A Short History of the Chemical Engineering Department

The following article was drafted by Jim Ferrell and Ruben Carbonell and edited by Richard Felder, in anticipation of the Department’s 75th Anniversary celebration of the awarding of its first Bachelor of Science degrees in 1925.

From its beginning 75 years ago, with one faculty member, no space, no budget, but with a group of capable and enthusiastic students, Chemical Engineering at North Carolina State University has evolved into the leading department in the Southeast and one of the leading departments in the country.

The first major period in its development began with the establishment of the Department in 1924 and the appointment of E.E. Randolph as the first department head and continued through most of World War II to 1945. Randolph was the only faculty member for much of this period and the only continuous member, since no other faculty member served for very long. The program was not accredited, the facilities were not very good, most of the courses were descriptive and qualitative, and while the department awarded a number of masters degrees, there was essentially no research program. However, this period was a very important part of the departmental history.

Randolph, by himself for all practical purposes, developed a very strong department, and for much of the 1930s, Chemical Engineering was the largest department at NC State College. Many graduates of this period became distinguished chemical engineers: Arthur P. Moss (1932), Vice President of Union Carbide; F. Perry Wilson (1936), Chief Executive Officer of Union Carbide; Fred

Riddick Renovation Campaign a Success

The Department of Chemical Engineering is pleased to report that we closed out the Riddick Renovation Campaign in June 2000. Because of the generous support of our alumni and many corporate friends, we have raised close to $1,000,000. We consider this renovation campaign a huge success in light of the fact that its focus changed twice during the past five years, the last change occurring in the fall of 1998. As a result of the changes, only the most immediate and necessary renovations in Riddick have been completed. Please stop by Riddick Laboratories and see the new state-of-the-art BASF lecture hall as well as the renovated student lounge, computer laboratory, and main office.

We’re now looking forward to changing our focus to outfitting the new buildings on Centennial Campus (see Message from the Department Head). We know we have strong support from our alumni and the corporate community, and we’ll continue to build these strategic relationships as we plan our move to the new facilities. Thank you again to all who have contributed to this campaign and who continue to support the Department’s many fundraising needs.

(see History, page 8)
Bullard, Haugh, and van Zanten Join the ChE Faculty

During the time since the last issue of this newsletter was printed, three new faculty members, Lisa Gardner Bullard, Jason Haugh, and John van Zanten, have joined the Department. Two of these newcomers, Lisa and Jason, earned their BS ChE degrees at NC State before moving on to other institutions for graduate study. (Who says you can’t go home again?)

Lisa, a native of Garner, NC, and a John T. Caldwell scholar, completed her BS in chemical engineering at NC State in 1986. She obtained her PhD in chemical engineering from Carnegie Mellon University in 1991, working with Professor Larry Biegler in the area of computer-aided process design and optimization. She was employed at Eastman Chemical Company in Kingsport, TN, from 1991 to 2000, with diverse assignments in process engineering, plant engineering, quality management, business process improvement, and business market management.

Her primary departmental responsibilities as a teaching assistant professor will be in the areas of undergraduate teaching and advising. She taught CHE 225 during the 2000 first summer session and is scheduled to team teach CHE 205 in parallel with Rich Felder during the 2000 fall semester. Lisa will also assume the responsibilities of the ChE Coordinator of Undergraduate Advising upon Hubert Winston’s retirement in December 2000.

Lisa is a registered professional engineer in the state of Tennessee, and was named Tennessee Young Engineer of the Year in 1999. She was awarded a DuPont PhD Graduate Fellowship (1987-91) as well as a Tau Beta Pi Graduate Fellowship (1987). She is married to Michael Bullard, an NC State civil engineering graduate employed as a senior principal engineer at Hazen and Sawyer, and they have a five-year-old daughter, Meredith.

En route to receiving his BS in chemical engineering from NC State in 1994, Jason was a Caldwell Scholar, a member of the NC State Fellows leadership program, and a co-pleditorian. After receiving a graduate fellowship from the National Science Foundation, he received his PhD in chemical engineering from the Massachusetts Institute of Technology in 1999, under the direction of Douglas Lauffenburger. Following a ten-month post-doctoral appointment as an NIH Fellow in the laboratory of Tobias Meyer in the Department of Cell Biology at Duke University (Professor Meyer’s lab has since moved to Stanford University), Jason began his appointment as an assistant professor in May of this year. In early August Jason learned that he was the only chemical engineering faculty member in the country to receive a prestigious Camille and Henry Dreyfus New Faculty Award.

Dr. Haugh’s research is in the area of biochemical engineering and biotechnology. His laboratory investigates chemical reaction networks that are used for integrating information and prompting decision-making by mammalian (e.g. human) cells. These signal transduction mechanisms are regulated in a complex manner, both temporally and spatially, and are of keen importance for the design of targeted therapeutic strategies and other biomedical applications.

More information regarding Jason’s research interests and the activities of his research group can be found on the departmental website at http://www.che.ncsu.edu/faculty_staff/jmh3.html. Jason and his wife, Ruthie, also an NC State alum, and their newborn daughter, Carly Nan, reside in Apex.

Dr. John van Zanten completed his undergraduate education in chemical engineering at UCLA in 1986. A year later he started his graduate work, also at UCLA, working under the supervision of Professor Hal Monbouquette (NC State PhD ’87), and he completed his PhD in 1992. After spending three years in the Polymers Division of NIST (the first two as a National Research Council Postdoctoral Fellow), John joined the Department of Chemical Engineering at Johns Hopkins University in the fall of 1995. After nearly four years at Johns Hopkins, he joined the Department of Chemical Engineering at NC State in August 1999.

John’s research focuses on applications of colloid, polymer, and surfactant science to nontraditional areas. His research group is currently focusing on the following topics: Brownian motion in viscoelastic media, nonviral gene delivery vector development, polymer-supercritical fluid solutions, and inorganic glass-polymer interfaces. While the major part of his group’s work involves experimental approaches, there are also computational and theoretical efforts underway.

John received an Early Career Faculty Development (CAREER) Award from the National Science Foundation to support his research on Brownian motion in viscoelastic media. Other awards include the UCLA-AIChE Outstanding Senior Award, Rand-UCLA Predoctoral Fellowship, UCLA School of Engineering and Applied Science Outstanding PhD Student Award, NRC Postdoctoral Research Associateship Award, Robert J. Pond Sr. Award for Excellence in Undergraduate Teaching (Johns Hopkins), and the Johns Hopkins Alumni Association Excellence in Teaching Award. Details about John’s research interests and the activities of his research group can be found at the following site: http://www.che.ncsu.edu/faculty_staff/jvz3.html. John, his wife, Heidi, and son, Eli, reside in Cary.
To that end, Kelly plans to expand the Biotechnology Program’s focus in five key areas: economic development and business recruitment; research partnerships; increased external support to fund improvements for on-campus research, teaching programs and facilities; the creation of a campuswide, laboratory-based undergraduate major in biotechnology; and statewide public education about biotechnology. “I’d like to see NC State get out in front of the effort to educate the public about what biotechnology is,” he says.

“Controversial or not, biotechnology is having more and more impact on our lives — in food production and agriculture, medicine, waste management, and dozens of other critical areas. Our citizens need better information so they can make informed, intelligent decisions about it. One place to start is by making sure our students understand the technical and ethical issues relating to biotechnology.”

Kelly is one of the pioneers in a new area of biology and biotechnology research that focuses on extremophiles — microorganisms that inhabit brutally harsh environments such as arctic waters, deep sea volcanoes, the Dead Sea or, possibly, the subsurface of other planets and moons. In addition to their novel scientific attributes, enzymes extracted from these organisms have been shown to have tremendous biotechnological potential as catalysts in industrial processes. Kelly’s research has shown that these so-called “extremozymes” could be used for applications ranging from oil and gas well production to food production and pharmaceutical manufacturing.

He succeeds Dr. Mark Conkling, associate professor of genetics, as the Biotechnology Program’s director.

Milestones

- The ChE enrollment was approximately 25 for the 1925-26 academic year.
- The Department received its first accreditation from the Engineering Council for Professional Development (ECPD) for the 1948-49 academic year.
- The Department, with nine faculty members, moved to Riddick Laboratories during the summer and fall of 1950.
- Average starting salary for the BS recipients was $901 per month in 1970.
The 1999-2000 academic year was a period of major change for the Department of Chemical Engineering in almost every aspect of its operations. As I sit down to write this, I find it hard to believe that a year has passed since I was initially named interim department head last August and appointed head effective January 2000. The Department has expanded and added new faculty, new programs, new space and new infrastructure. These additional resources will enable the Department to continue its quest for excellence at the highest level in the areas of academics, research, and curricular program development.

This year the Department awarded 114 BS degrees, 20 MS degrees, 1 Master of Chemical Engineering degree, and 8 PhD degrees. Two of the May BS ChE graduates were NC State valedictorians, and a significant number of our BS graduates indicated their intentions to pursue graduate study. As we had expected, the Department’s ABET accreditation was renewed as a result of the visit and program review that were conducted in the fall of 1998.

For the fourth year in a row (the fifth time in six years), the AIChE student chapter was selected as one of several nationally outstanding chapters. The award was given in recognition of our membership and the participation of our students and faculty, the quality and quantity of our meetings and activities, and our chapter’s involvement in local, regional, and national events.

Under the leadership of Rich Spontak and a major team of faculty, graduate students, and Sandra Bailey, our graduate secretary, we had a very successful graduate-recruiting program. Of 28 entering students, 27 are PhD candidates and 7 to 8 of them received competitive fellowships, which will fully fund their graduate studies.

In addition to the successful graduate-recruiting program, our department continues to attract outstanding new faculty as well. The newest addition to the Department is Jerry Spivey from Research Triangle Institute (RTI) as a research professor. Jerry joined the Department this past summer and is teaching ChE 330/331, the unit laboratory course, this fall. He will be compensated primarily from research grants and contracts, and we look forward to Jerry’s contributing to the Department in his primary research area, catalysis.

In the spring of this year, Lisa Gardner Bullard joined the Department as a teaching assistant professor with primary responsibilities in undergraduate teaching and advising. Lisa received her BS from NC State, graduating as a valedictorian in 1986, and her PhD from Carnegie Mellon with Larry Biegler. She spent ten years with Eastman Chemical in Kingsport, Tennessee. Lisa already has made an impressive impact on our students receiving high marks in ChE 225 during the first summer session.

Our faculty members also continue to receive state and national recognition. Keith Gubbins was the winner of the 2000 William H. Walker Award for Excellence in Contributions to Chemical Engineering from the AIChE. Joe DeSimone was the recipient of the O. Max Gardner Award, the highest faculty honor presented by the Board of Governors of the University of North Carolina system. Joe also received the 1999 Phi Lambda Upsilon Fresenius Award in recognition of “high scholarship and original investigations in pure and applied chemistry” by a faculty member under the age of 35 at the time of nomination. Joe is the first North Carolina scientist to receive this national honor. Benny Freeman was awarded the 2000 Alcoa Foundation Engineering Research Achievement Award in recognition of his research efforts in the field of small molecule transport in polymer membranes. Drs. Christine Grant and Steve Peretti received the largest grant ever in the National Science Foundation’s Research Experience for Undergraduates (REU) program.

Additional faculty appointments include Bob Kelly’s being named director of the NC State University Biotechnology Program. The Biotechnology Program coordinates research and teaching by more than 100 NC State faculty members in fields as diverse as food science, genetics, botany, chemical engineering, and veterinary medicine. It also implements biotechnology training for hundreds of NC State students, faculty, and staff members, and it works with off-campus partners to facilitate biotechnology-oriented research and economic development. I am also pleased to announce that Peter Fedkiw has accepted the...
appointment of associate department head along with Benny Freeman. In December we will say goodbye to our colleague Hubert Winston as he takes a much-deserved retirement from almost 20 years with the University. It is through Hubert’s direction and editorial acumen that this newsletter is published each fall. We will not only miss his skills but also his leadership within the Department and his guidance of our many students.

In this issue of the newsletter, we are highlighting the history of our department. We are doing this because we have come to a milestone in the Department’s history as we prepare to celebrate 75 years of the Department of Chemical Engineering. We celebrate not only the Department’s administrative history but also the history that has been made by the research achievements of the many outstanding faculty who have taught and worked in Riddick Laboratories. We have much to be proud of and much to look forward to in the future.

Our success, though, is not just from outstanding faculty and research; it is a result of our graduates who have gone into the world and made an impact on industry and society. In addition to your continued support of the Department, whether it is through your annual fund gift, your membership in the J. Frank Seely Society, support of Riddick Renovation, or a new scholarship such as the one established by Quint Barefoot, ’68, you enable us through all of these things to hire outstanding faculty and provide equipment and facilities to remain one of the top chemical engineering departments in the country.

As we take time to look back, we are also planning for the future. As has been reported in previous newsletters, the Department of Chemical Engineering is slated to be one of the first departments within the College of Engineering that will move to Centennial Campus. An important part of this move is going to be determined this fall as the University Bond Referendum is placed before the voters of North Carolina. The impact on the Department of a positive response to this bond referendum is enormous. We are very excited about the prospect of moving into a new 75,000+ sq. ft. facility (41,000 for Chemical Engineering) that will include state-of-the-art classrooms, research labs, and faculty offices. We have also been able to provide Bob Kelly and Benny Freeman with world-class research laboratories and office space in Partners Building II on Centennial Campus, freeing up space in Riddick for new faculty and research. We hope to have all of Chemical Engineering on Centennial Campus by 2005. If you would like to learn more about the Department’s move to Centennial Campus or the bond referendum, please feel free to contact me directly or join us for the 75th Anniversary Celebration and see firsthand what the future may hold.

I am deeply saddened to report the recent passing of Rosemary Robinson, our departmental word processor over the past several years. Rosemary was an outstanding member of our staff and offered a courageous witness as she simultaneously fought a debilitating terminal illness and maintained the best attendance and service of our entire staff. In her honor, we are instituting the Rosemary Robinson Memorial Service Award and will be honored to announce the first recipient in our next newsletter.

I want to close by thanking our alumni and corporate partners for your generous support of the Department and our programs. The next decade and century are going to be times of exciting growth for Chemical Engineering and the University. Part of my vision for the Department over the next five years includes not only the move to Centennial Campus, but also the addition of new faculty, a renewed curriculum, and a faculty-student-alumni mentor program. My door is always open for alumni, whether you want to reminisce, make suggestions, or just say hello. If you cannot join us for the 75th Anniversary Celebration, please plan to come back to campus another time, and we will be happy to give you a tour of the old and the new within your department.

Peter Kilpatrick

New Mentor Program

What did you want to be when you grew up? Do you remember wondering what options there were for you to pursue with your new chemical engineering degree? Where has your degree taken you? Whom did you look to for advice when you were still a student? Did you wish you could have contacted ChE alumni to learn their advice? Today there are more choices than ever for students earning a degree in chemical engineering, which leads to more questions than ever.

As a result of a survey this past spring of student AIChE members, the Department of Chemical Engineering is developing a new mentoring program for undergraduate students. Students will be paired with a faculty mentor as well as given the opportunity to contact alumni who volunteer to participate in the program. Whether you’re retired, established in your career, or have recently graduated, the students would like to have your advice and guidance. If you’re interested in serving as an alumni mentor and would like more information, please contact Carla Abramczyk by e-mail at carla_abramczyk@ncsu.edu or by phone at (919) 515-7458.

This year we awarded 114 BS, 20 MS, 1 Master of ChE, and 8 PhD degrees.
Freeman Receives ALCOA Research Award

Dr. Benny D. Freeman was awarded the 2000 Alcoa Foundation Engineering Research Achievement Award. The award is a recognition of Dr. Freeman’s research efforts in the field of small molecule transport in polymer membranes. These membranes are used in applications such as liquid, gas, and vapor separation processes, controlled drug delivery devices, barrier plastics for food and specialty packaging, and monomer and solvent removal from formed polymers, and his pioneering research has led to new insights regarding the optimization of properties in high performance membranes.

Professor Freeman is at the forefront in developing new polymer membranes with radically different properties than existing membranes. Most notably, his research group has discovered that many members of the class of polymers known as substituted polyacetylenes are more permeable to large vapor molecules than to smaller gas molecules such as H₂, O₂, or N₂. His research is capitalizing on this discovery to develop a library of vapor selective polymers for use in chemical and petrochemical processes. This work promises to provide new polymer membrane materials that have separation characteristics opposite to those that have been used commercially in the past, and it permits high performance separations that were not previously possible with membranes.

Consistent with his exceptional experimental achievements, Benny has been extremely productive academically, publishing prolifically (73 publications total during the past five years, 56 refereed), coediting two books (one on gas separation with polymers, the other on membrane formation and modification), and presenting more than 100 lectures at leading institutions and conferences around the world. His research program has attracted active and ongoing collaborations with the most distinguished research groups on four continents. The list of visitors to his laboratories in Raleigh during the past five years resembles a Who’s Who of the worldwide membrane and polymer science community.

His research program has received the highest level of funding (>5,800,000) in the Department of Chemical Engineering over the past five years. His work was the source of a story in Chemical Engineering Progress and has appeared in the North American Membrane Society Quarterly, the official technical bulletin of the membrane scientific community in North America. His innovative work in barrier properties of liquid crystalline polymers has been the subject of many newspaper articles across the US and was the focus of a story on CNN that was broadcast worldwide. He cochaired the highly successful Symposium on Chemistry and Materials Science of Synthetic Membranes at the 1997 fall American Chemical Society (ACS) meeting. This symposium attracted approximately 100 of the most outstanding scientists and engineers from 18 countries to present their research work and was the basis for a pair of edited books in the distinguished ACS Symposium Series.

Benny is an internationally recognized leader in his field, and his research program has attracted widespread recognition for NC State from the best scientists in the field. Through his foresight and intuition, he has opened new avenues for development of high performance polymeric materials that improve energy utilization and reduce the environmental impact of critical, large-scale industrial separations. He is also the youngest recipient ever of the Alcoa Foundation Engineering Research Achievement Award.

Did You Know?

The Department was organized as part of the School of Engineering by the Board of Trustees of North Carolina State College of Agriculture and Engineering in September 1924 and was located in Page Hall. Dr. E.E. Randolph, professor of chemistry, was appointed head of the Department and was the only faculty member in the Department.

New Chemical Engineering Scholarship

The NC State Engineering Foundation is pleased to announce the Robert M. Barefoot Scholarship endowment. Quint M. Barefoot, ChE ’85, recently established this new scholarship in honor of his father. The scholarship will be awarded to a Chemical Engineering undergraduate student based on merit with need as a second consideration. The first Robert M. Barefoot Scholarship will be awarded this fall. Quint lives in Greensboro with his wife and three children.
Grant and Peretti Establish NSF REU

Professors Christine Grant and Steven Peretti were one of the first teams nationally to receive a five-year grant from the National Science Foundation to fund a summer research program for undergraduates (typical funding is one to three years) in environmentally benign processing. Awarded under NSF’s Research Experience for Undergraduates (REU) program, the overall goal is to provide undergraduate students with an opportunity to perform cutting-edge research in the Department of Chemical Engineering at NC State. For this pioneer project, Professors Grant and Peretti will receive $621,000 over five years, with another $20,000 awarded separately to fund an Engineering Ethics component of the program.

The REU, entitled the NSF Green Processing Undergraduate Research Program takes advantage of the size and variety of research activities in green processing already underway at NC State. Students participating in the program also draw upon faculty and student researchers from the Kenan Center for the Utilization of Carbon Dioxide in Manufacturing and the NSF Science and Technology Center (STC) for Environmentally Responsible Solvents and Processes. The STC is sponsoring some of the participants in this REU as part of their training and education mission.

The students selected for summer 2000 represent thirteen different schools: MIT, Yale, University of Minnesota, Hampton University, Norfolk State University, Wake Forest University, University of Iowa, University of Colorado, Arizona State University, Tri-State University, Florida State University, University of Florida, and NC State University. The participants, rising juniors and seniors, received a stipend, university housing, and travel expenses. Students involved in the REU followed a rigorous research schedule and were required to present a summary of their project at the final research colloquium. The final colloquium was followed by a formal dinner and ceremony marking the end of a successful summer. A one-of-a-kind ethics component was another important element in the students’ REU experience. After working hours, the REU students joined in barbecues, dessert socials, softball games, and other social events with the ChE graduate students.

If you would like more information about the NSF Green Processing Undergraduate Research Program, contact Kirsten Reberg-Horton, Program Assistant (919) 515-3639, kgreberg@unity.ncsu.edu.

Spontak Wins Outstanding Teaching Award

Richard J. Spontak, associate professor and director of graduate admissions, has received one of this year’s Outstanding Teaching Awards from NC State University and the NC State Alumni Association. Accordingly, he has been elected to the NC State Academy of Outstanding Teachers. Professor Spontak has maintained a very distinguished record of teaching excellence, glowing student evaluations, and a reputation of dedication and commitment to his students at the undergraduate and graduate levels.

His student evaluations for instructor rating have averaged near the top of the Chemical Engineering faculty over the past 10 years. Individual student comments are exemplary and reflect the sincere respect and appreciation the students have for Professor Spontak, who can often be seen with his students in the evenings and on weekends. He has also contributed to educational scholarship and fund-raising, published in engineering education journals, presented his innovative teaching strategies at national meetings, and obtained instructional and courseware development grants from Project SUCCEED and NC State University.

He has enhanced his courses with cooperative learning strategies, has developed courses for video deployment, and has actively participated in advising undergraduate design teams in Materials Science and Engineering, as well as interdisciplinary design teams. In fact, his design teams have won numerous awards, including project grants from the Materials Research Society and the Department of Energy. According to Peter Kilpatrick, “Professor Spontak’s performance in undergraduate and graduate teaching and in the enhancement of the curriculum has been nothing less than exemplary.”
H. Ramseur (1936), President of Cities Service Corp.; Robert H. Morrison (1937), President of Tennessee Eastman; J. Frank Seely (1938), a faculty member; and Henry B. Smith (1938), who was Vice President of General Foods and later Associate Dean for Research of the College of Engineering. Dick Bright and Frank Seely were added to the faculty during the latter part of this period, and both served for many years — Bright until the early 70s and Seely until the 80s. Randolph is remembered fondly and with respect by the faculty and graduates of this era.

The second important era began in 1945 with the appointment of Harold Lampe as dean of Engineering. Dean Lampe began a new era for the entire College of Engineering. He brought in Edward M. Schoenborn as head of Chemical Engineering in 1946. Ed was a well-known chemical engineer recognized for his work with Allan Colburn at the University of Delaware and at Du Pont. During the next few years, an excellent faculty (including Ken Beatty and Phil Pike) was recruited, the academic program was accredited, an active research program was started, authorization was received to award the PhD degree, and the department moved into new facilities in Riddick Engineering Laboratories. By the early 1950s the department was arguably the top department in the Southeast.

During the early 1960s there were several faculty changes: Phil Pike resigned and Robin Gardner (jointly appointed in Chemical and Nuclear Engineering), Dave Marsland and Ed Stahel joined the department and became long-term and important faculty members. A very significant addition to our faculty was Warren McCabe, one of the founding fathers of our profession, whose contributions (including codevelopment of the McCabe-Thiele chart for binary distillation and seminal work on a rigorous approach to crystallization) would take a book to enumerate. Ed Schoenborn resigned as department head in 1966, and James K. Ferrell, who had joined the faculty in 1961, was named to replace him.

With the help of an NSF Science Development Grant, the Department was awarded several new positions and some support for research. Vivian Stannett — an English-born polymer scientist whose doctoral advisor was the distinguished Herman Mark at Brooklyn Polytechnic Institute and who was then on the faculty at Syracuse University — was recruited to begin a polymer program. Together with Harold Hopfenberg, he joined the department in 1967. An aggressive program of faculty recruitment continued, and Richard Felder and Ronald Rousseau joined the Department in 1969.

During the 1970s the Department continued to grow and develop an active research...
and graduate program as James Helt, Bill Koros, Peter Fedkiw, and P.K. Lim joined the faculty. In 1975 Peter Danckwerts came from Cambridge to spend a year in the Department, and all of the faculty then present benefited from the wisdom and wit of this distinguished contributor to our profession. For most of the 1970s, the lead in departmental research was taken by the polymer group consisting of Stannett, Hopfenberg, and Stahel, who brought in the majority of the Department’s grant support and generated scores of publications.

In 1977 a faculty team led by Ferrell and including Felder and Rousseau won a multimillion dollar contract from the EPA to build and run a coal gasification pilot plant. Many MS theses and PhD dissertations emerged during the six-year period of operation of the pilot plant. The three graduate students who served as plant engineers clearly benefitted from the experience, judging from their later career success. Victor Agreda went to Tennessee Eastman, became one of their top research and development engineers, and is now well up in management in Eastman’s international operations; Russ Rhinehart joined the faculty at Texas Tech University, built a large industrially based consortium for research and development in process control, and several years ago became head of the Department of Chemical Engineering at Oklahoma State University; and Bob Kelly joined the faculty at Johns Hopkins, developed one of the strongest biochemical engineering research programs in the country, and subsequently came home to NC State, where his stature in the field has continued to grow.

Sons who asked if he would be interested in writing a textbook on material and energy balances to compete with the text by David Himmelblau that had dominated the market for years. Ron agreed to give it a try. Shortly afterwards he asked Rich Felder (the other new kid on the block) to come in on it, and Rich agreed. By the time they figured out what they had really committed themselves to, it was too late to quit. In 1978 the first edition of *Elementary Principles of Chemical Processes* finally appeared in print, and the rest is history. Within two years the text had been adopted by roughly 70 percent of the chemical engineering departments in the US. The second edition came out in 1986 and the third in 2000. The text is currently used by over 80 percent of US departments and is probably the most widely used chemical engineering text in the world.

The third major era of departmental growth began in 1980 when Hal Hopfenberg became the fourth department head. Hal, working with the new dean of Engineering, Larry Montieith, began to increase the resources available to the department. During the 1980s the College of Engineering was fortunate to receive additional funds from the State of North Carolina, and Hal persuaded the dean to invest much of it in the Department. Many new faculty members came on board during Hopfenberg’s tenure — Alan Michaels as NC State’s first Distinguished University Professor, along with Amir Attar, Ruben Carbonell, Rey Chern, David Guinnup, Carol Hall, Peter Kilpatrick, David Ollis, Michael Overcash, John Setzer, and Hubert Winston. Alan Michaels was the second department faculty member (after McCabe) to belong to the National Academy of Engineering, to be subsequently joined by Stannett and, most recently, Keith Gubbins. Ron Rousseau left in 1986 to become director (now chair) of the School of Chemical Engineering at Georgia Tech, a position in which he has thrived and continues to hold.

The second important era began in 1945 with the appointment of Harold Lampe as Dean of Engineering.
In the 1980s the book *Biochemical Engineering Fundamentals* by Jay Bailey and Dave Ollis became the third major text coauthored by a department faculty member, after McCabe and Smith’s (now McCabe, Smith, and Harriott) *Unit Operations of Chemical Engineering* and the previously mentioned text by Felder and Rousseau. A biotechnology program was initiated, new space in Riddick was acquired, existing space was renovated, and an aggressive program of recruiting new graduate students was started to support the increased research activity. The Department grew significantly in its research and graduate programs, and much of its current appearance began to take shape.

Hal resigned as department head to become an associate dean of engineering in 1987, and has since followed an intriguing and unique career path. Besides being associate dean, he was special assistant to the chancellor, interim athletics director, executive assistant to the chancellor, vice chancellor for institutional advancement, and director and director emeritus of the William R. Kenan Jr. Institute for Engineering, Technology, & Science at NC State. He also held visiting professorships at the University of Naples, the University of Sassari (Sardinia), and Cambridge University. As Hal was leaving the Department to pursue University service in the dean’s and chancellor’s offices, the Department was hiring three new faculty: Steve Peretti, Henry Lamb, and Benny Freeman. Thus Hal was directly responsible for hiring 13 faculty members in his 7 years as department head. Those faculty were instrumental in the development of the Department’s current academic and research programs.

After a transition period that included Dave Ollis (1987-88) and Jim Ferrell (1988-89) as department heads, George Roberts was recruited from Air Products as department head in July 1989. George effectively continued departmental development and added several new faculty, including Bob Kelly, Christine Grant, Saad Khan, and Greg Parsons. When George stepped down as head in 1994, he turned over to his successor a thriving department that was pre-eminent in the Southeast and gaining increasing prominence on the national stage.

Ruben Carbonell was named department head in July 1994, which brings us to the next stage of departmental development. Under Ruben’s leadership, the ChE Alumni Industrial Advisory Board launched the Riddick Renovation Campaign, which brought in nearly one million dollars over five years to help improve laboratory and computer facilities for ChE undergraduates and to upgrade research and analytical laboratories in the Department. Significant financial contributions were made by corporate sponsors, in particular the Hoechst Celanese Corporation, Reichhold Chemical, Eastman Chemical, Cryovac, and BASF. In addition, alumni and friends of the Department made extremely generous gifts, including numerous memberships in the Frank Seely Society.

Ruben was able to attract several outstanding faculty members to the department: Keith Gubbins, Richard Spontak, Jan Genzer, John van Zanten, and Jason Haugh. These additions strengthened significantly the Department’s teaching and research programs in molecular simulation, materials, and biotechnology. Ruben also succeeded in creating a joint appointment for Joe DeSimone between UNC-Chapel Hill and NC State, and Joe was subsequently appointed to the first Kenan Professorship ever held at NC State. Departmental research space has expanded significantly in the past few years of the millennium, particularly on the new Centennial Campus south of Western Boulevard.

Carol Hall and Keith Gubbins
The NSF Science and Technology Center (STC) for Environmentally Responsible Solvents was established in 1999 with Joe DeSimone and Ruben Carbonell as director and codirector. This $18 million grant was the largest ever received by an institution in the UNC system, and it provides a wonderful opportunity for increased recognition of the Department’s research reputation. Ruben left the department head position in 1999 to help Joe manage the Center and to become director of the CO2 Center and the Kenan Institute for Engineering, Technology & Science. The new department head, Peter Kilpatrick, now stands poised to carry the Department into the next millennium.

In 1999 Richard Felder retired from the faculty after 30 years of distinguished service. Rich dedicated much of his career at NC State to enhancing teaching effectiveness, and he is a recognized expert who has had a dramatic impact on the entire discipline. In addition to cofounding the National Effective Teaching Institute, Rich and his wife Dr. Rebecca Brent continue to educate and train teachers through more than 30 workshops a year. He was recently named as the most frequently cited author in the Journal of Engineering Education.

The honors granted to the Department faculty over the years attest to the quality of both its research and teaching programs. Our senior faculty members of the National Academy of Engineering have established truly international reputations in their respective areas of focus. Vivian Stannett has long been acknowledged as...
one of the world’s leading polymer researchers, and Keith Gubbins leads the field of molecular thermodynamics, as exemplified by his winning the very prestigious year 2000 William H. Walker Award of the AIChE. Stannett and DeSimone have both won the O. Max Gardner Award — the top award in the UNC system; Stannett, Ferrell, Hopfenberg, and Felder have all won the Holladay Medal — the top award at NC State University. Felder, Hopfenberg, and Carbonell have won the Reynolds Award, the top award in engineering at NC State. No other department in the University has achieved these levels of recognition. Alcoa Foundation Research Awards have been won by Stannett, Hopfenberg, Hall, and Freeman. In 1993 Felder was named by the Southeastern Section of the American Society for Engineering Education as one of the five outstanding engineering educators of the century, and in 1997 he was awarded the UNC Board of Governor’s Award, the top teaching award at NC State. Distinguished Alumni Professorships and University Outstanding Teacher Awards have been won by Carbonell, Freeman, Spontak, Hopfenberg, Felder, Hall, Kilpatrick, Kelly, and Ollis. The Department has been profiled in Chemical Engineering Education and two department faculty members, (Felder and Hall) have been the featured educators in issues of that journal as well.

In short, both graduate and undergraduate alumni of the NC State Department of Chemical Engineering are entitled to major bragging rights. It is hard to imagine a school in the country where they could have gotten a better education.

Professor J.K. Ferrell (left) works with research assistant John McGee in 1965.

Chemical Engineering Celebrates 75 Years!

As we go to press with this newsletter, we are preparing to celebrate the 75th anniversary of the Department. We will start the celebration weekend on Friday afternoon, October 6, with presentations from faculty and alumni on the history of the Department of Chemical Engineering and what Chemical Engineering has done for our alumni. Our special guest of honor, Dr. H. Ted Davis, dean of the Institute of Technology at the University of Minnesota, will speak Friday afternoon on smart materials. Join us Friday night for a reception celebrating not only 75 years of Chemical Engineering but also the successful conclusion of the Riddick Renovation Campaign.

Saturday will be a full day, starting early with a choice of seminars on bioengineering, green engineering, or polymers. There will be great educational opportunities for each family as members of our faculty present “Gee whiz – I didn’t know chemical engineers did that?” For lunch we will all meet on Centennial Campus for traditional North Carolina barbecue. We will wrap up the afternoon with tours of our new facilities currently on Centennial Campus.

ChE Degree Tidbits

- The first BS degrees were awarded to Frederick Vernon Harcourt Smith and Kenneth MacKenzie Urquart on June 9, 1925.
- The Department awarded its first MS degree to James Whitney Perry on June 5, 1928.
- The first PhD degree was awarded to James K. Ferrell on June 6, 1954.
Gubbins wins Prestigious William H. Walker Award of AIChE

Professor Keith Gubbins, the H. W. Clark University Professor of Chemical Engineering, was chosen to receive the year 2000 William H. Walker Award of the AIChE for Excellence in Contributions to Chemical Engineering Literature. The Walker Award is one of AIChE’s most distinguished awards and its past winners constitute a Who’s Who of chemical engineers of the 20th century: Allan Colburn, Warren McCabe, Tom Sherwood, Olaf Hougen, B. F. Dodge, Ed Gilliland, Bob Pigford, Neal Amundson, Bob Bird, John Prausnitz, and other ChE notables. The citation for Keith’s award reads: “Professor Keith Gubbins is recognized for pioneering, elegant, and profound applications of molecular theory and computer simulations to phase behavior and sorptometry in porous media.” Keith’s research is not only marked by its pioneering and elegant character, but, in addition, Keith appears to have accelerated his research activity since joining NC State in 1997.

Dean H. Ted Davis, dean and Regents’ Professor of the Institute of Technology at the University of Minnesota and the 1990 recipient of the Walker Award, stated in his nominating letter for Keith: “Keith is so prolific, it is difficult to identify only one contribution (upon which to base the award). His work on fluids in porous media is redefining how we think about modeling these materials.

Gubbins is recognized for pioneering, elegant, and profound applications of molecular theory to phase behavior and sorptometry in porous media. His work on fluids in porous media is redefining how we think about modeling these materials.

see, wrote in support of Keith: “Although the award honors a recent contribution to the literature … what is distinctive about Keith is that throughout his career he has consistently provided this service of integration and evaluation, making the scientific literature on specific subjects accessible to a much broader audience. For this reason, I offer my unqualified support for his nomination … I know of no more deserving individual.”

Finally, Professor John Prausnitz of University of California at Berkeley, the 1967 winner of the Walker Award, wrote: “Keith’s large body of research papers is often highly specialized, accessible only to other experts. The quality of these papers is extremely high – and that is impressive – but more important for the Walker Award is Keith’s persistence in making these papers part of chemical engineering. That is what Keith has been doing with admirable success. It will take time but, before long, Keith’s ‘modern’ thermodynamics will replace current conventional methods, thereby improving our ability to design new chemical processes and products.”

It is clear from the comments of his peers, themselves national award winners and leaders in the chemical engineering profession, that Keith’s scholarship is not only held in very high esteem, but he is looked to as a leader who is redefining entire sections of the body of knowledge we call chemical engineering thermodynamics. We are proud to claim Keith as distinguished faculty member here at NC State, and we applaud his success with the reception of the year 2000 William H. Walker Award of AIChE. As Professor Gary Leal, the department head of chemical engineering at the University of California at Santa Barbara and the 1993 recipient of the Walker Award, wrote of Keith: “It is fitting that someone of his caliber be selected for the first award of the new millennium.”
Faculty:

- Dr. Richard Felder, Hoechst Celanese Emeritus Professor of Chemical Engineering, gave an address titled “The Scholarship of Teaching” at the annual initiation and awards ceremony and banquet of the NC State chapter of Sigma Xi, the Scientific Research Society. The banquet was held May 10, 2000.

Alumni:

- Steve Beaudoin (’95 PhD) is a faculty member in the Department of Chemical Engineering at Arizona State University. In the past year he was promoted to the rank of associate professor with tenure, he received a National Science Foundation Career Award, and he was nominated for the Professor of the Year Award at ASU. Steve also hosted a Frontiers in Chemical Engineering session focused on semiconductors at the 1999 AIChE Annual Student Conference in Dallas. His email address is: stephen.beaudoin@asu.edu.

Graduate Students:

- Mike Riley was the winner of the 1999 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. Mike’s presentation was “Lithium Hectorite-Based Composite Electrolytes for Lithium-Ion Batteries.” Peter Fedkiw and Saad Khan serve as Mike’s thesis advisors.
- Also receiving an award at the 1999 Schoenborn competition was Dr. Nael Zaki, a post-doc researcher in Peter Kilpatrick’s group who received the Best Poster Award.
- Joe Royer won first place for his presentation “Carbon Dioxide Induced Plasticization of Polymer Melts: Rheology and Rheometer Design” at the NC ACS Polymer Research Symposium in honor of Dr. Richard Gilbert. Joe DeSimone and Saad Khan are Joe’s thesis advisors.
- Jorge Pikunic received an NC State Outstanding Graduate Teaching Assistant Award during the 2000 spring semester.

Undergraduates:

- At the May 2000 commencement, the AIChE student chapter bestowed two awards for graduating seniors. Kelly Wentz and Kai Wang shared the Outstanding Member Award, and Jeffrey Joyce received the Leadership Award. Kai was also the recipient of the College of Engineering Dean’s Achievement Award.
- Jason Cummings and Trevor Hoskins received fellowships for graduate study from the National Consortium for Graduate Degrees for Minorities in Engineering (GEM). Jason and Trevor will pursue their graduate careers at Princeton and Georgia Tech, respectively.
- Su Yun Ha earned a First Place Award in the Engineering and Technology Division for his poster at the Ninth Annual NC State Undergraduate Research Symposium during the spring of 2000. The poster was titled “Tailored Whey Protein Gels Through Combined Enzymatic Crosslinking and Heat Treatment” and Su’s research project was mentored by Dr. Saad Khan and by graduate student Matthew Burke.
- Shivani Singh’s paper and presentation, “The Role of Fused-Ring Aromatic Solvency in Asphaltenic-Stabilized Emulsions,” earned the First Place Award in its section at the 2000 Southern Regional Conference of AIChE Student Chapters in Lexington, Kentucky. Shivani’s research was performed with Dr. Peter Kilpatrick’s supervision and is the basis for the paper and presentation.
- Benjamin Rothrock and Matthew Smith were 2 of 34 valedictorians in the May 2000 class of 2,266 NC State bachelor’s degree graduates.
- Zusan Wang received an AIChE Donald F. and Mildred Topp Othmer National Scholarship Award for the 1999-2000 academic year. According to the award letter, Zusan’s selection was a reflection of her excellent academic record, her enthusiastic involvement in AIChE activities, and her thoughtful chemical engineering career plans.
- Senior Seth Whittaker served as the NC State Student Senate president during the 1999-2000 academic year. In addition to double majoring in political science, Seth was selected as a national finalist in the competition to receive a Truman Scholarship for graduate study.

Mike Killian Receives DEA Award

Mike Killian, BSChE 1968, received one of the three 2000 Distinguished Engineering Awards at a ceremony on April 13, 2000. Mike is vice president and general manager for Ashland Chemical Company in Columbus, Ohio. He is a current member of the NC State Engineering Foundation Board of Directors and is a former member of the Chemical Engineering Alumni Industrial Advisory Board. Mike is a Gold Level member of the Frank Seely Society. Pictured above are (l-r) Dr. Michael Overcash, Mike Killian, and chemical engineering department heads, Dr. James Ferrell, Dr. Ruben Carbonell, and Dr. Peter Kilpatrick.
DeSimone Wins Gardner Award

Joseph M. DeSimone, William R. Kenan Jr. Distinguished Professor of Chemistry and Chemical Engineering at NC State and the University of North Carolina at Chapel Hill, received this year’s O. Max Gardner Award, the highest faculty honor presented by the Board of Governors of The University of North Carolina system. DeSimone was honored for his pioneering research that uses carbon dioxide as a replacement for water and solvents in a variety of synthetic and manufacturing processes.

The Gardner Award, given annually since 1949, was established by the will of Governor Oliver Max Gardner to recognize faculty who have “made the greatest contributions to the welfare of the human race.” It is the only award for which all faculty members of the 16 UNC campuses are eligible. Recipients are nominated by their chancellors and selected by the Board of Governors. The 2000 award carries a $10,000 cash prize and was presented by UNC Board of Governors Chairman Benjamin S. Ruffin, UNC President Molly Corbett Broad, and Gardner Award Committee Chairman Teena S. Little. DeSimone is the fifth consecutive NC State faculty member to win the Gardner Award.

A member of the UNC-Chapel Hill faculty since 1990 and the NC State faculty since 1995, DeSimone’s research is revolutionizing a number of manufacturing processes, including those in the dry cleaning industry. In 1995 he founded Micell Technologies, which commercialized his patented, heat-free dry cleaning process. This groundbreaking method uses detergents that dissolve in carbon dioxide rather than in harsh chemicals such as perchloroethylene. In addition to economic benefits for the dry cleaning industry, DeSimone’s process has been proven to be safer for the environment and easier on clothing than standard dry cleaning processes.

Codirector of the nonprofit Kenan Center for the Utilization of Carbon Dioxide in Manufacturing, DeSimone is also director of the National Science Foundation’s Science and Technology Center for Environmentally Responsible Solvents and Processes. A 1986 graduate of Ursinus College in Pennsylvania, DeSimone received his doctorate in 1990 from Virginia Polytechnic Institute and State University. Recipient of the 1997 Governor’s Award for Excellence and the Chancellor’s Award for Excellence, he has received numerous national awards for his contributions to the profession. Honored several times by the White House, he received the 1997 Presidential Green Chemistry Award and was named a Presidential Faculty Fellow in 1993. In 1999 he was honored with the American Chemical Society’s Carl S. Marvel Creative Polymer Chemistry Award, and in 1998, along with his colleagues at Micell Technologies, he received an R&D 100 Award. He was the first North Carolina scientist to receive the national Phi Lambda Upsilon Fresenius Award established to honor high scholarship and original investigations in pure and applied chemistry.
Chemical Engineering and the UNC Bond Referendum

As you may know, the North Carolina Legislature has approved a $3.1 billion dollar bond package to be presented to the citizens of North Carolina for consideration in November 2000. It’s important to note that $79.4 million of that package will fund the first two phases of a move to Centennial Campus by the College of Engineering. Further, the Department of Chemical Engineering is scheduled to be moved to new facilities as part of the first phase. We encourage you to look favorably upon this bond referendum and hope you’ll encourage other classmates, friends, and neighbors to do the same, given its impact on your department and the College of Engineering. Please contact Carla Abramczyk or Dr. Peter Kilpatrick if you would like additional information on the UNC Bond Referendum or the College of Engineering’s move to Centennial Campus.

Frank Seely Society Members

Gold ($15,000 and above)
Michael D. Killian (BS ’68)

Silver ($10,000 - $14,999)
Norvin A. Clontz (BS ’65, MS ’67, PhD ’69)
Rolf Kaufman (BS ’52, MS ’55)
Alan S. Weinberg (BS ’63)

Bronze ($5,000 - $9,999)
Victor H. Agreda (BS ’75, MS ’77, PhD ’79)
Mack W. Bailey (BS ’68, PhD ’73)
Quint M. Barefoot (BS ’85)*
James C. Bray (BS ’69)
Charles H. Brock (BS ’71)
Timothy D. Calnon (BS ’68)
Ruben G. Carbonell
Wayne T. Day (BS ’65)
Robin Enscore (BS ’80)
Eugene E. Erickson (PhD ’57)
James K. Ferrell (PhD ’54)
Allan V. Forbes (MS ’49)
Andre M. Goinneau (MS ’70, PhD ’72)*
T. Russell Howell (MS ’81)
Randy D. Jester (BS ’75, MS ’77)
Henry Nicholson (BS ’78)*
Russ O’Dell (BS ’75, PhD ’78)
Warren T. Piver (BS ’65, MS ’70, PhD ’72)
W. Joseph Privott (BS ’61)
Matt J. Russ (BS ’68)
John F. Seely (BS ’68)
Lucille J. Seely and Family
James O. Smeaton (BS ’66)
C. Benjamin Sorrells (BS ’64)
Alston W. Stafford, Jr. (BS ’49)
James D. Tyson (BS ’76, MS ’78)
Joseph H. Voss, Jr. (BS ’64)

* Indicates new member since last newsletter (list updated June 22, 2000).

Please contact Carla Abramczyk in the Engineering Foundation, (919) 515-7458, for information on how to join the Frank Seely Society.

Honor Board Members

The following Alumni Honor Board Members have contributed $1,000 - $4,999 to the Department of Chemical Engineering:
Lisa G. Bullard (BS ’86)
Christopher A. Byrd (BS ’83)
John T. Ferguson (BS ’41)
Crystal L. Glenn (BS ’82)
Carol K. Hall
Joseph D. Hartsoe (BS ’49)
David M. Hitch (PhD ’86)
Joseph F. Hotter (BS ’87, MS ’90, PhD ’95)
Michael L. Jones (BS ’65)
Robert M. Kelly (PhD ’81)
Peter K. and Nancy J. Kilpatrick
Jennifer L. Knight (BS ’98)
Michael W. Lowder (BS ’78)
Charles H. Manning (BS ’49)
Rebecca J. Mohr (BS ’85)
Timothy R. Nolen (PhD ’89)
Lanny C. Treece (BS ’73, MS ’75)
John T. Vaden (BS ’56)
Matthew S. Young (BS ’92)

List updated June 22, 2000
Seely Society Continued Beyond Riddick Campaign

J. Frank Seely was considered the heart of the Department of Chemical Engineering for four decades. He was much loved and highly respected as both a dedicated teacher and a caring advisor. In memory of Frank Seely’s impact on so many of our graduates, we chose to recognize all individuals who made contributions of $5,000 or more to the Riddick Renovation Campaign with a membership in the Frank Seely Society. As the Renovation Campaign is wrapping up, the Department has decided to continue the Frank Seely Society beyond the renovation campaign and will begin to honor individuals who make unrestricted contributions of $5,000 or more to the Department of Chemical Engineering with five-year memberships in the Frank Seely Society.

There are three levels of Seely Society Membership: Gold ($15,000 and up), Silver ($10,000 to $14,999), and Bronze ($5,000 to $9,999). Pledges may be spread over a five-year period. Benefits of each five-year membership include:

- Invitations to a special dinner each fall
- Plaque recognizing you as a Frank Seely Society member
- Your name placed on a recognition board in Riddick
- Recognition in the annual Chemical Engineering newsletter

These unrestricted gifts will allow the Department to meet its critical needs not funded through state appropriations. We hope that all of our alumni will consider a gift to support the students and faculty of the Department of Chemical Engineering.

Please contact Carla Abramczyk, assistant director of departmental development, by phone at (919) 515-7458 or by e-mail at carla_abramczyk@ncsu.edu if you would like more information on ways you or your company can support the Department and the College of Engineering.

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
North Carolina State University
Campus Box 7905
Raleigh, NC 27695

For more information, please call or write

Peter K. Kilpatrick, Head
Department of Chemical Engineering
North Carolina State University
Campus Box 7905
Raleigh, NC 27695
Phone: (919) 515-7121
Fax: (919) 515-3465
e-mail: peter-k@ncsu.edu

Donation Form

Please make all checks payable to: NC State 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: ____________________________
Alumni News

THE FIFTIES
- Henry Pan (MS ’51) is retired and living in Seattle, Washington. He and his wife are working part-time in their son’s dental office.

THE SEVENTIES
- Carson Carmichael III (’76) is serving as chair of the North Carolina Bar Association Construction Law Section. He is a partner in the Raleigh law firm of Bailey & Dixon, LLP, where his practice focuses on administrative, construction, and health care law. He and his wife, Deborah, are the parents of two sons, Neil, 11, and Davis, 3. His email address is ccarmichael@bdixon.com.
- Roger Lawry (’79) is western sales subspecialty in nuclear and directed energy weapons. That assignment included a year of study at Stanford University’s School of Electrical Engineering. Since completing the Submarine Officer Advanced Course, he has served onboard the USS Stonewall Jackson (SSBN 634) and the USS Sand Lance (SSN 660). LCDR Caudle is married to the former Mona K. Plummer of Thomasville, NC, and has two daughters, Gillian and Noel. His email address is dcudale@pobox.com.
- Greg Hatem (’85) was featured in an article in the Business section of the June 14, 2000, Raleigh News & Observer. The article describes Greg’s company, Empire Properties, as a pioneer in redevelopment of the warehouse district in downtown Raleigh. After graduation, Greg worked as a photographer, fundraiser, financial planner, and economic developer before cofounding his company with his brother, Joe, and another friend.
- R. Russell Rhinehart (’85 PhD) is the Edward E. Bartlett Chair and Head of the School of Chemical Engineering at Oklahoma State University.
- W. Scott Troutman (’89) is currently a senior manager with Andersen Business Consulting in Atlanta. He joined Andersen in 1996 after completing an MBA at the University of Georgia. After NC State, he worked three years for ICI Americas in their pharmaceutical group and two years for HoltraChem, a regional manufacturer of commodity chemicals. He and his wife, Roslyn, are active in the Atlanta NC State alumni chapter and they enjoy renovating their older home, which was purchased in 1996. He regularly communicates and visits with Brad Lee (’88), who lives in London, England. Scott’s email address is w.scott.troutman@us.arthunderderson.com.

THE EIGHTIES
- Beth Gray Canterberry (’87) spent the last seven years at Ethicon leading new product development teams for orthopedic medical devices. In July she shifted career directions by moving into operations in a manufacturing planning role. In August 1999, she gave birth to her third son, Brendan, and has two other sons, Tyler and Justin. She speaks regularly with ChE buddies, Gretchen Elder and Beth Oliver Teague. Her email address is bcanterb@ethus.nij.com.
- Lieutenant Commander Dayrl L. Caudle, USN, P. E. (’85) is the executive officer onboard the nuclear fast attack submarine USS Montpelier (SSN 765), an improved Los Angeles class submarine capable of operating all over the world. After graduating from NC State he attended Officer Candidate School in Newport, Rhode Island, and was commissioned in September 1985. Following commissioning he completed nuclear propulsion training and submarine officer training, then served on board the USS George Washington Carver (SSBN 656). In August 1990 LCDR Caudle reported to the Naval Postgraduate School in Monterey, California, where he earned a master of science in physics with subspecialty in nuclear and directed energy weapons. That assignment included a year of study at Stanford University’s School of Electrical Engineering. Since completing the Submarine Officer Advanced Course, he has served onboard the USS Stonewall Jackson (SSBN 634) and the USS Sand Lance (SSN 660). LCDR Caudle is married to the former Mona K. Plummer of Thomasville, NC, and has two daughters, Gillian and Noel. His email address is dcaudle@pobox.com.

THE NINETIES
- Stacy L. Agar (’92) currently works as a research technician with the Virginia Mason Research Center in Seattle, Washington. She accepted that position after graduating from Washington State University with degrees in microbiology and animal sciences. Her email is stacyleona@hotmail.com.
- Roy L. Cox (’90) sent an announcement about the birth of his son, Henry Jacob Cox, on August 12, 1999. Roy and the rest of his family (wife, Roberta, and tw o-year-old daughter, Abigail) recently moved to the Hickory, NC, area so that he could take a job as process control engineer with Alcatel, making fiber optic cable. Roy’s email is roy.cox@cable.alcatel.com.
- Rodney Cummings (’94) works with TOTAL FINA Oil and Chemical Company as polypropylene technical services consultant in Houston. He was married on September 4, 1999, in Maui, Hawaii. Houston being the hot spot for petrochemicals, he’s able to see and communicate with several NC State ChE alumni. Pete Nolan (’94 BS, ’98 PhD @ UT), Mike Hale (’94 BS, ’98 PhD @ UT), and Paul Takac (’94 BS, ’98 MS @ UT) communicate (taunt) daily about football and sports. He and Pete work out together at the Fitness Center, and he’s trying to beef up Pete for a future light weight boxing match.
- Lauren Edwards (’99) loves her new job assignment at the ExxonMobile Baton Rouge Plastics Plant. Her job title is still process engineer, but the new assignment features an increase in responsibility and visibility. She’ll be traveling to Belgium soon for a network meeting with engineers at two sister plants. Lauren also sent the following news about other ChE grads. Becky Ham (’99) is starting her third-term PDP assignment with BASF in Geismar, LA, and has moved in with Lauren as a roommate. Kevin Channness (’99) worked for a semiconductor company in Austin, Texas, over the summer and will eventually be working with them on his PhD thesis project. James Taylor (’99) is enjoying his graduate studies at MIT after a rough fall semester. Michelle Staben (’99) is thoroughly enjoying school and skiing in Colorado. Carlton Allred (’99) is now married and is working for ExxonMobil Lubes Marketing in Louisiana. Jamie Hunter (’98) is now working permanently for BASF in Geismar, LA. David Wiggs’ (’99) second daughter was born a few months ago, and he’s enjoying his consulting job in Raleigh.

Acknowledgment

We gratefully acknowledge Fuji Chemical Ltd. for their generous support of the Department of Chemical Engineering and the 75th Anniversary Celebration through their sponsorship of the Friday night Reception on October 6, 2000.
Alumni Profile - Timothy “Tim” D. Calnon ’68

The following article is the first in a new feature for the Chemical Engineering at NC State University newsletter. In each issue we will present a profile of one of the many successful graduates from Chemical Engineering. These individuals are role models for our current students, as well as examples of how a chemical engineering degree can change your life. If you know of anyone with an interesting story, please contact Carla Abramczyk at (919) 515-7458 or carla_abramczyk@ncsu.edu.

Tim Calnon graduated from NC State in 1968. Shortly thereafter he began his career with Hercules Inc., where he spent more than 10 years in various positions in technical service and product development of polyolefin resins. Tim moved on to American Hoechst/Hoechst Celanese, where he would spend the next seven years as senior technical service engineer and sales manager of PET resins. Then in 1990 Tim started NTM, Inc. with $18,000 from savings, running the company from a spare bedroom in his home. Tim developed the idea for NTM after he recognized the uniqueness of polyester for packaging applications as compared with all other plastics. Tim was convinced there was a market niche in this area for which he was uniquely qualified. His plan was to provide sales and technical service to end-users whose volume requirements were of little interest to other larger producers.

From 1990 to 1992 NTM’s focus was sales and service for PET resins and extruder screw sales with a space requirement of only 150 to 300 square feet. With the addition of packaging, grinding, and warehousing in 1993, the company grew to 145,000 square feet over the next three years. The next four years brought the addition of more warehousing, extrusion capability, solid state polymerization, a second extrusion line, and densification that currently fill 310,000 square feet.

NTM, Inc. has grown from a sales and service business to a plastics manufacturing company specializing in PET (polyester) resins. Pellets are produced from various processing capabilities with a combined capacity exceeding 100,000,000 pounds per year. The business focus is adding value to PET materials from virtually any form. Low cost PET raw materials are acquired, granulated, densified, extruded into pellets, then polymerized to the desired molecular weight. Applications include strapping, tennis ball cans, soft drink bottles, film, and fibers. NTM, Inc. supplies PET resins worldwide to companies such as 3M, Wellman, KoSa (formerly Hoechst Celanese), DuPont, and Coca-Cola.

Tim feels his chemical engineering degree has changed his life. He says his degree has provided the basis for a wonderful career in a dynamic industry. “I have been all over the world, and I absolutely love what I do.” Professors that Tim remembers from NC State are Drs. Edward Stahel, Edward Schoenborn, Frank Seely, David Marsland, Richard Bright, and Harold Hopfenberg. Tim notes that, “Collectively, they provided what I found to be a solid foundation for the start of an engineering career.”

“I take the most pride in the personal and professional relationships I have developed over the years. My wife, Nancy, is very supportive, and I have some really fine employees who make things happen.” Tim’s favorite motto: The harder I work, the ‘luckier’ I get. Tim and Nancy live in Greer, SC. They have two children: their daughter, Meg, who graduated from Furman in 1999, and son, Tee, who will graduate from Clemson in 2001. Tim’s email address is: ntminc@mindspring.com.
Alumni Information - Fall 2000

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.) __________________________

__________________________

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

Please return this form to:
Dr. Peter K. Kilpatrick
Department of Chemical Engineering
North Carolina State University
Campus Box 7905
Raleigh, NC 27695-7905
Phone: (919) 515-7121
FAX: (919) 515-3465

North Carolina State University is committed to equality of educational opportunity and does not discriminate against applicants, students, or employees based on race, color, national origin, religion, sex, age, or disability. NC State University commits itself to positive action to secure equal opportunity regardless of those characteristics. North Carolina State University further regards discrimination on the basis of sexual orientation to be inconsistent with its goals of providing a welcoming environment in which all its students, faculty, and staff may learn and work up to their full potential. The University values the benefits of cultural diversity and pluralism in the academic community and welcomes all men and women of good will without regard to sexual orientation.

4,000 copies of this public document were printed at a cost of $0,000.00

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