

# STATUS

The Committee on the Status of Women in Astronomy - The American Astronomical Society  
JANUARY 1995

## **A Note from the Chair's Corner**

*-Debra Elmegreen, Chair, CSWA*

Our committee this year includes Geoff Clayton, Laura Danly, Kathy Eastwood, Debra Elmegreen (chair), Laura Kay, Geoff Marcy, Meg Urry, and Craig Wheeler.

The CSW A open meeting at the 1994 AAS June meeting in Minneapolis drew a large audience of men and women. Roberta Humphreys and Cindy Blaha were asked to give brief remarks about their experiences as two-career couples in the job market. Others brought up the usual issues of concern ranging from recruitment of women in graduate school and in job-seeking, legal assistance for harassment violations, and career opportunities.

The CSWA has decided to try to reach a larger audience with the Baltimore Charter by sending it to astronomy department chairs at all the major colleges and universities, rather than just to university presidents as was done by STScI following the completion of the Charter. Meg Urry and Laura Danly, who played key roles in its writing, will oversee the distribution with the help of other committee members.

Some readers have expressed concern that our e-mail newsletter deals with issues outside the domain of women's issues. It is true that many issues that have surfaced in the AASWOMENnet this fall concern both men and women, and the committee feels that such issues are appropriate to discuss among our large readership. Particularly alarming were the very difficult discussions about advisee/advisor situations in which students who demonstrated scientific ability had very difficult times getting jobs after completing their degrees, and the desirability of establishing professional contacts early on in their careers in order to maintain credibility.

Others have expressed concern over the broadening role of the CSWA on minority issues, which leads our committee to suggest that the AAS consider forming a Committee on the Status of Minorities. Such issues could be incorporated into our committee, but then the composition of our committee should eventually be broadened to reflect the concerns of other groups not currently represented. We feel that this expansion could become too broad for a single committee, and that there is a growing need for a separate minority committee. We have suggested the formation of such a committee to the AAS Council.

## **A Letter to the Editors**

I read with interest the issue of STATUS (June) relating to P.I. status. The Association of Research Astronomers recently instituted a survey of nonfaculty researchers that dealt with the P.I. issue. The survey netted 267 responses from individuals ranging from 1 year to 30 years post degree. The survey results are available, along with an article on the subject. Please let me know if you would like to see it.

I am a strong advocate of allowing P.I. status to all and adopting a uniform set of standards. I had discussions with some new AAS council members recently on this subject and I think you will find that a "new perception" will emerge.

I would like to suggest that when dealing with issues such as employment, P.I. status, and other

items sensitive to nonfaculty, one might want to broaden the approach. People on "soft money" are under a terrible burden, as well as being considered "second-class citizens" in some cases, and the issues pertaining to these individuals cross gender boundaries. For example, I was confused by the "statistic" (top of page 2) that said that ". . . women. . . overpopulate the nontenure ranks. . ." In the ARA survey, 18% of the respondents were women, a number that compares quite well with the 16% of tenure-track and tenure rank positions held by women. Also, although intended as an aid to soft-money people in general, the survey also supplies information on how women fare in soft-money positions on such topics as publications, service work (refereeing, etc.), and obtaining grant money. The data show no statistical difference between the genders; all do equally well in these categories. This is not to say that there is not discrimination in regard to nonfaculty (soft-money) astronomers: there is all too much of it. However, there does not seem to be evidence of it in regard to gender within the ranks of these individuals (that is not to say that isolated cases do not exist).

I am very concerned about the fact that many individuals in nonfaculty positions cannot be P.I.s and I am working hard to help change this. However, I am made a little nervous to see the issue of gender being introduced into it. I think that all lose by the lack of P.L status and all stand to gain by changing the way business is done.

I hope you found this useful. If I can be of any assistance, please do not hesitate to ask.

Sincerely,

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## **AAS Council Action on Baltimore Charter**

At the 183rd Meeting of the American Astronomical Society on January 11, 1994, the Council of the Society adopted the following motion:

"Recognizing the principle that the inclusion of women and other under-represented groups in the

ranks of professional astronomers is important and highly desirable, the American Astronomical Society is committed to addressing issues of attitude and procedure that negatively impact any groups. The American Astronomical Society supports the goal of the Baltimore Charter, which is to promote a culture in which both women and men can realize their full potential in scientific careers. We recognize that there are many differences in the institutional structure of astronomical organizations, and that no single strategy is likely to be suitable to all of them. We do, however, urge all astronomical programs to formulate strategies that will enable them to realize the goal of the Baltimore Charter. We note that the AAS has already modified its bylaws to reflect commitment to this goal."

## **DPS Action on Baltimore Charter**

During the open business meeting of the Division for Planetary Sciences' annual conference in October-November 1994, the request was made that the DPS consider endorsing the Baltimore Charter for Women in Astronomy. Specifically, the point was raised that many DPS affiliate members whose research emphasized planetary geosciences and whose parent organization was not the AAS would not otherwise be familiar with the contents of the Baltimore Charter. As a result, the DPS Executive Committee has voted to affirm the position of the AAS Council on the Baltimore Charter. The text of the Baltimore Charter was published in the 1993 DPS Newsletter.

## **1994 DPS CSWA Meeting**

*-Ann Sprague*

The Division for Planetary Sciences (DPS) of the AAS held its annual meeting in Bethesda, Maryland, October 31 - November 4 of this year. The Committee for the Status of Women in Astronomy open DPS meeting was held on Sunday evening. This provided an ideal opportunity for Dr. Meg Urry of the Space Telescope Science Institute to present a lively talk about the origins of the Baltimore Charter. She reported that the Board of Directors of the Association of Universities for Research in Astronomy (AURA), NASA, NSF, and the AAS Council have all endorsed the Baltimore Charter and its goals.

We were surprised to learn that among U.S. universities, only the presidents of AURA member institutions have so far been asked to consider endorsing the Baltimore Charter, largely due to lack of resources for wider dissemination. Roughly half responded; Pennsylvania State University issued a prompt endorsement of the Charter; half a dozen other institutions, including Harvard and the University of California (system), sent positive letters; and the rest forwarded the document to individual departments for further action. The most recent institution to endorse the Baltimore Charter is the Harvard-Smithsonian Center for Astrophysics.

We feel it is important at this point to bring the Charter formally to the attention of all U.S. astronomy departments, and to specifically ask them to consider endorsing the Charter and its goals. We are hoping that dialogue on this matter will bring to focus the relevant issues and will lead to more endorsements of the Charter in the future. Dr. Beatrice Mueller is the new organizer for the CSWA, DPS. We are hoping to maintain the increased dialogue between the DPS members concerned with CSWA issues and the AAS CSWA begun by Meg.

## **Confronting the Issues and Concerns Facing Nonfaculty Soft-Money Astronomers**

*-Jason A. Cardelli University of Wisconsin-Madison*

*"It might be worth pointing out that classic examples of soft-money (nonfaculty) researchers doing world-class work are Penzias and Wilson."*

The current funding and job shortage in astronomy signals a dramatic change of direction in our profession. The individuals most acutely effected by this crisis are in nonfaculty "soft-money" positions supported mostly from grants and contracts. However, one must realize that the vast numbers of soft-money astronomers are not simply the result of producing too many Ph.D.s for too few faculty jobs. Many of these individuals were "created" to fulfill specific needs that resulted from the technological advances of the past 20 years. In the mid to late 1970s, the promising future of the great observatories program resulted in a call for a large number of research-capable scientists to participate in both instrumental development and scientific data analysis. Many people recognize the fact that programs such as HST would never have succeeded without these individuals. However, the current post-Cold-War-driven change in the funding support for basic nonapplied science has suddenly left a generation of capable and experienced scientists to face an uncertain future. Unfortunately, we have exacerbated the problem by continuing to produce Ph.D.s at an alarming rate. While overproduction is a reasonable way to stimulate competition, the problem is worsened by the fact that large numbers of students strain the already overburdened resources, and many of these individuals are filled with unrealistic expectations and often inadequately trained to seek alternative employment.

For astronomy to continue to be healthy and diverse requires that we actively address the issues surrounding the funding and job crisis and seek viable solutions to the problems confronting soft-money astronomers in general. However, this effort should be driven by more than just a sense of obligation. Soft-money astronomers are a necessary and integral part of our profession both scientifically and technically. If our profession is to continue to grow with technology, we will need the expertise that many of these individuals offer.

In order to bring these issues to the forefront and to assist in seeking solutions, the Association of Research Astronomers instituted a survey of soft-money astronomers in January 1994 in an attempt to gather useful data on these individuals. The results of the survey are presented here. In response to the survey, many individuals also provided comments that eloquently express their feelings and concerns on a number of topics. These comments have served as the basis for the following topical discussion, which summarizes important issues.

### **Perceived Status**

*"Our department now has more people on soft-money than full-time positions. They have nothing to lose-they get overhead money and don't have to provide any guarantees or give voting rights to these other people. In addition, they are a cheap source of teaching labor... So what incentive is there for universities to change? They have a good deal going and think soft-money people should only be grateful for the opportunity to be associated with their prestigious institution." Age 45.*

*"By the very nature of our position we are second-class citizens at the university and many of the tenured faculty treat us as such. In general it is clear that the country needs to find a way to provide scientists stability outside of faculty slots since ultimately the need for scientists is greater than the need for faculty positions." Age 37.*

There is general consensus among soft-money astronomers that they are often perceived of as being of lesser quality and importance than their faculty counterparts. Often held up as an example of this is the fact that soft-money astronomers are generally not represented on policy-making panels or even in the AAS leadership. While such perceptions are certainly not universally held, experience indicates that such prejudice does exist. Unfortunately, this situation has led to an "us-and-them"

mentality that is both inappropriate and unhealthy. The results of the survey clearly show that soft-money astronomers represent an equal and integral part of our profession with respect to both scientific productivity and service work (i.e., refereeing papers, NSF proposals, and serving on TAC/peer review panels). We must all work together to do whatever is necessary to eliminate negative perceptions and recognize the equality of and contributions made by all astronomers.

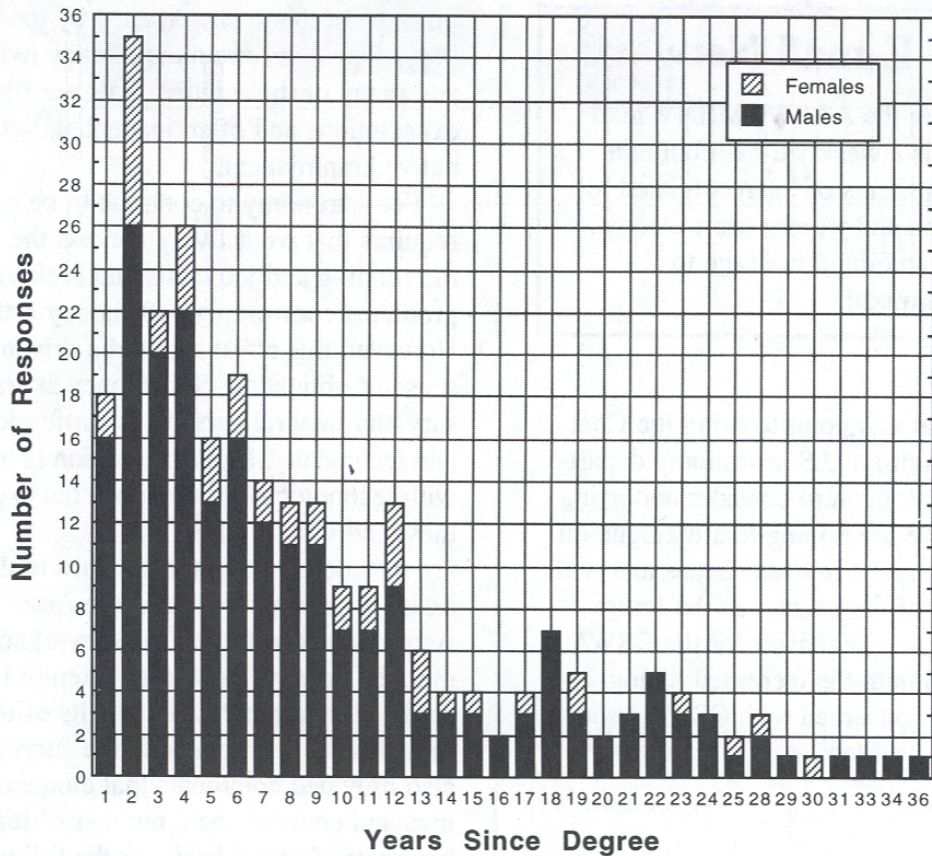


Fig. 1. ARA survey: sample distribution.

### Morale

*"I just noticed that 50% of the co-authors (i.e., 2 out of 4) on the 3 refereed papers I recently submitted are out of a job... how can you work in such an environment?" Age 35.*

*"I'm very concerned that the funding crisis is driving very poor science. I'm part of a large team, and in order to protect our funding we are constantly being pressured to produce papers to impress review committees-the quality of the science is considered of secondary importance to the number of publications," Age 39.*

*"Count me in as disillusioned, unhappy, and jaded. Asked to give 'science' as a career a grade, I'd give a 'D-'. Next time around, I won't go into science." Age 38.*

As in any profession, morale is an important factor in job performance. For many soft-money astronomers, the current job and funding crisis has simply made a bad situation much worse, and many individuals are finding themselves battling serious frustration and despair. While recognizing

that solutions to the current problems will not be easy and that many soft-money astronomers will have to seek alternative employment, we must all strive to make the current situation as tolerable as possible. Everyone, faculty and nonfaculty alike, has a contribution to make, and everyone deserves the respect and recognition that comes with such contributions.



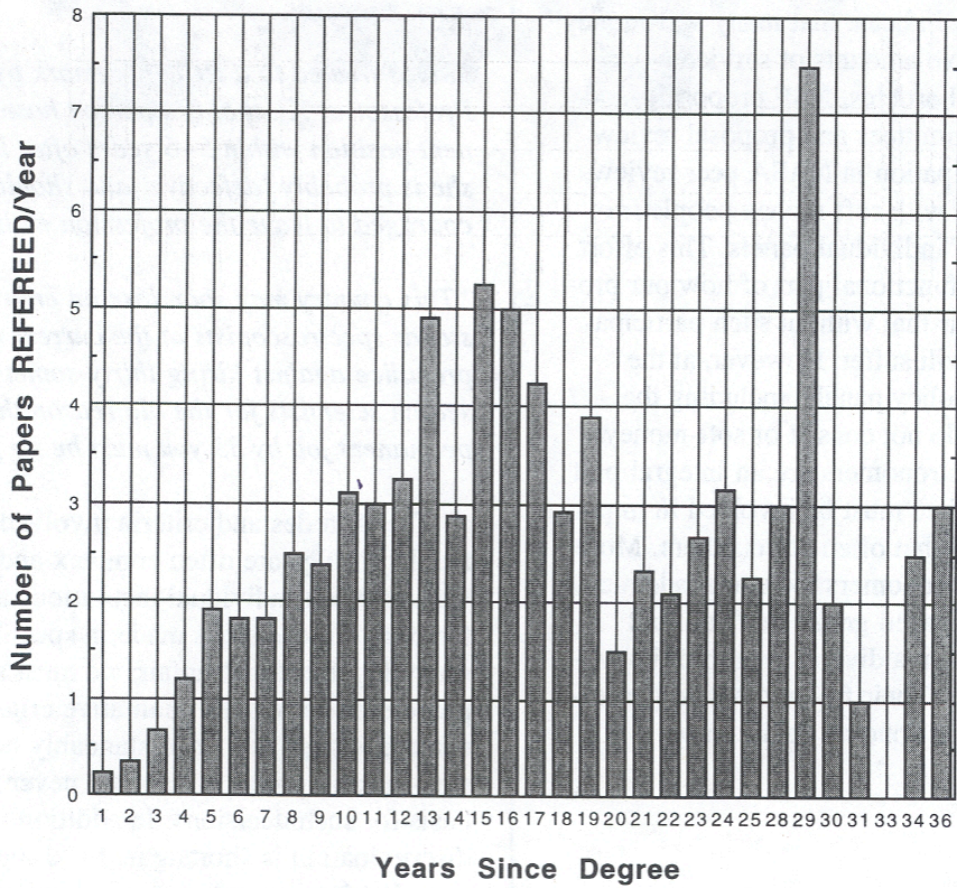
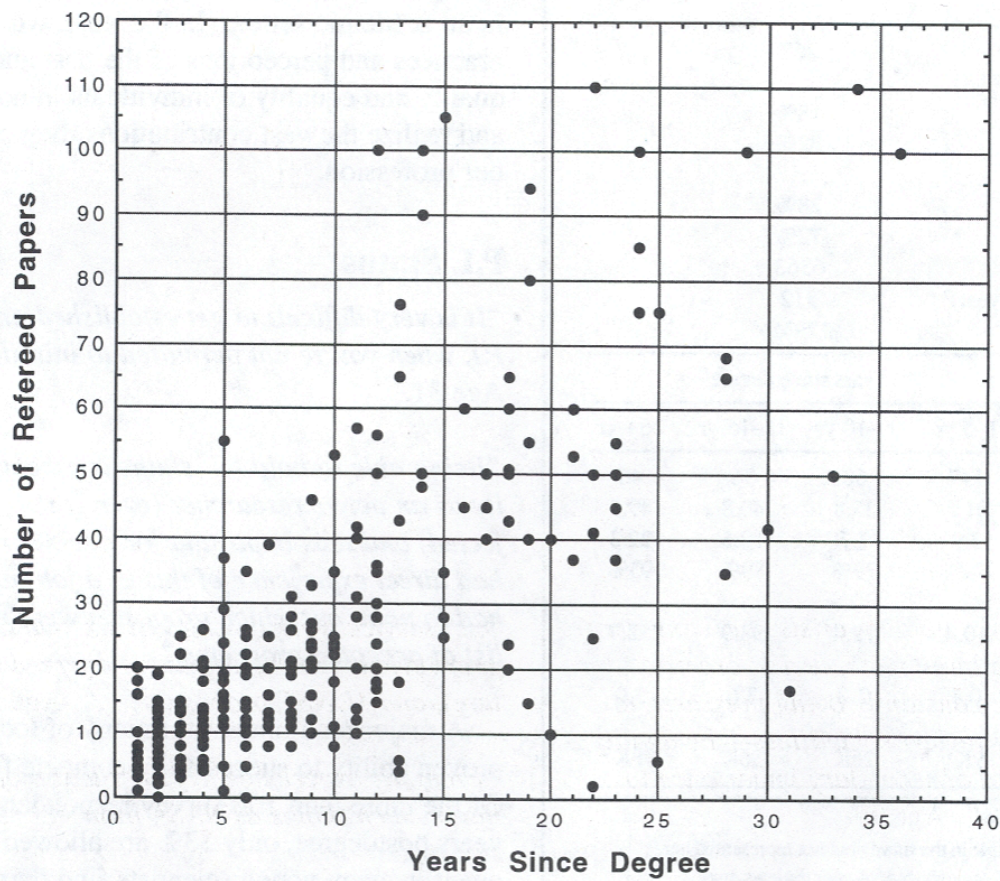


Fig. 2. ARA survey: service work.



## **Service Work and Representation**

*"...service work during last six years includes 6 NASA peer review panels, 20 papers refereed (ApJ, A&A, Nature), and 11 NSF proposals..."* Age 50.

*"From my experience, a fair fraction of the people serving on such things as NASA proposal review panels are on soft money and yet such people are not generally associated with policy-making groups or even the AAS leadership. If we equally participate, we deserve equitable representation."* Age 38.

The results of the survey indicate that many soft-money individuals perform extensive amounts of service work, including refereeing journal articles, NSF proposals, and participating on NASA committees and proposal review panels. At times, the participation in NASA peer reviews is at a level of 50% or more with soft-money people frequently serving as chairs of individual panels. This effort represents a necessary and functional part of how our profession works, and it is clear that without such participation, competitive research will suffer. However, at the same time, most advisory/policy panels, including the AAS leadership, generally do not consist of soft-money astronomers. Soft-money astronomers are an integral part of our profession and therefore must be involved in important policy-decision making that often affects them. More significantly, soft-money astronomers include academic, government, and corporate-based grants and contract workers, and as such represent a diverse wealth of knowledge, talent, and experience. Their full and active participation is necessary to keep astronomy healthy and competitive.



Survey of Nonfaculty (Soft-Money) Research Astronomers.<sup>1</sup>

Total Sample				
Number of respondents	267			
Gender				
Female	18%			
Male	82%			
P.I. status				
No	28%			
Yes	72%			
Authored (refereed) papers	6363			
Service work (papers refereed per year) <sup>2</sup>	512			
Support funds (P.I. grants only)	129M <sup>3,4</sup>			
	Years since degree			
	1-5 yr	6-10 yr	11-15 yr	16+ yr
Respondents	117	68	36	46
Average age	31.5	35.8	40.8	49.8
Average years since degree	2.9	7.7	12.5	22.3
Allowed to be P.I.	54%	79%	89%	93%
Authored (refereed papers)				
Average per person	10.4	19.4	38.9	52.7
Service work (papers refereed) <sup>2</sup>				
Average/year/person	0.8	2.2	3.6	3.0
Support funds (P.I. grants only)				
Average/year/person	9K <sup>3</sup>	26K	56K	88K <sup>4</sup>

<sup>1</sup> Survey results are through April 30, 1994.

<sup>2</sup> Other service work information available in the survey but not represented here includes participation in NSF proposal reviews, NASA peer reviews, user committees (e.g., IUE, HST, etc.), etc.

<sup>3</sup> Does not include one individual responsible for \$3M in grants and contracts.

<sup>4</sup> Does not include three individuals responsible for \$95M in grants and contracts.

**Age**

*"I was treated to a strident remark by a former Assistant Professor at...that if a person hasn't secured a permanent position within 5-6 years after his/her Ph.D. that he/she is probably 'defective' and should be otherwise encouraged to leave the profession entirely." Age 41.*

*"This country may soon lose an entire generation of stellar spectroscopists at the current rate. I also sense a prejudice against hiring thirty-something post-docs/research scientists for the old reason that if you don't have a permanent job by 35 you must be no good." Age 36.*

The attitudes and criteria involved in postdoctoral and faculty hirings are often complex and can significantly vary between individual institutions and over time. While the basis for decisions made in specific instances may seem disjointed and unfair, we must all accept that the process also involves qualitative criteria. Although at some point age can understandably be a factor in the decision-making process, it should never be used as the major basis for such decisions. In addition to being illegal, such discrimination is shortsighted and makes for poor business. Productive and successful individuals who have survived on soft-money grants and contracts for many years not only possess the necessary research skills, but also bring nonacademic managerial, organizational, and leadership knowledge and experience that could be invaluable in an academic setting. In the least, we must erase the practices and perceptions of the past and recognize the quality and equality of individuals in nonfaculty positions and realize the vast contributions they continue to bring to our profession.

### **P.I. Status**

*"It is very difficult to get established and become a P.I. when you're not permitted to initiate proposals..." Age 31.*

*"Being able to hold P.I. status is essential to one's visibility as an active researcher (even if the proposals are rejected) and thus important for one's career prospects. I had direct experience of this in a job interview where I had to point out which proposals were really 'mine' on a list of accepted programs." Age 28.*

A major requirement for many of today's jobs is the proven ability to successfully compete for research grants. Of the more than 100 survey respondents that are 1-5 years postdegree, only 53% are allowed P.I. status. Consequently, many young scientists find themselves unable to compete as successfully as their counterparts at other institutions. Institutions that impose such restrictions must recognize this Catch-22 situation and find some way of changing it. One solution is to require that the younger and more inexperienced postdocs have a faculty co-signer to act as a supervisor. These institutions could also require internal semi-annual or quarterly reports as a way of monitoring progress. Whatever it takes, young scientists must be allowed to gain the experience and visibility associated with P.I. status that is necessary to compete in today's job market.

### **Job Status and Security**

*"I spend an inordinate amount of time taking care of administrative/technical/procedural details...this leaves precious little time for original research, which is extremely frustrating since the ideas don't stop coming." Age 28.*

*"I have never had any sort of job security such as tenure. While this has not been terribly damaging, I realize that if I lose my current position, I might have a very difficult task of finding another job." Age 59.*

*"The biggest issue that I am facing in my present position is that I came here to do some original research...but the group with which I am working tends to look at postdoctoral fellows and research*

*associates as glorified technicians and assigns them to work that is neither original nor requires a doctoral background. The motivation for this seems to be that research associates and postdocs cost less than technicians and are in a gray area with respect to the university administration. I am troubled by the surprising number of people in situations similar to mine." Age 39.*

The development and operation of projects like IUE, HST, ASTRO, COBE, ORO, and EUVE, just to name a few, have created a generation of soft-money research scientists with technical and practical experiences that were largely unavailable 10-20 years ago. These experiences bring great strength and depth to contemporary astronomy. More importantly, these capabilities are absolutely necessary to the technical well-being and future of our profession and of science and technology in this country in general. For more than a decade, we have been repeatedly warned that the United States is in danger of falling behind in science and technology and must do whatever is necessary to prevent this from happening. However, these words ring hollow in the ears of many experienced scientists who are now faced with an uncertain future. We must recognize the important contributions, and at times sacrifices, made by these individuals and the potential danger we all face if we lose this important capability.

## **The Future**

*"I think that the powers that be must recognize the monster that they've created, i.e., interested young people in the sciences, lured them in, and then, once we are finally ready to play, take all the toys away. Just think of those poor people who gambled their careers on the superconducting supercollider and then were simply told to go home." Age 51.*

*"I've told both of my kids to stay out of the sciences because of what I see happening. I'll probably make it through to retirement and be none the worse for wear. I would not like to be a young astronomer coming up through the ranks right now." Age 51.*

*"I think most Ph.D.-granting institutions should STOP training astronomy Ph.D.s, since the job situation is going to continue getting worse over the next 10-20 years...it's immoral to keep churning out so many Ph.D.s every year." Age 33.*

The future of soft-money astronomers is not promising, because many will be forced to seek alternative employment. However, there are things that we can do to alleviate some of the current problems and prevent a mass exodus and serious loss of expertise. Institutions should consider reducing the number of Ph.D.s that are produced. Continuing to populate graduate schools at past and present levels puts a serious strain on already overburdened resources and simply makes no sense considering the current market. However, we must be very careful not to move too far in the other direction, since we must continue to encourage the best and brightest to enter our profession. We should also examine how we presently spend the available resources and adopt cost-effective measures wherever possible.

In addition, we have been given the message that for America to remain technologically strong, we must do more to interest young people in science. Of all of the physical sciences, the hands-on nature of astronomy offers one of the best opportunities to accomplish this. Perhaps funding agencies should require some degree of public service/outreach (public lectures, visits to schools, etc.) for every grant it awards. This has two potentially important benefits. First, better community relations will heighten public interest and support and help soften the negative perceptions that many in the general public currently have about scientists. Second, granting agencies could in turn better justify the expenditures for science by arguing to congress that it actively seeks involvement in

community education. In addition, many soft-money researchers must themselves grow with the changing times by realizing that long-term full-time grant support will no longer be a viable option. They must creatively explore and seek alternative support opportunities in addition to grants if they wish to remain scientifically active. If this country is truly committed to maintaining the quality of U.S. science and technology, we must all work together to actively seek long-term solutions and alternatives to the current problems we face.

### A Summary of the ARA Survey: Preliminary Gender Statistics

The following is a breakdown of the survey results by gender for people who are between 1-15 years since degree.

	Women	Men
No. of respondents	42	179
Percentage	19	81
Age	35.6	34.5
Years since degree	6.7	5.7
No. of refereed papers/person	17.0	18.3
No. of refereed papers/year/person	3.3	3.5
No. of papers refereed/year/person	1.8	1.7
Grant dollars/person	155K	161K
Grant dollars/year/person	20.3K	20.9K
Allowed to be P.I.	81%	68%

As you can see, there is no statistical difference in these categories except for P.I. status, which I frankly find quite unexpected. However, I have not cross-correlated institutions in this category, so it could be a sampling anomaly.

The percentage of women quoted here is 1% larger than for the entire sample of 267. If I look at the same categories for people 1-10 years since degree, I find essentially the same comparative results. However, in this group, I find I do not know yet if this can be interpreted as more recent graduates do better than older ones.

	Women	Men
Grant dollars/person	89K	82K
Grant dollars/year/person	15.6K	13.4K