Feinstein? “Her class prejudice is obvious,” Nader? “He is the only one who ran against Bush.” Gray Davis? “What Davis has done is beyond disastrous.” And Schwarzenegger? “The man is just clueless!”

Meet Peter Camejo, proponent of peace, social justice and ecological harmony—as well as feisty gubernatorial contender in tomorrow’s special election. Unpacking his views before a student-packed Baxter crowd last Tuesday night on everything from the recall to California’s fiscal woes to foreign policy and national security, the MIT grad turned environmental crusader on a final-week campaign swing spoke out for the party he views as most in tune with “living social movements”—his very own Green Party.

“Right now, transfer of wealth controls the process,” he said. “Politics needs to be based on one person, one vote.” The Green Party, in contrast, “is not just an ecological party; we’re a social justice party; we’re a peace party. We’re a true reflection of living social movements.”

Spinning varied commentary on a full spectrum of American politicians, Camejo extrapolated these traditional Green themes—peace, social justice, economic liberty, ecological conscience—in an effort to craft and carefully defend his hodgepodge political philosophy. He’s left-of-center, to be sure, but somewhere between calling for Davis’s ouster and dubbing Schwarzenegger a “dangerous menace,” you’ll find a good old-fashioned nip of independence percolating in this proud-to-be-an-activist Green.

Following a brief foreword by organizer and ASCI Vice Presi-
Continued on Page 2, Column 1

Problems Hinder Search for Unified Theory; Hawking Now Suspicious

By A. AM SEARS

Cambridge physicist Stephen Hawking, famed for his popular introductory textbooks to cosmology and his work on black holes, gave a public lecture to packed house Friday evening at the Beckman Auditorium. He discussed the direction that physics must take in the 20th century and beyond. In particular, he addressed the problems that puzzled physicists trying to find an ultimate theory of the universe.

The ultimate theory scientists are searching for is one that would allow complete prediction of the future. “The backtracking through the past, given enough information about the present. This is no longer as easy as it may once have seemed.” Modern developments have told us that, while the detailed position and speed of every object is not enough to forecast the future, and that it is even impossible to know these two factors perfectly.

So, instead of these simple parameters, a different indicator called the wave function is necessary. Furthermore, this is all well and good, until you throw gravity into the mix. Though a necessary consideration in any “final theory,” scientists are unable to solve equations involving quantum gravity in the normal fashion. The situation may even have been soon swallowed up by the more general string theory, and finally interpreted as the “mathematical” M Theory.

According to Hawking, M Theory “is a collection of theories, that looks very different, but which describe the same physical situation.” None are completely general—although not need different assumptions to be valid.

In the second half of his talk, Hawking tried to be the incompleteness of mathematics to the unavoidable insufficiency of physics. Just as Gödel showed that no small set of laws could prove everything in mathematics, Hawking showed that no small set of laws could prove everything in physics.

Continued on Page 3, Column 1

Power Plant Upgraded, Biology Labs Renovated

By MATTHEW WALKER

The past summer brought the completion of a number of renovations here at Caltech.

The largest and most impacting project to be finished was the $11 million cogeneration plant on campus. Built after the November 2, 2002 shutdown of the old 5.4 megawatt plant, installation on the new 12.5 MW system was completed August 2 of this year. Though the system is producing energy for the Caltech campus, it is not yet running at full capacity as tests on it are completed.

Built by Solar Turbines in San Diego, a subsidiary of Caterpillar, the gas turbine works in conjunction with a steam turbine and an extensive heat recovery steam generator to make Caltech’s cogeneration plant, according to director of campus operations Reza Obedi, “the most efficient design in the nation.” Boosting a thermal efficiency of over 85%, the system will save Caltech $30,000 in avoided costs per day that the plant is in operation, which will be 360 days per year, leaving the extra days for repairs and maintenance.

These savings will help Caltech recover its costs from the project in less than five years and reflect the reason Caltech embarked on this project: to save money. The heat from the gas turbine is converted to steam (the system produces 46,000 lbs/hr. at 300 psig), which is used to power a steam turbine. Leftover steam from this process is used to heat campus.

A benefit of this system is that Caltech no longer has to run boilers for heat for campus, adding to the efficiency of the plant. A water heater for the swimming pool is also built into the heat recovery system. From the gas turbine, to the venting stack, the heated air is reduced from over 1000 degrees F to around 330 degrees F.

An added bonus is that the system, despite being twice the size of the old system, will produce emissions by 66%. There are a series of built-in emission reducing systems that have been installed, including a Selective Catalytic Reduction (SCR) component reduces NOx emissions. A CO catalyst reduces carbon monoxide emissions and an ammonia

Continued on Page 7, Column 1
For three months I have been bombarded with the dual faces of Arnold Schwarzenegger and Cruz Bustamante. I’ve gotten to hear about Schwarzenegger’s exploits with turds and group sex, and about Bustamante’s possibly shady financial ties with Indiana Jones.

But behind the innane frenzy there seems to be a dim recognition that something, actually unbombarded and per­ tentious is happening. Tomorrow we might remove our governor from power, and it is crucial that we un­ derstand the implications of that de­ cision.

Fundamentally, tomorrow’s elec­ tion has little to do with Arnold Schwarzenegger or Cruz Bustamante or Tom McClintock, or even with Grey Davis. Tomorrow’s election is a challenge to the basic stability of state electoral politics, brought on by the kind of extremist devoid of any respect for democracy. It is a cynical grab for power by those who would throw California into chaos just to have their party in control. It must be stopped, and I will try to explain why.

The recall provision has been part of the California constitution since 1911, but tomorrow will be the first recall election in California history. Similar provisions exist in 17 other states, but there were no second­ gondatorial recall election in United States history. Why have these laws been in place for so long? What has changed to make a recall position the one. The answers to these questions will lead us in­ side into the delicate balance that tomorrow’s flashpoints threaten to over­ turn.

To hold a recall election requires the petition signatures of eligible voters amounting to 12% of the number of people who voted in the previous gubernatorial election. That’s a surprisingly low number when you consider the weight it carries in principle. Any governor is de­ prived by at least a quarter of his or her constituents all that is necessary to get in one of five those people to sign. And there has never been a shortage of people who have been rich and enough to organize the collection of these signatures. Nothing could be easier, right?

Yet every four years there has been a recall effort that has not made it to the ballot. Nothing could be harder, right?

Who mis­ admiral Hitler, for example Mc­ lintock)

When the first of the accusers came forward earlier this American University of California fund­ raising to duplicate the success he had in the recall race for Arnold. The notion of recall will move in the next month for a last chance at a more effective political tactic. To recall the governor is to impugn a legitimate election and there had better be a very good reason for doing so. In that spirit, many of my conser­ vative friends were opposed to the recall when it first heard of it. The typical viewpoint was: we don’t like this guy, but we’re not willing to use a bizarre constitu­ tional gimmick to remove him. It is admirable a value that has previously been respected. But for Davis, the time has come to take a look at the damage he has been doing and the feast we are left without. Why are we so comfortable lead over Davis 45%, a somewhat similar margin that isn’t reason enough to recall Davis. The answers to these questions will lend us in­ side into the delicate balance that tomorrow’s flashpoints threaten to over­ turn.

Some very complex things have gone wrong, and Grey Davis makes a convenient target...

The lights and shows go on: Arnold Schwarzenegger appears on the Tonight Show with Jay Leno to declare his entry into the governor’s race.

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The Longest Week of the Year: Rotation

By CECILY UU

Thanks to Rotation, I now have a colorful new moniker. I’m stillassumeismyname, if you would, and you can call me by my name. So far I am in need of introduction. I have a plethora of nicknames, but my official ASICSThis is, of course, my favorite nickname. What else does the week have to offer? If you have more information, check out the website at caltech.edu.

But what Rotation provides for me besides amusing stick-on labels is the opportunity to talk to students and reacquire his feel for the school (he was here a few years before I went to MIT). Please try to make me feel welcome on campus and get me ideas about admissions with him.

Unsure of what would be deemed as inappropriate bias by the Board of Control, and having been plentifully assured that any possible loophole in the admissions process is completely shut up. I believe this provided me with a genuine opportunity to learn about the world of not spreading rumors; generally a surprisingly useful capacity when such a close-knit community.

Second, but not a lesser great chance to meet all those wonderful upperclassmen. We found them brimming with excellent opportunities to bring up the idea of existential literature and cat heresies. They even gave me a more great advice. It’s “What’s your major?” I answered, “I don’t know yet.” They said, “Oh, give it some thought.”

Even with conversation spicers like existential literature and cat heresies, we aresed to talk. There is no lack of food for the body, but there is still the need to eat. We are talking about how things are going to be. Upperclassmen had warned me of the dangers of stock questions. “When do you get your finals?”, “What is your major?” and my favorite, “What do you like to do in your spare time?”

While even with conversation spicers like existential literature and cat heresies, we are still buying food. However, the price of food is escalating. What’s your major?” I found the idea of existential literature and cat heresies fascinating. Upperclassmen had warned me of the dangers of stock questions. “When do you get your finals?” “What is your major?” and my favorite, “What do you like to do in your spare time?”

With formal done, the social functions began. Many of you who are less motivated students tried to find a way back to Los Angeles. (this is a 3,000 mile trip away.)

We're negotiating with them to play in late October, between the 24th and 26th. If you want them to play at your school, please let them know. The little t is at the printers. We will have an exact date soon.

The ASCIT BoD convenes for another Wednesday meeting on the Olive Walk.

A letter of nomination and detailed supporting material (including biographical sketch, a curriculum vita, course syllabi or des­criptions of degree programs, and, if necessary, admissi­on letters) should be di­rected to the Office of the Provost, Mail Code 206-31, at the Califor­nia Institute of Technology, Pasadena, CA 91125-1347. The Provost's Office will compile teach­ing evaluations for all nominees for the award and submit the package to the Feynman Prize Committee. The committee will notify all nominees of the status of their applications. The award will be presented in May at the California Institute of Technology. Further Feynman Prize Recipi­ents.

By STEVEN KOONIN

I am writing to ask your help in identifying candidates for the Rich­ard P. Feynman Prize for Excellence in Teaching, endowed through the generosity of Joe and Robert E. Paradise, with additional contribu­tions from Mrs. and Mr. William H. Hurt. The Feynman Prize is awarded annually according to a formula that is constantly being reviewed and revised. The prize consists of a cash award of $5,000, matched by an equivalent raise in the annual salary of the recipient. It is awarded to the faculty member whose contributions to the institute are most valuable. The prize is valued at $5,000, matched by an equivalent raise in the annual salary of the recipient. The prize is awarded in May at the California Institute of Technology. Further Feynman Prize Recipi­ents.

By TOM FLETCHER

Rotation Ends, Let’s Get Going!

Now that rotation has ended, it’s time to get back to school as normal. The ASCIT BoD will be having a meeting of the year this week, during lunch, on a date yet to be determined by the board’s schedules. The meeting will be held in the open, on the Olive Walk, and will be open to all. It is important that you are responsible for acting on the be­half of the student body, and it’s only fair that you are included in the discussion. You feel we also can only act on issues you make us aware of.

On a related note, if you were in CS/APh2 last year, I would like to talk to you. Dues to the concern of the class during the school year, the reputation of the faculty and the institute suffered, and only through your voluntary help can it be re­stored.

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Pasadena to Hold a Night of Art, Artifacts, Music and Celebration

By LINDA CENTELLE

The tenth Art Night Pasadena on Friday, October 10, from 6 to 10 p.m. is designed for the public to experience the quality and variety of art, cultural artifacts and music offered by the museums and cultural institutions in this mid-sized city.

Art Night Pasadena developed out of a collaborative exhibition in early 1999 among the city's art institutions called "Radical P.A.S.T. Contemporary Art & Music in Pasadena, 1960-1974." The collaboration and opening night were so successful that the participating institutions agreed to have an Art Night Pasadena in November 1999.

Ten Pasadena venues will open their doors for free and city-sponsored shuttles will provide free transportation between the venues during this semi-annual event. The main shuttle stop is near Raymond Avenue and Holly Street, near Ar- morcy Center for the Arts and the Memorial Park Station of the Metro Gold Line. Arriving by Metro Gold Line is encouraged, or participants may park at any venue and ride shuttles to the others.

Collaborating venues are the Ar- morcy, Armory Northwest, Art Center College of Design, Norton Simon Museum, One Colorado, Pacific Asia Museum, Pasadena City College, Pasadena Museum of California Art, Pasadena Museum of History, Pasadena Symphony at the Civic Auditorium and South- west Chamber Music at the Norton Simon Museum. For a map go to http://www.pasadena-cultural.net. The tenth Art Night is sponsored in part by the City of Pasadena Arts Commis- sion Cultural Trust Fund.

Close to 6,500 people visited one of the eight venues during the last Art Night in March 2003. This is the tenth Art Night Pas-adena.

Exhibitions and presentations: Armory Center for the Arts

145 N. Raymond Ave.

We've Moved: Cal Arts Graduate Student Exhibition
California Institute of the Arts, one of the country's most innova- tive and respected art schools, in conjunction with the Armory, pre- sent an exhibition of work by 37 recent graduates of the CalArts Master of Fine Arts program. A va- riety of media will be on view, in- cluding painting, sculpture, photog- raphy, video, and installation.

Armory Northwest
284 E. Orange Grove Blvd.
In the Nursery
An installation art exhibition cel- ebrates the new Armory Northwest location on the former site of Horace Nursery. The extensive trees and plantings at this facility along with its history have inspired works that pertain to nature, childhood and a world somewhere between. Armory Northwest partners, including AIDS Service Center, AMAN Dance & Music, Conservatory of Puppetry Arts, Latino Heritage As- sociation and Side Street Projects will also participate.

Art Center College of Design Student Gallery
1700 Lida St.
Visit Art Center's renowned Stu- dent Gallery and glimpse the future through the eyes of some of the world's most talented students in automobile design, furniture, fine art, illustration, film, photography, graphic design, advertising, and digital media. A live string quartet from The Pasadena Young Musi- cians Orchestra will perform.

Norton Simon Museum of Art
411 W. Colorado Blvd.
Treasures from the Himalayas: Sacred Images from Tibet, Nepal and Northern India
Known as one of the most re- markable art collections ever as- sembled, the Norton Simon Mu- seum houses seven centuries of European art from the Renaissance to the 20th century and Asian art from the 1st to the 20th century. On display is Treasures from the Himalayas: Sacred Images from Tibet, Nepal and Northern India. This exhibition features over 20 sculptures, paintings and wooden book covers from the Museum's collection.

Norton Simon Museum of Art, continued
Southwest Chamber Music will perform two musical master- pieces in the Museum's Theater including the Octet for Winds by Igor Stravinsky and Energia by Mexico's Carlos Chavez.

One Colorado in Old Pas-adena
470 W. Walnut St.
On Colorado Boulevard between Fair Oaks and Delacey Art Over Your Head
The Pasadena Conservatory of Music will perform outdoors and three-site specific outdoor installations will be on exhibit, created by artists Hadiya Finley, Gina Kuraner, and students from the Armory's Internship Media Arts Program. Installations include floating legs and ironing boards suspended between buildings, and abstract paintings on sheetfords hung on walls.

Pacific Asia Museum
46 N. Los Robles Ave.
The Arts of Korea from the Pa- cific Asia Museum Collection
The museum's many galleries feature the arts of Asia and the Pa- cific Islands, and the current ex- hibition of Korean art that com- membranes the centennial of Ko- rean Immigration to the United States. Tours of the Chinese-style courtyard garden will be provided by Museum docents, or visitors can discover the plants and symbols with a self-guided tour with the new Garden Guide.

Pasadena City College
1570 E. Colorado Blvd.
The newest cultural venue to join Art Night, PCC will host several events including the opening of the Siggraph Show, a digital and multi-media exhibition of the renowned international association of com- puter graphic artists. The recent acquisition of Deborah Butterfield's large bronze sculpture is now in the George Boone Sculpture Garden, and illuminated windows elsewhere on campus will feature projections of moving and static images. Also, live musical performances by col- lege faculty and students represent- ing traditional and regional styles will take place at various locations.

Pasadena Museum of California Art
400 E. Union St.
California Art Club: 93rdAnnual Gold Medal Juried Exhibition
The PMCA hosts the 93rd Annual Gold Medal Juried Exhibition of the California Art Club, featuring more than 160 works of contemporary fine art and traditional and figurative paintings, and sculptures from one of the world's preeminent professional artists' organizations. From rich landscapes to beautiful portraits to evocative sculptures, this exhibition is regarded as one of the most presti- gious assembles of current, tra- ditional art in the country.

Pasadena Museum of History
470 W. Walnut St.
Next Step - Pasadena - From Red to Gold
This exhibition surveys a century of Pasadena's rail history. This joint exhibit with the Los Angeles Rail- road Heritage Foundation features large-scale and miniature models, nostalgic photos, historic artifacts, and memorabilia.

Family Treasures: The Fenyves-Palumbo Legacy
An intimate glimpse into the lives of three generations of the extraor- dinary family that once called the Fenyves Mansion "home." High lights include exotic artwork, vintage gowns and accessories, travel journals, correspondence, and other personal artifacts.

Also, live music by the acclaimed J. Vega Trio.

Pasadena Symphony
Pasadena Civic Auditorium
300 E. Green St.
Open Rehearsal for All Beethoven
The orchestra will hold an open rehearsal from 7:30 to 10 p.m. for its Opening Night All Beethoven concert featuring the Leonore Over-ture No. 3, Grosse Ppegau, op. 53 and Violin Concerto in D major, op. 61. Featured violinist will be Ilya Kaler - the only violinist ever to win Gold Medals at the Tchaikovsky, Sibelius and Paganini competitions. As the American Record Guide claims, "You will never hear the violin played more perfectly."

For more information on Art Night Pasadena call (626) 744- 7249.

The Pasadena Symphony will be one of the 10 art venues open and free to the public this Friday, October 10.
Aero Association of Caltech (Caltech Flying Club) want to learn to fly? A ACT offers aircraft rental and flight instruction, and organizes fly-ins and flying related activities. For more information visit our web page www.its.caltech.edu/-aact or contact Eric Fechter at fechter@its.caltech.edu.

The Seminar on Science, Ethics, and Public Policy (SEPP) has been renamed: Caltech Humanities presents Seminar on History and Philosophy of Science (BPS). 7 October 2003 (8:00 pm Beckman Institute Auditorium); Brenda Maddox, "Rosalind Franklin: The Dark Lady of DNA" co-sponsored by the Caltech Women's Center, President's Office, Caltech Public Events, Office of the Faculty, Biology Division, History and Philosophy of Science Program, Caltech Bookstore. Contact Caltech Ticket Office events@caltech.edu or 626-395-4652.

20 October 2003 (3:00 pm Koshar); Michael Arbib (USC), "From Monkey-like Action Recognition to Human Language: An Evolutionary Framework for Nonlinear Systems." Please note the following Munro lecture series as well:

17 October 2003 (3:00 pm Koshar); Jonathan Israel (Institute for Advanced Study, Princeton), "The Radical Enlightenment: Why 18th-Century Enthusiasm Failed." 22 November 2003 (3:00 pm Koshar); Gideon Yaffe (USC), "The Government Rebuilds Me, and I Did Eat": Responsibility and the Entrapment Defense." Seminars at the Caltech campus are open to the community at no charge. For information, contact Moi Feinfeld at 626-395-8969 or feinfeld@hss.caltech.edu.

The California Tech is looking for an undergrad to serve as our computer administrator. This person should be familiar with both Macintosh and PC systems, who would be able to keep our computer users up to date, install software as needed, and assist with the Tech website.

Caltech is offering Guitar Classes for the fall term on Tuesdays starting October 7. Beginning 4:30-5:30 p.m., Intermediate 3:00-4:00 p.m., Advanced 5:30-6:30 p.m. in the Student Activity Center (SAC) Room 1. Classes are free to Caltech students, and staff is space permits. The instructor is Darryl Denning. For more information, contact him at ddenning@caltech.edu or x. 2923.

The Caltech Women's Center is located at 165 Student for Services. Our mission is to promote the advancement of women in science and engineering. The Women's Center works to support students, postdoctoral scholars, staff, and faculty--women and men--with opportunities, programs, and book allowances that address gender issues and promote success, equity, and safety. Some of our programs include Academic and Professional Development; JUMP, the JPL Undergraduate Monitoring Program; Women Mentoring Women; Technical Tours Series; and Seminars and Workshops. Coming up on September 30 is the Graduate Women's Discussion Group. October 7, we will host "Rosalind Franklin: The Dark Lady of DNA," Lecture and Book Signing with author Brenda Maddox. For a full list of programs and services, visit our web page at www.womenscenter.caltech.edu.

On Wednesday, October 15, Dr. David Baltimore, President and Professor of Biology at Caltech, will give an Earnest C. Watson lecture, entitled "Vipers, Vipers, Vipers:..." Beckman Auditorium, parking located at 352 South Michigan Avenue, Pasadena. $3 admission; free. Call toll-free 1 (888) 2CALTECH (225-8332) or (626) 395-4652 for information.

Satirist and author Al Franken will read from his new book, Lies and the Lying Liars Who Tell Them... A Fair and Balanced Look at Right. On Wednesday, October 22, at 8 p.m. in Beckman Auditorium. This even is part of Caltech's Voices of Vision series. Franken trains his subversive wit directly on the contemporary political scene. Timely, provocative, and funny, Lies is becoming one of the most talked about book of political humor in 2003. Franken is the best-selling author of Oh, the Things I Know!, Rush Limbaugh is a Big Fat Idiot and Other Observations, Why Not Me?, and I'm Not Good Enough, I'm Smart Enough and Doggone It, People Like Me. A book signing will immediately follow the reading. Presented in collaboration with Vsemblies Bookstore and Caltech's Words Matter series.

Interested in The California Tech? We're interested in you! Reporters, Photographers, Copyeditors, Layout Artists... Wanted! Contact tech@uocs.caltech.edu for more information or to get involved.

SCHOLARSHIPS
The Air Force Reserve Officer Training Corps (AFROTC) offers scholarships for 3.5-, 3.2-, and 2-year scholarships in all majors. The scholarships are generally capped at $15,000/year towards tuition and fees, with an additional $5,000/year for books, transportation, and housing. The Air Force would like to increase these awards to $20,000/month stipend during the school year. Full-time student applicants must be a U.S. citizen, and 17 years of age, with the goal of commissioning in the Air Force. The AFROTC awards must be utilized in conjunction with an ROTC program enrollment, and a minimum of 2.5 cumulative GPA is required to be eligible. For more information visit www.uwc.afrotc.com.

The John Jeyes Education Awards of $3,000 are available to full Canadian or American citizens who are studying all areas of postsecondary study. A minimum GPA of 2.7 is required. Other than academic ability and financial need, candidates are selected based on their commitment to public service and volunteer work. Awards are available in the following categories:

- Engineering
- Science, Technology, and Mathematics
- Arts, Humanities, and Social Sciences
- Health Sciences
- Business and Economics
- Environmental Studies
- Education
- Law
- Public Service

The scholarship addresses the needs of a diverse range of students, including women and minorities. Awards are available in the following categories:

- Engineering
- Science, Technology, and Mathematics
- Arts, Humanities, and Social Sciences
- Health Sciences
- Business and Economics
- Environmental Studies
- Education
- Law
- Public Service

For more information on scholarship programs, visit http://www.finaid.caltech.edu/news.html.
New Electron Microscopy Suite, MRI Installed in Broad Basement

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Circulation
Commentary Editor: Natalia Deluge
Tech
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In June, a new electron microscopy suite and MRI were installed in the basement of the Broad Center on Wilson.

The project has been in progress for about a year. Infrastructure upgrades took about four months and waiting for arrival of equipment took up another six months.

A third project, that was only finished last week, was the installation of some equipment at the Broad Center on Wilson. Though the installations were planned before construction of the Center, the specifications on the equipment were not known, so the building was built to accept the equipment and ready for renovations specific to any equipment.

During the summer, an electron microscopy suite that included two microscopes was installed in the basement. The suite consisted of a Philips T20 that is used for biological and cryo-electron microscopy. The second is a Philips 300 microscope, which is designed for ultra-high atomic resolution.

Another earlier this summer a full body MRI magnet was installed. Since the building was built it accepted the ground above it had to be dug up and two hatches had to be removed. The first batch prevents water from leaking into the room and the second is a steel hatch that protects the chamber. The room also has to be prepared to make sure it meets the criteria for optimal operating conditions, including sound, vibration and cooling requirements.

A second magnet was installed last week and a third is expected within the next few months, according to Bill Z教会, the project head.

Caltech is also planning some more major upgrades, including the construction of a parking structure and a new-look unit under the north field, as well as another chemistry lab upgrade, so look forward to more construction.

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Researchers Clean Water, Win Conservation Medal

By KATHARINE POULIN

With the presentation of the prestigious Jack Edward McKee Medal to R. Hung and Michael R. Hoffmann, the Water Environment Federation (WEF) recognized the environmental importance of the three scientists.

The McKee Medal, named for the past WEF president and Caltech professor, was created to honor achievement in groundwater protection, restoration and sustainable use. The medal is awarded for significant contributions to the field of groundwater science or engineering, published in any WEF journal. The three scientists are being honored for their article, "The Sonolytic Destruction of Methyl tert-butyl Ether Present in Contaminated Groundwater," which was published in the December 2002 issue of Water Environment Research.

Hoffmann is the James Irvine Professor of Environmental Science and the dean of graduate studies at Caltech. Hung received her PhD under Hoffmann's tutelage and is currently a professorial researcher at Harvard University. Kang spent a year as a visiting associate in Hoffmann's laboratory and is currently a professor in the department of industrial environmental and health, Yonsei University, Korea.

Since 1990, methyl tert-butyl ether (MTBE) has been added to gasoline to meet the oxygenate requirements established by Congress in the Clean Air Act Amendments. Oxygenates are a family of chemicals that increase the oxygen content of gasoline, thereby allowing engines to more completely combust the fuel. MTBE, because it is less expensive and easier to transport than other oxygenates, has been extensively used by refiners and is found in close to 90 percent of treated gasoline. MTBE-treated gasoline has helped to improve air quality, reducing smog-forming pollutants by at least 105,000 tons and toxins by at least 1,000 tons annually.

However, the benefits of MTBE come at a price. Leaks from storage containers and spills during transportation have led to a growing problem of MTBE contaminating groundwater, including drinking-water sources. The potential health risks of MTBE have not yet been determined, but the offensive odor and taste of the chemical can make water undrinkable. Because MTBE is not as biodegradable as other gasoline components, it has become a persistent problem that traditional methods of decontamination have proved unsuccessful in treating.

In their paper, Hung, Kang and Hoffmann applied the established technique of ultrasonic irradiation to the removal of MTBE from a crude sample of contaminated groundwater. They first analyzed the mechanism of ultrasonic degradation in pure water spiked with MTBE and then compared the degradation in the spiked sample to that in water collected beneath JFK International Airport, New York.

They demonstrated that the destruction of the MTBE in the crude sample occurred efficiently, thus establishing the usefulness of ultrasonic irradiation for decontamination. Their thorough characterization of this technique has laid the groundwork for the development of practical methods for the efficacious removal of MTBE from contaminated groundwater.

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Movie, Fireworks Greet Returning Students at Manning-led Carnival

By IRAM PARVEEN BILAL

The Caltech community was welcomed back to campus this fall with a huge bash. The "2003 Orientation Carnival" of September 27 was perhaps the largest carnival arranged for students in recent history. The day began with a club fair and classic carnival activities including a water slide and sumo wrestling. The festivities lasted well into the night, culminating in an impressive fireworks show and a screening of Charlie's Angels II: Full Throttle.

Torn Mannion, newly appointed Senior Director of Campus Life, revealed that corporate sponsors, such as Nestle and Coke, provided a large portion of the funding. Other Caltech organizations pitched in, like the Graduate Student Council, which helped arrange for the movie. Glossing over some figures, Mannion revealed that the major expenses were the event were 1400 cords, $1500 for the fireworks show and $2000 for lunch food. Nestle provided 1500 ice cream bars at a bargain price of $200. Total expenditures for the carnival are estimated between $10,000 and $15,000.

Most of the expenses were covered by the sponsors, a fact lending itself to the question: why hasn't there been an event like this before? Director Mannion commented, saying, "Organizationally we are different this year and I see a lot of extra energy. In fact, we are already planning next year's event and are also pinning down vendors for bigger and better stuff." He added that the carnival is likely to become an annual staple in the Caltech welcoming schedule. Plans for the future include incorporating the graduate student fair and having a pop concert performed by a notable group.

Planning for the carnival began last spring at a meeting of the Student Affairs Orientation committee. The committee decided that four requirements of any carnival would be the club fair, games, a movie and fireworks. Student Affairs newcomer Fred Romberg was placed in charge of the event and with the help of students, succeeded in organizing a fantastic event.

Mannion described preparations for the barbecue that accompanied the carnival saying, "We cooked over a thousand pounds of meat for dinner. It was all spiced by me and some students and most of it was smoked in my backyard." The Campus Life Director, who has always taken an interest in helping organize huge meals for Ditch Day and the like, commented on the need for social extravagance at Tech: "Relaxation, fun and unity seem like things we need here." He added that having organized larger carnivals at other schools, he had confidence that the event would be a success. His premonitions were realized in the huge crowds of students that traversed the Court of Man throughout the day. Reflected Nader Elhage '06, "It was very refreshing to have something like this at the beginning of the year, though the food was definitely more popular than the movie!"

It is a pleasure to see funds on campus being devoted to the highly dorrant social life of Caltech students. One might wonder, however, if setting this precedent might force such similar commitments from Campus Life and other Student Affairs offices for various events in the future. One that comes to my mind is a fireworks display after Senior Dinner!

Hawking Steps Back From Claim, Maintains Humor

Continued from Page 1, Column 5

Hawking's voice synthesizer was unavailable on the internet.

Two serious audience members asked about experimental confirmation of M Theory and the idea that perhaps new worlds were created inside black holes, similar to strings. "If that were the case, then there would be no such "final theory,"" Hawking responded, and physicists would be stuck working indefinitely. Professor Stein Phinney, an astrophysicist at Caltech, echoed Hawking's sentiments about the likelihood of holding out for a final theory, instead seeing "physics as progressing through a series of approximations."

Hawking also noted, as did Professor John Preskill, that Hawking had changed his opinion on viability of a final theory since his Lucasian Chair inaugural lecture in 1980, where he claimed that "the end of theoretical physics is insight." For a while he stuck to the view that a final unified theory would be found in the next two decades, but at some point reversed himself because of the peculiarities of M Theory.

Hawking seemed to make a conscious attempt to instill humor into his entire talk, by making allusions to loan sharks and taking silly questions from the audience after the lecture. "Ben Aronin ambled up to the podium to ask if Hawking thought he could beat President Baltimore in a death match, looking for confirmation of one taped earlier for a house video. Another inquisitor was disappointed to hear that Hawking's voice synthesizer was unavailable on the internet.

The highly anticipated event left only a small amount of student tickets reserved, and when all the graduates found themselves camping out on the Bockman lawn, Thursday night in order to gain admission. Vincent Anyung '05, and several friends pitched a tent early Friday morning, and ended up around 3:45 in line for standby tickets--good enough to get in. Others weren't so lucky, and had to watch the lecture through the glass from the auditorium.

Though annoying, Anyung said the wait was worth it to see "one of the greatest physicists of our time." He would be back next time Hawking swooped down on our campus.