ChE educator

Gary Bennett of Toledo

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"I WANT TO TALK to enough people to fill Michigan Stadium," says Gary F. Bennett, Professor of Chemical Engineering at the University of Toledo. Quite a goal. At this point, Gary is better than 10 percent along the way of speaking to 103,000 people. Obviously, this does not count the students taking his courses, but only those attending his formal presentations, usually on environmental subjects.

According to the cover letter from national AIChE which was sent to the local sections regarding the AIChE speakers bureau, Gary is "among the most popular speakers." Once again this year, he is serving as a tour speaker on subjects such as: environmental mythology, water reuse, hazardous materials spills, oxygen transfer rates and regulatory control of chemicals and their emissions. To date, he has made over 170 presentations to such diverse groups as Rotarians, Kiwanians, high school students, church groups, librarians, chambers of commerce, college students, scouts, researchers, engineers and chemists. Gary claims to pattern his talks after his former department chairman, Clyde Balch. This approach is exemplified by use of the overhead projector, with humorous slides and stories frequently interspersed. Typically, Gary is heard to say, "It reminds me of the time . . ." or, "have you heard the one about . . ."

As far back as high school, Gary was nicknamed "Professor" by fellow students since he had an interest in teaching, and he was sought out as a tutor by his friends.

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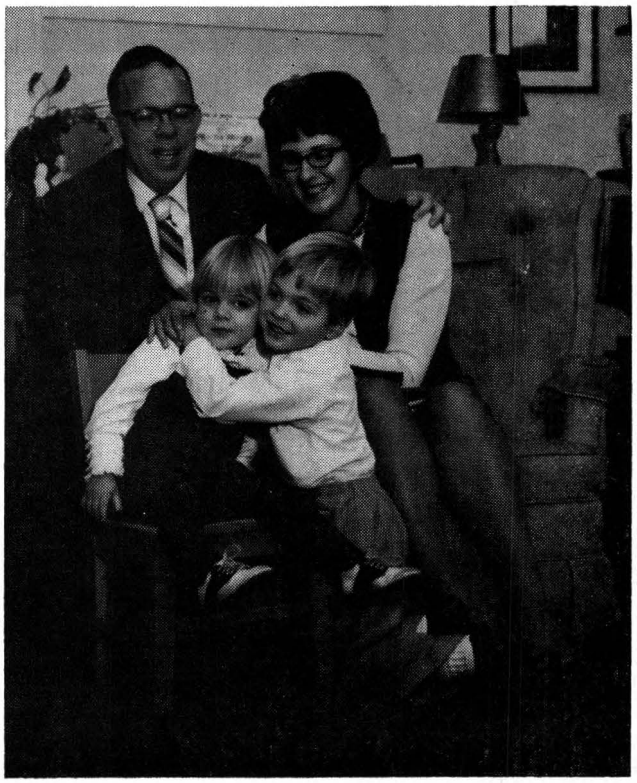

The Bennett's at home. Judy and Gary watch Ritchie give a hug to Allison

Gary hails from Canada and to this day has not learned the American pronunciation of school or schedule. As far back as high school, Gary was nicknamed "Professor" by fellow students since he had an interest in teaching and he was sought out as a tutor by his friends. This interest in teaching was furthered by a series of good teachers at Queen's University, where he received his B.S. in 1957. He was a classmate of Don Woods, now a faculty member who has been featured in *CEE*.

From Queen's, Gary went to the University of Michigan where he held a teaching fellowship in the Department of Chemistry. This was fortuitous because the University Chemistry Department's philosophy was to have the very best professors giving the major lecture, with the teaching fellows handling the recitations and laboratory. The first time a teaching fellow taught the course he was required to sit in on the lectures and meet with the major professor once a week to discuss common problems and philosophy along with the other fellows. In these sessions, the teaching masters passed on to the graduate students their philosophy of teaching and Gary was thus in-

spired to remain in the field. After three years of teaching freshmen in engineering chemistry, including a stint in nursing chemistry, he moved on to the chemical engineering department where, in his final year (1962-63), he was fortunate to teach a course in chemical engineering with Lloyd Kemp and a course in materials science with Lary Van Vlack. In the former, he was a co-teacher with Kemp and in the latter a teaching assistant with Van Vlack. In both cases he worked with great men absorbing teaching philosophy and ideas.

During his graduate days at Michigan, Gary had the unique distinction of being hung in effigy by the students in his dorm unit. It seems that Gary was a dorm advisor and outlawed the use of a small wading pool as unsafe. The student's reaction was normal for the early 60's, but Gary's order stuck. This was his first environmental problem.

THE BENNETT FAMILY

GARY AND JUDY HAVE two youngsters, Ritchie and Allison, both of whom enjoy the family excursions to a remote cottage in Canada. It never fails that some urgent call comes through for Gary while he is in Canada. Then we at UT start the process of calling neighbors several miles away in order to get the word through. "At least he tells us that this is the way to reach him," the chemical engineering secretary is heard to say. For one consulting problem that came up where Gary was needed desperately, the operator asked: "Is Dr. Bennett there?" and the farmer replied: "No." The operator then asked, "When can he be expected?" and the reply was, "Maybe about mail time." This certainly perplexed the urban operator who had never before received such an informal time reply.

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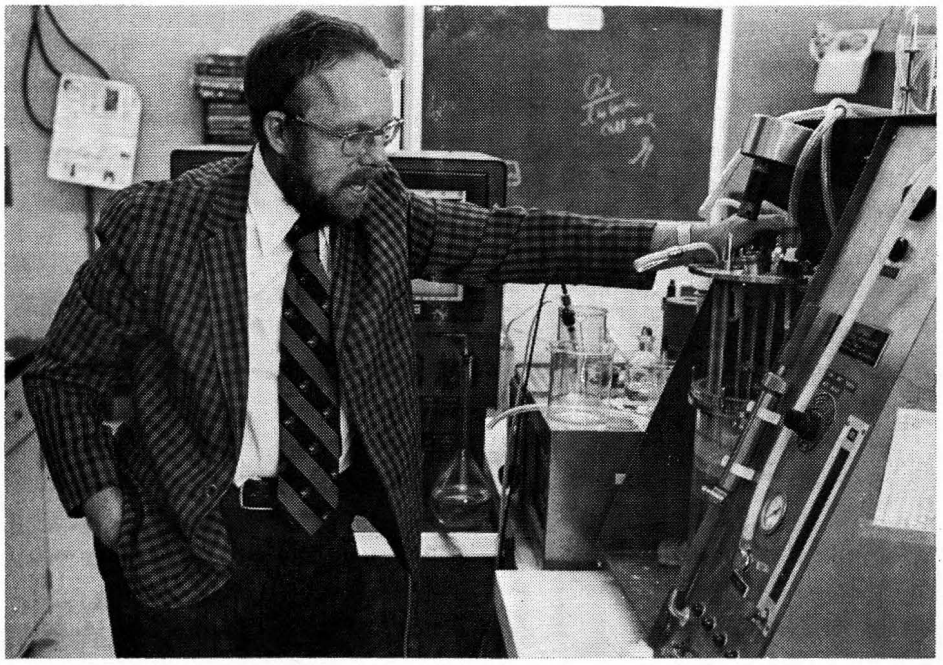
The farm family and the Bennetts have become fast friends, with Gary even returning to Toledo with a sample of their water for testing their well. They, in turn, allow him to help them "hay." One of the joys of a city dweller is being in such a clean environment and Gary and the family spend much time bailing hay and moving it into the barn.

Additional travels with their trailer have taken them through Michigan in 1977, up the Eastern shore to the Western side of Michigan. During 1978 they camped in many of the Canadian camps in Sarnia, Parry Sound and Sault-Ste-Marie. Gary notes that you really get to know your family while in Sault-Ste-Marie since in the latter part of the summer it gets cold and rains nine days out of twelve.

Gary enjoys camping and canoeing, especially in Canadian waters. However, one day last



Gary explaining a laboratory set-up for measuring oxygen transfer rates.

summer when 3½ inches of rain fell on Toledo in a relatively short period of time and the storm sewers backed up on Middlesex Drive, Gary was observed canoeing up the street in front of his house.

Gary picked up his biggest fan while at UM; namely, his wife, the former Judith Connable. Gary likes to tell of their meeting: they were introduced by a blind student on a blind date. Judy graduated from Eastern Michigan University

Gary and Ritchie last summer on a camping trip to Lake Superior.

about the same time that Gary finished his work at Michigan. They moved to Toledo in the summer of 1963 and she took a job with the Toledo schools, teaching hearing-impaired children. Her first class had over twenty students, spanning four grades and six years of student-age difference and was quite a formidable task for a young teacher. Her fame was made, however, when the largest and strongest boy in the class turned off the main water valve in the school and she was forced to paddle him. In the process the paddle broke and her reputation was made throughout the school as one not to be trifled with. Judy never did reveal to her students that the principal, upon hearing of the incident remarked, "Oh! you didn't use that split paddle, did you?"

OUTSIDE ACTIVITIES

GARY TAKES TREMENDOUS pride in his participation in organizations concerned with environmental problems. While chairman of the Toledo Section of AIChE, Gary organized a "Pollution Solutions" group. At the time, they were helping write local regulations and this probably was instrumental in keeping them on a national interest basis. Those of you active in the Environmental Division of AIChE are familiar with the vim and vigor approach he has for such organizations. Some may recall that Gary was a member of the *ad hoc* committee to study formation of the Division back in 1968 and he chaired the committee to write its by-laws. He served as vice-chairman in 1970-71 and chairman of the Division in 1971-72. Subsequently, Gary was the recipient of the Division's National Award in 1975. Tom Goodgame of Whirlpool (current chairman of the Environmental Division) says: "———Gary is truly an inspiring individual with limitless energy to tackle any organizational problem. The Environmental Division is indeed fortunate to have this person among its midst."

Of more recent interest is his activity with hazardous spills. He has served as program director for three of the International Conferences on Hazardous Spills, held in San Francisco in 1974, New Orleans in 1976, and Miami in 1978. In each of those years, he edited the conference proceedings. Recently, a leaking drum of phosphorous trichloride in a box car in South Toledo caused considerable alarm. When Gary was picked up by the fire chief in his car, he expressed disappointment by remarking, "The least they could have done is pick me up with a ladder truck." This particular problem is a typical example of the type of involvement that Gary enjoys.

Gary has served as the AIChE representative to the League for International Ford Education (LIFE) for six years, and was chairman of the Board of Directors in 1977. One enjoyable aspect of the LIFE affiliation was when he traveled to

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Brazil to present a paper at the 5th Inter-American Conference on Chemical Engineering in 1973.

Over the years, Gary has directed 31 masters theses. He refers to the students as part of his family and tries to stay in touch with all of them. For those of you reading this who have not corresponded in recent years, drop Gary a line—it will make his day and enable him to update his log. Ten of these projects have been cooperative ventures with local industry or governmental agencies. According to John McKinney, Manager

of the Toledo Sun Refinery, "these projects usually involve interesting problems that our full-time engineers just do not have time to solve. We are extremely fortunate to have academic people at the University willing to work with us. At least two of these projects have led to designs being used in the refinery."

Most of the masters students have been supported by EPA training grants. In all, Gary has had some $700,000 from 19 grants. The EPA training grants have been running for 12 consecutive years.

At UT, Gary has organized and taught just about every imaginable topic in the environmental field. He developed a series in Biochemical Engineering Processes directed to the elimination of water pollution. Industrial Waste Treatment and Advanced Waste Treatment were developed primarily for graduate students. Gary always incorporates plenty of library projects into his courses. The students are given an opportunity to use Gary's style of reporting their findings to the class. Recently, Gary, in cooperation with the Civil and Mechanical Engineering Departments, organized a three-quarter sequence in Air Pollution: Causes, Effects and Instrumentation. In the future, we look for a new course on Hazardous Spills.

COMMUNITY INVOLVEMENT

GARY HAS BEEN EXTREMELY active in local community work because he thinks that people ought to be involved in their community organizations. Beyond that, he thinks that people should take a rational approach to the environment in order to present a counterbalance to wild, exaggerated or biased arguments on both sides. He has, therefore, been committed to committee work both in Toledo and in the University. One important and typical committee is with the Toledo Sanitary District. He has been a member of their Board of Directors since 1969. One might think it is a sewage committee, but in reality it is a mosquito-control group. Their friendly salute is a swat on the cheek to kill the imaginary mosquito. He has also been on the Northwest Ohio Health Planning Association Board since 1972 and has served as vice president since 1973. This committee deals with a wide variety of both environmental and medical health problems.

He has served as a consultant to the City of Toledo on hazardous spills. He has also served on the Advisory Board for the Port of Toledo since 1973. Under the Board's direction, a $150,000 study of Maumee Bay has been conducted to monitor the quality of the bay and to measure the impact of a new dike dredged disposal facility on the bay. This was an exhaustive two-year study in 1974 before the dike construction and in 1976 after its construction. He is very pleased to point out that the quality of Maumee Bay is still extremely high.

Those of you active in the Environmental Division of AIChE are familiar with the vim and vigor approach he has for such organizations.

Gary served as chairman of a University Committee on Salaries, Promotions and Leaves in 1975-77. This gave him an opportunity to observe how the other half of the University community lives (and survives).

In 1976, Gary was asked to chair the advisory Committee to the City of Toledo on utility rates. The concern was that proposed utility rates would impact severely on the elderly. The City Council wished to study this impact and see if there could be some way of ameliorating it. Gary and his committee authored a unique senior-citizens exemption plan which would exempt senior citizens earning less than the specified annual income from the utility rate that was being proposed by the Electric Company. The concept, developed by the committee, was presented to City Council and passed unanimously. It received national recognition as being an innovative approach to the problem. The City Council honored Gary and the committee with a resolution that contained the words: "Whereas the Citizen Advisory Committee on Utilities issued a report that was extremely helpful to the Rate Negotiating Committee in completing their task, be it resolved that the committee be officially and publicly commended for their outstanding work in researching the impact of electric utility rates upon the citizenry and suggestions during the recent electric rate negotiations.

INDUSTRIAL CONSULTING

IN ADDITION TO teaching and his extensive professional society and community work, Gary finds time to consult for industry. He has consulted for about thirty companies in the fields of pollution and hazardous spills.

Gary feels that consulting, research and teaching are a three-legged stool on which a professor sits.

One of the new, intriguing things that he is doing right now is consulting for Diamond Shamrock on the development of a new material for picking up hazardous materials. There are several materials presently on the market for picking up oil spills but few of these are compatible with the wide range of chemicals that constitute hazardous materials spills. Diamond Shamrock has discovered an inorganic material called Diasorb that will pick up a wide variety of hazardous materials and Gary is acting as a consultant on such aspects as marketability, tests needed and potential uses.

Gary was asked by Great Lakes Corporation in Detroit to act as their environmental consultant. This resulted in being environmental control director and staff for a multimillion dollar company which has seven plants around the United States from New Hampshire to Tulsa. This company cleans and recycles steel barrels. Given this introduction, the problems are obvious since steel barrels contain almost anything, most of it obnoxious. Gary is on call to serve the plants and solve their problems, a distinct departure from the classroom. In the latter, pollution control is always developed for the students. The real difference is in the role of responsibility which business has to assume. Gary tries to visit the plants during breaks from the classroom and work with them at other times by telephone and short visits during the academic year.

Aside from the joy of solving real problems, Gary is enthusiastic about what he can bring to the classroom from this activity. Gary feels that consulting, research and teaching are a three-legged stool on which a professor sits. All these legs ought to be balanced in some fashion. Gary has been heard to make the statement that every consulting activity he has had has been returned more to him in knowledge and information to take back to the classroom, than he has given to the company in return for payment. Gary believes that consulting is a two-way street—important for his knowledge and for his class.

Gary is an ardent stamp collector. His collection started when he was about ten years old when he was suffering from the measles and his parents gave him a stamp book. Gary began, as most young people do, with a general collection, but in his college days he began to specialize in Canadian stamps.

Because of his activity in Boy Scouts, he began to collect Boy Scout stamps and now has an almost complete collection. He is also proud of his excellent collection of Canadian stamps. These date back to the early 1890's. In deference to his interest in pollution and his popular talk on Environmental Mythology, Gary has begun to assemble a topical stamp collection on Environmental Mythology. He has stamps that illustrate cooling towers, thermal pollution and oil wells. Although time is a premium, Gary hopes that he will be able to complete this collection and get it in shape to have an exhibition sometime. If you know Gary, as we know Gary, start looking for it. □

ChE news

LLOYD BERG RETIRES

Lloyd Berg, upon reaching the mandatory retirement age for administrators, retires on June 30 as Head of the ChE Department at Montana State University, having completed 33 years in this position. He celebrated the event by completing the 26+ mile Montana Marathon in slightly under five hours. He will continue to teach, research (and run).

Y. T. SHAH APPOINTED CHAIRMAN

Dr. Yatish T. Shah has been appointed chairman of the Chemical and Petroleum Engineering Department, University of Pittsburgh, effective March 1, 1979.

Dr. Shah, who received his B.S. degree in chemical engineering from the University of Michigan and his M.S. and Ph.D. in chemical engineering from MIT, joined the Pitt faculty in 1969. Currently he is a professor of chemical engineering, a rank he achieved in 1977. From Nov., 1970, to May, 1971, he was a visiting scholar at the University of Cambridge, England. In addition to his teaching and research, Dr. Shah has obtained extensive consulting experience with both industrial and governmental agencies in the areas of coal liquefaction and reactor design research.

Dr. Shah has published extensively and made major contributions to the technical literature, particularly in polymer processing and multiphase reaction engineering, having just published a book on the latter subject. He is a member of the American Institute of Chemical Engineers, American Chemical Society, Tau Beta Pi, and Sigma Xi.