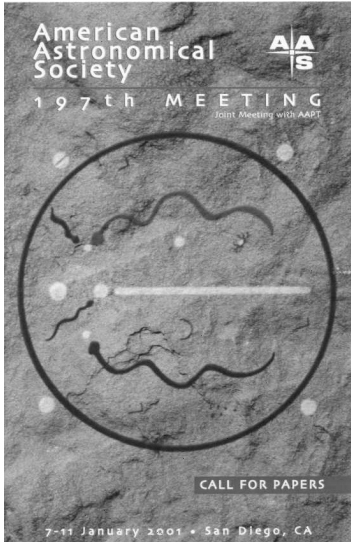




NEWSLETTER

The American Astronomical Society • 2000 Florida Avenue, NW, Suite 400 • Washington, DC 20009-1231 • 202-328-2010 • aas@aas.org



SAN DIEGO WINTER MEETING

First Joint Meeting with the AAPT

The 197th AAS Meeting in San Diego will be our first jointly planned endeavor with the **American Association of Physics Teachers (AAPT)**. Education events will be featured. Among the several joint Special Sessions in Education are “Impact of Physics Education on Astronomy,” “Astronomy as a Tool for Public Outreach,” “Innovations in Teaching Astronomy,” and poster sessions on “Education and Public Outreach” and “Astronomy Education.” The AAPT will offer special workshops and tours that are open to all participants. (Registration for these events must be *returned to the AAPT* on the appropriate forms in the Preliminary Announcement.)

Registrants from either society are welcome to attend all sessions and social events. The Town & Country Resort and Conference Center will once again be our meeting location.

Special Speakers

The meeting will open with the Heineman Prize Lecture by **Frank Shu**. Russell Prize winner, **Donald Lynden-Bell**; Warner Prize winner, **Wayne Hu**; and Pierce Prize winner, **Kirpal Nandra** will all present prize lectures. AAPT has arranged for **Robert Greenler** of the U. Wisconsin, speaking on optical phenomena, and **Robert Park** of the U. Maryland and the APS, to be invited speakers. **Margaret Burbidge** will speak at a special session for the Committee on the Status of Women in Astronomy with a personal view of being a woman in astronomy.

AAS Divisions Meeting with Us

The *Historical Astronomy Division* has arranged a special trip to San Diego State University on Sunday to view the **Zinner Collection** of old and rare astronomical books and portraits. The meeting of the *High Energy Astrophysical Division* will take place on Wednesday with two special sessions. HEAD Rossi Prize winner, **Peter Meszaros** will give a prize lecture on gamma-ray bursts.

Public Policy Evening

NASA Administrator **Daniel Goldin** will address both societies on “A View from the Threshold: NASA’s Vision and the People Who Will Make it Possible.”

For full details on the 197th Meeting, see the AAS Homepage:
<http://www.aas.org>



Final Slate for AAS Elections

The following have been nominated for office; most terms begin June 2001.

President:

James E. Hesser
Catherine A. Pilachowski

IAU Category I:

Ronald J. Allen
You-Hua Chu

Vice-President:

Joseph A. Burns
Suzan Edwards

Nominating Committee:

Douglas K. Duncan
R. Kent Honeycutt
C. Megan Urry
Hugh Van Horn

Secretary:

Arlo U. Landolt

Councilor:

Thomas R. Ayres
Dana E. Backman
Sun Kwok
Susana Lizano
Adrian L. Melott
Robert Rosner

These candidates will be on a ballot mailed within the December *Newsletter*. Ballots must be returned to the Office of the Secretary by Wednesday, **31 January 2001**.

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PUBLISHING AND PUBLICATIONS

Chicago on the Move

Julie Steffen, Astronomy Publications Manager,
The University of Chicago Press

New Home for UChicago Press Staff

In approximately three months, the entire staff of The University of Chicago Press will move to a brand new building on the main campus of the University. This is especially good news for staff working on the astronomy journals, who are currently spread out over three locations. All of our phone and fax numbers will remain the same in the new building. During this period we will be moving the computer servers for the AAS journals and the *ApJ* Editorial operations, and some brief server outages are possible. In order to give you the most up-to-date information, we will post news on the journals' home pages and on a page on the AAS web site about possible server downtime. Please also check your October and November AAS *Electronic Announcements* for more details on changes in our mailing address, our email address, and other items.

New Proof Serving for AAS Journals

This summer we instituted web-based proofing for the *AJ*, the *ApJ*, and the *ApJ Supplement* and have had a very positive response thus far from authors. When typesetting files for an article are ready, an email notification and password are sent to the corresponding author, who can then download the PDF and PostScript from our servers.

New Guidelines for Submitting Electronic Art

You will find our latest instructions for electronic art submission at <http://www.journals.uchicago.edu/ApJ/information.html> and <http://www.astro.washington.edu/astroj/ajems.html#figs>.

LASER and Centennial Issues Still Available

There are still copies available at great prices of the *ApJ Supplement* LASER Issue and the *ApJ* AAS Centennial Issue (clothbound). Order forms are at <http://www.journals.uchicago.edu/ApJ/news.html>.

Manuscript Submissions using AASTeX

The *AJ* and *ApJ* accept manuscripts electronically that are prepared using the AASTeX manuscript package. Following are some important addresses for obtaining information about AASTeX and electronic manuscript submission.

AASTeX Homepage:

<http://www.journals.uchicago.edu/AAS/AASTeX/>

User Support:

aastex-help@as.org

Journal Homepages/Manuscript Submission:

AJ: <http://www.journals.uchicago.edu/AJ/>

ApJ: <http://www.journals.uchicago.edu/ApJ/>

ApJL: <http://cfa-www.harvard.edu/apjl/>

Astrophysical Journal Scientific Editors

Robert Kennicutt, *ApJ* Editor-in-Chief

In the coming year the American Astronomical Society plans to fill a small number of appointments to the position of Scientific Editor of *The Astrophysical Journal*. The Scientific Editors play a vital role in maintaining the high scientific standards of the *ApJ*. Each editor oversees the peer review of 150-200 papers per year, and together with the other editors advises the Editor-in-Chief on issues of general editorial policy for the *ApJ*. Appointments are for terms of three years, subject to approval by the AAS Publications Board and the AAS Council, with an option for a second term at the discretion of the Editor-in-Chief. Editors appointed in this round will begin formal terms on 1 January 2002, with startup activities commencing in the fall of 2001.

Applications are welcomed from qualified individuals with expertise in any subfield of astronomy and astrophysics. *Experts in theoretical astrophysics or in high-energy, radio, or infrared observations are especially encouraged to apply.* Candidates should have a strong record of published scientific research, and be prepared to make the considerable time commitment (about 20%) that is required to carry out the duties of a Scientific Editor. Although these are largely volunteer positions, funding is provided for office equipment, secretarial support, travel to editorial meetings, and a modest stipend or research grant. Instructions for application are contained in the listing of these positions in the AAS *Job Register*, beginning with the October issue. Applications received by **1 December 2000** will receive full consideration. Informal inquiries about the positions may be directed by email to ajrck@as.arizona.edu.

CORRECTION:

In the August *Newsletter* notice of Member deaths, James Cuffey should read "Cuffey."

The *AAS Newsletter* (ISSN 8750-9350) is published in March, June, August, October, and December by the American Astronomical Society, 2000 Florida Avenue, NW, Suite 400, Washington, DC 20009-1231, Tel: 202-328-2010, FAX: 202-234-2560, aas@as.org; <http://www.aas.org>

The \$105.00 annual membership dues for the American Astronomical Society include \$3.00 that is applied toward a subscription to the *AAS Newsletter*. Periodical postage paid at Washington, DC.

POSTMASTER: Send address changes to AAS, 2000 Florida Avenue, NW, Suite 400, Washington, DC 20009-1231.

Items of general interest to be considered for publication in the *Newsletter* should be sent to lscholz@as.org. Appropriate pictures are welcomed. The remaining 2000 deadline is **13 October** (for December). Deadlines in 2001 are: 19 January (for March); 13 April (for June); 22 June (for August); 24 August (for October) and 12 October (for December). For further information see <http://www.aas.org/publications/newsletter.html>.

Letters to the Editor on current issues of importance to astronomers are welcomed. Letters must be signed and should not exceed 250 words. Letters must be received by Jeff Linsky, Associate Editor, Letters, no later than one week prior to the Newsletter deadline (above). You may contact Jeff Linsky by email jlinsky@jila.colorado.edu, Tel: 303-492-7838, or FAX: 303-492-5235. The Associate Editor may edit letters, but will consult with authors before doing so. Letters will be published at the discretion of the Editors.

Items submitted for the *AAS Newsletter* are not automatically included in the AAS Electronic Announcements or vice versa. Submit electronic announcement items to ela@as.org.

AAS Publications Coordinator: Judy Johnson

Editor: Robert W. Milkey

Associate Editor: Lynn Scholz

Associate Editor, Letters: Jeffrey Linsky, U. Colorado

Publishing Electronic Tables in AJ and ApJ

Greg Schwarz, AAS Journals Staff Scientist, Robert Kennicutt, ApJ Editor-in-Chief, and Paul Hodge, AJ Editor

The continual expansion of capabilities in electronic publishing are now allowing us to expand our abilities to publish machine-readable tables and other materials as part of our on-line journals.

For a number of years it has been possible to publish extended electronic-only tables in *AJ*, *ApJ*, and the *ApJ Supplements*, and in the last two years we began posting crude ASCII versions of all tables in the on-line journals.

We now have expanded these capabilities, by producing and posting standard format machine-readable versions of large tables. These new tables are superior to the previous ASCII tables, in that they are formatted in such a way that the information can be easily read into a computer (without embedded LaTeX or HTML characters), and each file includes meta-data which document the format and scientific content of the table. The meta-data includes the important information including format, units, and a short description of each column. For examples of machine readable tables we invite you to look at the following papers:

- ApJ*: Fan & Lin, 2000, **537**, 101 table 2
Zabludoff & Mulchaey, 2000, **539**, 136 table 1.
- AJ*: Kong et al., 2000, **119**, 2745 table 2
Beers et al., 2000, **119**, 2866 table 1, 3 & 4
Siegel & Majewski, 2000, **120**, 284 table 4
Sung et al., 2000, **120**, 333 table 1.

We hope that readers of the AAS journals will begin to use these machine-readable tables, and we encourage authors to consider using the capability when they wish to publish data attachments that do not necessarily need to appear in print. Currently the journal staffs select which tables are enhanced, but you can request this processing at the time of submission. The cost for electronic-only tables is \$115 per table (instead of \$115 per printed page). In addition it is no longer necessary to format on-line only tables with AASTeX.

See <http://www.astro.washington.edu/astroj/ajems.html> (*AJ*) or <http://www.journals.uchicago.edu/ApJ/information.html> (*ApJ* and *ApJ Supplements*) for more information on the specific guidelines for submission instructions.

We are in the process of expanding these capabilities to allow the publication of on-line only figures, video, source code, and other electronic attachments. If you are interested in publishing such materials we encourage you to contact Greg Schwarz or the journal office. Any questions about electronic tables should be directed to Greg Schwarz at gschwarz@as.arizona.edu.

AASTeX v5.1

Chris Biemesderfer, chris@seagoat.com

A new release of AASTeX will be available in October. This version will contain the previous bugfix releases that applied to AASTeX v5.0, and repair some additional minor errors. We will also make some improvements in the documentation, especially in the online material. For AASTeX software and documentation see <http://www.aas.org/publications/aastex>.

SECRETARY'S CORNER

Arlo U. Landolt, AAS Secretary

Committee Vacancies To Fill . . .

Vacancies for several AAS committees will be filled by Council, at its meeting in January 2001. Current committee members are listed on the AAS homepage, <http://www.aas.org>. Committees which have vacancies, together with the number of vacancies on each (in parenthesis immediately following), are:

- Russell Lectureship Committee (2),
- Heineman Prize Committee (2),
- Warner and Pierce Prize Committee (3),
- Annie J. Cannon Prize Committee (1), and
- Van Biesbroeck Prize Committee (3)
- Beatrice Tinsley Prize Committee (3)
- AAS Education Prize Committee (2)

AAS Members may themselves volunteer, or suggest other Members for one of the vacancies. To be most useful to the Committee on Appointments, such input also should include the date of PhD, as well as a few sentences conveying to the Committee the background and area of expertise of the named individual. The idea is to have both quality and breadth across the AAS committee structure.

Input should be received in the Office of the Secretary no later than **15 December 2000**. Submit suggestions to Arlo U. Landolt, AAS Secretary, Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA 70803-4001 Tel: 225-578-1160, Fax: 225-578-7001, aassec@rouge.physics.lsu.edu

San Diego Sessions Need Chairs

AAS members are invited to volunteer to chair one of the oral paper sessions at the AAS's meeting in San Diego in January 2001. A session chair should be at least a few years beyond the PhD, and have had experience, *i.e.*, being the lead author, in presenting at least two or three oral papers at AAS meetings. Watch for the Final Program on the Web, and after it has been posted, review its contents, and then list in order of preference two, three or four oral sessions that you would be willing to chair, in or near your field of expertise. Email your preferences to Arlo U. Landolt, AAS Secretary, at aassec@rouge.phys.lsu.edu, and he will respond once final chair assignments are known.

REMINDER - Policy on Unpaid Journal Subscriptions

Member Subscriptions Only

To avoid any lapse in journal subscriptions, dues and subscriptions should be paid in full by **1 December 2000**.

After 1 January, no unpaid subscriptions will be mailed. In the event a subscription is reinstated after lapsing, there will be a surcharge for shipping the back issues — \$25 for the *ApJ* and \$15 for the *AJ* or *ApJ Supplement*, in addition to any membership reinstatement fee. If no back issues are required, no surcharge will be imposed.

COMMITTEE NEWS

Status of Women in Astronomy

Meg Urry, Chair CSWA, cmu@stsci.edu

Surveying the Playing Field

Meg Urry, Space Telescope Science Institute

(This article is reprinted from the June 2000 issue of *STATUS*)

Astronomy is a highly competitive profession, and to succeed requires brains, dedication, energy, imagination, and luck. It is hard for almost everyone to get a faculty job, to get tenure, to rise to leadership roles in the profession. Is it harder for women? Or easier? The answer lies not in anecdotes — which abound to support either view — but in an objective assessment of the data. If women are being given an unfair advantage, we should see that they are being hired in greater numbers than their percentage in the talent pool. If vice-versa, perhaps greater measures are needed to ensure their fair access to the profession.

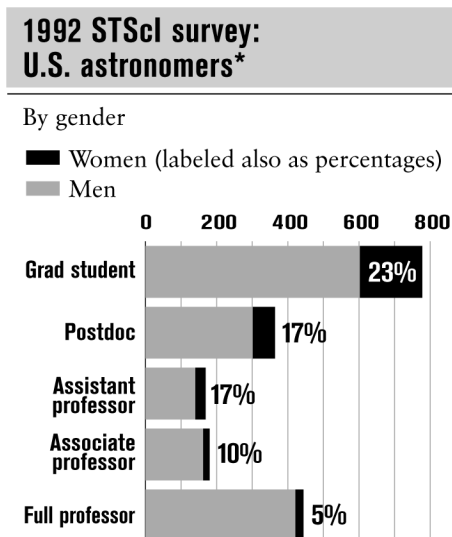
Accordingly, we looked at how many astronomers are women, and how this changes with professional level. Because astronomy is a relatively small profession, it is usually combined with physics (which is 10 times bigger) for statistical purposes. The only available statistics for astronomy alone, spanning graduate school through the full professor level, come from the following three surveys: the 1992 and 1999 STScI surveys of 4 observatories and 32 universities with astronomy graduate programs (100% response, ~1300 PhD astronomers), and the 1999 AAS survey of ~300 institutions (~60% response, ~1600 PhD astronomers). The STScI surveys were done by Ethan Schreier in 1992 (published in the *Proceedings of the Conference on Women in Astronomy*, online at <http://www.stsci.edu/stsci/meetings/WiA/>) and by this author last year. The AAS survey was initiated in early 1999 by consensus of the Chairs of the Committees on Employment, Education, Women, and Minorities, and was carried out by Kevin Marvel and AAS Executive Office staff; Brett Blacker (STScI) and I analyzed the results (see *BAAS* 31, 1552, #121.01).

Evaluating the Survey Data

The raw data are shown as bar graphs in Figures 1-3.

The picture that emerges from these surveys is a consistent one: roughly 1/4 of graduate students are women, ~1/6 of the

Figure 1



postdocs, assistant, and associate professors, and only ~5% of the full professors are women. Most men in astronomy are full professors (65%), compared to only 1/3 of the women (the largest group of women PhDs are postdocs). Interestingly, the percentages of women are slightly higher in the STScI sample, which includes the four observatories not in the AAS data base

(STScI, NOAO, CfA, NRAO) and institutions that are generally the largest and most prominent.

The AAS survey will be repeated regularly, so there will be new data to show how these numbers evolve. Ideally, the bulge of women at the young end of the profession will propagate smoothly up the hierarchy. That is, 25% of the PhDs will go to women, 25% of the new postdoc hires (now) will be

women, 25% of assistant professors hired (in a few years) will be women, and so on. This would indicate a gender neutral system. In the meantime, we can use the present, somewhat limited, data to assess the current situation.

In fact, there are disturbing signs that the advancement of women lags behind that of men. The clearest disparity occurs at the entry level — the transition from graduate school to postdoc. Statistically, 43% (+/- 2%) of the men in graduate school can expect to obtain postdocs, while only 26% (+/- 3%) of the women will. (This discrepancy is significant at the >5 sigma level.) These percentages follow from a comparison of the numbers of men and women in graduate school and postdoc positions at the surveyed institutions, under the assumption that the gender compositions of those groups change little over the time scale for transition from one to the next.

At later transitions, the statistics are too poor to distinguish between the advancement rates for women and men astronomers; the raw numbers for women are still lower but only at the ~1 sigma level. (This is a “Catch-22” situation: there are few enough women astronomers that the error bars are large, thus it is hard to establish with high statistical significance that women are falling behind.) For combined physics and astronomy, where the statistics are more robust, the progress of women lags behind at all levels. Women are less likely to be hired, are less likely to be given tenure, and spend longer at lower levels (e.g., as associate professors) than their male colleagues. (See articles by Gerhard Sonnert and Virginia Valian, *STATUS*, 1999 January, and references therein.)

It is noteworthy that this lesser progress for women occurs during a veritable explosion in national astronomy faculty. Between the two STScI surveys, in 1992 and 1999, the number of professional astronomers increased by 1/3, assistant professor positions increased by more than 50%, associate professor positions by nearly as much (43%), full professors by 1/4, and postdocs by 1/5. It is still a tough job market for new PhDs, certainly, but it is much better than it would be in a steady-state situation. If women fall behind even now, when and how can we expect to attain the gender neutral state?

FOOTNOTE TO GRAPHS

*The 1992 and 1999 STScI surveys looked at four US observatories and 32 US Universities with astronomy graduate programs (100% response rate, ~1300 PhD astronomers). The AAS study surveyed about 300 institutions (60% response rate, ~1600 PhD astronomers).

1999 STScI survey: U.S. astronomers*

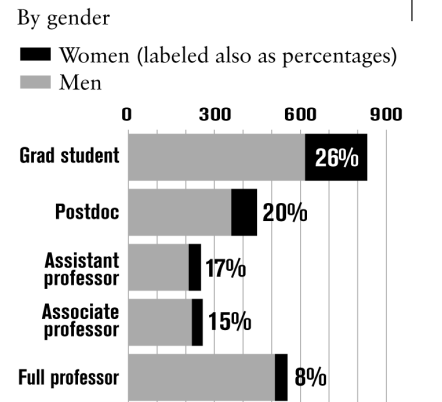


Figure 2

**1999 AAS survey:
U.S. astronomers***

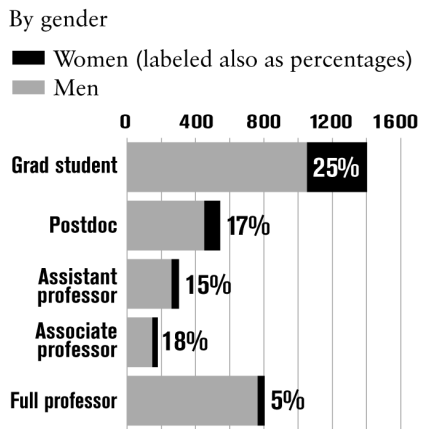


Figure 3

*The Statistics of
Invited Speakers —
Rough Parity?*

Several other statistics are important, if more specific, indicators of the status of women in astronomy. The percentage of women invited to speak at meetings is one measure of the gender neutrality of the field. If women are invited in the proportion appropriate to the particular sub-field (at a seniority level comparable to the male invited speakers),

then one would conclude no gender bias is present, at least on average. The speaker-invitation process also has an important feedback effect: evaluation of astronomers for hiring, promotion, tenure, or prizes usually includes an assessment of the frequency with which the candidate is invited to give talks at major meetings. Thus, under-representation would not only indicate unfairness, it could help perpetuate it.

A random survey of about 25 topical astronomy meetings (submitted to this author, roughly equally, by people outraged at the exclusion of women and by others demonstrating how effectively women are included) shows that 9% (+/-2%) of invited talks were given by women, 87% (+/- 7%) by men, and 4% by people from whose names gender could not be determined. This is roughly consistent with the percentage of women PhDs over all astronomy, and so is gender-neutral, at least in an average sense. That meeting rosters so often anger women and make them feel excluded may simply be because the numbers are very low — there are still very few women in astronomy.

However, there may be more to the story: this author noted a number of rosters that lacked any women, despite many who have contributed extensively to the particular sub-field. Obviously other rosters must have over-represented women, for the average to end up average. We would have to evaluate the second moment of the overall distribution to quantify whether this perceived bifurcation is actually non-Gaussian. In the meantime we can conclude that, if meeting organizers make a conscious effort, they should be able to achieve the appropriate 10% representation (up to 25% if there are many young speakers).

Inequality in Honors and Prizes

Another statistic is the percentage of women given prizes or high honors. One example is the percentage of women elected to the National Academy of Sciences. In the physical sciences, about 5% of the new members elected over the last 15 years are women, and this is also the percentage in astronomy at present (4 women of 78 astronomy members). This is comparable to the percentage of women full professors across all of astronomy but lower than the percentage of women full professors at the dominant astronomical institutions (8%).

We can also ask what percentage of AAS prizes in the last decade went to women (see Table below). Of 96 science prizes, 7 went to women (or 7% +/- 2%). The Warner, Pierce, and Urey prizes, by design, go to young astronomers; of the 29 recipients, 5 were women, less than but comparable to the percentage of women postdocs averaged over the past decade. Excluding the planetary award, however, only 2 of 19 (11% +/- 8%) were given to women, while 17-20% of the postdocs over this period were women. For the more senior science prizes over the past decade (including division prizes), 2 of 67 were given to women, whereas, based on the percentage of women full professors at top universities and observatories, 5-6 would be expected. Perhaps most striking, none of the 16 intermediate-age prize winners (Heinemann and Tinsley) have been women; given the ~10-14% women in associate professor positions, the average expectation is about 2 (13% probability that this would happen by chance).

The expectation is that roughly 12 of the 96 awards “should” have gone to women if there were no dependence on gender. This comes from assuming 20% of the young winners (5.8), 12% of the intermediate-age winners (1.9), and 8% of the senior winners (4.1) should be women if drawn randomly (with respect to gender) from

the appropriate age pool in the past decade. The probability of 7 women winning awards when the expectation is 11.8 is only 4%. For service and education or public outreach, the percentage going to women (11% +/- 7%) is slightly higher than for science and still below the gender-free expectation (though with large uncertainty, and here the probability of this happening by chance, independent of gender, is 27%).

In summary, women have been winning AAS prizes at a rate significantly below their percentage in the pool of candidates. Certainly women are not winning a disproportionately high share of awards, as is sometimes the claim, with the possible exception of young planetary astronomers (a 20% random probability to have gotten 3, rather than 2, of the 10 awards).

**A decade of prizes and medals of the American
Astronomical Society and divisions (1991-2000 inclusive)**

Prize	Age	Type	Women	Men	% Women	Notes
AAS						
Warner prize	young	science	0	10	22	no 1994
Pierce	young	science	2	7	0	
Tinsley	(inter**)	science	0	6	0	1990-2000
Heinemann	inter**	science	0	10	0	
Russell	senior	science	1	9	10	
van Biesbrock		service	1	9	10	
Annenberg		ed/outreach	1	4	20	1992-1996
SPD						
George Ellery Hale			0	6	0	1990-2000
DDA						
Dirk Brouwer		science	0	10	0	
DPS						
Kuiper	senior	science	0	10	0	
Urey	young	science	3	7	30	
Masursky		service	1	9	10	
Carl Sagan Medal		public comm	0	3	0	1998-2000
HEAD						
Bruno Rossi winners each year		science	1	14	7	multiple

**Intermediate age classification

WOMEN IN ASTRONOMY*Continued from page 6***Conclusions**

The bottom line is that there are still very few women in astronomy, particularly at the senior levels of the hierarchy. The data show clearly that the relatively large numbers of women astronomers at entry levels are not achieving the same success as their male peers. Although at least 10% of the PhDs in astronomy have been awarded to women for more than 100 years — and for the last 20 years, the number has been closer to 20% — the number of women full professors of astronomy is still well below 10%. Women astronomers are not making it to the full professor level at the same rate as their male peers, nor to the National Academy, nor are they receiving a fair share of AAS prizes. And this lack of equal progress is happening right now.

This article describes the objective situation of women in astronomy. It does not speak to individual cases — to the hiring of this or that person, to the awarding of a particular prize in a particular year, to invitations to speak at particular conferences — usually the statistics are too limited in any one instance (e.g., 1 +/- 1!) and there are always rational reasons for whatever actions occur. But overall, the data show women doing less well than men in astronomy, most obviously at the first-postdoc stage. At higher levels, the statistics in astronomy alone are too sparse to say, but in astronomy plus physics, the differential attrition continues. *We can at least dispel the myth that women astronomers are being hired and promoted and rewarded in preference to men — it simply is not happening.* Or rather, if it is, there has to be a “cosmic conspiracy” such that as many women are being discriminated against as are being given preferences.

This unequal situation persists despite the fact that most institutions have affirmative action plans, the intent of which is to identify qualified women and minorities in hiring situations and to make sure they are considered fully. Some universities that feel particularly behind the curve have targeted searches for women and/or minorities, often competing them across several departments. Some view this as reverse discrimination, making it harder for a young man to succeed than a young woman. However, the data clearly falsify this perception, at least in a global sense.

Some may ask, what is the reason for this gender difference? (Sometimes the implication of this question is that, if we cannot identify the cause, it is not a real effect, or at least, nothing can be done about it.) Some may conclude that women are less able, although there is certainly no objective evidence supporting this notion. Indeed, many women (and men) perceive just the opposite, that women need to be better to succeed. Another possibility is that (as an NSF program director once suggested to me) women choose preferentially not to advance in the profession. Or there may be subtle barriers, the so-called “micro disadvantages” that Virginia Valian (*ibid.*) talked about. We can see that overt discrimination has almost vanished. Faculty search committees today rarely discuss gender explicitly, and never to exclude women candidates. Few of us consider ourselves prejudiced, and few would advocate the promotion of men above women simply because of gender.

There are probably many reasons for the dependence of success on gender, different ones applying in different places and at different times. To “fix” the situation may require diverse small actions, many of which will improve the situation for all astronomers, not

just women. But make no mistake: we do not now have a perfect system. We are failing to capitalize on the talents of women who have demonstrated strong interest in our field by pursuing advanced degrees, and we are not attracting, retaining and fostering success among the best minds in astronomy.

Margaret Burbidge to Speak in San Diego

Margaret Burbidge, professor emeritus in the Physics Department and astronomer in the Center for Astrophysics and Space Sciences of the University of California at San Diego, will discuss her experiences as a woman in astronomy. Her talk, entitled “From the Pioneer Era to the New Millennium: One Woman's View,” is scheduled for Thursday, 11 January, from 10:30 am–12:00 noon, and will be followed by discussion with the audience.

Final Report from CAWMSET Now Available

The final report from CAWMSET, the Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development, is now available. See link from the AAS employment page, <http://www.aas.org/career/Articles.html> or on the NSF Website, <http://www.nsf.gov/od/cawmset>.

CAWMSET is a congressionally mandated commission, created thanks to Rep. Connie Morella (R-MD), to make recommendations about how “to improve the recruitment, retention, and representation of women, under-represented minorities (namely, African Americans, Hispanic Americans, and American Indians), and persons with disabilities in science, engineering, and technology (SET) education and employment.”

Employment**Industrial Astronomer Network:**

<http://www.aas.org/career/Industry.html>

Did you know that the AAS maintains a growing database of astronomers working in non-traditional jobs? Would you like to list your company URL and personal email address on our server? To do so, send email to Kevin Marvel (marvel@aaas.org). The idea behind this service is to provide individuals educated in astronomy with a instant source of information about working in industry as well as to provide a network for astronomers already working in industry. As the database grows, the Employment Committee may consider increasing the programs focused on industrial astronomers provided at meetings and by the AAS in general. Sign up today and join the 35+ astronomers already listed who work for 30 different companies that are interested in having the skills astronomers can bring.

Member Deaths Noted

Since the June *Newsletter*, the Society is saddened to learn of the deaths of the following members and former members:

Donald E. Billings
Herbert Friedman
R. M. Hjellming
Henk C. van de Hulst
John A. O'Keefe
John A. Simpson

EDUCATION NEWS

Bruce Partridge, Education Officer, bpartrid@haverford.edu

Need Career Trajectory Info ASAP

Ed Guinan, for the Committee on Employment; Bruce Partridge, for the Astronomy Education Board (AEB); and Marcia Rieke, for the Committee on Astronomy and Public Policy

In the August Newsletter (and in an electronic mailing) we reminded astronomy departments to place information about the career trajectories of their students on the Web. We need your prompt response!

The initial request for this information was dated 12 June 1998, and there was a follow-up request in 1999. (To see the original request go to <http://www.aas.org/education/DeptChair.html>). The letter on the Website provides detail on the information we want. We also offered to provide a link from the AAS Website to your site providing these data. We now have that mechanism arranged. We will soon list on the AAS Website the URL for each department which has prepared the statistics and information requested.

We will do our best to find the appropriate area on your Web site, but if we cannot, we will describe your department situation as “no information available” or “only partial information available at [your URL].” If you believe that listing your department this way is incorrect, please contact aased@aas.org. Better yet, send along the URL of the Website that contains the appropriate data for your department.

Organization of AAS Educational Activities

Bruce Partridge, Education Officer

As most of you will know, the AAS is currently reassessing the organization of its educational activities (a brief summary can be found at <http://www.aas.org/education/Changes.html>). The first stage of that reassessment is now being carried out by a special Subcommittee of the Astronomy Education Board. I have already asked for input to that group, and I'd like to repeat that request now. But please reply *very* promptly, since the group will finish its work and report to the AAS Council in a matter of days. You may email me directly at bpartrid@haverford.edu or better, use the address established earlier for input:

edsub@aas.org. *This is an important moment for those of us interested in astronomy education; please give us the benefit of your views.*

What Millikan Said About Teaching; The AAPT is Coming; The Future of Planetaria

Douglas Duncan, AAS Education Coordinator

What Millikan Said about Teaching

Did you know that Robert Millikan wrote extensively about how the teaching of physics should be improved? I suspect you didn't — and that's a problem. Scientific ideas get published, read, and critiqued. This process causes more useful ideas to spread and less accurate or useful ones to eventually be discarded. Scientific knowledge therefore cumulates, or builds on the past. University of Maryland physics education researcher Joe Redish argues that our teaching suffers because we do not publish, discuss, and critique it as we do our research. One result is that less effective teaching techniques continue to be used; another is that some “reforms” show up again and again in a cyclical fashion. Details can be found in a provocative talk

given by Redish upon his receipt of the Millikan award from the American Association of Physics Teachers (AAPT) at <http://www.physics.umd.edu/rgroups/ripe/papers/millikan.htm>.

The AAPT is Coming...

The AAPT is meeting at the same time and place as the San Diego meeting of the AAS. There will be some joint AAS and AAPT sessions, and members can attend the other Society's sessions free of charge. Those who teach astronomy/astrophysics should particularly note sessions such as “The Impact of Physics Education Research on Astronomy” (9 January). For “Astro 101: A Continuing Dialogue,” (which we hope to continue on the first afternoon of every AAS meeting, despite changes in the Education Office), Gina and I are recruiting some of the best and most interesting physics educators from the AAPT to join us in discussion. These include Phil Sadler (author of the “Private Universe” study), Lillian McDermott, and many others. Make your reservations to arrive in San Diego by 1 pm Sunday so that you can take part.

The Future of Planetaria

Over the summer I attended the International Planetarium Society conference and chaired a panel including Neil Tyson and others which addressed the topic, “Should a planetarium hire a research astronomer? Why or why not?” (As recently detailed in this column, an increasing number have.) While there I saw a remarkable demonstration. Carl Zeiss and SGI (Silicon Graphics) announced a joint partnership. They showed a system of three-color, high-powered diode lasers, opto-mechanically modulated at such a high rate of speed that they could paint the planetarium dome just like the pixels on a CRT! Anything you can create on your workstation screen can be projected onto the dome, opening up some interesting possibilities about what can be presented in planetariums in the future. Since planetariums represent astronomy in the eyes of many of the public, and since the planetarium field can be somewhat isolated, it seems important that AAS members who have the interest communicate with their local planetarium. Remarkable technology is coming. Let's hope that good content comes as well.

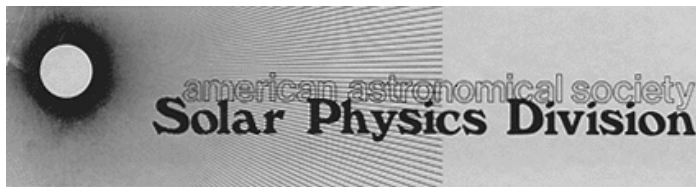
New Science Education Study from NRC

School districts and colleges should join forces to establish a system that offers a rigorous and comprehensive educational and professional development programs for both current and prospective teachers of K-12 science, mathematics, and technology, says a new report from the National Academies' National Research Council. Copies of *Educating Teachers of Science, Mathematics and Technology: New Practices for the New Millennium* will be available in the fall from the National Academy Press at <http://www.nap.edu> or by calling 202-334-3313 or 1-800-624-6242.

New Book of Astronomy Teaching Resources

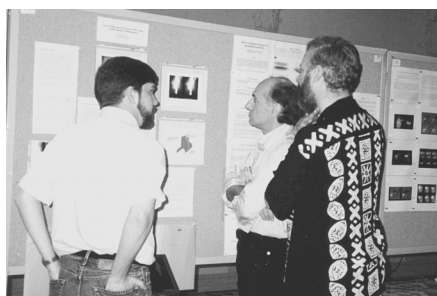
The Astronomical Society of the Pacific has recently released *More Universe at Your Fingertips*, edited by Andrew Fraknoi and Dennis Schatz. The 356-page loose-leaf book is a new collection of hands-on astronomy activities and resource guides for teaching astronomy in grades 3-12. It focuses on inquiry-based, classroom-tested activities that teachers (and those working with them) can put to immediate work in their classrooms. See the ASP Website <http://www.aspsky.org> for details.

DIVISIONS



Spectacular Lake Tahoe from the gondola.
Photo, Zoe Frank

Markus Aschwanden, Janet Biggs, Bart DePontieu, Zoe Frank, Rich Nightingale, and Nariaki Nitta. A strong scientific program



Dave McKenzie (Montana State U.) tells theoreticians Spiro Antiochos (NRL), and Ed DeLuca (CfA) about his Yohkoh SXT observations of flare structures.

Photo by Julia Saba

Meeting in Rochester, but graciously agreed to reprise his talk (with a little more solar physics) for the SPD meeting. Since he had already received his certificate, a few members of the Hale Prize Committee commissioned a local shop to produce a T-shirt with the meeting logo and the words "I was awarded the Hale Prize and



Loren Acton (second from right) receiving congratulations after his Hale Prize talk.

Photo by Zoe Frank

The 2000 Meeting

Steve Walton, Secretary

The 2000 meeting of the Solar Physics Division of the AAS was held 19–23 June in beautiful Lake Tahoe, Nevada. All of the members of the Local Organizing Committee deserve thanks:

Keith Strong (Chair), David Alexander, Markus Aschwanden, Janet Biggs, Bart DePontieu, Zoe Frank, Rich Nightingale, and Nariaki Nitta. A strong scientific program was assembled by **Steve Kahler** and **Karel Schrijver**. Two of the best features of the meeting were the free Wednesday afternoon for the enjoyment of the sights of the Lake Tahoe area, and the fact that all posters were up for the entire four days of the meeting.

Loren Acton was officially awarded the Hale Prize at the AAS Meeting in Rochester, but graciously agreed to reprise his talk (with a little more solar physics) for the SPD meeting. Since he had already received his certificate, a few members of the Hale Prize Committee commissioned a local shop to produce a T-shirt with the meeting logo and the words "I was awarded the Hale Prize and all I got was this nice T-shirt."

The science program at the meeting was rich and varied. Movies from TRACE and SOHO attracted a steady audience. Though visually attractive, the science from TRACE and SOHO becomes more exciting daily. The combination of observations from these new spacecraft,

the Yohkoh satellite, and ground-based telescopes is increasing our understanding of the mechanisms of solar flares, as we can now observe an individual flare at all levels from photosphere to corona. The models are more sophisticated as well, and the physics of these phenomena is becoming more clear.

Time at the meeting was also devoted to future NASA and NSF initiatives devoted to solar physics. NASA's "Living with a Star" program is an ambitious long-term initiative to connect solar

physics to terrestrial phenomena, and was described for the membership by **George Withbroe**. The portions of the Astronomy and Astrophysics Decadal Survey devoted to solar physics were presented by **Michael Knoelker** and **Alan Title**. **Frank Hill** chaired a small special meeting devoted to setting up a Virtual Solar Observatory, patterned after the National Virtual Observatory but specialized to solar physics' unique data sets. **Stephen Keil** presented the long term plans of the National Solar Observatory for the Advanced Technology Solar Telescope program and solicited community input.

In all, another very successful SPD meeting!

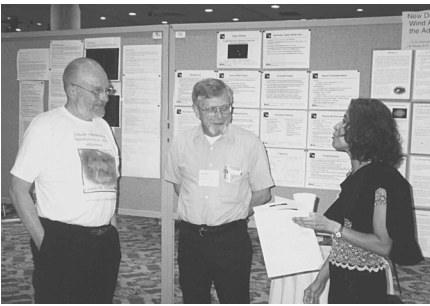
The SPD Women's Lunch participants under "Big Sky."

Photo, K. D. Leka.



Intrepid SPD hikers. Fr. l-to-r: Sara Martin, Bala Balachandran, Ken'ichi Fujiki, Dibyendu Nandi, Rich Wolfson, Paul Bellan, Jonathan Krall.

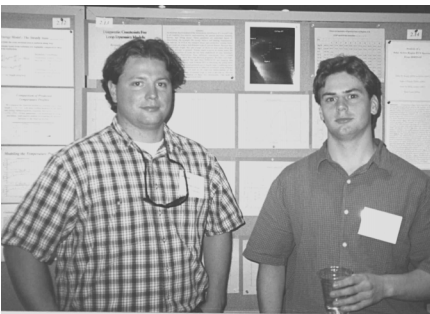
Photo, compliments of a passing stranger



Loren Acton (Montana State U.), Bill Wagner (NASA HQ), and Lika Guhathakurta (Catholic U. & NASA HQ) discuss solar physics at universities. Acton sports shirt given to him at his public lecture.

Photo, by Julia Saba.

Sten Odenwald of NASA/GSFC for his article "Solar Storms" which appeared in the *Washington Post* on 10 March 1999. Jeffrey W. Brosius chaired this year's selection committee for these awards.



Students Benjamin Schoepke (l, U. Memphis) and Jonathan Cirtain, at their poster on combining data from SOHO and Yohkoh to constrain models of coronal loop dynamics.

Photo by Julia Saba.

awards were: **Dibyendu Nandi**, a Brueckner Awardee (Indian Institute of Science); **Scott Catanzariti**, a Zirin Awardee (NSO); **Timothy Q. Donaghy** (Stanford); **Christopher P. Marino** (University of Memphis); **Sebastian J. Jimenez Reyes** (HAO); **Markus Roth** (Albert-Ludwigs University, Germany); **Benjamin H. Schoepke** (University of Memphis); **Guo Yang**, a Zirin Awardee (New Jersey Institute of Technology); and **Jun Lin** (University of New Hampshire). The SPD extends its thanks to the membership of the Studentship Committee, especially its Chair, **A. Gordon Emslie**.

Election Results

I am pleased to announce the results of this year's SPD election:

Vice-Chair: John Leibacher
Secretary: Stephen Walton
Committee: K. D. Leka
 Thomas Rimmele

The Hale Prize amendment to the SPD by-laws passed overwhelmingly.

On behalf of the SPD Committee, I want to thank all of the candidates for their willingness to serve the SPD. We also wish to thank, once again, the members of the nominating committee, Gary Chapman (chair), Julia Saba, and Thomas Bogdan, for their hard work. I want to personally thank Gary Chapman and Cristina Cadavid for counting this year's ballots.

Awards for Popular Writing

The 2000 SPD Popular Writing Award recipients were announced at the meeting. The journalist award went to **Peter Weiss** for his article "The Sun Also Writhes," which appeared in *Science News* on March 27, 1999 (Volume 155, page 195). The scientist award went to

Studentship Awards

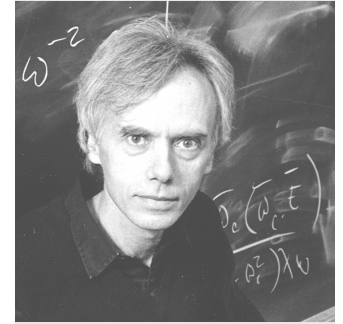
Another annual feature of SPD Meetings is the Studentship awards, which are supported by the SPD membership and other donations, particularly the generous donations from **Harold Zirin** and from **Dorothea Brueckner** in honor of her late husband Guenther. This year's recipients of these

High Energy Astrophysics

Paul Hertz, Secretary

Upcoming HEAD 2000 Meeting in Honolulu

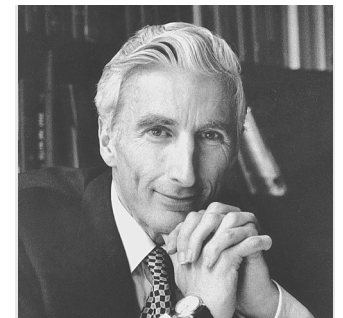
The fifth meeting of the AAS High Energy Astrophysics Division (HEAD) will be held at the Ilikai Marriott Renaissance Hotel on Waikiki Beach, Honolulu, Hawaii from **6-10 November 2000**. The meeting will bring together the wide spectrum of topics embraced by our field including far-ultraviolet astronomy, X-ray and gamma-ray astronomy, cosmic rays, high-energy processes in cosmic objects, and gravitational wave astronomy. For the full program, see <http://www.aas.org/publications/baas/v32n3/head2000/index.html>. The deadline for early registration fees and conference room rates at the Ilikai is **5 October 2000**. Meeting details can be found online at <http://www.eurekasci.com>.



Peter Meszaros (Penn State University) is one of the HEAD 2000 Rossi Prize winners.

HEAD Sessions Planned for San Diego

HEAD will host two sessions of invited talks at the San Diego meeting of the AAS in January 2001, as well as sponsor the talk for the 2000 Rossi Prize awarded to Profs. **Meszaros**, **Paczynski**, and **Rees** for their work on gamma-ray bursts. The first session will highlight high resolution views of compact objects, both high resolution X-ray imaging by Chandra and high resolution X-ray spectra by Chandra and XMM-Newton. Talks will include new results on the pulsar-supernova connection, X-ray spectroscopy of X-ray binaries vs. AGN, and new evidence for massive stellar black holes in external galaxies. The second session will bring together recent work concerning our understanding of diffuse cosmic structures on a range of scales. Talks will discuss the constraints on cooling flows in galaxy clusters from high resolution images and spectra, the new pictures of the dense central obscuring gas and extended jets in many active galactic nuclei revealed by hard X-ray observations, and direct measures of the S-Z effect made possible by combining high resolution X-ray and radio images.



Sir Martin Rees (Inst. of Astron., Cambridge) will also receive the 2000 Rossi Prize.

Photo by Phil Greenhalgh



Bohdan Paczynski (Princeton U. Observ.) is one of three Rossi Prize winners in 2000.

Continued on page 12

CALENDAR

Listed below are meetings that have come to our attention; new listings or listings with updated information are flagged with an asterisk. Due to space limitations, we publish notice of meetings 1) occurring in North and Central America; 2) meetings of the IAU Commissions and Colloquia; and 3) other meetings as requested by AAS Members. Meetings that fall within 30 days of publication generally are not listed.

A complete list of international astronomy meetings is maintained by Liz Bryson, Librarian C-F-H Telescope (library@cfht.hawaii.edu) in collaboration with the Canadian Astronomy Data Centre, Victoria, BC. The list may be accessed at <http://cadwww.hia.nrc.ca/meetings/>

AAS and AAS Division Meetings

High Energy Astrophysics Division

6–11 November 2000 — Honolulu, HI

Contact: John Vallerga (head2k@netcom.com)

<http://www.eurekasci.com>

*Historical Astronomy Division (with AAS)

7–8 January 2001 — San Diego, CA

Contact: Barbara Welther (bwelther@cfa.harvard.edu)

197th AAS Meeting (with AAPT)

7–11 January 2001 — San Diego, CA

Contact: Diana Alexander (diana@as.org)

*High Energy Astrophysics Division (with AAS)

7–11 January 2001 — San Diego, CA

Contact: Jonathan Grindlay (josh@cfa.harvard.edu)

*Division for Dynamical Astronomy

22–25 April 2001 — Houston, TX

Contact: Joe Hahn (hahn@lpi.jsc.nasa.gov)

<http://www.lpi.usra.edu/meetings/dda2001>

*Solar Physics Division (with AGU)

29 May–2 June 2001 — Boston, MA

Contact: John Leibacher (leib@noao.edu)

198th Meeting of the AAS

3–7 June 2001 — Pasadena, CA

Contact: AAS Executive Office (as@as.org)

*Division for Planetary Sciences

27 November–1 December 2001 — New Orleans, LA

Contact: S. Alan Stern (alan@everest.space.swri.edu)

199th Meeting of the AAS

6–10 January 2002 — Washington, DC

Contact: AAS Executive Office (as@as.org)

*High Energy Astrophysics Division (with APS Division of Astrophysics)

20–23 April 2002 — Albuquerque, NM

Contact: Alice Harding (harding@twinkie.gsfc.nasa.gov)

Other Events

*Innovations at the Interface of Scientific Disciplines: Redefining the Possible in Aeronautics and Space (NASA NIAC)

7–8 November 2000 — Atlanta, GA

Contact: Robert A. Cassanova (bcass@niac.usra.edu)

<http://www.niac.usra.edu>

Earth–Moon Relationships

8–10 November 2000 — Padua, Italy

Contact: Cesare Barbieri (barbieri@pd.astro.it)

NATO ASI: “Astrophysical Sources of High-Energy Particles,” a course dedicated to David N. Schramm”

11–21 November 2000 — Erice, Italy

Contact: John P. Wefel (wefel@phunds.phys.lsu.edu)

Astronomical Data Analysis Software and Systems (ADASS)

12–15 November 2000 — Boston, MA

Contact: P. Buckley (pbuckley@head-cfa.harvard.edu)

<http://hea-www.harvard.edu/ADASS>

Astronomical Site Evaluation in the Visible and Radio Range

13–15 November 2000 — Marrakech, Morocco

Contact: Benkhaldoun Zouhair (zouhair@unice.fr)

http://www.eso.org/iau_site2000

Emission Lines from Jet Flows

13–17 November 2000 — Isla Mujeres, Mexico

Contact: Luc Binette (jet2000@astroscu.unam.mx)

<http://www.astroscu.unam.mx/jet2000>

*RADHEP-2000. First Internat’l Workshop on the Radio

Detection of High Energy Particles

16–18 November 2000 — Los Angeles, CA

Contact: An-Chi Kao (kao@physics.ucla.edu)

<http://www.physics.ucla.edu/~moonemp/radhhep/workshop.html>

Ionized Gaseous Nebulae

21–24 November 2000 — Mexico City, Mexico

Contact: Marco Martos (phot2000@astroscu.unam.mx)

<http://www.astroscu.unam.mx/phot2000>

*AAS Second Century Lecture by Neil Tyson, “The Search for Life in the Universe Through the Lens of an Urban Astrophysicist”

7 December 2001 — Washington, DC

Contact: <http://www.aas.org/special/centlecture.html>

*20th Texas Symposium on Relativistic Astrophysics

10–15 December 2000 — Austin, TX

Contact: Craig Wheeler (wheel@astro.as.utexas.edu)

*American Geophysical Union

15–19 December 2000 — San Francisco, CA

Contact: meetinginfo@agu.org

<http://www.agu.org/meetings>

The Inspiration of Astronomical Phenomena, Third Conference

31 December 2000–6 January 2001 — Palermo, Italy

Contact: Salvatore Serio (insap3@oapa.astro.unipa.it)

<http://ethel.as.arizona.edu/~white/insap>

IAU Coll. No. 183, “Small-Telescope Astronomy on Global Scales”

4–8 January 2001 — Kenting National Park, Taiwan

Contact: Kelly Chen (iauc183@joule.phy.ncu.edu.tw)

<http://www.astro.ncu.edu.tw/iauc183>

*AAS Second Century Lecture by Andrea Ghez, “Unveiling a Black Hole at the Center of the Milky Way”

9 January 2001 — San Diego, CA

Contact: <http://www.aas.org/special/centlecture.html>

Magnetic Fields Across the H-R Diagram

15–19 January 2001 — Santiago, Chile

Contact: Gauthier Mathys (magfield@eso.org)

<http://www.eso.org/magfields2001>

Astrophysical Ages and Time Scales

5–9 February 2001 — Hilo, HI

Contact: Ted von Hippel (timescales@gemini.edu)

<http://www.gemini.edu/science/timescales>

*FIRST Science Workshop

12–13 February 2001 — San Diego, CA

Contact: charmaine.d.mayes@jpl.nasa.gov

- Washington Area Astronomers Meeting
22 February 2001 — Greenbelt, MD
Contact: George Kaplan (gkaplan@usno.navy.mil)
<http://aa.usno.navy.mil/waa>
- *IAU Symp. 206: "Cosmic Masers: Protostars to Blackholes"
5–10 March 2001 — Rio de Janeiro, Brazil
Contact: maser2001@lynx.ccne.ufsm.br
<http://lynx.ccne.ufsm.br>
- Mass Outflow in Active Galactic Nuclei: New Perspectives
8–10 March 2001 — Washington, DC
Contact: Mike Crenshaw (crenshaw@buckeye.gsfc.nasa.gov)
<http://iacs.cua.edu/conf.html>
- *American Physical Society
12–16 March 2001 — Seattle WA
<http://www.aps.org/meet/MAR01/index.html>
- Extragalactic Star Clusters
12–16 March 2001 — Pucon, Chile
Contact: Eva Grebel (starclus@mpia-hd.mpg.de)
http://www.astro.washington.edu/grebel/meetings/ESC_index.html
- 32nd Lunar and Planetary Science Conference
12–16 March 2001 — Houston, TX
Contact: LeBecca Simmons (simmons@lpi.usra.edu)
<http://www.lpi.usra.edu>
- European Geophysical Society XXVI General Assembly
2–6 April 2001 — Vienna, Austria
Contact: EGS Office (egs@copernicus.org)
- 6th Compton Symposium, "Gamma-Ray Astrophysics 2001"
4–6 April 2001 — Baltimore, MD
Contact: Sandra L. Barnes (barnes@grossc.gsfc.nasa.gov)
<http://coss.gsfc.nasa.gov/meetings/Gamma2001>
- Canadian Astronomical Society Annual Meeting
26–29 May 2001 — Hamilton, ONT, Canada
Contact: William Harris (harris@physics.mcmaster.ca)
<http://casca2001.mcmaster.ca>
- *American Geophysical Union Spring Meeting
29 May–2 June 2001 — Boston, MA
Contact: meetinginfo@agu.org
<http://www.agu.org/meetings>
- *Solar Variability, Climate and Space Weather
13–16 June 2001 — Longmont, CO
Contact: Judit M. Pap (jpap@solar.stanford.edu)
- *Tenth UN/ESA Workshop on Basic Space Science
25–29 June 2001 — Reduit, Mauritius
Contact: Hans Haubold (haubold@kph.tuwein.ac.at)
<http://www.oosa.unvienna.org>
- Royal Astronomical Society of Canada General Assembly
28 June–1 July 2001 — London, ONT, Canada
Contact: Peter Jedicke (pjedicke@fanshawec.on.ca)
<http://phobos.astro.uwo.ca/~rasc/home.html>
- *Fifth Biennial History of Astronomy Workshop
5–8 July 2001 — Notre Dame, IN
Contact: Steve Dick (dick.steve@usno.navy.mil)
<http://www.nd.edu/histast4>
- The 12th Cambridge Workshop on Cool Stars, Stellar Systems,
and the Sun
30 July–3 August 2001 — Boulder, CO
Contact: Thomas R. Ayres (cs12@casa.colorado.edu)

GENERAL NEWS

All About NRC's Space Studies Board

Joseph Alexander, Director, SSB, jalexand@nas.edu

The Space Studies Board (SSB) is the focal point within the National Academies for all activities in space science and applications. Since 1958 the SSB has been the unit through which the National Research Council provides advice to the federal government on long-range scientific goals and priorities, to stimulate needed research, to promote coordination of scientific efforts, and to represent the National Academies in international relations in the space sciences.

The SSB prepares reports that present recommendations and findings from broad cross-disciplinary scientific studies, program reviews and assessments, and topically-focused reviews and studies. All SSB reports are subjected to independent, external, peer review under the auspices of the National Research Council. About 15 reports have been published under the Board's auspices in 2000.

The SSB publishes a quarterly newsletter, in both electronic and hard copy versions, that summarizes recent activities and presents the executive summaries of all new reports. The newsletter is posted on the SSB homepage, and individuals can also subscribe by contacting the SSB office at 202-334-3477 or ssb@nas.edu. Subscribers should indicate whether they wish to receive the newsletter in hardcopy or electronically via e-mail.

The SSB convenes workshops to provide a forum for experts to discuss contemporary issues on scientific or policy aspects of space research. Panels selected for their expertise, breadth, balance, and independence prepare all SSB reports.

Three standing committees of the SSB provide continuing oversight and special studies of interest to astronomical research. They are the

- *Committee on Astronomy and Astrophysics* (a joint committee of the SSB and the Board on Physics and Astronomy),
- *Committee on Planetary and Lunar Exploration*, and
- *Committee on Solar and Space Physics*.

In addition, the *Committee on the Origins and Evolution of Life* (a joint committee with the Board on Biology) conducts studies relevant to the emerging field of astrobiology.

The Board itself is composed of 26 experts from academia, industry, and non-profit organizations. Collectively, they cover all the major space science disciplines as well as space technology and policy. The SSB utilizes both standing disciplinary and cross-disciplinary committees and ad hoc task groups to conduct its work. This arrangement is, thereby, able to capitalize on the expertise of more than 180 individuals from over 80 US universities plus some 40 industry or non-profit entities. The peer review process brings more than 50 additional experts into the SSB's activities annually. Current or recent SSB sponsors include NASA, NOAA, NSF, EPA, USGS, DOD, and DOT.

Information on the SSB, including the membership of the Board and all its committees, and copies of all its reports can be found at <http://www.nationalacademies.org/ssb/ssb.html>, the SSB Homepage.

DIVISIONS NEWS HEAD REPORT

Continued from page 9

Nominations Received for First Schramm Award

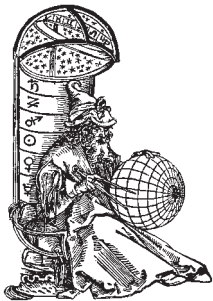
Nominations have been received for the first David N. Schramm Award for High Energy Astrophysics Science Journalism. The purpose of this newly created award is to recognize and stimulate distinguished writing on topics in high energy astrophysics which improves the general public's understanding and appreciation of this exciting field of research. The award will be presented by HEAD at its Division meetings. For the first award, which will be presented in November 2000 at the Honolulu meeting, 38 articles appearing in 18 different publications have been nominated. See <http://www.aas.org/head/schramm/schramm.prize.html> for more information.

Historical Astronomy

Tom Hockey, Secretary

HAD Sessions for the Meeting in San Diego

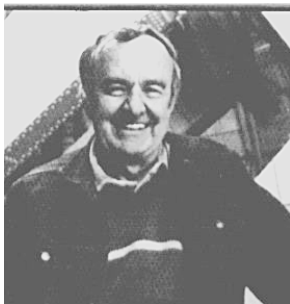
The Division returns to its traditional Sunday-Monday pattern, 7-8 January 2001 in San Diego. The Sunday sessions will take place at San Diego State University, where there will be an opportunity to visit the **Zinner Collection** and to hear an assortment of oral presentations.



One focus will be on major "astronomical boners" of the past and their influence on progress of the field. **David DeVorkin** and **Owen Gingerich** are planning to speak on "Russell's Giant and Dwarf Theory of Stellar Evolution" and "Epicycles upon Picycles," respectively. **George Wallerstein** has committed to speak. Talks on other subjects in historical astronomy will continue on Monday at the venue of the main AAS meeting, the Town and Country Hotel. Contributed papers are invited. (AAS members presenting a technical paper may also contribute a historical paper.)

HONORED ELSEWHERE

Sandage and Peebles Win First Gruber Prizes



Allan R. Sandage of the Observatories of the Carnegie Institution of Washington, was the first to win a Gruber Foundation Cosmology Prize.

The first award of the new Cosmology Prize of the Peter Gruber Foundation was announced last month at the XXIVth General Assembly of the International Astronomical Union in Manchester, UK. AAS members **Allan R. Sandage**, Staff Astronomer Emeritus, of the Carnegie Observatories of the Carnegie Institution of Washington and **P. J. E. Peebles**, Albert Einstein Professor of Science, Princeton University shared the first honors. Their award citations read, respectively:

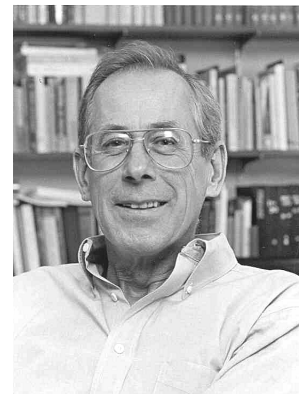
"Allan R. Sandage, has for half a century been a leader in our observational quest to understand the stars, galaxies and the universe. This prize recognizes his relentless pursuit of the true values of the Hubble constant, the deceleration parameter, and the age of the universe."

"Phillip J. E. Peebles has made profound contributions to our knowledge of the physical processes that have shaped the structure of our universe. Over more than three decades he has, with rigor and imagination, advanced our understanding of phenomena which range from the creation of the lightest elements to the formation of galaxies and the cosmic distribution of matter and radiation."

Further information about the awards of the Peter Gruber Foundation is available at <http://www.gruberawards.org>.

NWO 2000 Spinoza Prize to van Dishoeck

The Dutch Organisation for Scientific Research (NWO) has announced that **Ewine F. van Dishoeck**, Professor in Astronomy of the University of Leiden is among the three researchers to receive the 2000 NWO Spinoza Prize, the highest scientific award in The Netherlands. The prize is awarded to outstanding researchers, who distinguish themselves internationally and who have a great appeal to young researchers. Prof. van Dishoeck has been active since the early eighties in the area of molecular astrophysics which uses knowledge from astrophysics and chemistry. This combination has made it possible to acquire new insights in the life cycle of stars.



P. J. E. Peebles (Princeton Univ.) shared the first Gruber Foundation Cosmology Prize with Sandage.



The 2000 Spinoza Prize is awarded to U. Leiden's Ewine F. van Dishoeck for her work in molecular astrophysics.

Four AAS Members Receive COSPAR Honors

The Committee on Space Research (COSPAR) of the International Council for Science holds its General Assembly every other year. This year the 33rd Assembly was held 16-23 July in Warsaw, Poland, where AAS Members **R. M. Bonnet**, **D. M. Hunten**, **C. S. Bowyer** and **R. Meier** were recognized for their contributions to space science with COSPAR awards.

Roger-Maurice Bonnet of the European Space Agency and Donald M. Hunten of the Lunar and Planetary Lab at the University of Arizona were recognized with the *COSPAR Science Award*. Part of Bonnet's citation read: "Roger Bonnet has had a distinguished career as a solar physicist. He was PI for a high-resolution UV spectrometer which flew on OSO-8 and made extensive studies of chromospheric UV line profiles, obtaining new information on the propagation of waves in the

chromosphere. He also flew, with collaborators, a high spatial resolution Lyman-alpha camera which established for the first time the presence of sub-arc second structures in the chromosphere and transition region. He personally took charge of the design and build of the Giotto camera which obtained outstanding close-up images of the nucleus of Comet Halley. In 1983 he became Scientific Programme Director at the European Space Agency, and his achievements in this role have been equally distinguished, and of the greatest importance for the development of European space science."

From Donald Hunten's citation, the following: "This award is bestowed for his long and illustrious career in pioneering studies of the Earth's upper atmosphere and for path-breaking investigations of the atmospheres and properties of the planets and major satellites in the solar system. ...He pioneered understandings of the escape and evolution of planetary atmospheres, including applications to Earth, Venus, Pluto and Io. He produced an extraordinarily successful model for Titan. He formed the group of Arizona that houses the very successful space ultraviolet astronomy team that mapped the composition and physical structure of the upper atmospheres of Jupiter, Saturn, Uranus, Neptune, Titan and Triton. In parallel with his outstanding productive research, Don Hunten has been a leading mentor and advisor in the US and international space research communities."

C. Stuart Bowyer of the University of California, Berkeley Space Sciences Laboratory was recognized jointly by COSPAR and the Royal Society of London with the *Massey Award* for outstanding contributions to the development of space research in which a leadership role is of particular importance. Bowyer's Massey citation reads in part: "In the early 60's, it was generally believed that the ISM was too dense to allow even nearby stars to be observed in the EUV part of the spectrum. Dr. Bowyer was among the first to realize that its complex structure meant that this was not necessarily true in all directions in the sky, and he went on to prove his point by observation. This work culminated eventually in the launch of the EUV Explorer, which carried out a deep sky survey, and whose pointed observations have contributed largely to our understanding of the EUV range of the electromagnetic spectrum. He was also instrumental in initiating collaborations with Russian, German and Spanish scientists."

COSPAR, jointly with the Russian Academy of Sciences, confers *Zeldovich Awards* upon young scientists for excellence and achievements in each of COSPAR's Scientific Commissions. The 2000 Zeldovich Medal for Scientific Commission B (on Space Studies of the Earth-Moon System, Planets, and Small Bodies of the Solar System) was awarded to Roland Meier of Xerox AG, Switzerland. His medal citation read: "For his fundamental work on the composition of comets and his illuminating analyses of NICMOS observations of planets and satellites with the Hubble Space Telescope, which have given us the first complete maps of the surface of Titan at wavelengths beyond one micron."

Stetson Wins ASP's Muhlmann Award

AAS Member **Peter Stetson** of the National Research Council of Canada has received the Astronomical Society of the Pacific's (ASP) Maria and Eric Muhlmann Award for 2000. The citation states that Dr. Stetson earned the award "by showing profound scientific insight that guided his creation of a suite of software programs known as DAOPHOT and its successor ALLFRAME, and by applying these programs to

determine the distance scale of the Universe and the ages of the oldest stars in our Milky Way galaxy. Dr. Stetson has made his software available free of charge to astronomers worldwide."

Stetson was presented the award on 15 July in Pasadena, California, as a highlight of the ASP Annual Meeting.

Fontaine Wins CASCA's Beals Award

The 2000 Beals Award of the Canadian Astronomical Society (CASCA) was presented to AAS Member **Gilles Fontaine** of the Université de Montréal Department de Physique. In accepting the award, he delivered a talk entitled "The Potential of White Dwarf Cosmochronology" at the May 2000 CASCA Annual Meeting in Vancouver, BC. The Beals Award is given to a Canadian astronomer or an astronomer working in Canada, as an award for outstanding achievement in research (either as a specific achievement or as a lifetime of research). Fontaine's talk is published in full on the Website of the current issue of *Cassiopeia*, <http://www.astro.ubc.ca/E-Cass/2000-JS/index.html> along with CV material that includes a gracious tribute to his colleagues and mentors.

Mayor Wins a 2000 Balzan Award

For his discovery of the first extra-galactic planet (orbiting 51 Pegasi), **Michel Mayor**, Director of the Geneva Observatory has won one of the prestigious Balzan Prizes, awarded by the Eugenio Balzan International Foundation of Milan, Italy. The Swiss-Italian foundation gives recognition to worldwide achievements of a humanitarian, scientific and peacemaking nature. For complete information about the foundation and its awards, see <http://www.balzan.com>.



Peter Stetson (NRC of Canada) has won ASP's 2000 Muhlmann Award.



Gilles Fontaine (U. Montreal) was awarded CASCA's 2000 Beals Award in May.

UPCOMING SECOND CENTURY LECTURES

7 December 2001

Neil Tyson, Director, Hayden Planetarium
 "The Search for Life in the Universe Through the Lens of an
 Urban Astrophysicist"
 National Air and Space Museum, Washington, DC
<http://www.nasm.edu/>

9 January 2001

Andrea Ghez, UCLA
 "Unveiling a Black Hole at the Center of the Milky Way"
 The Reuben H. Fleet Science Center, San Diego, CA
<http://www.rhfleet.org/>

INTERNATIONAL

Ninth UN/ESA Workshop on Basic Space Science Toulouse, France, 27-30 June 2000

Hans J. Haubold, United Nations Office for Outer Space Affairs,
haubold@kph.tuwien.ac.at

The Ninth United Nations/European Space Agency Workshop on "Basic Space Science: Satellites and Networks of Telescopes – Tools for Global Participation in the Study of the Universe," was hosted by the Centre National d'Etudes Spatiales (CNES) on behalf of the Government of France from 27–30 June 2000 at Université Paul Sabatier, Observatoire Midi-Pyrénées, Toulouse, France. Eighty astronomers and space scientists were in attendance from 34 countries: Algeria, Austria, Denmark, Ethiopia, France, Germany, India, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mauritius, Pakistan, Paraguay, Peru, Poland, Romania, Russia, Saudi Arabia, South Africa, Spain, Sudan, Syria, Tajikistan, Togo, Tunisia, Uganda, Ukraine, United Kingdom, United States of America, Viet Nam, and Yemen. Co-organizers of the Workshop included the Austrian Space Agency (ASA), the Committee on Space Research (COSPAR), the European Space Agency (ESA), the French Space Agency (CNES), the German Space Agency (DLR), the International Astronomical Union (IAU), the National Aeronautics and Space Administration (NASA), and the United Nations (UN).

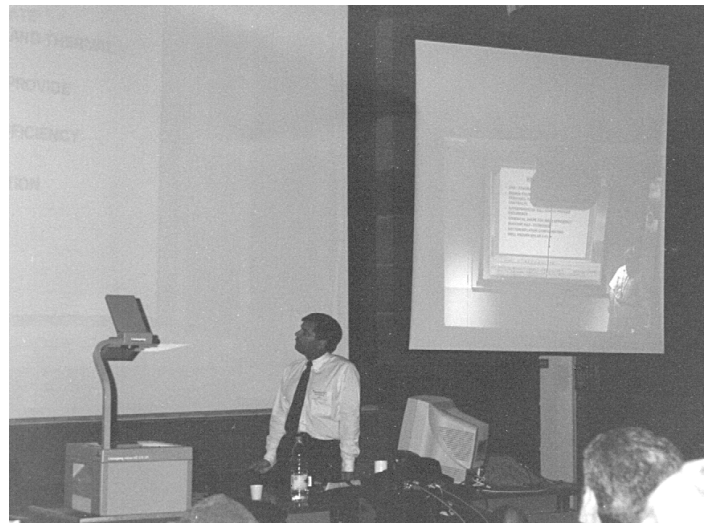
The 60+ presentations made during the Workshop, focused on

- (i) archives of space missions and new observations from space and how to access them;
- (ii) astrophysical data systems and how to utilize them;
- (iii) in-situ and remote exploration of the solar system;
- (iv) experience with, results from, and the need for networks of optical astronomical telescopes; and
- (v) the benefits of space science to society.

In this Workshop, projects for and results from optical astronomical telescope facilities in Algeria, Ethiopia, India, Jordan, Lebanon, Malaysia, Mauritius, Pakistan, Paraguay, Peru, Saudi Arabia, South Africa, Syria, Togo, and Tunisia were presented, some of them donated to the countries through the



Workshop participants visiting a model of the Mir Space Station at Cité de l'Espace in Toulouse.



Robert Oberto (NASA) leading the live video conference with the Advanced Projects Design Team of JPL/NASA in Pasadena during the Workshop in Toulouse. The screen on the right shows a member of the Team in Pasadena implementing technical information for a satellite mission to planet Mars.

Official Development Aid (ODA) programme of the Government of Japan. The deliberations of the Workshop identified an urgent need for practical exercises to network astronomical telescope facilities in terms of research and education programs in developing nations. This was demonstrated with the Network of Oriental Robotic Telescopes (NORT), pursued by French astronomers in developing nations.

At an earlier Workshop in Sri Lanka, it was decided to study the feasibility of a World Space Observatory (WSO) for observing the ultraviolet spectrum. Later UN/ESA Workshops continued to examine this prospect and in future will explore the implications of the broad multinational participation, particularly from developing nations, in the project development phase for the WSO concept.

A highlight of the Workshop was the 2.5 hours live video conference with the Advanced Projects Design Team of JPL/NASA in Pasadena (California) for the development of a satellite mission to planet Mars. Concurrent design methodology was used, with all mission design data shared between JPL's team and the Workshop participants. In the near future, a similar design session may be done for the World Space Observatory concept contained in the ESA internal study for the WSO.

Concerning databases of astronomical satellite missions (SOHO, NEAR, ROSETTA, INTEGRAL, Mars Global Surveyor) and astrophysical data systems on the worldwide web (ADS, CDS, LANL e-print archive), which were demonstrated in presentations during the Workshop, interest for training on how to access and utilize them in developing nations emerged from the discussions during the Workshop.

The programme of the Workshop also addressed how the virtual observatory concept might change the way that astronomy is done around the world. Visits were arranged to CNES, Matra Marconi Space, and Alcatel which which provided an unexpected insight into space industry at home in Toulouse and to Cité de l'Espace as a principal example to bring space science

and technology to the attention of the public. Workshop participants got to know France as the space power of Europe and Toulouse as home of European space industry.

At the Workshop, the Government of the Republic of Mauritius announced its readiness to host the Tenth UN/ESA Workshop on Basic Space Science at the University of Mauritius, Reduit, Mauritius, 25-29 June 2001.

Author's note: Invaluable support for the organization of the Workshop and its follow-up projects was provided by W. Wamsteker (ESA), F.-R. Querci (Observatoire Midi-Pyrénées), and M. Laffaitteur (CNES).

ASP NEWS

James C. White II, Executive Director, jwhite@aspsky.org

New Editor for Mercury Magazine

Robert Naeye has been named editor of *Mercury* magazine, effective 18 September. Naeye succeeds me as editor after I was appointed to the position of executive director for the ASP in July. Naeye (pronounced NOY-uh) has worked at *Astronomy* magazine since March 1995, first as an associate editor and more recently as a senior editor. He has written two books about astronomy: *Through the Eyes of Hubble: The Birth, Life, and Violent Death of Stars* and *Signals from Space: The Chandra X-ray Observatory*. Naeye has also worked on the editorial staffs of *Sky & Telescope* and *Discover* magazines. He was born in 1963 in Hershey, Pennsylvania. He holds a bachelors degree in liberal arts from Oberlin College, and a masters degree in science journalism from Boston University.

I am thrilled that Robert Naeye will be the new editor of *Mercury*. He brings so much skill and experience to the magazine, and his expertise and enthusiasm for astronomy will also benefit the ASP's many other activities.

2001 Membership Invoices

The 2001 AAS Membership Renewal Invoices were mailed in late September. If you have not received your invoice by November, please contact Sharon Savoy at ssavoy@aas.org.

If you wish changes on your invoice, refer to the 2001 Membership Renewal Brochure which accompanied the invoice.

A statement regarding the privacy of member records has been printed on the back of the Renewal Invoice. Please be sure to read it in its entirety.

The Directory!... Alert Your Mailroom

The 2001 AAS *Membership Directory* is shipping Third Class at the end of October. If your institution mail room has a policy of discarding Third Class Mail, please ask them to make an exception for the *Directory*. We cannot replace *Directories* discarded by Members' institutions.

If you have not received your *Directory* by mid-December, contact Sharon Savoy at ssavoy@aas.org.

SECOND CENTURY FUND

The AAS Second Century Fund was initiated in the Centennial year of 1999 and many members have generously contributed to it so far, but we are still far from our goal of raising the funds to guarantee the continuation of all the existing AAS Prizes, to endow the creation of two new prizes, one for education and one for instrumentation, to carry on the Second Century Lectures and to enhance the other programs of the Society, especially those in education and outreach.

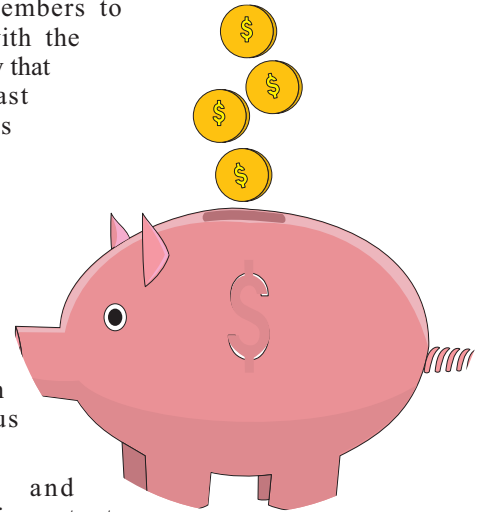
Within the past year, we have been able to fund the Education Prize at a level sufficient to support the first award in 2001, to establish the Second Century Lecture Series for the general public, enhance the funding of the AAS Prizes, and build the endowment for the Shapley Lectures.

Once again the renewal process will offer an opportunity for members to donate and to designate the program toward which their donations should be applied.

We appeal to our members to support the society with the same spirit of generosity that they demonstrated last

year. For donations directed to the Education Prize, the Second Century Lectures and the Shapley Lectureships, your donation is multiplied by the matching pledges which have been described in previous articles.

For more details and background on this important effort, the Second Century Fund, see <http://www.aas.org/membership/contrib.html>.



CANADIAN NEWS

CASCA Elects New Officers

After the 2000 annual meeting of the Canadian Astronomical Society held in Vancouver, BC, the following new officers began their terms:

President: **Russ Taylor**, russ@ras.ucalgary.ca
(succeeding Michael DeRobertis)

First V-P: **Gretchen Harris**, glharris@astro.uwaterloo.ca

Second V-P: **Simon Morris**, simon.morris@hia.nrc.ca

Martin New *Cassiopeia* Editor

Gordon Walker and his co-editor, **Gerry Grieve**, have stepped down their masterful jobs at the helm of *Cassiopeia*, the electronic newsletter of CASCA. They oversaw the creation of *Cassiopeia's* first electronic edition, back in December 1997, Issue no. 95. Ten solstices later (June 2000), they announced their retirement and **Brian Martin's** agreement to take over the role of editor. Brian can be reached at ed-cass@astro.ubc.ca.

ANNOUNCEMENTS

APS/AIP Congressional Science Fellowship

The American Institute of Physics and the American Physical Society are accepting applications for their 2001-2002 Congressional Science Fellowship Programs. Fellows serve one year on the staff of a Member of Congress or congressional committee, learning the legislative process while they lend scientific expertise to public policy issues. Qualifications include a PhD or equivalent research experience in physics or closely related field. Fellows are required to be US citizens and, for the AIP Fellowship, members of one or more of the AIP Member Societies. A stipend of up to \$49,000 is offered, in addition to allowances for relocation, in-service travel, and health insurance premiums. Applications should consist of a letter of intent, a two-page resume, and three letters of recommendation. See <http://www.aip.org/pubinfo> or http://www.aps.org/public_affairs/fellow.html for detailed information on applying. If qualified, applicants will be considered for both programs. All application materials must be postmarked by **15 January 2001** and sent to: APS/AIP Congressional Science Fellowship Programs, One Physics Ellipse, College Park, MD 20740-3843.

Annie J. Cannon Award: Call for Nominees

The Annie Jump Cannon Award in Astronomy honors a woman postdoctoral scholar for significant research in astronomy. Nominees must be women in the early stages of a career in astronomy. Preference is given to nominees who have held a doctorate in astronomy or a related field for at least one year. There are no restrictions on the nominees nationality or the location of her research. The award is \$5,000. All nominating materials must be received by the AAUW Educational Foundation by **12 February 2001**. Notification of the award will be mailed by 30 April 2001, award disbursement in July 2001. Questions about the award and nominations should be directed to the American Association of University Women Educational Foundation at 202-728-7631, by fax at 202-463-7169, by mail, 1111 Sixteenth Street, NW, Washington, DC 20036, or by email at foundation@aauw.org.

NSO Observing Proposals

The current deadline for submitting observing proposals to the National Solar Observatory is **15 November 2000** for the first quarter of 2001. Forms and information are available from the NSO Telescope Allocation Committee at P.O. Box 62, Sunspot, NM 88349 for Sacramento Peak facilities (sp@sunspot.noao.edu) or P.O. Box 26732, Tucson, AZ 85726 for Kitt Peak facilities (nso@noao.edu). A TeX or PostScript template and instruction sheet can be emailed at your request; obtained by anonymous ftp from <ftp.sunspot.noao.edu> (`cd observing_templates`) or <ftp.noao.edu> (`cd nso/nsoforms`); or downloaded from <http://www.nso.noao.edu>. A Windows-based observing-request form is also available at the WWW site. Users' Manuals are available at <http://www.sunspot.noao.edu/telescopes.html> for the SP facilities and <http://www.nso.noao.edu/nsokp/nsokp.html> for the KP facilities.

Update StarPages Listings

Andre Heck reminds our members of the availability of the freely available collection of directories, dictionaries, databases and related products which constitute the StarPages listings. Visit <http://cdsweb.u-strasbg.fr/~heck/spages.html> to add or update personal listings in the Star Heads section of this group.

Research Corporation Call for Proposals

A foundation for the advancement of science, Research Corporation supports basic scientific research in chemistry, physics and astronomy at US and Canadian colleges and universities. (Proposal deadlines follow the program descriptions.)

Programs for undergraduate and graduate institutions:

- *Cottrell College Science Awards* support research involving students in physics, chemistry and astronomy at public and private undergraduate institutions (15 May, 15 November).
- *Cottrell Scholars Awards* support excellence in university research and teaching for faculty in the third year of their first appointment (1 September).
- *Research Innovation Awards* fund highly original research by beginning faculty members at research universities (1 May).
- *Research Opportunity Awards* assist mid-career chemists, astronomers and physicists in doctoral departments to pursue new areas of research (1 May, 1 October).

Complete information on these awards can be found at <http://www.rescorp.org>.

Hjellming Memorial Scholarship Fund

Associated Universities, Inc., has established a memorial scholarship fund in honor of Robert M. Hjellming (1938-2000), a distinguished member of the National Radio Astronomy Observatory's scientific staff for 32 years. This scholarship fund has been established in cooperation with the Hjellming family and the Alamo Navajo School Board in New Mexico. This fund will provide scholarships for graduates of the Alamo Navajo Community School in Socorro County, New Mexico. Donations may be mailed to NRAO, P.O. Box 0, Socorro, New Mexico, 87801, attention: S. Lagoyda. Checks should be made payable to "AUI/Hjellming Memorial Scholarship Fund." We cannot accept cash donations. All donations to this fund are tax deductible.

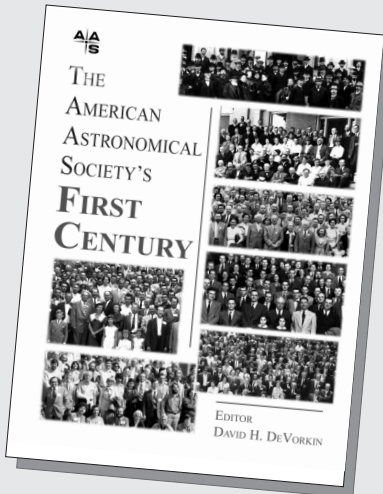
Marconi Science Award

UNICO, a US national Italian-American organization is looking for an Italian-American scientist to recognize with the National Guglielmo Marconi Science Award which recognizes Italian-Americans who have excelled in the sciences. The candidate must be a scientist or engineer of Italian heritage who has been published and holds at least one patent. The deadline is **31 October 2000**. The award will be presented at a banquet in San Diego California on 20 January 2001. Contact: Matt Risi, rigoletto2@aol.com.

New Planetary Reports from the NRC

Two new reports of interest to planetary scientists are now available from the National Research Council's Space Studies Board. The first, "Preventing the Forward Contamination of Europa," was drafted by the Task Group on the Forward Contamination of Europa (TGFCE). The second, "Scientific Assessment of Options for the Disposal of the Galileo Spacecraft," was drafted by the Committee on Planetary and Lunar Exploration (COMPLEX).

Copies of both reports are available free of charge (while supplies last) from The Space Studies Board, HA-584, 2101 Constitution Ave, NW, Washington, DC 20418 (202-334-3477 or ssb@nas.edu). Both reports have also been posted to the world wide web and can be found at the following URLs: Europa—<http://www.nationalacademies.org/ssb/europamenu.htm> Galileo—<http://www.nationalacademies.org/ssb/galileo.htm>.



AAS Centennial Volume —Copies Still Available

There are a number of copies of this interesting and informative collection of articles celebrating the Centennial of the AAS still available at a special member price of \$35 domestic shipping and \$45 foreign shipping.

Send orders to the AAS Executive Office giving the shipping address and enclosing payment as check or credit card information or use the order form that can be downloaded from <http://www.aas.org/forms/centorder.pdf>.

NSF Statistics on Science and Engineering

Excerpted from FYI # 102, fyi@aip.org

The National Science Board has released the report, "Science and Engineering Indicators 2000." Produced by the Directorate for Social, Behavioral and Economic Sciences of the National Science Foundation, this two-volume set contains analysis and thousands of statistics on science and engineering in the United States and, in some cases, other nations.

Some examples of the interesting statistics on funding for physics, astronomy, materials engineering and environmental sciences in Volume 2, are

- How has total spending on basic research in the United States changed from 1958 to 1998?
- How has total spending on basic research by the federal government changed from 1958 to 1998?
- How has total spending for academic R&D in various sciences, including astronomy, changed from 1973 to 1997?
- How has the amount of R&D expenditures in a certain field varied as a percent of total R&D expenditures?

This two volume set (NSB-00-1), with an accompanying compact disc, is available without charge. This is an unparalleled opportunity for anyone interested in science and technology, and how the conduct of research has changed over time. Address your request to paperpubs@nsf.gov. When ordering, specify if you wish to receive both volumes (analytical report and appendix tables) or only the analytical report (vol. 1), which contains a CD of the entire report and appendix tables.

AAS Small Research Grant Deadline

The deadline for proposals for the AAS Small Research Grant Program is **1 December 2000**. This program provides funds for small projects, travel for observing, educational or public outreach efforts and expenses for small hardware that enables research. Proposals are accepted for amounts ranging from \$500 to \$5,000 dollars. For details on submitting a proposal, see <http://www.aas.org/grants/smrgr.html> or the AAS annual *Membership Directory*.

Session/Speaker Proposals Invited for Summer Meeting

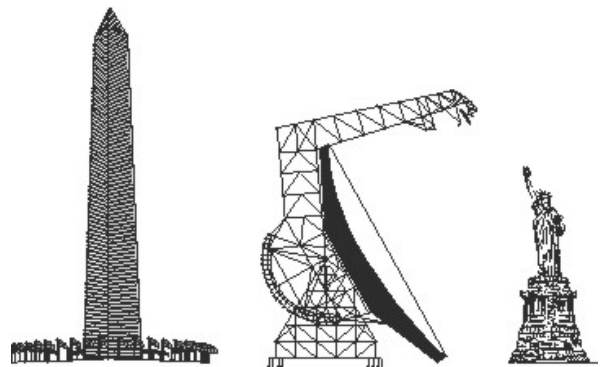
The science program for the summer meeting in Pasadena, CA will be planned at the San Diego meeting. Themes for special and topical sessions may only be proposed by AAS members.

Invited Speakers & Special Sessions

Proposals for invited speakers and special sessions for the Pasadena meeting will be accepted through **11 December 2000**. Special sessions are 1-1/2 hours long and run in parallel with other oral sessions. They may be organized in a variety of formats including invited speakers, contributed papers, a combination, or panel discussions. Please realize that there are often more requests for these than the schedule can accommodate.

Topical Sessions Proposals

At summer meetings, two of the four days of the meeting are set aside for Topical Sessions organized around selected themes and emphasizing invited talks. These sessions can run from half a day to 1 1/2 days. See the guidelines for topical sessions on the AAS homepage. Submit all topical and special session proposals by **15 November 2000** to Diana Alexander (diana@aas.org).



The NRAO Greenbank Telescope (center!) was dedicated to Robert C. Byrd in an opening ceremony on 25 August 2000. "First light" was 22 August when it tracked a radio galaxy called 1140+223 across the sky, then locked onto a pulsar called PSR B1133+16, demonstrating that the telescope was in good working order. The graphic above demonstrates its relative size.

NEWS FROM NSF

Eileen Friel, Executive Officer, AST NSF, efriel@nsf.gov

New NSF PostDoc Program

The NSF Division of Astronomical Sciences announces a new program of postdoctoral fellowships in astronomy and astrophysics. The NSF Astronomy and Astrophysics Postdoctoral Fellowships provide an opportunity for highly qualified young investigators within three years of obtaining their PhD to carry out an integrated program of independent research and education. Fellows may engage in research of observational, instrumental, or theoretical nature, in combination with a coherent educational plan for the duration of the fellowship.

The program supports researchers for a period of up to three years with fellowships that can be taken to the institution or national facility of their choice. The program is intended to recognize young investigators of significant potential, and provide them with experience in research and education that will establish them in positions of distinction and leadership in the community. For information on the fellowship opportunities and how to submit applications, see the program announcement (NSF 00-136) at <http://www.nsf.gov/cgi-bin/getpub?nsf00136>.

Deadline for submission of proposals is **13 November 2000**.

For more information, please contact Dr. James P. Wright at jwright@nsf.gov or 703-292-4910; or Dr. Eileen D. Friel at efriel@nsf.gov or 703-292-4895, or see the Astronomy Division web site at <http://www.nsf.gov/mps/ast>

Distinguished International Fellowships

The Directorate for Mathematical and Physical Sciences (MPS) announces a special opportunity for postdoctoral investigators to conduct research projects abroad as MPS Distinguished International Postdoctoral Research Fellows (MPS-DRF). The program is intended to provide talented recent doctoral recipients in the mathematical and physical sciences an effective means of establishing international collaborations in the early stages of their careers. The deadline for applications is **13 November 2000**. The program announcement is posted at <http://www.nsf.gov/cgi-bin/getpub?nsf00142> or for more information, contact Dr. Eileen D. Friel at efriel@nsf.gov or 703-292-4895.

Information Technology Research (ITR)

The solicitation for the Information Technology Research (ITR) program has just been released, and is posted on the NSF web site at <http://www.nsf.gov/cgi-bin/getpub?nsf00126>. Pre-proposals are required for some categories of proposals, and deadlines vary with proposal size, so please refer to the program announcement for details. Additional information related to the ITR initiative, Awards Listings for ITR 2000, responses to Frequently Asked Questions and expanded discussion of research topics will be available on the ITR Home Page at <http://www.itr.nsf.gov>. Please contact Dr. Eileen Friel at efriel@nsf.gov or 703-292-4895 with questions or to discuss plans for proposal submission.

Research in Undergraduate Institutions (RUI)

A new program announcement for the NSF Research in Undergraduate Institutions (RUI) Program is now available (NSF 00-144) at <http://www.nsf.gov/cgi-bin/getpub?nsf00144>. This announcement replaces publications NSF 94-79 and NSF 99-11.

NEWS FROM NASA

Small Explorer (SMEX) Selections

Paul Hertz, NASA Headquarters

NASA has made selections in the Explorer Program from the 46 proposals submitted in response to a recent Announcement of Opportunity for Small Explorers (SMEX) and Missions of Opportunity. Seven SMEX proposals and one Mission of Opportunity proposal were selected for concept studies, and one Mission of Opportunity proposal was selected for flight.

The eight missions selected for study will begin a six month concept study in October 2001. After a thorough evaluation of the results of Phase A studies has been completed, NASA expects to select two SMEX missions for launch in 2004 and 2005. NASA may or may not select the Mission of Opportunity for flight. The mission already selected for flight will immediately begin a concept study which, after review, will be followed by definition, a confirmation review, and implementation.

For complete descriptions of the missions selected and their associated abstracts, see <http://spacescience.nasa.gov/codesr/smex/>.

Reports of SR& T and University Partnerships

NASA has recently developed two documents of particular interest to astronomers in the United States, one reviewing NASA's Space Science Supporting Research and Technology Programs (SR&T) and the other dealing with University partnerships. Both documents are available as web pages and PDF files on the AAS Public Policy Web pages:

- SR&T - HTML Version:
http://www.aas.org/policy/SR&T_WhitePaper.htm
- SR&T - PDF Version:
http://www.aas.org/policy/SR&T_WhitePaper.PDF
- University Partnerships - HTML Version:
http://www.aas.org/policy/NASAUniversity_Cooperation.htm
- University Partnerships - PDF Version:
http://www.aas.org/policy/NASAUniversity_Cooperation.PDF

WASHINGTON NEWS Continued from page 20



His fact sheet on high-tech states that he "will increase the defense R&D budget by \$20 billion from FY 2002 to FY 2006 and will direct the Secretary of Defense to earmark at least 20 percent of the total procurement budget for acquisitions programs that propel America generations ahead in military technology."

Bush pledges to double the budget of the National Institutes of Health. As background, this agency has already seen a 175% increase of its budget since 1990 (AAAS Historical funding data) and had a \$17 billion dollar budget in FY 2000. Doubling NIH's budget would bring it to within a few billion dollars of the Department of Defense's current R&D expenditure level of \$39 billion.

On education issues, Candidate Bush presents the details of an ambitious plan. He plans to "reform the nation's public schools, as he has in Texas, which is one of two states that have made the greatest recent progress in education. He will close the

achievement gap, set high standards, promote character education, and ensure school safety. States will be offered freedom from federal regulation, but will be held accountable for results. Performance will be measured annually, and parents will be empowered with information and choices.”

Two items among the details of the education plan he offers are of potential interest to AAS members. First, he plans to expand student loan forgiveness from \$5,000 to \$17,500 for math and science majors who commit to teach in high-need schools for five years. Second, he plans to increase funding to \$30 million for the Troops-to-Teachers program to recruit former military personnel into America’s classrooms as well as establishing a tax deduction of up to \$400 for teachers’s out-of-pocket classroom expenses. This addresses the fact that many educators, especially in primary school, have to spend their own money to purchase necessary classroom teaching aides.

Governor Bush has a national grassroots coalition named “Education Leaders For Bush.” Their goal is to support Bush in his run for President and highlight his education plans and accomplishments. The group has issued press releases highlighting the differences between Bush and Gore, including Bush’s call for school accountability and his “Reading First” plan, designed to increase reading levels for students in the poorest school districts.

One of the nation’s emerging advocates for science, research and technology in the Senate, Bill Frist (R-TN), has come out in support of Governor Bush. In a press release, he cites the Governor’s education and support of individual freedoms and responsibilities as reasons for his support.

Al Gore (<http://www.algore2000.com>)

Vice-President Gore’s campaign web site provides a host of details on issues of interest to AAS members in addition to a live web-cam of his campaign headquarters.

On the education front, Gore pledges to raise standards for schools, teachers and students. He also pledges to increase funding for education issues by \$115 billion over ten years to remedy a host of problems including degraded facilities and lack of access to technology. Note that this is approximately \$11 billion per year across the whole country.

Vice-President Gore promises to fight for robust investments in science and technology to encourage innovation and continued American prosperity. Regarding the US high-tech workforce, he pledges to educate and train the workforce of tomorrow by creating the best system of public education, making higher education more affordable, and expanding worker training programs. Like Bush, he wants to make the R&D tax credit permanent, so that it does not have to be renewed annually by Congress. Gore promises to initiate an e-Government program to ensure that citizens are “on-line, not in line.” Exactly what they will do on-line is not described in detail.

In a direct statement of his support for science and technology, Gore states that he will “fight to ensure adequate funding in all areas of science and engineering, including biomedical research, information technology research, nanotechnology, space exploration, energy and the environment, education research, defense research, and support for undergraduate and graduate education.”

A platform document available on the web page states that “Al Gore and Joe Lieberman understand that America’s space program has always been about pushing the envelope in science, technology, exploration and discovery as a means of learning more about ourselves and the universe in which we live.” Gore further states that “It [the space program] will also create telescopes so

powerful that they will allow us to see the planets of other solar systems and help us determine the origin, evolution, and destiny of the universe and help us understand our planet using space-based observation technology.”

Gore has a good record of support for S&T issues, both in Congress and as vice-president. Among his accomplishments is sponsorship of the Supercomputer Act of 1986 to develop and study communication methods for universities and federal research facilities to advance future options for network capabilities. This is the bill he cited in his now infamous quote about helping found the internet. In a quote by Vinton Cerf regarding this issue, Gore is quoted as asking Cerf, “Why don’t we take these supercomputers and these optical fiber networks and put them together. Would that do anything?” Cerf states that this idea eventually turned into the NSF network, a core element of the Internet.

As a side note, Joseph Lieberman, Gore’s Vice-Presidential running-mate has been a strong supporter of science and was a cosponsor of an early version of the “Federal Research Investment Act,” a Congressional plan to double federal investment in long-term R&D over ten years.

Finally, as relates to astronomy, Gore is known to have visited the US Naval Observatory telescopes on open house nights, which are conveniently located near the Vice-Presidential mansion on the USNO grounds. He is also reported to regularly set his wrist watch using the USNO master clock display in the mansion. This is simply evidence that he is aware of astronomy and one of its spin-off products, timekeeping.

Other Candidates

Several other candidates are running for President, although they score only minor percentages in nationwide opinion polls. If statements or platform items were available on science, technology, R&D or education were available in early September, they are reported here.

Pat Buchanan (<http://www.gopatgo2000.org>)

Winning most creative website address is not this candidate’s only goal. He is seeking to win the Reform Party nomination, in fact claims he has the Reform Party nomination, and therefore access to their pot of federal campaign dollars. His running mate is Ezola Foster, an educator and family values activist from Los Angeles. No details regarding S&T issues were available on their website, but his position on the environment is outlined in some detail. In summary, he plans to eliminate federal control of the environment by passing control to states and local governments while providing financial incentives for corporate America to conserve nature for future generations.

John Hagelin (<http://www.johnhagelin.org>)

A particle physicist, John Hagelin is running as both a Natural Law party candidate and a Reform Party candidate. Although some confusion still exists surrounding the reform party nomination, Hagelin and his running mate Nat Goldhaber are claiming nomination victory. On their web page they outline some education efforts they plan to implement if elected as well as support for reformed military spending. No details are available regarding R&D issues in particular, although he comes out against genetic engineering of foods until proven safe.

Ralph Nader (<http://www.votenader.org>)

With his running mate Winona LaDuke, Ralph Nader is running for President as the Green Party candidate. Details regarding science, technology and R&D were not available on his web page, but the party supports strong protection for the environment, and this is highlighted on the site.



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WASHINGTON NEWS

Kevin Marvel, Associate Executive Officer for Policy Programs



The Budget?

As this *Newsletter* goes to press, it is still uncertain how the FY 2001 budget appropriation will play out. The Senate has yet to pass their version of the VA-HUD-IA appropriations bill, which funds NASA and NSF. The House passed their version earlier this summer with some cuts to NSF initiatives and a \$20 million cut of

NASA's proposed Living with a Star initiative, which the Senate is likely to restore. The House version surprisingly contains no earmarks in the NASA budget.

At this point there is little AAS members can do to influence the final outcome of the appropriations process because politicians cannot afford to postpone campaigning indefinitely and will wrap up Congressional business as fast as possible. Further, science is not the number one issue before Congress; the budget cap issue is far more important and must be dealt with before the final appropriations bills can be addressed.

It is not too early, however, to begin to think about initiating contacts for the next fiscal year, especially on the House side. Contact your representative and let them know you are excited by the recent movement within the Senate (Senate Bill S.296) to double the federal research investment in science. Tell them you hope they will support this effort on the House side. When you talk to anyone from the Hill, make sure you refer to this

Senate Bill number and the title, the "Federal Research Investment Act."

The Presidential Candidates

The main event this year in Washington is the Presidential election and the town is abuzz with gossip, rumors and pre-election excitement. As a non-profit organization, the AAS will not endorse any candidate in any election. However, we can pass along to members what each has said regarding science, R&D, and education policy. A short summary follows of the current public positions of each candidate (in alphabetical order) or each candidate's party platform regarding those issues of interest to our community.

George W. Bush (<http://www.georgewbush.com>)

Along with video and audio clips of campaign speeches, Governor Bush presents both his plans and his accomplishments regarding education and technology on his campaign web page.

On the technology side of things, he supports growth in the number of high-tech jobs and pledges to increase the H1-B visa limit so that more technical workers from other nations can work in the US. He also supports making permanent the R&D tax credit (a credit provided to businesses that engage in R&D that meets certain criteria) and enacting comprehensive legal reform to eliminate unnecessary litigation. This would apparently help high-tech companies focus on innovation and avoid using resources for litigation. Information on his support of R&D is less detailed, but he clearly states that he will increase R&D spending for the military to ensure the long-term security of the United States.

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