ChE educator

Lee C. Eagleton

of Penn State

ROBERT L. KABEL
Pennsylvania State University
University Park, PA 16802

THIS ARTICLE SHOULD be titled "Tennis, Chemical Engineering, and Tropical Fish (In That Order)," but these articles don't have titles.

Lee Eagleton had just arrived as the new department head at Penn State, and to get acquainted he scheduled in-depth interviews with all the members of the chemical engineering faculty. One senior professor felt that his interview was going well. He was providing profound insights, and Lee seemed receptive. The interview was nearing its climax when Lee said, "I have to play tennis in five minutes." The professor was stunned . . . and Lee was gone. Lee explained sometime later that if you don't put tennis first, it ends up last.

In 1978, John Tarbell wrote in *CEE* that "when Dr. Eagleton first arrived on campus in 1970, he was shocked to find that no one on the faculty played tennis (Lee was seventh man on the tennis team at MIT one year, but never won a match). As a perceptive administrator, he quickly recognized this deficiency and soon convinced Dr. Danner (an assistant professor at the time) that tennis might be an important component of his professional development. Ron was obliging and served admirably as a partner until he received tenure, at which point his tennis enthusiasm suddenly waned. This situation was alarming and an exhaustive search for new talent was undertaken. Fortunately, Dr. Duda (whose background in polymer science was surpassed only by his twenty years of tennis experience) was looking for an academic position at that time. Larry and his wife were conveniently lured away from Dow Chemical Company to complete a formidable mixed doubles opponent for the Eagletons."

Eagleton earned bachelor's and master's degrees from M.I.T. and the DEng from Yale, where he performed his doctoral research under the supervision of Harding Bliss. The article resulting from his thesis was cited by George Burnet as a landmark publication. After five years as a development engineer with Rohm & Haas, Lee joined the faculty of the University of Pennsylvania and was there for fifteen years until his move to Penn State. His research at Penn focused on vaporization of liquids, kinetics of catalytic processes, and reactor design, for which he was cited in being named AIChE Fellow. He was an acknowledged expert on the effect of mixing on chemical reactions and regularly lectured and chaired sessions in this area. Stuart Churchill credits Lee as being one of those who was primarily responsible for the upward turn in quality and reputation of their university's chemical engineering program. Stu writes, "Indeed, we have never really accepted his departure, and have always treated him as an unofficial member of our department."

. . . to get acquainted [Lee] scheduled in-depth interviews with all [faculty members] . . . The interview was nearing its climax when Lee said, "I have to play tennis in five minutes." The professor was stunned—and Lee was gone. Lee explained . . . that if you don't put tennis first, it ends up last.

Thus it was that Lee Eagleton brought his "Ivy League" outlook to this Central Pennsylvania outpost in 1970. We needed him. His unique, urbane style made a difference in issues broad and small. An example of the small occurred when electronic calculators became available. The College of Engineering Executive Committee was stampeding toward banning them from use in examinations when Lee mused aloud as to whether the college should establish such an anti-technological policy. The stampede was headed off and a ludicrous action was avoided.

A broad issue greeted Lee when he arrived at Penn State. Chemical engineering was perceived externally as being totally focused on petroleum processing and irrelevant in modern times. The perception was exaggerated, but it is true that at that time one-half of the faculty of fourteen did *no* teaching. Within two years, two of those seven had retired at age sixty-five, and the rest were in the classroom. Lee encouraged the research programs of the young faculty who had been carrying the bulk of the teaching load, and he supported the enhancement of the best of the hydrocarbon related research. He carried out this transformation, which could have led to rebellion, with diplomacy and *savoir faire*.

One of Lee's great pleasures is mingling with the leaders of any discipline. He turned this inclination to our great advantage by bringing in many of the biggest names in chemical engineering from around the country and the world, as much to expose the Penn State faculty to their perspectives as to acquaint the visitors with the departmental renaissance. Those visitors and our faculty were regularly invited to his home. Lee's style was to direct the actions of his wife, Mary, and his children, Bill, Jim, and Beth, this way and that for the benefit of his guests. His generalship, and their good-natured acceptance of it, was really part of the entertainmment.

The real stars of his show were two, almost wall-sized, salt-water aquaria. Lee caught the tropical fish himself in the Caribbean waters near his vacation home on St. John. The fish would grow to several inches in length and often lived to ripe old ages under his care. Lee used his reaction kinetics expertise to develop an ultraviolet sterilization technique for the circulating salt water, to protect the fish from fungi and other problems. In every major city (*after* playing tennis and attending the AIChE meeting) Lee would seek out the curator of the local aquarium to share information on the care of salt-water tropical fish. He even published an article on his UV sterilization method. His very famous coauthor was Earl Herald, curator of the Steinhart Aquarium.

Lee's fascination with highly talented people was also crucial as he initiated a faculty recruiting program which was to achieve great success. To illustrate, he attracted Larry Duda, Jim Vrentas, Al Vannice, and Fred Helfferich to Penn State. All of them had significant industrial experience, obvious creativity, and an inclination to fundamental research, factors which have since led each of them to national awards.

Lee and Mary relaxing over breakfast in the Caribbean.

At the same time as Lee's departmental research revolution was coming into its own, the enrollment explosion struck. He saw it as an opportunity for growth and as a way to gain increased faculty and financial resources for the department. He encouraged creative responses to the problems of advising and teaching of vastly larger numbers of students. His research on faculty workload measurement, published in 1977 in *CEE*, was crucial in balancing responsibilities during that stressful time.

The thirteen years (1970-1983) that he led our department were difficult years for the whole university and especially so for the College of Engineering. For chemical engineering to have experienced such growth and improvement in quality during an era of retrenchment and deterioration elsewhere on campus must be attributed to Lee's leadership.

Beyond leadership, Lee Eagleton has perfected the art of procrastination. The scientific foundation

He has been heavily involved in the Summer Schools and has held all offices in the ChE Division. He volunteered to serve on the *CEE* Publication Board and was Secretary of the Division when *CEE* was moved to the University of Florida. He was elected Publication Board Chairman in 1981, where he served through 1985.

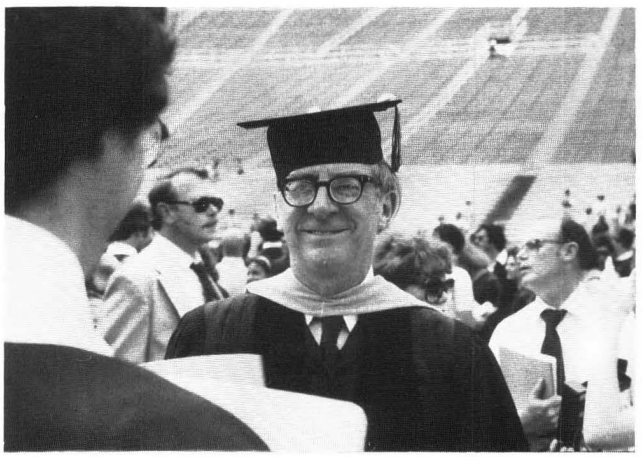
Lee and Mary pose with friend and primary tennis partner at Penn, Stu Churchill.

for his practice is, "If you put something off long enough, the need for it may disappear." The result is that those things which don't disappear receive his attention *after* the last minute. Thus, procrastination has led him to idiosyncratic efficiencies. Those of us who have traveled with Lee to local AIChE meetings recall him dictating responses to a backlog of correspondence in the din of a crowded automobile. One faculty member in the know says that Lee's administrative assistant would have candidates for department secretarial positions transcribe such dictation to see if they were immune to discouragement.

Another such example of Lee's "efficiency" is his use of his HP-41C programmable calculator. Lee, Larry Duda, and Bill Steele, of Chemistry, were walking over to the tennis courts a few hours before Lee was to meet his class. When they were almost there, Lee reached into his pocket, pulled out the calculator which had been working a problem the whole time, wrote down the answer, and went on to play tennis.

Lee is an active member of AIChE at all levels. Students have always found him to be an enthusiastic supporter of their organization, and his good nature has made him the perfect foil for their humor at banquets and other gatherings through the years. He could always be counted on for an extemporaneous Jack Benny-type monologue at graduate seminars, retirement parties, or other functions. What could not be anticipated was his topic or the perspective he would bring to it. In any lineup of speakers, no one ever wanted to follow Eagleton's act.

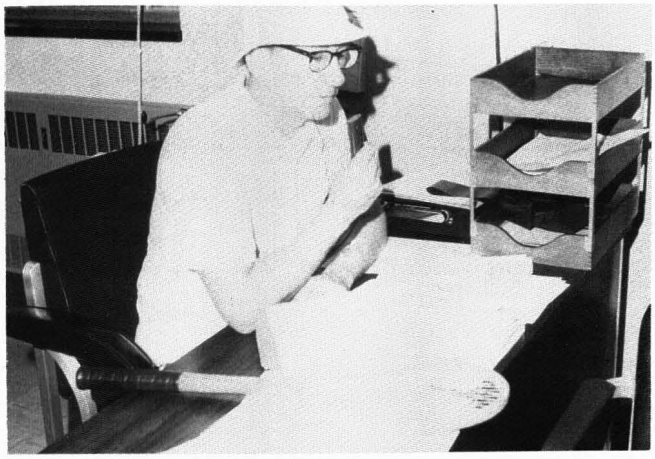
In 1983 the Central Pennsylvania Section recognized Lee Eagleton's contributions to the section and beyond by giving him the AIChE Diamond Jubilee Award. At the national level he served a three-year term as director and was chairman of the committee on AIChE Dynamic Objective 4. This was the objective that outlined changes in educational programs which would prepare chemical engineers for the increasing complexity and diversity of the profession and which reemphasized the applications of chemistry as the distinguishing feature of chemical engineering. Lee was also active on the Education and Accreditation Committee. His work on Dynamic Objective 4 led the E&A committee to consider the liberalization of accreditation requirements for chemical engineering programs. This evolution continues today. An E&A



Lee at 1981 graduation, sharing a final word with one of his students.

colleague, Dee Barker, pointed out that of the large AIChE membership, only fifteen people comprise this important body. Of those only three or four are members of the ABET Engineering Accreditation Commission. The fact that Lee serves on the ABET EAC is indicative of the high degree of confidence chemical engineering people have in him.

One might wonder what special talent makes Lee invaluable in such roles. Consider that he is the all-time memo champ. The successive energy shocks of the middle 1970's brought about widespread and appropriate attention to conservation, as well as some overzealous if well-intended efforts. Penn State was no exception, and its energy czar was Ralph E. Zilly, who inundated us with energy bulletins. Some of them were inane, and Lee referred to them as "silly Zillies."



A bit of dictation before heading for the courts.

In a memo of March 4, 1975, Zilly banned the use of portable electric heaters by secretaries. This aroused the competitive fire and wit of Eagleton and led to his masterpiece of March 14, 1975, which was termed a "Zilly dilly" by our appreciative secretaries. Nevertheless the battle between these two persistent memo-masters (REZ humorless, LCE wry) raged on for almost two years until, on January 4, 1977, Zilly caved in with, "Your point is well taken." Space requirements preclude the inclusion of their memorable correspondence in this article; however, copies of key memos will be provided by the author upon request. This anecdote may seem frivolous, but it illustrates Lee's determination, his disarming wit, and his tolerance of diverse opinions, all of which make him so effective in deliberative bodies.

Although he had numerous opportunities (Deanships, National ASEE, *etc*) to expand his field of influence, Lee consistently chose to focus his energies on his professional discipline. For example, he was recently elected to the select group of ASEE Fellows. His election was, however, almost entirely because of his activity in the Chemical Engineering Division. He has been heavily involved in the Summer Schools and has held all offices in the ChE Division. He volunteered to serve on the *CEE* Publication Board and was Secretary of the Division when *CEE* was moved to the University of Florida. He was elected as Publication Board Chairman in 1981, where he served through 1985. Klaus Timmerhaus credits Lee with pushing hard to make *CEE* the quality publication that it is and for helping to set up the mechanism for adequately financing its operation.

All three of Lee and Mary's children followed his example by studying engineering. Beth is an industrial engineer with Rockwell International in Los Angeles. Jim most closely fits the mold with chemical engineering degrees from Michigan and MIT, a job with Rohm & Haas in Philadelphia, and involvement in a recent AIChE contest problem. Bill's current position as a cook for Stouffer's Restaurant in King of Prussia seems to go back more to his catering service at his father's receptions than to his college education.

When you see Mary, ask her about Lee's devotion to the evening tennis doubles group. The group was surprised one night when a substitute, Jack Purnell, showed up for the 8 o'clock game. Jack (who still plays with the group) is an anesthesiologist at the local hospital where Lee was preparing for minor surgery. Lee was on the table, ready for the mask, being wheeled by the anesthesiologist to the operating room, when he said, "Wait a minute, I have to play tennis tonight." □

ChE letters

HOUGEN MEMORIAL

Editor:

I just wanted to drop you a note and thank you for initiating the tribute to the memory of Olaf Hougen in your journal. I think that the finished product is quite fine, and I have already heard a number of favorable comments. I hope that some of the material in the summary will be interesting to many of your readers and that through the "Hougen Principles" his influence will spread still further.

R. B. Bird
University of Wisconsin

ChE book reviews

ECONOMIC EVALUATION IN THE CHEMICAL PROCESS INDUSTRIES

by Oliver Axtell, James M. Robertson
Wiley-Interscience, Somerset, NJ 08873 (1986), 241 pages, $44.95.

Reviewed by
Max S. Peters
University of Colorado

This short book presents a general treatment of methods used for economic evaluation in the chemical process industries with primary emphasis on keeping the presentation as simple as possible. There are essentially no mathematical equations in the entire book, and quantitative analysis is limited to examples

Continued on page 33.