January 1999 Newsletter

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This newsletter was produced at no cost to the State of Tennessee.
It was paid for by unrestricted grants to the Department of Chemical Engineering at
The University of Tennessee
It is a pleasure and honor to address the UT Chemical Engineering Department Alumni and Friends as the new Head of the department. The department has a long and rich tradition, and I have had informal associations with a number of the current and previous faculty throughout my career. I was attracted to the department by its well deserved reputation and by the strength and warm collegiality of the faculty, staff, and students. Although I have no formal prior relationship to the department and UT, my family does. My wife, Billie, received her MS and PhD from UT and was a postdoctoral researcher here. Subsequently she became a professor at Georgia, then a professor with me at Ohio University and subsequently at LSU when we both moved there. I was chair of Chemical Engineering at LSU for five years during our eleven year tenure. My wife and I started at UT in June. Billie is a professor of textiles and associate dean of the College of Human Ecology. Our son-in-law has two degrees from UT and our son was a graduate student in Engineering at UT prior to leaving for a job that was too good to pass up before finishing his thesis. One of our daughters, our son-in law and only grandchild live in Knoxville. So from all of that you can see I came equipped with some orange clothes and support for UT.

In spite of difficult financial conditions at UT, the department is vibrant and progressing. Some of the faculty activities are indicated in the Faculty News section of this newsletter. We have taken a hard look at our undergraduate program and departmental organization, in preparation for our ABET accreditation visit this Fall. We intend to take a similar hard look at our graduate programs following our ABET visit. We are seeking two additional faculty for Fall of 2000, and due to anticipated retirements and the Dean's commitment to bridge funding, we should be seeking at least one more new faculty member for Fall 2001. We are of course stressing teaching in keeping with our tradition along with a strong research and service potential for all of these positions. The Science and Engineering Research Facility across from Dougherty has strengthened our research capabilities in the areas of cooperative research, space and equipment availability. One of the intentions of this new building was to encourage interaction between faculty from different departments and that is indeed happening.

During my trips to different parts of the country for various meetings, I am trying to spend time with alumni and friends of the department whenever possible. To do so I have to rely on our alumni files, so if you have not updated your address, position, and interests, please do the department, fellow alumni, and me a favor and drop us a line. Please include any information you want to share with the other alumni and/or department. I want to meet as many of you as possible, get your feedback and suggestions, and personally share information with you. If you want to contact me directly the best, but not only way, is by e-mail since I use that extensively; my e-mail address is collier@utk.edu.

Thanks

John Collier
Chemical Engineering Education in Tennessee

John W. Prados, P.E., Vice President
Emeritus and University Professor
The University of Tennessee
Knoxville, Tennessee

I. The Early Days

Chemical engineering education came relatively early to Tennessee; within 20 years after the first chemical engineering program in the United States was established at the Massachusetts Institute of Technology in 1888, both Vanderbilt and The University of Tennessee began listing such programs in their catalogs, Vanderbilt in 1903 (1) and Tennessee in 1905 (2). According to Professor Dillar Jacobs, retired Vanderbilt engineering faculty member and author of a book on the history of that university's engineering school, the Vanderbilt chemical engineering program was directed by Professors W. L. Dudley and J. J. McGill of the Chemistry Department. Dr. Dudley had a strong industrial background when he joined Vanderbilt in 1886 as a chemist and metallurgist. He served not only as Chairman of the Chemistry Department, but also as Dean of the School of Medicine and Chairman of the Athletic Association; the Vanderbilt football stadium bears his name. The courses in chemical technology and metallurgy at The University of Tennessee were taught by Professor Wait, who was also active in that University's athletic program and for whom the first UT football field was named.

None of these early programs (including that at MIT), included courses in what we would today consider as chemical engineering. They were heavily oriented toward chemistry, including detailed descriptions of important industrial processes, and they also included courses in metallurgy, geology, physics and electrical engineering, and mechanic arts." As such, they reflected the state of the chemical engineering profession itself, which was trying to establish an identity separate from its roots in chemistry and mechanical engineering.

The American Institute of Chemical Engineers was founded in 1908 and took, as one of its first tasks, the effort to define a unique nature for chemical engineering and the educational preparation necessary to become a chemical engineer. In that same year, the Institute established a Committee on Chemical Engineering Education charged with determining the appropriate educational background for chemical engineers. However, for several years the committee labored in vain, and not until the Arthur D. Little Report of 1915 to the president of MIT was the concept of "unit operations" that was common to many different chemical processes set forth and with it the identification of a unique body of chemical engineering knowledge, distinct from the fields of industrial chemistry and of mechanical engineering (3). In 1922 the Committee was at last able to reach consensus on a recommended curricular structure for chemical engineering, and in that year the
AIChE Council appointed a new Committee on Chemical Engineering Education, containing equal representation from educational institutions and industry. This Committee was charged to evaluate chemical engineering curricula over the next three years and to publish a list of those institutions whose programs satisfied the recommended criteria. The Committee's report was issued in June 1925 and included the names of 14 schools (none in the South) whose chemical engineering programs were judged acceptable. This report marks the beginning of engineering accreditation in the United States.


2. The University of Tennessee Register, 1904-05, The University of Tennessee Press, Knoxville, TN, 1905, p. 38.

## ChE Degrees Awarded By Term

### Fall 1998

<table>
<thead>
<tr>
<th>BS</th>
<th>MS</th>
<th>Ph.D.</th>
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<tbody>
<tr>
<td>Hui B. An</td>
<td>Christopher Bible</td>
<td>Justin T. Shingleton</td>
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<td>Catherine A. Johnston</td>
<td>John W. Cox</td>
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<td>Jonetra M. Kemp</td>
<td>Vineet K. Lasrado</td>
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<td>Kathleen E. Kitzmiller</td>
<td>Samuel A. Morton</td>
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<td>Chad T. Lard</td>
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<td>Mandy N. Miller</td>
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<td>Sherri L. Singleton</td>
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<td>Jennifer A. Whitehead</td>
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### Spring 1999

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<thead>
<tr>
<th>BS</th>
<th>MS</th>
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<tbody>
<tr>
<td>Larry N. Barnett</td>
<td>Kevin D. Blankenship</td>
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<tr>
<td>Billy C. Barton</td>
<td>Paula A. Cameron</td>
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<td>Paul G. Bowers</td>
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<td>C. Brian Carder</td>
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<td>Sjon-Paul Conyer</td>
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<td>Kirk D. Firestone</td>
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<td>Nolan T. Henrich</td>
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<td>David N. Hensley</td>
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<td>Jennifer L. Herrmann</td>
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<td>Gregory L. Ipock</td>
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<td>Phillip A. Kevern</td>
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<td>Azarina Mohd Jalil</td>
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<td>Carlos R. Negrete</td>
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<td>Fred P. Parker</td>
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<td>Nimesh B. Patel</td>
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<td>Laura M. Sandoval</td>
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<td>Gloria H. Shipley</td>
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<td>Christopher Thomas</td>
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<td>Jennifer Zurawick</td>
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### Summer 1999

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<tr>
<td>Segun K. Embry</td>
<td>Matt Dalton</td>
<td>Igor Quinones-Garcia</td>
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<tr>
<td>Kelly N. Fields</td>
<td>Ziran Sun</td>
<td>Kevin D. Heath</td>
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<td>Andrew G. Greene</td>
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<tr>
<td>Lindsey B. Jennings</td>
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Curriculum News

Design Internship in Industrial Pollution Prevention (ChE 488)

Two design teams completed projects in ChE 488 in lieu of the usual senior capstone design course (ChE 490) during Spring Semester 1999. The corporate sponsors were the DuPont Chattanooga Plant and DuPont Sabine River Laboratory (Orange, Texas); Rita Heckrotte (DuPont Chattanooga plant) and Ron Reimer (Sabine River Laboratory) provided liaison with these sites. Both projects involved weekly project meetings, typically a phone conference, a midpoint review session and report and oral and written presentations of the project analysis and final recommendations.

Stephen French of the DuPont Chattanooga Plant and Pete Counce of the University of Tennessee ChE Department served as industrial and academic advisors for a project looking into possible waste and energy savings associated with nylon production; the student team was made up of Chie-Min Chung, Alison Davis, Segun Embry, Nolan Henrich, David Hensley, and Robert Gee. The team reviewed several approaches and selected three for in-depth study. The estimated economics look favorable for DuPont looking further into at least one of these options.

Ron Reimer of the DuPont Sabine River Laboratory Plant served as the industrial advisor with John Holmes (Emeritus) and Pete Counce of The University of Tennessee ChE Department serving as co-academic advisors for a project focusing on the reactor operation for adipic acid production. The student team was made up of Larry Barnett, Billy Barton, Paul Bowers, Sjon-Paul Conyer and Jennifer Herrmann. A model was developed and tested to predict anomalies in reactor operation. Using this model, various operating modes were examined and the economic and operations implications were identified. The reactor model developed in this activity was made available to DuPont for future use.

Projects for 1999-2000 are being sought; for more information please contact Robert M. Counce (counce@utux.utcc.utk.edu), Professor, Department of Chemical Engineering

Unit Operations Laboratory (ChE 310 and ChE 410)

As part of the department's efforts to upgrade its undergraduate laboratory equipment, a complete laboratory-scale fermentation and bioprocessing laboratory has been added. The equipment includes a preparative-scale low pressure chromatography unit, a large autoclave, a shaker-incubator, a 5-liter microprocessor-controlled bioreactor, and a tangential-flow microfiltration unit. A pilot group of three students used the new equipment in the spring semester to produce the amino acid lysine through a bacterial fermentation using glucose as a feed stock. Two other students have used the equipment for an honors project and a special topics class in fermentation and bioseparations.
Faculty News

Professor John R. Collier joined the Department as professor and department head on June 1. He served as professor of chemical engineering at Louisiana State University. In addition to more than 32 years of full-time college and university teaching experience, Dr. Collier has been involved with industrial consulting projects for major companies including E.I. du Pont de Nemours & Co. and General Electric. He is involved with national and international professional societies and has been elected a Fellow of the American Institute of Chemical Engineers.

Professor John W. Prados was elected a Fellow of the American Society for Engineering Education. The award was presented at the Society's Annual Conference in Charlotte, NC, on June 24, 1999. He also presented an invited talk, "What Mathematicians Should Know About Accreditation Requirements for Engineering Education," at the Seventh Conference on the Teaching of Mathematics in Providence, RI, July 30, 1999 and was the invited dinner speaker at the faculty retreat and accreditation workshop of the University of Texas at El Paso College of Engineering, August 17, 1999.

Assistant Professor Paul Frymier was chosen Outstanding Advisor in the Department of Chemical Engineering for 1998-99. The Outstanding Teaching Award for 1998-99 was given by the ChE Department to Professor John Prados.

Professor Paul Frymier was awarded a $295,334 grant sponsored by the Water Environment Research Foundation (WERF) for his proposal "Toxicity Screening Using Bioluminescent Reporter Technology." The grant will fund the development of a monitoring system that will give continuous, real-time data on the toxicity of wastewater treatment influent from industrial producers. The heart of the system is a bacterial strain engineered at UT to produce light proportional to its metabolic activity level. The system under development will prevent the addition of toxic concentrations of effluent to wastewater treatment plants by allowing for the automatic diversion of high concentrations wastes for later addition at a lower rate.

## Student Awards and Scholarships

### Spring 1999

<table>
<thead>
<tr>
<th>Recipient</th>
<th>Award</th>
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<tbody>
<tr>
<td>Russell Warford</td>
<td>AICHE Outstanding Sophomore Award</td>
</tr>
<tr>
<td>Amy Akard</td>
<td>Dow Chemical Company Outstanding Junior Award</td>
</tr>
<tr>
<td>Sjon-Paul Conye</td>
<td>AIChe Outstanding Senior Award</td>
</tr>
<tr>
<td>Paul Bowers</td>
<td>ACS Outstanding Senior</td>
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<tr>
<td>Jennifer Zurawick</td>
<td>Alpha Chi Sigma Albert Cooper Award, AIChe (Knoxville-Oak Ridge Section) Faculty Service Award</td>
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<tr>
<td>Wesley Heinlein</td>
<td>Kenneth Elliot Scholarship</td>
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<tr>
<td>Susan Cobbs</td>
<td>Kimberly Clark Outstanding Junior</td>
</tr>
<tr>
<td>Andrew Stewart</td>
<td>Eastman Chemical Company Outstanding Junior</td>
</tr>
</tbody>
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Alumni Updates

Note: You can now send us news electronically at alumni@chem.engr.utk.edu

1954
Phipps T. Martin, BS/ChE
Mr. Martin has retired from DuPont as a product development engineer. He is a licensed general contractor and resides in Hixson, TN.

1966
Spencer Snook, BS/ChE
Mr. Snook has been named sales manager for Eastman Chemical Co. in Kingsport, TN. He currently serves as regional business manager, Latin America, Performance Chemicals, and will continue in that position in addition to assuming his new responsibilities. He is a member of the Institute of Food Technologists and Lambda Chi Alpha.

1967
Garry S. Luttrell, BS/ChE
It has been announced by Tennessee Eastman that Mr. Luttrell is a Chemical Engineer Associate; and, by the way, his son, Billy, recently graduated from UT.

1969
Ibrahim D. Abdelrazek, BS/ChE
Since late 1969, Mr. Abdelrazek has been working for Egypt's Atomic Energy Authority (AEA), which is a government R&D organization. He worked on small research projects in several areas (material development, process development, etc.). Since 1993, he has been managing a research reactor project (22MW, light water). He has held several posts at AEA, the last of which is Vice President for Research Projects.

Robert L. Brawley, B.S./ChE
Navy Captain. Brawley recently reported for duty at the Naval Medical Center in Portsmouth, VA.

1971
Virginia C. (Jenny) Butler, BS/ChE, MS/ChE
After graduation, Ms. Butler worked as an environmental engineer at Tennessee Valley Authority in the Air Quality Branch. She did atmospheric modeling and computer feedback controls at the coal-fired steam plants, primarily to control SO2 pollution. She left there after seven years and went completely into computer systems work. She was a software specialist for Digital Equipment Corp. for just over five years. She is now back at UT, but at the other end of the state. She has gone away from chemical engineering, but she has been surprised times how her formal education was used. While at DEC she wrote a functional specification for computerization of an analytical laboratory. Luckily, she knew what those machines did!
1973
Ronald E. Smith, BS/ChE
Mr. Smith has been named superintendent, HSE & Facilities Support for Eastman Chemical Co. in Kingsport, TN. He is a 26-year employee with Eastman and most recently held the position of senior technical associate. Mr. Smith is a registered professional engineer in Tennessee.

1979
Steve C. Odom, BS/ChE
Mr. Odom has been named manager, Acetyl products by Eastman Chemical Co. He is a 19-year employee with Eastman and was previously strategy and business research manager in the Corporate Development and Strategy Division. He and his wife and daughter reside in Kingsport, TN.

1981
Dwight G. Lynch, BS/ChE
Mr. Lynch has recently been promoted by Eastman Chemical Co. to Asia-Pacific business manager for coatings, inks and resins. He has been with East for more than 16 years, and previously served as sales manager, Southeast Asia, ECL World-wide Sales. He and his wife, Susan, reside in Singapore.

1985
Irfan A. Hashmi, MS/ChE
Mr. Hashmi graduated from UT in 1985 with an MS under the supervision of Dr. Carl O. Thomas. Last year he completed his PhD in bioprocessing from Victoria University of Technology, Melbourne Australia. He is very proud of the years he spent in Knoxville.

1987
David L. Reynolds, BS/ChE
Mr. Reynolds has been named sales manager, Chemicals, for Eastman Chemical Co. He has been employed by Eastman for 12 years and was formerly principal product manager and planning supervisor. He and his family relocated to Tokyo in January.

1990
Michael E. Robertson, BS/ChE
Mr. Robertson works at Amoco Polymer's August, GA plant as a production engineer. Since graduation Mike has been a process Safety HAZOP leader, air quality engineer, process engineer, process development engineer, TQM Team Facilitator and twice a production engineer. Since cooping in 1987, Mike has worked for four Fortune 1000 companies in four different states making four completely different products. Mike is a thesis away from completing his Master's in Business Administration from Lamar University in Beaumont, TX. He is married to the former Sandie Conner, employed at UT in the College of Business Development Office. They are the parents of a lovely daughter one year old.
1995
Lee E. Hill, BS/ChE
Mr. Lee is working for Kendall Healthcare Products Company in Seneca, SC. He recently finished a five-month thru hike of the Appalachian Trail.

1997
Nate Spillson, BS/ChE
After graduation Mr. Spillson worked in Boston for Industrial Systems Design (ISD) as a Control Systems Designer. He resigned from ISD last August to start a new company with four other former ISD employees. The new company is called Innovative Process Solutions (IPS). He has been doing work for Biogen, Texas Instruments, Bard Cardiology, and Cyro.

1998
Kevin R. Riggs, BS/ChE
Mr. Riggs is an Open Control Systems Engineer with Honeywell IAC in Houston. His responsibilities include design and implementation of process control systems for the chemical industry. He is married to the former Stephanie Daniels, also a 1998 graduate.

William Lawrence, BS/ChE
Mr. Lawrence is beginning his second year with 3M in St. Paul, MN. He is receiving a solid technical foundation for his future career in 3M's polymer engineering preparation program. He reports using Dr. Wang's statistical design of experiments.

MEMORIAL

Thomas C. Smith, Bs/ChE ’61, MS/ChE ’63
Died January 14, 1999. He served on the UT Materials Science Endowment Committee. He was a resident of Boulder, Colorado.
Special Note

Ida Frances (Sancy) Hail

An organization's character is determined by the attitudes of the people it employs &endash; bureaucratic and indifferent, or caring and concerned. For the past 43 years, Sancy Hail has done everything in her power to make sure that her part of the University of Tennessee exemplified the latter.

Sancy began her career at UT in the Placement Office (now Career Services), where her warm, friendly manner helped ease the pressures on harried interviewers and nervous interviewees. From there she moved briefly to the Department of Special Education and then to the Department of Chemical, Metallurgical, and Polymer Engineering (now Chemical Engineering), where for the past 20 years she has served as Office Supervisor, General Problem Fixer, and Unofficial Mom.

Sancy has been one of those invaluable people who believes in searching for solutions, not excuses, and who gives priority to student needs over faculty and staff convenience. She never hesitated to complain to higher administrators when she thought something was not right. The deep appreciation and affection of "her" chemical engineering students were well chenstrated in the lively going-away parade and luncheon they held in her honor.

UT has been a better place because of Sancy's presence and the example she set. We will miss her!

Another Note

Susan Seymour is now in the ChE office working with Betty Frazier. Susan was in the Associate Dean's office for a short period of time, and we are very pleased that she is with us on a permanent basis. Please come by and greet her when you have a chance.
Chemical Engineering News is published two times a year by the Department of Chemical Engineering of The University of Tennessee, 419 Dougherty Engineering Building, Knoxville, Tennessee 37996-2200. Its purpose is to bring to alumni, friends, students, faculty and industry timely and useful information and news about the Chemical Engineering Department at The University of Tennessee; to encourage interaction with the Department through fundraising, volunteerism, alumni events, continuing education and participation in department programs; to encourage, support and communicate news ideas; and to provide a means for interdisciplinary dialogue between engineering and other related fields of study.

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The University of Tennessee

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The University of Tennessee

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