



American Chemical Society Nebraska Section Newsletter

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MAR / APR 2012

April Speaker: Dr. Frederick Mattes

Wednesday, April 25, 2012

"Chemistry in the Service of Art"

Venue: Copeland Hall, room 142, University of Nebraska-Kearney

Time: 6:00 pm

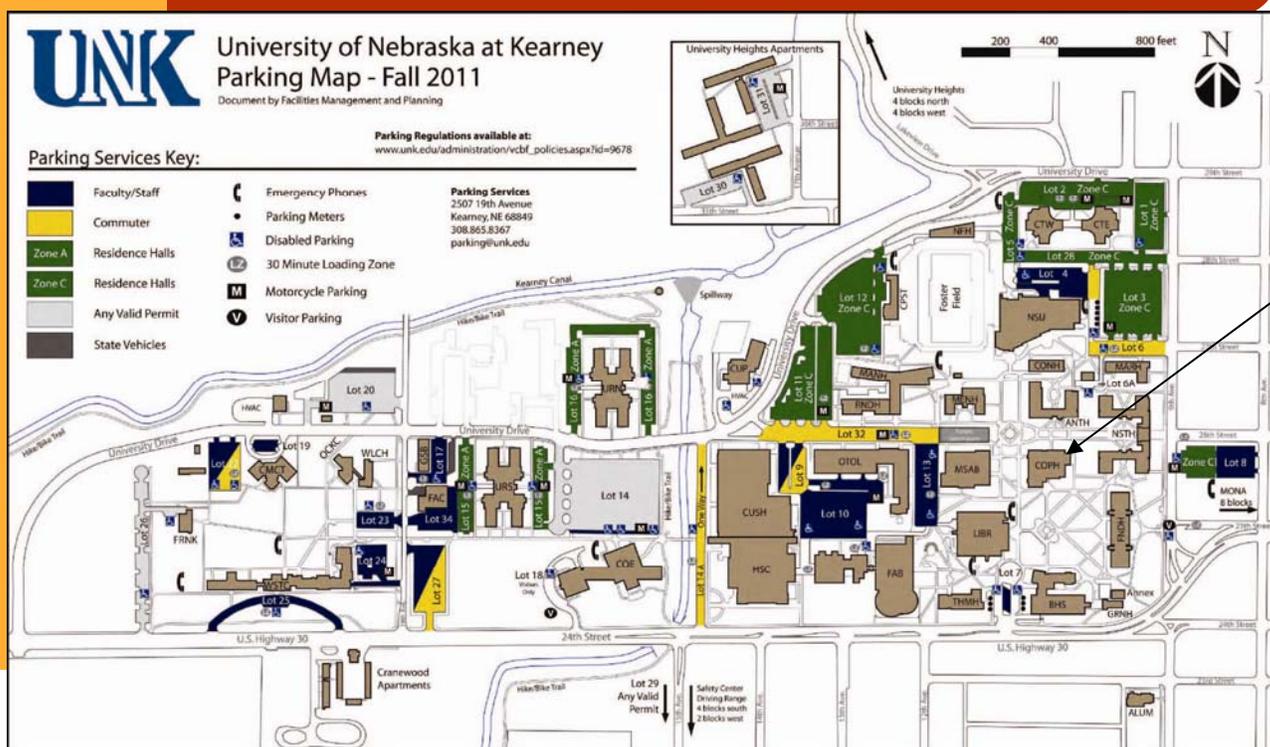
Is that painting the "real thing"? How do art conservators know how to approach and what to use to clean, repair, or restore a work of art? What materials are the "best"?



The role Chemistry and Chemical Instrumentation plays in the Conservation and Restoration of works of Art is extensive. Examples of how IR, Raman, UV, X-Ray, XRF, and other methods of instrumentation as well as "Chemistry" will be described. Several examples of how Chemistry helped to understand or solve a problem with a work of art will be presented. Some examples include the Cleaning of the Sistine Chapel, pigment identification in a painting, authenticity of a bronze sculpture, insect activity in the frame of a painting, and others.

Biographical Sketch: Dr. Mattes is a Professor Emeritus of Chemistry at Hastings College. He earned his B.S. in Chemistry from Carroll College and his Ph.D. from Indiana University.

For questions, please contact: Hector Palencia [palenciah2@unk.edu] 308-865-8479



ACS Remembered: A chat with Dr. James Carr

What year did you join the American Chemical Society?

I joined ACS in 1961. The ACS lists my date as January 1, 1961 although I'm sure I didn't join until some time in fall semester of 1961.

Describe your situation as a Chemist at that point?

I had just entered graduate school in August 1961 after completing my BS in chemistry at Iowa State in May 1960. The time between these two dates was taken up by an internship at Procter and Gamble in Cincinnati where I was a GC technician and six months in the army at Ft. Monmouth, New Jersey.

Who or what originally sparked your interest in the science of Chemistry?

I don't really know what sparked my interest originally. I know that I asked for and received a chemistry set as a present when I was in 5th grade. I set it up originally in the upstairs bath room of our home. I soon moved it to the basement where it stayed for many years until I decommissioned it after I had joined the Nebraska faculty. Most of the stuff I had went to the son of a woman who was then in our departmental office.

Would you please describe how you have seen the ACS grow and change over your years of membership?

The biggest change in the local ACS is that when I got here, all the officers were members of the chemistry (and chem. Engineering) faculty of NU. The ACS tour speakers were the major source of outside speakers and we made a big deal over each of them. It was expected that all young faculty members would take a turn at going through the series of offices of the NEBRASKA SECTION. Therefore I was secretary, treasurer, vice president, and president of the section in the years around 1970. I actually had a second term as president when someone who was in line for that office left UNL and I was asked to cover the vacancy for a year. Sometime later, probably in the 1980s, we began to have officers from other schools and local industry. Most ACS tour speakers now give their talks outside of Lincoln.

How has being a member of the ACS helped in your career development?

With ACS membership comes C&EN and subscriptions to journals. Reading these publications was very important. Also important were National and Regional ACS meetings.

What advice would you give to a young person who is interested in pursuing a career in chemistry?

Enjoy your time as a graduate student. Make friends with as many other students as you can. They will be your peers for the next 50 years. Grad students from my era are going to have a reunion at Purdue this fall.

How many ACS national meetings have you attended? Which city was your favorite? Regional meetings? How many times have you been a presenter at an ACS meeting?

I have attended probably a dozen national ACS meetings and the same number of regional meetings and gave a presentation at nearly all of them. My first national meeting was in Atlantic City when I was about to finish my PhD in 1965. I gave a presentation there which I had practiced back at Purdue in a small classroom. The actual talk was in a huge ballroom at a major hotel. The screen was as big as a screen in a movie theater. I nearly fell over when I saw my first slide that must have been 20 feet tall and 35 feet wide.

Another favorite memory of an ACS meeting was in San Diego in 1994. I was clued in by a friend that something special was going to happen in the nuclear chemistry session. It was at that session that the name Seaborgium was proposed for element 106. I got Glenn Seaborg's autograph on my nametag for the meeting.

Another favorite meeting was in Chicago probably in 1972. I took the train from Lincoln to Chicago with my daughter who was three years old at the time. We stayed at my sister's home in a southern suburb so I commuted by train to the meeting in downtown Chicago from her home.

As far as a favorite city, though, New York stands alone. I have been to two national meetings there. The most recent was just a year after the airplanes were flown into the World Trade Center. I went down to the site where the cleanup was still going on.

What is your favorite chemical reaction/demonstration?

That is a tough question because I have so many favorites. I made it a part of nearly all my general chemistry lectures to do at least one demonstration. Probably the most memorable was one that I didn't do personally. At the time we had five sections of 109 right in a row at 8:30 till 12:30. We demonstrated the paramagnetism of oxygen by showing how it is held in the poles of a strong magnet. We always had some liquid oxygen left over after doing this so one year we decided to show how a candle would burn more brightly in an atmosphere rich in oxygen. To do this we put a candle in a big evaporating dish and poured the remaining liquid oxygen into the dish and lit the candle. I did this at 8:30 and it was difficult to see any obvious increase in the flame. Other lectures had slightly better luck until Gordon Gallup did the demo at 12:30. By that time the candle had dissolved so much O₂ that when even more was added, the candle exploded. There remained no recognizable piece of the evaporating dish and the bench top was destroyed for a length of about four feet. After it was clear that nobody was hurt, Dr. Gallup got a huge round of applause. I would love to have a videotape of that demo but we had to promise not to do it again.

Other favorites that I did many times are thermite, burning magnesium in a block of dry ice, burning phosphorus in oxygen, putting sodium into water, the light show involving several illustrations of how light is used in chemistry, and many others.

Who from the past or present world of chemistry do you most admire?

I came to be a friend of Harvey Diehl from whom I took five classes at Iowa State and Dale Margerum who was my PhD advisor. My post-doc mentor at North Carolina was Charles Reilly. I have great admiration for all three.



Dr. James D. Carr
Emeritus Professor of Chemistry
University of Nebraska-Lincoln
Longest standing local ACS member