



SUMMARY OF THE NEW ORLEANS MEETING

The New Orleans Spring 2008 AIChE Meeting, April 6-10, was a joint meeting with the American Chemical Society's 235th National Meeting. The ACS attendance was about 13,600; the AIChE attendance was around 1510.

AIChE offered 243 sessions, 90 of which were ACS-led co-sponsored sessions, and another 20-30 which were AIChE-led co-sponsored sessions, AIChE normally has between 130 and 160 sessions for Spring, so the meeting was quite large. AIChE had no responsibility for the 90 ACS-led sessions. AIChE only publicized them in the Program Book.

The Global Congress is composed of CCPS, PPSS, and LPS – that's what makes it a "congress." LPS had 8 sessions: PPSS had 5 sessions, and CCPS had 10 sessions, including the major keynote on Monday morning.

Distillation Topical, T8, had 4 sessions; Natural Gas had 9 sessions.

The F&PD Keynote was given by Richard Igercich, Refinery Manager for Chalmette Refining, LLC, a joint venture between ExxonMobil and PDVSA, the Venezuela State Oil Company.

Igercich's presentation was a highly interesting, but sparsely attended slide show devoted to preparations for and recovery from Hurricane Katrina which hit the Gulf Coast in August 2005.

On Monday afternoon, a joint Presidential Keynote, co-chaired by ACS president, Bruce Bursten and AIChE president, Dale Keairns, filled to overflowing Ballroom C of Morial Convention Center. The speaker was Raymond Orback, U.S. Department of Energy, who spoke on "Energy Research."

WIND POWER

The ups and downs of wind power are a real control and automation problem for electric grid operators. Now, they encourage and discourage users through financial incentives to keep grids stable. For instance, in western Denmark, on windy days electricity is free. Germany has the most installed wind energy capacity at 22,247 megawatts. The U.S. is second. Spain is third.

Source: **Intech**, page 16, May 2008.

MAIZE BEATS CORN BY SIX FEET

Midwestern-grown tropical maize grows 14 or 15 feet tall compared to 7 1/2 feet height that is average for conventional hybrid corn. Better ethanol yields?

Source: **Intech**, page 11, December 2007.

F&PD SPRING 2008 ELECTION

This year's balloting was via mail-out ballots. The Spring 2007 election was electronic, i.e. via e-mail.

Total ballots returned was 114, out of a possible 940. The Spring 2007 ballots total came to 72 of the F&PD paid-membership, possibly as many as one third do not have e-mail.

The Division's newly-elected Executive Committee is tabulated on page 2 of this newsletter.

Heading the Executive Committee is James Turner of the Fluor Corporation, Sargar Land, TX. Vice Chair is Ralph Pike of Louisiana State University, Baton Rouge, LA. Secretary is Steven Coleman of Lyondell-Basell Industries, Channelview, TX. Treasurer is Dennis O'Brien of Jacobs Consultancy, Chicago, IL.

UPCOMING MEETINGS

2008 Annual Meeting

*Philadelphia Marriott & Pennsylvania Convention Center
November 16-21, 2008*

2009 Spring National Meeting

*Tampa Convention Center • Tampa Florida
April 26-30, 2008*

2009 Annual Meeting

*Gaylord Opryland Hotel • Nashville, Tennessee
November 8-13, 2009*

2010 Spring National Meeting

*Grand Hyatt • San Antonio, Texas
March 21-25, 2010*

THE SUSTAINABLE CITY

Realization of a zero-carbon, zero-waste, and car-free city may seem futuristic—but it has already begun. In February 2008, the government of Abu Dhabi in the United Arab Emirates broke ground on Masdar City. The 2.3-mile district on Abu Dhabi's outskirts—which the Abu Dhabi government hopes will someday be occupied by 1,500 businesses and 50,000 residents—is entirely designed for sustainable living.

Source: **Power**, page 10, May 2008.

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CHAIR'S CORNER

As this is my first essay for Chair's Corner, I would like to start by thanking those who encouraged me to accept the nomination and supported with their votes. I look at my serving as Chair of the Fuels and Petrochemicals Division as an opportunity to give back to an honorable and very important profession. I have benefited greatly from my experience as a practicing Chemical Engineer. In addition to the technical knowledge and industry contacts that I have gained from my association with AIChE, I have also had the privilege of getting to know some outstanding individuals, many of whom I can proudly call friends.

Let me further introduce myself by providing a brief biographical summary. For the last twenty years, I have worked primarily on refinery expansion and clean fuels projects. I have had the opportunity to travel all over the U.S., and to Europe, Asia, the Middle East, and Mexico. In the Fuels and Petrochemicals Division, I have served as Director, Newsletter Editor, Treasurer, Second Vice Chair, First Vice Chair, and now Chair. When I am not working, I enjoy time with my wife and three kids.

I would like to take this opportunity to thank the Past Chair, Rick Mallinson, for the excellent job he did in a two year stint as Chair of the Division. He set the bar high, and I hope to measure up to the excellent standard that he obtained. I would also like to thank Dennis Griffith for his continued support and service. Dennis has done pretty much everything within AIChE, and is a continued great resource for great ideas and getting things done.

There are many people to thank, but I think I will reserve that for future Chair's Corners.

Finally, I would like to say that this is an incredible time to be a Chemical Engineer.

While the contributions of our profession have had a profound impact on human living conditions for decades, in the past, the recognition by society at large of these advances has often been overlooked. But with the significant increase in fuel costs, caused primarily by the increased demand of large, upwardly mobile populations in Asia and other developing countries, and the concern by some people of potential climate impacts from the use of hydrocarbons to fuel all of the economies of the world, our industries and actions are in the news every day.

In fact, the project I am currently working on has been the subject of a resolution from the U.S. Congress, a campaign letter from one of the U.S. Presidential Candidates, legal challenges from special interest non-government organizations, public support from many economic development, community, and industry labor groups, and the industry labor groups, and the subject of numerous news articles and commentary (many of which are uninformative and full of misleading or incorrect statements).

Our daily actions do have a significant impact on society, and that's without even considering the impact that our profession has had on the increase in safe operations of facilities, and the significant reduction in emissions of pollutants to the environment.

The combinations of high demand for fuels and petrochemicals, and the lack of refining capacity relative to expected future demand, have created a demand for project services that has not been seen in the last three decades. Add on the growing demand for safety reviews and proper documentation of facility systems, and there is no better time to be an experienced Chemical Engineer, or to be beginning a career in Chemical Engineering.

METHANOL'S ALLURE

Methanol is the lightest, simplest alcohol. Colorless and flammable, it is a somewhat poisonous, corrosive liquid with a slightly sweeter odor than ethanol. Once produced by collecting distilling the vapor from burning wood, methanol is gaining ground as an alternative to petrochemical feed stocks and fuels—and it may provide an answer for what to do with excess CO₂.

Methanol can be transformed into everything now made from oil and gas, said Nobel Laureate, George Olah, a professor of chemistry and director of the Loker Hydrocarbon Research Institute at the University of Southern California. What's more, he adds is it's a "prime way to store, transport, and utilize energy."

Olah is arguably the U.S.'s biggest proponent of methanol as a feedstock and fuel. His Book "Beyond Oil and Gas: The Methanol Economy" was published in 2006 (C&EN, Oct 2, 2006, page 51). "I am not saying methanol is the only solution to the world's energy problems," Olah emphasizes. "We should use everything that is feasible. But in this big mix, methanol has a significant role."

Yes, that's methanol, not ethanol. For all the focus on bio-ethanol in the U.S. ethanol as a fuel is problematic. The U.S. used about 20% of its corn crop to make a 4.8 billion gal of ethanol in 2006. Even if more acreage is devoted to corn, that's a long way from the U.S. Department of Energy's goal of 60 billion gal by 2030. Ethanol derived from cellulosic materials such as prairie grass has additional potential, but that technology is still at an early stage and costs remain high.

Diverting corn from livestock feed to ethanol production has already been blamed for rising food prices in the U.S. and Mexico. And then there's the question of environmental pollution from increased fertilizer and pesticide use as farmers try to improve corn yields (C&EN, Oct. 8, page 11; *Envir. Sci. & Technol.*, 2007. 41.7593).

Additionally, the ability to convert excess food stock to fuel production is a luxury not enjoyed by many other countries. China, for example, cannot afford to divert much food to fuel, yet its energy needs have risen such that the International Energy Agency expects China to overtake the U.S. and become the world's largest energy consumer by 2010.

Meanwhile, as the price of oil escalates, chemical companies producing petroleum-based products are feeling the crunch of higher costs and are looking for alternative chemical feedstocks.

All of this would seem to lay out a red carpet for methanol. On the feedstock side, production from methanol include synthetic gasoline, formaldehyde, acetic acid, olefins, and dimethylether (DME), which is touted as a clean-burning diesel substitute. Global methanol production capacity is currently about 12 billion gal per year.

As an automotive fuel, methanol initially looks unpromising—its energy content, 64,500 Btu per gal, is about half that of gasoline. The values for gasoline and ethanol are 124,800 Btu per gal and 76,500 Btu per gal, respectively. Also, methanol is toxic when ingested. Similar to ethanol, it is corrosive to current gas tank liners and pipeline seals and gaskets.

Source: **C&EN, Dec. 5, 2007.**

James Turner



LANDING ON ONE'S FEET

Almost everyone knows the legend about cats always landing on their feet no matter how far they fall. Assuming it is true, one could offer various explanations: cats are small and fluffy enough to achieve only a nonfatal terminal velocity; the feline geometry preserves conservation of angular momentum and provides torque-free rotations; such animals are possessed of exceptional coordination and balance.

All three hypotheses have a certain sheen of scientific authority, but I prefer the third, especially if one considers the cat as a metaphor for the arrival of a new employee in an organization. Although new employees don't exactly "fall" into place, the entrance of a new person is laden with kinetic energy and introduces considerable motion, much of it Brownian and stochastic. So coordination and balance come in handy, as does the promise of nine lives.

What's it like, then, to arrive as a newcomer at a thriving nonprofit-scientific-historical-educational-library-research organization? What do you do to figure it out? And how do you move it to the next level of accomplishment?

Arrival is simultaneously exhilarating, engaging, and fascinating. To be sure, it's also daunting because of the considerable expectations engendered by the job-search visit. In your Editor's case, I drove to the West Coast, arriving on a Saturday evening. My first day of employment was the following Monday. On Sunday I drove out to the new job's building, eager as I was to experience the feel of the place.

Figuring out how the place worked wasn't as easy as it sounds. Even a relatively small organization has a multitude of moving

parts, not all of which are immediately visible or synchronously coordinated. For example, you would think it would be straightforward to lean how many people worked there: just count them up, basis the job interview visit. By my mental; count, it was somewhere between 155 and 575.

I decided to learn how the organization worked by listening to its people. I met with staff people to catch a glimpse of his or her background, ambitions, and imaginings. And of course I read many reports and documents to learn of the new organization's growth and evolution.

So what's the bottom line on all this gab? At the moment, I can say don't worry about curiosity killing the cat. I never did buy that one.

Source: **RFD paraphrase of an Editor's note in Chemical Heritage Journal, Summer 2008.**

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