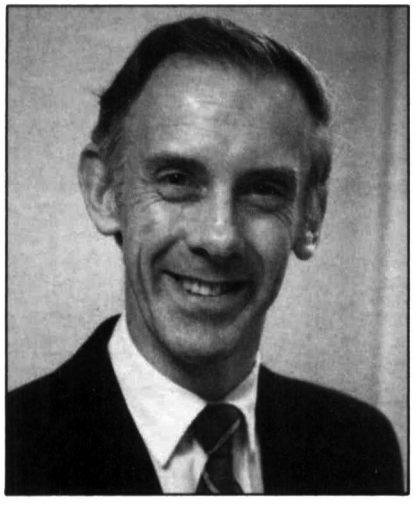
Mind-Leading



John Baglin

In the course of history, the official view of education in society has ranged all the way from reverence to contempt. Education and scholarship were regarded as virtues by ancient Greek and Roman philosophers; during another time educators and scholars were feared as a threat to the security of established church and state dogmas. Education will often fare badly at the hands of governments that are insecure, and don't want to have too much knowledge in the hands of the people, because then those people might seek to *change* things, to disturb the status quo. Education is indeed an engine of both change and security, a security brought about by the preparedness of a society to understand, control and perhaps improve or conserve its surroundings. Because education can make each recipient a more effective and productive member of the community, it represents one of the soundest investments that can be made by a nation, a community, a corporate employer, or an individual.

It is said that education is the gateway to the future...a self-evident fact in a world whose speed of technological development means the constant broadening of possibilities for discovery and invention. Each new discovery brings with it the attendant demands for people educated to use the new technologies, create businesses around them, and make responsible public policy decisions affected by them. We have seen the Silicon Age (or the Information Age?) develop to revolutionize much of world commerce and society in the incredibly short space of 30 years. The "Ages" of aerospace, biotechnology, and perhaps photonics and superconductivity are now unfolding fast.

High school or university courses can no longer hope to stock a student with enough facts to last a professional lifetime. More than ever, formal education must focus on providing fundamental bases of knowledge and on preparing students with the interest, motivation and skills to continue with self-education so they can stay on top of new developments as a normal, stimulating part of life—life-long. Success and achievement will surely depend more than ever before on the ability to quickly understand new concepts, evaluate them intelligently in context, and create fresh advances by taking advantage of their *relationship to other disciplines. Connections* among the disparate disciplines of science and engineering have, in the past, suffered at the hands of societal and educational systems built on the separateness of physics, chemistry, biology, metallurgy, and so on. The Materials Research Society has, by contrast, led the crusade to put together the pieces of the multi-discipline puzzle, always emphasizing its mission to foster and encourage *interdisciplinary* interactions constructively. In reviewing all the various MRS activities today, I believe they are eminently well described as "educational" in the most literal sense of the word.

Education is literally the process of leading the mind...

The word "education" is rooted in the Latin "ducere," to *lead*. It is literally the process of leading the mind to encompass new concepts, fresh ideas; the process of opening the mind and providing pathways for creative thought based on the knowledge of today.

To my way of thinking, this term excellently describes the multidisciplinary and interdisciplinary thrust of MRS programs and special experience and ability. We are indeed dedicated to enriching the possibilities for materials researchers to broaden and deepen their knowledge by participating in our symposia and short courses, and reading our publications. We seek to support student activities and chapters; we seek to disseminate information on state-of-the-art materials research for educators, managers, legislators and the lay public.

Let me list a few examples of how MRS activities earn the literal title of EDUCATION:

Technical Meetings

MRS technical meetings are programmed with tremendous efforts devoted to capitalizing on potentially related symposium topics. Joint sessions are scheduled...symposia whose topics may overlap to provide fertile ground for future research interactions are clustered where possible...fresh topics are introduced in growing research areas.

Symposium X, "Frontiers of Materials Research," provides lunch-hour talks by top people on the newest developments. It offers one of the great self-study opportunities for interested members to learn about the whole range of materials research activities.

Publications

The MRS BULLETIN now provides monthly a galaxy of technical articles and news reports covering fresh discoveries and research developments. The articles treat topical material at a readable level and provide a good basis for all of us interested to broaden our knowledge in fresh areas of materials-related research.

Journal of Materials Research provides professional papers and reviews through which we can not only deepen understanding of our own fields, but also broaden our awareness of other areas.

Short Courses

The MRS Short Course curriculum is extensive, and a selection of courses, taught formally by experienced instructors, is offered at the Spring and Fall Meetings. Our courses routinely receive high praise. Topics range from those introducing a new research field in depth (e.g., high Tc superconductors, fractals, STM) to those training students in the science and technology of specific techniques (e.g., surface analysis or thin film preparation).

https://doi.org/10.1557/S0883769400064095 Published online by Cambridge University Press

In addition, MRS conducts on-site short courses for corporate laboratories and at topical conferences (by contract), which are very highly regarded. We also plan courses available as updates for undergraduate university faculty.

University Activities

MRS meetings and the BULLETIN can be an important source of information and interest for students, and the Materials Research Society welcomes student members at special low fees. We believe that student participation in MRS activities is well worth encouraging, and MRS Student Chapters have been developed on a number of campuses. Our Student Awards program, intended to reward excellence in research presentation, has identified many outstanding students in materials research.

A symposium dealing with Materials Education was held at the MRS 1985 Fall Meeting, and a successor is planned for the 1990 Fall Meeting.

Community Information

In the interest of fostering constructive discussion, the Materials Research Society held a special forum at the 1986 Fall Meeting. Forum participants heard plans for the Materials Science and Engineering Study commissioned by the National Research Council, and in turn commented on issues ranging from technical competitiveness to education and research resources. The results of the MSE Study will be discussed during another special session at the upcoming 1988 Fall Meeting in Boston.

The Materials Research Society also participated last Spring in an experimental forum called by the American Institute of Physics to provide technical information for congressional staffers.

I have summarized some of the areas where I see MRS contributing significantly as an educational force. Of course, we can reflect that we are all educators in our own right. We all have the ability to tell others what we do and why; to communicate to them the excitement of the research, the fascination of the new discovery; to capture their imaginations with the expanding possibilities for new science, new technologies, a better world. Let us keep this always in mind, and take the trouble to be good educators as we communicate, not only with other scientists but also with all those very important lay people whose lives and futures, like ours, are so closely connected to the results of materials research. MRS

https://doi.org/10.1557/S0883769400064095 Published online by Cambridge University Press