

CSWP GAZETTE

A Newsletter of the Committee on the Status of Women
in Physics of the American Physical Society

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NOTE TO OUR READERS

The questionnaire to be used for data intended for the Roster of Women in Physics is enclosed with this issue, as it was inadvertently left out of most copies of the July issue of the *Gazette*. If you are updating information for an existing Roster entry, please supply your Roster number; this may be found in the upper right corner of the mailing label on the *Gazette*. The "Foreword" in the July *Gazette* issue contains additional material concerning the utilization of the Roster. Information on each questionnaire, or each Roster entry, is kept confidential.

Please send your Roster information and any other requests, letters, or suggestions to Dr. Miriam Forman, APS, 335 East 45th Street, New York, NY 10017. The information will then be forwarded to the appropriate CSWP member.

FOREWORD

With the encouragement of colleagues on the APS Committee on the Status of Women in Physics, your editor presents in this issue of the *Gazette* an editorial (slightly cut) that she wrote for *The Cornell Engineer* in 1952, while an undergraduate in Cornell's five-year Engineering Physics program. For comparison, there follow some selected portions of news items, provided by CSWP-member Dr. Evelyn Hu, that appeared in a recent issue of the IEEE publication, "The Institute." Comparison of these 1952 and 1986 articles shows the enormous improvements that have been accomplished by engineering schools in the enrollment of women (and minority) students. We note that the scholastic honorary society for engineers, Tau Beta Pi, did not admit women to full-fledged membership until 1975 (as local chapters "didn't want women at their 'smokers,'" according to one chapter advisor). However, today women students frequently are leaders in Tau Beta Pi chapters; and the Society of Women Engineers has grown from small groups of two or three women at each engineering school to flourishing and highly visible organizations at most universities.

Although any given physics department has much less visibility and less influence than an entire school of engineering, are there lessons physicists might learn from engineers in regards to strategies that could be used to attract more qualified women into the discipline of physics?

Another field closely related to Physics, that of Astronomy, is represented in this *Gazette* by excerpts from an article "Women's Work," written by well-known astronomer Vera Rubin for *SCIENCE* 86, with comments on Dr. Rubin's article found in a recently launched Astronomy Newsletter.

Results from a survey of M.I.T. graduate students, concerning differences between men and women students, have been described by Mildred S. Dresselhaus, former APS president, in a recent issue of *Physics Today*. Dr. Dresselhaus's article is excerpted here. Also presented is a biographical sketch of Dresselhaus that appeared in a University of Chicago publication earlier this year.

An updated list of Colloquium Speakers is included in this *Gazette*.

Janice Button-Shafer
Department of Physics
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SPS SCHOLARSHIP RECIPIENT

The Society of Physics Students (SPS) has announced that Tania M. Slawewski, a junior physics major at Lycoming College in Williamsport, Pennsylvania,

has been selected as the second recipient of the Society of Physics Students Scholarship. She will receive a grant of \$1000 to help fund her final year of undergraduate study.

Ms. Slawewski, while maintaining a 3.98 grade-point average out of a possible 4.00, has developed a great interest in gravitation and will take an independent study course on the topic during her senior year. In addition to her class work at Lycoming College she will serve as a laboratory assistant and a planetarium operator for the Department of Astronomy and Physics, a writing tutor for the Department of English, and a violist with the Williamsport Orchestra. The Lycoming College SPS Chapter has flourished during Ms. Slawewski's two terms as chapter president.

WE HEAR THAT...

Dr. Sheila Evans Widnall, president-elect of the American Association for the Advancement of Science, has been appointed to the Abby Rockefeller Mauzé chair at the Massachusetts Institute of Technology. This professorship is reserved for the appointment of distinguished women scholars who will encourage advancement of women in the professions, industry, and the arts. Internationally recognized for her original research in fluid mechanics and aerodynamics, Professor Widnall is a fellow in both the American Physical Society and the American Institute of Aeronautics and Astronautics, and was elected to the National Academy of Engineering in 1985.

The late Dr. Judith A. Resnik, NASA Mission Specialist and a member of the Society of Women Engineers, is being honored by the establishment of a new medal. The Board of Directors of the Society decided in June of 1986 that the medal, the Resnik Challenger Medal, will be awarded to a woman engineer for "visionary contributions to space exploration." The Society is also developing a Resnik Scholarship, with contributions being received from donors around the world (by SWE Headquarters, 345 East 47th St., New York, N.Y. 10017).

Dr. Susan M. Simkin, astronomer in the Department of Physics and Astronomy at Michigan State University, and chair of the American Astronomical Society Committee on the Status of Women in Astronomy, has started "A Newsletter for Women (and Men) in Astronomy." She reports that "the women in mathematics seem to have developed a much better picture (than have astronomers) of their problems and devised viable solutions. The Newsletter of the Association for Women in Mathematics appears to have helped in this."

[Dr. Simkin includes in her first Newsletter a "literary review" of the article "Women's Work—For women in science, a fair shake is still elusive," written by well-known astronomer Vera Rubin, for the July/August issue of *SCIENCE* 86. Portions of her review and of Dr. Rubin's article are presented elsewhere in this issue of the CSWP *Gazette*.]

Dr. Tricia Reeves, of Kansas State University, has won an American Postdoctoral Fellowship in Physics from the American Association of University Women. The few other awards in this category went to scholars in the fields of biology, economics, and literature. Shangyuan Huang of China won an International Fellowship from AAUW to study in the field of Optic Fibers at Stanford University. The American Postdoctoral Fellowship is an award of \$15,000; the International Fellowship, an award of \$10,000.

LETTERS

All but the last of the letters presented here were sent in response to the "Feature Article" of the July *Gazette*, written by Mary Beth Ruskai of the

University of Lowell (Department of Mathematics). Dr. Ruskai expressed her concern over "certain negative attitudes toward science and mathematics developing in so-called feminist circles."

Dr. Ruskai, who does mathematical physics, presently heads the New England section of the American Women in Science organization. Her article that appeared in the *Gazette* has also been printed in the newsletter of the Association for Women in Mathematics; responses will appear in the November-December issue of the AWM newsletter.

Dear Dr. Ruskai,

I enjoyed reading your well-written, well-documented piece in the latest CSWP *Gazette*. As others take up the topic and pursue the points you raise, I would hope that an effort could be made to avoid creating divisiveness between "scientists" and "social scientists," since most of the latter consider themselves scientists. It is a good deal less provocative to say that social scientists do not understand what it is like to be a physical or biological scientist than to say that social scientists do not understand what it is like to be a scientist.

I don't think we want to discourage the work of social scientists who explore differences between boys and girls, and between men and women, and address the question of what relevance, if any, these differences have for careers and creative effort. At the same time, your main point is a very important one—that the methods and nature of the social sciences differ so markedly from those of the physical and biological sciences that most social scientists cannot speak with any authority about what it is really like to be a practicing physical or biological scientist.

Your excellent article deserves wide attention.

Sincerely,
Kenneth W. Ford
Consultant for Educational Programs
The American Physical Society

Dear Dr. Ruskai,

I read with interest your letter in the latest CSWP *Gazette* and share your concern. I would like to suggest that the lack of participation by women scientists in "women's issues" results from (1) a lack of time (they're busy *doing* science, not talking about it); (2) a disinclination to generalize and write or speak publicly on any subject without data (Since the gathering of relevant data is not their research area, they have available only the data of social scientists or anecdotal data related to their own experiences or those of friends or acquaintances.); (3) lack of experience with popular or non-scientific writing.

This leaves the social scientists who devote their professional lives to such issues, and who often do rather soft science, as the spokespersons for women scientists.

I don't have any very specific suggestions for changing things, however. Those of us who teach non-science students can try to dispel some of the myths. I will circulate your letter to some of the more outspoken feminists on our campus. Perhaps it should be reformulated as an article with wider distribution.

Sincerely,
Dr. Kathryn Rajnak
Department of Physics
Kalamazoo College
Kalamazoo, MI 49007

Dear Mary Beth,

Thanks for your article in the CSWP *Gazette*; I thought I was alone in disbelieving all the "research" about women's abilities in math and science. What a promotion for science/math anxiety those non-scientific studies are!

A bit of encouraging news . . . I have been teaching "engineering" physics (2-year sequence, calculus based) at this community college for 31 years and I did my graduate and undergrad work at UCLA when there were almost no women in physics. Things *are* changing, despite the social scientists. About 15–20% of my students are now women, albeit a large number are not

American born (perhaps the culture shock for Asian and Middle Eastern women is so great they don't know they are not supposed to be good in math/science).

I believe the source of these attitudes has been documented (?) in the math anxiety of female grade school teachers who consciously or otherwise influence girls to fear and dislike math. Many of my female students had to take a lot of makeup work in math before starting college level work; fortunately, the community college is very good at this.

Girls, then, need role models, preferably at a very early age. Grade school teachers need to lose their math anxiety, too. Can we get to them in our communities? Perhaps it is time for a campaign. Many of us would like to help design or carry-out the necessary work.

Incidentally, as you probably know, women science/math students are wonderfully nurturing and feminine in the best possible way. They have made these last 5–10 years of teaching much more rewarding for me; they express appreciation!

I am sure you will receive a great deal of mail from other women. If you send out any general response, please put me on your list.

Sincerely,
Geraldine Karpel
Professor, Physics
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Torrance, CA 90506

Dear Dr. Ruskai,

I did find your letter in the CSWP July *Gazette* stimulating enough to want to respond, even if, as "not economically active," I may be outside the group of women scientists you planned to reach.

While the problem of sociologists, who may know little, and understand less, of the mathematical and physical sciences, speaking for women scientists would appear to be real, some sort of register of suitable, willing women scientists might be able to be publicized.

But the underlying problem of real misconceptions of the nature of scientific work affects not only women (and others) who might consider entering these fields. If there was more real knowledge of the nature of work in the physical and mathematical sciences among all non-scientists the problem wouldn't be so serious. The particular version I'd met was that physical sciences were for people who wanted nice, safe, set answers, and didn't want to face the real intellectual challenge of more open-ended fields—a symptom of acute, rampant ignorance. But the image of the intelligent, uncreative, inartistic, greasy grind is pervasive—it runs through the recent "Insiders Guide to Colleges" our son's been reading—and a symposium on Engineering careers left him put off by the vision of a lifetime searching for a "better bolt." All not gender-related, but I think girls are more discouraged by this sort of image.

Unfortunately I was unable to find Dr. Tobias' article to reread at this point. I agree entirely that traditional high standards must be kept in physics courses. But, as I remember the original article, some of the "remedial spoon-feeding" dealt with what could have been described as "science-readiness" that ought to have been acquired before or in primary school. Unfortunately this lack of exposure would appear to be self-perpetuating and it would appear to be connected to the high percentage of college students with a pre-Newtonian understanding of mechanics reported in *Physics Today* several years ago. I agree entirely that improved mathematical preparation at *all* levels would help the situation immensely, but by secondary school it's often too late. I came away from Dr. Tobias' article with the feeling that something at the Sesame Street level was needed.

I was lucky. I came from a technically/scientifically literate family and had uncles who considered such things as explanations of aerodynamics natural when faced with entertaining two-year-old girls. I also was able to go to one of the "seven sisters" colleges before the great coeducation push so that social pressures against doing physics were minimal. But my high school didn't even allow physics for academic girls unless they planned on nursing, and I was told that I couldn't do German as the available space was needed for boys who needed it for "their" science! I expect we've all run into something

on that order— and it's well worth making a fuss about it, if it hasn't stopped yet (as I hope it has). But I'm all too afraid that girls are still steered to biological sciences and away from advanced maths in too many cases.

Sincerely,
Nancy Weatherell
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