that academic institutions are coming under tougher scrutiny regarding their following of safety guidelines and keeping track of chemical inventory. There was a short discussion of what to teach our students about safety and how to train them. Documentation of any and all training is important. Questions were raised about what personal safety equipment students should have in the teaching lab. Recommended personal safety protective wear will depend on hazards of the experiment and skills of students.

Questions were asked about how to advise and make accommodations in the lab for women students who are pregnant or nursing. Faculty were advised to give the student and her doctor a list of all chemicals used in the lab and allow them to make a decision about the student's participation in lab.

Additional questions regarding waste removal were addressed.

Teaching Chemistry Through Different Lenses

Friday, October 15, 2011

2:30-3:30 PM

Jim Goll, Edgewood College, Session Leader

Chemistry can come from different perspectives. Students come from different perspectives.

Someone described having students make presentations on chemistry. Professor usually has them vetted before the class. Visuals are required. Gives professor time to meet students outside class. Questions from presentations are given on exam. Lecture is tied into something mentioned by student presenter. PowerPoints are included with online lecture notes. Another mentioned giving students questions to talk about during a class.

How you set the tone on the first day is really important.

Chem news from C&E News can be used as examples of chemistry in life in a class. Someone mentioned using YouTube to show topics in a fun way. Jim Lehr element song is shown with elements appearing as they are mentioned. There is a video with tennis balls thrown at Rutherford model. Debate whether FDA should ban Olestra. This is based on a module from Beloit. Use a lot of analogies to sports and music.

One prof mentioned taking all math out of lecture. Only math is in labs. Math is learned in lab. Many freshman don't know what chemistry is. Some arrive with fear, which should be addressed. Try to make students more comfortable.

Someone talked about using an egg demo on first day. Student try to determine whether it is raw or hard boiled. The professor tries to trick them with an "oil filled" egg which confuses some students, but makes them think. It is a great way to get discussion going on first day.

Look for incorrect things in news like "melt" versus "dissolve".

Twenty five skills identified and students have to pass each skill as pass/fail.

One professor talked about research project where they set up a coffee roasting that is licensed to sell coffee. Non-science majors got involved in various aspects including business aspects making logos or other aspects.

In biochemistry, students write joint lab reports. They are written on a wiki. They get grade for writing their part and correcting other parts.

Students sometimes arrive thinking they know their own learning style and assume they can't learn in any other style.

Meet the Editor: Being a Reviewer and/or Author for *J. Chem. Ed.*

Friday, October 15, 2011

2:30-3:30 PM

Norbert Pienta, Editor, *J. Chem. Ed.*, Session Leader

Richard Narske, Augustana College, Session Leader

Norbert Pienta has been involved in a transition with JCE: he applied in 2006 but didn't take over until September 2009. In August 2009, JCE entered a co-publication agreement with ACS. As a result, there are new tools for electronic submission of articles and reviews, as well as new positions (Associate editors and editorial board).

Practically, the goal is to have electronic JCE look like previous print journal. ACS will change their production tool soon. The next volume will have more changes to the look. With the new tool, Word documents get converted to XML (through a 3rd party vendor). That data gets put into templates to make on-line and print versions. JCE will thus be able to support many formats. For example, supplemental material can support some types of software (that individual users might have at their institutions). There will be no major changes to content.

Time from submission to first decision has been shortened by using Paragon plus system. All documents associated with a submission are stored together. For example, December 2009 submission, after 2 revisions and 2 reviews, got accepted in July, 2010. There were some issues in

the interim in those submissions that weren't submitted initially under Paragon. These legacy items had to be handled in such a way to make their time-line for publication more equitable. Timeliness can affect promotion and tenure issues.

Reviewers for JCE should focus on readers and not the authors. Pienta encouraged persons to become reviewers. Reviewers are matched with submissions by a *key word* method. As a submitter you can request reviewers too. Mismatches between reviewer comments and score do occur. In this case a review can be "un-submitted" by the editor. In this way if an obvious error is noticed, the review can be "re-opened" so the reviewer can make changes. JCE is considering some pedagogical tools for reviewers to use.

For supplemental material, are there set requirements? Yes, to a certain extent. Instructions for instructor and student are required. Data should be included if it is available. Submissions can be made on-line. A user name is needed before submission.

How many editors in chief of other ACS journals are authors in JCE? It is about 50%. JCE is international. Reviewer and submissions are international. Submissions are received from 48 countries. Acceptance rate: a very rough estimate is 50%.

Finding a Job at a Primarily Undergraduate Institution (PUI)

Friday, October 15, 2011

2:30-3:30 PM

Paris Barnes, Millikin University, Session Leader

The session consisted of a discussion in which a number of questions were put forth for discussion. The questions will be listed below. Not every response to every question will be given. Occasionally, a response will be given.

Has anyone in this session recently found a job at a PUI? Describe how long ago and how competitive it was to get the job. Did you have a terrible time getting job interviews?

Has anyone in this session received a tenured position?

Is anyone in this session looking to change jobs?

What is the job market looking like right now?

Very competitive-must have several years of experience in teaching to be competitive. Comment was made that while teaching is what we do, there is an emphasis on research.

What is the PUI looking for when the application come in to the chair of the PUI?

Person who can teach the field but who is somewhat diversified

Person who can do research with students

Person who can interact with students

What about a person with skills in both biology and chemistry cross teaching in both biology and chemistry?

The feeling was that it was better to hire in to one department. It was easier to keep one department happy, and satisfy one department's tenure requirements. Opportunities would open up to teach with the other department.

Is a post-doctorate needed to teach at a PUI?

The feeling was that it would be helpful but not absolutely necessary.

Another said it was preferred, but not required.

Another indicated that having a post-doctorate actually closed some doors for him.

Many positions are adjunct teaching. This gives you a chance to get yourself known and test you out, but how long of doing adjunct work is enough?

The feeling was that a person should do a couple years of adjunct teaching but not much longer than that.

How is the economy affecting the job search?

For people who are trying to hold full time jobs and at the same time get teaching experience by teaching at community colleges, how is this going to be view by the PUI's?

The feeling was that the PUI's would view this very positively.

In setting up research there is a fine line between being too ambitious and not ambitious enough. How does one just this? A good question to go along with this is how much time do you expect to spend on research?

It was mentioned that when the applicant writes a research statement for the PUI school it needs to sound as though it can be done with undergraduate students.

A person asked about setting up collaborations with other labs before a person gets a job.

The answer was "yes", go ahead and do it. That would be viewed as being very wise.

A person asked about having a commitment from a present adviser for the use of equipment for collaboration before coming to a school.

This was also given a "yes".

One of the graduate students asked the people having a job at a PUI how many schools they had to apply to in order to get that job.

The answers varied from 3 to 55.

One graduate student asked the PUI professors what the selection process involved at the PUI schools. The process of selecting candidates was explained.

One graduate student asked if there were some red flags to avoid in the application process. Some specific points that were made included:

Know your school that you are applying to. Write the cover letter specifically for the school that you are applying to.
Focus on the strengths of the department and what you can do to improve them.
Do not try to take over the interview. Let the school control it. It is a give and take situation in which you are trying to see if there is a good fit. It does you no good to get into a situation if you do not fit into it.

Building New Buildings

Friday, October 15, 2011
2:30-3:30 PM
Carolyn Mottley, Luther College, Session Leader

Carolyn noted that the new building at Luther has no duct work. A representative from Michaels Engineering in LaCrosse described design of the ventilation system in the Sampson-Hoffland Labs at Luther from an energy efficiency standpoint. He distributed a handout describing a case study of a new science building at Haverford College in Pennsylvania. Traditional airflow design brings in outside air and cools it to 55 F then circulates it through the building via duct work; each room takes what air it needs and reheats it if necessary to ambient temperature. This requires significant energy consumption. The engineer then explained the HVAC system in Luther's new building; Luther's new building has LEED gold certification and consumes approximately 25% less energy from an HVAC standpoint compared to traditional HVAC systems. Additionally, the newer HVAC technology costs less to build and install than traditional systems, saving even more money. Air balancing within individual rooms is also easier this way. Dr. Mottley noted that no smells are evident in the hallways, so air must be going where it needs to go. Also, no odors from other labs permeate the air either. A Luther maintenance technician noted that there had been a few minor issues with the new air system (motors or chillers needing adjustment), but nothing major. The group then toured the rooftop HVAC system during the final 20 minutes of the session.

Meet the Speaker: Dr. Joseph Lambert

Friday, October 15, 2011
2:30-3:30 PM
Jane Doe, Her College, Session Leader

No report was submitted for this session.

General Chemistry

Friday, October 15, 2011
4:15-5:15 PM

Most instructors use a relatively traditional 3-hour lecture, 3-hour lab format. Some use a workshop format. One school uses blackboard. OWL has skills tests. Variety of textbooks used. OWL setup allows purchase of e-book or rental with OWL access for 2 years. You can print screen each page if needed. Various faculty use different approaches for quizzing and homework. Workshop approach

includes mini-lectures and problems solving in class. A few schools use atoms-first approach. GOB courses were also discussed.

One person went to POGIL workshop at BCCE in Texas. Some POGIL people are almost religious about it. It was said that Tom Greenbowe at Iowa State used POGIL in non-majors and had great results. Active learning seems to be the key. Clickers are being used. Those using clickers report mixed results. ConcepTests are also used. Clickers can essentially be used in this way. Students need to put in the time over time to learn. Collecting homework helps. Blackboard can help. One person has the students write reflections.

Is there technology that will make the students want to do the chemistry? Some people do wiki's. Others use Moodle and on-line quizzes. Still others use YouTube chemistry videos. Other suggest turning loose with iPod's, etc.

Organic Chemistry

Friday, October 15, 2011

4:15-5:15 PM

Suggestions about what to talk about

- -good chemistry jokes
- -green chemistry experiments
- -writing and analysis
- -online homework

How many people use PowerPoint presentations from publishers?

- -2 out 25.
- -usually only use images
- -depends on topic

Other textbook issues

- -solutions manuals
- -get extra solutions manuals from publisher
- -Lowdin new edition (solution manual packaged separately) does not contain all solutions
- -can buy into online sites
- -some solutions manuals complete some are not
- -offer hard cover vs. non bound to save students money
- -students using international editions of text books online
- -would be nice to have more solutions manual online

Online homework

- -only 2 out of 25 do online homework
- -gives students another options
- -does it save you time? Yes and no, but you don't get a chance to see what they are doing wrong
- -Smith McGraw-Hills system-too many errors

-some systems are worse than others
-make a list of suggested problems
-present a homework journal to check to see what they did
-use partial multiple choice exams supplement with types of problems online systems cannot
-access with only a few problems on the exam
-many people use a practice notebook
-some thought the Bruice website is excellent, others not
-students want homework to get feedback
-give simple problems and grade one problem out of the whole set
-have lab assistants grade homework
-quiz everyday that do not have an exam
-use a pulse pen (a pen with a microphone: as you write notes it records you)
-online office hours
-Bamboo pen tablet (make file and email it to them or post on class web page)

Website Course Hero
-4 out of 25 heard of it
-students can upload papers, lab reports, quiz keys and get money or credit for the upload
-upload it on Safe Assign so it can check it against all of the Internet.
-use Safe Assign to see if you are not plagiarizing

How many use organic clickers?
-2 out of 25

Start with green chemistry experiments (reference University of Oregon and ACS school on green chemistry)
-many people have two to four green chemistry experiments
-teach a course on sustainability and green chemistry for non-majors
-students like to register for these type of courses
-microwave experiments
-need more discovery based green chemistry experiments.
-each new experiment you do at least emphasize some of the green chemistry principals
-cannot just do microwave experiments
-how many green experiments you do depends on who is in your class
-pharmaceutical industry does use microwaves all the time so it should be more important
-talk about atom economy in every experiment since it can be applied to every experiment
-be sure to cover so that students will be prepared in their future careers

What are employers looking for?
-chemists are the best problem solvers
-chemistry majors don't necessarily need to do chemistry afterward
-problem solving is what we are really teaching students, and this is a very marketable skill

Writing and analysis

-assignments that must do library search and report on what they learned
-write full reports -- GRADING -- lots of work
-students really need the writing skills as they are not coming in with them
-maybe write parts of lab reports instead of whole reports
-use calibrated peer review software out of California
-some do a three step synthesis and write a full report
-draw reaction schemes in ChemDraw each week
-students write a report, students review, then prof grades
-need to learn how to read before they know how to write
-giving examples of good writing helps students write better
-do not use a lab manual, let them look up literature and then go and do experiment
-give pages of technique book on what they need and they have to develop their own experiment
-can 200 student be accommodated for the above writing examples
-need writing models for big numbers

Analytical Chemistry

Friday, October 15, 2011
4:15-5:15 PM
Jane Doe, Her College, Session Leader

No report was submitted for this session.

Inorganic Chemistry

Friday, October 15, 2011
4:15-5:15 PM

What does one teach in inorganic chemistry? Virtually everyone is currently teaching a one semester course, although there were some exceptions. Several people mentioned that there was a fair amount of freedom.

What textbook do people use? Most use Shriver, then Miessler and Tarr. A few used a combination of texts.

What do you not do now that you did 5/10/20 years ago? Main group chemistry, boron, descriptive chemistry, electrochemistry, and acid/base chemistry were common answers. One person used Jeopardy to teach descriptive chemistry. Oddly, some students did not know the answers to their own question. Another person had students write a paper about an element, which was reviewed by other students.

VIPEr (a virtual inorganic chemistry network) was mentioned as a good resource for labs, literature discussions for the students, and the like. About four of use had used it, and a couple had just heard of it today.

Labs: choice of lab depends on what you want to accomplish. Lab can teach a topic, a technique or critical thinking. Several mentioned new solid state/nano experiments. Not everything fits into 3 hours, so one person starts labs in each of the first three weeks, then finishes the labs in the following weeks.

How do you get students started on a research project in inorganic lab? Can be overwhelming for the instructor to prepare for many different things. Or, students may be overwhelmed by choosing the project themselves. Have them try testing new experiments, extending literature papers, etc. Give them some choice rather than complete free choice to make the projects doable for students and faculty supervisor.

Physical Chemistry

Friday, October 15, 2011

4:15-5:15 PM

Textbook usage was discussed: most people used McQuarrie. Most taught thermodynamics first followed by quantum mechanics.

Class sizes varied from 3 to 15 for P-Chem lab. Most ran 3 labs at once and rotated students every two weeks. Discussion went into what labs people did, and then to what data collection system they use.

Most had the lecture and lab combined into one 4 credit course. Only a couple had them separate.

The non-ACS school faculty taught 18-24 contact hours per semester.

The question “what kinetics labs people do?” was asked. Some initial rates and some integrated rate law experiments were done.

Only two schools taught a special P-Chem course for biochemistry majors. Most biochemistry majors just took a course from the two semester Chem major sequence.

It was suggested that we show the NOVA program “Absolute Zero”. It has lots of thermodynamics and quantum mechanics in it.

Biochemistry

Friday, October 15, 2011

4:15-5:15 PM

The session began with a discussion about assessment. Some of the assessments used are listed below:

Exams (writing test that integrate material is big goal, making tests are a big deal: final exam is 25-30% of course grade).

Mid-semester progress reports.

Writing assessment within the course.

A one semester junior level class with only pass/no pass grade perspective used a quick review and then out of class assessments: written biochemistry technique assessment, take home assessment on proteins, answer questions which require other books, design flow charts of metabolism. It was agreed that alternative forms of assessment requires a lot of work on part of professor.

Power point presentation combined with printed notes that students can write on. One way to have students give presentation is to give to other students and have peer feedback. All agreed that students need instruction on peer review.

One idea is to move away from lab reports to give students more constructive criticism.

The session then moved to a discussion of content and course focus. Some of the topics covered are listed below:

What should we be covering for students? Adaptive physiology? It is worth it to toss some content to give student skills.

Case Studies are valuable. Some use Kathleen Conley or Cornly. Need to make your own case studies otherwise they find it on their own and copy answers. Writing good case studies takes a long time. You present some background information on some topic. They reconstruct the reasoning focused on fundamental principles. Some students like case studies because they are relevant others think they require too much work.

Do we step on toes of molecular biologist? Depends on who takes the class. A one semester Biochemistry course doesn't have all people who take molecular biology. Can put enzymology and biotechnology in the second semester of a two semester sequence. One has a Perspective of Proteins/Enzyme/Metabolism class. Students can do presentations on biotechnology and/or environmental uses.

Don't have to use textbooks. Give students a list and can use what they want.

One new untried assignment is design your own disease. Pick metabolic step and design something wrong with that step.

Other topics discussed are listed below.

How biochemists teach is a different thrust. We can share material, but there is no simple answer. Some students like how biochemistry brings together information they've learned. Brings together structure and function.

Talk about real world connections, drugs are a good topic. Biochemistry in the news. On Blackboard/Moodle each student put news article about biochemistry. Use Science magazine perspectives. Journal Club in conjunction with class (use free PDF links). Journal club leader in charge of the presentation of the article.

Gail Rhodes, takes students through how to use visualization software (Swiss Deep View viewer). Jmol or Chime also work. Then had to find practical applications for the protein.

Student made posters/paper that focus on various audiences. Target to various groups. Could also do pamphlets. Video/animations: take video clip from nature/discovery and put in their own voice over. (Need resources like media center to help students. Students will also need to think about copyright issues as well.)

ACS Biochem feelings: how do you evaluate yourself to an outside standard, and should you have to? Re-accreditation may lead to taking ACS standardized test. ACS Biochem test is cost effective compared to GRE. A thesis is another evaluation technique, as is pre/post testing. Covering something in class does not indicate that students have learned the information.

Chem. Ed. Digital Library

Saturday, October 16, 2011

11:00-12:00 PM

John Moore, University of Wisconsin-Madison, Session Leader

Joy Young, University of Wisconsin-Madison, Session Leader

Everyone in the group was asked to complete a pre-session survey before we started the session. We then began the session by asking the question "which of us are using Moodle?"

John Moore then went over the handout that featured the top ten resources that are available on ChemEd DL (HTTP://www.chemeddl.org). He also covered the page that contained how to enroll in Moodle (HTTP://www.moodle.com), and informed us that if we enrolled in the Introduction to ChemEd DL course on Moodle and contributed some instructional materials to it there could be a $400 stipend available.

John spent some time asking if there were some things that members of the group wanted to learn in the session. Answers included finding out how to get some specific videos from the ChemEd DL collection, getting ideas for what videos are available, and getting virtual labs from the collection. One person asked why one should go to ChemEd DL rather than to Google to get resources. The concept of peer reviewed resources was discussed in response to the question.

The tab for texts was selected (HTTP://www.chemeddl.org/collections/livtexts/). This pointed to a resource known as "Textbook-Integrated Guide to Educational Resources (TIGER)." The Textbook-Integrated Guide to Educational Resources (TIGER) was ChemEd DL's new way to find useful online resources. One could find a textbook in a list and click on the title. This would take a person to a table of contents where he or she could choose the chapter and section that he or she is currently studying. A list of resources from ChemEd DL would appear. One could click on any resource that seems useful. An instructor could reference texts for which John had been given permission to replicate the tables of contents. One could click on a topic or a video. There were search capabilities available. This allowed a person to link search topics to content in text books. John indicted that this was a work in progress as he had not gotten permission from all publishers yet to copy the table of contents from their texts.

The group looked at the "Periodic Table Live" next trying to view all of that program's capabilities. John called up several elements and showed the group all the information that was available via that program including videos, the ability to look at more than one element at a time, and the ability to do crystal structures. He also demonstrated the chart-sort capabilities and the ability to plot a variety of properties against atomic number to note the periodicity of physical properties.

Joy Young showed the group the Model 360 program. The group looked at the Model 360 program using Jmol to do molecular modeling along with a large library of molecules to study molecular structure. Using an example, she showed how one could demonstrate a space filling model, bond lengths, bond angles, and bond polarity. She was able to do electrostatic surfaces with the program, take pictures with the program and put the pictures into jpeg files, do IR vibrational demonstrations and show the IR spectra that would result. She could show symmetry elements and molecular orbitals for the molecule as well. That same program (Model 360) also had some solid structures that it would show that included crystal lattices, It would show translucent atoms and crystal planes in solid structures.

The group went to Moodle and spent some time signing up for the course Introduction to ChemEd DL. You can do the same by following the instructions below:

A. We first created an account on HTTP://moodle.chemeddl.org.
B. We then logged in on the right hand side and chose to create a new account.
C. We were asked to list an e-mail account that we used regularly.
D. A confirmation e-mail was sent to that account confirming our registration. We had to click on the web link that it contained. This brought us back to the ChemEd course Moodle page. We had to click on the "Courses" box and choose the course "Introduction to the ChemEd DL" from the list of available courses.

E. Then we had to locate the Administration box on the left hand side of the page. We clicked enroll me in this course- Going to a new page we filled in an "enrollment key" exactly as"MACTLAC_2010" and clicked on "Enroll me in the course".

Early Years of a Research Program

Saturday, October 16, 2011

11:00-12:00 PM

Bradley Chamberlain, Luther College, Session Leader

Q: How is time spent?
A: Spend most time working on proposals/reports. More hands on work during summer.

Q: Are undergrads allowed to work alone?
A: Faculty member has to be in building, on floor, or let another faculty member know the situation. Labs are locked after hours. Depends on the specifics of experiments as well. Someone mentioned swipe cards.

Q: Do you recruit research students?
A: Keep an eye out for potential students. Others approach a faculty member because they are required to do research for graduation requirement. Worries about some student that approach but maybe are not prepared or capable for research. Solution can be to assign them an appropriate project. Good to start sophomore year, get at least 2 years. Pair up older student with younger student to do some shadowing.

Q: What do you do about students that wait until last minute to fulfill research requirement?
A: May do summer research on campus or off, or research during the school year. Admission to REU programs has decreased. More students may be doing research on campus.

Q: Do summer researchers get stipend?
A: Summer research stipend is sometimes available through the college.

Q: Advice about grant writing?
A: Went to a CUR grant writing institute early on. Program officers from NSF, etc. came and spoke about what they look for. Builds networks, may meet people willing to give you copies of successful grants. Also networked with faculty members in other departments about their grant writing. Someone mentioned that CUR has a mentoring program. They will match you with someone who is more experienced at grant writing. Mentors are volunteers, and want to help out. It worked out very well for her.

Q: How much time should you expect to spend on research?
A: 100% during the summer, 25% during the academic year is what he typically puts in grant proposal.

Q: How should money be distributed in grant proposal?
A: Usually budgets less for himself, so he can have more undergrads. But there is a minimum, as you do not want your stipend to be too low, i.e. Lower than students. Also, need to have enough money for reagents, etc.

Q: Do you try to send your students elsewhere to get a better experience?
A: I try to get them started here sophomore year, and then after junior year send them out to a larger university.

Q: Collaborations with larger universities?
A: U. of Minnesota is where he did his sabbatical, and also grad school. Also made a contact at UNI through connecting at a meeting. Together got a proposal funded. Useful because the collaboration keeps you from being distracted because you are responsible to that person as well. To do it again, would seek out connections more actively. Approached someone last year at MACTLAC with an idea and a suggestion, now working together.

Q: Trying to start a program with more summer research?
A: $3200 from a grant, $2750 from Deans (someone said it is Department funding). May be able to get housing through college, and can count it as a match on proposal. Elmhurst: $2500 from deans office, no housing. Ripon has pools of money from Deans and another administrator.

Q: What is the difference between match and additional resources?
A: Match is support from the Institution or Department. In kind contributions can count as support.

Q: What do you know now that you wish you had know when you started?
A: Was more ambitious about what he thought students can do, and how much time they have. How many students he can handle overseeing realistically, and have a good experience for both. Four students is a maximum for him, but he will split them into two groups of two.

Q: What time commitment do you expect?
A: One credit for an afternoon per week. If they're not taking it for credit, one afternoon per week is still the minimum.

Q: What do you do with students that stop coming in or make excuses?
A: Tends to be flexible, but depends on how much control he has. If they're not taking it for credit, he may let them know he can't depend on them and take them off of a project.

Q: Does everyone in your Department take research students every summer?
A: No and yes; it depends on the year. About half of faculty have summer students. Because of graduation requirement other faculty usually help more during academic year to help students fulfill the requirement. Depends on the students interest, also. Makes sure students talk with other faculty members as well so they can find out what they may be interested in.

Q: Do you let students come up with their own research projects?
A: Usually more directive because of grant reports. Likes them to take initiative to think about what they will need and how they will do the experiments. Would like to be able to let them come up with their own ideas more often. With only one student a semester is easier, but when you have multiple students its hard to have the time. Learned to be more protective of his time: tough to make those decisions early on. Someone mentioned that their students start with his project and then if they have something else they can switch over.

Q: Do you tell the students what the things are that you need to get done?
A: Students appreciate learning how much time you are putting in, how much things cost. Also has them do more lit searches.

Q: What do you have for lit searches?
A: Have Sci-Finder now, but gave up some journals. Share two accounts with three institutions. Work Sci-Finder search into classes, to show librarians that it is worth the cost. Also have to do inter-library loan.

Q: How much per year is SciFinder?
A: $3000-$5000

Q: Can students go through articles and actually understand them?
A: A lot they don't know, but focus on the experimental. Talk about the theory, because they don't always understand that.

Q: Who has Sci-Finder?
A: Convinced College it is necessary to write proposals. Librarians help find consortiums, usually willing to have the conversations. Otherwise, four do, and are parts of consortiums. Others can't justify the cost. Need some way of searching to be ACS certified. Chem Abstracts free after 5pm.

Q: What type of fun things do you have for students in the summer?
A: BBQ, canoe, dinner outings, have people over. Others have BBQ's, bi-weekly meetings with three minute talks with other science faculty and students, too.

Q: Do you have summer symposium with other schools?
A: Didn't know how much time would be spend being the research administrator during the school year. Someone said they have their own. Others said Department helps fund seniors to go to ACS meeting to present. Sigma-Aldrich connection, they give tours and come to Monmouth to interview.

Q: What is your goal for your own research?
A: One or two reactions a day, but depends.

Q: How long do you think is realistic to get a paper out?
A: That depends on the project. Always tries to present posters, leading up to publications. At Luther each Department determines set of criteria for tenure process. Grant proposals also

considered as peer-review, here. Spent a lot of time getting proposals and money to build lab, so the Department gave grace time.

Q: Do they look at what type of journal you publish in?
A: Don't look at impact level, just needs to be peer reviewed. Department prefers to publish in Ed. Journals later in your career. Be proactive with Department and asking what they expect. Another said they consider *J. Chem. Ed.* and like journals equally. Someone else mentioned having tenure committee with faculty members from all over college. Scholarship was evaluated on college-wide criteria.

Q: Does anyone know anything about the Merck grants.
A: We've tried unsuccessfully, along with Howard Hughes. Need robust interactions with biology.

Q: Do you serve on service committees and balance with research?
A: At beginning worked on College Curriculum Committee, became chair, during reorganization of general education curriculum. Hurt his research, but help him get tenure. Be realistic about how that will impact your research and teaching time. Good way to get to know people, but need to work on carving out time for research and students. Working with them is also teaching. Doesn't feel guilty about scheduling research time, because it is another form of teaching.
Someone else had a similar story, didn't realize the time commitment involved with committee.

Q: Do you block out a couple time blocks for research?
A: Try to schedule one day a week with no formal teaching responsibilities for junior faculty, so they have time to block out for research. Networking is a big thing: talk to people. Be on an email list. Making connections can energize you.

Experiment Swap

Saturday, October 16, 2011
11:00-12:00 PM
Jane Doe, Her College, Session Leader

No report was submitted for this session.

Primary Literature Use and Writing

Saturday, October 16, 2011
11:00-12:00 PM

Brian described what he is doing in advanced inorganic chem. He uses partial write-ups (write-up just one section as would be in a paper), then the final lab is a full written report on a final project. He does something similar in organic chemistry. Little writing is done in their general chemistry course, since they haven't yet seen many papers. Instead, general chemistry students write regular papers, although he has found that unsatisfactory. Others shared similar methods to incorporate writing in their chemistry courses.

Some thought that writing traditional lab reports can hamper what students think should be in a report and how they are to be written. Many liked the idea of writing a journal-like article.

Grading can be difficult, since students may lack writing skills and presentation skills (whether to use tables or graphs to present data, for instance).

Mark described his use of client letters (a letter from a fake company asking the students to do some contractual work). Students write a letter reply.

Norbert described what they do in general chemistry at University of Iowa, which is activity based, on which the students write. This makes for smaller chunks, but at the end of the semester their students do a complete written project that incorporates what they have done earlier in the semester.

Brock asked if anyone used writing to teach something other than writing, like how to do research, or using writing to explain a chemical topic. About half of the members have college-wide writing requirements. Most that have such a requirement have a course within their chemistry majors designated as a writing intensive course. Usually, the writing intensive courses are upper-division.

Tammy Clark used outlines in her courses in the last two years, but she has found that students don't know how to outline. "Who uses outlines in real life?" is a typical question she has heard from her students. She wonders if writing organization has "gone out the window" with modern students. She has also found that students don't know how to critique well, but when she taught them how to critique, she noticed that they started to make better outlines. Beth uses an outline for a term paper as well. She's seen the same thing as Tammy, but wondered that if she should teach them how to critique, she wouldn't see better outlines as well.

Brock asked about using primary literature. Eric wondered how well students can understand modern journal articles, and asked if anyone had any ideas about to introduce the primary literature earlier into the chemistry curriculum. George at Beloit requires students to bring in papers about nanotechnology that have been published within the last month. He's found that students seem to like this, and has found they are interested when the next issue will be published. Tammy said that her students can look up papers from fields other than chemistry, and then highlight what they don't know. She then hands the paper back at the end of the semester to show them that they know more than they thought. Brock has his student's just look at figures to explain what the paper is about. Brian said that paper writing is dense, so students have trouble understanding them. He has them answer questions about specific sections in papers. Beth thought that students have trouble because they want to read the journal article from beginning to end. Mark described his struggles on his campus to get the English faculty to understand that scientific writing is different from other types of writing, but just as valid. One suggestion was made for Mark to team teach a course with an English faculty to teach students about scientific writing. Norbert wondered if this isn't tied into student's difficulty with reading scientific textbooks.

Brock asked if anyone was using student paper editing. Beth uses it, but she has to control how the students edit with her own editing comments. She thinks it works well, and she doesn't have to read all the papers twice. Her students use the same editing/grading rubric that she uses, and then incorporates the student review into the final grade for an individual student. Beth also doesn't use the word "draft" since she has found that students give her junk if they think they'll have a chance to revise.

Glen asked about primary literature access at attendee's institutions. He use to be able to use SciFinder Scholar, but it is very expensive. He asked if anyone had a way to avoid the high price of the service. Tammy said the Viterbo has access through a consortium agreement. The only problem is that sometimes Tammy's students can't get on the service. Brock told that his library pays for on-line access so they don't have to have bound copies that take up the library's shelf space. Norbert thought that "Web of Science" has all ACS journals and Elvisier journals, so that this may be an option for Glen. Beth convinced the library that SciFinder could be used by more than chemistry, and that part of an alumni gift was used to pay for the first year of the service, with the idea that the library would budget for subsequent years if they could provide it was widely used (which it was). Norbert also thought "Web of Knowledge" could also meet Glen's need.

Meet the Speaker: Dr. Mary Virginia Orna

Saturday, October 16, 2011

11:00-12:00 PM

Jane Doe, Her College, Session Leader

No report was submitted for this session.

Meet the Speaker: Dr. Laura Peterson

Friday, October 15, 2011

2:30-3:30 PM

We had a general conversation that explored various aspects of Laura's presentation, research, and global climate change in general. There was a lot of interest in gaining access to the slides that Laura used in the presentation for use in the classroom. Laura will provide a copy of the slides that will be posted on the Luther College chemistry page. An additional slide question related to the site HTTP://globalwarmingart.com, which contains a number of useful charts and figures.

The questions/conversations :
Q: Are there C-37 molecules of similar age that you analyzed that had cis bonds? Trans is only one studied.
A: Trans is preserved because nothing digests it. Cis form disappears because it gets broken down by organisms.

Conversation followed about global climate change evolution and how it is not static.

Q: How do you talk about climate change without it being discouraging?
A: Point out that there are a lot of different outcomes possible.

Conversation about causes of the cycles (long range) and role of CO_2 from agriculture, rice paddies, etc., have helped stave of the predicted return to ice age. Ocean acidification vs. global warming: methane storage in ocean bottom, possibility of ocean warming to release frozen methane.

Q: Are people still collecting cores?
A: Yes

Q: Could you learn anything from sediment cores from great lakes?
A: Yes, pollen records, algae, etc., maybe provide information back to last ice age.

Q: Is the field now mostly looking sideways, or are there new directions that are being actively pursued?
A: Some are interested to look at different parts of the planet especially the southern oceans since their temperature shifts should be opposite the northern hemisphere. Another area is to compare sediments on rocks uplifted on land compared to what remains in undersea sediments.

Some possible climate change labs: sample local rock like limestone, grind, dissolve in acid, and calculate amount of CO_2 sequestered; for shales one could dry and ash in muffle furnace at 500°C to measure CO_2 sequestered. One could also put soils in muffle furnace, dry at low temp to remove water, then dry at high temp and assume reduction in weight is loss of CO_2. One could compare no till field to tilled fields. A conversation followed about carbon tax vs. cap and trade.

Vendors and Sponsors

The organizers of this year's meeting wish to express their thanks to the following vendors and sponsors:

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MACTLAC Weather Report

It has become somewhat of a tradition to mention something about the weather surrounding the MACTLAC meeting.

Friday's Weather

Friday saw a typical beautiful fall day in Decorah, Iowa. The temperature ranged from a low of 39°F (3.9°C) to a high of 62°F (17°C). The sky was sunny, and the day had a very light wind (2 mph or 3 kph) out of the north northwest. The barometric pressure remained steady all day at around 30.09 inHg (764.3 mmHg). No precipitation was recorded for the day.

Saturday's Weather

Saturday was another beautiful fall day in Decorah. The temperature ranged from a low of 44°F (6.7°C) to a high of 71°F (22°C). The sky mostly sunny, with a light of 6 mph (10 kph) out of the southwest. The barometric pressure again remained steady all day around 30.02 inHg (762.5 mmHg). As on Friday, no precipitation was recorded for the day.

MACTLAC News

Placement

MACTLAC's Placement Officer maintains two lists: 1) a list of faculty positions available within the MACTLAC member colleges, and 2) a list of candidates seeking positions with member colleges. Our goal is to ensure that candidates are in contact with the colleges having positions available. If you

are currently recruiting new faculty, are looking for a teaching position at a Liberal Arts college, or have any other questions, please contact the Placement Officer. A copy of the list of available positions can also be found at www.mactlac.org.

Website

The address for the Association's website is www.mactlac.org. Feel free to visit this site to get information on our organization and the services that it offers. Be sure to check out the links page as there are some things on that page that may be of interest to you.

Listserv

Craig Bieler, the MACTLAC webmaster, has set up a Listserv for the member of MACTLAC to use for discussion of topics of mutual interest. To subscribe to the listserv, send an e-mail to imailsrv@mactlac.org with the phrase 'subscribe mactlacinfo (your full name)' in the body of the message. Place nothing in the subject line of your subscription message. To post comments to the listserv, send your message to mactlacinfo@mactlac.org. To unsubscribe from the listserv, send an e-mail to imailsrv@mactlac.org with the phrase 'unsubscribe mactlacinfo' in the body of the message. Do not place anything in the subject line of your unsubscription message.

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Honorary membership is granted only by a unanimous vote of the Executive Council, and shall be reserved for those persons who have rendered extraordinary service to the Association or who have made noteworthy contributions to the improvement of chemistry teaching in member colleges. To be considered for honorary status, the candidate must be nominated by a colleague in a letter submitted to the Secretary-Treasurer at least one month prior to the Annual Meeting at which the letter is to be considered by the Executive Council. A second letter of support from another colleague should also be submitted at least two weeks before the Annual Meeting to the Secretary-Treasurer. These letters should attest to the criteria needed for honorary membership status.

Emeritus membership is reserved for any person who has been an active member of MACTLAC for 10 years and who has retired from teaching. An Emeritus member will be excused from further payment of dues and will be listed as an Emeritus member. Anyone seeking emeritus membership should request it, preferably by sending a letter to the Secretary-Treasurer of MACTLAC.

2011 Meeting

Our 2011 meeting will be held at Beloit College in Beloit, Wisconsin, on October 21st and 22nd. The meeting theme will be on energy. Speakers and their topics will be announced at a later date. We hope to see as many of you as possible in Beloit next fall for another excellent meeting!