



**2017 Annual Meeting Report
The 65th Meeting of MACTLAC
Expanding the Curriculum
Monmouth College, Monmouth, IL
October 13-14, 2017**

General Session 1, Friday Afternoon, 1:00 PM

Brad Sturgeon opened the 2017 Annual Meeting by welcoming everyone to Monmouth College. Brad thanked all of the vendor sponsors in attendance at the meeting. He also acknowledged his Department colleagues, workshop leaders, session leaders and recorders, student helpers, and the MACTLAC Executive Council. Brad reminded everyone that they have a building map showing the locations of all the sessions and workshops in their registration packet. Brad then introduced the Dean of the Faculty and Vice President for Academic Affairs, Dr. David Timmerman. Dr. Timmerman welcomed every one to Monmouth College, and described how pleased he was that the College was hosting a meeting completely devoted to undergraduate teaching. After Dr. Timmerman's welcome, Brad introduced the Meeting's first speaker.

Plenary Address

From Sewage Treatment Plant to Power Center: A Chicago Sustainability Story in Two Parts
Debra Shore, Board of Commissioners, The Metropolitan Water Reclamation District of Greater
Chicago
Chicago, IL.

Ms. Shore began her talk showing how little fresh water exists on the planet (only 3% of the total is fresh water), most of which is locked in polar ice or is underground. It is an essential ingredient for life on the planet, without which we would perish. Oddly, water has always been less expensive than other things, like diamonds, gold, and oil. Most people don't even think about it, since once it's used, it will be recycled, unlike other resources.

Twenty percent of the amount of fresh water that is readily available (a teaspoon as compared to all the water on the planet) is located within the Great Lakes Basin. Estimates suggest that it takes roughly 99 years for the water in Great Lakes to completely circulate, so any pollution that enters one of the lakes tends to stay near its source. For Chicago, this problem is compounded by the fact that the city was founded on land that is flat and swampy, so any waste that enters the local water supply does not readily leave the area. As the early water supply for the city simply came from the lake, and because there was no treatment of sewage (most of which as human waste), the city experienced high levels of pollution and sickness in its early years.

In 1855, Chicago leaders created a board to solve this problem. The board first decided to raise the city instead of just digging sewer tunnels, which would have little flow otherwise. Once the city was raised, sewer lines were laid and the holes back-filled in with dredging from the lake. This work went on for years, but life in the city wasn't really impacted by all of the construction, and the

result was the first comprehensive sewer system in the country. In the decades since that time, many city's in the country followed this example. Unfortunately, the new sewer lines still emptied into the Chicago River, which flowed into the lake, and so the pollution still ended up in the Lake Michigan.

By 1870, the lake was so polluted, dead fish regularly showed up in the water supplied to the city's citizens. The Chicago River was nasty...think of the Cuyahoga River in Cleveland, OH, in 1969, only worse. By the 1890, the sickness from the polluted water so was bad that the city created a sanitary committee to tackle the problem. The committee's solution was to reverse the direction of flow of the Chicago River, so that the sewage from the city would flow away from Lake Michigan instead of into it. It took 11 years to complete this project, and had the side benefit of making Chicago a hub of barge traffic that could now flow down the river towards the Mississippi River.

Unfortunately, two new problems arose with the reversal of the river's flow. The first was that invasive species could now move between the lake and downstream rivers. The second was that the water from the river didn't go into refilling the lake, which became known as the Chicago Diversion. In later years, there were several law suits that arose from this diversion. These law suits led, in part, to the multi-state Great Lakes-St. Lawrence River Basin Water Resources Compact (the Great Lakes Compact) enacted in 2008 that details how the states surrounding the lakes must manage the basin's water supply.

As the city has grown, another related issue has arisen: about 42% of the surface of Cook County where Chicago is located is now water impervious. Previously, rain that fell on undeveloped land would eventually enter local ground water sources that fed into the lake. Now with more development, there is less open ground on which this happens, so there is less water flowing into Lake Michigan. Moreover, this also means that the city is more prone to flooding since the rain that falls on impervious surfaces has nowhere to go other than into drainage sewers that can become overwhelmed and backed up when there is a high volume rain event. When this happens, the excess run-off is directed into the Chicago River, whose flow can be re-reversed so that the run-off can be quickly discharged into the lake to avoid major flooding. When the rain event is over, the river's flow reversal can be re-established. This also means, however, that any pollution in the river or is picked up by the run-off will be released into the lake without treatment. In order to try to prevent this from happening, the Board of Commissioners has spend millions building run-off capture systems that collect it, treat it, and slowly release it into either the lake or the Chicago River. The Board foresees this to be an on-going project as the city grows.

Debra spent the last few minutes of her talk describing the resource recovery work that is becoming the major focus of the Board. The Board wants to be energy neutral in 7 years by recovering the methane gas generated from sewage treatment to generate electricity, using the resulting biosolids from treatment as fertilizer, using treated waste water as industrial water, removing phosphate from treated water (which can be sold to farmers as fertilizer), and generating biogas for vehicles from the biological waste that now enters the landfill. The Board is really becoming an economic development body as they envision sewage treatment plants and landfills becoming sources of power generation and product production. For those interested in learning more about the Board, please see their web site at www.mwrd.org.

Debra closed her talk with two final points. First, there are exciting opportunities available in the water treatment and reclamation industry for graduates from liberal arts colleges. Second, she asked audience members to please run for any local office. Science backgrounds are vital for making the decisions that will impact future generations.

After Debra's talk, Brad reminded that Illinois and Wisconsin members should meet to elect new State Representatives.

General Session 2, Friday Evening, 7:00 PM

Banquet Entertainment

Michael Offutt, Retired Chemistry Teacher
Barrington High School
Barrington, IL

Mr. Offutt performed several chemistry related songs that he has written and recorded for the pleasure of Association members attending the Friday evening banquet.

General Session 3, Saturday Morning, 9:30 AM

Plenary Address

The Launch of the MACTLAC Digital Archives
Dr. Brad Sturgeon, Professor of Chemistry and MACTLAC Archivist
Lynn Daw, Monmouth College Archivist
Monmouth College
Monmouth, IL

Dr. Sturgeon began this presentation by introducing Ms. Daw. He then recognized the previous Association Archivists: Dr. Harry Lewis (1952-1975), Dr. Arild Miller (1975-1986), Dr. Anne Sherren (1986-2002), Dr. Tracy Thompson (2003-2010), and Dr. John Zimmerman (2011-2016). He briefly described the professional life of each and what they did while they served as the Association's Archivist.

Ms. Daw next described the archival concept of original order, meaning that she has kept the order of the archival documents that were transferred to Monmouth College. So, when looking at the MACTLAC archives, they will have the original order they had when they were created.

Brad briefly described where the archival files have come from. Older documents are hard copies while the newer documents are digital. Regardless, archive documents will be housed at the Monmouth College Hewes Library. Documents for which there isn't a digital copy will be digitized by Library staff in the near future. Once complete, the digital version of the archive will be searchable via Library's webpage (library.monmouthcollege.edu/home). Until that time, you can search archive documents using a temporary wiki page set up at esr.monmsci.net/wiki/index.php/MACTLAC_Archives. On this temporary wiki page, there is a finding aid (a pdf document) that you can use to help locate documents, and if a digitized copy is available, you'll be able to view it. In addition, digital pictures taken by previous Archivist John Zimmerman are hosted at doctorz.smugbug.com/MACTLAC (these can also be accessed via the Archive wiki page). In the future, the Association's archives will be processed via ContentDM, and then uploaded to digital archives hosting service. Once uploaded to that service, the digital copies will be completely word searchable.

Brad then played a short video from Larry Ferren expressing his gratitude for what he as learned at MACTLAC meetings, and his support for the new digital archives. Brad then played another video from John Moore in which he described association with MACTLAC. Both of these videos will be added to the archives.

To close this session, a group photo of the attendees was taken in the same spot on the Monmouth College campus as the first meeting photo 65 years ago.

MACTLAC Business Meeting

1. The meeting was called to order at 8:35 AM by President Jessica Bonjour. Jessica thanked Monmouth College, Brad Sturgeon, the entire Chemistry Department, and the rest of the campus for hosting and organizing this year's meeting.
2. The Treasurer's report for 2017 was presented by Mark Sinton. The Association's finances continue to be on excellent financial footing. Mark noted that with the reimbursement increase approved at the 2016 Annual Meeting, the Association's funds will likely trend downwards until a new equilibrium is reached, assuming host institutions request the full reimbursement amount. A motion to accept the Treasurer's report was made and seconded. The motion passed.

Year	2013	2014	2015	2016	2017
Beginning Assets					
Checking	\$8,100.58	\$8,888.59	\$10,298.66	\$10,865.15	\$9,563.29
Savings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Beginning Assets	\$8,100.58	\$8,888.59	\$10,298.66	\$10,865.15	\$9,563.29
Income					
Dues	\$470.00	\$440.00	\$720.00	\$675.00	\$250.00
Annual Meeting	\$2,110.00	\$4,255.00	\$2,090.00	\$1,550.00	
Interest	\$11.31	\$10.43	\$11.16	\$10.62	\$6.38
Other	\$0.00	\$0.00	\$0.00	\$0.00	
Total Income	\$2,591.31	\$4,705.43	\$2,821.16	\$2,235.62	\$256.38
Expenses					
Postage, copying, website	\$199.30	\$143.14	\$164.19	\$329.91	\$27.99
Annual Meeting	\$1,604.00	\$3,152.22	\$2,069.93	\$3,207.57	
Placement, Archives	\$0.00	\$0.00	\$0.00	\$0.00	
Other	\$0.00	\$0.00	\$20.55	\$0.00	\$314.91
Total Expenses	\$1,803.30	\$3,295.36	\$2,254.67	\$3,537.48	\$342.90
Ending Assets	\$8,888.59	\$10,298.66	\$10,865.15	\$9,563.29	\$9,476.77
Asset Change	\$788.01	\$1,410.07	\$566.49	-\$1,301.86	-\$86.52

3. Secretary's Report for 2017 was presented by Mark Sinton. Mark pointed out two general trends in our membership: 1) the Association is attracting new members, and 2) the Association is losing quite a few members by the automatic removal process detailed in paragraph 2 of the Association's By-Laws. One balance, Mark noted that the Association's total membership has had three years of decreases following a four year period of stability. As in past years, only a minority of members are paid up on their dues (33%, or 80 out of 239 total members). This means that 77% of the membership is either excused from paying dues (Emeritus and Honorary members) or are in arrears. Mark noted that should the membership stand at the end of the year as indicated in this report, 37 members will be removed from the membership database for non-payment of their dues as dictated in the Association's By-Laws. A motion to accept the Secretary's report was made and seconded. The motion passed.

Year	2011	2012	2013	2014	2015	2016	2017
Beginning Membership	384	297	287	293	296	253	258
New Members	3	25	35	11	2	8	20
Members Removed	90	35	29	8	45	3	39
Ending Membership	297	287	293	296	253	258	239
Member Dues Breakdown							
Emeritus and Honorary members	43	47	47	49	47	50	57
Paid up members	86	65	67	70	64	77	80
In arrears members	168	175	179	166	142	131	102
Total Dues Paying Units	297	287	293	296	253	258	239
Member Dues by Year							
Paid up	86	65	67	70	64	77	80
One year behind	57	74	83	45	75	29	144
Two years behind	64	43	47	54	29	46	21
Three years behind	47	58	49	67	38	56	37

4. Brad Sturgeon presented the 2017 Archivist report. A motion was made and seconded to accept the Archivist's report. The motion passed.

The office of the Archivist is open and all archive material is being actively maintained. All archive material has been transferred to Monmouth College Archives and a full report to the membership will be presented as a part of the MACTLAC 2017 Business Meeting.

The following questions were posed in the 2016 Archivist Report and since this was such a complete set of questions, I wish to record the official answer to them here in my first official report as Archivist.

- 1) What is the fate of the archival documents now at Monmouth? Will they be digitized?

All MACTLAC archival documents are now in the possession of Monmouth College Archives and the physical documents are fully accessible to the membership/public upon request. Documents are now being digitized and many are available on a temporary website: esr.monmsci.net/wiki/index.php/MACTLAC_Archives. As will be reported to the membership, these digitized documents will be uploaded to the "ContentDM" system (Monmouth College's archive software) which will then allow full text searching of all documents.

- 2) What is the fate of the host prints (most of which are not annotated)?

As a part of the MACTLAC archives, there are photographic prints that in some instances have handwritten notes on the backs. These photographs have been scanned (2-sided) and the images uploaded to the temporary website above. Once these images are uploaded the "ContentDM," meta-file information (names, locations, etc.) can be linked and then searched.

3) What is the fate of the meeting image set archived on Smugmug?

As a part of the MACTLAC archives, there is a collection of digital images uploaded to the public "Smugmug" ([/www.smugmug.com](http://www.smugmug.com)) photo depository. These images will eventually be uploaded to the "ContentDM" archive site and meta-file information added.

4) Can the Association link the Monmouth archive to the MACTLAC on-line holdings of meeting archives?

One step of the digitizing process will be to update the main MACTLAC website with a link to the Monmouth College Archives site. Currently, there is a "library record" of the MACTLAC Archive: vufind.carli.illinois.edu/vf-mon/Record/mon_247603. There is also the finding aid (a list of all items in the archive) at library.monmouthcollege.edu/ld.php?content_id=26038236.

5) What is the process for updating the archives?

This needs to be discussed at the 2017 council meeting.

6) What is the process for gaining access to the MACTLAC archive? Is there a charge? Would there be access to a Xerox machine?

Access can be granted by physically walking into the library (preferably with a 24 hour notice) and any and all archive materials will be made available. The following link describes the process: library.monmouthcollege.edu/c.php?g=356858&p=2407031. The primary archivist contact is Lynn Daw (ldaw@monmouthcollege.edu). There is no charge for the access and copies can be made for \$0.10 per page.

5. Mark Sinton presented the 2017 Placement Officer report as Larry Ferren was unable to attend this year's meeting. Mark described the purpose of the Placement Officer and the work that they do. Mark then asked that anyone interested in taking this position over from Larry to please make themselves know to a member of the Executive Council. A motion was made and seconded to accept the Placement Officer's report. The motion passed. (**Note:** after the Business Meeting concluded, Paris Barnes came forward and was appointed as the new Placement Officer for the Association at the Saturday afternoon Executive Council meeting.)

	12-13	13-14	14-15	15-16	16-17
Applicants	21	28	34	38	34
Positions	24	19	20	16	20

Of all the positions advertised, 20 were MACTLAC Colleges. All the positions advertised were either located by way of advertisements placed with the Placement Service, or electronic notices forwarded to me by various sources. The 20 MACTLAC positions were advertised only to those candidates who had e-mail capabilities. Of the 20 positions listed, 20.6% were Organic Chemistry, 14.8% were Analytical Chemistry, 2.9% were Physical Chemistry, 20.6% were Biochemistry, 20.6% were Inorganic Chemistry, 17.6% were Introductory/General Chemistry, and 2.9% were Environmental 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 were very good at sending me notices of open positions. I appreciated the notices and tried to respond promptly when a notice came in to get it out to everyone on the electronic mailing list and to get it to Craig for posting on the web page.

Applicants to the Placement service remained in several groupings – graduate students, Ph.D.'s as post doctorates, and some professors at MACTLAC schools looking for positions. This past year two new candidates came into the Placement Service, and four candidates had their names removed from the service after securing positions. Presently (September, 2017), 31 candidates are in the Placement Service looking for employment.

The Placement service will rely upon the host institution to do its bulletin board at this meeting to advertise positions currently available. This is necessary as I will not be at the meeting myself to do the bulletin board.

Currently the board is looking for someone to assume the duties of the Placement Officer. I am willing and happy to continue to hold the position and to try to attend the Annual Meeting and fill in until someone is found. There may be times, however, when I will not be able to attend. (A case in point will be this year – I am traveling out of the country this year at the time of the Annual Meeting, and am sending the report to be included in the Executive Council packet. I will also send copies of any position announcements to the host institution for posting on the bulletin board at the meeting.) I believe that I will be able to attend next year's meeting. However, the ideal solution would be to locate a person who would want to serve as the Placement Officer and have that person in place by next year.

The board may want to discuss in my absence what it wants to do. It might take this opportunity to have a frank discussion where to go with placement. My absence might also allow someone to speak up that would like to try out this position.

6. President Jessica Bonjour then announced that Michael Seymour from Hope College was granted Emeritus status. Jessica asked Mark Sinton to mail Michael's Emeritus status certificate as he was not in attendance at the meeting.
7. James Wollack from St. Catherine University asked for a moment of silence in recognition of Sister Mary Thompson from St. Catherine University, who recently past away. Sr. Mary served as the Association's Secretary-Treasurer from 1972 to 1975 and as it's President in 1975. She remained active within the Association until her retirement in 2001.
8. Jessica Bonjour introduced the new state representatives for Illinois (Joe Sumrak from Concordia University Chicago) and Wisconsin (John Morris from Marion University).
9. Jessica Bonjour next opened the floor for nominations for the Association's next President and Secretary-Treasurer. Vince Hradil nominated himself from for President-Elect. Mark Sinton was nominated by Andy Axup for Secretary-Treasurer. There being no other nominations, Vince and Mark were elected by acclamation.
10. After the elections, a motion was made to have the Secretary-Treasurer send the following letters of thanks. The motion was seconded and passed.

Outgoing Officers: Jessica Bonjour

Outgoing State Representatives: Vince Hradil (IL Rep.) and Janice Pellino (WI Rep.)

Host Institution: Monmouth College

Host Organizer: Brad Sturgeon

Others: None

11. Courtney Meyet from Hillsdale College invited the Association to their campus for the 2018 Annual Meeting. The theme of the meeting will be chemistry in the liberal arts, and it will be held on October 12th and 13th, 2018 (**note**: the dates for this meeting have since been changed to

October 19th and 20th, 2018). The main speaker will be author Nivaldo Tro. Brad Sturgeon then passed the MACTLAC Banner onto Courtney for use at the 2018 meeting.

12. President Jessica Bonjour reviewed for the Association future meeting sites.

2018: Hillsdale College (East)
2019: St. Catherine University (West)
2020: North Central? (Central)
2021: ? (East)

13. Jessica Bonjour next handed the Business Meeting off to incoming President, Kim Ha.

14. Kim Ha asked the Association if there was any other business.

15. No other business being brought forward, a motion to adjourn was made, seconded, and passed. The meeting adjourned at 9:36 AM.

Respectfully submitted,
Mark Sinton
MACTLAC Secretary-Treasurer

Discussion Groups

No reports were submitted for the following sessions:

Friday, October 13th, 2017, 2:45-3:45 PM

Meet the Speaker: Debra Shore
Integrating Food Chemistry into Curriculum
Coffee: A Science-Business Entrepreneurial Project
Essential Oil Extraction Lab Activity
3D Printing/Fabrication Applications in Chemistry

Friday, October 13th, 2017, 4:20-5:20 PM

Analytical Chemistry
Biochemistry
General, Organic, Biochemistry (GOB)
Inorganic Chemistry
Organic Chemistry
Physical Chemistry

Saturday, October 14th, 2017, 11:00 AM-12:00 PM

Meet with Speaker: Lynn Daw
Integrating Food Chemistry into Curriculum
Coffee: A Science-Business Entrepreneurial Project
Essential Oil Extraction Lab Activity
3D Printing/Fabrication Applications in Chemistry

Vendors and Sponsors

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

MicroLAB
Parr Instrument Company
Pine Research Instrumentation
Teledyne Isco

MACTLAC Officers and Representatives for 2018

Past President:	Jessica Bonjour	University of Wisconsin-Whitewater
President:	Kim Ha	St. Catherine University
President Elect:	Vince Hradil	Concordia University Chicago
Secretary/Treasurer:	Mark Sinton	University of Dubuque
Placement Officer:	Paris Barnes	Millikin University
Archivist:	Bradley Sturgeon	Monmouth College
State Representatives:		
Illinois:	Joseph Sumrak	Concordia University Chicago
Indiana:	Michael Slade	University of Evansville
Iowa:	Matthew Zart	Wartburg College
Michigan:	Mark Nussbaum	Hillsdale College
Minnesota:	Christopher Joran	Saint Mary's University of Minnesota
Missouri:	Christopher Halsey	Westminster College
Wisconsin:	John Morris	Marian University

MACTLAC Weather Report

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

Friday's Weather

Friday's weather was mostly sunny, with a high of 73°F (23°C), a low of 61°F (16°C), and 68% humidity. There was a light wind at 5-10 mph (8-16 kph) out of the SSE, with no gusts. The barometric pressure held steady throughout the day at 30.1 inHg (764 mmHg). There was no precipitation.

Saturday's Weather

Saturday's weather was cloudy with light rain throughout the day. The high for the day was 77°F (25°C), and the low was 45°C (7.2°C). The humidity was a higher than Friday at 87%. The amount of rain totaled 0.24 in (0.61 cm). As with Friday, there was very little wind during the day, with only a light wind of 5 mph (8 kph) and no gusts. The barometric pressure remained steady all day at 30.0 inHg (762 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.

2018 Meeting

The Chemistry Department at Hillsdale College invites the Association to the 66th Annual Meeting of MACTLAC on October 19th and 20th, 2018. The theme of the meeting will be Chemistry in the Liberal Arts. The featured speakers will be Nivaldo Tro from Westmont College, Brian Coppola from the University of Michigan, and Chris Hamilton from Hillsdale College. The chemistry faculty at Hillsdale look forward to having the Association on their campus next October.