



The South Texan

VOLUME 101 NUMBER 3-4

NOVEMBER / DECEMBER 2000

NOVEMBER MEETING THURSDAY • NOVEMBER 16, 2000 JOINT MEETING WITH AMERICAN CHEMICAL SOCIETY & SCIENCE ENGINEERING & TECHNOLOGY OF HOUSTON

Speaker: John Lienhard • Topic: "Chemistry: An Odyssey of the Mind and of the Eye"

Houston's Renaissance Man

John H. Lienhard makes a book of his radio series, By Allan Turner

Today we meet John H. Lienhard, Houston radio's Renaissance man. Engineering and history professor, photographer, polished tenor, Lienhard is best known as the creator and host of The Engines of Our Ingenuity, public radio's exploration of civilization's machines and the people who created them.

Since the first three-minute segment about Philadelphia steam-engine builder Oliver Evans aired in January 1988, Lienhard has grappled with the conservation laws of physics, pondered the lives of early female scientists, traced the development of the piano, considered the horrors of mustard gas and debunked the myth engineers can't write.

Lienhard's 1,500th episode on KUHF-FM aired earlier this year, and on Thursday his long-awaited book based on the radio series, *The Engines of Our Ingenuity: An Engineer Looks at Technology and Culture*, was issued by Oxford University Press (&25).

Houston Chronicle, June 21, 2000

Meeting Location

CROWNE PLAZA HOTEL
222 West Loop South

WORKSHOP (NO FEES - NO RSVP)	5:30-6:30 p.m.
EXECUTIVE COMMITTEE ...	5:30-6:30 p.m.
SOCIAL PERIOD	6:00-7:00 p.m.
DINNER	7:00-7:45 p.m.
PRICE	\$ 25.00 with reservation 28.00 without reservation
Retired	\$ 22.00
Students	16.00
MEETING / SPEAKER	7:30-8:30 p.m.
AUTO - R.S.V.P.	
By 4:00 p.m Tuesday, November 14th Call (713) 295-4847	

Meeting Location

RADISSON ASTRODOME HOTEL
(Kirby at South Loop)

WORKSHOP (NO FEES - NO RSVP)	5:30-6:30 p.m.
EXECUTIVE COMMITTEE	5:30-6:30 p.m.
SOCIAL PERIOD	6:00-7:00 p.m.
DINNER	7:00-7:45 p.m.
PRICE	\$ 20.00 with reservation 22.00 without reservation Students and Unemployed 1/2 price
MEETING / SPEAKER	7:30-8:30 p.m.
AUTO - R.S.V.P. By 4:00 p.m Tuesday-December 5th	(713) 295-4847

DECEMBER MEETING

THURSDAY • DECEMBER 7, 2000

FOR INFORMATION GO THE
SOUTH TEXAS WEBSITE:

<http://www.sts-aiche.org>

PROCESS ENGINEERING PLANT OPERATIONS

John Zink Co Presenters: (Presented in 2-Parts Nov/Dec)
William Fraase, Applications Engineer - Houston Office
Keith Wade, Ethylene Specialist - Freeport

Topic: "Ultra Low NOx Burner Technologies for Process Heaters, Boilers, and HRSG Duct Burners"

Focus: In order to address the air quality problems in Houston and the surrounding counties, the TNRCC has proposed sweeping new NOx emission regulations for which all chemical plant and refinery operators must comply. An overview of the regulations and timeline for implementation will be presented. John Zink has developed a family of Cool Technologies™ to address these new regulations. The technologies are centered on methods to reduce NOx formation (finesse method) rather than eliminating NOx once formed (brute force method, SCR's). A building block approach to drive emissions lower and lower to meet the proposed stringent levels of NOx emissions will be described. *Continued on page 3*

Contact: Jim Morris • 281-358-7986 • ejmorrison@vonl.com

GOVERNMENT INTERACTION & PROFESSIONAL DEVELOPMENT

Topic: No November GIC Workshop

Focus: There will not be a meeting of the STS-AICHe Government Interaction Committee for the month of November. Please consult the Section's Web site, www.sts-aiche.org, for the latest information regarding Registration of Engineering Firms. In December, the GIC will be inviting legislative staff members and committee policy analysts to discuss the legislative agenda for the 77th Texas Legislature.

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CAST

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The Purpose of the Section, a nonprofit scientific, educational and charitable organization, are the furtherance of the aims and purposes of the American Institute of Chemical Engineers, and the advancement of the science of chemical engineering and of related sciences through (i) the education of members and non-members in the sciences (ii) career guidance and financial assistance to students of the sciences and (iii) encouragement of research in the sciences.

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From the Chair



I have spent the last few days thinking about what message I would like to leave you with as I get ready to bid goodbye to my tenure as Chair of the section at the end of the year. I could summarize achievements of the section in the last year or perhaps where I see the profession headed. Instead, I thought what I might do is reflect on two of the activities that I would have liked to address but for what

ever reason did not get around to address to the extent I would have liked.

First and foremost is the changing face of chemical engineers. By that I mean the diversity of the profession. You could not tell if you came to any one of our functions, the diversity that is represented in the section. Today, for example, about 50% of chemical engineering students and graduating engineers are female. Hard as we try, our typical audience is 95% male and over 40 years old. I realize that we are competing with church activities, kids events and the like for people's time. However, for the section to be successful, its policies and goals must meet the interest of the whole membership and not just those who choose to run for office, serve on the committees or show up at the meetings. One option, perhaps, is to hold more joint meetings with groups such as the Society of Women Engineers (SWE). Perhaps to expect that the makeup of the section, its events and committees would reflect the diversity of the section is unrealistic, which is why more targeted societies such as SWE have developed to provide more focused resources to unique needs.

Second on my list is the fact that there has been a general lack of interest on the part of some engineering managers and executives in the activities of the section. I say some because, clearly, a number of large organizations have made significant financial contributions to the national organization. I for one, do not think that the needs of the profession and the needs of corporate entities are divergent enough to explain the apparent lack of involvement. The same issues that corporations grapple with, such as the high cost of technical courses, creation of professional development options, influencing college programs to produce engineers with practical skills, etc., are the same issues that the section is trying to address on a global scale. I cannot imagine the overall benefit and corporate savings if a handful of companies would devote a small fraction of their combined resources to work with the section on some of our professional development activities. Perhaps forging a relationship with a local management group such as EHCMA is a partial solution.

This year was particularly exciting for me because I worked with a great team to further the interest of chemical engineers in the largest local section in the country. In previous editorials I discussed the goals and achievements of the section. Helping to mold those achievements were Past Chair Mickey Reeves who constantly called to consult on section issues and remind me of tasks that needed to be completed. Andrew Wilson, our chair-elect, who constantly

WORKSHOPS *continued from page 1*

CAST

NOVEMBER 16, 2000 WORKSHOP

Topic: "Water Conservation and Wastewater Minimization through Process Integration," **Jimmy D. Kumana**, Consulting Engineer, Houston, TX.

Focus: Process integration techniques based on pinch analysis have been very successfully applied to improving thermal energy efficiency in the chemical process industries. These techniques have now been extended to the problem of water conservation and wastewater minimization. Initial applications to a wide range of industries - oil refining, petrochemicals, pulp and paper - have shown very promising results, with "easy" savings of 15-25% possible from simple piping and control changes. Including process modifications and selective wastewater regeneration, the potential savings are much greater, often exceeding 50%. Furthermore, pinch analysis has also been used for the design of distributed effluent treatment systems, which are able to meet the desired effluent water standards at lower capital cost than conventional centralized wastewater treatment facilities. This seminar will present an overview of the concepts underlying the "pinch" approach to water conservation and wastewater minimization, summarizes the major applications, and highlights the results achieved in four different industries - oil refining, chemicals, polymers, and pulp/paper.

Our October workshop speaker, Mr. Nathan Massey of Chemstations, Inc., gave a very interesting seminar on a topic that has been of great interest to me. The talk was laid out in a clear and simple manner which enabled the audience to gain some basic understanding of residue curve maps and their applications.

Our November workshop will feature Mr. Jimmy Kumana, an independent consultant specializing in energy and water conservation. He has a B.S. in Chemical Engineering from Indian Institute of Technology, Bombay, and a M.S. in Chemical Engineering, University of Cincinnati. He has vast experience in process engineering/design and technical/business consulting - focused on cost reduction through improving manufacturing efficiency and pollution prevention using Pinch Analysis. He has over 50 professional publications (articles, patents, and books).

CHAIR CONTINUED

challenged our tendency to stay with the tried and true rather than venture out of our comfort zone. Jackie Forsyth who quickly settled into his role as secretary and made sure amongst other things that meeting minutes were timely. Dennis Mitchell, our treasurer who finally settled our income tax issues. Rick Street who continued to guide us through our development with electronic media and who also helped organize the most successfully attended meeting in years, the St. Arnolds. Workhorse Paul Temme. What can I say about Paul? Every once in a while you run into someone who just gets things done and is always there to help you out. Drago drove the longest distance, from college station, to get to our events and he did not miss many of them. His devotion to the student issues which he represented are appreciated. John Cheng, for his ideas with young members. FOLKS, THANKS FOR A GREAT YEAR!

Chris Tagoe

DECEMBER 7, 2000 WORKSHOP

Topic: "Using XML for Electronic Process Data Exchange," Dr. Tom Teague, Proteosoft Corporation, Houston, TX.

Focus: The eXtensible Markup Language (XML) is an Internet standard for business-to-business electronic data exchange. While XML provides common rules for computer-interpretable language syntax, it does not, by itself, inherently provide the "business vocabulary" needed to accomplish useful electronic data exchange. It is only through establishing widely used, industry-specific XML vocabularies that the value of XML technology will be fully realized in the emerging era of electronic commerce. This seminar will briefly introduce electronic data exchange XML and show an XML data exchange example using a small subset of the pdXi data model for a portion of the data found on shell and tube heat exchanger data sheets.

Tom Teague has a PhD in ChE, and is the founder and Principal Consultant for Proteosoft Corporation and has over 20 years experience in managing developing and supporting process engineering software and 15 years experience with data-centered approaches to process software integration. Prior to founding Proteosoft, Tom spent over 18 years at Exxon. He led various teams of research engineers and programmers in all aspects of developing, maintaining, supporting and managing a comprehensive suite of production facilities engineering analysis software (20-30 programs) for use in Exxon's worldwide upstream production organization.

The December meeting will be held at the regular location, i.e., Radisson Astrodome from 5:30 pm to 6:30 pm.

The CAST division of the AIChE covers all areas of computing and systems technology as applied to chemical process industries. We are still looking to fill up our 2001 January through May schedule. Please contact either Wayne or myself if you or anyone you know would be interested in making a presentation to the CAST audience. Also, feel free to contact us if you have any suggestions or ideas to improve the workshop or increase its value to the CAST group. We are very interested in hearing from you.

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PROCESS ENGINEERING PLANT OPERATIONS *(continued from page 1)*

This will be the first part of a two-part series covering the impact of the new TNRCC Air Quality regulations on 1) combustion and 2) thermal oxidizers over the next two sessions (*November and December*). **John Zink** has developed burner technology to address the new regulations. The November meeting will cover the *Ultra Low NOx burner Technology*, and the December Meeting will cover *Thermal Oxidation of Refinery and Chemical Plant Wastes*.

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The Editor Speaks

My how time flies! It seems we were just celebrating the New Year and worrying about possible Y2K problems. Now, the year 2001 is fast approaching and it seems as though we made it thus far without a hitch. In just a few weeks, we'll all be writing New Year's resolutions--even though most of us will forget them by the end of January.

As your newsletter editor, I would like to thank each of you for making the South Texas Section one of the best this year. We have one of the largest memberships, dedicated officers, and committees that are focused on helping us improve and become even better.

Let's all resolve to bring in new members this next year. Take a minute to look around your workplace to see if there are chemical engineers that we can bring into our section membership. Remember, that we live in a large city and many new graduates simply do not know where or when our meetings take place. And let's resolve to participate in our section's activities.

As I have said for the past six years, from my home to yours. I wish you and yours the very best of the holiday seasons and a very prosperous New Year.

Gary Congram

Proposals for reduction of NOx in the greater Houston area have prompted The Texas Institute for Advancement of Chemical Technology to conduct a survey and issue a special report providing an overview of the technologies available for NOx reduction. It can be found on the TIACT website at Texas A&M under <http://www-chen.tamu.edu/TIACT/noxreduction.pdf>

This special report is about 25 pages long and includes brief descriptions of all the known proposed techniques for reduction of NOx. It has been prepared for the benefit of engineers and managers for their orientation.

If you then desire a hard copy contact:

Prof. Charles Holland, TIACT, cms5701@chenov2.tamu.edu

Ed Ekholm

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