

Caltech 336

T E S S M T W T F S S M T W

The campus community biweekly
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Caltech receives \$2.2 million for diversity

Robert Tindol

The James Irvine Foundation has awarded Caltech \$2.2 million to support and expand the campus's diversity programs over the next three years.

The funding is earmarked for several goals and objectives, including increasing the number of underrepresented students at Caltech; supporting minority students in the sciences, math, and engineering; enhancing precollege and college-level science initiatives; and increasing the awareness of diversity issues within the Caltech community.

Caltech president David Baltimore said the funding would allow the Institute to make more rapid progress in the important areas of campus diversity and minority access.

"This generous grant will help us do much more to assure that Caltech attracts and retains underrepresented minority students," Baltimore said. "With the long-time support of the James Irvine Foundation, we have launched and maintained an array of initiatives for broadening our diversity, and this new award will allow us to continue. Caltech is committed to providing its unique brand of education to an increasing number of underrepresented minority students."

The award will be apportioned to 11 budgeted areas: graduate fellowships; the Irvine Postdoctoral Fellows Program; outreach; the High Achievement for Undergraduates Program; the Minority Undergraduate Research Fellows Pro-

See Diversity, page 6

The great basketball encounter

David Baltimore

I had great fun on Friday evening, January 5. I joined many faculty, administrators, and students in cheering on our women's basketball team as they played a more skilled MIT team. Although a long-time MIT denizen, I had no difficulty with my allegiance: three-plus years at Caltech have made me a total convert to the culture of smallness and focus. But this game came at a time when I'm involved in a debate over the shape of college athletics—and it was a telling experience.

Each Caltech score, down to the last, elicited an excited response from the gathered multitude (MIT, being far away, had just a handful of supporters). In spite of the generally 2:1 scoring ratio that MIT maintained from the start, few Tech fans left or reduced their commitment to the

See Athletics, page 6



From humble weed to heavy hitter

Robert Tindol

Whether or not a mustard seed really can move mountains, a poorer cousin of mustard named *Arabidopsis* has recently been certified one of the heavy lifters of 21st-century biology.

With the recent announcement that the international effort to sequence the *Arabidopsis* genome has been completed, plant biologists now have a powerful tool that's a triumph for biology as well as world agriculture, says Caltech plant geneticist Elliot Meyerowitz.

"Anything you learn in *Arabidopsis* is easily applied to crop plants," says Meyerowitz, in whose lab the first cloning and sequencing of an *Arabidopsis* gene took place. "With knowledge from the genome sequencing, you might be able to make crops more resistant to disease and other plant problems. Fifty percent of all pre- and postharvest losses are due to pests, so if you could solve these problems, you could double the efficiency of world agriculture."

Arabidopsis is a nondescript weed of the mustard family with small green leaves, tiny white flowers, and no commercial, medicinal, decorative, or other practical uses. But for geneticists, it's a powerhouse: it's small and requires little lab space; its genes are easy to clone and sequence; and it produces plenty of seeds quickly so that future generations can be studied. And now, *Arabidopsis* is the only plant species whose genome has been totally sequenced.

"*Arabidopsis* took off in the 1980s after it was demonstrated it has a very small genome, which makes it easier to clone genes," says Meyerowitz, a longtime adviser to the international *Arabidopsis* genome project. "One reason it was chosen was because it doesn't have that much DNA. *Arabidopsis* has about 125 million base pairs in the entire genome—and that's 20 times smaller than the human genome, and thus about 20 times less expensive to sequence."

The sequencing of the plant genome was originally proposed in 1994 for a 2004

See Arabidopsis, page 6

A bird's-eye view of the Broad Center



Construction on the future Broad Center for the Biological Sciences is progressing smoothly. This shot of the site, near the corner of Wilson Avenue and Del Mar Boulevard, was taken recently from a helicopter hovering overhead.

The return of Einstein

He's back! Albert Einstein—at least in the form of his literary remains—has returned to campus.

Since August, Caltech has been home to the Einstein Papers Project, a joint venture with the Hebrew University of Jerusalem and Princeton University Press to publish the 29 volumes of *The Collected Papers of Albert Einstein*.

Although the abundance of photos of the great physicist on campus leaves the impression that he was a Caltech faculty member, he wasn't. After his third sojourn as a visiting scientist in 1933, Einstein moved permanently—to Princeton.

Why Princeton? Why not just stay at Caltech, where he found the science exciting? In her 1991 book, *Millikan's School*, Caltech archivist Judith Goodstein lays the failure to catch Einstein at Robert Millikan's parsimonious feet. A trustee had offered Einstein \$20,000 for a 10-week stay, but Millikan was able to whittle it down to \$7,000, because Mrs. Einstein was eager to spend the winter in Southern California. "The penny-pinching Millikan had saved Caltech a tidy sum of money, and coincidentally lost a permanent faculty member," writes Goodstein.

Other accounts claim that Einstein wasn't concerned about his own salary, but anxious about a position for his assistant, Walther Mayer, which Princeton offered and Caltech didn't. Could Millikan

have tried harder? Probably.

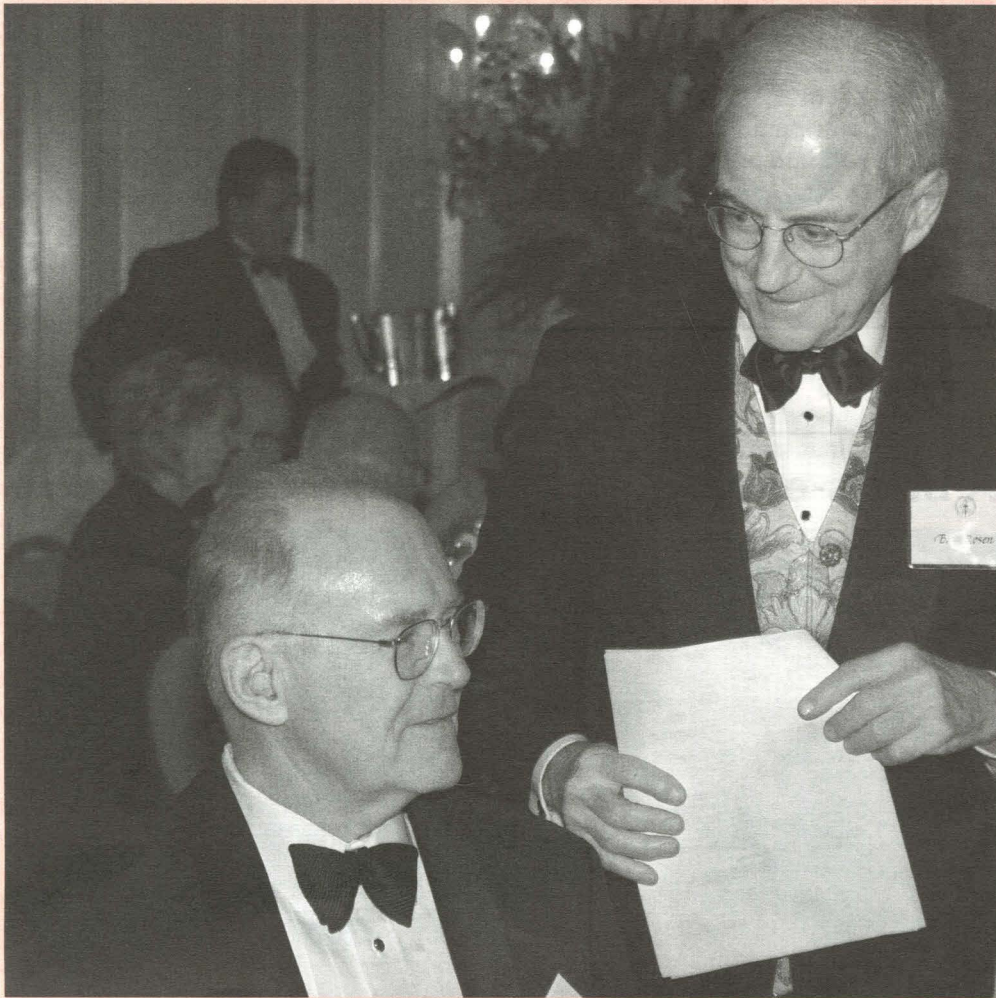
Now, nearly 70 years later, and 45 years after Einstein's death, Caltech has another chance to do the right thing, by supporting the Einstein Papers Project. And Caltech and Princeton are again linked over Einstein, but in cooperation, not competition. The Einstein Papers Project is researching, selecting, editing, and annotating the collected papers, containing 14,000 documents—the most ambitious publishing venture in the history of 20th-century science, according to Associate Professor of History Diana Kormos Barkan.

Barkan, a historian of science and a Caltech faculty member since 1989, was appointed director and general editor of the Einstein project last spring. In August, the papers (they're copies—the originals are in Jerusalem) moved to their new home in Pasadena from Boston University, the previous editor's academic base.

Caltech warmly embraced the idea of the Institute's housing the project, as did Princeton University Press, which will continue to publish the volumes. In fact, President David Baltimore and Provost Steve Koonin greeted the prospect of housing the Einstein papers with more enthusiasm than Millikan had once proffered to the man himself. "Einstein had a very visible and productive relationship with this institution in the '30s," says Koonin. "It's excit-

See Einstein, page 6

NewsBriefs



Gordon Moore, left, chats it up with Ben Rosen at the January 8 dinner honoring Moore's years of service to Caltech. Moore recently stepped down as chairman of the board of trustees, passing the job on to Rosen.

Personals

Mary Edwardsen has been appointed Caltech's new associate director of foundation relations, effective January 16. With more than 20 years of experience in higher-education administration, publishing, and development, she most recently served as director of stewardship and research at Pitzer College while teaching philosophy at Cal Poly Pomona. She received her BA from Hanover College and her PhD in the philosophy of religion from Union Theological Seminary, New York.

Sheryl Gorchow-Stuart joined Caltech on November 1 as director of foundation relations. She most recently had served as a consultant in Caltech's foundation relations office, and prior to that had been director of advancement communications at Pitzer College, where she also served as associate director of development and director of foundation and corporate relations. All told, she brings to Caltech more than 11 years of fund-raising experience in various senior management positions. She received a BA in philosophy from Havorford College and an MA from the University of Missouri-Columbia, where she was a science journalism fellow.

Michael Hondorp has been appointed Caltech's assistant director for compliance services, effective January 16; he will help ensure the continuing compliance of both the campus and JPL with laws, regulations, and contract/grant provisions. With 30 years of accounting and auditing experience, he has spent the last 20 years managing the audit department of the Metropolitan Water District of Southern California. He holds a bachelor's degree in business administration from Western Michigan University, is a licensed CPA in both California and Michigan, and has held the designation of Certified Financial Planner since 1988.

Honors and awards

Seymour Benzer, Boswell Professor of Neuroscience, Emeritus, has received the International Prize for Biology. Awarded annually since 1985 by the Committee on the International Prize for Biology "in commemoration of the sixty-year reign of Emperor Showa and his longtime devotion to biological research," the prize was presented to Benzer on November 26 at the Japan Academy, in the presence of the emperor and empress. Past Caltech winners are professors Mark Konishi and Elliot Meyerowitz.

Wallace Sargent, Bowen Professor of Astronomy, has been awarded the Henry Norris Russell Lectureship for 2001 by the American Astronomical Society. The lectureship is the society's "most prestigious prize and is awarded annually to recognize a lifetime of preeminence in astronomical research." The 2001 lectureship was awarded to Sargent for his contributions to astronomical spectroscopy.

Peter Wyllie, professor of geology, emeritus, has been selected by the Mineralogical Society of America as the Roebling Medalist for 2001. The Roebling Medal is the society's highest award "for scientific eminence as represented primarily by scientific publication of outstanding original research in mineralogy." The only other Caltech faculty member to have received this medal was Linus Pauling, in 1967.

Caltech student to receive British Marshall Scholarship
Caltech student-body president **Eric Tuttle** has been named one of 40 American students chosen to receive the prestigious Marshall Scholarship. The scholarships provide approximately \$50,000 over two years, allowing American students who have demonstrated academic excellence and leadership potential to continue their studies at a British university.

An applied physics major, Tuttle plans to study computational neuroscience at the University of London. His particular research interest lies in machine learning, or getting computers to function like the human brain. Tuttle is also a member of the Caltech fencing team and volunteers regularly in community work.

The Marshall scholarships were established in 1953 by the British government as a gesture of thanks to the United States for the assistance received after World War II under the Marshall Plan. Former Marshall scholars include U.S. Supreme Court Justice Stephen Breyer; U.S. Secretary of the Interior Bruce Babbitt; Ray Dolby, founder of Dolby Laboratories; and Kathleen Sullivan, dean of Stanford Law School.

Ell speaks on state of the city
Caltech treasurer and chief investment officer **Sandra Ell** was picked by Pasadena mayor Bill Bogaard to deliver introductory remarks at the annual State of the City address on January 18. "I was delighted and honored to do it because I think Bill and the council are doing a great job, and I'm very proud of the city," she said. Ell delivered her comments to a standing-room-only audience of several hundred at the Norton Simon Museum's theater. A Pasadena native and longtime friend of the mayor, Ell spoke about what makes Pasadena such a special place to live.

Media minute

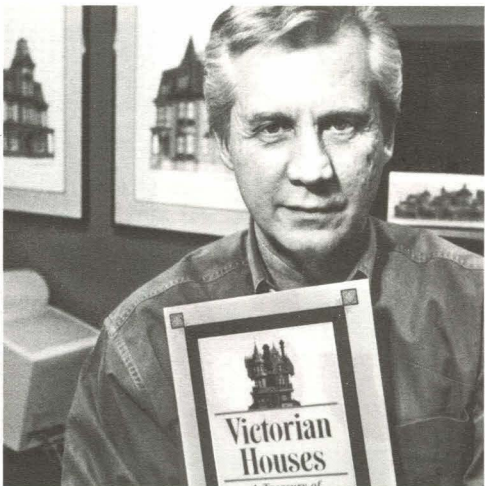
Gordon Moore forms foundation
Caltech trustee **Gordon Moore** '54, chair emeritus and cofounder of Intel Corporation, was the subject of a Q & A interview that appeared in the *Los Angeles Times* science section on January 15. Moore was recently feted for the six years he served as chair of Caltech's board of trustees. In the interview, he announced that he is forming a foundation to be financed by his sizeable holdings in Intel stock, estimated to be worth \$5 billion. The foundation will concentrate on higher education, scientific research, and environmental concerns. "What has to be changed is getting more kids interested in technical careers," Moore said, citing the recent dip in students pursuing electrical engineering. "A lot of [students] are going to schools [that] don't emphasize the fundamentals required to start on a technical career."

Caltech women, MIT shoot hoops
The *Los Angeles Times* reported on January 12 on the first-ever face-off between women's basketball teams from Caltech and MIT. Caltech's NCAA Division III women's basketball team is composed of members who are future physicists and planetary scientists first, basketball enthusiasts second. It has to be that way, mainly because the team can squeeze only two hours of practice out of every afternoon. Then it's back to the books. "There's no carrot of professional athletics. They're playing because of the love of the sport," said **Tim Downes**, Caltech's athletics director. MIT managed to squeak by with a score of 80 to 46, laying the foundation for an athletic rivalry between the two teams. (For a related article by President David Baltimore, see page 1.)

State funds earmarked for quake mapping network
A system that pinpoints where earthquakes may cause major damage in California got a promise for continued funding from Governor Gray Davis, the *Los Angeles Times* reported on January 11. The TriNet system tracks seismic activity throughout Southern California minutes after a temblor and provides "shake maps" that show where there may be considerable damage. TriNet will receive nearly \$7 million to maintain and expand the system, which will include 670 stations scattered across the state when completed by the end of the year. "This will allow us to fully implement and maintain real-time statewide earthquake monitoring and information," said **Egill Hauksson**, a Caltech seismologist and one of the originators of the system. TriNet shake maps, which are used by rescue teams, are now available as quickly as 15 minutes following a destructive quake.

Caltech center teaches basics of customer satisfaction
The January 8 issue of the *Pasadena Star-News* showed how Caltech's Industrial Relations Center helps developing companies measure how happy their customers are. "Measuring Customer Satisfaction" is a two-day program that teaches start-up tech firms to determine their customers' satisfaction levels in order to improve overall company effectiveness. "This program is for those people who are looking for aggressive new tools to manage their business," said Michael Spendolini, a management consulting specialist who conducts the program up to four times a year. Since 1998, he has shared his insights with 350 business professionals who have visited the Industrial Relations Center.

Northridge quake anniversary
Professor of Geology and Geophysics **Joann Stock** was interviewed for a news story about earthquakes for the Telemundo network, which airs locally on KVEA, channel 52. The interview was broadcast internationally the week of the seventh anniversary of the Northridge earthquake.



Drawing full houses

For a number of years now, Dave Spellman's work has been drawing full houses—in every sense of the word. A graduate of UCLA in technical theater/design, Spellman started working for Caltech's Office of Public Events in 1970 as a scenic artist and lighting designer, and is currently the stage manager for Beckman and Ramo auditoriums. In this capacity, he faces the challenge of coordinating all technical stage activities before, during, and after events, often putting in long evenings on top of his usual hours. But in the end, Spellman's efforts enable OPE to produce major theatrical performances—in venues originally designed only for lectures—that draw crowds from all over Southern California. And when the lights finally go out for the night, he returns to his other passion: drawing Victorian houses in intricate detail. When he was about eight years old, Spellman recalls, he began using the family typewriter—"and quite a few of the family postage stamps, now that I think about it"—to request guidebooks from historic houses in the United States and Europe.

"Of all the various types of architecture I was introduced to, the Victorian style captured my attention more than any other, because of the many adventurous and romantic design elements," he says. "I've been drawing houses ever since." That lifelong interest, together with his artistic bent, recently culminated in the publication of Spellman's first book. *Victorian Houses: A Treasury of 100 Original Designs* is a collection of elevation line drawings that includes examples in the Italianate, Romanesque, Second Empire, and Queen Anne styles. He says, "The idea of a collection of drawings in a single volume seemed like it could be a useful tool for preservationists and others who might have an interest in Victorian buildings."

Spellman's illustrations had previously appeared in architectural publications, magazines, and books, most notably on the cover of *Sustainable Cities: Concepts and Strategies for Eco-City Development*. Because he wasn't a known author, however, he was hard-pressed to find a willing publisher for the book, and so decided to publish it himself.

He rendered the illustrations over the course of a year, culling bits and pieces from his many photos to create new designs. (Each drawing takes him a minimum of three days, "pushing it.") He then set up his own publishing company, Hill House (www.hillhousepublishing.com) because, he says, "you have to have a 'publisher' in order to have any credibility with bookstores, even though Hill House is just me."

The book came out in September, and is now carried by the Caltech Bookstore, as well as bookstores in San Francisco, Atlanta, Washington, D.C., and Chicago and, "of course, on Amazon.com."

Having financed the book entirely out
see Spellman, page 6

January 29–February 4, 2001

M T W T F S S

Events in roman type are open to the public
Events in italic type are open to the Caltech community only

Monday, January 29

- Aeronautics Seminar**
101 Guggenheim Laboratory, 1 p.m.—
Topic to be announced. Garry Lyles,
manager, Advanced Space Transportation
Program, NASA's Marshall Space Flight
Center.
- Computation and Neural Systems
Seminar**
24 Beckman Labs, 4 p.m.—“Cellular
Mechanisms Underlying Response
Variability, Precision, and Synchroniza-
tion in the Visual Cortex,” Professor
Charles M. Gray, Center for Computa-
tional Biology, Montana State University,
Bozeman.
- Geological and Planetary Sciences
Seminar**
155 Arms, Robert Sharp Lecture Hall,
4 p.m.—The Geological Society of
America Birdsall-Dreiss Lecture in
Hydrogeology: “The Permeability of the
Continental Crust,” Dr. Steve Ingebritsen,
U.S. Geological Survey, Menlo Park.
Refreshments, 151 Arms, 3:45 p.m.
- Neurobiology Seminar**
119 Kerckhoff, 4 p.m.—“The Regulation
and Evolution of Sodium Channels:
Lessons from Electric Fish,” Harold
Zakon, professor and chair, Section of
Neurobiology, University of Texas, Austin.
- Solid State Sciences Seminar Series
(S⁵)**
102 Steele, 4 p.m.—“Single Molecule
Detection,” Dr. Richard Keller, Los
Alamos National Laboratory. Refresh-
ments, Watson foyer, 3:45 p.m. Informa-
tion: www.its.caltech.edu/~s5.
- Applied Mathematics and
Computational Mathematics
Colloquium**
306 Firestone, 4:15 p.m.—“Numerical
Simulation of Reaction Diffusion Sys-
tems,” M. Ganesh, associate professor
of mathematics, University of New
South Wales, Australia. Refreshments,
204 Firestone, 3:45 p.m.

Tuesday, January 30

- Caltech Library System Presents**
Sherman Fairchild Library, multimedia
conference room, noon to 1:30 p.m.—
“Biological Information Resources.” Learn
how to make the most of biology and
chemistry information tools and services
provided by the Caltech Library System.
Registration: [http://library.caltech.edu/
learning/form.htm](http://library.caltech.edu/learning/form.htm).
- Carnegie Observatories Colloquium
Series**
William T. Golden Auditorium,
813 Santa Barbara Street, 4 p.m.—
“Galactic Evolution of Oxygen,” Dr.
Suchitra Balachandran, University of
Maryland. Information: 577-1122.
- Chemical Physics Seminar**
147 Noyes, Sturdivant Lecture Hall,
4 p.m.—“The Jahn-Teller Effect and
Conical Intersections in Isolated Mol-
ecules: An Old Problem with New
Results and Relevance,” Terry A. Miller,
professor of physical chemistry, Ohio
State University.
- Computation and Neural Systems
Seminar**
24 Beckman Labs, 4 p.m.—“Structuring
Network Computations: Interactions
between Hippocampal and Neocortical
Circuits and Their Role in Memory
Formation,” Dr. Thanos Siapas, Center
for Learning and Memory, MIT. Refresh-
ments.
- William Bennett Munro Memorial
Seminar**
Baxter Lecture Hall, 4 p.m.—“Political
Hope in the Space Age: Finding the
Future from the Margins,” De Witt
Douglas Kilgore, assistant professor of
English and American studies, Indiana
University, Bloomington. Presented in
conjunction with “The Future of the
Universe” Science Fiction Film Festival.
Refreshments. Information: 395-4220 or
sjc@hss.caltech.edu.

Wednesday, January 31

- Leonidas Alaoglu Memorial Lecture**
22 Gates, 4:15 p.m.—“Solitons Symmetry
and Fullerenes,” Sir Michael Atiyah,
Honorary Professor, University of
Edinburgh.
- Astronomy Colloquium**
155 Arms, Robert Sharp Lecture Hall,
4 p.m.—“The Magellan Telescopes,”
Steve Sheckman, Carnegie Observatories.
- Geology Club Seminar**
151 Arms, Buwalda Room, 4 p.m.—“Deep
Earthquakes and Deep Rocks: Monitors of
Mineral Reactions in Subduction Zones,”
Harry Green II, professor and vice chan-
cellor for research, UC Riverside.

Thursday, February 1

- Physics Research Conference**
201 E. Bridge, 4 p.m.—“The Future
of Gravity,” James B. Hartle, professor
of physics, UC Santa Barbara. Refresh-
ments, 110 East Bridge, 3:45 p.m.
- Science, Ethics, and Public Policy
Seminar**
25 Baxter, 4 p.m.—“The Slow Start of
Molecular Biology in Post-World War II
Germany: The Impact of the National
Socialist Science Policy,” Dr. Ute
Deichmann, Genetics Institute, University
of Cologne, Germany. Refreshments.

Friday, February 2

- Fluid Mechanics Film Series**
306 Firestone, 1 p.m.—“Fundamentals of
Boundary Layers,” prepared by Frederick
Abernathy, professor of engineering and
mechanical engineering, Harvard. Infor-
mation: [www.poisson.caltech.edu/fluids/
FMfilms.html](http://www.poisson.caltech.edu/fluids/FMfilms.html).
- Fluid Mechanics Seminar**
101 Guggenheim Laboratory, 3 p.m.—
“Combustion Kinetics of Laminar Hydro-
carbon Flames,” Hai Wang, assistant
professor, department of mechanical
engineering, University of Delaware.
- Biomedical Engineering 0.1 Seminar
Series**
Baxter Lecture Hall, 4 p.m.—“NASA Life
Sciences Research in Bioengineering,”
Darrell Jan, Biomedical and Environ-
mental Technologies, JPL. Information:
395-6320 or [www.cco.caltech.edu/
~koonin/0_1seminars.html](http://www.cco.caltech.edu/~koonin/0_1seminars.html).
- Inorganic-Organometallics Seminar**
151 Crellin, 4 p.m.—“Probing the Active
Site of Amine Oxidase Using Channel-
Specific Wires,” Corinna Hess, graduate
student in chemistry, Caltech.

February 5–11, 2001

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Monday, February 5

Aeronautics Seminar
101 Guggenheim Laboratory, 1 p.m.—
“Aircraft Ground Handling,” Dave Klyd,
Systems Technologies Inc.

Geological and Planetary Sciences
155 Arms, Robert Sharp Lecture Hall,
2 p.m.—“The Precambrian–Cambrian
Transition: New Insights from Microbial
Mats, Soft-Bodied Fossils, and CAT-
scans,” Whitey Hagadorn, postdoctoral
scholar in geology. Refreshments,
151 Arms, 1:45 p.m.

Tuesday, February 6

Thesis Seminar
106 Spalding Lab, Hartley Memorial
Seminar Room, 9 a.m.—“Synthesis and
Characterization of Aerosol Silicon
Nanoparticle Nonvolatile Floating Gate
Memory Devices,” Michele L. Ostraat,
graduate student in chemical engineer-
ing, Caltech.

Caltech Library Presents
Sherman Fairchild Library, noon to
1:30 p.m.—“Introduction to Endnote 4.0
Citation Management Software.” Learn
how to build a database, search a data-
base, and build a bibliography using
Endnote version 4.0. Advanced tech-
niques can also be covered if requested
in advance. Registration: [http://
library.caltech.edu/learning/form.htm](http://library.caltech.edu/learning/form.htm).

Carnegie Observatories Colloquium
William T. Golden Auditorium, 813 Santa
Barbara Street, 4 p.m.—“Asymptotic
Giant Branch Stars: Constraining the
Stellar Mass, Heavy Element Production,
and Mass Loss,” Dr. Maurizio Busso,
Astronomical Observatory of Turin, Italy.
Information: 577-1122.

**W. N. Lacey Lectureship in Chemical
Engineering**
106 Spalding Lab, Hartley Memorial
Seminar Room, 4 p.m.—“Can the Appli-
cation of Biochemical Engineering to
Toxicology Provide Better Tools for Risk
Assessment?”, Michael L. Shuler, Samuel
B. Eckert Professor of Chemical Engineer-
ing, with a joint appointment at the Insti-
tute of Food Science; member, graduate
field of microbiology; director of the
bioengineering program and of chemical
engineering, Cornell University. Refresh-
ments, 3:30 p.m., 113 Spalding Lab.

Wednesday, February 7

Astronomy Colloquium
155 Arms, Robert Sharp Lecture Hall,
4 p.m.—Topic to be announced. Tsvi
Piran, Racah Institute of Physics, Hebrew
University, Jerusalem.

**Environmental Engineering Science
and Global Environmental Science
Seminar**
142 Keck, 3:45 to 5 p.m.—“Glacial and
Deglacial Ocean-Atmosphere Radiocar-
bon Age Differences in the New Zealand
Region of the Southwest Pacific,” Dr.
Elisabeth L. Sikes, lecturer in marine
geology, University of Auckland.
Refreshments.

Geology Club Seminar
151 Arms, Buwalda Room, 4 p.m.—“New
Insights into *Gryphaea*, a Model System
in Evolutionary Paleobiology,” Dr. Carol
M. Tang, Arizona State University.

Organic Chemistry Seminar
147 Noyes, Sturdivant Lecture Hall,
4 p.m.—“Nucleophilic Reactivity at
Carbonyl Groups: From the Gas Phase
and Towards Solution,” Christopher M.
Hadad, assistant professor of chemistry,
Ohio State University.

Thursday, February 8

General Biology Seminar
119 Kerckhoff, 4 p.m.—“Regulation of
Developmental Timing and Decrepitude
by Tiny RNAs and Insulin Signaling in
C. elegans and Beyond,” Gary Ruvkun,
department of molecular biology, Massa-
chusetts General Hospital.

**W. N. Lacey Lectureship in Chemical
Engineering**
106 Spalding Lab, Hartley Memorial
Seminar Room, 4 p.m.—“Genomics: An
Opportunity for Engineers,” Michael L.
Shuler, Samuel B. Eckert Professor of
Chemical Engineering, with a joint
appointment at the Institute of Food
Science; member, graduate field of
microbiology; director of the bioengi-
neering program and of chemical engi-
neering, Cornell University. Refresh-
ments, 3:30 p.m., 113 Spalding Lab.

Friday, February 9

Fluid Mechanics Film Series
306 Firestone, 1 p.m.—“Secondary Flow,”
prepared by Professor E. S. Taylor, MIT.
Information: [www.poisson.caltech.edu/
fluids/FMfilms.html](http://www.poisson.caltech.edu/fluids/FMfilms.html).

Fluid Mechanics Seminar
101 Guggenheim Laboratory, 3 p.m.—
“Polymer Fluid Mechanics at the Molecu-
lar Level,” Professor Ronald G. Larson,
department of chemical engineering,
University of Michigan.

**Biomedical Engineering 0.1 Seminar
Series**
Baxter Lecture Hall, 4 p.m.—“Clinical
Problems Related to the Spine: New
Ideas and Futuristic Concepts of Spinal
Instrumentation,” William L. Caton,
Huntington Hospital. Information:
395-6320 or [www.cco.caltech.edu/
~koonin/0_1seminars.html](http://www.cco.caltech.edu/~koonin/0_1seminars.html).

General Biology Seminar
119 Kerckhoff, 4 p.m.—“The Dreaming
Brain: New Neuropsychological Evi-
dence,” Allan Hobson, MD, department
of psychiatry, Harvard Medical School.

Galileo Meets Venus Seminar Series
24 Beckman Labs, 4:30 to 6:30 p.m.—
“Cezanne and Vision,” Thomas Crow,
director of research, Getty Center. Pre-
sented in collaboration with the Art
Center College of Design. Information:
395-4401, steve@hss.caltech.edu, or
[www.hss.caltech.edu/~steve/galileo_
meets_venus.htm](http://www.hss.caltech.edu/~steve/galileo_meets_venus.htm).

CampusEvents

Monday, January 29

- Badminton**
Brown Gymnasium, 9:30 a.m. to noon—Bring your own racket. Information: 355-6158.
- Baby Furniture and Household Equipment Pool**
234 S. Catalina, 10 a.m. to 1 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech community. Information: 584-9773.
- Ballroom Dance Club**
Winnett lounge, 7:30 to 9:30 p.m.—Beginning American cha-cha. Fourth of five weekly classes.
- Women’s Basketball (JV)**
vs. Claremont-Mudd-Scripps, 7:30 p.m.

Ballroom Mini Dance Party
Winnett lounge, 9 to 11 p.m.—Open dancing; make requests or bring your own music. Refreshments. No admission charge and no partner needed. Information: 791-3103, dtrask6@hotmail.com, or www.its.caltech.edu/~ballroom/index.html.

Tuesday, January 30

“The Future of the Universe” Science Fiction Film Festival
Baxter Lecture Hall, 7:30 p.m.—The movie *Things to Come*, followed by a panel discussion. Admission is free. Information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Wednesday, January 31

- Baby Furniture and Household Equipment Pool**
234 S. Catalina, 10 a.m. to 1 p.m.—Details: Monday, January 29.
- Ballroom Dance Club**
Winnett lounge, 7:30 to 9:30 p.m.—Beginning American fox-trot, professionally taught. Fourth of five weekly classes. Refreshments. Information: 791-3103 or www.its.caltech.edu/~ballroom/index.html.
- Men’s Basketball**
at Occidental College, 7:30 p.m.

Jazz Dance Class
Braun Athletic Center, aerobics room, 9 p.m.—A free jazz dance class for beginners, sponsored by the Caltech Dance Troupe. No special clothing or shoes are required. Open to all adult members of the Caltech community. Information: 395-2508 or troupe@caltech.edu.

Thursday, February 1

Caltech Y Black History Month Events
Throughout the month of February, the Y will celebrate the history and accomplishments of African Americans. Specific events will be announced on the @Caltech Calendar and at www.y.caltech.edu/calendar/.

Friday, February 2

- Badminton**
Brown Gymnasium, 9:30 a.m. to noon—Bring your own racket. Information: 355-6158.
- Baby Furniture and Household Equipment Pool**
234 S. Catalina, 10 a.m. to 1 p.m.— Details: Monday, January 29.
- Baseball**
vs. Simpson College, 11 a.m.
- Caltech Environmental Task Force**
Chandler Dining Hall, noon—Members of the Caltech community and interested public are welcome to discuss campus, community, and global environmental concerns. Look for the CETF sign on an outside table between Chandler and the Red Door.
- Women’s Basketball**
at American Indian College, 7:30 p.m.

Saturday, February 3

- Men’s and Women’s Track and Field**
Roadrunner Invitational, at Cal State Bakersfield, 9 a.m.
- Baseball**
vs. Patten College, doubleheader, 11 a.m.
- Men’s and Women’s Swimming**
vs. Occidental and Whittier, 11 a.m.
- Ballet Dance Class**
Braun Athletic Center, aerobics room, 1 to 4 p.m.—A free ballet class, sponsored by the Caltech Dance Troupe. Beginners: 1 to 2 p.m. Intermediate: 2 to 3 p.m. Advanced: 3 to 4 p.m. No special clothing or shoes are required for the beginners’ class. Open to all adult members of the Caltech community. Information: 395-2508 or troupe@caltech.edu.

- Women’s Basketball**
at Southwestern College, 2 p.m.
- The Gizmo Guys**
Beckman Auditorium, 2 p.m.—Renowned jugglers Allan Jacobs and Barrett Felker perform for children and their families as part of the Saturdays at 2 series. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Outdoor Art Installation
Caltech Outdoor Art Space, 5 to 7 p.m.—An opening reception for a sculptural installation by Los Angeles artist Eric Wesley, at the Caltech Outdoor Art Space, on Holliston Avenue behind the campus recycling center. The sculpture will be on view through March 31. Information: 395-6803 or mrrogers@caltech.edu, or dustin@mop.caltech.edu.

- Men’s Basketball**
vs. Pomona-Pitzer, 7:30 p.m.
- Ice Hockey Club**
vs. UCLA Bruins JV, at Health South Arena, El Segundo, 9:15 p.m. Information: 395-6176.

Sunday, February 4

Coleman Chamber Concert
Beckman Auditorium, 3:30 p.m.—The famed Juilliard String Quartet will perform Beethoven, Crawford-Seeger, and Mendelssohn. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Monday, February 5

- Badminton**
Brown Gymnasium, 9:30 a.m. to noon—Bring your own racket. Information: 355-6158.
- Baby Furniture and Household Equipment Pool**
234 S. Catalina, 10 a.m. to 1 p.m.— Details: Monday, January 29.
- Ballroom Dance Club**
Winnett lounge, 7:30 to 9:30 p.m.—Beginning American cha-cha. Last of five weekly classes.
- Ballroom Mini Dance Party**
Winnett lounge, 9 to 11 p.m.—Open dancing; make requests or bring your own music. Refreshments. No admission charge and no partner needed. Information: 791-3103, dtrask6@hotmail.com, or www.its.caltech.edu/~ballroom/index.html.

Tuesday, February 6

Women’s Basketball
vs. LIFE Bible, 7:30 p.m.

Wednesday, February 7

- Baby Furniture and Household Equipment Pool**
234 S. Catalina, 10 a.m. to 1 p.m.— Details: Monday, January 29.
- Ballroom Dance Club**
Winnett lounge, 7:30 to 9:30 p.m.—Beginning American fox-trot, professionally taught. Last of five weekly classes. Refreshments. Information: 791-3103 or www.its.caltech.edu/~ballroom/index.html.
- Men’s Basketball**
at Cal Lutheran, 7:30 p.m.

Jazz Dance Class
Braun Athletic Center, aerobics room, 9 p.m.—A free jazz dance class for beginners, sponsored by the Caltech Dance Troupe. No special clothing or shoes are required. Open to all adult members of the Caltech community. Information: 395-2508 or troupe@caltech.edu.

Friday, February 9

- Badminton**
Brown Gymnasium, 9:30 a.m. to noon—Bring your own racket. Information: 355-6158.
- Baby Furniture and Household Equipment Pool**
234 S. Catalina, 10 a.m. to 1 p.m.— Details: Monday, January 29.
- Men’s and Women’s SCIAM Diving Prelims**
at Cerritos Olympic Swim Center, 2 p.m.
- Baseball**
at Cal Lutheran, 2:30 p.m.
- Cyrano de Bergerac**
Beckman Auditorium, 8 p.m.—Aquila Theatre Company presents Rostand’s classic play. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Folk Music Society Presents Patrick Ball
Dabney Lounge, 8 p.m.—Ball is one of the finest Celtic harp players in the world and is also a captivating storyteller in the Celtic tradition. Admission is \$12 for adults and \$4 for children and Caltech students. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Saturday, February 10

- Men’s and Women’s Track and Field**
Whittier Invitational, at Whittier College, 9 a.m.
- Men’s and Women’s Fencing**
Dual meets at UC Santa Barbara, vs. UCLA, USC, UCSB, UC Irvine, 10 a.m.
- Baseball**
vs. Cal Lutheran, doubleheader, 11 a.m.
- Women’s Swimming**
at Mills College, 11 a.m.
- Ballet Dance Class**
Braun Athletic Center, aerobics room, 1 to 4 p.m.—A free ballet class, sponsored by the Caltech Dance Troupe. Beginners: 1 to 2 p.m. Intermediate: 2 to 3 p.m. Advanced: 3 to 4 p.m. No special clothing or shoes are required for the beginners’ class. Open to all adult members of the Caltech community. Information: 395-2508 or troupe@caltech.edu.
- Men’s Basketball**
at Whittier College, 7:30 p.m.

Sunday, February 11

- Men’s and Women’s Track and Field**
Whittier Invitational, at Whittier, 9 a.m.
- Men’s and Women’s Fencing**
Dual meets at UC Santa Barbara, vs. UCLA, USC, UCSB, UC Irvine, 10 a.m.
- Women’s Basketball**
vs. La Sierra University, 2 p.m.
- Paco A. Lagerstrom Chamber Music Concert**
Dabney Lounge, 3:30 p.m.—*Musical Offerings*, compositions of Enrique Gonzalez-Medina, performed by Felix Bullock, guitar; Daniel Pereira, violoncello; Gretchen Johnson, voice; John Michael Morgan, narration. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Athletics, from page 1

team. I assume that MIT, like Caltech, does not favor basketball players in their admissions, and that their superiority comes from the larger pool of more than 4,000 undergraduates from which they can draw. In fact, until recently I would have assumed that all educationally elite small schools admit only those they believe will excel academically. But that's not true.

I'm a graduate of Swarthmore College, a highly selective liberal arts college of 1,300 students. I attended school with a small percentage of students who were intercollegiate athletes, but I thought they had been accepted for their academic and personal qualities, not for athletic ability. Thus, I've been very surprised to discover that for many years Swarthmore has accepted part of its class with an eye to producing winning sports teams—not overtly with athletic scholarships, but with a heavy tilt in the admissions process.

Recently, the school found that the percentage to whom they needed to give preference had risen to 30%, and the board decided to cut some sports—most notably, football. This move has raised an outcry from alumni about the importance of football, of diversity in the student body, of honoring tradition. Very few voices have decried giving preference to students for their athletic skills.

The Swarthmore administration argued that giving athletic preference in admissions is justified if they are to field winning, or at least competitive, intercollegiate sports teams. And Swarthmore is not alone. Amherst, Williams, and other elite liberal arts colleges feel the same need to beef up teams with students who otherwise would not be accepted. These activities are chronicled in a January 7 *New York Times* article and in a new book, *The Game of Life: College Sports and Educational Values*, by James Shulman and William Bowen.

I asked Tim Downes, our athletics director, whether Caltech athletes were discouraged by losing as frequently as they do. He replied that, while everyone likes to win, the players were just happy to be in intercollegiate competition, and didn't need to win to feel it was a worthwhile activity. That certainly corresponds to what I saw in Braun on January 5. The team clearly knew they were being outplayed from the start, but their energy never flagged. It was a continual fight down to the final buzzer. And they had great moments when the passing and shooting really clicked. I hope and believe it is those moments that will live on in their memory, as they do in mine.

Caltech teams are populated by students who often didn't play competitively in high school, and who welcome the unexpected chance to play intercollegiate sports. Some students, I've heard, come

to Caltech partly because they know they can play on our teams without giving up their academic focus. Some even come knowing that, although they're not particularly athletic in their genetic endowment, they will still be competitive here. For all of these students, we're clearly doing things right.

So I'm sending this article to Al Bloom, president of Swarthmore, in the hope that he'll see what amateur athletics is really about—that is, the fun of the encounter, not the number of wins.

Arabidopsis, from page 1

completion, but experts later realized the project could be completed four years early—and under budget. "Everybody shared the cost, and everybody will share the benefits—all the information is in the public domain," Meyerowitz says. "Taxpayers got a big bargain."

As a consequence of evolution, all organisms on Earth share a huge number of genes. Thus, the information obtained from sequencing *Arabidopsis*, as well as from fruit flies and roundworms, will contribute to understanding how the genes of all living organisms are related. These underlying genetic interactions, in turn, will eventually lead to new treatments of human disease, as well as the genetic engineering of agricultural products.

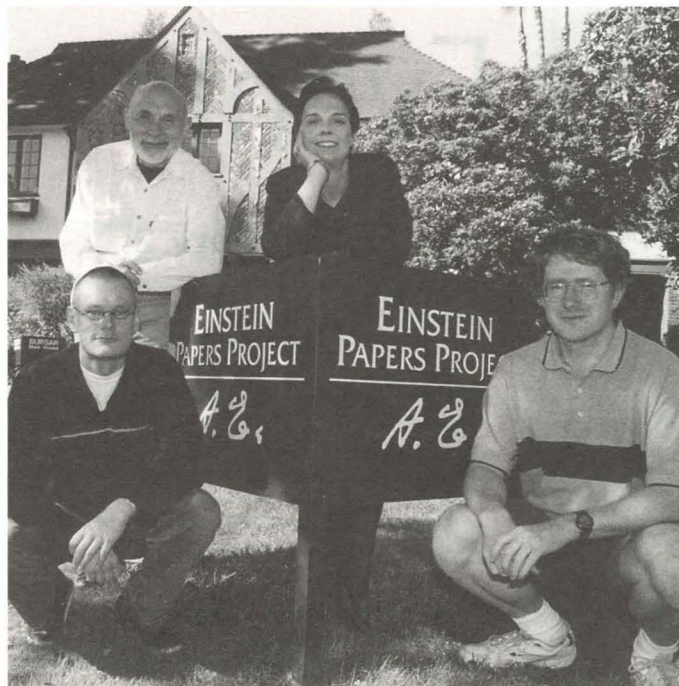
In addition to making crops more disease- and pest-resistant, genetic engineering could also help crops adapt to new environments, become more resistant to temperature changes, or use nutrients more efficiently.

Also, approximately one-fourth of all medicines were originally derived from plants, Meyerowitz says. With better understanding of the enzymes that create these pharmaceutical products, new drugs can be created, as well as existing ones improved.

Spellman, from page 2

of pocket, Spellman says the project has mainly been a labor of love. "It's the creative process that I enjoy most, and if I have to choose between a good business decision or a good artistic decision, I'll go with the artistic decision." Still, he hopes to turn enough of a profit to publish more books in the future.

A revised edition of *Victorian Houses*, including floor plans for each of the illustrations (that's about 400 more drawings) is planned, and he's also considering a book on castles, inspired by a recent trip to England. His other hope, he adds, is that "sales of the book might possibly allow me to reimburse my parents for some of those postage stamps I used back in the '50s!"



The Einstein Papers Project team, clockwise from bottom left: Christoph Lehner, Jozsef Illy, Diana Kormos Barkan, and Daniel Kennefick.

Einstein, from page 1

ing to have the papers here. In a sense, it's as if they've come home."

The papers are now settled in a house at 363 South Hill Avenue. Caltech will be providing additional support as well as space, although an endowment, consisting of grants from individuals and foundations, has supported the Einstein Papers Project from early on.

After Einstein's death in 1955, the cotrustees of his estate set about collecting all of his papers. Over the next 25 years they added substantially to the existing archives, including not only scientific papers but personal letters, other writings, and speeches on the philosophy of science, Zionism, pacifism, and other humanistic and social issues.

The 29 volumes, to be published in roughly chronological order, are divided into two cross-referenced series: correspondence and "writings," which includes everything else. They will fall into three periods: the Swiss years (1900–1914), the Berlin years (1914–1933), and the Princeton years (1933–1955). Seven volumes appeared during the project's Boston years, including Volume 8, out of order. Volume 7, *The Berlin Years: Writings, 1918–1921*, the first book to appear from Caltech, covers a particularly interesting period of Einstein's life; it includes notes and lectures on the general theory of relativity, as well as an account of the growing antirelativity movement among German scientists, and the increasing anti-Semitism in Berlin and elsewhere.

Although most of the papers are published in German, the annotations and editorial commentaries are in English, and Princeton University Press has been publishing companion volumes with English translations of all previously untranslated material. The Hill Avenue papers are only for project staff use, but a duplicate copy

of the collection will be available to researchers in the Caltech Archives. The campus community will also have the opportunity to attend seminars on Einsteinian themes throughout the year.

New members of the project staff include Christoph Lehner, senior assistant editor, who will also serve as a senior research fellow in the humanities at Caltech, and junior editor Daniel Kennefick, PhD '97, Caltech's first doctoral student in both physics and the history of science.

Caltech faculty members who will serve as advisors to the general editor include Judith Goodstein, university archivist and faculty associate in history; Christopher Hitchcock, associate professor of philosophy; Mac Pigman, professor of literature; and Robbie Vogt, Avery Distinguished Service Professor and professor of physics. Representing Caltech on the advisory board to Princeton University Press is Kip Thorne, Feynman Professor of Theoretical Physics.

Diversity, from page 1

gram; Minority Pipeline programs; the Precollege Science, Math, and Engineering programs; multicultural activities on campus, including lectures and community outreach; curriculum development; the President's Initiative Fund; and assessment and evaluation of existing programs.

The Irvine Foundation is dedicated to enhancing the social, economic, and physical quality of life throughout California, including the intellectual and cultural environment. The foundation's higher-education program seeks to encourage the full participation of California's ethnic minority and low-income populations in all levels of higher education.

Caltech 336

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