TO SEE THE CHEMICAL Engineering Department at N. C. State in perspective, it helps to know something about the region in which we are located.

You can find grits, greens, and southern hospitality in and around Raleigh; you may also find the New York Philharmonic, Beverly Sills, the Royal Shakespeare Company, the Marx Brothers, and the Rolling Stones. Raleigh is the capital and the cultural center of North Carolina. It lies at one apex of the Research Triangle, a region bounded by lines connecting North Carolina State University at Raleigh, the University of North Carolina at Chapel Hill, and Duke University at Durham. Within the Triangle—about 12 miles from Raleigh—is the Research Triangle Park, a 5,500 acre campus for industrial and government research laboratories, including the National Environmental Research Center of the U. S. Environmental Protection Agency, and the new National Center for the Humanities. More Ph.D.'s per capita live in the Triangle area than anywhere else in the country.

While Raleigh itself is a relatively small, attractive, and uncongested city, the close proximity of the major universities and research institutions in the Triangle affords a range of activities normally found only in major population centers. The leading performers in the world regularly appear in series and individual concerts of orchestral and chamber music, dance, drama and musical comedy, jazz and rock. Classic film series and first-rate college athletics—particularly the heated rivalries of Atlantic Coast Conference football and basketball—also provide much entertainment to area residents.

Moreover, since Raleigh is situated near the geographical center of North Carolina, all of the recreational and scenic attractions of the state are within easy driving distance. The Blue Ridge and
Several years ago a young assistant professor searching for a way to tell freshmen what ChE is all about thought of outlining the production of alcohol from corn—a process reputedly important to the economy of certain regions of North Carolina.

analysis, monitoring and control, data acquisition, and data base management.

Ferrell and Rousseau are carrying out fundamental studies of adsorption phenomena, and have worked on the development of adsorbant materials for use in protective overgarments. Felder, Ferrell and Koros are studying the use of polymeric interfaces for in situ monitoring of stack emissions; Felder and Ferrell recently received a patent for the development of a probe that permits continuous unattended monitoring in dirty or corrosive stack environments for long periods of time. Felder and Rousseau have written a stoichiometry text, Elementary Principles of Chemical Processes, published by Wiley in 1978.

Rousseau collaborated with McCabe in research on nucleation and growth phenomena in crystallization operations, and he has continued in this field since McCabe’s retirement. A recent outcome of this research is a process to use selective nucleation to separate solutes from doubly saturated solutions. Rousseau and Schoenborn studied vapor-liquid equilibria in systems containing nonvolatile salts; Rousseau has extended this work to formulate predictive models, and currently is also investigating phase equilibria of acid gas absorption systems.

A monumental body of work in the field of polymers and membrane transport processes has emerged from the efforts of Stannett, Hopfenberg, Stahel, and Koros, working individually and in various combinations. Stannett is an author or coauthor of over 200 papers on most aspects of polymerization, including applications in fiber and wood and paper science. Hopfenberg and Koros conduct research on the transport of gases and liquids in polymers. Hopfenberg has investigated membrane separation processes, including ultrafiltration and reverse osmosis, and is currently working on the development of selective ion separation processes, membrane barriers for the controlled release of drugs, and liquid membrane technology. Stannett and Stahel carry out research on radiation-initiated polymerization, including pilot plant studies.

Stahel and Felder have both worked in the field of photochemical kinetics. Stahel is currently performing research on atmospheric pollutant production, and, jointly with members of the NCSU Plant Pathology Department, on the design of chemical reactors for use in the study of pollutant uptake rates and pollution effects on plant growth.

Marsland’s interests center on engineering economics, particularly as applied to pollution abatement and control, and on computer solutions of the partial differential equations of transport phenomena. Gardner studies industrial radioisotope applications, and he has used radiotracers to perform fundamental research into particulate size reduction operations.

Among the newer members of the faculty, Helt is interested in nucleation phenomena in crystallization, lubricating oil refining processes, and ChE applications of nuclear fuel cycles; Koros is conducting research on the sorption and transport of gases in glassy polymers, with applications to residual monomer removal and the design of gas separation processes; and Fedkiw’s principal interests are in the field of electro-chemical engineering, including electorefining and selective ion recovery.

A number of awards and honors have accrued

Professor Ferrell, graduate student Victor Agreda, and laboratory technician Larry Hamel analyze a coal sample using an atomic absorption spectrophotometer.

to the faculty. Stannett received the first Silver Medal Award of the Paper Synthetics Division of TAPPI, the Education Service Award from the Plastics Institute of America, the Gold Medal and International Award of the Society of Plastics Engineering, and from the American Chemical Society, the prestigious Borden Medal of the
Plastics and Coatings Division and the Anselm Payen Medal of the Cellulose, Wood and Fiber Division. Hopfenberg won the first Alcoa Foundation Engineering Research Achievement Award given at North Carolina State University. Hopfenberg, Felder, and Rousseau have each won the Sigma Xi Faculty Research Achievement Award, and Hopfenberg and Felder have won Outstanding Teacher Awards and have been elected to the NCSU Academy of Outstanding Teachers.

Beatty has served as chairman of the AIChE Heat Transfer and Energy Conversion Divisions and the National Heat Transfer Conference Coordinating Committee, and with E. R. G. Eckert, organized the seven nation Assembly for International Heat Transfer Conferences. Ferrell has also served as chairman of the AIChE Heat Transfer Division, and Rousseau as chairman of the AIChE Forest Products Division.

OTHER FACULTY INTERESTS

A BROAD RANGE OF interests characterizes the non-professional activities of the faculty. An unusually high proportion of guitarists can be found: Ferrell and Felder play classical guitar, Hopfenberg is an ex-rhythm guitarist in a rock combo, and Gardner plays folk guitar, specializing in off-color ballads about various marine animals. Ferrell also makes exceptionally fine guitars, not to mention a white wine that must be tasted to be believed.

Hopfenberg is a formidable gourmet chef, whose forte is quick-stir Chinese cookery but who also tosses off Northern Indian, Northern Italian, and Southern Yonkers specialties with flair and zest. Rousseau, who comes from Baton Rouge and believes he is currently living in the North, is an ex-jock who likes Cajun music, whatever sport it is that Johnny Bench plays, Thomas Wolfe novels, and a type of cooking which he swears is authentic Creole from the heart of the Bayou, but which anyone who knows anything immediately recognizes as imitation Lower East Side Delicatessen. Gardner is the other department jock—mostly tennis, with a little lunchtime basketball for variety.

Seely is one of the few native North Carolinians to be found in Riddick Labs. His principal activities include golf and wandering around the United States. Several years ago a young assistant professor searching for a way to tell freshmen what ChE is all about thought of outlining the production of alcohol from corn—a process reputedly important to the economy of certain regions of North Carolina. The process was not described in Shreve or any of the other standard references. The young man thought of asking Frank Seely if he knew anything about it... and was rewarded with a recitation of feed compositions, catalytic agents, optimal operating conditions, and residence times to four significant figures. The young professor asked Frank how he knew all that, and the subject was abruptly changed.

Stannett is a chronic globetrotter, and the leading department raconteur. Schoenborn is another habitual world traveller, and is also a classical pianist. Overcash likes politics and junkets to the Far East. Beatty has devoted much time and energy to devising aids to the blind, including devices for typing and computer transcription of Braille, and multilevel polymer maps. Stahel is an avid sailboater and antique collector; he also occasionally designs palatial manors, which he then lives in.

Marsland is one of the prime movers and shakers of barbershop quartet singing in Raleigh and environs. Martin is active in local community affairs, and is also a Commander in the Navy Reserve; he looks magnificent when he wears his dress whites to class, and his happiness would be complete if only people would stop asking him to hail them a taxi when he stands in front of a hotel.

Helt and Fedkiw are hikers and campers. Koros is also a hiker, and an enthusiastic paddleboater. He makes superb coffee but he has the strangest ideas of what barbecue is supposed to taste like, and in other ways tries to project a Texas macho image; if he ever succeeds in intimidating his small dog into staying out of the living room he may convince the rest of us that it’s legitimate. Felder is a devotee of Gilbert and Sullivan and Ursula LeGuin, and is a card-carrying hedonist. He has no known faults or eccentricities.

Most of the faculty consider themselves outstanding pool and poker players. They prove themselves wrong every year at the annual Christmas party in Frank Seely’s basement. Marsland, Ferrell, Felder, Gardner, Hopfenberg, Beatty, and Stahel are passable bridge players, who have on occasion dropped by the department lounge to give the graduate student regulars a lesson or two. The uniqueness and individuality of the faculty is attested to by the fact that as of this writing, to the author’s best knowledge, not one of them jogs!