REPORT OF THE KILLIAN AWARD SELECTION COMMITTEE

Presented at the MIT Faculty Meeting
of May 16, 1979

by Professor John Waugh, Chairman

David John Rose was born in Victoria, British Columbia, on May 8, 1922. He attended the University of British Columbia, where his studies were interrupted by World War II. After service as an officer in the Royal Canadian Artillery from 1942 - 1945, he returned to the University of British Columbia and received the Bachelor of Arts degree in Science in 1947. He then came to the Physics Department at M.I.T., where he studied under Professors William Allis and Sanborn Brown. He received his Ph.D. degree in 1950.

Following a brief stint with the British Columbia Research Council, Rose joined the technical staff of the Bell Telephone Laboratories, where he worked on problems of plasma physics, transatlantic telephone cables, electronic central offices, and other areas. In 1958 M.I.T. created the Nuclear Engineering Department, and its first chairman, Manson Benedict, recognized the need for incorporating work in the then emerging field of fusion technology, and asked Rose to be Visiting Associate Professor in 1958. After his year as a visitor, Rose agreed to remain at M.I.T. and was named Professor of Nuclear Engineering in 1960.

Rose's contributions to the program in Nuclear Engineering at M.I.T. included the development of a fusion energy option which was the first such program offered at the Institute. His research leadership laid the foundation for the development of a program which today is focused in one of the major research laboratories of the Institute. His professional work encompassed both plasma theory and plasma physics, as well as fusion technology in general. During this interval, he brought to the department and the Institute a remarkable collection of faculty colleagues, graduate students, and an extraordinary research environment. In 1965/66 he was the chairman of the Plasma Physics Division of the American Physical Society. He was also active in fusion affairs on a world-wide basis, working particularly with the United Kingdom Atomic Energy Authority on their plasma fusion programs. He spent 1968 on a sabbatical year at the Culham Laboratory. He also served as a consultant to the Federal Republic of Germany Ministry for Research and Technology on their fusion program. His personal scientific contributions and his leadership capabilities made him one of the world authorities on this difficult and promising technology.

In 1969, Rose took a leave of absence from M.I.T. and for two years worked at the Oak Ridge National Laboratory, where he was the founder and first director of their Office of Long-Range Planning. It was in this phase of his career that he began to work on broader issues of energy technology, environmental affairs, and in the general area of technical/social interfaces. His work was highlighted by the first detailed analysis of the flow of materials, particularly mercury, through society, beginning with the mining process and ending with disposal. This interest in material flows was applied to the problem of nuclear waste management, where Rose is recognized as one of the true authorities on this important contemporary issue. He returned from his duties at Oak Ridge in 1971 and broadened his departmental activities from the fusion area

into the important areas of energy technology, energy policy, and environmental aspects of technical developments. It was natural that his concern with these broader problems should lead to some of the first academic subjects in this area at the Institute. Rose's international reputation led to his service to the United States Congress, particularly on science and technology, the U.S. Government Accounting Office, to the Congressional Office of Technology Assessment, and to special Presidential commissions.

As he struggled more with policy matters, he began a deeper study of contemporary society. His efforts quickly put him into contact with members of the theological community who were dealing with similar problems. Ultimately, he begin to work collegially with the World Council of Churches, and in a very short time, he became an intellectual leader in the Council's deliberations. He was most effective in relating the impact of science and technology to religious, social, and ethical concerns. Indeed, his work was so valued by the World Council that he was invited to become a member of their Working Committee on Church and Society, in which he has subsequently demonstrated an enormous capacity for bridging the gap between the two cultures.

In 1978, he was invited to become a member of the World Council Working Party on the theological and ethical issues underlying the search for a just, participatory, and sustainable society, the only scientist so honored. The World Council decided to convene a world conference on "Faith, Science and the Future", partly at Rose's urging, and he was one of the leading figures on the committee planning this conference. His enthusiasm and interest led to M.I.T. becoming the host of the first such conference at the Institute.

Dr. Rose's professional life has constituted three distinguished careers: that of the scientist and engineer; that of the technology/policy analyst; and that of the bridge-builder between the scientific and theological communities. He has written and lectured widely on all of these areas. He has has been honored as a Fellow of the American Academy of Arts and Sciences, a Fellow of the American Physical Society, a Fellow of the American Association for the Advancement of Science. He is also the recipient of the Arthur Holly Compton Award of the American Nuclear Society for excellence in teaching.

To review his professional careers, however, is to recognize only one half of the man. Such a review fails to acknowledge his personal charm, his open, witty, and delightful relations with colleagues and friends. A recitation of his accomplishments is incomplete and sterile unless accompanied by the dynamics of his personality, that is integral to those accomplishments.

Indeed, just as Professor Rose has had three professional careers, so has he had three rich, rewarding, lives that enfold the three careers. His first life was that of a true scientist with a deep devotion to understanding the nature of the physical universe. His depth of knowledge is reflected in the quality of his research work, for which he is justly renowned. In addition, Rose is an excellent engineer with a profound grasp of the subtleties involved in applying scientific knowledge for the benefit of future generations.

A second life is recognizable in the evolution of his interest to that of the role of science and technology in contemporary society. Here, his contributions are those of a deeply concerned and deeply knowledgeable human being struggling to direct the evolution into the future based upon a firm anchor of scientific truths, a thoughtful recognition of the contemporary state, and adequate consideration of the interests of future generations.

The third of Rose's prolific and prodigious lives is the life of the spirit. It is here that his intellectual interests in the relation of technology to humanistic concerns in the areas of philosophy, culture, and religion come to fruition. His personal commitment to that which is human is based on his own deep understanding and insights into the human and spiritual character of our lives. His ability to represent the scientific and technological community and to communicate effectively to this other great aspect of human existence makes him rare among contemporary scholars.

Those who know David well also know that he is a singular example of personal courage, and that his great will to contribute meaningfully to society is based on the profoundest understanding of what the life of the spirit truly means.

In the great tradition of this Award, and in the best sense of meeting its purpose, the selection committee is honored to place before you the name of David John Rose as the eighth recipient of the James R. Killian, Jr. Faculty Achievement Award.

Nazli Choucri
Daniel Holland
Alfred A. H. Keil
Donald Schön
John Waugh, Chairman

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