



NEWSLETTER

Oklahoma Section

American Chemical Society

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May 1, 2009


Molecules To Mozzarella: The Chemistry Of Cheese .


Monday - May 11, 2009

Oklahoma School of Science and Math
Library/Administration Building
1141 North Lincoln Boulevard
Oklahoma City OK 73104
405.521.6436

Dr. Michael H. Tunick

USDA Agricultural Research Services
Dairy Processing & Products Research Chemistry
Room 1222.2
600 E Mermaid Lane
Wyndamoor Pennsylvania 19038-8598
215.233.6799

Coagulation of milk, removal of whey, and ripening are all required when making cheese, and chemistry is involved every step of the way. This non-technical talk describes the procedure from raw milk to final product, and illustrates the differences between cheese types, including the development of the many flavors in cheese..... 

[Reservation Information on Page 2] 

Schedule:

6:00 PM – 7:00 PM Social Hour Oklahoma School of Science & Math
1141 North Lincoln Boulevard
Oklahoma City OK 73104

7:00 PM – 8:00 PM Meal Oklahoma School of Science & Math
1141 North Lincoln Boulevard
<http://www.ossm.edu>

8:00 PM – 9:00 PM Speaker: Dr. Michel H. Tunick

Dinner Menu: Chicken Breast Alfredo, Dilled Salmon, Wild Rice, Broccoli & Corn, Caesar Salad,
Rolls and Butter, Coffee, Tea, Soda, Carrot Cake.

Cost: \$15.00-ACS Member; \$5.00-ACS Student Affiliate.

Reservation Deadline: Tuesday, 05/05/09 5:00 P.M. Fazlur Rahman Fazlur.Rahman@ossm.edu
405.521.6436

Dr. Michael H. Tunick

Michael H. Tunick received a B.S. in Chemistry from Drexel University in 1977. He was a student trainee at the Eastern Regional Research Center of the U.S. Department of Agriculture in Wyndmoor, PA, and was hired as a chemist upon graduation. He performed research on treatment of tannery waste with the Hides and Leather Laboratory until 1983, when he was transferred to what is now the Dairy Processing & Products Research Unit. He pursued a Ph.D. in Physical-Analytical Chemistry on a part-time basis during this period, receiving the degree from Temple University in 1985. He also became a research chemist in that year and was involved in a number of projects, including detection of mislabeled cheese and development of low-fat Mozzarella for the National School Lunch Program. He currently relates the effects of processing to changes in composition, texture, and microstructure of cheese and extruded whey proteins. He is the Secretary and a Past Chair of the ACS Division of Agricultural and Food Chemistry, and is Councilor and Past President of the Thermal Analysis Forum of Delaware Valley.

Oklahoma State Science and Engineering Fair 2009

The 2009 OSSEF was held at East Central University in Ada March 26 through 28 with just under 100 senior high projects and just under 150 junior high projects on display. Students stood by their projects on Friday and were interviewed and judged by category judges depending on the type of project and by special judges looking for projects that fit their stated criteria.

All of the projects entered were considered by the Oklahoma Section's judge to find the top three in senior high and the top three in junior high. Projects were evaluated based on the application of chemistry in the project. The projects that involve chemistry usually are found in the categories of: Biochemistry, Medicine and Health Science; Physical Sciences; Environmental Sciences; and Team Projects.

The top awards in Senior High are given \$150, \$75, and \$50 while the comparable Junior High awards are \$100, \$50, and \$25. These checks, along with a certificate of accomplishment were given to the students at a banquet on Friday evening. A follow up letter is written to each student offering ACS members as resources to them in their future endeavors.

The 2009 award winners, and their project titles, in the Senior High Division were:

- 1—John Moore from Grove, “The Cellulose Race: A comparative study of various pretreatments and enzyme hydrolysis treatments on cellulose decomposition.”
- 2—Ruthie Cantu from Moore, “Methamphetamines: Hiding in Plain Sight”
- 3—Daniel Wilburn from Fitzhugh, “Lighting the Way! A Study of Maximizing Luminol Chemiluminescence”

In the Junior High Division the winners were:

- 1—Emilie Salisbury from Mutual, “Liquor Does it Quicker” [a comparative study of ethanol blended gasohols]
- 2 – Brock Marble from Atoka, “Bio Alternative to Methyl Bromide”.
- 3.—Tony Jasak of Norman, “The Effects of Aeration and Fatty Acid on Ethanol Yields”

The Oklahoma Section of the American Chemical Society appreciates all the work done by all the participants, teachers, and parents in making the 2009 Fair a success.

Ken Brown

The Oklahoma Section – ACS has invited the 50 and 60 year ACS members and their spouses to be the Section guests at the May 11, 2009 OSSM ACS Section Meeting. These members and their spouses will be treated to the complimentary evening meal. The members will be recognized for their years of ACS service and will be presented with their ACS membership certificates.

For 50 years of service:

Dr. D.S. Arnold Bethany OK
Retired – Kerr McGee

Dr. Rolan V. Decker Edmond OK
Emeritus - Chemistry Department
Southwestern Oklahoma State University

Dr. Tommy Karns Norman, OK
University of Oklahoma

Dr. Edward Neparko N Route 66 Clinton OK
Emeritus - Chemistry Department
Southwestern Oklahoma State University

Dr. Francis J. Schmitz Norman OK
Emeritus – Chemistry Department
University of Oklahoma

For 60 years of service:

Mr. Keith Angus Catto Norman OK
Retired: Halliburton and Oklahoma Geological Survey

Dr. Cedomir M. Sliepcevich Goldsby OK
Emeritus – Chemical Engineering
University of Oklahoma

Dr. Lowell E. Netherton Oklahoma City OK

Dr. George Rozier Waller Stillwater OK
Emeritus - Chemistry Department
Oklahoma State University

Oklahoma ACS Chemistry Olympiad Winners

The Oklahoma Chemistry Olympiad winners and their parents will be honored at the May 11, 2009 meeting of the Oklahoma Section ACS. The Olympiad winners and their parents will be the recipients of the complimentary meal at the meeting.

Oklahoma ACS Section Document Collection

If you are in possession of historical records of the Oklahoma Section of the ACS, and no longer have need of these items, please box them up and bring them to Cheryl Frech at a Section meeting or at UCO. Cheryl is collecting and sorting the material to determine what goes to the Oklahoma Historical Society and what goes to ACS. She is specifically interested in rosters, photos, and correspondence from the early years of the Section, which was founded in 1919. ACS national and regional meeting programs as well as nationally distributed materials are already archived by the society and do not need to be saved for this project. Please email Cheryl Frech at cfrech@uco.edu to inquire about specific material.

Let's Get Real About Renewable Energy: Robert Bryce

OPINION

The Wall Street Journal March 5 2009 Page A17

During his address to Congress last week, President Barack Obama declared, “We will double this nation’s supply of renewable energy in the next three years.”

While that statement – along with his pledge to impose a “cap on carbon pollution” – drew applause, let’s slow down for a moment and get realistic about this country’s energy future. Consider two factors that are too often overlooked: George W. Bush’s recent record on renewables, and the problem of scale.

By promising to double our supply of renewables, Mr. Obama is only trying to keep pace with his predecessor. Yes, that’s right: From 2005 to 2007, the former Texas oil man oversaw a near doubling of the electrical output from solar and wind power. And between 2007 and 2008, output from these sources grew by another 30%.

Mr. Bush’s record aside, the key problem facing Mr Obama, and anyone else advocating a rapid transition away from the hydrocarbons that have dominated the world’s energy mix since the dawn of the Industrial Age, is the same issue that dogs every alternative energy idea: scale.

Let's start by deciphering exactly what Mr. Obama includes in his definition of "renewable" energy. If he's including hydropower, which now provides about 2.4% of America's total primary energy needs, then the president clearly has no concept of what he is promising. Hydro now provides more than 16 times as much energy as wind and solar power combined. Yet more dams are being dismantled than built. Since 1999, more than 200 dams in the U.S. have been removed.

If Mr. Obama is only counting wind power and solar power as renewables, then his promise is clearly doable. But the unfortunate truth is that even if he matches Mr. Bush's effort by doubling wind and solar output by 2012, the contribution of those two sources to America's overall energy need will still be almost inconsequential.

Here's why. The latest data from the U.S. Energy Information Administration show that total solar and wind output for 2008 will likely be about 45,493,000 megawatt hours. That sounds significant until you consider this number: 4,118,198,000 megawatt hours. That's the total amount of electricity generated during the rolling 12-month period that ended last November. Solar and wind, in other words, produce about 1.1% of America's total electricity consumption.

Of course, you might respond that renewables need to start some where. True enough – and to be clear, I'm not opposed to renewables. I have solar panels on the roof of my house here in Texas that generate 3,200 watts. And those panels [which were heavily subsidized by Austin Energy, the city owned utility] provided about one-third of the electricity my family of five consumes. Better still, solar panel producers like First Solar Inc. are lowering the cost of solar cells. On the day of Mr. Obama's speech, the company announced that it is now producing solar cells for \$0.98 per watt, thereby breaking the important \$1-per-watt price barrier.

And yet, while price reductions are important, the wind is intermittent, and so are sunny days. That means they cannot provide the base-load power, i.e. the amount of electricity required to meet minimum demand, that Americans want.

That issue aside, the scale problem persists. For the sake of convenience, let's convert the energy produced by U.S. wind and solar installations into oil equivalents.

The conversion of electricity into oil terms is straight forward: one barrel of oil contains the energy equivalent of 1.64 megawatt-hours of electricity. Thus, 45,493,000 megawatt-hours divided by 1.64 megawatt-hours per barrel of oil equals 27.7 million barrels of oil equivalent from solar and wind for all of 2008.

Now divide that 277 million barrels by 365 days and you will find that solar and wind sources are providing the equivalent of 75,600 barrels of oil per day. America's total primary energy use is about 47.4 million barrels of oil equivalent per day.

Of that 47.4 million barrels of oil equivalent, oil itself has the biggest share – we consume about 19 million barrels per day. Natural gas is the second-biggest contributor, supplying the equivalent of 11.9 million barrels of oil, while coal provides the equivalent of 11.5 million barrels of oil per day. The balance comes from nuclear power [about 3.8 million barrels per day], and hydropower [about 1.1 million barrels], with smaller contributions coming from wind, solar, geothermal, wood waste, and other sources.

Here's another way to consider the 76,000 barrels of oil equivalent per day that comes from solar and wind. It's approximately equal to the raw energy output of one average-sized coal mine.

During his address to Congress Mr. Obama did not mention coal – the fuel that provides nearly a quarter of the total primary energy and about half of America’s electricity – except to say that the U.S. should develop “clean coal”. He didn’t mention nuclear power, only “nuclear proliferation”, even though nuclear power is likely the best long term solution to policy makers’ desire to cut U.S. carbon emissions. He didn’t mention natural gas, even though it provides about 25% of America’s total primary energy needs. Furthermore, the U.S. has huge quantities of gas, and it’s the only fuel source that can provide the stand-by generation capacity needed for wind and solar installations. Finally, he didn’t mention oil, the backbone fuel of the world transportation sector, except to say that the U.S. imports too much of it.

Perhaps the president’s omissions are understandable. America has an intense love-hate relationship with hydrocarbons in general and with coal and oil in particular. And with increasing political pressure to cut carbon-dioxide emissions, that love-hate relationship has only gotten more complicated.

But the problem of scale means that these hydrocarbons just won’t go away. Sure, Mr. Obama can double the output from solar and wind. And then double it again and again. And again. And again. But getting from 76,000 barrels of oil equivalent per day to something close to the 47.4 million barrels of oil equivalent per day needed to keep the U.S. economy running is going to take a long, long time. It would be refreshing if the president or perhaps a few of the Democrats on Capitol Hill would admit that fact.

Mr. Bryce is the managing editor of Energy Tribune. His latest book is “*Gusher of Lies: The Dangerous Delusions of “Energy Independence”*” [Public Affairs, 2008]

Energy Tribune: <http://www.energytribune.com/>

Two Recent Reader Letters to the Wall Street Journal

Your Part of Stimulus Is In the Mail: a Bill

On your Personal Finance page you raise the issue “What’s in the Stimulus for You” [Personal Journal, Feb. 18, 2009]. Tragically, for me it seems it will be the invoice.

George H. Tilghman
Hobe Sound, Florida.

I read with a great deal of interest the article on sheep belching as a threat to our environment. After reading that article it seems to me that maybe we should initiate a similar study for our politicians in Washington, D.C. There seems to be an excessive amount of pollution coming out of that area these days, more possibly than any place in the world. It’s also budget season and this would be just another earmark in our already bloated budget, but one I would gladly pay for.

J Peter Pierce
Conshohocken, Pennsylvania

Oklahoma Section Website:

Dr. James J. Dechter – is the Section webmaster. Jim is Professor of Chemistry, University of Central Oklahoma. Jim served as UCO Chemistry Department Chair from 2000-2004. Jim was also Section Chair in 2001.

To post information on the website, contact Jim. 405.974.5435. e-mail: jdechters@ucok.edu

The Oklahoma Section web site: <http://membership.acs.org/O/Oklahoma/>

Email Distribution

We have begun electronic distribution of our newsletter and other information from the local section. We use the email address list obtained from the ACS. If you would like to get these emails from us, please make sure the ACS has your current email address! There are 3 different ways you can update your information.

[1] Log in to the ACS website [www.acs.org] and edit your profile. Via the [Edit My Profile] link located under the welcome banner after you login.

[2] Phone the ACS Customer Service team:1.800.333.9511.

[3] Send an email to the ACS Customer Service team [service@acs.org].

Reprinted letters and articles as well as the editor's unsigned article[s] in this Newsletter do not necessarily reflect the views of the Oklahoma Section of the ACS.

Oklahoma Section ACS 2009 Calendar of Events:

Visit the Oklahoma ACS WWW site for the latest information.

<http://membership.acs.org/O/Oklahoma/>

Monday, September 14, 2009 [tentative]

Local Section Meeting

Oklahoma Baptist University

Dr. William F. Carroll – OxyChem, Dallas TX

From Garbage To Stuff: How We Recycle Plastics

October 18 – 24, 2009

National Chemistry Week

Saturday, Afternoon - October 24, 2009

Local Section Meeting

Java Dave's – Oklahoma City

Dr. Joe A Vinson – Professor of Chemistry,

The University of Scranton, Scranton PA

Chemistry and Biochemistry of Coffee: A Healthy Beverage?

Friday, November 20, 2009

Local Section Meeting

University of Central Oklahoma - tentative

Mr. J Keith Butler – American Ordnance LLC, Trenton TN

Military Explosives

May 2009 Section Meeting

Monday May 11, 2009

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Speaker: Dr. Michael H. Tunick

Molecules To Mozzarella: The Chemistry Of Cheese.

Oklahoma ACS 2009 Calendar Of Events – Other Side This Page .



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