Two New APS Officers Begin Tenures

Two new operating officers are joining the APS, one as of November and the other in January. Thomas McIlrath, associate dean for research and graduate studies at the University of Maryland, College Park, replaced retiring APS Treasurer Harry Lustig on November 11. Martin Blume, deputy director of Brookhaven National Laboratory, succeeds retiring APS Editor-in-Chief Benjamin Bederson on the first of the year.

As the Society's chief financial officer, the new Treasurer is responsible for the preparation and administration of the APS budget, for the Society's investments, for business interactions with the American Institute of Physics, for the Society's legal affairs, and for personnel policies and administration. The Treasurer is also expected to participate in all aspects of the governance, policy formation and administration of the Society, and along with the Executive Officer and Editor-in-Chief, has the responsibility for supervising the APS staff.

McIlrath received his Ph.D. in physics from Princeton University in 1966 and spent the following year as NATO postdoctoral fellow at England's Oxford University. After several years as a research associate at Harvard College Observatory, he joined the faculty of UMD, where he presently is a professor in the Institute for Physical Science and Technology, in addition to his deanship and role as staff physicist for the National Institute of Standards and Technology in Gaithersburg. He is an active member of the APS Division of Laser Science, which he chaired in 1980.

The APS Editor-in-Chief has responsibility for the research journals published by the Society, including the large editorial and journal support staff located in Ridge, New York. Responsibilities include preserving and enhancing the quality of APS journals, leading APS efforts in electronic publishing, working with senior editors to set journal policies, and handling appeals and ethics cases involving authors.

Blume received his Ph.D. in physics from Harvard University in 1959 and spent the following year as a Fulbright fellow at Tokyo University. After two years as a research associate at Atomic Energy Research Establishment (AREE) in Harwell, England, he joined the staff of Brookhaven, where he headed the solid state physics group and chaired the National Synchrotron Light Source Project before becoming deputy director in 1984. From 1972 to 1980 he was also a professor of physics at SUNY-Stony Brook.

Blume's research interests include theoretical solid state physics, magnetism, phase transitions, slow neutron scattering and synchrotron radiation. His extensive APS service includes stints as chair of the Panel on Public Affairs and Nominating Committee, as well as service with the Forum on Physics and Society and on the APS Council and Executive Board. He has also served on the editorial board of the Physical Review in addition to several other publications.

Data Storage, New Laser Advances Featured at ILS-XII Meeting

Optical and laser scientists from around the world gathered in Rochester, New York, 20-24 October 1996, for the twelfth annual Interdisciplinary Laser Science Conference (ILS-XII). The conference serves as the annual meeting of the APS Topical Group on Laser Science, in conjunction with the Optical Society of America (OSA). First held in Dallas, Texas, in 1985, the ILS series was established to survey the core laser science areas, including lasers and their properties, nonlinear optics and ultrashort phenomena, the physics of laser sources, lasers in physics and chemistry, and other laser applications.

Optical Data Storage

The most direct means of achieving large increases in the capacity of optical disk storage is by using three-dimensional recording. For example, according to UD's Steven Gustafson, a liquid crystal adaptive lens using a novel conductive ladder meshing technique to minimize the number of defects, or "cosmic strings," in the early universe. [See Nature, 25 July 1990]

And in He-4, the superfluid state is essentially a Bose-Einstein condensation of He atoms in a single quantum state, whereas the He-3 superfluid state is a condensation of pairs of atoms, which are magnetic and possess an internal structure. In fact, superfluid He-3 exists in three different phases related to different magnetic or temperature conditions. The highly anisotropic nature of the A phase (resembling a liquid crystal) was recently explored in an experiment in which vortices set in motion within an He-3 sample simulated the formation of topological defects, or "cosmic strings," in the early universe. [See Nature, 25 July 1990]

(Continued on page 5)
Strangelet Searches, Spin Effects, QCD Field Theory Highlight 1996 DNP Meeting

Recent studies of quantum chaos in mesoscopic systems, and effective field theory were among the topics featured at the annual fall meeting of the American Physical Society (DNP). The meeting was held 2-5 October 1996 at the Massachusetts Institute of Technology in Cambridge, Massachusetts. The meeting included recent studies of new phenomena, including a plenary session on basic research in nuclear physics, five mini-symposia, and 20 contributed sessions. A plenary session, held on Friday afternoon to provide an opportunity for a large segment of the nuclear science community to contribute to the ongoing discussion regarding future challenges and priorities for the field.

Effective Field Theory

Although traditional nuclear structure calculations have benefited from new methods and increased computer power, they have lacked direct input from quantum chromodynamics (QCD), the basic theory of strong interactions. Professor Richard Furnstahl of Ohio State University, who spoke at a Friday morning session, “Effective Field Theory provides a framework to describe low-energy scales and degrees of freedom appropriate for nuclear structure with those in the underlying QCD.” He found that, for heavier nuclei, this framework provides new insight into issues of nucleon composition, vacuum corrections, and symmetry breaking at high density, for example. David Kaplan (University of Washington), who spoke at the same session, has found effective field theories to be powerful tools for theoretical descriptions of nucleon-nucleon scattering.

Chiral dynamics is an effective low-energy field theory of QCD which provides a framework to make rigorous and model-independent predictions at the confinement scale. However, in a Saturday morning session, Michael Frank of the Institute for Nuclear Theory discussed how the advent of a new generation of detectors at the Brookhaven National Laboratory has enabled the determination of the pion and kaon masses and widths at higher than ever before. A possible solution, he suggested developing and exploring an effective field theory of subhadronic degrees of freedom which permit the calculation of low-energy chiral coefficients and hadronic form factors, for example.

Searching for Strangelets

On Saturday morning, Huan Huang of the University of California at Los Angeles reported on recent progress in searching for strange quark matter and other exotic forms of matter at the National Superconducting Cyclotron Laboratory described a new technique using fast radioactive ion beams to investigate the evolution of nuclear matter.

Measuring Spin Observables

Polychromatic targets internal to electron storage rings represent a unique opportunity for the measurement of spin observables in electron-nuclear physics, according to J. S. Ferrer, (Florida State University). The advent of new techniques for manipulating the target spin—ability to manipulate the target spin—represents an important ability to develop new theoretical tools for manipulating the target spin—ability to manipulate the target spin—ability to manipulate the target spin. J. S. Ferrer, (Florida State University). The advent of new techniques for manipulating the target spin—ability to manipulate the target spin—ability to manipulate the target spin—ability to manipulate the target spin. J. S. Ferrer, (Florida State University). The advent of new techniques for manipulating the target spin—ability to manipulate the target spin—ability to manipulate the target spin. J. S. Ferrer, (Florida State University). The advent of new techniques for manipulating the target spin—ability to manipulate the target spin. J. S. Ferrer, (Florida State University). The advent of new techniques for manipulating the target spin—ability to manipulate the target spin—ability to manipulate the target spin—ability to manipulate the target spin.

Attention is also shifting from studies of open dots—characterized by many overlapping resonances—closed dots which are weakly coupled to the external leads via tunnel barriers. In this regime, a single electron resonance whose energy is closest to the Fermi energy dominates the conductance, and it is thus possible to probe the chaoticity of the electronic wave functions, said Hallada. Although traditional nuclear structure methods and increased computer calculations have benefitted from new approaches to the field, they have lacked direct input from quantum chromodynamics (QCD), the basic theory of strong interactions. While previous studies have focused on disordered systems, where the elastic scattering length is small compared to the size of the dot, recent advances in nanostructure technology allow the fabrication of ballistic dots that are smaller than the elastic path of the electron. According to Yoram Alhassid of Yale University’s Center for Theoretical Physics, because of the irregularities of their shape and size, Superconductor quantum dot systems are chaotic in nature, and the universal features of the conductance fluctuations are consistent with quantum chaos theory.

APS Council Establishes Task Force on Career Development

The APS Executive Board approved a proposal to establish a Task Force on Career and Professional Development to provide guidance to the Society on its activities in this area. Intended for a term of one year, renewable for a second, the task force is expected to present a report of its initial recommendations to the APS Council in April 1997.

The task force is charged with advising the APS on effective and efficient methods for career development and integrating the Society’s existing career-oriented programs; formulating a long-term strategy to address career and professional development issues; and identifying and assisting the implementation of new programs that can help the Society serve the needs of the physics community in dealing with career issues. The first meeting will be held this winter, featuring a review of the present employment situation and a discussion of ongoing APS activities in this area, as well as identifying gaps or superfluous programs and possible sources of outside funding for future initiatives.

“APS News December 1996

We hope to receive specific advice from the task force on how the APS should proceed to help physicists cope with the current employment situation and, in the long term, to develop a good match between training and professional expectations of physicists, and the needs of the work force and society,” said APS Associate Executive Officer Barrett Ripin, who is the APS staff adviser to the task force. “There is a need to step back and assess our effective and efficient methods for career development and integrating the Society’s existing career-oriented programs; formulating a long-term strategy to address career and professional development issues; and identifying and assisting the implementation of new programs that can help the Society serve the needs of the physics community in dealing with career issues.”

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Along with Harold W. Kroto of the University of Sussex, for their 1985 discovery of fullerenes, new forms of carbon that include the soccer-ball shaped carbon-60 atoms otherwise known as ‘buckyballs’, because their shape resembles the geodesic domes pioneered by the architect Buckminster Fuller. Kroto also featured a plenary lecture by Will Happer of Princeton University on the anatomy of laser science, including the sensitivity of chaotic systems to manipulate their dynamical behavior. Of these, 43 percent were non-U.S. citizens, 16 percent were women, 2 percent were Chilean and 2 percent were East-Asian-American. Considering only the non-U.S. citizens, China (28 percent), the Former Soviet Bloc (16 percent), and Western Europe (14 percent) sent the highest fractions of students, 1,461 Ph.D.s were granted. The median time between the B.S. and Ph.D. degrees for U.S. citizens was 6.5 years. The favorite subfields of study were condensed matter (23 percent) and photonics (13 percent). For more information, contact Patrick Hauguel-Dejean, director of the APS Division of High Polymer Physics, the medal is intended to recognize outstanding research accomplishments by a young polymer physicist.

**News from APS Sections**

- The APS Ohio Section held its annual fall meeting 1-2 November at Ohio University in Athens, Ohio, organized around the theme of nonlinear dynamics and chaos. On Friday, Ohio University’s Earle Hunt spoke on chaos in electrical circuits, incorporating live demonstrations of the phenomena. William Ditto, director of the Applied Chaos Laboratory at the Georgia Institute of Technology, discussed recent experiments exploiting the sensitivity of chaotic systems to manipulate their dynamical behavior in desirable ways, emphasizing the control of chaos in biomedical systems. Friday evening’s banquet featured a talk by Neil Gershenfeld, director of MIT’s Physics and Media Laboratory, on musical instruments, models and machines. A co-director of a Santa Fe Institute/NATO study on non-linear systems, Gershenfeld was also a featured speaker on Saturday, reviewing a number of the more broadly applicable recent extensions to the notion of state estimations for nonlinear systems. Saturday’s program also included a lecture on quantum signatures of classical chaos by Martin Guttinger of IBM/T.J. Watson Research Center.

- Two weeks later, the APS Southeastern Section held its annual fall meeting 1-4 November at the University of Georgia, Athens. Twenty-five speakers gave presentations on such topics as cold atoms, computational physics, computerized and Web-based teaching methods, elementary particle physics, high energy physics, high spin nuclei and women in physics. In addition, some of the contributed abstracts were deemed of broad enough interest to merit special 20-minute invited presentations at the start of the session to which each paper was assigned. Friday evening’s banquet featured a keynote address by D. Allan Bromley, as well as the presentation of the George Pegram Award to Wendedel G. Holladay (Vanderbilt University) and Dudley Williams (Kansas State University). The meeting was held jointly with the Society of Physics Students and Sigma Pi Sigma to celebrate their Diamond Jubilee.

**Task Force on Career Development**

- The International Union of Pure and Applied Physics (IUPAP) has issued a revised version of its ‘Guidelines for the Use of Major Physics Facilities,’ based on comments received on existing large facilities that recover operating costs from users. The revised guidelines explicitly de-tail a realistic cost treatment for existing experimental facilities. Originally drafted in 1994 by the U.S. Liaison Committee to IUPAP, the guidelines are the result of extensive consultation with other national liaison committees, UNESCO Physics Action Council, and the physics community at large, thus incorporating the wide perspectives of IUPAP. The final version was approved by the IUPAP Executive Council in September 1995, and by the IUPAP General Assembly in September 1996.

A new report by the American Institute of Physics puts the number of physics graduate students for the 1994/1995 year academic year at 13,295. Of these, 43 percent were non-U.S. citizens, 16 percent were women, 2 percent were Chilean and 2 percent were East-Asian-American. Considering only the non-U.S. citizens, China (28 percent), the Former Soviet Bloc (16 percent), and Western Europe (14 percent) sent the highest fractions of students, 1,461 Ph.D.s were granted. The median time between the B.S. and Ph.D. degrees for U.S. citizens was 6.5 years. The favorite subfields of study were condensed matter (23 percent) and photonics (13 percent). For more information, contact Patrick Hauguel-Dejean, director of the APS Division of High Polymer Physics, the medal is intended to recognize outstanding research accomplishments by a young polymer physicist.

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There is no charge to join an APS section. The APS Membership Department at membership@aps.org or 301/209-3280.

Regional physics activities are still vital, even in our fast-paced mobile world. Industrial-academic interactions are typically local phenomena, as are many professional collaborations that enhance our research, teaching, and pleasure of doing physics. Students from physics departments feed local industry and graduate schools. Faculty are a resource of technical expertise for industry and government laboratories. Industry, in turn, often provides regional departments with a technical focus, internships, and support. Regional meetings enable faculty and students from small departments to become connected to the broader physics community.

Sections develop unique characters to suit their region's membership. Some hold meetings that are primarily comprised of thematic tutorial invited sessions. Thematic sessions typically feature world-class researchers selected for their ability to give both tutorial background and a good feeling for research frontiers. Other sections draw large numbers of invited and contributed papers in diverse areas and have the flavor of small general meetings. Close to 500 attended the most recent Texas Section meeting. There is a strong student involvement and educational component to most section meetings. Thematic sessions typically feature world-class researchers selected for their ability to give both tutorial background and a good feeling for research frontiers. Other sections draw large numbers of invited and contributed papers in diverse areas and have the flavor of small general meetings. Close to 500 attended the most recent Texas Section meeting.

When I attended my first section meeting a couple of years ago, my initial reaction was that it seemed much too enjoyable to be a ‘real’ physics meeting. A stimulating range of current physics topics outside of my specialization presented in an understandable tutorial manner reminded me of what enticed me to become a physicist. My second reaction was irritation at not being introduced to sectional meetings much earlier, particularly during my college/graduate school days.

Sections: APS’ Mini-Physical Societies

If you live in a region that has a section and you wish to join, then contact the APS Membership Department at membership@aps.org or 301/209-3280.

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There are five geographic APS sections in the United States (see map below) with memberships in the one to two thousand range. In 1941 Council amended the APS Constitution to allow both geographic sections and technical divisions to be established. A number of independent physics clubs were already active at different locations in the U.S. All sections were formed in the 1930s except for the Texas Section, which was established in 1982. Fifty years after the first, the New England Section. Distant travel was not so prevalent back then and, for many, these sections were the focus of physics communications.

The commentary by Wolfgang Hieffe illustrates a large and welcome trend, as we witness competent newly minted science Ph.Ds compete successfully for well-paid non-academic positions. This means that science is respected outside of its field. How many bankers, business analysts, or consultants could, in three months, rise into the position of a physics or chemistry professor?

The original, innocuous as it is, would have been preferable on all counts.

There was a young fellow named Bright Who travelled much faster than light. He set off one day, in a relative way And became a consultant; 'Twill be the previous night! Ralph P. Hudson Chevy Chase, Maryland

Editor’s Response…

There once was a poem unquoted And commas left out that were noted. When genders reversed, The writer was cursed And regrets be transgressed as denoted. (M. Freedhoff, 1996)

Physics Limerick Contest

clearly physicists care deeply about their limericks. in response to member demand, we announce the APS Physics Limerick Contest. limericks selected will be published in APS News, and authors awarded a dunking bird, arguably the best physics toy ever invented. Author of the best limerick will win a flock. Submit entries to litheraps.org, or mail to limerick Contest, APS News, The American Physical Society, College Park, MD 20740. Deadline for submissions is January 15, 1997.

The opportunity by Wolfgang Hieffe in the October 1996 APS News (“Leaving Science Can Be a Good Career Decision”) hits the nail on the head: by choosing to join McKinsey & Company he will help eliminate the few physicists that still remain. McKinsey & Co. has been the star of such management consulting firms all over the industrialized world for a great many years. Their activities have been good for society, because the current oversupply of scientists and others might turn into an oversupply of culinary experts (see the MORE THOUGHTS ON LEAVING SCIENCE…)

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Letters

Of Grammatology and Beyond…

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The Research Environment in a Global Economy
by Robert M. White

The research paradigm has changed since the early years of the Cold War, when basic research was generally supported in the West. The cold war would serendipitously lead to new technology or, at least, establish a research framework that can be tapped when needed. In the post-Cold War era, economic growth has become the national focus in research and development.

A list of the topics covered in "Physics News" in 1995 provides a list of commercially relevant technologies of current interest to physicists. Lack of inversion, protein folding, semiconductor noncrystallities, biomembranes, quantum computing, nanotechnology, and high temperature superconductors are some of the topics.

There are two principal causes for this change in the research paradigm. First, we face global competitors both in the domestic U.S. market and in increasingly important world markets, competitors who are very adept at tapping into the knowledge base to manufacture products with qualities and development cycles that give them a competitive advantage. Second, technology today has become extremely complex and multidisciplinary. Electronics now comprises 20 percent of the value of an automobile, for example. The innovation process has also become tightly coupled from discovery to application. Sophisticated technology and rapid communication have shortened the development time. Thus, high risk research needs to be managed more risk wisely.

A good example of this is the recent discovery of giant magnetoresistance. With the development of thin film deposition techniques, physicists naturally began to explore the properties of ultrathin films and multilayers. In 1988, a group in France discovered that a magnetoresistance phenomenon exhibited a very large change in their in-plane resistance, depending on whether the magnetic orientation of the layers was parallel or antiparallel as a result of a combination of theory and materials science, these so-called spin valves now operate at room temperature in fields as low as 0.5 tesla. This makes them candidates for field sensors, such as for the fields associated with the data patterns on magnetic disks or tapes. Indeed, recording heads employing this phenomenon are now in development, only seven years after it appeared in Physical Review Letters.

In this changed environment, corporations cannot independently develop technology. The corporate laboratory is being supplemented, if not replaced, by alliances, quite often with small companies that have developed unique technologies with venture capital. Such alliances also free corporations from the old sequential innovation process. To use a metaphor from computer architecture, innovation today is like "pipelining," where multiple events are simultaneously overlapped in execution.

The national laboratories, somewhat isolated from the global economy by their agency missions, have not seen the dramatic change that corporate laboratories have. They still attempt to be self-sufficient. However, political forces during the early 1990s have opened the national labs to industrial collaboration through the mechanism of the Corporate Research and Development Agreement (CRADA) program.

Our laws have also changed in recognition of the need to establish partnerships. The National Cooperative Research Act of 1984 allows corporations to form research consortia without fear of antitrust reprisal. Since partnerships involve the exchange of information, protection of intellectual property rights is important. In 1980, the University and Small Business Patent Procedure Act (known as the Bayh-Dole Act) gave universities the rights to patents derived from research results developed with federal funding. Prior to this time, such results were in the public domain, which inhibited their commercialization.

Programs driven by federal agency missions, such as those of the Department of Defense and NASA, will continue to be a source of commercially relevant technology. Since technology is such an important factor in economic prosperity, the government must ensure that its development should not be left to chance. Thus, the federal government has also created new programs specifically to stimulate the industry to develop technologies which they might otherwise regard as too risky. The Advanced Technology Program (ATP) in the Department of Commerce is an example. While ATP provides matching funds to industry for technology development, its greater value may be its impact on the innovation process through the growth and acceptance of partnerships. ATP's unrestricted funding to partnerships provides an incentive for the formation of research consortia. Furthermore, more than $85 million has flowed from ATP to more than 100 universities subcontracted by ATP grant recipients, largely to provide the fundamental understanding associated with the technology being developed.

This new paradigm means that physicists will increasingly find themselves in a much more complex, less sheltered research environment, one that is characterized by multiple funding sources, by concerns about intellectual property, by technology transfer mechanisms, and by partnership agreements. I believe the challenge facing the APS is to help prepare young physicists for this new world.


Practicing Civic Science: Notes from the Field
by Joel A. Snow

O n numerous occasions in recent months, NSF Director Neal Lane has suggested that the science community has a "new need to share the excitement of science, the usefulness of science and technology." Indeed, he has suggested that "it may be time to expand the professional responsibilities of scientists to include informing fellow citizens about science…’.. This mission of carrying science to the citizenry has been called ‘the civic role for scientists,’ or ‘civic science.’

Unlike public science, which is aimed at advocacy of public policy related to science and technology, the objective of civic science is to inform citizens of how science functions and contributes to our society, and therefore why it merits the public’s interest and support. It is a broader issue than building a constituency for science, but includes appreciation of the appropriate use of science. It’s not that the public lacks interest, but rather that knowledge and understanding of science are unfortunately not widespread.

Despite the reality that science has enabled an unprecedented transformation of human society, many of the datadriven cultures of people are unfamiliar to those of earlier generations, though with different tools. The transfer of technologies that make the society different (from instant electronic communications to highly productive, disease resistant seed corn) are seldom obvious in their relevance to everyday life. Little wonder that what takes place in the research laboratory now may seem hopelessly arcane and irrelevant. The pace of change has been so rapid that it is hardly surprising that formal education has not kept up. The public, clearly, must learn outside the classroom.

Improving science and society-awareness content of general education has long run benefits for the unknown and unanticipated vocations of the 21st century. But education, and public education in particular, seems to be in a state of depression, revolution and is entwined with so many other aspects of society (including financing) that improving its pertinence and performance will be a long, tough struggle. Civic science, on the other hand, is for today. The challenge is to discover how to communicate with today’s working, reading, viewing and voting public on the basis of the tools and experience that they have on tap on their home ground. They will not be interested in laboratories or lectures, but rather in finding out about things that affect their jobs, businesses, health and daily lives.

On the basis of some 30 years of field experience as a civic scientist, let me offer a few observations or guidelines:

1) Doing civic science is not for everybody. It is a calling where there is a habit of speaking their language.

2) What you have to say is not for everybody. Interesting Joe and Jane Farmer in cosmology may just be too hard a sell, although why the

(Continued on page 6)
Notes From the Field

night sky isn’t bright enough. Might you wish for the plain sky and clear blackness? If you are reading this, you have been faithful, and the data is as reliable as you could wish.

(Continued from page 5)

3) Keep it simple. We who are ad-
dicated to the concept of direct com-
expression, and along with the ifs and
buts and cavets of a detailed argument,
can quickly lose our au-
dience in a welter of detail. But a
simple ice cube analogy can show
why warming that melts the west
Antarctic ice cap would cause glo-
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8) The mundane may be more inter-
testing than the profound. The
mysterious and the hidden may be
beguiling but the straightforward
may also be the important.

9) Seek out opportunities. Probably
you have many opportunities
available to you and will pro-

10) Communicating about science
with the general public is hard
work. It takes time and talent to do
it well. Moreover, the forwards are
dangerously psychic — it’s a paying
profession for only a few. But you
might be surprised at how open the
public in your community may be to
hear about what you know, what
do, and why you do it. For them
it’s a new and different perspec-
tive.

11) Finally, remember to lighten up.
Science is fun, after all, and some-
times can be funny. Public radio
in many locations carries a parade
of science humor called “Dr. Science”
that spoofs the smug, all-knowing
scientist who pontificates on practical
everything. A year or so ago, a film
called “I.Q.” featured Walter Matthau as
a slightly batty Einstein with equally
batty fictional advisor, Dr. Scientific.
This summer’s movie fare included
“Phenomenon,” “The Nutty Professor,”
or “Twister,” about chasing tornadoes
for scientific purposes. These films are
full of stereotypes involving science
and scientists; but, to be sure, they
also reflect perceptions in popular
culture that include a certain odd
respect with which science is viewed,
especially from within the field, but
how hard it can be to understand.

Joel A. Snow is director of the Institute for
Physical Research and Technology at Iowa
State University. A longer version of this
article appeared in the Summer 1996 news-
letter of the APS Forum on Education see http://www.research.att.com/~klb/APS/
letter.html.

Some of the world’s top scientists con-
tended at Harvard University’s Sanders
Theatre for the 1996 Ig Nobel Prizes,
presented at the Sixth First Annual Ig
Nobel Prize Ceremony, held October 5,
1996. The prizes were handed out by
genuine Nobel Laureates Dudley
Henschbach, William Lyscomb and oth-
ers. A good-natured spoof of science
and the Nobel Prizes, the ceremony
honors people whose achievements
“cannot or should not be reproduced.”
The event was partially presented
by The Annals of Improbable Research
(AIR) (which has been described as “the
MAD Magazine of science”). The cer-
emony also featured the world premiere
of “Lament Del Cockroach,” a mini-opera
for Nobel Laureates and mezzo-sopranos.
The event was tele-
cast live, worldwide, on the Internet,
and recorded for later broadcast on
National Public Radio’s “Talk of the
Nation/Science Friday” program, as well
as the television network C-SPAN.

The 1996 honoree in physics was Robert
Matthews of Aston University, England,
for his work on gun-shot calipers, and
especially for demonstrating that
toast always falls on the buttered side.
Other awards include: Peace—Jacques
Chirac, President of France, for com-
memorating the 50th anniversary of
Hiroshima with atomic tests in the pa-
cific; Medicine—Tobacco company
heads in the United States; Civic—The
British Prime Minister, Tony
Blair; and especially for demonstrating
that no one will come beating on your
door for your opinions.

Robert Matthews of Aston University,
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calipers, and especially for demonstrating
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ANNOUNCEMENTS

STOP! THINK! NOMINATE!

Which of your APS member colleagues do you admire most? Who shares your views and concerns? Who has the best combination of knowledge and experience to represent you, and lead the APS in the right direction? Well, why not nominate the person (who could be you) to be a candidate for an elected position in the APS?

The Nominating Committee depends on APS members to propose candidates for positions elected by the membership: Vice President, Chair, Elect, Nominating Committee, and General Counsellors; and those elected by the Council: members of the Panel on Public Affairs and of the Nominating Committee.

For a nomination form contact: Amy Halsted, Administrator for Operating Committees, APS, One Physics Ellipse, College Park, MD 20740-3844, phone: (301) 209-3266; fax: (301) 209-0865; (email: halsted@aps.org). Please provide biographical/supporting material on your nominees. The deadline is January 31.

APS Mass Media Fellowship Program - Summer 1997

Deadline: 15 January 1997

▲ NEW IN 1997!
In affiliation with the popular AAAS program, APS will sponsor two ten-week fellowships for physics students to work full-time over the summer as reporters, researchers, and production assistants in mass media organizations nationwide.

▲ PURPOSE
The intent of the program is to improve public understanding and appreciation of science and technology and to sharpen the ability of the fellows to communicate complex technical issues to non-specialists.

▲ ELIGIBILITY
Priority will be given to graduate students in physics, or a closely related field, although applications also will be considered from outstanding undergraduate and postdoctoral researchers. Applicants should possess outstanding written and oral communication skills and a strong interest in learning about the media.

▲ STIPEND
Remuneration is $4,000, plus a travel allowance of approximately $1,000.

▲ TERM
Following an intensive three-day orientation in early June at the AAAS in Washington, winning candidates will be elected to host media organizations for final selection in April.

▲ SELECTION PROCESS
During February, a review committee will screen completed applications received by the January 15 deadline. Files of the four or five most qualified applicants will be submitted to host media organizations for final selection in April.

▲ TO APPLY
The following materials must be received at the address below by JANUARY 15:
- Completed application form (available from the program office, below)
- A copy of your résumé
- Brief sample(s) of your writing (3-5 pages on any subject, written in language understandable to the general public — no technical papers, please), on single-sided, 8 1/2” x 11” paper, unstapled
- Three letters of recommendation (to be mailed directly to the program). Two of these letters should be from faculty members; one should be a personal reference.
- Transcripts of your undergraduate and graduate work (to be mailed directly to the program)

▲ MAIL TO
APS Mass Media Fellowship Program
529 14th Street, NW, Suite 1050
Washington DC 20045
(202) 662-8700 • email: ops@aps.org
http://aps.org/public_affairs/Media.html (includes PDF application forms)

Commonwealth of Independent States:
1996-1997 Directory of Physics and Astronomy Staff

The Russian Academy of Sciences (RAS) is now offering the first Directory of Physics and Astronomy Staff for the Commonwealth of Independent States, retailing for US$94.50 plus postage and handling. It numbers more than 516 pages. Compiled by S.I. Shkuratov and E.F. Talansky of the Institute of Electrophysics or RAS’ Ural Division, the hardcover book includes listings for members of national academies of sciences, professors, doctors of sciences and philosophy, researchers, as well as more than 540 organizations doing physics, in all the republics of the former Soviet Union: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Turkmenistan, Tajikistan, Ukraine, and Uzbekistan. Email addresses are included in the listing. To order, complete and return the form below.

NOW AVAILABLE FROM THE RUSSIAN ACADEMY OF SCIENCES

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CAUGHT IN THE WEB

Notable additions to the APS Web Server. The APS Web Server can be found at http://www.aps.org

New/Updated Links:
- APS News Online (latest edition)
- APS Online Supplement
- Electronic Abstract Submission Guide

Meetings
- March 1997 Meeting Announcement
- April 1997 Joint APS/AAPT Meeting Announcement

Education and Outreach
- Industrial Summer Intern Program
- Physical Review D online
Is Science a Victim of its own Success?

by John Horgan

These are trying times for truth-seekers. Scientists feel increasingly beleaguered by technophobes, animal-rights activists, and post-modern philosophers and stingy politicians. After decades of stupendous growth, funding for basic research has begun to decline. Also, as science advances, it keeps imposing limits on its own power. Einstein's theory of special relativity prohibits the transmission of matter or even information at speeds faster than that of light. Quantum mechanics dictates that our knowledge of the microrealm will always be slightly blurred. Chaos theory confirms that even without any fundamental limits, many phenomena would be impossible to predict, because minute influences can have gigantic consequences. And evolutionary biology is reminding us that we are animals, designed by natural selection not for discovering deep truths of nature but for breeding.

All these limits will make the search for truth more difficult in years to come. But in my view, by far the greatest threat to science's future is its past success. Researchers have already mapped out the entire universe, ranging from the microrealm of quarks and electrons to the macrorealm of planets, stars and galaxies. Physicists have shown that all matter is ruled by a few basic forces. Scientists have also stitched together our knowledge into an impressive, if not terribly detailed, narrative of how we came to be. The universe exploded into existence 15 billion years ago, give or take five billion years, and is still expanding outwards. About 4.5 billion years ago, the first single-celled life forms arose. Prodded by natural selection, these primordial organisms diversified into an extraordinary array of more complex creatures, including Homo sapiens. My guess is that this basic narrative that scientists have constructed from their knowledge, this modern myth of creation, will be as viable 100 or even 1,000 years from now as they are today. Why? Because it is true. Moreover, given how far science has already come, and given the physical, cognitive, social and economic limits constraining further research, science is unlikely to make any significant additions to the knowledge it has already generated. By science I mean not applied science but science at its purest, scientific but science at its purest.

The most obvious source of ironic science in this century is social science, which has given us such wonderfully provocative paradigms as Freudian psychoanalysis, Marxism and structuralism. But ironic science resembles literary criticism or theology in that it offers no answers that give rise to new questions but only incremental, di- minishing returns. The vast majority of scientists are content to fill in details of the great paradigms laid down by their predecessors. They try to show how a new high-temperature superconductor can be understood in quantum terms, or how a mutation in a particular stretch of DNA triggers breast cancer. But some scientists are much too ambitious and creative for merely "mopping up" after the pioneers (as the philosopher Thomas Kuhn, who died this past June, liked to put it). These overreachers want to transcend the received wisdom, to create revolutions in knowledge analogous to those triggered by Darwin's theory of evolution or by quantum mechanics. For the most part these ambitious types are the only one option to pursue science in a speculative, non-empirical mode that I call ironic science. Ironic science resembles literary criticism or theology in that it offers no answers that give rise to new questions but only incremental, diminishing returns.

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