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Breadth and Flexibility Prepares Researchers for 21st Century

To the Editor:

Fifteen years ago, I was told by a department head to quit taking so many courses in different areas because "I would be broad as hell, but take forever to get my PhD in materials science." Fortunately, I had been in industry long enough to value breadth, and (with my advisor's concurrence) ignored the suggestion. Judging by your recent Public Affairs Forum ["NSF Workshop on Graduate Education Examines Needs for the 21st Century," August 1995, p. 13], I made the right decision.

The need for materials scientists with technical breadth and flexibility is not new. For many of us, materials issues have always been parts of larger and ever-changing problems, never the entire problem. Breadth and flexibility were the keys to continued relevance and effectiveness. What seems to be new today is the saturation of the market for highly specialized and less flexible materials scientists and engineers.

The summary provided by Julia M. Phillips has many of the ideas needed to prepare materials scientists for the 21st century. One key element seems to be absent, however. I am where I am and how I act in no small part because of the way my thesis advisor looked at the world. He was an effective mentor and strong role model. In addition to learning about my major topic of study, I also learned from him about flexibility (which is as much an issue of attitude and confidence as technical competence); curiosity that has few bounds; and the importance of looking at all dimensions of a problem, whether they were "materials related" or not. He, in turn, could do this because of the unusual breadth of his experiences.

There is little question that the materials scientists of the twenty-first century will require increasing breadth and flexibility. A tough related issue, however, is how faculty members, raised and rewarded largely on the specialist view, effect such a large change in perspective for their students who are looking to them as mentors and role models.

Gregory R. Moore
Savage, Maryland

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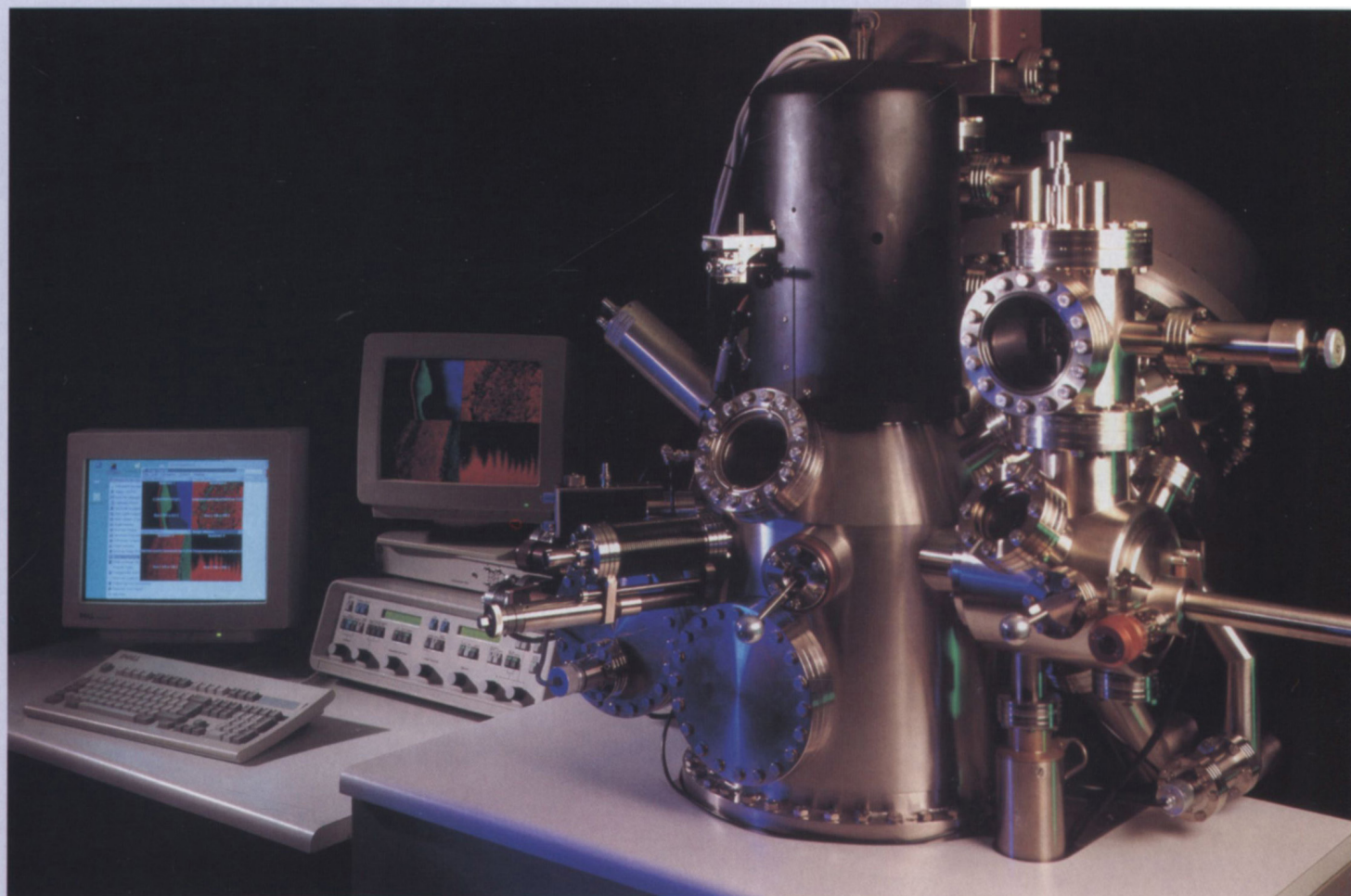
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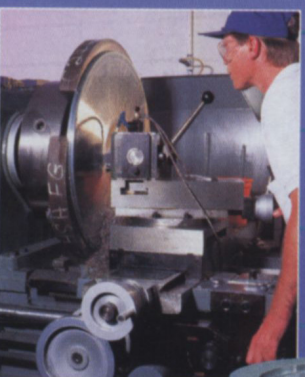
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