

controversy generated by the Guest Comments of Keyworth and Marshak, it has become imperative that this issue be submitted to a vote of the members of The American Physical Society, as suggested by Keyworth.

► It seems to me noteworthy that in the face of severe budget cuts, Keyworth has been able to persuade the White House to provide generous support for basic research. Frank Press also has had kind words to say about Keyworth's success within the Reagan administration. It is a pity that any scientist should use ungentlemanly language in expressing his disagreement with someone who has done much for the scientific community in these difficult times.

► Since Lincoln Wolfenstein has taken it upon himself to comment on the scientific contributions of Keyworth, I should mention that shortly before Marshak left the City University of New York, a top administrator at that institution asked me to evaluate Marshak's scientific contributions. I told him that Marshak is very influential and has published extensively, but that he has never made any really great contribution to physics.

► Jay Orear has alluded to the fact that Ronald Reagan used to be an actor. But, he has neglected to mention that the Russians have chosen as their leader the former head of their secret police. I am also wondering whether for the nation Orear would prefer the procedure followed by The American Physical Society, and thus have a nominating committee of ten individuals, who will then nominate two "worthy" candidates for the Presidency of the US.

SURAJ N. GUPTA
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9/83

Let minority be heard

I agree with Richard Peppin (September, page 12). It is important that all individuals and all organizations are willing and able to take stands upon important problems—if they are involved, can make intelligent decisions and have the facts necessary to make those decisions. Certainly, the APS ought to qualify in most of these areas.

There is a terrible problem, however, on how the APS is handling this need and obligation to speak out. (This problem is obvious, as one can see from the nature of the letters to the editors being received.) This problem existed with the APS position on the ERA, on creationism, on women and now on the nuclear problem. (It even exists in many areas of physics, but this would only confuse the present issue.) It always seems okay to those who are on

the same side as APS, and it always seems wrong to those who are on the opposite side. This is the problem! APS has not learned how to be fair to those who might be on the opposite side.

What does it take to be fair? All it really takes is to be kind and to let that kindness show. Be more than fair. Seek their opinion as to what might be fair in their eyes, and go even one step beyond. There is nothing lost by such acts. If you are right, it actually makes your own position stronger.

As a minimum, voting ought to be required on every formal position. If it is important enough for APS to take a stand, then it is important enough for everyone to have a say in it. Of course, voting can be made unfair by the preparations allowed for the voting and on how the questions are worded. Again, the real solution is to show great kindness. Another consideration is to always publish every letter to the editors. Would this really be impossible? How terrible it is to have one in power make the decision as to when and where the minority is heard. If you really are going to take positions, then you must be responsible. The APS has not been responsible and will never be responsible until the feelings of the minority are properly heard and considered.

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9/83

I strongly support the letter of Richard Peppin on controversial issues. If The American Physical Society states a stand on these issues it should be clearly stated that it is by poll of the membership, the preferable way, or by majority of the council, or whatever group decided on the stand.

Imagine the response of Orear and others if the Society had come out in full support of President Reagan and George Keyworth.

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9/83

Materials Research Society

The President-elect of APS, Mildred Dresselhaus, has issued a very cordial welcome to the Materials Research Society as a new affiliate of AIP (October, page 144). She has correctly identified many of the possible advantages to such new societies and to AIP. Permit me, however, as a founder of MRS to point to some possible dangers of such affiliations to the health of American sciences and technology. It is to the great credit of the physics community that, as Fred Seitz put it,

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letters

the "strong spirit of inter-society cooperation" has always been alive and well within it. What we must be sure is that such cooperation is that among equals. MRS has succeeded just because it has achieved the general interdisciplinarity which has been the stated, but rarely achieved, characteristic of the field. This is an interdisciplinarity in three or four dimensions across the usual academic fields, such as chemistry, electrical engineering, materials science and physics; across the basic-applied-engineering spectrum, across the low-tech-high-tech line and the much discussed industry-government-university dimension. Physics thus is only one, alongside several other disciplines, which together make for healthy materials research. It is my judgment, for example—supported by many within industry—that today's (not 1950s) materials research in the US is desperately short of inorganic chemists and process engineers. Our production of qualified inorganic chemists is between a tenth and a hundredth of the Japanese or Soviets. The "action" in materials research is likely to be in fields where physics may contribute relatively less than other disciplines to achieve a productive balance.

Perhaps my friend Mildred Dresselhaus will also permit me to make minor corrections to her historical statements. The Materials Research Society has few Boston "roots," except the convenience and charm of the city. Its geographic roots start mainly from Murray Hill, New Jersey and University Park, Pennsylvania. Indeed, among the sixteen founders of MRS, there was only one Bostonian (H. C. Gatos of MIT). MRS was founded and remains a society strongly committed to science emphatically described by two key words: "Applied" and "Interdisciplinary." It has been led and served by colleagues principally from industry and government labs. In recent years many distinguished physicists from industry and national laboratories have been major contributors to its explosive growth. Perhaps it was these emphases which resulted in the fact that for many years there was hardly any participation in the leadership by any of the university organizations which carry the same "Materials Research" name as the Society. The inaugural meeting of MRS was held in May 1973 at Penn State and we are proud that Penn State's MRL has provided the backup of the headquarters office for the fledgling MRS during its spectacular growth over the last decade.

The AIP connection can indeed help preserve the unique character of MRS, but it will require an understanding and attitude on the part of the physics

community involved, that physics is only one among several disciplines whose contributions to materials science will be made at this critical juncture in the nation's scientific and technological development.

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The Materials Research Society is gratified by the generous notice we received in the editorial welcoming us and two other societies into AIP affiliation by Mildred Dresselhaus in the October issue. The governing Council of the Society evidenced our strong interest and confidence in AIP when it voted unanimously in favor of this affiliation. As Dresselhaus noted, the Materials Research Society is strongly interdisciplinary in its focus. Indeed, its sources lie in the feeling a decade ago among a small group of farsighted scientists that topical symposia were urgently needed to enhance the spread of knowledge beyond traditional disciplines and facilitate the development of technology. We welcome into our Society all scientists, engineers and technicians who carry out materials research. We cordially invite members of the physics community to join with us in the pursuit of interdisciplinary research and communication to topics of potential technological relevance. We are confident you will find our Society as exciting as Dresselhaus has.

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The truth about Rowland?

I enjoyed the article on physics and electrical engineering (October, page 48), especially the parts about Henry Rowland.

When I was a physics undergraduate in the 1930s, a professor told us the following story about Rowland and electrical engineering (it sounds apocryphal):

Rowland was retained by the company building the first big generating station at Niagara. The main question was, should it be ac or dc? Edison favored dc (wiseacres said because he did not understand ac), but Rowland recommended ac, which was adopted.

Rowland's consulting bill was high, and the company sued to have it reduced. On the witness stand, he was asked who was the world's greatest authority on the subject. Without hesi-

tation he said, "I am."

His friends were horrified. Why, they asked, did he risk his case with such a bombastic statement? Rowland's answer was easy: "I had to; I was under oath."

Does anyone know whether there is any truth in this story?

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Homage to Thomson

I read Robert Rosenberg's article "American Physics and the Origins of Electrical Engineering" (October, page 48) with much interest, but I was disappointed to see no mention of an important figure of the late 19th century—Elihu Thomson. This remarkable scientist was largely self-taught, and after graduating from a normal school (Central High, in Philadelphia, the second-oldest high school in the US), was hired to teach physics there. He set up the first physics laboratories at that institution, and in his spare time began to apply electricity to practical problems. Eventually he left, and formed a company specializing in electrical technology. He had nearly as many patents as Edison, and it was from both his company and Edison's that General Electric was formed. His name lives on today in the Thomson Company, France's major electrical corporation.

Unlike Edison, Thomson *did* understand alternating current electricity. Indeed, it was his understanding of ac electricity which has most endeared him to me and to many other physicists. Every time I throw the switch for his famous "jumping ring" demonstration, and look on in amazement at this stunning manifestation of electromechanical interaction, I do him homage. For those readers who, like me, have their sense of wonder renewed whenever they perform (or see) this demonstration, let me note that there is a rather old biography on him, *Elihu Thomson: Beloved Scientist*; and for historians of science, let me suggest that Elihu Thomson is a somewhat neglected figure worthy of more study.

WAYNE M. SASLOW
Texas A&M University
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10/83

THE AUTHOR COMMENTS: I appreciate Wayne Saslow's feelings. Thomson was one of the great American electrical scientists of the late nineteenth and early twentieth centuries. Until his association with MIT in the 1910s, however, he had little direct impact on electrical engineering education except as a guest lecturer. It will be gratifying

to Saslow (and many others) to know that W. Bernard Carlson of Michigan Technological Institute is preparing a study on Thomson, and that Elihu Thomson is by no means unknown to historians of American science and technology.

In the rewriting of my article, an error crept into the second paragraph. The lights for the Brooklyn Bridge were arc lights supplied by the United States Lighting Company (Edward Weston's design). Edison's new incandescent lamps were indeed revolutionary, but cast less light than a modern 25-watt bulb, and bridge engineer Roebling felt they would not light up the bridge properly.

ROBERT ROSENBERG
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Saturday-morning physics

The arguments (October, page 15) for and against the value of occasional lectures and visits to high schools and to smaller colleges, whether extracurricular or as guest lecturers in regular classes, omit what we believe to be an important benefit of such activities. It is the encouragement thereby given to the faculty of the institutions to continue their work under conditions of relative isolation from the larger scientific world and in the face of apathy and discouragements of many kinds.

ALBERT A. BARTLETT
ROY H. GARSTANG
University of Colorado
Boulder, Colorado
11/83

Corrections

September, page 90—The citation by the President upon awarding Charles H. Townes the National Medal of Science should read:

"For fundamental contributions to the understanding of matter through its interaction with electromagnetic radiations and the application of this knowledge to the service of mankind, most notably in the invention of the maser and laser."

November, page 122—The letter "From Nuke to Anti-Nuke" was written by Thornton Page of the NASA Johnson Space Center, not Thomas Page.

January, page 25—The illustrations were reversed. The crystalline pattern is in the lower photo, and the sheared fluid is in the upper photo. □