MACTLAC

MIDWESTERN ASSOCIATION OF CHEMISTRY TEACHERS IN LIBERAL ARTS COLLEGES

2015 Annual Meeting Report
The 63rd Meeting of MACTLAC
Green Chemistry's Silver Anniversary: A Look Ahead
Millikin University, Decatur, IL
October 16-17, 2015

General Session 1, Friday Afternoon, 1:00 PM

Paris Barnes opened the 2015 Annual Meeting by welcoming everyone to Millikin University and thanking them for coming to Decatur. He then asked that everyone support the vendors in attendance by visiting their tables and talking with them. He next introduced and thanked all those within the Chemistry Department and across the University for their help in organizing the meeting. Paris then introduced the President of Millikin University, Dr. Patrick White. Dr. White also welcomed the Association's members to Millikin, and spoke briefly about his teaching history and how his teaching career involved MACTLAC. He commented about how small Chemistry Departments are the pipeline into chemical careers, and how small schools can give their students opportunities such as oral presentations that bigger schools don't offer, and he thanked the Association's members for their hard work that they do. After Dr. White's comments, Paris made a few general meeting announcements, and then introduced the first speaker.

Plenary Address

I'm Finally Beginning to Understand Why I Don't Understand...
Dr. George Bodner, Arthur E. Kelly Distinguished Professor, Chemistry Education
Purdue University, West Lafayette, IN

Dr. Bodner began his talk by describing why he struggled in chemistry as a student, and how this eventually led him to study and incorporate constructivism into his teaching. In a paper he authored in 1986 (*J. Chem. Ed.*, 1986, **63**(10), 873-878), he stated that "teaching and learning are not the same thing...we can teach well, but students don't learn what we think they learn.". He then provided an example from a typical organic course as an illustration: what was taught was arrow pushing in mechanisms, but was learned was something different such as arrows pointing in the wrong direction. From this basis, he wanted to make a model that would help students learn more successfully, is teachable, is transferable from course to course.

To begin, he felt he needed to understand how students solve problems, so he started to record how chemistry graduate students solved typical chemistry problems. What he found was that good problem solvers would do the following (not necessarily in order):

Draw a plan to solve the problem
Identify the type of problem

Test intermediate results
Read the problem again
Try something else
Write down an answer (which may not be the right answer)
Test the answer to see if works
Start over

Thus, he concluded that drawing to organize information and trial and error are important in problem solving.

Next, he asked what is the difference between a task and a problem. (Dr. Bodner defined a problem as a task in which you don't know what to do or how to solve.) As an example of this difference, he asked the audience whether the question "What weight of oxygen is required to burn 10.0 grams of magnesium?" is a task or a problem. Every one in the audience knew this as a task and not a problem since all knew how to solve it. This difference, Dr. Bodner emphasized, is the main reason for the disconnect between what we teach and what students learn: we put a person at the head of the class to teach concepts that to them are tasks, but to students are problems. He went on to explain that tasks and problems are different from exercises, which he defined as tasks that are logical, routine to solve for those experienced in the field, provide non-real world examples, and are unrealistic for students to solve since they don't model real problem solving. From these two sets of observations, he proposed the Anarchistic Model of Successful Problem Solving (again, there is no specific order to the following):

Read or visualize the problem
Now read the problem again
Draw a picture or make a list or write an equation
Write down what you hope is the relevant information
Try something, and try again if needed (trail and error), and see where it goes
Read the problem again
Try something else

He suggested teachers should model the above behavior by always drawing a picture when presenting a problem and showing all of the messiness of their solution so that students see how real problem solving is done and to not be afraid of the messiness. Dr. Bodner then gave three examples of how this could be done in with typical general chemistry, organic chemistry, and physical biochemistry problems.

Dr. Bodner next discussed "dead starts", in which students haven't learned to begin problem solving by writing something down. This, he stated, is a common student issue, and leads students to try to solve the problem in their head only. Such "dead starts" usually lead to "crazy" student answers. As an extreme example of this phenomenon, Dr. Bodner described the case of student that was trapped in this paradigm. The student was a bright chemistry major that changed their major to political science at the end of his first semester of organic chemistry as he had trouble with electron arrows. He just couldn't visualize what they meant, and had learned to parrot "using words and concepts that he didn't really understand".

Dr. Bodner then concluded his presentation with a quote from the Dalai Lama: "If a problem can be solved, it will be. If it can not, it's not worth thinking about."

General Session 2, Friday Evening, 8:00 PM

Plenary Address

Innovating Towards Sustainability in the Global Chemistry Enterprise
Dr. David J. C. Constable, Director of the American Chemical Society Green Chemistry Institute
American Chemical Society, Washington, D.C.

Dr. Constable began his presentation by describing the ACS Green Chemistry Institute and what it does. Those working at the Institute "believe sustainable and green chemistry innovation holds the key to solving the environmental and human health issues facing our world today", and they focus on advancing science, advocating for education, and accelerating industry. He then briefly described a new ACS portal that will focus on green chemistry: Green Chemistry Innovation Portal, which can be found at http://www.greenchemistryportal.org/.

Dr. Constable suggested that sustainability risks are real, and how we view the world will make a difference:

Plenty of resources vs. finite and diminishing resources
Room for lots more people vs. too many people
The environment will take care of itself vs. the environment is stressed
Life as I know it will continue as it always has vs. disruptive changes

Dr. Constable believes that we are already in an age of diminishing resources, overpopulation, a stressed environment, and disruptive changes. He presented several tables and graphs, for example, that indicate the many of our best metal catalysts are becoming more rare, such as indium and tin. It is thought that there is only a 14 to 17 year of supply of indium left at our current rate of use, while tin supplies are predicted to last for about another 50 years. Further, many other metals are supplied from secondary metals production. Copper refining yields arsenic, silver, selenium, tellurium, rhenium, bismuth, gold, and cobalt, for example. If copper runs out, then we'll run out of all of the other secondary metals that are co-refined along with it. Shifting mining operations from the developed world to the under-developed world will also cause major population shifts and environmental pollution. Moreover, no one is recycling the metals whose supply is running low that are used in products, or even planning for it. The indium in solar panels will not be recycled, for example, when they reach the end of their useful life in twenty or so years. Metal refining also generates large amounts of pollution. Platinum metal refining involves the use of mercury, which is evaporated to give pure platinum, putting large amounts of mercury into the air.

Dr. Constable then listed some of the challenges that we'll face when dealing with the above problems. Heavy investment in current infrastructure makes for resistance to paying for new infrastructure, for example. There is also always significant societal/organizational resistance to change, a good example of which is how we make chemicals. In general, there is little long term thinking about how a synthesis will impact the environment and/or society. Further, chemists tend to use known reactions, which are often old, inefficient, and have great environmental impact.

Added to this is the fact that new chemistry takes a long time to work it's way into industry and research. (In fact, new chemistries lead to Noble Prizes, it is so rare.) Dr. Constable thinks that organic chemistry, in particular, needs to move away from organometallic reactions that are currently in use today. Moreover, chemical technology hasn't changed much: we still use batch reactions, distillations, and crystallizations, all of which have been known since the bronze age. We use these old techniques and reactions because they are well understood, and because they are thermodynamically and kinetically favorable. But each has environmental problems such as low feedstock resources and/or process inefficiencies, for example. Thus, we need to change how we design our processes, particularly in chemical engineering. This means that we need to maximize resource efficiency, eliminate and minimize hazards and pollution, and design systems holistically using life cycle thinking. The National Science Foundation hosted a sustainable chemistry workshop in January, 2012, that came to the same conclusions as those described above.

To meet these challenges, Dr. Constable suggested that the chemical industry move toward biological feedstocks and processes. To date, however, doing so raises it's own challenges, some of which are:

doing more research to exploit biorenewable resources;
gaining a better understanding of synthetic biology as a tool;
designing new reactions that are focused on biologically-derived molecules; and
utilizing low energy conversion of CO_2 to methanol or other C1 molecules.

Dr. Constable then gave several examples of how these challenges are either being overcome or are preventing progress in sustainable chemistry. One such example Dr. Constable mentioned was the use of plant lignins as organic feedstocks instead of crude oil. We know that plant lignins are a rich renewable source of organic materials, but due to their complexity, we haven't made much progress in tapping this resource.

Innovation in education will be required to help make these changes as well. Dr. Constable presented survey data that showed at least some of the above concepts are being taught in chemistry courses. For example, 85% of survey respondents said that knowledge of safety and hazards are important for students to know. He also noted that are several problems preventing green chemistry concepts from being more thoroughly incorporated into chemistry education including crowded curricula, resistance from administrators, and lack of curricular materials. To at least meet the last need, The Green Chemistry Institute is working to build the curriculum materials needed to help bring green chemistry ideas and concepts into the modern chemistry curriculum. The Institute is also working on getting stakeholders like the American Chemical Society's Committee on Profession Training to buy into making green chemistry fully incorporated into the chemistry curriculum. Dr. Constable hopes that a new road map for moving green chemistry forward in education will be presented at the June, 2016, Green Chemistry and Engineering Conference in Portland, Oregon.

General Session 3, Saturday Morning, 8:30 AM

Plenary Address

Chemistry of Renewable Feed Stocks at ADM

Dr. Stephen J. Howard, Scientist
Archer Daniels Midland Company, Decatur, IL

Dr. Howard began his presentation by describing the highlights of the Archer Daniels Midland Company (ADM). ADM is an agricultural bioprocessor with over 30,000 employees, and having offices and processing plants located around the world. ADM has 160 plants just for processing oil seeds, for example, which produce over 150,000 metric tons of seed oils per year. Dr. Howard also briefly described the company's history and acquisitions since 1900, when the company began. Since the company began, ADM has partnered with farmers for source feedstocks, transported those feedstocks to processing plants, transformed them into products, distributed those products, marketed the products, and sold the products.

Dr. Howard next turned to the term chemurgy: the branch of applied chemistry that is concerned with preparing industrial products from agricultural raw materials. This term was defined in 1930 by John Hale. Dr. Howard gave an early example of chemurgy in which Henry Ford, based on a suggestion from George Washington Carver, built a car body out of soy bean based materials. Mr. Ford also designed his first cars to use either ethanol or gasoline since farmers often had ethanol on hand (or could make it easily) rather than gasoline.

Chemurgy didn't go beyond these first attempts due to the low price of oil, which remained under $5 a barrel until the late 1950's, so it was cheaper to make synthetic materials from oil than to do so from agricultural feedstocks. With oil now being much more expensive, ADM is looking back toward using agricultural feedstocks to make chemical feedstocks and products. In addition, there have been geographic, economic, technological, and societal changes that have influenced ADM's decision to get back into chemurgy.

As part of ADM's long-term plan to double the amount of food that can be produced per year, ADM wants to find new ways to use the increased production as we become more efficient with our agricultural land-use, reduce crop waste, and recycle plant biomass. For example, ADM will produce some fuels from biomass, but the market for biomass fuels does not have as much a return on investment as producing feedstock chemicals from biomass, so ADM will be focusing on making feedstock chemicals rather than converting biomass into fuels. To do this, however, ADM will need to reduce inefficiencies and/or gain efficiencies in their operating and capital costs. This is the spot where traditional R&D innovation will be needed to make ADM profitable in chemical feedstock markets. Some of the key technologies needed to drive renewable chemicals at ADM are new catalysts, better understanding of aqueous catalysis, finding new staring materials, finding better separation techniques, and having better technology integration.

Dr. Howard next described several examples of ADM's current biomass based chemical portfolio. For example, ADM has replaced its oil based glycol production with a biodiesel based method: Glycerol/dextrose/sorbitol + H_2 → propylene glycol/ethylene glycol. There have been several benefits that have arisen from this change: ADM has observed a 61% reduction in the amount of

green house gases produced when compared with the oil based method; the new production method uses a renewable resource; and it can be used in any application that requires glycol based products. As another example, Dr. Howard described how ADM plans to build a pilot plant to make acrylic acid from cellulosic sugars and polyols (cellulosic sugars/polyols + dehydration → acrylic acid) and/or from a bio-based Rennovia process (glucose + catalysts → glucaric acid + H_2 + catalysts → adipic acid + H_2O). Next, Dr. Howard told the audience how AMD has started making plasticizers from biomass, three of which they have been able to bring to market. Of the three plasticizers ADM has brought to market, Dr. Howard spend a few moments describing how ADM methylates and epoxylates soy bean oil for use as a PVC plasticizer. The main advantage of using the bio-based plasticizers is that they don't have the health hazards that traditional phthalate based plasticizers have. Lastly, Dr. Howard described research into using fructose as a feedstock to make furandicarboxylic acid, which can then be used to make polyesters, polyamides, and new plasticizers.

MACTLAC Business Meeting

1. The meeting was called to order at 8:35 AM by President James Wollack. He thanked Millikin for hosting this year's meeting.

2. The Treasurer's report for 2015 was presented by Mark Sinton. The Association's finances have continued to increase, so the Association is on good financial footing. Mark reminded the Association needs to spend the surplus funds to avoid more IRS reporting requirements. A motion was made and seconded to accept the Treasurer's report. The motion passed.

Year	2010	2011	2012	2013	2014	2015
Beginning Assets						
Checking	$5,041.70	$5,631.52	$7,373.13	$8,100.58	$8,888.59	$10,298.66
Savings	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Beginning Assets	$5,041.70	$5,631.52	$7,373.13	$8,100.58	$8,888.59	$10,298.66
Income						
Dues	$445.00	$420.00	$1,320.00	$470.00	$440.00	$400.00
Annual Meeting	$4,155.00	$4,280.11	$2,295.00	$2,110.00	$4,255.00	
Interest	$12.49	$14.34	$11.26	$11.31	$10.43	$7.35
Other	$101.00	$598.52	$60.00	$0.00	$0.00	
Total Income	$4,713.49	$5,312.97	$3,686.26	$2,591.31	$4,705.43	$407.35
Expenses						
Postage, copying, website	$363.98	$246.06	$147.16	$199.30	$143.14	$57.16
Annual Meeting	$3,759.69	$3,325.30	$2,811.65	$1,604.00	$3,152.22	
Placement, Archives	$0.00	$0.00	$0.00	$0.00	$0.00	
Other	$0.00	$0.00	$0.00	$0.00	$0.00	$20.55
Total Expenses	$4,123.67	$3,571.36	$2,958.81	$1,803.30	$3,295.36	$77.71
Ending Assets	$5,631.52	$7,373.13	$8,100.58	$8,888.59	$10,298.66	$10,628.30
Asset Change	$589.82	$1,741.61	$727.45	$788.01	$1,410.07	$329.64

3. Secretary's Report for 2015 was presented by Mark Sinton. Mark noted the same general trends that have been pointed out in pervious Secretary's reports: almost 75% of our member are either in arrears or don't pay dues (Emeritus and Honorary members are excused from paying). Mark noted that should the membership stand at the end of the year as reported in the Secretary's

report, 38 members will be removed from the membership database. A motion was made and seconded to accept the Secretary's report. The motion passed.

Year	2011	2012	2013	2014	2015
Beginning Membership	384	297	287	293	296
New Members	3	25	35	11	2
Members Removed	90	35	29	8	45
Ending Membership	297	287	293	296	253
Member Dues Breakdown					
Emeritus and Honorary members	43	47	47	49	47
Paid up members	86	65	67	70	64
In arrears members	168	175	179	166	142
Total Dues Paying Units	297	287	293	285	253
Member Dues by Year					
Paid up	86	65	67	70	64
One year behind	57	74	83	45	75
Two years behind	64	43	47	54	29
Three years behind	47	58	49	67	38

4. John Zimmerman presented the 2015 Archivist report. As his work to bring the archives up to date is essentially done, John suggested to the Association that the Archivist position be eliminated (see item 14 below). He is still working on how to deal with the various pictures that the Association has collected over the years. A motion was made and seconded to accept the Archivist's report. The motion passed.

   The paper archival copy and original copy for each MACTLAC meeting will be completed by the Millikin meeting. I will check with Monmouth to see if we can exchange the four boxes at Millikin, or if I need to drop them off on one of my periodic trips to Iowa. With the paper record being complete, I suggest that the Council consider removing the Archivist position from the list of officers. The folks at Monmouth College will be expected to add proper copies of the posted meeting reports as they become available.

   We still have to decide how to deal with the various pictures from past meetings. Until the Alverno meeting, I was in favor of selecting a few quality images, especially those featuring known participants, and ditching the rest. At Alverno, I noted several participants spending time with the photo books. This observation changed my position. I suggest keeping the photo books and the image CD's, and viewing the slides to select a few major interest images for scanning and printing. This would be completed by the next meeting, if not earlier. The composite would then be stored with the paper documents.

   I would very much appreciate being able to continue using my camera to document the annual meetings and using the images to create a CD image file and a meeting poster.

5. Larry Ferren presented the 2015 Placement Officer report. He briefly described how the Placement Office works for the Association. He again mentioned that he would be willing to pass

along the position to someone else, but is also happy to continue as Placement Officer. A motion was made and seconded to accept the Placement Officer's report. The motion passed.

In 2015, 34 applicants used our Placement Service, while 20 positions were advertised with the it. Of the positions advertised, 19 were from 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 19 MACTLAC positions were advertised only to those candidates who had e-mail capabilities. Of the 20 positions listed, 20% were Organic Chemistry, 5% were Analytical Chemistry, 15% were Physical Chemistry, 20% were Biochemistry, 10% were Inorganic Chemistry, 10% were Instrumental Analysis, 5% were Environmental Chemistry, and 15% were General Chemistry.

All MACTLAC schools with positions open had their advertisements forwarded to Craig Bieler who placed them on the MACTLAC web page. 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 comes in to get it out to everyone on the electronic list and to get it to Craig for posting on the web page.

Applicants to the Placement service were of several groups -- graduate students, Ph.D.'s as post doctorates, and some professors at MACTLAC schools looking for positions. This past year five new candidates came into the Placement Service, and not a single candidate had his name removed from the service after securing a position until I closed the books for 2014-2015. I had a several names come off right at the end of summer which will be reflected on next year's report. Presently (September, 2015), 27 candidates are in the Placement Service looking for employment.

The Placement service will have a bulletin board at this meeting to advertise positions currently available.

I remain willing to continue to serve as the Association's Placement Officer, but I am also willing to step aside as soon as there is someone who would like to do the job. I continue to feel that there are many better qualified individuals in MACTLAC who should have their chance to implement a new plan of attack to make this office work better for the organization.

6. President James Wollack then announced that Carolyn Mottley from Luther College, and Kathleen Antol, BVM, from St. Mary's College had been awarded Emeritus membership status. Since neither was in attendance at this year's meeting, James directed Mark Sinton to send each a certificate to note their new membership status.

7. James Wollack introduced the new state representatives for Indiana (Michael Slade from University of Evansville) and Michigan (Mark Nussbaum from Hillsdale College).

8. James Wollack next opened the floor for nominations for the Association's next President. Tracy Thomson from Alverno College and Jessica Bonjour from UW-Whitewater were nominated. A paper ballot was taken and collected, and Jessica Bonjour was elected 24 to 18.

9. After the presidential election, a motion was made to have the Secretary-Treasurer send the following letters of thanks. The motion was seconded and passed.

Outgoing officers: Jaime Mueller
Outgoing state representatives: Michael Seymour (MI), Tod Thananatthananchon (IN)
Host institution: Millikin University
Host organizer: Paris Barnes

10. Ed McIntee from the College of St. Benedict/St. John's University invited the Association to their campuses for the 2016 Annual Meeting. The theme of the meeting will be curricular innovation (Melanie Copper from Michigan State University will be speaking), and it will be held on October 7th and 8th, 2016. Paris Barnes then passed the MACTLAC Banner to Ed for use at the 2016 meeting.

11. President James Wollack reviewed for the Association future meeting sites. He reminded those thinking about hosting a meeting that the Association recently increased the meeting reimbursement amount from $2000 to $3000. He asked that anyone interested in hosting a meeting should have their President send an invitation letter to the Secretary-Treasurer.

    2016: College of St. Benedict/St. John's University (West)
    2017: Monmouth College (Central)
    2018: ? (East)
    2019: Minnesota school? (West)

12. James Wollack next handed the Business Meeting off to Paris Barnes, the incoming President.

13. Paris Barnes asked the Association if there was any other business. Claude M. from Luther suggested that we should purchase a new carrier for the meeting banner. He also suggested that a $200 per year stipend could be paid to the Secretary-Treasurer and Placement Officer. A motion was made to purchase a new banner and carrier. The motion was seconded. A discussion ensued about getting a new banner as well, using either new colors or a logo, after which, the motion passed. A motion was then made to give the Secretary-Treasurer a $200/year stipend. The motion was withdrawn after a brief discussion, however, as the membership decided that this needed more discussion within the Executive Council before a vote could be taken. The Association decided to have the Executive Council discuss this during next year's meeting, and to bring proposals to the Association at the 2016 General Business Meeting. Bill Morrison suggested that the Association realign the member states of the Association since very few members come to meetings from Indiana and Missouri. Paris suggested that we also need to look at ways to increase our membership. Another suggested that funds could be made available for travel for first-time attendees, State Representatives, and Executive Council Officers. Another member suggested that the Association could revive the practice of giving first-year faculty a subscription to the Journal of Chemical Education. The Association directed the Council to looking into each of these suggestions. Lastly, the Association thanked Mark Sinton for his work as Secretary-Treasurer.

14. No other business being brought forward, a motion to adjourn was made, seconded, and passed. Meeting adjourned at 9:15 AM.

Respectfully submitted,
Mark Sinton
MACTLAC Secretary-Treasurer

Discussion Groups

No reports were submitted for the following sessions:

Friday, October 16th, 2015, 2:45-3:30 PM

Meet the Speaker: George Bodner
Using Technology in the Classroom
Laboratory Innovation in Green Organic Chemistry
Ask Dr. Safety
Future Directions in Undergraduate Research

Friday, October 16th, 2015, 4:00-5:00 PM

Analytical Chemistry
Biochemistry
General Chemistry
General, Organic, Biochemistry
Inorganic Chemistry
Organic Chemistry
Physical Chemistry

Saturday, October 17th, 2015 11:00 AM-12:00 PM

Meet the Speaker: Stephen Howard
Transitioning from Graduate Student to PUI
Professor-A Session for Future Faculty
Assessment of Student Learning in Chemistry
Recruitment and Retention of Majors

Vendors and Sponsors

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

Sapling Learning
Millikin University Institute for Scientific Entrepreneurship
Pine Research
Springfield/Decatur Local Section of the American Chemical Society
Midwest Chemical Safety
ACS Green Chemistry Institute
Archer Daniels Midland

MACTLAC Officers and Representatives for 2016

Past President:	James Wollack	St. Catherine University
President:	Paris Barnes	Millikin University
President Elect:	Jessica Bonjour	University of Wisconsin-Whitewater
Secretary/Treasurer:	Mark Sinton	University of Dubuque
Placement Officer:	Larry Ferren	Olivet Nazarene University
Archivist:	John Zimmerman	Wabash College
State Representatives:		
Illinois:	Vince Hradil	Concordia U. of Chicago
Indiana:	Michael Slade	University of Evansville
Iowa:	Joshua Stratton	St. Ambrose University
Michigan:	Mark Nussbaum	Hillsdale College
Minnesota:	Kim Ha	St. Catherine University
Missouri:	Christopher Halsey	Westminster College
Wisconsin:	Janice Pellino	Carthage College

MACTLAC Weather Report

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

Friday's Weather

Friday was a sunny day with 57% humidity and no precipitation. The high was 62ºF (17ºC), and the low was 34ºF (1.1ºC). The day had a light but steady wind at 7 mph (11 kph) out of the west with gusts of 13 mph (21 kph). The barometric pressure slowly rose all day starting at 30.2 inHg (767 mmHg) in the early morning.

Saturday's Weather

Saturday was another clear and sunny day with a higher humidity of 80% than Friday. As with Friday, there was no precipitation during the day. The high for the day was 56ºF (13ºC), and the low was 30ºF (–1.1ºC). The wind was very light at 3.5 mph (5.6 kph) out of the west northwest, with gusts of 6 mph (9.7 kph). The barometric pressure was steady all day at 30.35 inHg (770.9 mmHg).

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.

Honorary and Emeritus Membership

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. An Honorary member will be excused from further payment of dues and will be listed as an Honorary member.

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.

2016 Meeting

The Chemistry Departments at the College of St. Benedict and St. John's University cordially invites everyone to the 64th Annual Meeting of MACTLAC on October 7th and 8th, 2016. The meeting will be held on the campus of the College of St. Benedict, and will have a theme of curricular innovation. Currently, Melanie Copper from Michigan State University has agreed to speak. Look for more information as the meeting draws near. The faculty at St. Benedict and St. John's hope to see you at our next meeting.