**APS Centennial Meeting Draws Record Crowds to Atlanta**

I t’s here at last! The APS will celebrate its 100th anniversary this month at the Centennial Meeting in Atlanta, Georgia. The conclave will constitute the largest physics meeting of all time, with an expected 10,000 physicists in attendance at the Georgia World Congress Center.

The scope is infinite, from atoms to the universe as a whole. All of the APS units will be represented, so one will be able to hear talks about quarks, protons, nuclei, atoms, molecules, solids, liquids, gases, quanta, granular materials, planets, plasmas, stars, galactic clusters, and the microwave background of the universe, and the subject matter extends from billionths to billions of kilometers, in pressure from billionths to billions of pascals.

Laser power starts with milliwatts and goes all the way up to petabytes. Particles under discussion are sometimes free, or quasi-free, but more often than not are subject to some kind of restraining order while they are subjected to quantum dots, quantum wells, quantum dots, liquids, solids, gases, granular materials, planets, and quanta.

**Selected Technical Highlights**

**Photonic Crystal Lasers.** Consisting of slender bars arranged in a regularly repeating pattern, a photonic crystal prevents the escape of light having a certain range of colors or wavelengths. Modifying the basic pattern of a photonic crystal can cause it to force light to travel in specific paths. As an “optical waveguide” it redirects light more than three times more efficiently than traditional waveguides.

Such waveguides could cause light to bounce back and forth, in essence creating a highly efficient mirror. Physicists have hoped that such mirrors could serve as a basis for a new kind of cavity laser. New Science, Attica Microsystems, and Luxtreme Technologies and his colleagues have built a photonic-crystal laser which guides light in two dimensions. They will present experimental measurements of this device. (Paper B31.07)

**Early Cancer Detection with Laser Spectroscopy.** Laser spectroscopy and other techniques have been successfully applied to medicine. The laser is another example, and physicists are now exploring the ability to lead to laser to detect visible surface signatures of disease at an early stage. At this meeting, the presence of disease alters the chemical composition and shape of the affected tissue. These micro-irregularations can be detected by shining laser light on tissue and studying the spectrum of light reflected from it, enabling diagnosis without the need for an invasive biopsy.

Once detected with laser, such disease tissue may be treated, effectively ridding the body of the risk of developing potentially deadly diseases, such as cancer. May-Arne Mynck of Dartmouth College will illustrate the application of “laser-induced fluorescence spectroscopy” to the detection of epithelial dysplasia—a pre-malignant skin condition leading to cancer. (Paper PCL01)

**New Possibilities for DNA Computers.** In the marriage of computer science and molecular biology, known as DNA computing, scientists create fragments of DNA — whose letters represent computer data and instructions — and mix them together in test tubes to solve problems, such as the shortest path through a number of cities. Allen Mills of Bell Labs/Lucent Technologies will show that it is possible to use DNA to construct a massive neural network — computers modeled after the human nervous system — with a connectivity of 1 trillion synapses, or 1% of a human brain. (Paper PCL02)

**Corporate Sponsors Lend Support to Centennial Projects**

The APS Centennial will feature several special events, exhibits and ongoing projects made possible by generous donations from corporate and government sponsors. (See the “Guide to Special Events” on pages 2-3 for specific times and locations.)

**Fernbank Museum Gala**

Numerous organizations have contributed to supporting the gala buffet dinner at the Fernbank Museum on Sunday evening, March 21, a formal affair celebrating the APS Centennial and the accomplishments of 20th century physics. In addition to dancing, there will be a silent auction, a corporate-simulated “fingerprint” of a superstar and an annual luncheon and banquet where and when it’s all happening in Atlanta.

**Corporate Sponsors**

The Coca-Cola Company and the APS are hosting tutorials during the Centennial Meeting. Numerous organizations have contributed donations from corporate and government sponsors. (See the “Guide to Tutorials” on pages 27 for specific times and locations.)

**Student Travel Grants**

The APS awarded 352 travel grants to over 1,100 graduate students from 141 institutions attend the Centennial. Student travel grants were funded by DOE, NSF and the APS.
A Guide to Special Centennial Events

SUNDAY, MARCH 21

Physics Demonstration: “Magnetism, Materials, Blue Sky and Life.”
GWCC Lawn 11:30 AM and 12:30 PM
Sam Spiegel of Florida State University presents a light-hearted but heady-handed look at the implications of magnetism through some classic demonstrations and discussions with a twist. [Presented by the National High Magnetic Field Laboratory.]
Opening Centennial Session GWCC 1:00 PM - 1:45 PM
Speaker: D. Allan Almy
Gala at Farnerbarn of Natural History
6:30 - 10:00 PM
Black Tie Optional

A gala buffet dinner-celebrating the APS Centennial and the accomplishments of 20th century physics. In addition to dancing, there will be three screenings of “Cosmic Voyage” in the IMAX Theatre. Entertainment will be offered in the auditorium by Lynda Williams. “The Physics Channel,” and science magician Rob Friedhoffer. A limited number of tickets are available at $50 per person.

MONDAY, MARCH 22

GWCC Auditorium 10:10 - 10:50 AM
Steve Strogatz, professor of physics and mathematics at Florida Atlantic University, illustrates the impact of fractal geometry and chaos theory on practical applications from economics to DNA analysis.

Welcome Reception
GWCC, Level 1 West 6:00 PM - 7:30 PM

Public Lecture: “Physics of Star Trek.”
Raltos Theatre (Downtown) 8:30 - 9:30 PM
Lawrence Krauss, a professor of physics and astronomy at Case Western Reserve University and bestselling author of The Physics of Star Trek, relates examples from the popular TV series to illustrate concepts at the forefront of modern physics.

Public Lecture: “Physics of Dance.”
GWCC Auditorium 11:05 - 11:45 AM
Ken Lawes, a professor of physics at Dickinson College and long-standing ballet dancer and enthusiast, will analyze a sequence of ballet movements with a ballet master using principles of physics. [Presented by the American Physical Society.]

Openings Day Exhibits
GWCC 9:00 AM - 4:00 PM

Professional Posters (157 posters) will be displayed at the Farnerbarn of Natural History and in the GWCC Atrium. Poster sessions will be held both in the old and new buildings, and, if possible, including a seating area for visitors. Attendees from all over the world will have an opportunity to discuss poster presentations with the authors.

Posters will be arranged as follows: Poster Sessions will be held Tuesday, Wednesday, Thursday, and Friday. Poster sessions will be held both in the old and new buildings, and, if possible, including a seating area for visitors. Attendees from all over the world will have an opportunity to discuss poster presentations with the authors.

Public Lecture: “Sunlight and Ice Crystals.”
GWCC Auditorium 10:10 - 10:50 AM
Richard Voss reprises his discussion of the snow crystal and its history. He will present his research that connects between science, art and finance.

Public Lecture: “Nonsense and Non-Science: From Aliens to Creationism.”
GWCC Auditorium 11:00 AM - Noon
Richard Smalley, a professor of physics at the University of Texas at Austin, will discuss the relativity between science and faith. Smalley presents a discussion on the philosophy of the universe and its impact on society.

Fracrals Lectures: “Fractals and Scaling in Nature.”
Saturday, March 21, 8:30 PM - 10:30 PM

Ralph S. Steinhardt, professor of physics and astronomy at Princeton University, will discuss the mathematics of nature and the implications of fractal geometry on the natural world.

TUESDAY, MARCH 23

APS Senior/Retired Member Buffet Breakfast
Rutherford Hall, Omni Hotel 7:30 AM - 9:00 AM
Cost: $10.00

American Physical Society

APS News March 1999

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About the Cover

Physics Ellipse, College Park, MD 20740-3844, United States

Subscribe to APS News:
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Letters of interest will be published on a selection and should include an address and telephone number.

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Letters to the Editor will not be acknowledged.

Questions of interest to members are answered in this section.


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Centennial Guide Continued

Public Lecture: “The Physics of Baseball.”
Sci-Trek Museum (Midtown) 4:00 - 5:00 PM
Richard Brandt, a professor of physics at New York University, discusses the underlying physical principles of pitching and hitting in baseball, drawing on examples from the sport’s long history.

Microscopes Exhibit Opening
Atlanta College of Art, Woodcrafts (North Hall) GWCC 4:30 PM - 6:30 PM
Woodcrafts Art Center will host an opening reception for the exhibit, “Microscopes: The Hidden Art of High Technology,” sponsored by Lucent Technologies. [See “Exhibits” for more information.]

Alumni Reunions
GWCC Hall D 6:00 PM - 10:00 PM
As part of the Centennial Celebration many university and laboratory alumni groups will hold alumni receptions in the exhibit hall adjacent to the APS exhibits. Join your colleagues for an evening of re-union and renewing old acquaintances.

Theatre: “Schindler’s Girlfriend”
GWCC (Room TBD) 8:30 PM
A staged reading of the new romantic comedy by Matthew Wells in which love obbes the crazy laws of subatomic physics will have its world premiere at the centennial meeting.

WEDNESDAY, MARCH 24

Public Lecture: “The Physics of Brass Instruments Or, What do Horn Players Do With Their Right Hands, Anyway?”
GWCC Auditorium 10:00 - 10:50 AM
Sid Perkowitz, a professor of physics at Emory University, explores the science behind the formation of foam bubbles and foam behavior in beer, soda, bread, whipped cream, meringue and other delisieties.

Sci-Trek Museum (Midtown) 11:00 AM
Bob Friedhoffer—a.k.a. “The Madman of Magic”—uses magic to illustrate basic scientific principles, and shows how magic uses science to create its illusions.

Physics of Beer: Drinking and Eating
Student’s Luncheon GWCC, Level III West, Maple Point 12:30 PM - 2:00 PM
All student attendees are invited to mingle with fellow physics students and enjoy complimentary lunch.

GWCC Lawn 12:30 PM and 1:30 PM
Bob Friedhoffer—a.k.a. “The Madman of Magic”—uses magic to illustrate basic scientific principles, and shows how magic uses science to create its illusions.

Exhibits

To Advance and Diffuse the Knowledge of Physics: 100 Years of the APS. George Washington World Congress Center entrance lobby. Open 8:00 AM - 5:00 PM. A curated exhibit of the origins and historical development of the APS. Displays include: exhibits research journals, outreach programs, as well as a number of interesting incidents that helped shape the character of the Society.

Felice Frankel Photography Exhibit: “Environmental Physics.” Fernbank Museum of Natural History. Open M-F, 9:00 AM - 5:00 PM. Award-winning science photographer and MIT Artist-in-Residence Felice Frankel presents a series of science-based photographs, many of which have appeared in major scientific journals and magazines.

Microscopes: The Hidden Art of High Technology
Woodruff Arts Center, North Gallery. Open T-F, 9:00 AM - 5:00 PM. The exhibit presents 50 photographs of microscopes, that explore the confluence of art and technology, created in collaboration with the scientists and researchers of Lucent/ Bell Laboratories. [For online text and graphics, see http://www.lucent.com/microscopes/microscopes.html]

Virtual Earth. GWCC Auditorium (entrance). Open M-W, 9:00 AM - 5:00 PM. The National Center for Atmospheric Research offers a 3-D visualization of the Earth.

APS Timeline Wall Chart: “A Century of Physics.” George Washington World Congress Center, Open M-F, 9:00 AM - 5:00 PM. The timeline traces the development of physics throughout the 20th century.

APS Unit Exhibits. George Washington World Congress Center Exhibit Hall D. Open M 10:00 AM - 5:00 PM; T 1:00 PM - 8:00 PM; W 10 AM - 3:00 PM. Twenty-seven APS Divisions, Topical Groups, Forums and Sections will highlight activity in their units.

The African-American Presence in Physics (two identical exhibits to be installed at Atlanta University Center Complex and at Georgia World Congress Center Exhibit Hall D). Open M-W at GWCC. Official opening reception on March 20 will coincide with the meeting of the National Society of Black Physicists.

Nobel Discoverers Gallery. The unique AIP W. F. Meggers collection of Nobel Laureate portraits will be exhibited during the Nobel Laureate Luncheon and, later, throughout the Centennial in the Georgia World Congress Center Exhibit Hall D.

Physics in Our Lives. APS exhibit under development that illustrates youth the impact that physics has on the exploration of Nature, saving lives and driving technology. It includes several interactive demonstrations.

On-Campus Topical Conferences

T he APS is hosting five tutorials during the APS Centennial Meeting, to be held on Sunday, March 21, from 9:00 am to 1:00 pm. Amended by MIT’s Lawrence Rubin, the topics to be featured are listed below. Further information can be found in recent APS Meeting Announcements. The topics to be covered include diffusive processes, solidification, interfacial diffusion fronts, solid electrolytes and fast ion conductors, coalescence, and surface adorption-desorption.

Applications of Magnetic Force Microscopy in Magnetic Imaging of Materials. An overview of the development of magnetic force microscopy and its applications in three major areas: the study of magnetic materials, imaging of external fields, quantitative studies, and imaging with MFM as an imaging and probing technique.

Centennial Meeting Tutorials

The Physics of Cold Atoms at Millikelvin, Microkelvin and Nanokelvin Temperatures. An overview of the physics of laser cooling and its impact on various areas, such as a new generation of atomic clocks and atom interferometry. Laser-cooled atoms, which were crucial to the realization of gas phase Bose-Einstein condensation, were recognized by the 1997 Nobel Prize in Physics.

Perspectives on Career Choices in Industrial and Applied Physics. An overview of the goals, career choices, technical challenges, and other aspects of the professional life of industrial physicists, intended to broaden the scope and perspective of physics students, postdocs, and faculty.

Development of Key Concepts in Surface Science. An historical overview of the development of key areas of surface science up to the present frontiers. Topics include low energy electron diffraction, photoelectron spectroscopy, dynamics of molecular-surface interactions, and key issues in atomic imaging.
The Highest Aim of the Physicist
by Henry Rowland, 1899 APS President

We meet here in the interest of a science above all sciences, which deals with the foundation of the universe, with the constitution of matter from which everything in the universe is made, and with the ether of which the various portions of matter forming the universe affect each other even at such distances as we may never expect to traverse with whatever the progress of science in the future may bring about.

We form an aristocracy, not of wealth, not of pedigree, but of intellect and ideals, holding him in the highest respect who adds the most to our knowledge or who strives after it as the highest good.

Let us cultivate the idea of the dignity of our pursuit, so that this feeling may sustain us in the midst of a world which gives its highest praise to the one who uses it for raiding the physical rather than the intellectual needs of mankind.

The way we live today is very much the product of the constitution and laws of the Universe.

The study of nature’s secrets is the ordained method by which the greatest good and happiness shall finally come to the human race. Let us go forward, then, with confidence in the dignity of our pursuit. Let us hold our heads high with a pure conscience while we seek the truth, and may the American Physical Society do its share now and in generations yet to come in trying to unravel the great problem of the constitution and laws of the Universe.

Henry Rowland 1899 APS President

Thus, to encourage the growth of any science, the best thing we can do to meet together in its interest, to discuss its problems, to criticize each other’s work and best of all, to provide means by which the better portion of it may be made known to the world. Furthermore, let us form a close connection in our thoughts and work. Let us recognize the era when great thoughts have been introduced into our society. We honor the great men who introduced and proved them correct. In choosing the subjects for our investigation, let us, if possible, work upon those which will finally give us an advanced knowledge of some great subject. What is matter? What is gravitation? What is ether and the radiation through it; what is work upon those which will finally give us the knowledge of physics.

All the facts which we have considered, the listing that we have made, the reflections we have gone, the infamy of our minds in our ignorance of the certainty of witnesses and experimenters, lead the scientist to be specially skeptical with respect to any statement made to him or any so-called knowledge which may be brought to his attention.

How shall we regulate our mind with respect to the imperfections of the knowledge of physics? The scientific mind should never recognize the perfect truth or the perfect falsehood of any supposed theory or observation. Nor can one decide on the truth and error of each in its proper position along the line joining absolute truth and absolute error.

The ordinary crude mind has only two compartments, one for truth and one for error; indeed, the contents of the two compartments are sadly mixed in most cases. The ideal scientific mind, however, has an infinite number: Each theory or law is in the proper department indicating the probability of its truth. As a new fact arises the scientist changes it from one compartment to another; so as to always keep it in its proper relation to the rest.

In the firm belief that an understanding of the nature of the physical universe will be a benefit to all humanity, the APS News March 1999

Meeting Challenges of the 21st Century
by Jerome Friedman, 1999 APS President

The APS has the responsibility of providing opportunities for the physics community to communicate scientifically, both within fields and across fields, by means of meetings and journals. This central function has not continually strengthened, but the APS must do more to ensure the health of physics at a time when science in general is facing challenges from the public.

This month — in fact, this entire year — is a celebration of 100 years of the APS and 100 years of remarkable advances in physics. But we also want to use this event as an opportunity for extensive outreach to the general public, to policy makers and to students. The continued support of physics will depend on our ability to articulate to the federal government the public contributions that physics makes to society. The APS has been playing an important role in planning and leading this effort, and the Centennial celebration is the beginning of new efforts in this direction.

Today the pursuit of science is under great budgetary pressures in a period of budget cuts and major shakeups. However, in recent years there have been some in government who have questioned this premise. They do not accept the view that the pursuit of scientific knowledge has social as well as intellectual value; and they have wanted guarantees, in principle, that there would be special arrangements for their support of science. We must transmit the message that the support of science and technology is an investment in the future of the nation, and that an appropriate portion of the federal budget should be both basic and applied research.

The way we live today is very much a product of the scientific discoveries of the past and the technologies developed from them. These advances have also shaped how we see our place in the universe. Science has become embedded in daily life, and political leaders are now giving serious thought to improving our lives. This view is clearly expressed in Vern Ehlers’ recent report, A Nation at Large, which updates the Bush report. This report and the Frist-Rockefeller bill, S.2217, which seeks to increase federal funds for science by a factor of two in twelve years signifies a changing climate in Washington with regard to support for scientific research. But this change is not from completion to isolation, but the scientific community must work hard to bring it about and maintain it.

The nation has many diverse needs, and we, the scientific community, must ensure that the public and our policy makers are aware of the importance of research when political choices are being made. Our community should undertake a general educational role which explains the role of science in society. The Society value of physics. We must also make better contacts to journalists and political leaders to enable the physics community to speak with one voice. The same principle applies to the scientific community in general. The APS and over 100 other scientific and technical societies are now working together as a united advocate of better funding for basic and applied science.

The public today is largely disenaged from science. They are the product of a K-12 school system that has failed to provide scientific literacy. The young people of today are not being equipped to succeed in a technological society. Another area is that a scientifically uninformed public cannot effectively participate in public debate related to science and technology.

The APS must continue to strengthen and develop its programs to improve physics education in the elementary and secondary schools. We should extend our existing efforts by increasing our associations with science educators, helping them devise more effective curricula. We should encourage an increase in the participation of our members, providing them with the support they need to work effectively at the local level.

The APS is a scientific society, but it also has the responsibility to bring our science and technology to the public at large. The APS must be a leader among the professional leaders those scientific insights and facts that bear upon scientific issues in special sessions and other parts of the world, with joint meetings and other activities. To accomplish these goals, we must look within our own ranks for new ideas and bold help. Our objectives must reflect the consensus of our members. In this regard we must continue to make the Society more responsive to the needs of its members, communicating with them to find out how to Continued on page 5

Jerome Friedman 1999 APS President
Court of Appeals Affirms Victory for APS and AIP in Litigation
Over Survey of Journal Prices

In January 25, 1999, the U.S. Court of Appeals for the Second Circuit unanimously affirmed the decision by U.S. District Judge Leonard B. Sand that the publication and promotional use of a survey of journal prices did not constitute false or misleading advertising. The suit had been brought by Gordon and Breach Science Publishers S.A. and affiliates (“G&B”) and alleged that a survey conducted by Professor Henry Barschall in 1997 of the costs of publishing journals by the American Physical Society (“APS”) should be enjoined. The survey showed that G&B’s physics journals were, on average, far more expensive in terms of cost per thousand characters than those of other publishers.

At its request, Judge Sand issued a decision in August 1997 in which he stated that Barschall’s methodology has been demonstrated to establish reliably precisely the proposition for which defendants cited it—that defendants’ physics journals, as measured by cost per character and by cost per character divided by impact factor, are substantially more cost-effective than those published by plaintiffs.

In setting the context for the dispute, Judge Sand had observed that “defendants introduced evidence that G&B has engaged in an aggressive corporate practice of challenging any adverse commentary upon its journals, directly through threatened (and actual) litigation. This evidence persuasively demonstrated that the present suit is but one battle in a ‘global campaign by G&B to suppress all adverse commentary upon its journals.’” Because the relevant statute allows the recovery of attorneys’ fees in “exceptional” cases, AIPS sought fees. Although the Court of Appeals observed that G&B’s suit “may not have been strong on the merits,” it affirmed Judge Sand’s denial of fees.

Marc Brodusky, the Executive Director of the AIP, stated that “we are estimanri-
ably pleased with the outcome because it allows the free flow of information that
bear on the difficult problems that lie ahead of us. We are well aware that this
is not the end of the struggle, but rather the beginning.”

For further information or questions, please contact Phil Schewe, (301) 209-3092.

Brain Teaser Limericks

Physicists love their limericks. That’s what we discovered a couple of years ago when we first requested submissions of science-themed limericks, and received literally hundreds of replies. [Winners appeared on The Back Page of the [March 1999] issue of APS News. A complete collection of lim-
ericks can be found at http://www.aps.org/ news/Encyclopedia/limericks.html.

APS News announced a second limerick contest last summer: this time requesting verse in the form of “human brains” (APS News, August/September 1998). The responses this time were not nearly as prolific; none-
theless, some clear winners did emerge.

A note on selection criteria: We adopted a rather liberal interpretation of what constitutes a “human brain.” Some limericks were intended as cleverly phrased exam ques-
tions, or others as riddles, still others as standard “brain teasers” (mad problems. We also allowed some minor divergence from strict adherence to the rules of scansion in the limerick form. Call it “poetic license.” It’s in the spirit of fun, after all, and we hope our readers find these entries enter-
taining, challenging, and perhaps even useful in an educational fashion.

First prize goes to Fred Bortz, physicist, and author of numerous science and technol-
ogy books for young readers [http://
www.cherryvalleybooks.com/DrFred].

He offered the following as a replacement for any exam question asking for a descrip-
tion and explanation of the anomalous Zeeman effect:

1. The famed mathematician Ramanujan
Shared mankind cocktails with Zeeman.
Their degenerate state
Split in six. (They saw eight.)

2. The sum of 3 numbers is 4;
The product is (-2) more;
Can they swim in that very cold goo?
Has lakes made of helium II

3. We were known by Dirac and Wigner
Asks you, “Is this Yea or Nay?”
But not knowing brings no stigma
With n’s, m’s, and 2’s

4. We can swim in zero gravity
The sum of their squares,
Has lakes made of helium II
But it hasn’t augmented my wages.

5. The famous open quantum system
Can they swim in that very cold goo?

6. The distant planet Gazoo
With n’s, m’s, and 2’s

Limerick formulas:

[3] + [2] + [1] = [0].

1. The famed mathematiker Riemann

2. The sum of 3 numbers is 4;
The product is (-2) more;
Can they swim in that very cold goo?

3. The side of the largest square in a cube of
length side = \sqrt{\frac{9}{8}}.

4. The side of the largest square in a cube of
length side = \sqrt{\frac{9}{8}}.

5. The distance planet Gazoo

6. The distant planet Gazoo

With n’s, m’s, and 2’s

It’s all in the spirit of fun, after all, and we hope our readers find these entries enter-
taining, challenging, and perhaps even useful in an educational fashion.

Thus the present generation suffers for the sins of the past, and we die because our an-
cestors dissipated their wealth in armies and
sins of the past, and we die because our an-
cestors dissipated their wealth in armies and

Range, continued from page 4

In a crude and uncritical manner to find it.

Thus the present generation suffers for the sins of the past, and we die because our an-
cestors dissipated their wealth in armies and
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cestors dissipated their wealth in armies and

For further information or questions, please contact Phil Schewe, (301) 209-3092.

Friedman, continued from page 4

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the physics community at large. The
American Physical Society has therefore
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bein. Simon Beekhuis of George Washington University speculates that the DNA in a biological organism serves a role comparable to a biological computer, where errors may develop. However, researchers have discovered that changing its color may lead to more efficient solar energy collection.

Other figures currently represented include Leonardo Da Vinci, Christopher Columbus, and Benjamin Franklin. A limited quantity of standard-sized Albert Einstein and Benjamin Franklin Brainy Babies will be offered for sale at the APS Centennial Meeting in Atlanta later this month. A few specific items include:

**APS Timeline Wall Chart: “A Century of Physics”**
A compilation of photographs and text highlighting major developments and contributions of physics throughout the 20th century, displayed on eleven 40”x20”. It will be distributed to high schools, junior colleges and universities, with a teachers’ guide, as a gift from the APS, and to science centers and libraries. Individuals may order copies at the Centennial Meeting and through the URL www.aps.org/timeline.

**Physics in the 20th Century**
A lavishly illustrated coffee-table book, published by Harry N. Abrams, Inc. The book is intended for the general public with text by the well-known Washington Post science writer Curt Suplee and over 200 illustrations. Physicists will enjoy it, as will scientists, historians, children, and friends and family. It will be available at the Centennial Meeting at a 40% reduced, pre-publication price of $29.95.

**More Things in Heaven and Earth**
A hard-bound book containing articles from the special issue of Reviews of Modern Physics commemorating the APS Centennial. Approximately 50 articles, written by leading physicists, range in length from short reviews to more extended discussions and include a section on historical perspectives, written by some of the people who helped create this special issue. A pre-publication special price of 40% off will be offered for APS members expires March 20, 1999.

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**Miscellaneous Merchandise**
A wide assortment of T-shirts, coffee mugs, buttons, and bumper stickers will be available for purchase at the Centennial Meeting, featuring various APS-related logos, as well as selected entertainment slogans suggested by our own members in last year’s slogan contest. [See APSNews, October 1998]

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Elbow Room at the APS Editorial Office

I n January, conferences rooms at the newly expanded APS Editorial Offices were named and dedicated to two of Physical Review’s most revered editors: Samuel Goudsmit (Managing Editor; 1951–1956; Editor-in-Chief 1956–1975) and Simon Pasternack (Assistant Editor; 1951–1976). Pasternack’s at-home, rustic safari, and his children, Irene, Eric, and Louise, were in attendance. Weather did not permit Goudsmit’s wife Esther to attend, but the event was videotaped for a poster display and mailed to the awardees. Goudsmit’s and Pasternack’s names are on the awards and plaques awarded to the authors of the most cited papers in Physical Review. Pasternack took over, he continued the planning and permitted-owning process. In the mean time, journal submissions continued to rise and quarters became so cramped at the Ridge office that in some of the halls it was necessary to turn sideways to pass a colleague. Staff people were seen to disappear under their desks to retrieve files. There was no conference space to speak of, and certainly nowhere large enough for the whole staff to meet at once. Morale suffered, but productivity did not, much to the staff’s credit.

Construction finally got underway in January 1998 (to see a photo of the construction, see APS News, July 1998, page 3), nearly ten years after the need to expand was first felt. Half-way through construction, the windows in Editor-in-Chief Martin Blume’s office were bricked over “I was uneasy working there with the door closed,” Blume says, “I entered in order to open it and find it too bricked over and myself entombed.” Nine short months later the office had doubled in size. In November, the staff had a holiday party in the new cafeteria, with plenty of room for the whole staff.

by 1990 space was tight again. In 1993 the covenant restricting further expansion of the building was lifted and the need for more space was clear, but a few months later another obstacle arose when the Ridge property was included in the newly established and environmentally sensitive “Pine Barrens” area. Working with an attorney, former Director of Editorial Office Services Cindy Rice was able to negotiate a one-time-only exemption to the ban on building expansion within the Pine Barrens. Since it opened in 1979, the building had been expanded 36%, staff had increased 144%, and advertising had increased 150%. Under the circumstances, it was felt that the maximum expansion should be undertaken, even if the additional space was not finished off or occupied immediately. When Rice relocated and pied Trewiger took over, he continued the planning and permitted-owning process. In the mean time, journal submissions continued to rise and quarters became so cramped at the Ridge office that in some of the halls it was necessary to turn sideways to pass a colleague.

American Physical Society

Surplus Culture Shock

by Michael S. Lubell, APS Director of Public Affairs

S uffice it said: It’s the Washington winter that Congress combats every year until the Ides of March. That’s why Beltway denizens yawned when Democrats issued dire warnings of a government shutdown, since two recessions propelled public tranquility with an impetus. To the cognoscenti it was just political hype. That’s not to say that everyone in Washington takes a two-month nap beginning January 1. Hill staffers meticulously draft bills for their horses to submit. And at the other end of Pennsylvania Avenue, moles with the green eye shades tiul away at the budget get the due first Monday in February.

But Congress really doesn’t get down to serious business until the scent of cherry blossoms fills the air. That’s why, away from the unrelenting squawking on tabloid television, you could hardly tell that the Senate was paralyzed by the trial of the century.

Still, impeachment creates an aura of surrealism in a city that places a premium on habitual behavior, however unconventional. Even by Washington standards, the House scene on January 19 was bizarre.

Here was the President delivering his State of the Union Address to a captive audience of accusers and jurors charged with determining whether he would be impeached and removed from the elected term. Should they punctuate his speech with applause when it was his due or scowl perpetually for the showing of the prowling cameras? It was a tough call.

Even the $1.8 trillion Federal Budget, which landed with a thud on the steps of the Capitol on February 1, couldn’t command top billing. It had to compete for prime-time coverage with conjectures about Monica Lewinsky’s video-taped deposition. Nary a mention of the 4.2 percent increase for basic research. And at the other end of the spectrum, the White House had tactfully abandoned its support of the ABM Treaty in favor of a National Missile Defense System. No headlines!

As the Senate lurched toward its impeachment finale, no one doubted the result. What would come afterward was anybody’s guess, particularly when it came to the problem of fiscal responsibility.

The knee-jerk GOP reaction to the President’s February 1 spending plan was decision. No news there. When the Democrats held sway on Capitol Hill, that’s how they responded to every Republican presidential budget.

But cut through the expected partisan rhetoric and you find politicians who are in culture shock. Weaned on decades of federal deficits, they must now confront an estimated surplus of $117 billion for FY 2000 and a staggering projection of $393 billion for FY 2001.

Despite its sturm und drang reputation, Washington is notorious for its inertia. Only six years ago the federal budget was $290 billion. On. Designing with that kind of swing is tougher than turning around the QZ.

So in response to President Clinton’s plan to fence off the six percent surplus for Social Security, congressional Republicans predictably called for across-the-board tax cuts and more defense spending, while liberal Democrats just as predictably advocated more money for social programs. But except for pay-as-you-go and an expected split of the balance to begin paying down the national debt or investing in Social Security, the Balanced Budget Agreement puts the surplus off limits.

The only way around the constraint is a new agreement. Here’s a suggestion: Why not reduce the federal tax on Social Security, $10 billion for defense, $10 billion for civilian programs, and $10 billion for the surplus, in the balance to begin paying down the debt. Pretty neat. All it requires is bipartisan action. And if the scientific community speaks out, research might even get a nifty boost. We’ll see.

Amendment to APS Bylaws: Dues Billing Date

More efficient handling of membership information by the APS has now made it possible to bill on the anniversary date of each membership rather than the January 1. For all members, this change came into effect the first of the month following receipt and processing of the application and dues, in accordance with the Procedures set by the Society.
Last March, APS News announced a PhD lineage contest in which entrants were asked to trace their professional “family tree” — i.e., the production of doctorate level physicists by their ancestors. We received many entries, often containing fascinating historical details, and were impressed at the considerable effort expended by some participants to trace their academic lineage. In many cases, the submissions included substantial, detailed commentary based on exhaustive research.

The further back in time our amateur genealogists went, the more blurred the lines between the disciplines became. Chemists, mathematicians, medical doctors, and apothecaries appear regularly prior to the 15th century, along with geologists, in various lignification concerns. Those APS members strongly rooted in chemistry had something of an unfavorable advantage, thanks to the “fork” one follows (depending on the “fork” one follows) and eventually as many as 22 “generations” (depending on one’s academic lineage. In many cases, the lineage dates back to Pelope who taught in the late 600s. Louis Grace of Livermore National Laboratory had 14 generations dating back to Lavoisier. George Snow of the University of Maryland deserves special mention for submitting the shortest possible lineage: his thesis advisor was Eugene Wigner — who died in the 1963 Cuban missile crisis. For mapping the structure of the atom and his nucleus — and Snow apparently felt no need to trace his heritage further.

Most “Nobel” Lineage

Several of those who submitted geneologies had the Nobel Laureate among their direct intellectual ancestry, making it difficult to choose a clear-cut winner, but we eventually decided on a tie. Martin Perl of Stanford University had a mere three generations in his lineage, but every one is a Nobel laureate: Isador Rabi, Perl himself, and Perl’s student, Samuel Ting. (This no doubt places considerable pressure on the generation of students under Ting’s mentorship to produce another Perl.)

The Winner’s Circle

One of Gerver’s more fascinating forebears was Guener Rolfincke, who received his MD from the University in 1625 and became a professor of anatomy, surgery and botany at the University of Jena. He is best known for building the first anatomical theatre there, giving congenial lectures on dissection using the bodies of recently executed criminals (a practice known locally as “Bulpicking” for a time). He was the first German to teach Harvey’s theory of blood circulation, and in institution building, “he wrote, which many accounts to his more numerous descendents. “And many of the discoveries that they did make, although not as dramatic as the discoveries of Newt, Maxwell, Einstein or Bohr, were necessary in order for the ‘big discoveries to be made.”

Most Cited Forebears

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The Further Back in Time our Amateur Genealogists went, the More Blurred the Lines Between the Disciplines Became. Chemists, Mathematicians, Medical Doctors, and Apothecaries appear Regularly Prior to the 15th Century, Along with Geologists, in Various Lignification Concerns. Those APS Members Strongly Rooted in Chemistry Had Something of an Unfavorable Advantage, Thanks to the “fork” One Follows (Depending on the “fork” One Follows) and Eventually as Many as 22 “Generations” (Depending on One’s Academic Lineage. In Many Cases, the Lineage Dates Back to Pelope Who Taught in the Late 600s. Louis Grace of Livermore National Laboratory Had 14 Generations Dating Back to Lavoisier. George Snow of the University of Maryland deserves Special Mention for Submitting the Shortest Possible Lineage: His Thesis Advisor was Eugene Wigner — Who Died in the 1963 Cuban Missile Crisis. For Mapping the Structure of the Atom and His Nucleus — and Snow Apparently Felt No Need to Trace His Heritage Further.

Most “Nobel” Lineage

Several of Those Who Submitted Geneologies Had the Nobel Laureate Among Their Direct Intellectual Ancestry, Making It Difficult to Choose a Clear-cut Winner, But We Eventually Decided on a Tie. Martin Perl of Stanford University Had a Mere Three Generations in His Lineage, But Every One Is a Nobel Laureate: Isador Rabi, Perl Himself, and Perl’s Student, Samuel Ting. (This No Doubt Places Considerable Pressure on the Generation of Students Under Ting’s Mentorship to Produce Another Perl.)

Most Frequently Cited Forebears

Most cited forebears: J. Thomson and Ernest B. Rutherford

Most Cited Forebears

Our Most Cited forebears were J. Thomson and Ernest B. Rutherford.

The Winner’s Circle

Early Ancestry: Earliest Date/Fewest Generations: Michael Gerver, MIT

Earliest U.S. Ancestry: Earliest Ancestry:

Earliest Forebears (tie):

Earliest National Lab

Earliest Lineage:

Earliest Dates:

Most Generations:

Most Cited:

Most Cited Forebears

Most Cited Forebears:

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The Back Page is intended as a forum to foster discussion on topics of interest to the scientific community. Opinions expressed are not necessarily those of the APS, its elected officers, or staff. APS News welcomes and encourages letters and submissions from its members responding to these and other issues. Responses may be sent to: letters@aps.org.