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Social, Economic, and Political Leadership

Engineers, mathematicians, and natural scientists with demonstrated technical and scientific achievements do, at various stages in their careers, become social, economic, and political leaders. But measured by the needs of society and by the potential of the talent pool, the numbers that do so are very small. I applaud those who make this transition and worry about the fact that they number so few.

What can professional societies do to encourage individuals to consider and to achieve career transitions? What can academic institutions do to encourage and to enable students of science and technology to evaluate a wide variety of career options, including career transitions, in their own career planning?

Engineers, mathematicians, and natural scientists are unique in their capacity to comprehend the capabilities and the limitations of the natural sciences and technology to serve the needs of society on both a short-term and a long-term basis. This comprehension of the capabilities and limitations of science and technology is essential for realistic social, economic, and political action and planning.

We now understand that every technological innovation, regardless of how great its positive impact on society, also brings with it a negative impact on society—not necessarily on the same segment of society and not necessarily in the same time frame, but a negative impact nonetheless. This is characteristic of all change. Technological innovations are the fruition of technological options created through the use of scientific knowledge and technological capabilities. Scientists and engineers are in the business of extending knowledge and creating technological options. In doing so, scientists and engineers create the opportunity to choose among a variety of options in the continuing search for technologies to serve the public good and to minimize the negative impacts of technology on society. An understanding of both the short-term and the long-term potential impact of each technological option is essential for realistic choices.

Decisions are made in the social, economic, and political context of society. Many decisions are made through the political process. The decisions affect the social, economic, and political structure of society. Leadership in these matters is desperately needed and should arise from all segments of society—including the scientific community. In recognition of this need, the AAAS established the Congressional Science and Engineering Fellows Program and the Mass Media Science Fellows Program. At the AAAS annual meeting in Toronto next January, a panel of engineers and natural scientists, who are now recognized social, economic, and political leaders, are to address the question, "Can we educate for leadership?"

Fundamentally, endeavors such as these serve to explore and to modify our traditional concepts of the careers appropriate to those who elect as students to pursue academic programs in engineering, mathematics, and the natural sciences. This reevaluation is part of evolutionary processes appropriate to a mature technological society. I believe that many young people are attracted to a broader concept of the roles appropriate to engineers and scientists and that, in time, a broader spectrum of individuals will be attracted to engineering, mathematics, and the natural sciences with career plans that make feasible transitions leading to positions of social, economic, and political leadership. The roles of social, economic, and political leaders well grounded in science and engineering and the roles of scientific and technical leaders are complementary. Each enhances the other. Both are essential to society; both are creative; both can be personally rewarding.—ANNA J. HARRISON, *Carr Laboratory, Department of Chemistry, Mount Holyoke College, South Hadley, Massachusetts 01075*