ChE educator

Bob Reid of M.I.T.

MICHAEL MODELL
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

USUALLY, BOB REID IS IN class five minutes before the hour to greet and chat with early arrivals to his 9 a.m. graduate thermodynamics course. This day, the students find instead, coffee and doughnuts set up in the back of the room. At the bell, Maria (Bob's secretary) announces: "Unfortunately, Professor Reid couldn't make it today, but he has sent a guest lecturer, J. Willard Gibbs." She proceeds to lead in a decrepit old man, dressed in an academic gown and made up in a wig, false nose and glasses. Leaning heavily on a cane, he presents a fascinating, but incoherent lecture on the criteria of equilibrium and stability. The contrast with one of Bob's lectures, which are usually marked by clarity and simplicity without any trace of academic arrogance or pretension, couldn't be greater. But it's all in fun, because the man in the gown is Bob himself. Unexpected? Not really. For those fortunate enough to know Bob Reid, the unexpected often becomes the expected. The Gibbs routine is pure RCR. It's just one of many gestures Bob makes to develop a close rapport with the students. Early in the term, for example, he invites every entering graduate student to chat with him for a half hour. "I try to show them that the inside of my office is really not very grotesque; once they've been in, the second time is much easier." And they do come back, time and again, to discuss their interests and problems, and to seek his counsel. In spite of the fact that the graduate thermo course is known to be the toughest, most demanding course in the program, Bob was chosen by the students as the Outstanding Teacher in the department in 1973 (the second year the award was given) and again in 1975.

In spite of the fact that the graduate thermo course is known to be the toughest, most demanding course in the program, Bob was chosen by the students as the Outstanding Teacher in the Department in 1973 and again in 1975.

Bob's interest in chemistry, as well as his classroom sense of humor, date back to his high school days in Denver. He recalls his chemistry teacher, who conducted a qualitative analysis lab. "He used to give us all sorts of fascinating samples. He was quite a joker. He'd give you powdered concrete as an unknown. Your first reaction was to see if it dissolved in water. It would set up like a rock overnight; then he'd get the biggest kick out of seeing your reaction the next day. He was the kind of teacher a student could relate to. He'd have a standing challenge that any student who could beat him in shooting baskets would automatically get an A, regardless of how little chemistry the student knew."

QUESTIONABLE BACKGROUND

BOB'S COLLEGE EDUCATION could best be described as sporadic. He entered Colorado School of Mines in 1942, majoring in petroleum refining because "I was offered a scholarship and petroleum refining was the closest offering to chemistry." But he didn't stay long: "In my freshman year, I turned eighteen, quit school, and joined the Army Air Corp as a cadet. After eight months, I contracted rheumatic fever and was given a medical discharge. I drove a truck, worked in a steel mill, went back to school, and then joined the Navy in 1943. The computers weren't very good in those days; before I was discharged in 1946, I think I was the only one in the country with an active commission in the US Navy and a medical discharge from the Army."

After the war, Bob returned to Colorado School of Mines, where his candor and curiosity almost led to several suspensions. "I used to argue in class and most professors didn't like a

Unfortunately Prof. Reid couldn't make it today, but he has sent a guest lecturer, J. Willard Gibbs.

student questioning their presentation. This is why, even now, I feel very strongly that a student should raise questions—on everything I say, on everything I do."

After his junior year, he transferred to Purdue, where he obtained B.S. and M.S. degrees in chemical engineering, and where he met Joe M. Smith. "Joe really turned me on; he was the first teacher who gave me problems I couldn't solve. As a matter of fact, I'm still using some of them. I had never met a professor who wanted to know you as an individual. If I were working in the lab late at night, he'd stop in, put his feet up on the desk, and talk with me, not necessarily about my thesis, but about almost anything."

"Warren K. Lewis was another teacher who had a great impact on me. I'll never forget one of my first classes with Doc after I entered M.I.T. in 1951. He gave us a homework assignment and I put in a lot of time on it; I thought I had it cold. When he called on me to do the problem, I breezed through my solution and knowledgeably commented on it. Well, he stood there and looked at me, horrified. Then he marched down the aisle, poked that finger of his in the middle of my face, and said in his inimitable fashion, 'Go-o-o-d da-m-m-it, Reid, you don't re-a-a-a-lly believe that!' Everybody in the class was staring at this little character, scrunched up in his seat and wondering what he'd say. You see, either you were firmly convinced that you were right and were willing to argue with him, or you had to think of another answer awfully fast. I had the right solution, and he knew it, but he forced his students to develop confidence in their own convictions and to learn how to defend their positions. That was an experience I'll never forget, and one I've tried to emulate."

FIRST OF MANY CHAPTERS

BOB BEGAN HIS TEACHING career as an Instructor while finishing his Ph.D. dissertation in 1954. He was teaching an undergraduate thermo course with Tom Sherwood. At one point, the two of them were trying to make out a refrigeration problem, involving a mixture of refrigerants. Bob recalls, "We couldn't find some boiling points or critical pressures, and so Tom turned to me in disgust and said, 'Reid, somebody ought to write a book that tells you how to estimate these things if they're not in the literature.' About a month later, Bob dropped a chapter and an outline for a book on Tom's desk. Tom was so shocked that he agreed to co-author the book. Bob finished the manuscript while he was Director of the School of Chemical Engineering Practice at Oak Ridge. The rest is well-known history. The first edition of *Properties of Gases and Liquids* was printed in 1958, received rave reviews, and has been an essential part of every chemical engineer's library ever since. The second edition was printed in 1966 and has since been translated into Russian and Spanish. Bob is currently working on the third edition.

The first edition of *Properties of Gases and Liquids* was printed in 1958, received rave reviews, and has been an essential part of every chemical engineer's library ever since.

Bob has also co-authored two other books: *Modelling Crystal Growth Rates from Solution* (with M. Ohara, 1974) and *Thermodynamics and its Applications* (with M. Modell, 1974).

Bob joined the faculty at M.I.T. ostensibly to finish *Properties of Gases and Liquids*. One thing led to another, and Bob has been at the Institute ever since. Although Bob considers himself to be inbred, he has consistently been at the forefront of movements for change and improvement: in curricula, in graduate school policy, and in faculty

Joe Smith really turned me on; he was the first teacher who gave me problems I couldn't solve. As a matter of fact, I'm still using some of them . . . I had never met a professor who wanted to know you as an individual. Warren K. Lewis was another teacher who had great impact on me . . . he forced his students to develop confidence in their own convictions and to learn how to defend their positions.

hiring policy. He has been opposed to M.I.T.'s long-standing policy of hiring its own Ph.D.'s as assistant professors. "For many years, inbreeding worked in M.I.T.'s favor, but today there are numerous first-rate chemical engineering departments around the country, each with its own style and qualities, and it's high-time we cross-fertilized students and faculty with other schools. I am pleased to see that we're making concrete progress in that area."

In his most recent crusade, Bob assumed the editorship of the ailing AICHE Journal in 1970. In a short time, he introduced much needed reform and pioneered innovations in ways of disseminating technical knowledge. To be a journal editor, one must have patience and tact in dealing with authors, many of whom have strong convictions, and some of whom regard their manuscripts as sacred prose. The fact that he remains on good terms with them, and is highly admired by many of them, is a tribute to his skill and finesse. He has managed to inspire confidence once again in potential contributors, mostly by reducing hold-up time for manuscripts, but also by careful and fair attention to reviewer's comments as well as the author's special wishes and needs. His performance has earned him deep respect from a large and increasing following. In this capacity alone, he has probably contributed more to our profession in just a few years than many of us will be able to accomplish in a lifetime. □

ACKNOWLEDGMENTS

The following companies donated funds for the support of

CHEMICAL ENGINEERING EDUCATION
DURING 1975:

MONSANTO COMPANY
3M COMPANY

We also thank the 133 Chemical Engineering Departments who have contributed to the support of CEE in 1975!