Message from the Department Head

This has been an exciting year for our department, resulting in the longest Alumni Newsletter ever! The news it contains should be a source of pride in the accomplishments of the students and faculty in your alma mater. We continue to be one of the largest and best chemical engineering programs in the country, renowned for excellence in both teaching and research.

During the 1997-98 academic year, we awarded 124 BS degrees, 14 MS degrees, and 11 PhD degrees. This is one of the largest number of BS graduates ever, and it is a record number of graduate degrees. Our students were recruited on campus by over 70 companies, a strong testimony to the quality of our educational program. The Kenan Center for the Utilization of CO₂ in Manufacturing had a very successful first year, with many new contributions on the use of CO₂ as an environmentally friendly solvent for coatings, polymerization reactions, surface cleaning, and polymer processing. The department continues to be one of the leading institutions in the US in terms of research expenditures in chemical engineering.

Professor Keith Gubbins joined us on January 1, 1998. As a member of the National Academy of Engineering and a world-class investigator in the area of statistical mechanics, his presence should have a significant positive influence in our national rankings. Professors Carol Hall and Keith Gubbins have developed a state-of-the-art computational laboratory in Research Building II, greatly enhancing the department’s presence on the Centennial Campus. The department also recruited Dr. Jan Genzer, who will be joining us in the fall of 1998 as an Assistant Professor. Genzer received his PhD from the University of Pennsylvania and completed postdoctoral appointments at Cornell University and the University of California at Santa Barbara. His research involves polymeric thin films and nanostructures, and we are looking forward to his contributions to our strong polymers research group.

The faculty and students won many awards this year, with recognition coming at both local and national levels. Thanks to the efforts of Kelly Porter, our department development officer, we continued to make great progress in our fundraiser for the renovation of Riddick and in our scholarship drive. As always, we continue to enjoy the support of our alumni, particularly the members of the Alumni Industrial Advisory Board.

As we prepare for the 1998-99 academic year, and our next newsletter, I want to encourage you to fill out the form on the back page and bring us up to date on your activities. I also want to encourage you to attend this year’s College of Engineering Tailgate event on October 10 (NC State/Georgia Tech football game). The department will hold its traditional breakfast for ChE alumni in Riddick, with a pig picking and the football game at Carter Finley Stadium to follow in the afternoon. You will receive a more formal invitation sometime in September. As always, if you find yourselves traveling to the Old Home State, do not hesitate to stop and visit us. We have not lost that Southern hospitality...our doors will always be open to you.

Artists rendering of proposed mezzanine to be built in Riddick high bay area. This view of the mezzanine shows the computer lab. Underneath the mezzanine is the Hoechst Celanese Unit Operations Laboratory. Foundation news begins on page 8.
Felder Wins Teaching Award and Carlson Award

Dr. Richard Felder was a recipient of the 1997 Award for Excellence in Teaching from the University of North Carolina Board of Governors. Felder, who has taught at NC State since 1969, received a bronze medallion and a $7,500 cash prize during a luncheon at the George Watts Hill Alumni Center in Chapel Hill. He was one of 16 winners chosen from each of the 16 campuses in the UNC system.

The annual awards were established in 1994 to underscore the importance of teaching and to recognize the system’s best teachers. The winners were nominated by special committees on their home campuses and selected by the Board of Governors Committee on Teaching Awards. The awards were presented by Board of Governors Chairman C. Clifford Cameron Jr. and then-UNC President C.D. Spangler.

Felder is also the 1998 recipient of the Chester F. Carlson Award, which is awarded annually by the American Society for Engineering Education to “an individual innovator in engineering education who, by motivation and ability to extend beyond the accepted tradition, has made significant contribution to the profession.” Nominees must “demonstrate the ability to recognize the influence of a changing sociological and technological environment on academic customs,” and their accomplishments must demonstrate “creative innovation, responsiveness to need, implementation of a concept, external impact, and effectiveness in overcoming barriers.” Felder received the award at the 1998 ASEE Annual Meeting in Seattle.

These awards are the latest in a long list of honors Felder has received for his innovative, active approach to teaching. He is a member of NC State’s Academy of Outstanding Teachers and a Fellow of the American Society for Engineering Education, and he was named one of five outstanding educators of the century by the ASEE in 1993. Felder and his wife, Dr. Rebecca Brent, serve as co-directors of the National Effective Teaching Institute.

Gubbins and Spontak Join ChE Faculty

Drs. Keith E. Gubbins and Richard J. Spontak joined the chemical engineering faculty in 1997. Keith received his undergraduate degree in chemistry and his Ph.D. degree in chemical engineering from London University. After spending a number of years on the chemical engineering faculty at the University of Florida, he moved to Cornell University in 1976 as the Thomas R. Briggs Professor of Engineering, serving as the Director of the School of Chemical Engineering from 1983-1990. He joins the department as the Worley “H.” Clark, Jr. Distinguished University Professor of Chemical Engineering.

Gubbins pioneered the application of molecular simulation and statistical mechanics to chemical engineering problems, including the prediction of phase equilibria and surface properties. His current interests are in applying these methods to applications involving adsorption and nanoporous materials. He is the coauthor of three monographs and over three hundred papers in these areas. He has received numerous awards for his research, including Guggenheim and Fulbright Fellowships, the Alpha Chi Sigma Research Award of AIChE, and election to the National Academy of Engineering (Gubbins is the third NC State ChE faculty member to be so honored). He also received the College of Engineering Tau Beta Pi Teaching Award (at the University of Florida and at Cornell University) on three separate occasions. He has been a visiting professor at Imperial College London, Oxford University, University of Kent, University of Guelph, University of California at Berkeley, University of Wisconsin at Madison, and Australian National University. Gubbins and his wife, Pauline, reside in Raleigh. They have two grown children, Nicholas and Vanessa.

Spontak received his B.S. degree in chemical engineering from the Pennsylvania State University and his Ph.D. degree in chemical engineering from the University of California at Berkeley (where he shared office space with Benny Freeman!). After a postdoctoral appointment at the University of Cambridge, and a two and one-half year stint in the Corporate Research Division of Procter and Gamble Company, he joined the Department of Materials Science and Engineering at NC State as an assistant professor. In 1997, he was promoted to associate professor, and he accepted a joint appointment with the Department of Chemical Engineering.

Spontak’s research efforts are focused on the design and analysis of microstructured polymers, including block copolymers, polymer alloys and physical gels. He has pioneered the application of novel microscopy techniques, such as transmission electron microtomography and electron spectroscopic microscopy, to nanoscale morphological problems in macromolecular science. Spontak received a Sigma Xi Outstanding Research Award in 1995 and an Alcoa Foundation Engineering Research Achievement Award in 1996. His work has been featured on the front cover of several technical journals including Microscopy Research & Technique, Langmuir (twice) and the Journal of Materials Science. Spontak, his wife, Josie, their six-year old daughter, Danielle, and their two-year old son, Joshua, reside in Raleigh.
Khan Receives Alcoa Research Award

Dr. Saad Khan was awarded the Alcoa Foundation Research Achievement Award during the spring of 1997. Khan has served on the NC State faculty since January 1993. During the three years considered by the Alcoa Foundation Research Achievement Award, the beginning of which almost coincides with the start of his academic career, Saad has demonstrated an extraordinary level of research accomplishment. He has edited a book; published 23 peer-reviewed journal articles or book chapters and 6 conference papers; received 2 patents; presented 22 technical lectures at universities, government facilities, and industrial laboratories; and been invited as a visiting faculty to an overseas university.

Nine Chemical Engineering students are working toward their PhD’s under Khan’s supervision. One student received a master’s degree under him, and one other student is working toward his master’s degree currently. He has supervised two postdoctoral fellows, both of whom have taken academic positions. In addition, Khan generated more than $1.5 million in research funding during the time under consideration. During his brief tenure at NC State, he has developed a research program that rivals those of much more senior rheologists in the U.S. and around the world.

The impact of Khan’s research in the rheology of structured materials is already being recognized at a national and international level. Professor Robert Prud’homme of Princeton University, who is a renowned rheologist, considers Khan as “one of the leaders in rheology of complex fluids.” Among all rheologists in the U.S., Khan was the only one invited to a National Research Council meeting of the National Academy of Science and Engineering in 1995. In this meeting of the National Materials Advisory Board on Aviation Fuel Safety, Khan was asked to discuss his ideas on developing novel fuels with tunable rheology to provide improved fire safety. Unlike traditional rheologists who study only model systems, he has embarked on a research program that deals with real and complex systems that are also technologically very pertinent. He has been creative in not only identifying and tackling unresolved fundamental scientific issues in many of these systems, but taking it a step further in developing new engineering processes.

DeSimone’s Group Receives Presidential Green Chemistry Challenge Award

In 1995, President Clinton announced the Green Chemistry Challenge to “promote pollution prevention and industrial ecology through a new U.S. Environmental Protection Agency (EPA) Design for the Environment partnership with the chemical industry.” As defined by the EPA, green chemistry involves a reduction in, or elimination of, the use or generation of hazardous substances—including feedstocks, reagents, solvents, products, and byproducts—from a chemical process. Carol Browner, EPA Administrator, announced the Green Chemistry Challenge Awards Program as an opportunity for individuals, groups, and organizations from academia, small businesses, industry, and government “to compete for Presidential awards in recognition of fundamental breakthroughs in cleaner, cheaper, smarter chemistry.”

Professor Joseph M. DeSimone led a group of researchers who received the 1997 Presidential Green Chemistry Challenge Award for the incorporation of the principles of green chemistry into innovative synthesis technology. The award is the result of work to develop uses for carbon dioxide as a replacement solvent in existing chemical processes. Only one academic group was honored during the first Green Chemistry and Engineering Conference in a ceremony at the National Academy of Sciences on June 24, 1997.

Fifty-Year Graduates Hold Reunion

Lois Todd, Leonidas Baker, and Scipio Jones organized what will hopefully be the first of many annual reunions of fifty-year-plus graduates from the Department of Chemical Engineering. The reunion was held during the 1998 NC State Alumni Weekend, and the festivities included a Saturday evening reception and dinner for the alumni and faculty members at the Jane S. McKimmon Center. The following alumni and their spouses were present: Virginia and (Col.) Leonidas Baker (BS ’39, MS ’48), Betty and Richard “Scipio” Jones (’47), Betsy Ann and John Lumsden (’47), Ruth and Robert McAllister (’47), Mr. and Mrs. William P. Moore Jr. (’45), Lois Madden Todd (’47), and Ted Todd, Ruth and Gene Mogilnicki (’47), Mary and R. J. Nery (’48), and Claire and Phillip Richardson (’48). Lois Todd also holds the distinction of being the first woman graduate from the department.

Carbonell Testifies Before Congress

Last August, Dr. Ruben Carbonell joined a group of university and business representatives who urged Congress to maintain spending on science research. Carbonell, Hoechst Celanse Professor of chemical engineering and head of the Department of Chemical Engineering, addressed new members of the House Science Committee in a conference on Capitol Hill. The speakers included university presidents, a Nobel Laureate, and graduate students.

The program, “Maintaining America’s Leadership in the 21st Century: The Importance of Science and Technology Research,” was sponsored by Reps. Bob Etheridge-N.C. and Kevin Brady-Texas. It was organized with the assistance of The Science Coalition, a national alliance of more than 400 organizations, individuals, universities, and other institutions.

During the two-hour program, the speakers explained the importance of the federal government’s investment in science and technology research, including the role of research and development in promoting economic growth, creating jobs, and improving the quality of life. In addition to Carbonell, the nine other university speakers included the president of the University of Michigan; the chancellor of the University of California at Santa Barbara; and Dr. Leon Cooper, Nobel Laureate in physics, Brown University.

Roberts Receives NSF/AIChE Awards

Dr. George Roberts has been awarded a two-year National Science Foundation/Lucent Technologies (NSF/LT) Industrial Ecology Research Fellowship, worth up to $50,000 each year. The fellowship program recognizes scientists whose work focuses on helping industry reduce pollution and create environmentally friendly products. Eighteen researchers worldwide received NSF/LT Fellowships in 1997. Roberts will use his funds to test a new technology he’s developed for making hazardous industrial chemicals on site. The technology improves environmental safety by eliminating the need for industries to transport dangerous chemical reactants to and from their plants.

In addition, Roberts has been elected as a Fellow of the AIChE, and he received the AIChE National Student Chapter Advisor of the Year Award for 1996-97. The award was presented at the 1997 AIChE Annual Meeting in Los Angeles.

Grant Receives Ferguson Award

Dr. Christine S. Grant was awarded the prestigious Lloyd N. Ferguson Young Scientist Award from the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) in 1997. Named after a premier chemist, the national award sponsored by Hoechst Marion Roussel recognizes outstanding young scientists in both chemistry and chemical engineering.

Hopfenberg Elected Visiting Fellow at Cambridge

Dr. Harold Hopfenberg, Camille Dreyfus Professor of chemical engineering and director of the Kenan Institute for Engineering, Technology and Science, has been elected a visiting fellow at Trinity College, University of Cambridge, in the United Kingdom. This prestigious academic appointment began in October and will extend through August 1998. While at Cambridge, Hopfenberg will teach and supervise research in the Department of Materials Science and Metallurgy, as well as in the Department of Chemical Engineering. Trinity College is one of the most venerable institutions in the world. It was founded in 1546 by King Henry VIII and has produced 29 Nobel Laureates. Its notable faculty and alumni have included Isaac Newton; Frances Bacon; Lord Byron; Alfred, Lord Tennyson; Jawaharlal Nehru; Niels Bohr; and Bertrand Russell.

Dr. Marcus Martin Delivers Commencement Address

Dr. Marcus L. Martin, professor and chairman of emergency medicine at the University of Virginia, delivered the commencement address at the NC State December graduation ceremony. Martin is a 1971 NC State ChE graduate and founding member of the NC State Board of Visitors. In his speech, “Common Threads,” Martin focused on how graduates of NC State are linked together by the common threads of educational and environmental experiences, love for their alma mater, and pride in the Wolfpack.

Carbonell Garners Major Awards

This time it’s not Ruben, but his eldest son, Tomas. While completing his senior year at Enloe High School in Raleigh, Tomas was selected to receive a Park Scholarship from NC State and a Morehead Scholarship from UNC-Chapel Hill. The Park and the Morehead are the most prestigious and most competitive scholarships available on the two campuses, each offering full tuition plus enhancements. Rumor has it that Tomas has seen the light and will pursue a degree in chemical engineering at NC State.
Freeman Receives Japan Society Fellowship

Benny Freeman was selected to receive a prestigious Japan Society for the Promotion of Science (JSPS) Short Term Invitational Fellowship to present a series of nine lectures in Japan. Only 20 U.S. scientists and engineers are selected each year to participate in this program, and Freeman is the first recipient from the Chemical Engineering Department at NC State.

During the course of this fellowship, which lasted approximately two and a half weeks, Benny visited and presented lectures at six universities (Seikei University in Tokyo, Meiji University in Kawasaki City, Kyoto University in Kyoto, Kansei University in Osaka, University of Tokyo, and Nagoya University of Technology in Nagoya), one company (Diacel), attended and presented an invited lecture at the Japanese Materials Research Society meeting in Makuhari, and presented a lecture for the Aichi Science & Technology Foundation in the Workshop on the High Performance Separation Using Polymeric Membranes. He also established a joint research program with Professor Toshio Masuda of Kyoto University to study gas permeation and separation properties of novel polyacetylene-based polymers. Masuda is a leading expert in the synthesis of such polymers, and Freeman’s lab group has been studying their properties for approximately seven years.

Spontak Receives Humboldt Fellowship

Dr. Richard Spontak has been named an Alexander von Humboldt Research Fellow. Humboldt Research Fellowships are awarded each year to about 500 scholars of all disciplines in a worldwide competition, and approximately 10 percent of those are awarded to engineers. The fellowship enables the recipient to spend a period of at least six months at a German research institute. Rich will pursue joint research on liquid crystalline block copolymers and their blends with thermotropic solvents with Professor H. Finkelmann at the University of Freiburg.

ISPE Provides ChE’s Focus on Pharmaceutical Industry

(Editor’s Note: The following article was provided by Kathie Moell, Chairperson of the NC State student chapter of ISPE.)

The NC State student chapter of the International Society for Pharmaceutical Engineering (ISPE) was founded in the fall semester of the 1995-96 school year. Since that time our chapter has experienced tremendous growth. We have nearly doubled our membership each year and are now close to forty members strong. Chemical engineering students make up the majority of our membership, and we are currently trying to add members from the food science and mechanical engineering departments. ISPE is a national organization that supports engineers working in the pharmaceutical industry. Each month, the NC State student chapter hosts luncheons featuring speakers from the pharmaceutical industry. The speakers focus on their specific work experiences within the industry as well as featured technical topics. These technically based luncheons complement many of the recruiting-oriented luncheons featured by AIChe. In addition to the luncheons, students are invited to attend two tours of pharmaceutical facilities each semester. These tours are sponsored by the professional Carolina Chapter of ISPE and offer great opportunities to see the actual work environment and to meet with professional engineers.

During this school year, our chapter has featured speakers from Glaxo Wellcome; Bayer; Eisai; Clark, Richardson, & Biskup; O’Neal; and Newark Electronics. Plant tours have included Research Triangle Park companies, Biogen, Covance, and Eisai. The chapter also awarded a $1000 scholarship to Chris Wood, a senior in chemical engineering, based on his pharmaceutical project work while co-oping at Glaxo Wellcome. Chris Wood is also the NC State Student Chapter Secretary. The other officers are Kathie Moell, Chairperson; Mike Prazma, Vice-Chairperson; and Matt Pollock, Treasurer. Dr. Steve Peretti serves as our faculty advisor.

The NC State student chapter of ISPE has been a great addition to the chemical engineering department. We hope that it will continue to grow and to offer chemical engineering students more opportunities to learn about the pharmaceutical industry.

ChE Hires Development Officer

Kelly Elder Porter joined the Engineering Foundation at NC State in October as assistant director of departmental development. She is the first development officer hired within the College of Engineering to focus on specific departments. She will work for the Department of Chemical Engineering and the Department of Electrical and Computer Engineering. Her focus is in the areas of individual and corporate major gifts, as well as alumni and industrial relations, and includes a capital campaign of $3,000,000 for renovation of the Riddick Laboratories building. Previously, Porter spent three and a half years with the American Heart Association in Atlanta, Georgia, where she specialized in special event fundraising and nonprofit board administration. Porter can be contacted at NC Engineering Foundation, Box 7901, 229 Page Hall, NC State University, Raleigh, NC 27695, (919) 515-7458.
Chemicals Separated Using CO₂

A new process using CO₂ for separating liquid chemicals from one another has been developed by chemical engineers in the NC State Department of Chemical Engineering. The process involves introducing soap-like surfactants that form a microenvironment into pressured or liquid CO₂, allowing substances normally not soluble in the gas to become soluble. After pulling the desired compound away from the undesirable compound, workers can easily vent the CO₂ to the atmosphere or recycle it for future use.

Dr. Joseph M. DeSimone and his associates have worked to use this CO₂ surfactant process to remove a dye completely from water. They hope the first practical application could come within a couple of years in the textile industry, which yearly releases tons of waste water into the environment. “This work opens the door to using environmentally friendly solvents in this very solvent-intensive process,” DeSimone says.

(Editor’s Note: A version of this article appeared in Chemical Engineering Progress.)

University and Industry Researchers Develop Gas Separation Model

Researchers at NC State University and Air Liquide, Newport, Del., have developed a computer software model for multicomponent gas separation using hollow fiber contactors. An article describing the model appears in the June issue of the AIChE Journal and was selected as the article of the month. The model, developed by Dr. Benny Freeman of NC State, and Mr. D.T. Coker and Dr. G.K. Fleming of Air Liquide, permits simulation of cocurrent, countercurrent, and radial cross-flow contacting patterns with permeate purging. All three coauthors received their BS degree in Chemical Engineering from NC State (Freeman and Fleming, BS ’83; Coker, BS ’97).

The researchers propose a numerical approach that permits simulation to much higher stage cuts than previously published work. The model also provides rapid and stable solutions for cases with many components, even when the mixture contains components with widely varying permeability coefficients. Prior techniques were traditionally unstable at high stage cut for one or more components. Most simulations are completed in approximately one second or less using an ordinary personal computer. The Fortran-based simulator can be run in a stand-alone mode or easily incorporated into common process simulators such as ASPEN or HYSYS. The simulator may be accessed on the World Wide Web at http://www.che.ncsu.edu/membrane. There has been significant industrial interest in the simulator, and several of the world’s leading gas suppliers have licensed it for use as their internal membrane gas separation simulator.

Khan and Kelly Engineer Microscopic Oil Workers

To coax oil and natural gas from dry wells, oil companies inject a thick soup of enzymes, sand, water, and a binding agent, then set off an explosion underground. The blast causes the sand to wedge open cracks, and the enzymes thin the binding agent so that any hydrocarbon liquids in the reservoir can flow. The process would work better if the enzymes could survive at the high temperatures found in many oil and gas reservoirs and not begin hydrolyzing the natural polymers used to carry the sand before injection.

Drs. Saad Khan and Bob Kelly believe they have found the solution — extremozymes. These high-temperature resistant enzymes are produced by extremophiles, microorganisms that live at temperatures above the boiling point of water. If Khan and Kelly are correct, these microscopic agents could turn dry wells into valuable working assets. Research is underway in the Department of Chemical Engineering at NC State, funded by the National Science Foundation, to explore the intricacies of biochemistry and rheology as they apply to this problem.

(Editor’s Note: A version of this article appeared in Popular Mechanics magazine.)

Undergraduates Establish ChE Honor Society

In order to provide a focus for academics in the department, a group of undergraduate ChE students has established the NC State Chemical Engineering Honor Society. This move was the first step toward affiliation with Omega Chi Epsilon, a national organization created to promote research and academic opportunities in chemical engineering. To be chartered as a chapter of Omega Chi Epsilon, a society must be registered on campus for one year. Founding officers of the Honor Society are Michelle Staben, President; Jeremy Bordeaux, Vice President; James Taylor, Secretary; Kevin Chamness, Treasurer; and Eric Johnson, Class Representative. Bob Kelly serves as faculty advisor to the Honor Society.

AIChE Chapter Selected as Outstanding for 1996-97

For the second year in a row, the NC State AIChE Student Chapter was selected as one of several nationally outstanding chapters. The chapter president during the year was John Chambard. According to the AIChE National Headquarters Office, “Chapters are chosen on the basis of participation, enthusiasm, program quality, professionalism, and involvement in the university and community.” The Outstanding Chapter Award was presented at the AIChE Annual meeting in Los Angeles.
Pair Design Toxin Purging Plan

Imagine an anti-pollution system that collects volatile organic compounds (VOC’s) and feeds them to an army of hungry bacteria. Dr. Steven Peretti and Robert Shepherd did, and the result is a system that could reduce pollution and make money at the same time. They have applied for a patent, and NC State has set up Zymotech, a company to market the system.

The team is focusing on the furniture industry, which by law must stop pumping VOC’s into the air. The companies need something that won’t affect production rates or product quality or require big investments in new or refitted technology. Unlike cumbersome systems that use huge filterlike devices to draw chemicals directly out of fumes, the NC State system is compact and adaptable because it condenses the VOC’s before it processes them. The two-step approach extracts the solvents and lacquer used to finish wood furniture from the air, infuses the solvents in oil, and then feeds the oil to bacteria. In the past, factories in western North Carolina pumped untreated solvent vapors into the atmosphere, but amendments to the 1990 Clean Air Act forbid such practices in the future.

Shepherd, a graduate of NC State, approached Peretti with an idea that came to him while he was working in the pollution control industry. Shepherd’s idea impressed his former professor so much that they teamed up to create a system they think will be less expensive and more adaptable than the technology that is now in use. The new technology was financed by furniture companies, but NC State will hold the patent. Shepherd has already been rewarded with the presidency of Zymotech. He has no financing, no factory, and no employees. However, he does get the mail.

Contributions

All gifts in support of the renovation effort in the Chemical Engineering Department at NC State are tax-deductible and should be mailed to:

Chemical Engineering Renovation Fund  
c/o Department of Chemical Engineering  
Box 7905  North Carolina State University  
Raleigh, NC  27695

For more information, please call or write

Ruben G. Carbonell, Head  
Department of Chemical Engineering  
Box 7905  North Carolina State University  
Raleigh, NC  27695  
Phone: (919) 515-2499  Fax: (919) 515-3465  
e-mail: ruben@ncsu.edu

Donation Form

Please make all checks payable to: N.C. Engineering Foundation, Inc. (For: “Chemical Engineering Renovation Fund.”)

Name of donor: ___________________________  Soc. Sec. No.: ___________________________

Home address: ___________________________  State: _____  Zip: _______  Phone: __________

Work address: ___________________________  State: _____  Zip: _______  Phone: __________

Does your company have a matching contribution program for gifts? ________  Company contact: ___________________________

Amount of the contribution: ___________________________  Contribution on behalf of: ___________________________

Preferred use of funds: _____________________________________________________________________________________

Pledge Agreement: I/we, __________________________________, agree to contribute $__________________________ to the Chemical Engineering Riddick Renovation Fund in ______ (# of) payments over a period of ______ (## of) years. Please send my annual reminder during the month of __________. I understand that if my personal circumstances change in any way, I have the flexibility to increase, decrease, or cancel this pledge at any time. I further agree that if I must cancel this pledge, I will notify you in writing of my intent.

Signature of Donor: ___________________________  Date: ___________________________

On behalf of Amoco, John Melton presents a check to the department in the amount of $4,000. These funds provided scholarship support to Alisa Cooper and Paul Yelvington during the 1997-98 academic year.
Riddick Renovation Campaign Update

Riddick is being renovated!!! Already named facilities within Riddick are the Hoechst Celanese Unit Operations Laboratory and the BASF Lecture Hall. More naming opportunities exist. Act now before your company is left in the dark.

Opportunities for naming:
- Mezzanine
- Computer Room on Mezzanine
- Graduate Student Offices on Mezzanine
- Classroom of the Future (2)
- Shop Facilities on Lower Level of Unit Operations Laboratory (2)
- Wet Benches on Lower Level of Unit Operations Laboratory (2)
- Individual Research and Analytical Laboratories within Riddick (10)
- Individual Laboratory Equipment or Analytical Equipment

Naming benefits:
- Students gain familiarity with your company and will identify your company as a leader in engineering;
- Your company will receive permanent, high visibility and positive exposure with students and faculty;
- Your contribution will provide new facilities with the latest technology and help attract top students to NC State; and,
- Your company will be investing in the graduates that it hires.

By giving our graduates the best learning and research environment, your company will become a partner with NC State in building a solid educational foundation that will ensure the academic excellence of the department and its graduates in the years to come. These renovations will carry Riddick well into the next century and will allow the department to continue to conduct innovative research and maintain its leadership in chemical engineering education. Your company will have the satisfaction of providing a direct impact on the quality of students, thus becoming an important and widely recognized stakeholder in the future of the College of Engineering at NC State.

Please call Kelly Elder Porter in the Engineering Foundation, (919) 515-7458, for further information regarding naming opportunities within Riddick.

Artist’s rendering of the proposed BASF Lecture Hall.

BASF Corporation Donates $125,000 to Name Riddick 11 Lecture Hall

BASF Corporation has pledged $125,000 to the needed renovation of Riddick 11, the auditorium in the basement. Many remember the 80-seat lecture hall, which is currently in desperate need of updating. The BASF Lecture Hall will become a modern classroom with multimedia and telecommunications capabilities. The newly expanded BASF Lecture Hall will hold more students and will have added handicap accessibility. The renovations will also include needed improvements of utility piping, windows, heating and air conditioning and electrical service. “The renovation of Riddick 11 is desperately needed. After the auditorium is updated, it will be used more often by professors to teach classes and to hold departmental seminars,” said Dr. Ruben Carbonell, Hoechst Celanese Professor of chemical engineering and head of the Department of Chemical Engineering.

Many thanks to BASF Corporation and to BASF employees Larry Blair, Jerry Briggs (ECE ’65), Mike Finley, Gary Gibson (ME ’62), Diane Kent (TMM ’82), Harold McDonald, John Sullivan, and Phillip Wilson (ChE ’88) for helping to attain this shared vision.

BASF Corporation is one of the world’s leading chemical companies, achieving sales of $32 billion in 1996 with more than 100,000 employees worldwide. They have supported the College of Engineering annually by giving unrestricted gifts to the chemical engineering and mechanical engineering departments. BASF’s pledge brings the Riddick Renovation Campaign total to $632,857. The goal for the Riddick Renovation is $3,000,000.
Members of the Frank Seely Society become an active partner with NC State in building a solid educational foundation that will ensure the academic excellence of the Department of Chemical Engineering. By helping to educate future NC State chemical engineers, we will enhance the value of the degree we hold. Please join us in making this worthwhile project a success.

Thank You to Our Members

GOLD - $15,000
- Mike Killian (BS ’68)

SILVER - $10,000
- Norvin Clontz (BS ’65, MS ’67, PhD ’69)
- Rolf Kaufman (BS ’52, MS ’55)
- Alan Weinberg (BS ’63)

BRONZE - $5,000
- Mack Bailey (BS ’68, PhD ’73)
- Jim Bray (BS ’69)
- Charles Brock (BS ’71)
- Tim Calnon (BS ’68)
- Ruben Carbonell
- Wayne Day (BS ’65)
- Robin Enscore (BS ’80)
- Eugene Erickson (PhD ’57)
- James Ferrell (PhD ’54)
- Randy Jester (BS ’75, MS ’77)
- Russ O’Dell (BS ’75, PhD ’78)
- A.W. Stafford (BS ’49)
- Jim Tyson (BS ’76, MS ’78)
- Joseph Voss (BS ’64)

List updated May 1, 1998.

Please contact Kelly Elder Porter in the Engineering Foundation, (919) 515-7458, for further information on how to enroll in the Frank Seely Society, or simply fill out and send in the donation form on page 7 of this newsletter.

Cryovac and Cryovac Employees Contribute $27,800 to Riddick Renovation

Many thanks to Cryovac and Cryovac employees who recently contributed $27,800 to the Campaign to Renovate Riddick Laboratories. Thanks to Jim Smeaton (’66) and Alan Weinberg (’63), who helped kick-off the Cryovac campaign. Thank you also to alumni who contributed, including Robert All (’92), Larry McAllister (’75), Dennis McNeill (’96), Nathaniel Miranda (’94), Tina Lorenzo Moore (’82), Misty Nance-Gause (’86), and John Wolf (’95), as well as Jim and Alan. Cryovac, a division of Sealed Air Corporation and headquartered in Duncan, SC, is considered to be a global leader in providing flexible food packaging materials.

Five companies have donated equipment valued at more than $124,000 for the Riddick Renovation Campaign. They include Badger Meter, Inc.; Micro Motion, Inc.; MTS Systems Corp.; Reichhold Inc.; and Yakagawa Industrial Automation. Representatives attended a recent reception in their honor. Shown left to right: Philip Ashkettle, Bruce Jensen, Dennis Euers, Martin Navratil, Jeff Crawford, Tom Craig, Stan Calame, Jody Branhm, and Dave Christie.

Many considered J. Frank Seely as the heart of the department for four decades. He earned his undergraduate degree in chemical engineering at NC State in 1938. He was much loved and highly respected as a dedicated teacher and caring advisor.

The Frank Seely Society was created to honor individuals who contribute more than $5,000 to the Riddick Renovation Campaign. The benefits include an invitation to a special dinner once a year at the house of department head Ruben Carbonell, a recognition plaque, name placed on a recognition board in Riddick Labs, and recognition in the annual Chemical Engineering newsletter.

J. Frank Seely, in typical pose with signature bow tie and cigar, was considered the heart of the department for four decades.
Awards and Honors

The following awards and honors were earned by faculty and students in the department over the past year:

Faculty

• Rich Felder received the 1997 Wickenden Award for the Best Paper in the Journal of Engineering Education from the American Society for Engineering Education.

• Benny Freeman was one of 17 NC State faculty who received 1996-97 Outstanding Teacher Awards in recognition of their contributions and performance in the classroom. Freeman also garnered the United Technologies Excellence in Teaching Award and he was named to the NC State Academy of Outstanding Teachers.

• In March 1997, Carol Hall delivered an invited talk as part of the Distinguished Lecture Series in Chemical and Biochemical Engineering at Rutgers University. The presentation was titled, “Towards a New Equation of State for Hydrocarbons and Polymers.”

• Bob Kelly was selected as one of three NC State Alumni Outstanding Research Award recipients for 1995-96.

• Saad Khan and Greg Parsons were promoted to associate professor with tenure.

• David Ollis received an Alumni Association Distinguished Graduate Professor Award for the 1997-98 academic year.

• One of Rich Spontak’s micrographs was featured on the front cover of Langmuir (1997). The image was a transmission electron microtomograph of the L3 sponge morphology in a block copolymer blend. Also, Rich’s rubber-toughened PMMA project was a winner in the NC State College of Management Technology Commercialization Competition. As a result, Rich will receive support to complete a business plan for the project.

Graduate Students

• By mid-summer 1998, Dave Dudek should be the first NC State graduate student to have completed requirements for both a PhD in chemical engineering and a Master of Science in Management. The requirements for both degrees are being completed concurrently.

• Chae J. Han received the Best Student Abstract Award at the 1997 Annual Meeting of the Society for Industrial Microbiology. Chae is a ChE PhD candidate minoring in biotechnology under the supervision of Bob Kelly. His current work is focused on characterizing stress response at cellular and subcellular levels of extremely thermoacidophilic microorganisms under thermal and chemical stress.

• Mike Hicks and Mike Bauer were first and second place winners, respectively, of the 1998 Schoenborn Award. The award, intended to honor outstanding graduate students in the department, is based upon students’ academic records, research productivity, and quality of technical presentations associated with the award competition.

Undergraduates

• Timothy Anderson earned a second place award during the Student Paper Contest at the 1997 Southern Regional Conference of AIChE Student Chapters in Charlotte, NC. The title of his paper was “Silicon Nitride Dielectrics Deposited at Very Low Temperatures by Plasma-Enhanced Chemical Vapor Deposition (PECVD).” Tim also was selected to receive a Special Recognition Award for his poster at the Sixth Annual NC State Undergraduate Research Symposium during the spring of 1997.

• Tylisha Baber, Venceta Butler, and Christopher Edmond received 1998 NSBE Scholar Awards from the National Society of Black Engineers. Recipients are selected on the basis of academic achievement and service to NSBE and for demonstrating professional promise. The award includes a $1500 scholarship and a summer internship with one of NSBE’s corporate members.

• Joey Baker, Octavia Brauner, and Jackie Mullen presented technical papers at the 1998 Southern Regional Conference of AIChE Student Chapters in Orlando. Octavia’s paper and presentation, “Ceramic Fiber Reinforced Polymer Matrix Composites” earned the first place award in its section, and Jackie’s paper and presentation, “Thermodynamics of Methacrylate Synthesis from Methanol and a Propionate” earned a third place award in its section.

• Sharon A. Chung, Wuchieh J. Jong, Brian G. Lockamon, Valerie I. Pai, and Donald W. Pulliam Jr. were among the 30 valedictorians in the May 1997 class of 2,675 NC State bachelor’s degree recipients. Valerie J. Vonnah was one of five students with a 4.0 GPA to graduate in December 1997.

• Trevor Hoskins was selected as a recipient of Corning Incorporated’s Dr. F. W. Schultz, Jr. Diversity Scholarship.

• Alexis Mei was elected as President of the NC State Student Senate for the 1998-99 academic year.

• Donald W. Pulliam, Jr., received the 1997 College of Engineering Senior Award for Humanities, which is jointly awarded by the College and the Engineers’ Council.

Alumni News

THE THIRTIES

• Samuel A. Flint (’38) is fully retired and living in Hampstead, NC.

• Frank J. Hodges has been retired from Dupont for 24 years and has lived in Antioch, Ca., since 1956. Antioch is a small town about 40 miles east of San Francisco. Frank and his wife don’t travel anymore but are active in local organizations and with their friends and neighbors.

THE FORTIES

• J. Albert Rolston had a varied career after graduating in 1941. He worked less than a year at Hercules Powder Co. before being called to active duty in the U.S. Army. He saw service in the infantry and air corps and finally overseas as a navigator on a B-29. After completing his military service, he completed a master’s degree in chemical engineering at NC State, and taught metallurgy at NC State and at the University of Virginia during the fifties. In his last few years at UVA, he learned about the world of fiberglass composites and has been working with that technology ever since. He joined the Owens-Corning Technology Center in Ohio in 1964 and took early retirement in 1976. He began a consulting practice (J. Albert Rolston, P. E., and Associates) at that time and is happy to report that he’s been “reasonably successful” with that work for the last 21 years. The Lightnin’ SX line of mixers is “one of his babies.” He likes his work and stays fairly busy. In April
1997, he spent a week with a new client in Santiago, Chile. He hopes to continue doing more work in Chile, along with a project to develop a fiberglass replacement for large reinforced concrete beams in a major chlor-alkali plant for a client in Virginia. His principal gripe is that his earnings are taxed, his social security is taxed, and he’s continuing to have to pay into the system.

THE SIXTIES
• William Lawton (’68) was elected in November 1996 to his second full term as a District Court Judge in Wake County. He was initially appointed to that position in October 1991.

THE SEVENTIES
• Viney Pal Aneja (PhD ’76) has been selected to receive the 1998 Frank A. Chambers Award of the Air and Waste Management Association. The award will be presented at the 91st Annual Meeting and Exhibition of the Air and Waste Management Association in San Diego, Ca., on June 18, 1998, at the honors and awards luncheon. The Air and Waste Management Association is the largest air pollution organization in the world, with a membership exceeding 15,000 members in 65 countries. The Frank A. Chambers Award is the highest honor bestowed by the association for achievements in air pollution/air quality science and technology. It requires accomplishment of a technical nature which is considered to be a major contribution to the science and art of air pollution control, the merit of which has been widely recognized by persons in the field. The coverage is intentionally broad since it is expected to recognize achievement in any line of technical endeavor in air pollution, from pure research to applied science.

• Frank Louzek (’72) accepted a new position with Robert and Company, an engineering, architect, and planning firm in Atlanta, Ga. Any NC State alumni in the Atlanta area can contact him at 404-876-2433.

THE EIGHTIES
• Jim Caudill (’86) graduated from Duke University with an MBA in 1993. Since graduation, he has worked with the Strategic Services (management consulting) group in Andersen Consulting’s Atlanta office. Jim and his wife, Caroline, live near Atlanta.

• Thad Leister (’87) is the Environmental, Health, and Safety Manager for General Electric’s Silicone Division, based in Waterford, NY. He lives there with his wife, Mary, a Duke University graduate who is now a graduate student in Environmental Engineering at Rensselaer Polytechnic Institute. (“Friends, please e-mail me at Thad.Leister@GEPEX.GE.com”)

• Lula Harris Melton (’84) is currently employed as an Environmental Engineer with the U.S. Environmental Protection Agency in the Environmental Standards Division in Durham, NC. She married Dr. Mark Melton (UNC-CH alumus) on November 5, 1994.

• Gregory Keith Morris (’80) is working as a process engineer with Hoechst Celanese in Charlotte, NC. He has also published his first novel, ZON, written for motivation of his son and others to read. Greg was recently awarded the Volunteer of the Year for his service at Cochrane Middle School and the Communities in School programs. He will be speaking at Johnson C. Smith University as part of the Novello Reading Series this year.

• Tim M. Owen (’82) is now the Director of Quality for the Label Group of the Sonoco Printed Packaging Division, headquartered in Atlanta, Ga.

• Jay Weikel (’88) joined the DuPont Company after graduation and enjoyed assignments in several business units. He completed his MBA at the University of Delaware in 1994. He joined NYE Lubricants in 1995 as the Southeast Engineering Manager and lives in Charlotte with his two boys, Josh, 6, and Zack, 4.

• Charles D. Wells (’87) completed a residency in internal medicine in June 1995 at Emory University and then entered the Epidermic Intelligence Service at the Centers for Disease Control working in international field epiderimologic research and outbreak investigations. He will return to Emory University this July to start a clinical subspecialty fellowship in infectious diseases.

THE NINETIES
• Leslie Allen (’94) joined Hoechst Celanese in May as Waste Treatment Operations Engineer at the Celco Plant in Virginia. Previously, she worked for Radian in RTP. Her husband, Kurt, a veterinarian, is leaving private practice to join her in Blacksburg. He will be entering a graduate program at the Virginia Tech Veterinary School.

• Angela D. Hall (’96) is currently employed by American Coating Technologies in Greenville, NC, as a Quality Engineer.

• Marc Dale Hamilton (’92) is Section Chief with DEECO Inc., an environmental source sampling company. He monitors gaseous emissions at various plants/processes for regulatory compliance and/or process optimization purposes. He job-costs, coordinates personnel, field manages, and writes technical reports for clients and/or state agencies.

• Christopher H. Nelli (’91) has just started his first real job at Huntsman Corp. in Austin, Tx, after graduating in May 1997 with a PhD from the University of Texas at Austin, “thus ending 10 years of college!” He says to tell his former classmates to look him up if they ever plan to visit Austin.

• Jerry R. Piercy Jr. (’91) married Jennifer Parr (’94) on December 30, 1995. Both are leaving Procter & Gamble in August so that he can pursue an MBA from the University of Virginia’s Darden School of Business. Jennifer is currently pursuing employment in the area.

• Ronald B. Tucker (’90) is currently a Production Systems Manager at Procter & Gamble’s Green Bay-Fox River Plant. He is responsible for the production and people on two converting lines that make Bounty Paper Towels (“#1 paper towel in the world!”). He and his wife, Ronda, have four children, ages 5, 4, 2, and 1. One of the two plant managers he works for is Terrence Moore, who is an NC State ChE graduate.

• Jamie Watts (’93) has been working for Rohm and Haas in Deer Park, Texas, for the last four years as a process engineer. Valerie Foskit and Tammy Knight also work for Rohm and Haas in Deer Park. He also stays in touch with Alp Refik (’92).

• Lara L. Venter (’97) is working in the Integration Department for Intel in New Mexico. She works with Rich Lutz and came back to NC State the first week of October 1997 to recruit both interns and class of 1998 graduates.
Alumni Information - Fall 1998

Name ___________________________________________ Class/Degree ___________________________

Home Address ____________________________________________

Work Address ____________________________________________ E-mail ______________

Tell us about yourself. (What are you currently doing? What other ChE alumni do you work with or hear from? etc.)

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Do you have any photographs, ancient or modern, that would enhance the alumni newsletter?

Please return this form to: Dr. Ruben G. Carbonell
Department of Chemical Engineering
Box 7905
North Carolina State University
Raleigh, NC 27695-7905
FAX: (919) 515-3465

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