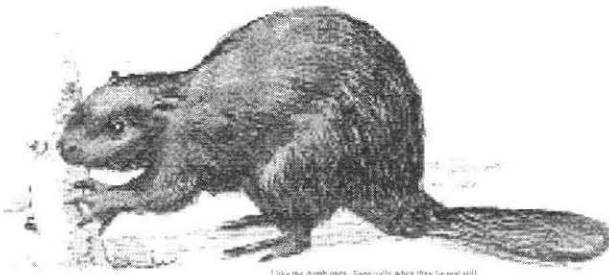


T

Big T Senior pages are due today. Losers can't be choosers. see Wren Montgomery



ASCIT Election Results
President.....Baldeep Sadhal
BOC Chair.....Alan Rosenwinkel

Both amendments passed.

ASCIT Meets in SAC 33

THE CALIFORNIA TECH

VOLUME C, NUMBER 15

PASADENA, CALIFORNIA

FRIDAY, JANUARY 29, 1999

QUAKE, SCHERER DEVELOP DNA

SIZER AND SORTER

BY SHANNON STEWMAN

The common method of measuring DNA molecule length, gel electrophoresis, suffers from two central problems: that of time costs, where a run can take hours or days, and that of resolution lost with large DNA strands.

A device developed by Stephen Quake and Axel Scherer, Caltech faculty in Applied Physics, circumvents both problems with an entirely new approach.

The device, a T-junction of three channels, narrowing from a pathway width of 100 microns to 5 microns before entering the T-junction, can both size and sort DNA strands stained by fluorescent dye.

The work is grounded in Dr. Quake's interests in polymer physics, where DNA serves as a model system for research. Its typically long length and the ability to form samples homogeneous in length make it an ideal polymer system for the study of dynamics of polymers in solution.

The central role of DNA in Quake's research and the limitations of pulsed-field gel electrophoresis led to the development of the T-junction sorting device.

The device, made of a silicone elastomer, coordinates with an optical measuring system and an electronic control system to perform the sorting. By exciting and measuring the fluorescence of the dye, whose amount increases proportionally with DNA molecule length, the control system can direct molecules down either of the T-junction's exit pathways by varying the electric fields in the channels.

The device was designed with the constraint of transparency to allow optical fluorescence measurements. Prototypes of silicon and silicon dioxide were found unsuitable because of difficulty sealing them properly.

PLEASE SEE DNA ON PAGE 2

The Pope virtually visits Caltech

BY GERALD PALMROSE

John Paul II, Pope and leader of the Catholic Church, made a special visit to Pasadena on Monday, January 25, 1999. Although he was not physically there, a satellite connection between Mexico City and the Pasadena Civic Auditorium broadcasted his ceremony held at Azteca Stadium onto the PCA's large projection screen.

Amazingly, the broadcast from Pasadena was coordinated through Caltech's own Newman Center, headed by Father Brian Wilson. Wilson, who gives Mass every Sunday in the Winnett Center, organized and then ran the event. There was a large turnout of Spanish-speaking persons, and Wilson had to use both Spanish and English to keep the participants informed during the ceremony.

Prior to arriving at the stadium, the Pope rode through the city of Mexico city in a bullet-proof Mercedes jeep, passing by tens

of thousands of faithful gathered to see him. Then, seated in the center of the stadium, the Pope received a thunderous ovation from the crowd. The Pope's main message was one of a "New Evangelization," in which he asked the youth of today to spread the Word of God into the third millenium. Speaking to over 100,000 gathered in Azteca Stadium, the Pope called all those in attendance to renew their consciences. He stressed the importance of North and South America in the future growth of Catholicism, and condemned social and racial discrimination.

John Paul's message was supplemented by an emotional movie depicting images of natural disasters, death, violence, drugs, bloodshed, suffering, starvation, and guns, followed by a movie showing images of love, helping, medical advances, natural scenery, art, Princess Diana, Mother Teresa, food programs, and happy children. The movies then concluded with an image of the

Pope himself.

Then at 5:00 p.m., a live speech from Pasadena emphasizing family togetherness and solidarity was broadcast to Mexico, Argentina, Brazil, Venezuela, and Peru. Similarly, all of these countries had a five minute time span to say what they wanted via satellite at appropriate times. All of these messages shares as a common theme: the commitment to the New Evangelization, and many thanked the Pope for strengthening moral and spiritual integrity in their nations.

The closing of the ceremony brought about tremendous grief as the Pope revealed the breaking news of the catastrophic Colombian earthquake. The stadium crowd silenced immediately, and a prayer was said just before the Pope left. The mood was shifted however, when the crowd gave the Pope one more ovation for his missionary efforts in their city. The Pope then left Mexico, and continued his trip to various parts of the Americas.

Caltech gains Edison as Trinet partner

COURTESY OF CALTECH MEDIA RELATIONS

Southern California Edison and the California Institute of Technology have announced the utility's participation in the TriNet Project, a state-of-the-art seismic measuring network that will expedite power restoration and emergency response after a major temblor in the southland.

As a participant in the TriNet Project, SCE will use a portion of its system of nearly 900 electrical substations to augment TriNet's growing network. Seismic sensing devices, installed at selected substations, will be linked directly to TriNet through SCE's extensive communications network, which is built to withstand severe earthquakes.

When complete, TriNet will consist of nearly 600 monitoring stations in Southern California with the capability to provide faster information on where the most damaging shaking has occurred when earthquakes strike. SCE will be able to use that information to prioritize the dispatch of repair crews and ac-



A member of the Buildings and Grounds staff maintains the irrigation system on the Court of Man.

celerate service restoration efforts to areas suffering the most damage.

"By getting useful information in a matter of minutes, we can dispatch crews to where we know the greatest shaking and damage has occurred," said Dick Rosenblum, SCE senior vice president for transmission and distribution. "We knew fairly quickly where the

PLEASE SEE TRINET ON PAGE 2

IN THIS ISSUE

THE USUAL STUFF

Announcements.....8
DILBERT ♦.....6
The Outside World.....3
ASCIT Minutes (x3).....4

THIS WEEK'S FEATURES

Sports.....3
Media Guy.....5
Bookworm.....5
Student Depression.....5
Justin Ho's Movie Review.....5

The Outside World

by Erik Dill

AMMAN, JORDAN - On Monday, King Hussein declared his eldest son, Prince Abdullah, acting regent and heir to the throne. Former Crown Prince Hassan was removed from the line of succession. Tuesday, it was announced that Hussein's lymphatic cancer had relapsed, and the king returned to the Mayo clinic in Minnesota to continue treatment.

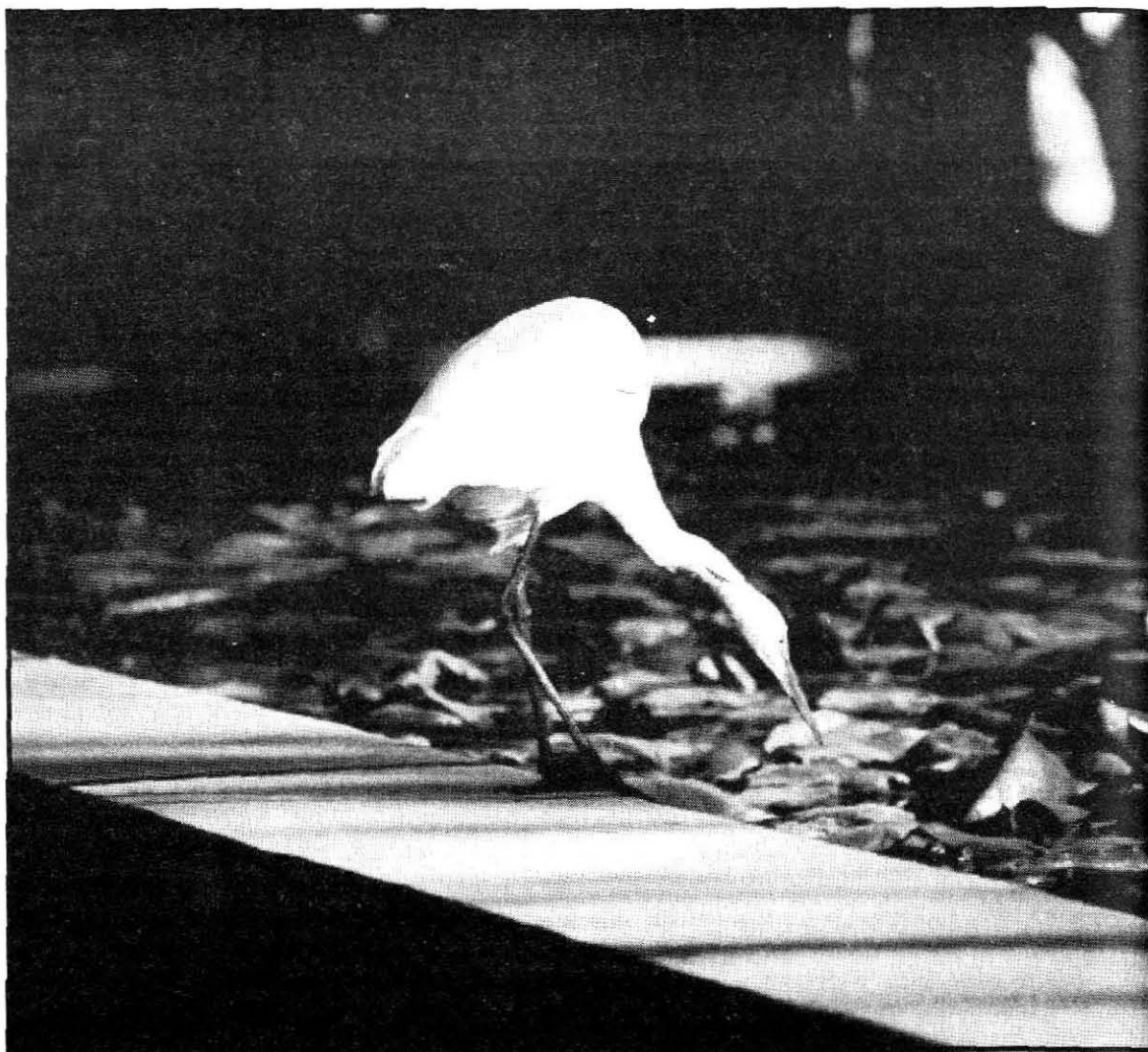
BASRA, IRAQ - Pentagon officials announced Tuesday that misfired American missiles may have killed civilians in a residential neighborhood. The missiles were fired when American jets attacked Iraqi air-defense sites in southern Iraq. Iraq stated that 11 civilians were killed and 59 wounded. The Vatican criticized the airstrikes.

ARMENIA, COLUMBIA - An earthquake measuring 6.0 on the Richter scale hit Monday. At least 250 were killed and 1,000 injured in Columbia's worst quake since 1983.

BEIJING, CHINA - A remote farming district in central China held the first direct election for the leader of a township. This election was held without the approval of national leaders in Beijing. While elections have been encouraged on the village level, one step below townships in the governmental hierarchy, Chinese leadership indicated that no other township elections would be held.

ZIMBABWE - After an article about a reported coup against President Robert Mugabe ran in The Standard, publisher Clive Wilson was detained and interrogated about sources for the story. Last week an editor and reporter of The Standard were arrested and tortured to reveal their sources.

MOUNT VERNON, NEW YORK - Sadie Delany died at the age of 109 on Monday evening. She was a self-described "colored woman" who experienced the post-Civil War South and Jim Crow laws of the early 1900s. She obtained a teaching degree from Columbia in 1925. Delany became famous after she and her sister, Elizabeth, published their oral history in 1993.



The many ponds of Caltech often attract a wide variety of animals and other campus inhabitants. This snowy egret was photographed fishing in Baxter pond.

TRINET...

CONTINUED FROM PAGE 1

Northridge earthquake was centered, but it was hours before we knew the degree of damage that—miles away and outside the San Fernando Valley—Santa Monica had experienced."

Paul Jennings, Caltech's acting vice president for busi-

ness and finance, and a professor of civil engineering and applied mechanics, said, "The TriNet Project is a wonderful example of a public/private partnership, where different organizations come together, leverage their resources, and together create a product no one organization could create alone. Edison's investment will significantly move this project

forward and help provide Southern California with a state-of-the-art seismic network."

SCE currently has installed TriNet monitoring units at substations in Rosemead, Palmdale, Hesperia, Mira Loma, and White Water. Another 25 substations will have the monitoring equipment installed within the next 18

months.

SCE also announced that it will provide \$250,000 over five years for TriNet, with each dollar matched by a \$3 contribution from the Federal Emergency Management Administration (FEMA) and the California Office of Emergency Services.

FEMA is funding 75 percent of the nearly \$17-million TriNet Project. Caltech's commitment to the effort is being funded by SCE, GTE, Pacific Bell, the Times Mirror Foundation, and others. The U.S. Geological Survey has provided more than \$4 million. The California Division of Mines and Geology is another participant. Environmental Systems Research Institute developed the software used to create the shake maps for Caltech and SCE.

DNA...

CONTINUED FROM PAGE 1

The device can currently sort DNA strands of lengths as small as 2K base pairs, and a lower of 1K base pairs is expected. The upward bound on the molecule is projected into the millions of base pairs, although testing stopped at 200K base pairs to explore areas like genomic mapping.

In addition to this fine-granularity, a particularly exciting feature of the device is its ability to form networks of sorting chambers and reaction chambers.

In addition to DNA, the device has the ability to sort cells, and may have the ability to filter proteins.

Students suffer from untreated depression

BY KEVIN P. AUSTIN AND AIMEE ELLICOT

Although depression is probably the most commonly experienced psychological problem, many people who are depressed do not realize that they are suffering from it, and less than half of the people who are depressed seek help.

Approximately 25% of the undergraduate students who visit the Caltech Counseling Center are depressed. The Counseling Center believes that many more are also depressed but don't seek help.

Depression is a real psychological condition that requires help. People who suffer from depression and go untreated are much more likely to experience depression in the future. The average number of depressive episodes in a lifetime for individuals who go untreated is seven. However, depression is highly treatable with recovery rates close to 90% in those who do seek help.

Why don't people seek help? There are a variety of reasons. The common one is that the symptoms of depression are easily confused with

stress. People who are under a lot of stress may not realize that they are also depressed. Also, students sometimes see themselves as weak if they can't manage on their own, and try to ignore their symptoms. They force themselves to work even when they are fatigued from depression and aren't enjoying much in their lives.

Symptoms of depression include changes in eating habits, changes in sleeping patterns, loss of interest in enjoyment activities, withdrawing from people, trouble concentrating, inability to get work done, feeling irritable or restless, not having the energy to do everyday tasks, feeling guilty much of the time, worrying a lot, and having a bleak outlook for the future. Also, people who have a family history of depression are more likely than others to experience depression themselves.

Exhibiting any one symptom does not necessarily indicate depression. However, multiple symptoms over a period of more than two weeks are a good sign that one is experiencing depression. Having only a few symptoms for a short period of

time probably indicates stress.

The connection between stress and depression may be biological. Sustained stress can affect the functioning of neurotransmitters which regulate sleep, hunger, and mood. Therefore, stress can be a risk factor for depression, as is a family history of depression.

The Caltech Counseling Center's home page (<http://www.caltech.edu/~counseling>) has several links to good sites that discuss depression. Included is a site from a depressed person's point of view and a couple sites that have depression screening tests online. Also, psychologists at the counseling center will screen students for depression and discuss it or several other issues with students.

Kevin P. Austin, Ph.D. and Aimee Ellicot, Ph.D. are co-Directors of the Caltech Student Counseling Services. The counseling center can be reached at x8331. They are available to discuss stress, relationship issues, depression, family concerns, adjusting to Tech, adjusting to this country, and anything else that concerns interested individuals.

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Basketball season continues



PHOTO BY BEN BRANTLEY

Sarah Hunyadi drives to the basket against La Sierra.

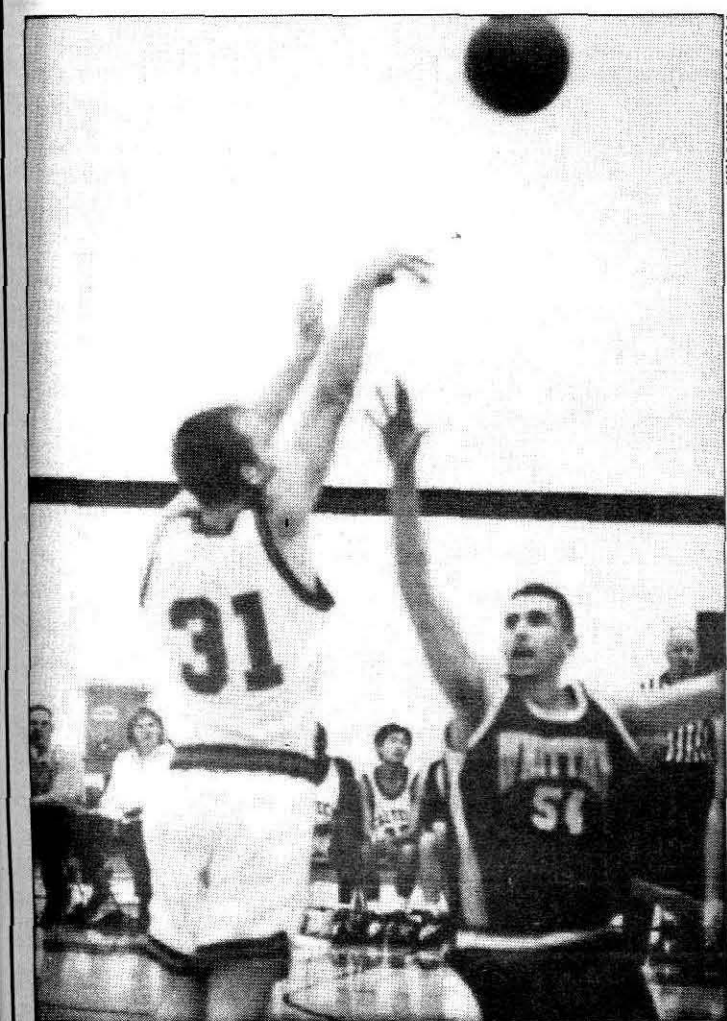


PHOTO BY ERIN DILL

Mark Christian Arnesen shoots on a Whittier defender.

Superbowl Sunday approaches

BY GERALD PALMROSE

As we await Superbowl XXXIII, I can't help but feel nostalgia to the highest degree. This game will almost certainly be John Elway's final pro football game ever, and that is truly a loss for the sport. Undoubtedly one of the most popular players to ever wear a uniform, you can't help feeling a little bit sad that he is quitting after the year. However, all feelings aside, the game must go on, and here's my comparative analysis of the two teams.

Elway used to carry the team on his back throughout the 80's and 90's, but in the last few years, under Mike Shanahan's revamped offense, Elway has had a much easier time at QB. Much of this is due to the awesome running of Terrell Davis, whose 2,006 yards rushing and 21 touchdowns led the league by a wide margin. Davis runs behind the blocking of a very talented offensive line and a superb fullback, Howard Griffith. But when the Broncos look for variety, they still have Elway, whose 93.0 rating is among the league leaders. In Rod Smith, Ed McCaffrey, and Shannon Sharpe, Elway owns one of the best receiving groups in the league.

The Falcons also have an unbelievable running back, and his name is Jamal Anderson. Anderson ran for 1,846 yards

rushing, second to Davis, and has been very healthy all year. Meanwhile, Chris Chandler, quarterback, ended the season with a 100.9 rating, but he is very injury-prone. Chandler has been the unlikely hero of the offense, and the Falcon's success will depend on how well he can hit receivers Terance Mathis, Tony Martin, who both average greater than 17.8 yards per reception. The offensive line is led by unheralded Bob Whitfield, and in order for the Falcons to pass well, the line must protect the immobile Chandler well. Finally, the Falcons have a mastermind coach in Dan Reeves, who gets the most of all his players, and who probably will mix things up to fool the Bronco defense.

Denver's defense is led by linebacker Bill Romanowski, whom you may remember as the guy who spit into J.J. Stokes' face last year. Well, the guy is a menace when he's playing football too. The man simply makes plays. Big plays. Whether they be fumble recoveries, interceptions, or tackles, the man just does it. In addition, speedy Darrien Gordon covers very well at cornerback, and he even doubles as a punt returner. Denver even has a good pass rush, with Neil Smith, Trevor Pryce, and Maa Tanuvasa leading the way. Finally you have veteran safety Steve Atwater, who arguably makes the hardest hits in

football. However, all of these weapons mask Denver's relatively weak pass defense, which was ranked 26th in the NFL.

Atlanta's Jessie Tuggle has been with the team for 12 years, and every one of them has been outstanding. But the Falcons' biggest strength is their ability to cause turnovers. They averaged 2.9 turnovers forced per game, which led the league. Their run defense is masterful, as they allowed only 3.3 yards per carry and 75.2 yards per game during the regular season. Much of this is due to their quick defensive line, which plugs the holes and stops runs to the outside. However, Atlanta's pass defense is suspect, with the exception being Ray Buchanan, who is almost Deionesque.

The Falcons are underrated, and will be playing as the underdogs. Relatively speaking, now that they have gotten this far, they have nothing to lose. Meanwhile, there is a lot of pressure on Denver to win this final game for Elway. Since both run defenses are strong, the team that can throw the short pass well will control the game. The final divide might be the quarterback's scrambling ability, in which case Denver has the edge. Finally, regardless of who wins, watch the commercials! Prediction: Denver 23, Atlanta 20.

Tim Raub's Prediction: Atlanta 37, Denver 27

BEHIND EVERY ACHIEVEMENT, YOU'LL FIND AN EXTRAORDINARY DRIVE.

Quantum Corporation designs and manufactures storage products designed for today's digitized world and was recently tapped by Fortune magazine as one of only 18 technology companies in the top 100 companies in the U.S. to work for. The Storage Systems Software Unit within Quantum is expanding rapidly and is looking for software engineers to fill a variety of openings in architecture, implementation, simulation and testing. This group is working on the merger of computer networking with data storage, and expects to significantly alter the computer systems landscape over the next several years.

Ideal candidates will have significant programming experience in C, C++ or Java, and experience with Linux, BSD, Windows NT or embedded operating systems. Experience with computer networking and digital hardware are also desirable. Interested candidates of all majors and visa statuses are welcome to apply. March and June graduates are both welcome, as are summer intern applicants.

On-Campus Interviews Wednesday, February 10

As an independent unit within a \$6 billion company, our group offers many of the advantages of both large and small companies, including competitive compensation and excellent benefits, flexible working hours, health insurance, bonuses, and an employee stock purchase plan. Please contact your Career Development Center or e-mail your resume to rodney.vanmeter@qntm.com or bob.dexter@qntm.com, indicating Job Code COCT0129RV. Fax: 800/729-9664. Quantum is an equal opportunity employer m/f/d/v.

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A.S.C.I.T. Minutes

JANUARY 11, 1999

Present: BoD, **Ben Wu, Nick Breen, Cynthia Gong, Robert Saliba, Kevin Bradley**
Meeting called to order at 10:05.

Dealing with Guests

Nick - Danny cuts him the check for the ASCIT Movies.

Cynthia - The Broomball Club wants recognition. The group has been meeting in herds of 20 to 35 every weekend for awhile. The need cash for rink-time and equipment.

Ben - Danny cuts him the check for the CCSA.

Kevin - The BoC Secretary dropped in to stand around and talk about CSI for a bit.

Rob - He drops off the stamp and splits.

General Business

Resolutions - Baldeep has totally reworked the resolutions and he submits them for discussion. He will come back with some changes.

Amendment - Alan proposes a change to the bylaws that would allow the BoC to ask House Presidents to sit on cases where not enough past or present members of the BoC were available. This is the first in a line of changes that need to be made in the BoC documents. Mike moves to accept and Jaideep seconds. The BoD votes unanimously (Devi and Derek not present, yet) to submit the proposal to a vote.

Officer Reports

Derek - The deadline for getting into the printed edition of the UROH is this Friday. He hopes to have it out by the Friday after that.

Autumn - The card swipe thingie on the copier is broken. It has been reported a couple of times.

Devi - The ARC met last week. Mike wants a nice ARC roster and the past minutes from their meetings. Devi is working on Alex's memorial tree. Mike is staunchly anti-tree. He is pro-brick. The early-term surveys will come out soon. The ARC is getting math CRCs for the houses. Baldeep wants them to be hard-back.

Hanna - The broken light has been replaced.

Jaideep - Dingus will be meeting with Dr. West to talk about the Avery room-pick. Thursday the IHC is having lunch with Brenda Kia to talk about issues affecting international students. Next Tuesday they will team up with the MSA to go over the worries of the minority community. Some bad people pulled a prank on the Millikan Boardroom and did

some damage. Same with the roof of Millikan. Physical Plant asks that before you do construction, you consult with them. They are willing to help. Jaideep would like to remind everyone: when doing a prank, leave a note.

Danny - Hell means "light" in German. Danny met with Patti (the bookie) today. She wants receipts for everything we got. The Sanwa accounts are being closed. The check for first and second term dues (\$36,000) from Student Affairs is due this Friday. Patti thinks that ASCIT should move its money into the Caltech accounting system. There are reservations from members of the BoD who value autonomy and fear the puzzling Institute financial maze.

Mike - Nominations for President and VP open on Wednesday.

Alan - THERE WILL BE AN OPEN BUSINESS MEETING OF THE BOARD OF CONTROL ON MONDAY, JANUARY 18th IN THE AVERY CONFERENCE ROOM AT NOON. If you see Matt Gregori, please remind him.

Baldeep - We hired a programmer for the IT project. The search for a designer is still on. The first part of the project to come alive will be online voting. No more stolen ballots. No more protests. Mike and Baldeep met with Ricardo of APE. They are surrendering their data to our advances.

Meeting closes at 11:29.

The BoD votes to recognize the Broomball Club. The BoD votes to approve \$153.19 for the Broomball Club for third term.

Meeting adjourned at 11:35.

Respectfully submitted,

Mike D. Astle

ASCIT Secretary

A.S.C.I.T. Minutes

JANUARY 18, 1999

Present: BoD (minus **Jaideep**), **Ben Wu, Janice Yeung, Ben Brantley, Peter Freese**

Meeting called to order at 10:40.

Dealing with Guests

APSU - Ben and Janice (APSU President and Treasurer) want \$200 to help fund an event on our about February 16th to celebrate lunar new year. They plan to have traditional line dancers as well as displays explaining the importance of the lunar year to a variety of Asian cultures.

Ultimate - Ben wants \$225 to pay the registration fee for an upcoming L.A. area ultimate frisbee tournament. The Ulti-

mate Club is recognized by ASCIT but has been inactive of late. Ben has a listing of the right type and number of members to receive funding. It turns out that there are two ultimate teams at Caltech, one of which has obtained and used funding from the athletic department. With luck, this schism will end after this year when some personality conflicts are resolved.

IEEE - Baldeep brings a roster of individuals interested in forming a Caltech chapter. The BoD recognizes the club by acclamation.

General Business

Resolutions - Baldeep has fixed some sticky points in his proposed overhaul. The changes are accepted by acclamation. Some of the major additions: a clearer definition of the selection and duties of the Coffeehouse Manager, the addition of a record of rulings of the Executive Committee, and the removal of the Debate Award and ASCIT Van Resolutions. See the ASCIT web pages (www.its/~ascit) for the exact text.

Coffeehouse - CABS has already begun a search for a new manager. Autumn expresses distaste at once again having outside management. Baldeep believes that the job in its current form is just too big for a student to handle and that outside management may be the only solution. The idea of breaking the job of Manager into several smaller jobs is discussed. Ordering and Employee Management are two obvious divisions that can be made. There is general agreement that student management is preferable. Anyone who thinks they are willing to step up to the plate should talk to Baldeep.

Officer Reports

Derek - The UROH is done. There are 102 listings in it this year - 60% more than last year. Paper copies will be distributed and a web version will be available.

Autumn - A new TV and VCR are in the pipe. They are Panasonic. Baldeep takes some issue with Autumn's acquisition technique but is shortly silenced

by a god-sent plague. The copier is still out of commission despite repeated protests. Autumn is considering just throwing the thing in Baxter Pond and saying that it was stolen.

Hanna - Carmelized pretzels. Yum.

Devi - Permission has been obtained from somebody to plant a tree on campus in memory of David Rosefield. The issue passes without discussion. Devi has still not delivered an ARC roster or any of their minutes to Mike for filing.

Danny - Our accounts are low but there is a \$36,000 check in the pipe.

Mike - The amendment voted upon today passed. The

election for President and VP will be on Monday. Mike proposes an additional amendment that will remove the ARC Secretary from the roster of elected offices. By unanimous consent (Alan was not present at the time of the vote) it will be put forth for voting in the upcoming election.

Alan - The BoC open business meeting was today. A bevy of administrators showed up. Mad props out to Jim Melnick for being the only non-BoC student to show up.

Baldeep - The IT project is off the ground. Online voting is forthcoming. APE and the card system people are giving us access to their data. "Sankofa" was viewed and critiqued. Baldeep will be meeting with Patrick and Andre.

Meeting closes at 23:21.

The BoD votes to give APSU \$200 for their event. The BoD votes to give \$225 to the Ultimate Club.

Meeting adjourned at 23:30.

Respectfully submitted,

Mike D. Astle

ASCIT Secretary

A.S.C.I.T. Minutes

JANUARY 25, 1999

Present: BoD (minus **Devi** and **Danny**)

Meeting called to order at 22:13.

General Business

\$60 Million - Alan and Baldeep will meet with Dr. Brennen to find out how the Big Phat Wad is going to be distributed. Students past and present have raised concerns that it will not be smeared around in the best interests of undergraduates.

Coffeehouse - Jennifer Caron has resigned, leaving the Coffeehouse without a manager. Baldeep wants to split the job of manager into a triad - Stock Manager, Advertising Manager, and Employee manager and solicit folks to take on these reduced roles.

Bookie - Patti will be paid for the first quarter of 1999.

Officer Reports

Derek - It will cost \$113 to print 55 editions of the UROH. Foreign nationals are not allowed to work at JPL because of federal security restrictions. Baldeep says there's nothing we can do about this issue.

Autumn - The new TV is here and will be setup and ready for use soon.

"Congratulations to Miles Shuman on his ten week anniversary."

--Alan Rosenwinkel

Hanna - Installations is coming up. The standard plan is to dine at Steele House. Moving to the Ath is suggested but the cost might be too much of a burden. Hanna will investigate the possibilities.

Jaideep - The off-campus roompick procedure is up for review. Most contested is the policy for filling Avery. Jaideep has met with some people who live in Avery and they are in favor of last year's plan. The IHC is in favor of eliminating all special consideration for Avery. There is a compromise plan but it is hard to describe. Things will get hashed out in the next few weeks. The IHC membership is turning over rapidly. Matthew Sullivan (Lloyd), Nicholas Breen (Blacker), and Sarah Milkovich (Dabney) have all joined up. Fleming and Rud-dock will both switch leaders this week. When the new IHC is in place, appointments for Athletics Manager, Food Chairman, and Secretary will be made. If you are interested in any of those jobs you should talk to Audrey Lee, Dave Tytell, or Tanya Tickel respectively. Jaideep met with some minority students. They seem satisfied with the House System in general.

Mike - The election today went smoothly and the amendment passed. Nominations for all other offices will open on Wednesday. All directors should update their handbooks. The annual report is in the works. All directors should submit a summary of their year's activities.

Alan - Pretend that you're dead.

Baldeep - Online voting is moving along nicely and may be done in time for the general election. The system uses student ID numbers for security. Baldeep attended a three-hour long-range planning meeting for the Alumni Association.

Meeting adjourned at 22:48.

Respectfully submitted,

Mike D. Astle

ASCIT Secretary

ASCIT General Elections

Nominations for all of the ASCIT general offices will open on Wednesday, January 27th. Interested candidates may nominate themselves by signing up on the door of SAC 33. Nominations will close at 5 PM on Tuesday the 2nd of February. Photos and statements must be in to the Tech by midnight of the 2nd for publication to be ensured. The election will be held on Monday the 8th.
General Offices: Secretary, Treasurer, Interhouse Committee Chairman, Director for Academic Affairs, Director for Social Activities, Upperclassman Director at Large, Freshman Director at Large, Editor of The California Tech

Elizabeth introduces intriguing characters, complex plot

BY JUSTIN HO

Elizabeth *** +1/2
rated 'R' for Kenny-like endings to would-be assassins, and frolicating

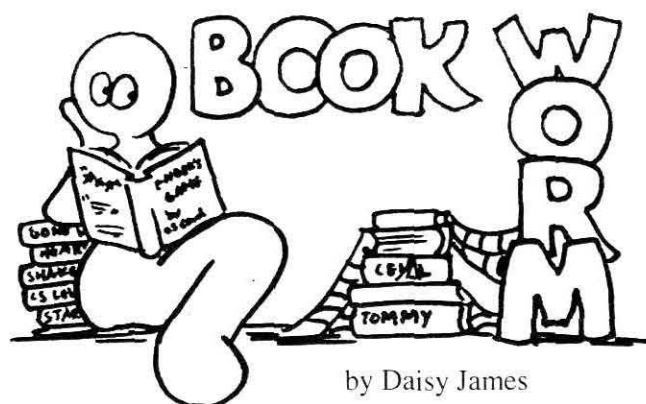
"Elizabeth" had the misfortune of coming out less than a month before the release of "Shakespeare in Love", and just as news of the actress playing Queen Elizabeth in the former was spreading, the presence of a more intriguing version of the Virgin Queen (the harridan, biterly humorous portrayal by Judi Dench) almost snuffed out poor Cate Blanchett. The story in "Shakespeare in Love", though, comes out 40 years after the tumultuous period which placed Elizabeth on the throne in the midst of clashes between established Catholics and growing throngs of Protestants, an epic event which nonetheless engendered England's Golden Age. Historically, "Elizabeth" is a more accurate and significant film.

Despite the film's simplifications, such as the movie's presentation of very distinct protagonists and antagonists with black-and-white motives and vices that almost border on a child-like perception of good and bad, the film is amazingly complex. The film draws upon the many characters plotting against the young Protestant queen, and keeping track of the motives and roles each one plays is, to say the least, difficult. The only assurty is that Elizabeth will survive. That feat appears more the achievement of yet another character, her most trusted adviser Walsingham (Geoffrey Rush, who also plays a role in "Shakespeare in Love"). Elizabeth's growth in the movie chronicles the transformation of her rather naive disposition to the mercilessness that often comes with the duty of a reigning monarch. Elizabeth, herself, comes across as a very luck lady, rather than a shrewd engineer, as she fails to realize the extent of the plots meant to destroy her. Time after time, her false sense of security proves almost her downfall, and it is only with the help of Walsingham that she survives. The assassins and conspirators are not directly after his

crown, which allows him to work literally in the shadows. His secret-service agent type ingenuity and reclusiveness develop him as a more intriguing character, and probably more deserving of a film, but that is not to say Elizabeth is a bore.

The context of Elizabeth's mannerisms and etiquettes give the film its artsy character. The society was privvy to balls and dances, and the scenes of happy people enjoying music and entertainment is elegant. Though Elizabeth comes across as a very stern woman, in contrast to Gwennyth Paltrow's Viola in "Shakespeare, the arts serve as her escape from the realm of governing, and the levity of music and entertainment is a relief from the otherwise overbearing seriousness presented. The masquerade scene on the river is beautiful, and the powder-poofted Elizabethan countenance shown as the film draws to its close provides a great example of how powerful a single facial expression can be. Most films avoid such slow-moving moments, but the motionless facade is used to great effect. Sometimes, the dancing and court gaiety may seem excessive, but it's the 16th century, so it's not like there's much else to do.

At times, the film is hard to follow because of the fleeting glimpses of significant characters conspiring this or that. The film is very ambitious in condensing a lot of history into two hours. Also, the lines are almost like riddles, so deeply intertwined with the context with which it is spoken that missing a leading sentence or a facial expression which would elucidate a character's emotion could easily nullify the significance of the line. Because of this, there are no memorable lines, since they wouldn't make sense without a lengthy explanation. Simple words strung together have a much deeper meaning. Intriguing characters and a string of plot twists make for a very interesting movie.



by Daisy James

The Balloon Man Charlotte MacCleod

I was afraid, after reading MacCleod's last book, that one of my favorite authors had completely gone off the deep end. She apparently hasn't, but this was a dissapointment nonetheless. Charlotte MacCleod is the author that started me on murder mysteries, with charming characters, well-constructed plots, and general whimsy. Lately though, it seems more like she's writing parodies of her own style. Where a little absurdity was good, now there seems to be nothing but. The characters have lost almost all of their depth, and caracitures, while entertaining, cannot sustain an entire book. More disturbing is the way that she has been resurrect-

ing plotlines from earlier books, to the point of revealing how those stories ended. There's something sad about finding that a favorite writer has lost her touch; like loos-ing a friend, or at least having one move away. Which is probably why I have judged this book so harshly. It isn't so much that it is bad on its own, more that I know what the author is capable of and am dissapointed. There is a certain lack of cohesion to the plot, and the ending seems both predictable and out of nowhere, but it is by turns thrilling and funny at times and MacCleod does dialogue very well. The murders are themselves fairly creative, if the murderer needs a little work. It's hard to say how I would have rated this if I wasn't so biased. I guess all I can really reccomend

is that anyone who is interested should try an earlier book by the same author.

*Seven Years of Highly
Defective People*
Scott Adams
~~~~~

A sure sign of a good book is when you are unhappy to get near the end. This is a Dilbert book with a twist; all of the strips have notes by creator Scott Adams in the margins and each section is introduced with a little background on what he was thinking when he came up with the character, if anything. It's fun to learn the hidden jokes, which strips caused controversy or fell flat on their face and to have the cartoonist point out the places where he messed up. There really isn't much to say about this, except that if we had run a Dibert strip in this space instead of this column, readership ould have gone up about 500%.

If there is a particular genre or type of book you would like to see reviewed here, let me know at [marjorie@its](mailto:marjorie@its). I don't expect that anyone will actually respond, but this way I can go on reading whatever I like without feeling guilty.

# Adam Villani: Media Guy



## Ringmaster

This is one movie in which the viewing experience is actually enhanced by going to a \$1.50 theatre in the Valley to see. Former Cincinnati mayor Springer may not be much of an actor, and the movie may be a bit clunky at times, but it's also very funny and puts a human face on the outrageous, screwed-up guests that appear on the show. *Ringmaster* is clearly aimed at a low-brow audience, but behind the sex, violence, and trailer-park humor, it offers insights into why guests would want to air their dirty laundry on national television. And while it's unsubtle and self-defensive in dealing with class differences in America, at least it's bringing those issues out into the open.

## Dilbert

Popular funny pages denizen Dilbert made the transition to the boob tube this week, and the result is a mixed bag whose potential can hopefully be parlayed into something more consistent. Casting choices were wise, with Daniel Stern providing the voice of Dilbert and Chris Elliot voicing his snide companion Dogbert. There were some good gags, and the opening credits established the show well. But the problem lies in the delivery of the story. A three-panel comic strip is perhaps a 15-second short story, but drawing out what would maybe be a 5-strip plotline over a 22-minute TV show is an exercise in tedium and forced non-humor. One point in "Dilbert's" favor is that its fledgling UPN network might keep it on the air long enough the characters to be developed beyond caricature. It could be successful both commercially and artistically if it can rise to that challenge.

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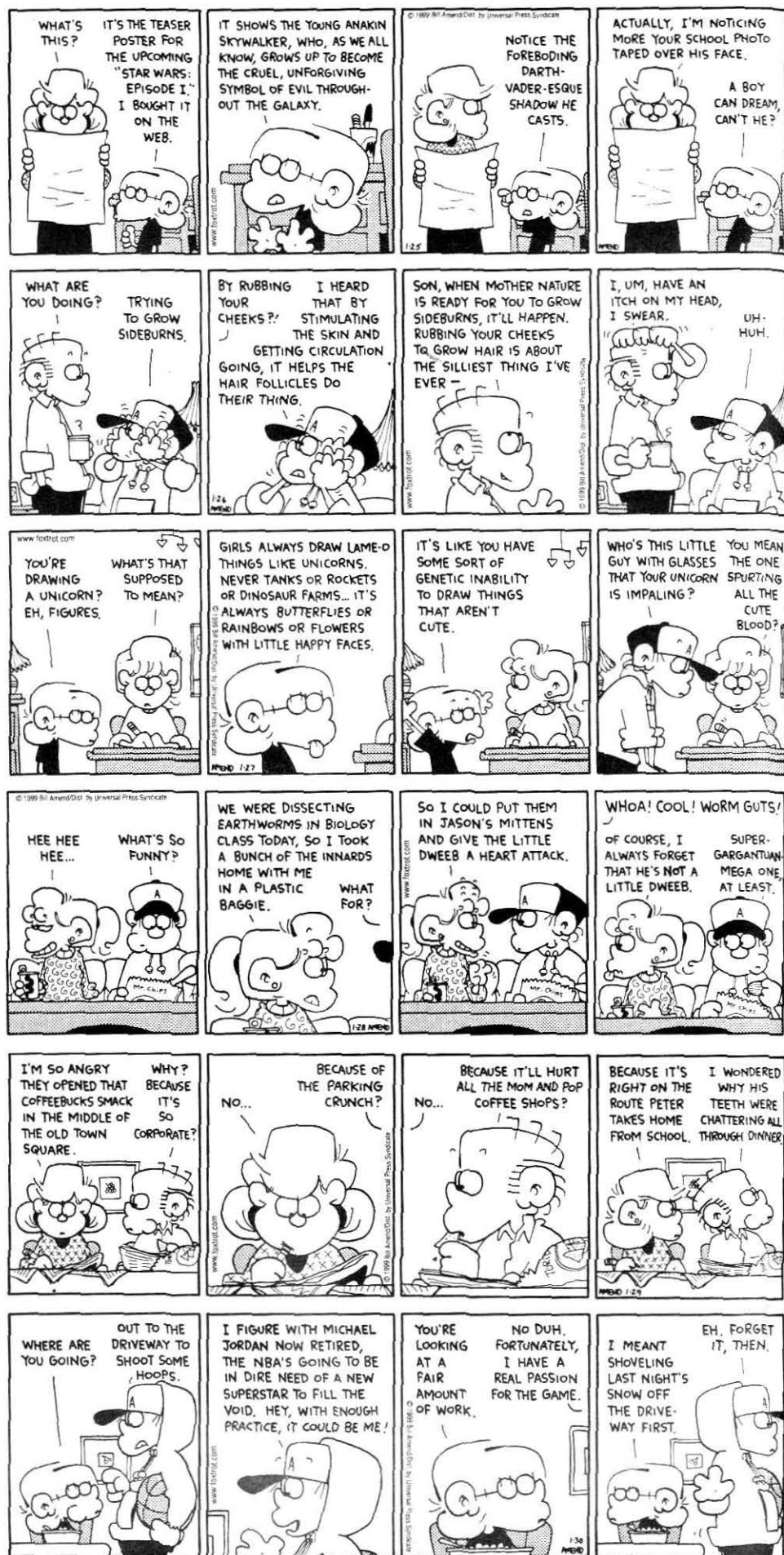
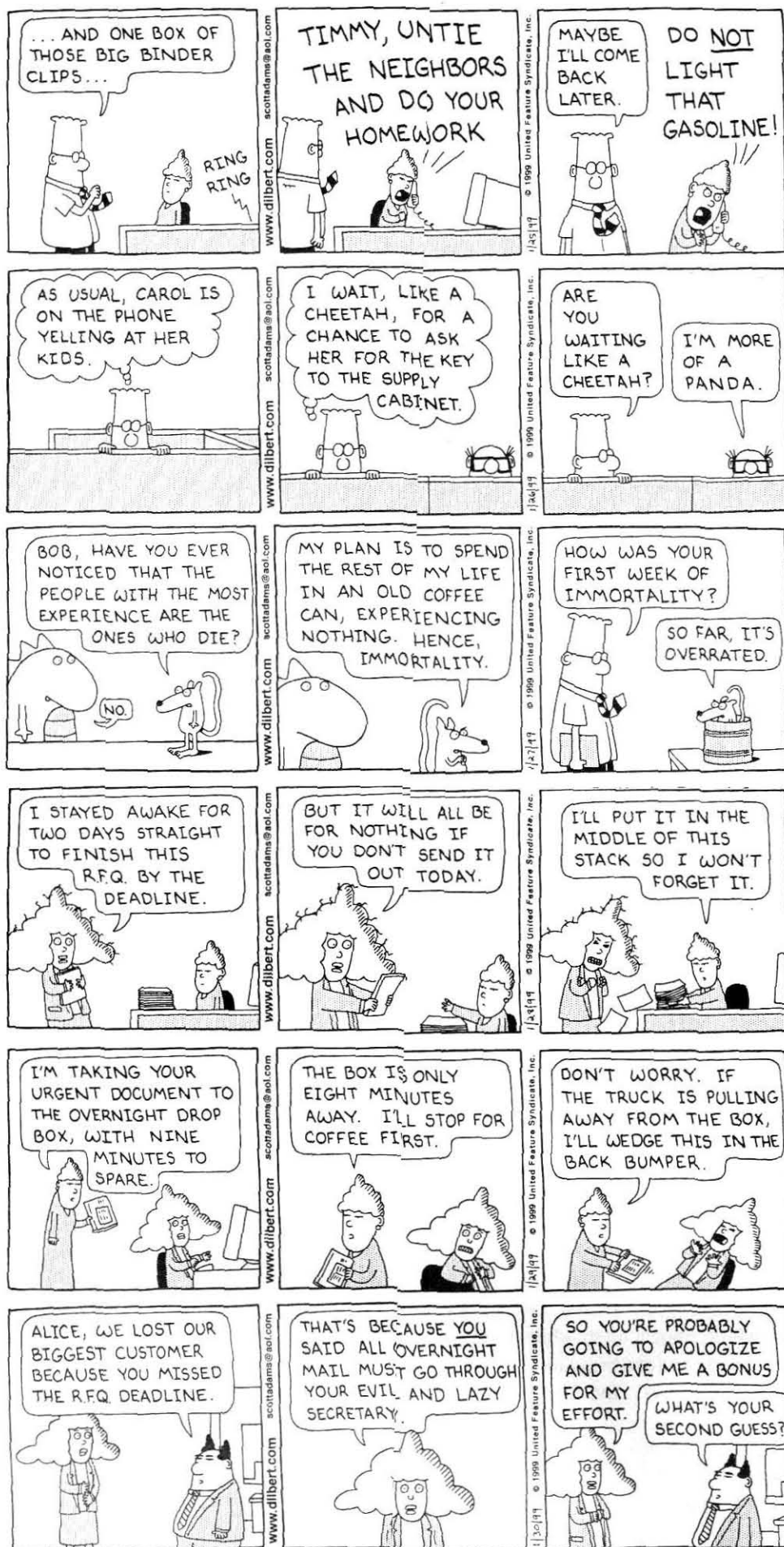
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## Dean's Corner

### Smart Cookies

by Jean-Paul Revel

Sometime things strike you in a peculiar way. Ordinary things, to which you have paid no attention for months or years, suddenly come and bite you. They surprise you like a serpent, they uncoil and strike, jaws agape. I can feel the pain now, the fangs releasing their poison and the sinking feeling, oh no! is that really how it happens? It can't be, not now, I am supposed to visit aunt Bertha later today but I get overdramatic here, because it isn't that much of a shock.

See for example, I was returning from Chandler the other day, carrying my tuna fish sandwich on crusty bread, no it was on a paper plate let me start again. I mean my "tuna fish on crusty bread" sandwich and the Caesar salad that comes on the side. Actually, you have a choice of Caesar or diced fruit for dessert. I don't mean the salad is for dessert no, I mean, well you know what I mean.

Have any of you been in Pasadena long enough to see the sign on this old building on Green street at the intersection of Green

and Fair Oaks, diametrically opposite to the Greek restaurant? The sign said, something about "Lawrence picked up his fork to eat his desert", ha ha. I think the building was damaged in a quake a few years ago and was repainted after the repairs. The sign has disappeared. I stopped the other day to check. You see I drive by and don't have the time to look unless of course the light is red, and it took a special effort to remember that I wanted to inspect the sign. Where am I? Oh. Yes, I was about to tell you of things which go unnoticed for long times and suddenly strike you as being notable, or incongruous or otherwise remarkable.

By the lily pond in front of Baxter, next to Casanova's Lunar sculpture, there is a sign, a foot high perhaps, that says "No dogs allowed in pond". So what's so peculiar about that? All kinds of people walk their dogs on Campus and signs are needed. Or else the dogs will well, you know. Anyway the thought came to me that everyone on Campus, or nearly everyone, is so accustomed

to dealing with smart people that may be we assume that even the dogs coming to Campus have an off scale IQ, and know how to read. There have been horses that talk (not on Campus that I know of, but I am sure you have heard about Mr. Ed), and I think I remember dogs barking the right number of times when shown a sign. Although this can be explained away as the "clever Hans" phenomenon, i.e. animals responding to cues given by their owners, it takes nothing away from the postulated smarts of Caltech dogs. So it is thoughtful to have signs just at dog eye level, and in big letters, just in case. Warning dogs away from the ponds no doubt helps to protect the egret that comes by once in a while for easy pickings.

Now that egret is quite extraordinary too. It must be a very smart egret to have discovered our ponds. An egret oasis in a world of chlorinated swimming pools. Could its infrequent visits actually reflect a deep understanding of conservation practices? Or may be there is a correlation between the coming of our distinguished and graceful visitor and the events posted at Baxter. So should I be alarmed at my peculiar ruminations, should I? Actually, saying

alarmed reminds me of something else. On the North doors of Millikan, which were condemned a few years ago, forcing all of us with offices on the North side to walk around the building to enter, on the doors of the North side of Millikan there is a sign saying "Alarmed Doors". This strikes me as a very peculiar statement. A human being can be alarmed, and so can other sentient beings, smart dogs, prize egrets, may be even laboratory mice, most of which except for Algernon are not so smart, but they can be alarmed.

Actually it takes practice not to alarm a mouse. In my days in the lab I prided myself to be able to pick one up without alarming it, and pretty soon they would crawl up my arm, all furry soft and snuggled into a lab coat pocket cozy and warm in this tight place. Mice seem to like small tight places, they always go to explore them when they are not alarmed. To come back to the library doors, one could say, "The alarm will ring when the door opens" or something shorter and pithier like "Emergency Exit Only", that grabs you, no ?, but an alarmed door? How can a door have feelings?

Come to think of it one can imagine that some objects have feelings. The appeal of computers may well be based on that. They do a fair job of imitating a live being. Remember Hal and Dave? Of course that's because

the software is designed to make it behave like that, but so what? Computers "behave" like pseudo-sentient idiot-savants. On my old 8088 I used to have a program, "Rachel" I believe it was called, that produced a fair imitation of a visit to the psychiatrist. "Welcome Master" says my machine along with Microsoft's unwinded Chimes.

Actually I anthropomorphise not only my computers but also my cars. I feel sad when I buy a new one and have to abandon my old friend. I am a little embarrassed to confess it, but I often pat the car. A little soft caress on the lid of the trunk, a last look at the dashboard, a touch of the wheel. I speak to it nicely, softly, actually not mouthing my words of thanks, lest a mechanic notice me acting funny. I guess that's not the car having feelings but me having feelings for it. A bit silly that's all. But there are times, in the woods, in the mountains, at sea, in a plane, when looking out I feel suffused by a reverence which floods my heart and make me feel one with the inanimate world around me.

There is no cause for alarm. It's just your dean letting off steam. A bientot

*Jean Paul Revel*

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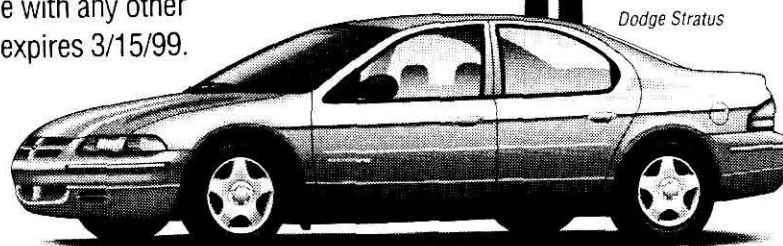
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# Mints

## Announcements

**\*\*It's time to SURF!** Even though summer seems far off, now is the time to start thinking about SURFing this summer. If you're thinking about applying for a SURF, you should begin now to look for a mentor and ask for letters of recommendation. The SURF application deadline is Monday, March 1. Check out the SURF web site at [www.its.caltech.edu/~surf/](http://www.its.caltech.edu/~surf/) to get information on the application process, look at announcements of opportunity from specific faculty members and JPL technical staff members, and download an application. For more information, contact the Student-Faculty Programs office at x2885 or [sfp@its](mailto:sfp@its).

**\*\*\*SURFing at JPL** Information Night will be held on Monday, February 1, at 7:30 pm, in 147 Noyes. Come hear about the numerous opportunities available for students to SURF at JPL this summer. Several mentors will be on hand to discuss their particular opportunity. For more information, contact the Student-Faculty Programs office at x2887 or [sfp@its](mailto:sfp@its).

**\*\*In February 1999, the Norton Simon Museum, on the corner of Orange Grove and Colorado Boulevards, will present an exhibition underscoring a momentous era in its remarkable history: "Highlights from the Collection and Archives of the Pasadena Art Museum."** As Part of a citywide celebration of art in Pasadena entitled "RADICAL P.A.S.T.: Contemporary Art in Pasadena, 1960-1974," this exhibition gives an unprecedented look into the extraordinary collection and archives of the Pasadena Art Museum, now known as the Norton Simon Museum. The exhibition opens February 7. Contact Kimberly Gilhooly at 626-449-6840 x238.

**\*\*Free anonymous HIV testing** is available every Monday evening using Orasure oral testing at the AIDS Service Center, 1030 S Arroyo Parkway. Appointments by calling 888-448-9242 are preferred; walk-ins are welcome. Last appointment at 8:00 pm. For more information call Craig Petinak at 626-441-8495.

**Looking for summer work** in one of the nation's last examples of pristine wilderness? **Glacier National Park**, located in the northwest corner of Montana, is looking for students to fill more than 900 summer jobs in all segments of the hotel and hospitality areas. Positions range from hotel front desk clerks to tour guides to guest entertainment roles. For details on jobs and salaries call Glacier Park, Inc. at 602-207-2620, write to them at 1850 North Central, Phoenix, AZ, 85077-0924, or visit [www.gpnh.com](http://www.gpnh.com).

**Attention Caltech Clubs:** The **Caltech Student Investment Fund** is now accepting applications for club funding. If your club would like to apply for money, you can download an application from: <http://www.its.caltech.edu/~sif/disbursements>. Funds are limited and the deadline for applications is January 30. If you have any questions, please e-mail [sif@its.caltech.edu](mailto:sif@its.caltech.edu).

## Events

**\*\*The winter term's Earnest C. Watson Lecture Series** will kick off at 8:00 pm Wednesday, February 10 in Beckman Auditorium with a talk by Don L. Anderson, McMillan Professor of Geophysics at Caltech. The talk will be entitled "The Inside of the Earth: A Top-Down Approach to Deep-Earth Science." For more information call 1-888-2CALTECH or 626-395-4652.

**\*\*The Aquila Theatre Company of London** will give two performances in Caltech's Beckman Auditorium. *The Comedy of Errors* will be presented on Friday, February 5, at 8:00 pm, and *The Odyssey* will be performed on Saturday, February 6, at 8:00 pm. Tickets are priced at \$29.00, \$25.00, and \$21.00. Student and senior rush tickets will go on sale for \$10.00 beginning one-half hour before each performance (subject to availability). Tickets can be purchased at the Caltech Ticket Office,

332 S. Michigan Ave., or through Ticketmaster. For more information call 1-888-2CALTECH or 626-395-4652.

**\*\*Violinists Candace Chang and Arjun Meniratta** (junior chemistry majors), violinist Heide Li (alumna employed by JPL), and cellist Tom Lloyd (alumnus at JPL) will give a **free concert** on Sunday, February 7, at 3:30 pm, in Caltech's Dabney Lounge. This is a Paco A. Lagerstrom Chamber Music Concert. The program will include Beethoven's *String Quartet in F, Op. 59 No. 1* ("Rasoumoffsky"), Kodaly's *Serenade*, and Ravel's *String Quartet*. For more information call 1-888-2CALTECH or 626-395-4652.

**\*\*The Caltech Folk Music Society** will present the **Cache Valley Drifters** at 8:00 pm on Friday, February 5 in Dabney Lounge. Tickets are available for \$12.00 in advance and at the door. For additional information call the Caltech Ticket Office at 1-888-2CALTECH or 626-395-4652 or email Rex Mayreis at [rmayreis@earthlink.net](mailto:rmayreis@earthlink.net).

Join Caltech's **Chamber Music** group on Sunday, January 31 at 3:30 pm in Dabney Lounge for **Superbowl Alternative Concert V**. Music by Telemann, Beethoven, Arnold, Williams, and Schickele will be offered for those who prefer chamber music to football.

**Caltech SEDS** will be holding its second **telescope construction meeting** beginning Sunday, January 31 at 2:30 pm in the SEDS lab (0011 Thomas). No prior experience is necessary. For detailed construction plans follow the **Construction Instructions** link from <http://www.cco.caltech.edu/~sed/s/telescope.html>. For other information contact Loren Hoffman at [loren@cco.caltech.edu](mailto:loren@cco.caltech.edu) or Leon Torres at [leon@uacs.caltech.edu](mailto:leon@uacs.caltech.edu).

**Kol Simcha** will perform **Klezmer Music** on Saturday, January 30, at 8:00 pm in Caltech's Beckman Auditorium. The Jewish folk music vernacular of klezmer is best known for its wildly exuberant dances, but the genre also has a quiet, deeply emotional side equivalent to the melancholy of Celtic music. Here the eastern European Jewish musicians who invented klezmer could express some of the pain, heartache, and anguish of ghetto life. Tickets to Kol Simcha are priced at \$25.00, \$21.00, and \$17.00. **Student and senior rush tickets will go on sale for \$10.00 beginning one-half hour before the concert.** Tickets can be purchased at the Caltech Ticket Office or through Ticketmaster. For more information call 1-888-2CALTECH or 626-395-4652.

Hailing from the People's Republic of China, **The Peking Acrobats**, an elite group of gymnasts, jugglers, cyclists, and tumblers will leave audiences spellbound with the graceful athleticism of their Asian folk art and acrobatics at the Alex Theatre, Thursday, February 4, 1999 at 8:00 pm. Tickets, priced at \$35.00, \$25.00, and \$15.00, are on sale now at the box office and, through Tele-charge, 24 hours a day by calling 1-800-233-3123. A 15% discount is offered for seniors, students, and Glendale residents with ID at the Alex Box Office only. The Alex is located at 216 N. Brand Blvd. in Glendale and can be reached by e-mailing [AlexBoxOff@aol.com](mailto:AlexBoxOff@aol.com).

Join Jorge Mester and the **Pasadena Symphony** on Saturday, January 30 for the inaugural concert of the Explorer series **All Mozart**. Featuring Mozart's astonishingly beautiful *Requiem Mass*, this concert offers the perfect music to start a three-concert examination of one of music's towering geniuses. Tickets are available for \$7.50 with a student ID or for \$6.00 at the Caltech Y. For more information call the Civic Auditorium box office at 626-395-7132.

## Fellowships and Scholarships

**\*\*The Asian and Pacific Americans in Higher Education (APAHE)** is proud to announce that applications are now available for the 1999 APAHE Scholarship pro-

gram. Applicants must be California residents currently attending a California college, plan to enroll at least half time in the Fall 1999 term, and maintain satisfactory academic progress. Additionally, applicants must be 21 years old by September 1, 1999, have undergone special life circumstances and unusual hardships, have a 3.5 or above GPA, and demonstrate active community involvement or volunteer work with Asian and Pacific American populations. To apply, applicants must submit an

APAHE Scholarship Application and Statement of Candidacy to the Financial Aid Office. The submission deadline in February 5, 1999.

The **Smithsonian Astrophysical Observatory (SAO)** anticipates offering ten internships this summer for talented undergraduates interested in pursuing a career in the physical sciences. Participants in the SAO Summer Intern Program will have the opportunity to actively participate in an individual research project, supervised by a scientist at the Harvard-Smithsonian Center for Astrophysics.

The **National Institutes of Health (NIH) Undergraduate Scholarship Program** offers scholarship awards to undergraduate students from disadvantaged backgrounds that are committed to careers in biomedical research. In return, recipients are obligated to serve as paid employees in NIH research laboratories during the summer and after graduation. The scholarships pay for tuition and reasonable educational and living expenses up to \$20,000 per academic year. Applicants must be full-time for the 1999-00 academic year, have a 3.5 or higher GPA or be ranked within the top 5% of your class, and classified as having exceptional financial need. Applications are available in the Financial Aid Office. To apply, applicants must submit application form; official transcript; undergraduate institution certification form, and three letters of recommendation, preferably from professors familiar with the student's academic qualities. For more information, visit the NIH website at <http://ugsp.info.nih.gov>. The deadline for receipt of completed applications is March 31, 1999.

The Deans' Office is accepting proposals for the **Monticello Foundation and the Robert and Delpha Noland Summer Internships**. Three to five Caltech undergraduate women (current freshmen, sophomores and juniors) will be given an opportunity to participate in research projects outside the Caltech-JPL community for ten weeks during the summer. Each student will receive a \$4,000 stipend. Applicants are required to identify the projects in which they wish to participate for a ten-week period. All arrangements with the principal researcher will be the responsibility of the student. Each applicant must describe her project in a short essay and submit it to the Deans' Office, 102 Parsons-Gates, along with two faculty recommendations. Proposals are due Monday, March 1, 1999.

The **John Gyles Education Fund** is offering scholarship awards up to \$3,000 for the 1999-2000 academic year. Applicants must be Canadian or U.S. Citizens, have a 2.7 or higher GPA, and demonstrate financial need. Criteria other than strictly academic ability and financial need are considered in the selection process. To obtain an application, send a self-addressed, stamped envelope to: The John Gyles Education Fund, Attention: The Secretary, P.O. Box 4808, 712 Riverside Drive, Fredericton, New Brunswick, Canada E3B 5G4. Filing dates for mailing documents in 1999 are April 1, June 1, and November 15.

The **Fulbright Program** has started a spe-

cial program for graduating seniors who are U.S. citizens and have a knowledge of **Mandarin Chinese**. Students will be able to study in China for 10 months beginning in late August of 1999. Students will need to go through the regular Fulbright application process and be endorsed by the Caltech Fulbright Advisor, Lauren Stolper. Applications are available through the Fellowship Advising Office. Call ext. 3150 or email [lstolper@caltech.edu](mailto:lstolper@caltech.edu) to request an application. The campus deadline for submitting completed applications will be Friday, Feb. 19. Applications and all reference materials should be sent to Lauren Stolper, 25-58.

The **American Chemical Society Scholars Program** will award approximately 75 scholarship awards to undergraduate students interested in four-year degrees in the chemical sciences. Applicants must be African American, Hispanic American, and Native American; and be U.S. citizens or permanent residents. These scholarships are valued at up to \$2,500 for the academic year. Applications are available in the Financial Aid Office. The deadline is February 15, 1999.

The **American Chemical Society/PPG Scholarships Plus** scholarships are for incoming freshmen interested in four-year degrees in the chemistry or chemical engineering. Scholarships are renewable if initial eligibility criteria are maintained throughout undergraduate study. Applicants must be African American, Hispanic American, and Native American, and be U.S. citizen or permanent residents. These scholarships are valued at up to \$2,500 for each academic year. Applications are available in the Financial Aid Office. The deadline is February 15, 1999.

The **Korean American Scholarship Foundation** is accepting applications for scholarship awards ranging from \$1,000 to \$3,000. Applicants must be full-time students of Korean American heritage enrolled in at least their second year of undergraduate or graduate school in the West Region. To apply, applicants must submit application form; a current academic transcript; two letters of recommendation; one picture of applicant taken within the last year; and a copy of the student's and parents' 1998 Federal Income Tax returns. Students can obtain additional information on the Foundation and download an application form from [www.kasf.org](http://www.kasf.org) or by writing to: Scholarship Committee, KASF Western Region, P.O. Box 486, Pacific Palisades, CA 90272. The deadline is January 31, 1999.

The **Chemical Society/Bayer Scholars awards** are for incoming freshmen, sophomore, and junior students majoring in chemistry or biochemistry. Scholarships are renewable if initial eligibility criteria are maintained throughout undergraduate study. Applicants must be African American, Hispanic American, and Native American; and be U.S. citizen or permanent residents. These scholarships are valued at up to \$2,500 for each academic year. Applications are available in the Financial Aid Office. The deadline is February 15, 1999.

The **American Society of Naval Engineers** is offering scholarship awards of \$2,500 for undergraduate students and \$3,500 for graduate students for the 1998-99 academic year. Applicants must be U.S. Citizens and demonstrate a genuine interest in a career in naval engineering. The scholarship award must be for support of the last year of full-time or co-op under-

graduate program or for one year of full-time graduate study leading to a designated degree at an accredited college or university. Applications are available in the Financial Aid Office. The deadline is February 15, 1999.

The **College Women's Club of Pasadena Scholarship Foundation** is accepting applications for scholarship and fellowship awards for the 1999-2000 academic year. Applicants must be female, U.S. Citizens, full-time undergraduate or graduate students, a sophomore or above, and must have a 3.0 or higher G.P.A. To apply, applicants must submit an application form; a one page, typed essay; a current academic transcript; and three letters of recommendations, preferably from professors familiar with the student's aspirations and achievements. Applications are available in the Financial Aid Office. The deadline is February 8, 1999.

The **American Electroplaters and Surface Finishers Society (AESF)** is offering scholarships to upper-class undergraduate and graduate students for the 1999-2000 academic year who are interested in careers in the electroplating and surface finishing field. Undergraduates must be full-time and majoring in chemistry, chemical engineering, environmental engineering, materials science, materials engineering, metallurgy, or metallurgical engineering. To obtain an application form and further information, send a self-addressed, stamped envelope to: AESF Scholarship Committee, American Electroplaters and Surface Finishers Society, 12644 Research Parkway, Orlando, FL 32826-3298. The deadline is April 15, 1999.

**Fellowships Advising and Resources** has received information on a number of summer undergraduate research fellowships. Students receive a stipend and sometimes travel and room fees are paid. Research opportunities are at a number of universities and research institutes including the Mayo Clinic, the University of Georgia, and Princeton. Stop by our office and check through the summer fellowship files for information on these and other summer fellowship opportunities.

For information on the listed fellowships, assistance with essays, for clarification of questions, contact:

**FAR - The Fellowships Advising and Resources Office.**

For information, please contact [lauren\\_stolper@starbase1.caltech.edu](mailto:lauren_stolper@starbase1.caltech.edu). To make an appointment, call x2150.

**UFA - The Undergraduate Financial Aid Office.**

For information, call x6280, or stop by 515 S. Wilson for an appointment.

To submit an event for the Mints, contact [mints@tech.caltech.edu](mailto:mints@tech.caltech.edu) or Mail Code 040-058 by noon on the Monday prior to its inclusion. Submissions must be brief and concise. Please do not send Mints in difficult formats like binhex or word document. ASCII and rtf are best. The editors reserve the right to edit and abridge all material. Solicitations will be referred to the business manager.

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