

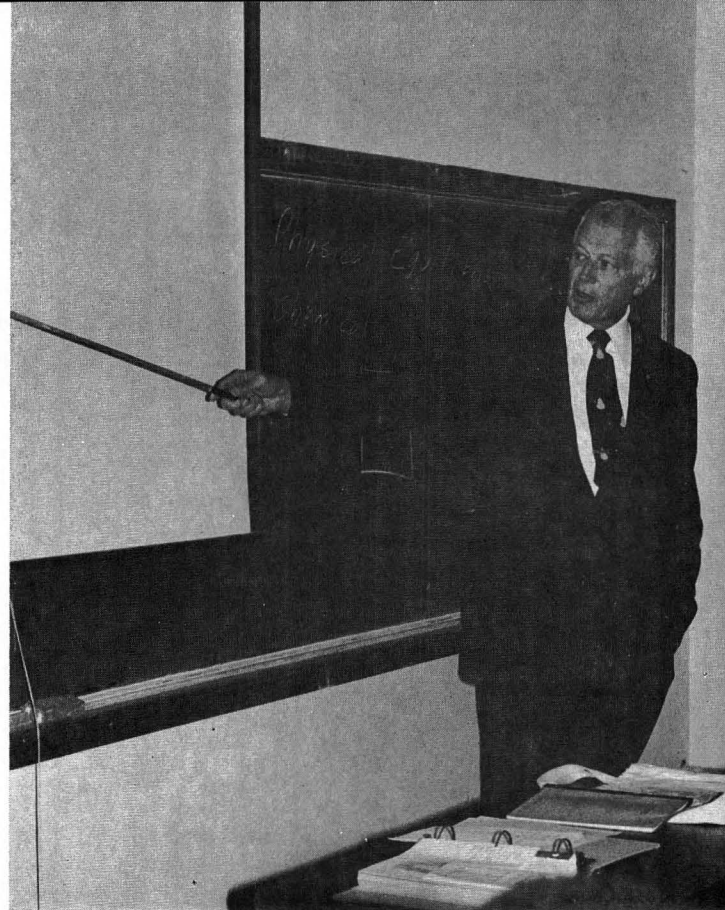
Joe Martin
of Michigan
... Professor and Professional ...

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JOSEPH J. MARTIN has established himself as one of the best known and universally admired faculty members in chemical engineering. He received his B.S. from Iowa State University in 1939, and worked with the Eastman Kodak Company for the next two years. Subsequently, he was awarded an M.S. from the University of Rochester in 1944, and obtained his D.Sc. from Carnegie Mellon University in 1948; he was an instructor in chemical engineering at both of these institutions. Coming to the Department of Chemical Engineering at the University of Michigan in 1947 as an Assistant Professor, he was promoted to Professor in 1956, and has also held a joint appointment as Associate Director of the Institute of Science and Technology since 1965.

Joe Martin's contributions to chemical engineering have been so pervasive and extensive over the last 40 years that few, except for the new generation of chemical engineers, could not be fully aware of their impact. Yet, it has been for the current and future generations of engineers that his efforts have been targeted. Joe has taken on the mission of developing the framework for the maturation of engineering in general, and chemical engineering in particular, into a profession

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that takes a responsible leadership in the application of technology to societal needs.

His has been a multifaceted approach, spanning the dimensions of teaching, research, and professional organizations.

For many of the 3000+ students who have graduated from the Department of Chemical Engineering at the University of Michigan during his tenure on the faculty, his direct influence has been in the classroom and particularly in that abstract and somewhat esoteric field of human invention known as thermodynamics. Joe sees thermodynamics as one of the major intellectual achievements of mankind, in that for all its highly mathematical conceptual basis it concisely summarizes much of the characteristics of the real world. Joe is a master at bringing this realization to undergraduates and graduates alike, along with an ability to apply these principles effectively. He has developed a unique pedagogical approach for teaching thermodynamics in which he prepared a notebook and slide presentation with each of its 200 panels presenting the essentials of one aspect of thermodynamics. This methodology has gained wide acceptance in the chemical engineering community and has been made available by AIChE to large numbers of faculty and students throughout the country. Here, he has combined his insight into the logic of thermodynamics and

his extraordinary ability as a teacher to set forth the various equations and principles of thermodynamics in a clear, concise, and readily assimilated fashion.

Students recognized Professor Martin's gift of teaching effectiveness nearly thirty years ago by giving him the Phi Lambda Upsilon Teaching Award, and this ability has even been enhanced by time. For example, one student recently said, "He is eloquent, not dry and technical. Philosophical interjections provided day-to-day applications and considerations," and another reported "Professor Martin is a very, very excellent teacher in a most difficult course. He explained the tough course matter in a manner which was easy for the student to grasp and like. He made it interesting."

Joe's love and appreciation for thermodynamics has been constant and unwavering over four decades even though the fashionability of the discipline has gone through cycles. Recent world-wide political developments and the realization of the very high economic value of energy has catapulted thermodynamics (or as Joe puts it, the "science of energy") back into the center stage of relevant technology.

Joe and his students have devoted many arduous years obtaining precise thermodynamic data of substances so as to provide the testing ground for the "Holy Grail" of thermodynamics—a General Equation of State. Of his more than 100 publications, nearly a third have been related to this effort. Not one to be distracted when he has decided on a goal or a challenge, Joe has tenaciously battered, chipped, and molded, as a sculptor converts a marble stone into a work of art, to express the refinements and essence of thermodynamics in an aesthetically pleasing equation of state. Much of this effort has been capped in a recent paper with the disarmingly simple title "Cubic Equations of State—Which?" (*IEC Fund.* 18, 81, 1979).

Joe has always coined charming and interesting titles such as his famous "Antidisestablishmentarianism" (*CEP* 68, 19, 1972) and "When Is a Man Half a Horse?" (*CEE* 13, No. 2, 73, 1979).

Always prolific in technical writing, October, 1981, marked his latest publication; a small book sporting a 'maize & blue' cover entitled, "Unified Approach to Series and Integrals of Orthogonal Functions." This is directed in par-

ticular toward an advanced study in mathematics.

We would not want to leave the impression that Joe has been single-minded in his pursuit of science. That would omit the other two-thirds of his contributions, which may be overshadowed by his achievement in thermodynamics but in their own right were significant landmarks in other disciplines. For example, recognition of Joe's pioneering work in radiation chemistry led to his election as Chairman of the Division of Nuclear Chemistry and Technology of the American Chemical Society (1962) and also to the Chairmanship of the Nuclear Engineering



Joe Martin with students Michael Longpre, Suzanne Farran and Diane Delonay.

Division of the AIChE (1962).

This high level of achievement in teaching, writing, and research, has provided the base of Joe's other long time commitment—the improvement of the professional status of engineering. Simultaneously with his technical activities, Joe has dedicated himself to service to his profession. He has volunteered his services and energies to professional societies, which when taken together, comprise a "Who's Who" of Engineering. He has been president of AIChE (1971), president of Engineer's Joint Council (1973-75), president of ASEE (1978), and was founder and first chairman of the Association for Cooperation in Engineering (1975-78). It is through the ACE that his goal of a unified voice for engineering is finally coming to fruition. A very visible result of Joe's efforts is this journal, *CEE*, which came into being during Joe's tenure in ASEE. He has

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also served on the Engineers Council for Professional Development (1973-80), and is currently chairman of the Education and Accreditation Committee of the AIChE.

He was given an Honorary D.Sc. degree from the University of Nebraska in 1971 and received the Founders Award of the AIChE in 1973.

Why this selfless dedication to his profession? Well, perhaps it is best to quote Joe himself on this—"We have an unusual collection of talent in our memberships, drawn from industry, government, and education, and are capable of directing it in a relevant manner for the best interests of the individual, the specific group, and the nation as a whole. Thus, a profession does not exist in a vacuum—but derives its meaning, value, and goals

through both its responsiveness to needs of society and its influence on the direction of society. Being an engineer carries with it a serious responsibility which must be met in a considered, thoughtful manner by the engineers who are developing the new technologies if these advances are to play a positive role in our society." Quoting from his Phillips Lecture entitled, "No Engineer Can Serve Two Masters—or Can He?" "My contention is that more is generally accomplished by bringing people together than by pulling them apart. The intervenors who seek to attain their goals, no matter how worthy, through divisive techniques are far less likely of eventual overall success. Their efforts to pit engineers against their employers are based on an asserted advantage to the public, but this is dubious."

In these times when there has been an awakening of the need for better university/industry cooperation, it is remarkable that Joe has been a catalyst in this area for the last fifteen years. About half of Joe's University appointment during this period has been in the Institute of Science and Technology of the University of Michigan. As Associate Director of IST, (and Acting Director from '78 to '81), he has led an effort to bring industry and university leaders together in conferences, workshops, and study groups. More than twenty-five "state of the art" monographs have resulted, ranging in topics from the highly technical "Data Processing Fundamentals" to the more prosaic "Vacation Housing." Through Professor Martin's work in IST, he has been an integral part of research at the U of M and serves on special committees in the Office of the Vice-President for Research and is a member of the Executive Committee of Macromolecular Research Center.

Those who know Professor Martin well are aware that just as he is synonymous to thermodynamics, so too is he to tennis; he approaches this recreational game with the diligence and aggressiveness mostly accredited to professional tennis players.

Born in Iowa and raised in Omaha, Nebraska, at the young age of 12, Joe acquired his affinity for the sport from his father, Joseph Wesley



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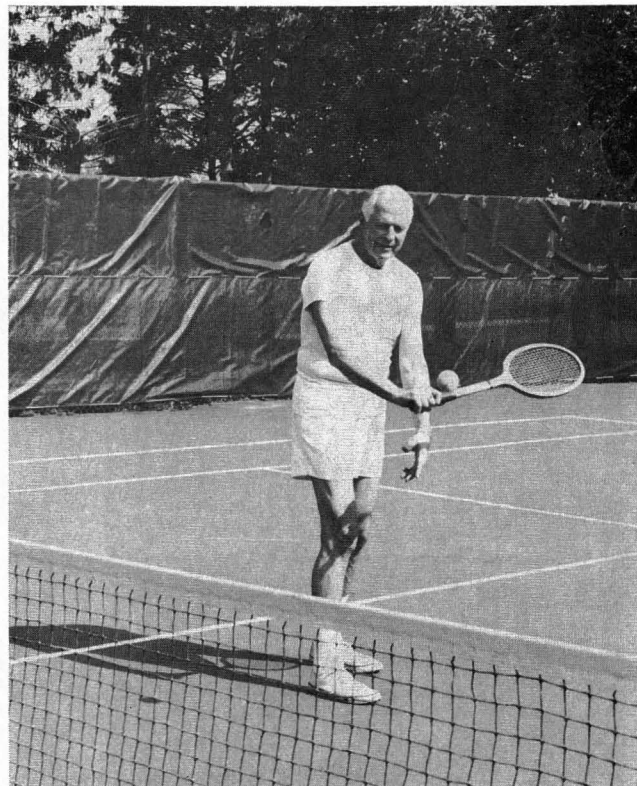
Martin, a school teacher and an avid tennis player. Joe took the game seriously and was on the Varsity Tennis Team at the University of Rochester, followed by competitive playing for over 35 years in the Ann Arbor City and University Faculty Tournaments. Having been in the finals many times, as recently as August, 1978, he won the "Ann Arbor Men's Singles—Over 40" title against contenders 22 years his junior. The newspapers aptly dubbed him "King of the Court!"

Although Professor Martin belongs to three tennis clubs, he says he enjoys playing at the University of Michigan Track and Tennis Building "best" because of the "fast-action" of the wood boards.

Arriving at the office in East Engineering Building at 7:30 a.m. every morning and always being punctual for classes and meetings, he begins his busy schedule, deftly arranging (sometimes almost surreptitiously) sufficient time in the day—for tennis. Playing with colleagues and students during noon hours, or just practicing on the backboards for an hour or two is an essential part of his day.

An inveterate traveler, logging some 30,000 miles/year during the height of his involvement in society work, he never leaves home without a tennis racquet in hand—nearly always having pre-planned a game or two over the phone or by letter before the trip. But if not, he quickly negotiates

involved himself in community service and has been a dedicated family man. Mrs. Martin (Terry) has traveled far and wide with Professor Martin and has always been his strong supporter. The



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one when he arrives, since he has "tennis friends" everywhere in the country.

Last fall, Joe required surgery to replace his right hip joint. One of his concerns was, "Was this going to bring his playing of the game he loved so much—to an end?" Fortunately that is not the case; now, even though he plays "just doubles," he is back on the courts. A 6' 4" charisma-endowed player, agile at 64, and using his great power of concentration, he is still competitive; but most of all "happy" to be playing tennis again, one of his first loves!

Together with the weight and extent of Joe Martin's professional responsibilities, he has in-

Martins' children are all out of the "nest." The youngest, Jon, just graduated from Wisconsin at Madison and is now living and working in Texas. Joe Jr. and Judy both live and work in the San Francisco area while Jacque lives near Ann Arbor with her husband, Ed, and two children, Stephanie and Teddy.

Diplomatic, astute, skilled lecturer, international authority, Joe gives the impression that all these remarkable traits and accomplishments have "just happened" as a matter of course, for his is an unhurried manner, an almost unbelievable controlled "ease," and a sincere concern for his fellow man. It is clear that this outstanding educator and this grand gentleman lives his life by the Golden Rule.

Indeed, the Department of Chemical Engineering at the University of Michigan is extremely proud and deeply honored to count Joseph J. Martin as one of its members. □