

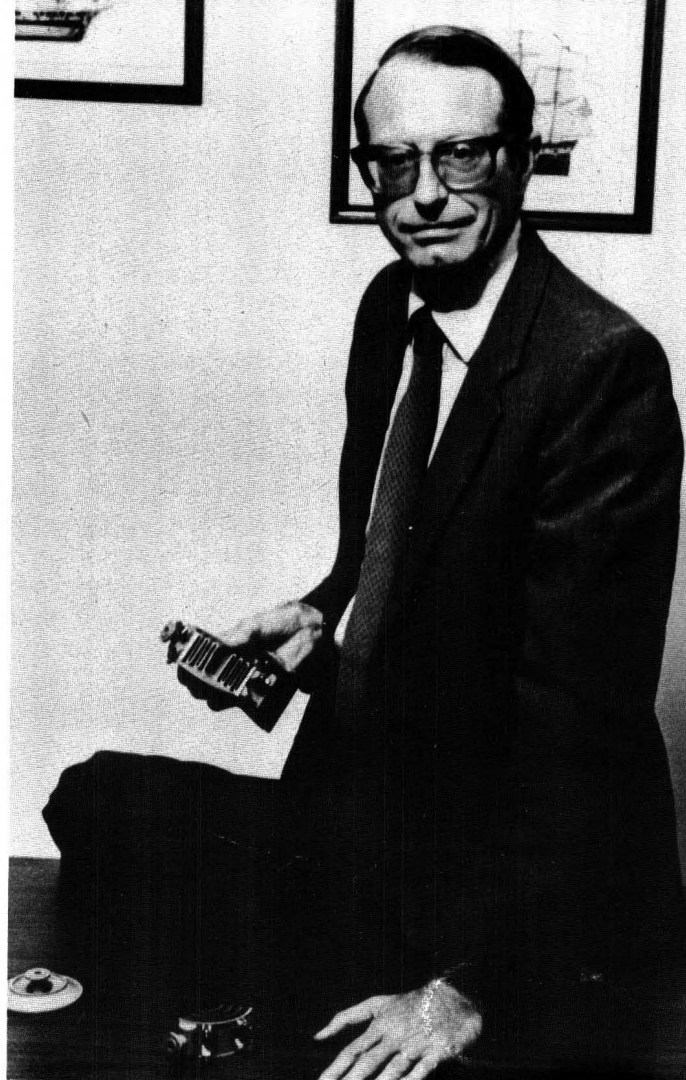
Ken Bell of Oklahoma State

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To describe Kenneth J. Bell, 55, Regents Professor of Chemical Engineering at Oklahoma State University, and internationally recognized authority on heat transfer, can be as complex as trying to solve some of the complex problems this highly specialized field can present. He is, first, a highly competent engineer blessed with the ability to handle both the theoretical and applied aspects of his field. He is also a husband, father, oenologist (wine expert), collector of fine books, mineralogist, avid reader, and keen amateur historian. As one graduate student puts it: "I understand Dr. Bell's father was an engineer. He wanted to be a historian. Thank God his father had some influence over him." He is also the unofficial, red-pen editor for the School of Chemical Engineering. As School Head, Dr. Billy Crynes says, "He is our unofficial grammarian. He takes great pains (and delight) in editing colleague's and student's papers. It's impossible to slip anything by him."

Ken Bell was born in Cleveland, Ohio in 1930. He received his BS degree in chemical engineering from the Case Institute of Technology in 1951, his MChE from the University of Delaware in 1953, and his PhD in chemical engineering from the University of Delaware in 1955. A year after receiving his doctorate from Delaware, he met and married Karen McLe-more, a tall, striking woman who seems to compliment Ken's dynamo vitality with a controlled, inward calmness. Ken and Karen have four children: Lorna, 27, also a chemical engineer; Craig, 24, with the U.S. Army; Tamra, 24, a youth worker; and Ellen, a 14-year-old ninth grader who, according to her mom, is a budding ballerina. Karen relates that she and Ken

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met while he was working as an engineer with the heat transfer unit, Pile Engineering Department, at the Hanford Atomic Products Operation in Richland, Washington. The area, she says, afforded Ken the opportunity to climb many of the Pacific Northwest's numerous mountains. However, she says, "Since moving to the Southern Plains of Oklahoma, he has had to make do with climbing the four flights of stairs in the engineering building."

Karen describes her husband, too, in glowing terms like: "He enjoys good food and will eat almost anything. . . . except peanut butter. . . . and, to most folks consternation, he does not put weight on easily." Karen also comments on Ken's editing prowess. "Ken has the curse of being a natural speller (unlike his wife). Misspelled words simply pop out at him from everywhere. He's been known to whip out his red pencil to make corrections on whatever is at hand."

Following his Hanford experience, Ken was assistant professor of chemical engineering at Case Institute of Technology for six years. After serving as visiting faculty member for the Oak Ridge School of

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Reactor Technology in 1958, and spending a summer as research professor at the University of Delaware in 1959, he came to Oklahoma State University in 1961 as associate professor of chemical engineering. OSU chemical engineering school head, Billy Crynes, says he first met Ken in 1967 when he came to work for the university. "My first impression," he says, "was that this is one arrogant s.o.b. He says things in 25 words that should take 5."

But, Ken Bell is good. He's one of a handful of recognized experts in the world in heat transfer. His publishing and consulting records speak for themselves. He has published four major books, 46 technical papers and formal reports, 16 monographs, surveys, and handbook sections, 7 articles and 6 book reviews. He has consulted with more than a score of firms, both in the United State and abroad. Industry giants such as U. S. Steel, Phillips Petroleum, Rockwell International, the Argonne National Laboratory and Mitsubishi Heavy Industries of Japan are among those who seek Ken's advice. Yet, while his consulting work has been broad, Billy Crynes says that, ". . .in fact, he does relatively little consulting when one considers his expertise. Even more, despite all the time pressures, he is the first one to help out when committee assignments are made. And, when he takes on a job, he is very thorough. He was asked to serve as head of the University Academic Appeals Board, a very tough job. He spent hours on that Board reviewing cases, and when it was all over, he received glowing praise for the work he had done."

Ken Bell's influence also reaches a broad spectrum of national and international groups and organizations. He was a committee member of the National Research Council-Army Research Office Advisory of the National Academy of Sciences. From 1971-75, he was the U. S. Delegate to the Assembly for International Heat Transfer Conference in Tokyo. And, he is a member of the Scientific Council of the International Center for Heat and Mass Transfer in Belgrade, Yugoslavia, the International Council of Revue Generale de Thermique in Paris, and the National Science Foundation's Cooperative Research Program in Heat and Mass Transfer between the United States and the Soviet Union. In addition to his consulting work, teaching and research duties, Ken serves in important editorial positions. In 1977, he was named editor-in-chief of *Heat Transfer Engineering*, an international quarterly. He is a member of the editorial board of the Heat Exchanger Design Handbook and served as editor of *Advances in Cryogenic Heat Transfer*, a chemical engineering symposium series. His short courses and lecture series have been taken all over the world. He has developed OSU engineering exten-

sion courses which have been held throughout the United States. Finally, he has been asked to deliver over 30 major talks to engineering groups and other colleges and universities throughout the United States and the world.

Naturally, Ken Bell's accomplishments have not gone unnoticed. In 1978, he was awarded the Donald Q. Kern Award by the American Institute of Chemical Engineers. Ken was a friend and professional colleague of the late Dr. Kern, an educator, author and pioneer in the art and science of process heat transfer. In 1980, the Oklahoma Society of Professional Engineers named Ken as Outstanding Engineer. In 1972, he was awarded the Best Paper Award at the 12th Annual Heat Transfer Conference held in Tulsa. The



Ken is the recipient of numerous awards.

paper, "Friction Factors for Inline Square Tube Banks at Low Reynolds Number," was co-authored by K. Ishihara. Ken is listed in *Who's Who in America*, *Who's Who in the South and Southwest*, *American Men and Women of Science*, *Who's Who in Engineering*, and *Who's Who in Technology Today*.

Despite his international reputation in heat transfer, it is in the classroom and with students, both graduate and undergraduate, that he excels. Longtime friend, colleague, and former technical director of the Heat Transfer Institute in California, Jerry Taborek, says that, "Ken has an outstanding ability to explain even complicated problems in a comprehensive way—and if one is lucky enough to get the rare chance to say something—Ken would listen patiently, but you better be well prepared."

Graduate students are even more expressive when

asked to relate their experiences with Dr. Bell. "His classroom presentation is friendly, but professional," according to one student. "He has," says another graduate student, "a solid command of what he teaches in any subject he teaches. The thing about him I like is that if he doesn't know the answer to a question right away, he'll tell you he doesn't know, and will find the answer for you." "His international reputation," offers another student, "makes him credible in the classroom. Also, if you take Dr. Bell's courses, or are one of his graduate students, you'd better be prepared to work and work hard. If you don't, you will fail. If you do, you will benefit greatly and Dr. Bell will be there to help you the whole way." But, one student cautions that this guru-student relationship may sometimes be fraught with danger: "If you ask Dr. Bell a question, you're not likely to get a direct reply then. More than likely, he'll ask you what *you* think about the problem. And, you better have thought about it, or be adequately prepared to think on the spot about a solution. He just doesn't like to give out unearned answers."

All of Ken Bell's students indicate that he is very tough in the classroom, and somewhat intimidating to young undergraduate students. He is also an understanding pedagogue. "Dr. Bell," says one, "is always compassionate with students. Although he is busy, he seems genuinely concerned about all his students and personally knows all of his junior, senior and graduate students."

Humor is not an absent element in a Ken Bell classroom, either. "His classes are not strict and formal. They are full of anecdotes that help lighten the mood. You certainly don't fall asleep. They're not boring, and you learn," says one student. And, although Ken's taste for wine is legendary (Dr. Crynes tells about an incident in a restaurant about wine refusal, initiated by Ken, and upheld by the maitre d'), the students relate how they look forward to "... Dr. Bell's lecture on the distillation of fine Scotch whiskey."

Despite his professional credibility, however, Ken Bell remains the consumant teacher. "He's always curious about what you are doing," says one student. "He'll talk with you for hours if you're prepared," says another. "Ken Bell," says Dr. Crynes, "is a spellbinding speaker. He is knowledgeable and anecdotal. I discovered this the first time he gave a guest lecture in one of my classes. He conveys such a feeling of confidence that it really can be overwhelming."

Ken's real expertise lies in the analysis and evaluation of data to provide the best design of heat transfer equipment. His pragmatic philosophy is echoed by a student who says, "The homework you do is very applied. All his students have a sense that they will



A rare moment of relaxation for Ken and Karen.

definitely be able to use the material in the real world when they graduate." This down-to-earth, no-fancy-stuff attitude was, perhaps, best reflected by Ken himself in an article in *Heat Transfer Engineering* dealing with the problems of remaining "computer literate" in today's world:

... don't lay any guilt trips on me about computer literacy—I'm about as literate as my time allows and my job requires now, and I'll become as literate as I need to be for tomorrow's job.

If Ken Bell has any shortcomings, it is his apparent aversion for physical activity. Dr. Crynes says, "He loathes routine physical exercise. "In fact," Dr. Crynes, himself an avid and consistent jogger, says, "Ken celebrates his dislike for exercise by ritually taking a brisk, around-the-block walk with the family dog once a year. Of course, his good shape and lean appearance are a constant source of amazement and envy among his close friends and colleagues. (Karen admits that Ken tries to walk the dog around the block when he can.)"

Perhaps Crynes' assessment of Ken Bell's value to the OSU faculty and the rest of the engineering profession best sums up his influence and place in the world: "Ken is something special and unique. He is one of the few persons I have had the opportunity to know who excels in both the theoretical and applied aspects of his field. He has fulfilled all the university obligations expected in teaching, service, research, and national and international reputation. But, perhaps Ken's greatest value is the rippling effect he has on other faculty members. His tremendous talent and energy inspires others to reach the higher levels of knowledge and achievement in their own fields. This halo effect definitely touches everyone who comes in contact with Dr. Kenneth Bell." □