

*As the Presidents See It...***Foundations for the “Age of Materials”***Jim Roberto, 1991 MRS President*

1991 was a watershed year in the emergence of materials science and engineering as a coherent field with visible national priority. Earlier publication of the comprehensive report, *Materials Science and Engineering for the 1990s: Maintaining Competitiveness in the Age of Materials*, precipitated a series of regional meetings involving hundreds of scientists and engineers from industry, universities, and government laboratories. In early 1991, their recommendations were assembled into a consensus document, *A National Agenda in Materials Science and Engineering: Implementing the MS&E Report*, which was presented to the Office of Science and Technology Policy (OSTP) and the federal agencies. This report called for improved strategic planning in MS&E, better coordination among industries, universities, and government laboratories, and funding increments totalling \$1.25 billion per year in six high-priority MS&E areas: information and communications, transportation, energy, health, environment, and maintaining leadership in materials research.

The significance of these events is not diminished by the disappointing progress in implementing the subsequent Presidential Initiative in Advanced Materials and Pro-

cessing. The point is that the “orphan science” of MS&E was finally on the national agenda. In his introduction to the proposed Advanced Materials and Processing Program (AMPP), Presidential Science Advisor D. Allan Bromley stated that “materials are the basis of a critical enabling technology upon which most other technologies depend for their success.” It is this recognition of the central importance of MS&E at the highest level of government which provides the rallying call for the emergence of MS&E as a national priority.

The Materials Research Society and its membership have contributed significantly to these developments. The pioneering format of our technical meetings has done much to encourage coherence and unity in MS&E. MRS people played leadership roles in the MS&E study and in the subsequent regional and national consensus meetings.

In 1991, MRS achieved significant growth in its activities to provide foundations for the Age of Materials. MRS completed an ambitious long-range plan to chart the future of the Society in service to the materials community. In this plan, MRS seeks leadership in interdisciplinary technical programming and innovative

meeting formats, affiliations with other materials-related societies, interactions with the worldwide materials community, publications content and technology, materials education, public affairs related to materials research, and empowered volunteerism.

MRS also strengthened its role in public affairs in 1991. MRS organized the first Washington Materials Forum, cosponsored by eight materials-related societies and held in conjunction with the Spring Forum of the Solid State Sciences Committee of the National Research Council. MRS arranged a briefing by Representative George Brown (Chairman of the House Science, Space and Technology Committee) at this meeting. The report on the national agenda in MS&E was published by MRS for the National Research Council. MRS also sponsored a meeting of the Congressional Advanced Materials Caucus.

Perhaps this progress is best summed up in remarks by D. Allan Bromley in his plenary address at the 1991 MRS Fall Meeting. In detailing the important progress being made in materials science, the Presidential Science Advisor stated, “I’m happy to say that one of the very major contributors to that progress has been your own Materials Research Society...by emphasizing interdisciplinary work, goal-oriented research, and materials of technological importance, you have contributed in a very major way to the maturation of this entire field.”

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**MRS Gains Effectiveness and Flexibility through Empowerment***R.R. Chianelli, 1990 MRS President*

Election to the three-year term that comprises the MRS presidential experience came as a great surprise to me. As first vice president you immediately realize that you must quickly decide what your agenda as president will be. It is as first vice president that you can really set in motion the plans that may have an impact on the Society. If you don’t do it then, you probably never will because early in your presidential year you become a “lame duck.”

1989 was my year as first vice president and early in that year the Exxon Valdez went on the rocks of Bligh Reef in Prince

William Sound. That event changed the course of my career as I became the Task Force leader for Exxon’s bioremediation science effort. Both this effort and being the MRS first vice president were completely new for me because I had not previously been a member of the MRS Executive Committee. In retrospect, 1989 and 1990 were two years of intense growth and intense work for me. They were also two of the best years of my life.

In 1989 it seemed obvious that because the world was changing so rapidly and so fundamentally, all the institutions that

were important to us must change also or face extinction. I felt, therefore, that my main task as president would be to do what I could do to assure that MRS could change to face future uncertainties. I also felt that it was essential in this process of change to assure that what had been enormously successful in the character of MRS be retained.

To me, a key part of the character of MRS was the dedicated volunteers who, from its inception, worked tirelessly as a “labor of love” for the Society. The other key part of the MRS character was the headquarters

staff who, besides keeping things running, enthusiastically indoctrinated new MRS volunteers in the spirit and traditions of the Society. That had been my own experience, since MRS headquarters staffers were the first to show me that the organization was much more than the symposium that interested me.

I thought at the time (and still do) that the way to prepare MRS for the future was first, to make sure that the Society was on as firm a financial foundation as possible and second, to introduce the concept of "empowerment" to the MRS components: Council, Executive Committee, Headquarters, and Committees. In this concept all components would be empowered to "do their jobs" with minimal interference from other components. It is my belief that such an "empowered" MRS organization has maximum effectiveness and flexibility in facing an uncertain future.

No president could accomplish these two goals in one administration. They required a long-term commitment from future presidents, councillors, and the Executive Director. One of the most satisfying aspects of my term was finding that such a commitment could be generated. MRS is indeed fortunate that it is blessed with a group of volunteers who put the long-term health of the Society before personal interests. And from today's perspective, the progress made in improving the financial health of the organization and in empowering the various components of the Society is extremely encouraging. Of course more has to be done. But a vastly strengthened Society exists to face the future and that accomplishment is a collective one.

In 1989 it also seemed to me that MRS had come of age. It was no longer the "new kid on the block." By its very success it had become a model to emulate and yes, sometimes fear. The interdisciplinary paradigm that had been nurtured and grown at MRS was now being copied around the world in other societies and organizations. This meant to me that although we still did it better than anyone else, we needed to begin to think of how to extend and expand

this concept. As president, I had the opportunity to write six editorials for the *MRS Bulletin* which outlined aspects I thought would be important in our ability to design an evolving MRS for continued growth and vitality. Writing these editorials was the thing that I enjoyed most about being MRS president.

The first editorial described what later became known as the "New World Order." It discussed the "The 1990s: A Growing International Context" (*MRS Bulletin XV* (January 1990) p. 4), in which MRS would find itself requiring a combative and a co-operative approach to global thinking. This approach demands that the United States recognize that other countries have an interest in being "best" in technologies which are "Cultural Technologies" (*MRS Bulletin XV* (March 1990) p. 4) for them. Nuclear technology for France, ceramic technology for Japan, and space technologies for the United States are examples. The United States cannot and should not try to be the best in all technologies, as we were after World War II.

I also believed that "The Coming Environmental Revolution" (*MRS Bulletin XV* (April 1990) p. 4) was upon us and that this could be the path to new industrial leadership on the part of the United States. It also could provide the platform for a United States industrial base as we built environmentally friendly mass transport "maglevs" and automobiles. In this context the role and importance of materials science and MRS were obvious and I hoped that MRS would take the lead.

In order to achieve the above, we—as a country and a society—would also need to concentrate on improving the utilization of our resources, both physical and human. On the physical side it was important to recognize that "Materials Research is Big

Science" (*MRS Bulletin XV* (August 1990) p. 5), a debate that is still raging today as we slice a smaller research dollar "pie." Less well-recognized was the importance of our "National Treasures" (*MRS Bulletin XV* (November 1990) p. 6), older scientists and practitioners of special skills such as crystal growth who are currently struggling for survival in our society. Not only is this an enormous waste but it tells us something about the core values of our institutions.

Finally, near the end of my term I tried to capture what I thought was the key driving force of the Society which would carry it into the future. In "MRS—Home of 'Interdisciplinarity'" (*MRS Bulletin XV* (December 1990) p. 4), I tried to convey that the "spirit of the Society" has grown far beyond the original context of "interdisciplinary research," which means the different disciplines working together to answer a scientific question or technological goal. I described a broader concept I called "interdisciplinarity," which connotes the idea of an environment where new "things" can find nurturing surroundings for growth and subsistence. I say "things" because I strongly believe that the success of MRS in the future requires that we as scientists find ways to broaden our outlook and include economic, environmental, and even societal issues in our research. "Interdisciplinarity" also carries with it a connotation which is close to "diversity" in the societal sense, meaning the inclusion of people with different backgrounds and views. All of this mix of ideas and people is definitely more complex (like the pronunciation of "interdisciplinarity") and difficult, but offers the potential of enormous strength and vitality. It is my fondest hope that MRS will help lead the way into a more complex and difficult 21st century by providing a home for a continually expanding context for materials science research. I look forward to the next ten years in MRS with great excitement.

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