



NEWSLETTER

Oklahoma Section

American Chemical Society

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Hydrogen Economy: The Good, The Bad, The Ugly

Monday - April 14, 2008

Student Center - Conference Rooms N & S / OSU-OKC
900 N Portland Avenue
Oklahoma City OK 73107

Dr E. Gerald Meyer

Professor Emeritus & Dean
The University of Wyoming
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Laramie WY 82071-2000

Much has been written about the "hydrogen economy" with the theme that with the substitution of hydrogen for gasoline the nation can [a] reduce its dependence on foreign oil, and [b] have a pollution-free transportation fuel. That is "the good". There is, however, the matter of transporting, distributing and storing. With hydrogen these are very difficult problems to solve. In addition there is the problem of utilizing hydrogen in a vehicle which means either the traditional combustion system or a new fuel cell system. The former may not pose serious problems, but the latter does as fuel cells currently do not have the power, the reliability, and the stability needed. Further the cost of the fuel cell system is very much above that of the gasoline system it is to replace. That is "the bad". Hydrogen production is "the ugly". Current hydrogen production of about 9 tons/year must be increased some eighteen fold just for current use. Further, hydrogen is a secondary energy type and must be produced with a primary energy type. Hydrogen, unlike electricity the other secondary energy type, requires a substrate for its production. The two possibilities are hydrocarbons, and "hydrooxygen" [water]. The former produces CO₂ along with hydrogen so that fossil fuel pollutant it not eliminated. The latter must either be thermally dissociated or electrolyzed, and if fossil fuels are not to be used the only alternative is nuclear energy. The hydrogen economy concept is fine, but the realization will be very very difficult.



[Reservation Information on Page 2]

Schedule:

6:30 PM Dinner: Student Center
Conference Rooms N & S
Oklahoma State University - OKC

8:00 PM Speaker: Student Center
Conference Rooms N & S
Oklahoma State University - OKC

Dinner Menu: Italian Buffet.

Cost: \$16.00-ACS Member; \$5.00-ACS Student Affiliate.

Deadline: Wednesday, 04/09/08; 3:00 p.m.

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Dr. E. Gerald Meyer

Dr. E. Gerald Meyer was born in Albuquerque, NM and attended Carnegie Mellon University [B.S. in 1940 and M.S. in 1942], and the University of New Mexico [Ph.D. in 1950]. He was a laboratory chemist for the U.S. bureau of Mines, the U.S. Naval Research Laboratory [as a naval officer during WWII], and the Research Division of New Mexico Tech before returning to complete his graduate work. He was on the faculty of the University of Albuquerque [1950-92], and New Mexico Highlands University [1952-63] where he was successively department head, and dean of graduate studies and research. In 1963 he was appointed professor and dean of arts and sciences at the University of Wyoming, and in 1976 vice president for research. In 1990 he retired and is currently emeritus professor and dean and works part-time. Dr. Meyer has served as State Science Advisor, as president of Council of Colleges of Arts and Sciences, of the Associated Western Universities, and the Laramie Regional Airport Board. He chairs the ACS Rocky Mountain Regional Meeting, is past president of the American Institute of Chemists, is past chair and councilor of the ACS Wyoming Section, and has served and continues to serve on the ACS national committees. Dr. Meyer is a consultant to government agencies and industrial companies, refining process he invented and patented. He is listed in several Who's Who editions: in the World, in America, in France and Industry, in Science and Technology. He has competed in the last three Nation Senior Olympics [5K and 10K road races], rides a Harley, and is Vice Mayor of Laramie, Wyoming.

The newest phenomenon: Global cooling.

The concept of global warming has become big business. We are reminded every day that we must be stripped of our consumer choices because the planet is in peril. We must enact tougher new environmental regulations because the planet is in grave danger. As it turns out, this might be the biggest fund-raising scam the globe has ever seen. If global warming weren't a fear-mongering sales pitch, how would a past vice president have sold enough copies of his movie to pay the outrageous electric bill he runs up every month at his Tennessee mansion?

We've often heard that the USA is the "land of opportunity". This has been proved yet again. A politician, who probably has a minimal scientific background, now suddenly emerged as a "climate expert". His movie is a stunning success and to cap it off, he is awarded the Nobel Peace Prize for his "global warming" movie!

About 200 scientists attended the March 2-4, 2008 International Conference of Climate Change in New York. The prime time media coverage of this meeting was nil. More than 400 scientists signed a December 2007 letter to the U.S. Senate environmental subcommittee and more than 100 declared in a 2007 letter to the United Nations that "there has been no net global warming since 1998." Again, TV and newspaper coverage of these two letters was zero!

That is scientific fact, not "consensus". We should be spared the consensus argument. Consensus is politics, not science! Human-caused global warming is the "crisis de jour" – just as overpopulation was in the 1960's, global cooling in the 1970's and earlier predictions of massive food shortages. There is not a "scientific consensus" on global warming. Scientists are split on the subject, with more and more coming to the natural-cycle side of the argument. Remember the Viking settlements in Greenland and Labrador many, many years ago!

At one time, truth mattered to journalists. It obviously no longer does to many of them. Many are more interested in fashionable posturing and politically correct pronouncements. Everyday citizens have an obligation to make decisions that are best for future generations. They should have access to various rationales regarding climate change. Presently, only the CO₂ greenhouse gas model is considered "correct" Alternate ideas and theories are usually dismissed!

Electric cars probably won't save the environment. But if they free us from foreign oil and make our world safer, they might be worth buying. But, electric car advocates should also point out the added cost of electric vehicles. At the same time that a person driving an electric car in Oklahoma City producing minimal pollution, the Red Rock electric plant must produce more electricity to charge all the electric cars! Hence, more pollution by the plant!

Seldom mentioned is the consumer cost of alternate energy vehicles and fuels. A recent USA Today edition featured the Tesla electric car. The hype: "no gas" needed for this car! The Tesla price - \$98K! How about the corn-ethanol boom/bust cycle. No one ever mentions that the federal 51¢/gal ethanol tax is rescinded for ethanol fuel. Wind turbines? There might be only few of them were it not for the federal subsidies for wind farms. No wonder OG&E uses "it's a wind/win" in their TV turbine ads! The true consumer cost of all these alternates are never mentioned!

If any person wishes to challenge those who feel the debate on climate change is over, some research on the topic would be in order – something that most of the outspoken celebrities and media outlets haven't bothered to do.

Start at www.junkscience.com

Take the quiz at www.globalwarmingheartland.org Be prepared for some startling revelations!

Some Environmental Stuff***

Escape Taxes

A great sales idea! You bet, and one that's accomplished [at least partially] with Escape Hybrid. When your customers make the commitment to help save the earth with all its precious resources, the United States thinks they should be congratulated. So, as a way of saying "Thank you, and keep up the good work," the Internal Revenue Service allows customers the following tax credits:

Escape Hybrid FWD – \$3,000
Escape Hybrid 4WD – \$3,200

These are the highest tax credits offered any hybrid vehicle on the American market. And keep in mind that the tax credit is deducted from the total tax bill, offering one of the most effective tax advantages available today. [Customers should consult their tax advisors for more information.]

In some states, owning a hybrid has the extra privilege of single occupancy use of lanes and exemption from emissions testing.

Ford designers and engineers are working on a variety of "green" ideas, all aimed at helping to save the planet. Whether in a vehicle or in a plant, here's just a sampling of things that are going on at Ford:

- The 2008 Ford Escape XLT and Hybrid use seating fabric made from 100 percent postindustrial materials supplied by InterfaceFABRIC, Inc.
- Ford is also developing a sustainable replacement for the fiberglass now used between a vehicle's headliner and roof sheet metal. The replacement material is bio-based, improves acoustics, neutralizes odors and is lighter than the fiberglass it replaces, helping to improve fuel economy.
- In the past, U.S. plant paint fumes had to be collected and incinerated – an expensive process. Now, thanks to a process developed in conjunction with Detroit Edison, paint fumes generate electricity. The plant's paint fumes are captured and then concentrated in a rich mixture of hydrocarbons. This mixture is then used to fuel an engine, that generates electricity for the plant. The paint fumes now generate clean energy, reduce CO₂ emissions and save money

*** Reprinted from the December 2007/January 2008 edition of FRONTLINE.

The 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 Website:

Dr. James J. Dechter – is the Section webmaster. Jim is Professor of Chemistry at the 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: jdechter@ucok.edu

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

Student Awards

The Oklahoma Section offers awards for undergraduate students. The Terrill Smith Travel Award is for undergraduates to travel to a regional or national ACS meeting to present a paper or poster. Two awards of up to \$600 will be given each year, one for fall and one for spring travel. The award is in honor of Dr. Terrill [Terry] Smith, longtime Oklahoma Section officer/councilor. He retired from UCO in 1999. Terry was a strong supporter of undergraduate research and student affiliates at UCO and in the section.

The Roger Baldwin Graduate School Award is for undergraduate students who have been accepted to attend graduate school in the chemical sciences. One \$500 award will be presented each spring. This award honors Dr. Roger Baldwin, another longtime Oklahoma Section officer who is retired from Kerr McGee Corporation. The section is able to offer these new awards partially due to Roger's persistent fund-raising efforts associated with the Southwest Regional Meeting in 2003.

Applications are available on the website, <http://membership.acs.org/O/Oklahoma/Index.htm>. For more information, contact Gordon Eggleton, geggleton@sosu.edu.

Tentative 2008 Meetings:

May 2008

Speaker , date & location TBA

Friday, 26 September 2008

Annual Family Night at OBU, Shawnee

Speaker TBA

October 2008

Speaker , date & location TBA

November 2008

Annual Oklahoma Chemist of The Year Speaker

Speaker , date & location TBA

April 2008 Section Meeting

Monday 14 April, 2008

**Student Center – Conference Rooms N & S
Oklahoma State University – OKC
900 N Portland Avenue
Oklahoma City OK 73017**

Speaker: Dr. E. Gerald Meyer

The Hydrogen Economy: The Good, The Bad, The Ugly!



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