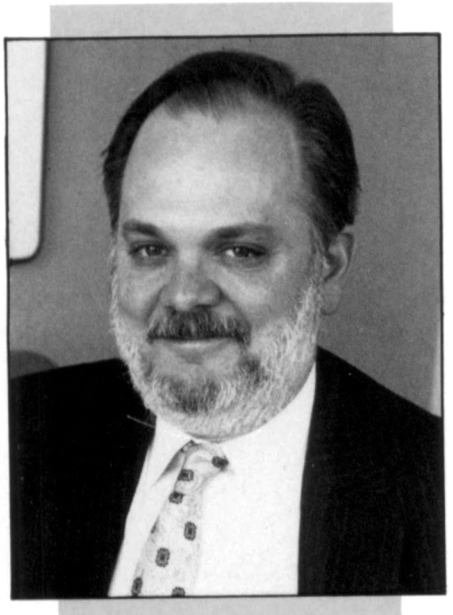
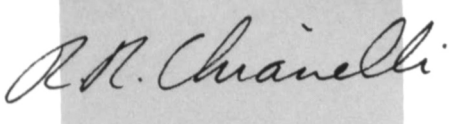
MRS: Home of "Interdisciplinarity"





In developing "interdisciplinarity" MRS has provided a model which I believe has more general importance to the United States than just its value in research.

1990 has been a year of extraordinary change. The "Cold War," the background against which most of us grew up, is over. The "Iron Curtain" has lifted and the legacy of the Second World War is finally being played out. So, too, the position of the United States in the world is vastly different than it was in the recent past. No longer economically dominant, the United States finds itself as virtually the only "military superpower" around, looking uncertainly into the future for a new world order.

The year 1990 also marks the end of an extraordinary decade of growth and change for MRS. In this decade MRS grew from the dream of a few dedicated people into an international force in materials research. In my opinion MRS has been instrumental in changing the meaning of the term "materials science" itself. Before this decade I often heard materials science used in a semiderogatory fashion, meaning a collection of half-learned disciplines being used by "second tier" scientists to solve practical problems. But this has dramatically changed. Today, materials science as practiced by MRS members has come to mean the best science combined in an interdisciplinary way to solve problems crucial to the well-being of mankind.

This change has come partly from the dedicated work of MRS volunteers through the years and the ability of MRS meetings to attract better and better scientists. But the quality of MRS meetings and other activities is also due in large part to the hard work of the MRS headquarters staff. Through the decade of the 1980s, John Ballance and his staff have been asked to do more and more for the Society. Nowhere in the organization has the pace and stress of change been greater than at MRS headquarters. This year I asked headquarters to change at an even greater rate because I believed that MRS would face a future with even greater growth and challenge. I am happy to report that they rose to the challenge and are now prepared to face the next phase of MRS growth. They did this with their usual dose of "MRS spirit and dedication." Working with the headquarters staff was one of the truly rewarding experiences of my tenure as president and I would like to publicly thank them for their help.

What challenges and opportunities does MRS face in the future? First, I believe that MRS will need to play a more visible role in national and international affairs of importance to materials research. We can no longer afford to be inward looking. The stakes in research funding and direction are too high. We have taken steps in this direction with the opening of our Washington, DC office and in the participation of many MRS members in planning the response to the MS&E Study. But we will have to work hard at this because many voices are clamoring for a share of the shrinking federal pie. I believe we have a right—even a duty—to make our voices heard because we have developed a highly successful paradigm during a period when older ones are failing. The country needs what MRS has learned.

Second, we need to expand and broaden our interdisciplinary model. In the simplest form this means that we must continue to broaden our technical base to include more areas of materials research. Biomedical materials, biologically produced materials, and materials in art and archaeology are recent examples of this pursuit, but the process must continue to include more materials areas that are independent of defense funding. Materials improvement will also play an increasing role in the ability to attract materials research where environmental and other "quality of life" issues are concerned. Broadening our base in these areas will assure MRS continued growth and prosperity.

However, for me the quality that makes MRS such a vital force is one I call "interdisciplinarity." I felt this quality when I first attended an MRS meeting, but only now after being president am I able to define it. Everybody now says they are doing interdisciplinary research but in practice it is very difficult to do and maintain, as I'm sure MRS members will attest. There is great difficulty in keeping a group of physicists, chemists, and engineers working and communicating together in an interdisciplinary fashion. The tendency is for them to fly back to the apparent safety of their own disciplines. What is required is that the group has the quality of "interdisciplinarity," that is, the ability to listen to, appreciate, and incorporate the views of others. To do this requires that we as individuals change and, above all, take risks. It is, in my view, this quality that defines MRS's uniqueness and is its most potent strength.

My own experience with MRS has taught me in many ways that the Society has a deeply rooted ability to change and

https://doi.org/10.1557/S0883769400058048 Published online by Cambridge University Press

take risks. When I first went to an MRS meeting I never dreamed that someday I would be president of the Society—after all my technical background was so different from what I believed was the MRS mainstream. But gradually, as I became first a symposium organizer then a meeting chair, I learned that what the Society really valued was new ideas and new blood. I also learned that the Society's founders had the unique quality of relinquishing authority in order to keep the Society fresh with the infusion of new ideas and new blood. At the same time, however, came the recognition that we all valued the lessons and wisdom of the past as the "MRS tradition." This combination of change and tradition make MRS what it is. In other words, the desire to provide a home for interdisciplinary research required that the Society develop the quality of "interdisciplinarity" for success.

> The quality that makes MRS such a vital force is "interdisciplinarity."

It is in developing "interdisciplinarity" that MRS has provided a model which I believe has more general importance to the United States than just its value in research. As I said before, part of this model's value is the fact that MRS has grown and thrived during a period when many institutions in the United States have faltered. It is a model which demonstrates that change can take place and that organizations must learn how to build change into their systems to thrive in this decade and beyond. Finally, and most importantly, it is a model which comes from the deepest roots of the experience of the people of the United States. It is often said that democracy as practiced in the United States is a cumbersome and inefficient process. But the strength of the United States and the Western world has been clearly demonstrated in this past decade. This strength has arisen because of the ability of the United States to change, to evolve. And the United States and MRS will continue to evolve because the ability to do so is built in. It's part of the "beast" and can't be avoided. It is for this reason that I look forward to the future of both institutions with great optimism. MRS

Symposia Being Planned for the 1991 MRS Fall Meeting

December 2-9, 1991 Boston, Massachusetts

- Phase Formation and Modification by Beam-Solid Interactions
- Photons and Low Energy Particles in Surface Processing
- Interface Dynamics and Growth
- Structure and Properties of Interfaces in Materials
- Stability of Microstructures
- Thin Films: Stresses and Mechanical Properties III
- Advanced III-V Compound Semiconductor Growth, Processing and Devices
- Nonstoichiometric Gallium Arsenide and Related III-V Compounds
- Wide Band-Gap Semiconductors
- High-Temperature Superconductors: Materials Research for Emerging Technologies
- Ferroelectric Thin Films
- Optical Fiber Materials and Processing
- Advanced Cementitious Systems: Mechanisms and Properties
- Innovations in the Development and Characterization of Materials for Use in the Infrastructure
- Shape Memory Materials and Displacive Transformation Phenomena
- Advanced Organic Solid State Materials
- Complex Fluids
- Disordered Materials: Fractals, Scaling and Dynamics
- Synthesis and Processing of Ceramics: Scientific Issues
- CVD of Refractory Metals and Ceramics
- Gas Pressure Effects on Materials Design
- Biomaterials
- New Strategies for Synthesis and Characterization of Catalysts
- Application of Multiple Scattering Theory to Materials Science
- Workshop on Specimen Preparation for Transmission Electron Microscopy of Materials - III
- The Role of New Materials and New Material Processes in the Promotion of Pollution Prevention
- Frontiers of Materials Research

https://doi.org/10.1557/S0883769400058048 Published online by Cambridge University Press