

"All I want  
is a couple  
days off!"

# The California **TECH**

"Well, back  
to the old  
grind."

Volume XCVII, Number 11

Pasadena, California

Friday, January 5, 1996

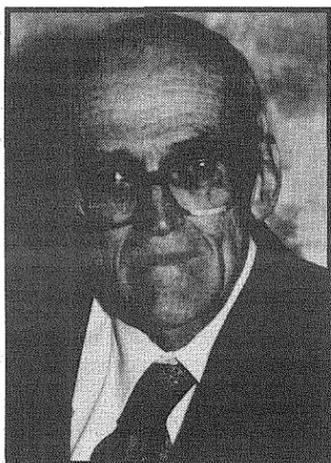
## Scientific pioneer Clair C. Patterson dies

by Jay Aller

PASADENA — Clair C. "Pat" Patterson, who won the prestigious Tyler Prize for Environmental Achievement in 1995, died suddenly on Tuesday morning, December 5, at his home in The Sea Ranch, California, northwest of Santa Rosa. He was 73.

Patterson, who had a remarkable talent for finding the most important scientific problems and then solving them, is best known for his determination of the age of the earth and the solar system, and for his pioneering work on lead pollution in the modern world.

The passion that directed Patterson's research was his desire to better understand the geochemistry of metals in terrestrial rocks, waters, and atmospheres, in meteorites, and in the solar system. Patterson was a pioneer in the study of lead in the earth's crust. He developed precise analytical techniques that enabled him to establish the true levels of pre-industrial lead in the environment. His analysis of lead isotopes in meteorites and oceanic minerals led him in the early 1950's to conclude that the earth and solar system are 4.6 billion



Professor Clair C. Patterson

years old.

This result is one of the most important measurements of time ever made. Current theories of stellar birth and evolution, and our very understanding of the history of the universe, are based in some measure on this important measurement.

While studying lead isotopes, Patterson found that human civilization had mined and dispersed an unprecedented amount of the metal around the world. Ice cores from the Greenland ice cap, dating back thousands of

years, showed that the amount of lead in modern snow is much higher than in pre-industrial times.

This knowledge led Patterson to wonder whether this abundance of lead might affect humans. His studies of the bones and teeth of prehistoric people confirmed that modern humans contain up to 1000 times more lead than did their ancient ancestors.

His message, that people were being contaminated by lead from water pipes, from leaded gasoline, and from the solder used to seal canned foods, was not a popular idea. But Patterson was a courageous and determined man, and he knew that he was right. He fought, against great odds and the money of powerful corporations, to discontinue the use of lead in these materials, and eventually, through his tenacity and his extremely thorough methods, his results and recommendations were accepted.

Patterson was born in Des Moines, Iowa, and earned his bachelor's degree in chemistry at Grinnell College in Grinnell,

Iowa, in 1943. He continued to study chemistry at the University of Iowa, where he earned his master's degree in 1944, and at the University of Chicago, where he completed his doctorate in 1951 with Harrison Brown as his thesis advisor.

He stayed on at the Univer-

sity of Chicago as a postdoctoral fellow for one year, and when Brown came to Caltech to establish the geochemistry program in 1952, Patterson came with him as a research fellow. At the time of his death, Patterson was professor of geochemistry, emeritus.

*His message, that people were being contaminated by lead from water pipes, leaded gasoline, and the solder used to seal canned foods, was not popular.*

Among his many honors, Patterson received the J. Lawrence Smith Medal from the National Academy of Sciences in

1975 and the Professional Achievement Award of the University of Chicago in 1981. He was elected to the National Academy of Sciences in 1987, and has also had a peak in Antarctica and an asteroid named for him. Most recently, he won the 1995 Tyler Prize for Environmental Achievement, the premier international environmental honor in the world.

Patterson is survived by his wife, Lorna Patterson of The Sea Ranch, California; his brother, Paul H. Patterson of Pasadena; his sister, Patricia Stuart of Altoona, Iowa; and four children and three grandchildren. Lorna Patterson was also an analytical chemist, and taught science for many years at La Canada High School in La Canada, California. The children are Susan McCleary of Crawfordsville, Iowa; Cameron Patterson of San Diego; Charles Patterson of Powell, Ohio; and Claire May Keister of Minneapolis, Minnesota. His nephew, also named Paul H. Patterson, is a professor of biology at Caltech.

## 1995: The year in review

by Jim Cheng and Maria Huang

The year of our Lord nineteen hundred and ninety five turned out to be quite interesting. This year past turned out to be one of the more interesting in recent memory. There was of course the infamous "Trial of the Century," a hope for a lasting peace in war torn Bosnia, a rather successful mission to Jupiter, and to end it all, a new ball dropping symbolizing the end of the old year and the start of the new.

Perhaps the most memorable event, and the one we probably would like to forget the most, would have to be the OJ Simpson trial which kept millions around the world glued to their television sets. All watching the judicial proceedings that would ultimately acquit the former football star of murdering his ex-wife Nicole Brown Simpson and her friend Ronald Goldman. This story continues to unfold in 1996 as the pending civil suits against "The Juice" get under way.

Stunning the nation, a terrorist bomb leveled the Alfred Murrah Federal Building in Oklahoma City on April 19, 1995. The 169 deaths, 19 of whom were children, brought the entire country together in mourning. As a nationwide manhunt ensued, two former army buddies, Timothy McVeigh and Terry Nichols, were charged with mastermind-

ing the attack. Their trials are slated to begin some time this year.

This last year also saw the assassination of Yitzhak Rabin, the prime minister of Israel who negotiated a peace accord with PLO leader Yasser Arafat. The peace treaty returned many of Israel's occupied territories back to Palestinian control and earned him the 1994 Nobel Peace Prize along with Arafat and Shimon Peres, the Israeli Foreign Minister.

1995 also marked the end of the war in Bosnia, with a U.S. brokered peace accord signed in Paris days before Christmas, ending years of bitter ethnic fighting in the former Yugoslavian state. This new peace settlement is being enforced by NATO ground troops, who are continuing to move into Bosnia to secure the tenuous peace.

On a brighter note, Caltech's own Ed Lewis was awarded the 1995 Nobel Prize for Physiology or Medicine along with Christiane Nusslein-Volhard and Eric Wieschaus for their discoveries concerning the genetic control of early embryonic development.



The past year also brought a huge success for the Galileo mission to Jupiter. On December 8, the Galileo probe moved into orbit around the massive planet and its smaller companion probe plunged into the depths of thick Jovian atmosphere. Despite previous problems with the probe, the Jet Propulsion Laboratory has been successful in retrieving data collected by the atmospheric probe and will continue the mission in the next year as the Galileo probe begins its tour of the Jovian satellites.

With the war in Bosnia seeming to have come to an end in the last days of 1995, we anticipate 1996 to be a more peaceful year.

## Astronomers discover extremely distant quasars

by Caltech Public Relations

PASADENA — Astronomers have discovered 16 new extremely distant quasars, the result of a search made nearly 40 times more efficient than previously possible by applying artificial intelligence to the new Palomar digital sky survey. This novel technique allows researchers to study more easily the formation of quasars and large-scale structures in the early universe.

"This is one of the first successful major applications of artificial intelligence techniques in astronomy and space science," said Usama Fayyad, a scientist at the Jet Propulsion Laboratory (JPL) in Pasadena, California. "Data mining techniques and automated data analysis are becoming a necessity in this new era of astronomy and space science

where instruments can generate tremendous amounts of data. The discovery of these new quasars shows how efficiently scientists can explore vast databases such as the Palomar sky survey, using this novel data-mining technology. And this technique is applicable to many other data-rich fields. It is a truly new way of doing science."

These results are reported in the December issue of the *Astronomical Journal* in a paper by Julia Kenefick, a postdoctoral researcher at Ohio State University; S. George Djorgovski, an associate professor of astronomy at Caltech; and Reinaldo Ramos de Carvalho, a senior research fellow in astronomy, also at Caltech. Kenefick is a former graduate student of Djorgovski. Some of

SEE QUASAR ON PAGE 3

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## EDITORIAL

## Affirmative Action is a Misplaced Policy

Though clearly intended to promote equality, racial quotas in actuality greatly compound the problem of racism. The selection of a person because he/she is a member of a specific group is clearly a racist act. Racial quotas often necessitate the hiring of less capable people to fill positions in education, sports, and other industries. Because of racial quotas, well-qualified people, if not members of any minority group, can sometimes lack sufficient opportunities to live up to their potential. Additionally, some affirmative action programs are virtual quotas, and these particular ones have effects that are just as deleterious. Consequently, it is most unfortunate that so many influential people believe that racial quotas and are helpful to society.

Hiring somebody because he/she is a member of a minority group is just as racist as hiring somebody because he/she is not a member of a certain group, because in both cases one is pursuing a "color-conscious" instead of a "color-blind" policy. Supporters of affirmative action often complain about the lack of members of specific minority groups in influential positions in industry. Moreover, these same people also complain

about the lack of the same groups as students in the nation's premier universities. Several years ago, for example, the focus of such complaints fell on professional sports, specifically baseball. The Reverend Jesse Jackson's Rainbow Coalition picketed several baseball stadiums because of allegedly unfair hiring practices. He complained that there are not enough African Americans in front office positions. Dr. Richard E. Lapchick, director of Northeastern University's Center for the Study of Sport in Society, agreed with Reverend Jackson. According to the Northeastern University's study on racial hiring practices for that year, baseball received an overall grade of C, the NBA received an A, and the NFL received a B. This report is still issued each year by the same people. Who gives them more of a right than anybody else to judge what is racist and what is not?

Dr. Lapchick continues to claim that the percentage of minorities in the workplace should at least equal that in the population. This, however, is a ludicrous proposition. One cannot possibly know whether there are the same percentage of qualified minorities as there are Caucasians; it may be larger or smaller. Additionally, one should measure qualifications on an individual basis. Race, sex, and other

potential causes of balkanization in a society are irrelevant when measuring somebody's ability and experience. Nevertheless, Dr. Lapchick finds no problem with the fact that the majority of professional basketball players are African Americans. If, as he states, the percentage of minorities in the workplace should reflect that of society, shouldn't the number of African American athletes be limited to about 12% of all athletes. In this light, it becomes clear that such quotas are inherently unfair. To repeat, job hiring and student selection should occur on an individual basis. One should not set out to select either the best Caucasian or the best minority for a position but instead seek the best person for it.

One disturbing effect of racial quotas is the occasional selection of somebody who is less qualified than another applicant. The college admission process is an excellent example. Many universities, both public and private, possess policies which state that they must fulfill certain racial quotas despite the fact they these same universities insist that these policies are "not quotas" but affirmative actions. Much of this is done in order to appease supporters of affirmative action, and not to correct earlier injustices. Because of this, a minority who has

lower grades and less potential than a member of the majority group is often accepted while, at the same time, the person who is not classified as a minority is rejected. It is my belief that many universities indeed use race as a reason for acceptance and rejection, despite claims to the contrary. However, it is extremely unlikely that any such accusation can ever be proved. Although many believe such practices to be fair, I believe that they are clearly unjust. People, in such processes, must be examined individually without regard to race, sex, religion, or creed.

It is a shame that so many influential people espouse racial quotas under the guise of affirmative action as a remedy for past injustices. There is no doubt that there were a multitude of past injustices against minorities, a prominent one of which was slavery. However, that wrong is in no way corrected by punishing those who did not commit the injustice. Some people even support giving members of the majority a "one strike against them" in a formal way to punish the supposed descendants of those who committed the injustices. This is even worse than the affirmative action that now plagues our society!

President Clinton is one prominent supporter of affirmative action. Upon the vacancy of a position on the United States

Supreme Court a few years ago, he stated that he intended to choose a female to fill the position. Why would one specifically want to choose someone from a specific group? Do people not realize that there may be someone outside that group who is more qualified than anyone in it? When one takes such actions, one's society inevitably suffers. People who want to stay in business hire the best person available (subject to monetary constraints) whether he/she is black, white, red, yellow, or plaid.

There is only one solution to this unfortunate situation. It must begin with the education of those who do not yet have prejudices. This, I admit, is a rather difficult proposition. Yet, I believe such a program can be largely successful if given sufficient time and resources. Lessons to prevent biases must be taught to children when they are very young. Moreover, the cooperation of adults is essential if racism is to be abolished or even significantly ameliorated. Many parents, in fact, teach their children, by both actions and words, to have the same prejudices that they do. This is truly a shame.

Please send submissions for letters to the editor to

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or by electronic mail to

[editors@tech.caltech.edu](mailto:editors@tech.caltech.edu)

Deadline for submissions is Monday at 5pm on the week of publication.

The editors reserve the right to edit or refuse to print any letter for any reason.

Please join us for the final round of the

### Doris S. Perpall SURF Speaking Competition

Wednesday, January 10  
2:15 PM

Beckman Institute Auditorium

Finalists:

2:25 PM	Heidi Eldenburg
2:45 PM	David Cuthbert
3:05 PM	Sebastian Maurer
3:35 PM	Jane Brock
3:55 PM	Samson Timoner
4:15 PM	Gina Serraiocco
4:45 PM	Jeremy Darling
5:05 PM	Becky Blankenburg
5:25 PM	Steve Chase

Winners will be announced during the reception following the competition.

For more information, contact the SURF Office.  
137 Beckman Institute x2885 surf@starbase1

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## The California TECH

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# SUCCESS & YOUR FUTURE

by Samson Timoner

You want to revolutionize an industry like Gordon Moore? Perhaps you want to invent an industry like William Shockley? Or, perhaps you would like to contribute to the frontiers of science and become a Nobel Laureate like Richard Feynman? *What? You don't know what you want to do with your life?* Don't worry, you're not the only one. When I was a freshman, searching for my own future, I took an informal poll of about 20 seniors during second term. I asked two simple questions, "What do you plan to do after graduation?" and "Where do you see yourself 20 years down the road?" An astounding 50% hadn't figured out the answer to

the first question with less than 5 months until graduation. No one had a respectable answer to the second question. I found, and I still find, that most undergraduates aren't thinking about their future. I am also amazed by the number of graduate students that have only a limited idea what they will be doing after graduation.

For many of us, college is our first experience free from direct parental guidance. Suddenly, we are the masters of our own destinies. We determine where our futures will lead, no one else can. Unfortunately, many of us have put off decisions about our future or ignored the question altogether. This is the first in a series of articles asking you to think about your future and try-

ing to guide you along a road to success.

My last article, "How to choose a major & How to get a job" (Nov. 17, available on my WWW page) was directed mainly at freshmen. The message, however, is appropriate to everyone. Go home tonight and write a list of all the possible careers that interest you. Seek out people, and events that will inform you about your possible careers (use the Caltech Calendar and the Career Center). As you learn more about each possibility, you can cross out items on your list, or add new options. Don't think you're on your own in making these decisions. Seek out mentors: friends, relatives, your advisor; and ask them for advice. Eventually, your list will shrink to a few possibilities.

This list is the first step on your path to success. To succeed, you need to know what path you want to follow. Don't worry if you find that there are half a dozen careers that interest you. As time goes on and you do more research about each field, you will be able to decide which one interests you most.

The second step in choosing a career is to make a concrete

plan for each possible path. A plan is significant because it tells you what you need to be doing now to achieve your future goals.

For example, one of my possible careers is to work in a business making micro-mechanical devices. My plan is to go to M.I.T., get a Ph.D. in micro-fabrication and enter a small, existing business that works in making micro-mechanical devices. I will either help turn that business into a gigantic success or I will start my own company. My plan tells me I need a high enough G.P.A and enough publications to get into M.I.T. It tells me I should be learning as much as I can about the microfabrication industry and about starting my own business so I can be prepared for my future. As you write down your own plans for all of your possible

futures, they will tell you what you should be learning to prepare for them. In fact you will probably find, as I have, that most of your careers will call for identical preparation.

These first two steps, making a list of possible careers and researching plans to achieve those careers will help you start focusing on your future. Soon, your future will be clearer. You'll learn what you need to do now so that you can attain your concrete goals for the future. You can start approaching decisions based on how that decision will help you in your future. More importantly, you'll learn why you should work hard today: so you can achieve your goals in the future.

Next week: Motivational Goal Setting: Success and a 4.0 G.P.A.

## QUASAR: Insight into the early universe

CONTINUED FROM PAGE 1

the technical developments leading to these discoveries have been reported earlier by Djorgovski, Fayyad, and their colleagues.

The astronomers have found 16 new quasars at redshifts greater than 4 (redshift is a measure of distance in cosmology), corresponding to look-back times in excess of 90 percent of the age of the universe. Such objects are exceedingly rare, and finding even a few of them is considered very important by astronomers. The recently discovered quasars are providing a new glimpse of the very early universe.

"We see these quasars at a time when the universe was only a billion years old, when the first structures were just forming," explained Djorgovski. The study in the *Astronomical Journal* confirms a previous suggestion that the number of quasars diminishes rapidly as one looks back toward earlier epochs in the universe. In other words, astronomers are seeing the appearance of the first quasars, when the universe was only one-tenth of its present age, or possibly even younger.

The scientists, led by Djorgovski, are conducting a systematic search to discover large numbers of extremely distant quasars using a set of sophisticated artificial intelligence (AI) software tools developed for this task in collaboration with Fayyad and his Machine Learning Systems Group at JPL.

The astronomers are applying these AI tools to a new digital survey of the entire northern sky. The digital sky survey is be-

ing produced as a collaborative project between Caltech and the Space Telescope Science Institute in Baltimore, Maryland, and is based on the photographic sky survey done with the 48-inch Oschin Telescope, a Schmidt telescope at Caltech's Palomar Observatory in northern San Diego County. When complete, the digital sky survey will contain

*The recently discovered quasars are providing a new glimpse of the very early universe.*

enough information to fill about 6 million books and will include about 2 billion stars, galaxies, quasars, and other objects.

In order to efficiently process this unprecedented amount of astronomical information, a team of scientists from JPL led by Fayyad, in collaboration with Djorgovski and his former student Nicholas Weir, now at Goldman, Sachs and Company in New York, developed a powerful software system, called the Sky Image Cataloging and Analysis Tool (SKICAT). The SKICAT system incorporates cutting-edge AI technology, including machine learning, machine-assisted discovery, and a high-performance database system to automatically measure and classify the billions of objects in the sky survey images, and to assist astronomers in performing scientific analyses of the resulting catalogs.

The Caltech group used SKICAT to select quasar candi-

dates from catalogs of objects detected in the sky survey, sorting through roughly one million other objects to find each quasar. On photographs, quasars are indistinguishable from ordinary stars in our galaxy.

"This is far more difficult than finding needles in a haystack," said Kenefick. "SKICAT allows us to automatically sort through and pinpoint interesting quasar candidates based on their color, so that we can make the best possible use of the valuable telescope time in checking them out." A previous survey for quasars at comparable distances done at Palomar used about 20 times more nights, with the 200-inch Hale Telescope, and found only nine quasars.

"This great increase in the observing efficiency is due to a combination of the huge amount of data in the sky survey, and the modern software techniques that allow us to explore it," Djorgovski said. "And the more quasars we find, the better we will be able to map these early epochs of the universe."

"Data mining and automated analysis of large databases offer the promise of giving us a handle on the data avalanche generated by NASA instruments on missions to planet earth and elsewhere in the solar system," said Mel Montemerlo, the manager of the Autonomy and Operations Program at NASA headquarters in Washington, DC.

This work was supported by the National Aeronautics and Space Administration, with additional funding from the National Science Foundation.

### TECH SUBMISSION DEADLINES

Letters to the Editor	5 p.m. Monday
Events & Notices	5p.m. Tuesday
Unsolicited Articles	5 p.m. Tuesday
Regular/Semi-Regular Columns	5 p.m. Wednesday
Assigned Articles	5 p.m. Wednesday
News Submissions	5 p.m. Wednesday
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**NEXT WEEK: James Bond in A View to a Kill**

## CD Reviews

by Mike Benedetti

Mannheim Steamroller — *Christmas in the Aire*: Clearly the worst of their three Christmas albums, and the worst liner notes Chip Davis has ever written. You can guess what it sounds like: some of the songs are done in a "Renaissance" style, while others sound like background music from "The A-Team".

Prince — *Estandard*: A 1993 club show from Barcelona. The sound

is OK, the set is mostly the 4-4 funk you'd expect. Highlight: halfway through the set, the band strips down to a power trio and he does "Honky Tonk Women" and "Jailhouse Rock".

Teenage Jesus and the Jerks — *Everything*: Twenty minutes of punkish noise. You could (and should) do this kind of thing yourself.

The Velvet Underground — *Peel Slowly and See*: A 5-CD set that includes all their albums, some live stuff, and a whole disc of early demos. This has been out a couple of months, but now the BMG record club is offering it for around \$18, so now's the time to strike. If you like the VU (and I hope you do), this is a must.

The Wild Tchoupitoulas — *The Wild Tchoupitoulas*: A New Orleans album from 1976. Worth a mention 20 years later because: 1) It is extremely danceable, 2) It features the Neville's, and 3) Every song is about how these guys like to pretend they are Indians. Or, maybe they are Indians. If you can shed any light on this mystery, contact me c/o The California Tech.



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# Calendar

by Terry Moran

#### Calendar

• My Calendar box is getting progressively smaller, but I fear my readership is in the same trend. All the same, here's a list of on-goings I don't anyone to actually attend but instead just to be envious of those less homework-loaded who can:

#### Music

• Words from the Wise: Don't go see Silverchair (on ). Seriously, why would you want to go pay to listen to a bunch of pre-adolescents whine? THEY SUCK! Especially if for the same amount you can go see Possum Dixon on January 16th at the Whisky aGoGo, or go to the Bob Marley Day Festival with many different great reggae artists at the Long Beach Arena on February 17th and 18th (Tickets on sale Saturday at noon), or Candlebox with Seaweed on Thursday, January 25th at the Palace (Tickets for sale Saturday at 10am). Also in concert is your favorite and mine Joan Baez senior... on Friday February 9th at 8pm at the Wiltern Theatre.

#### Happenings

• The Shrine Auditorium Expo Center will be holding a Comic Book and Science Fiction Convention on January 7th from 10am to 5pm. The charge is \$5, but remember: free "World Martial Arts Council" posters will be given away! WMAC Masters and Generation X will be present, and the dealer room will be full of just about everything you've ever wanted or have been looking for (or so they promise...).

#### On the Outside

• On each Sunday of this month, the National

Park Service will be hosting a different Native American Guest Host in talks "sharing their heritage, their art, and themselves with visitors." Held at the Rancho Sierra Vista/Satwiwa off of the 101 in Newbury Park, each program begins at 10am, so your encouraged to bring a picnic lunch, your questions, water, and sturdy shoes.

#### Theater

• Yes, you guessed it: it's the return of that tale of "extraordinary sensuality," Kiss of the Spiderwomen, starring Chita Rivera, Juan Chioran, and Dorian Harewood, at the Pasadena Civic on January 10th through 14th. This actual performance was called "exquisite" the LA Weekly, so it looks like a great performance of a superb show, and much worth seeing at this near venue. Tickets start at \$25 and are available at the Civic Box Office off Green street.

West Side Story is coming to The Pasadena Civic on January 23rd through 28th for 8 performances only. Based loosely on Romeo and Juliet as well as Boyz in the Hood, West Side Story is simply a breathtaking show (and a great first date ice-breaker...) and very worth seeing if you haven't yet.

#### Exhibitions

• The Huntington is presenting in celebration of the 75th anniversary of the 19th Amendment to the Constitution an exhibition entitled Votes for Women; over 75 items will be featured from the Huntington's private collection, including original letters, photographs, artifacts, and memorabilia related to the women's suffrage movement, many of which have never been publicly exhibited before.

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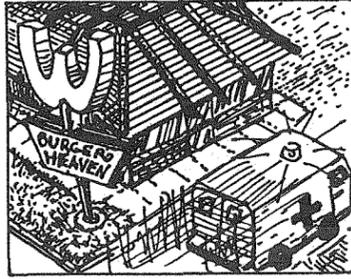
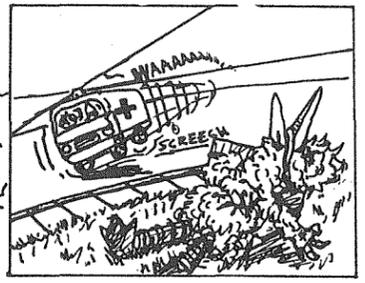
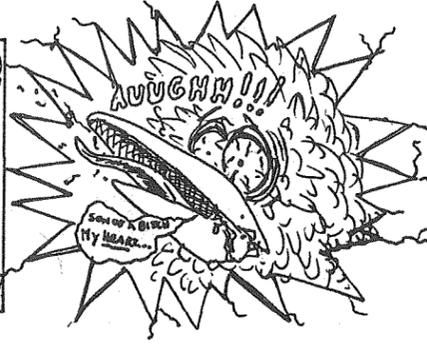
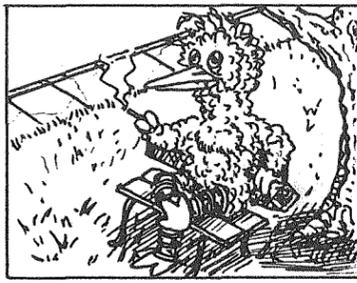
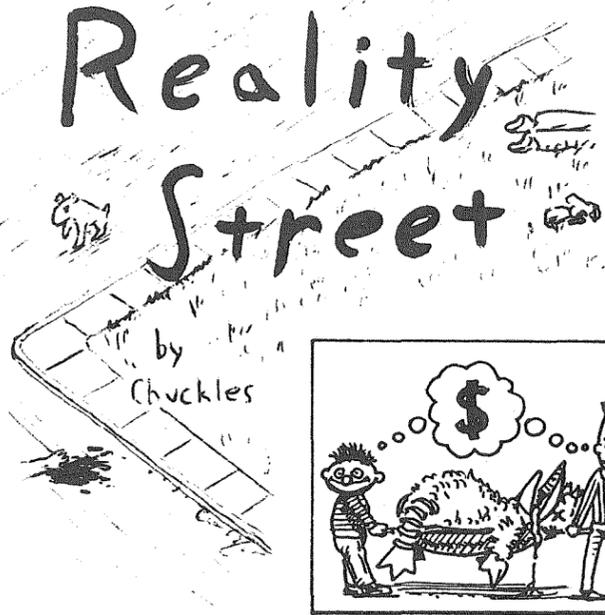
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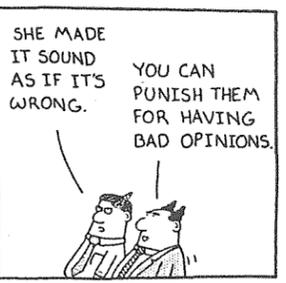
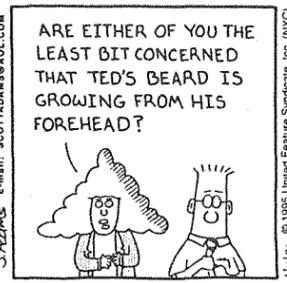
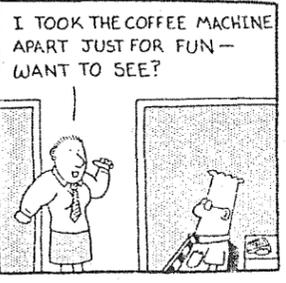
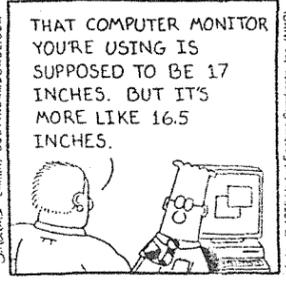
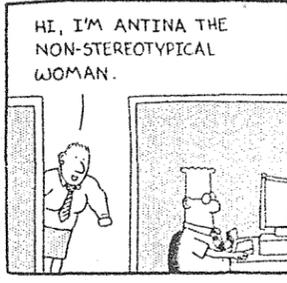
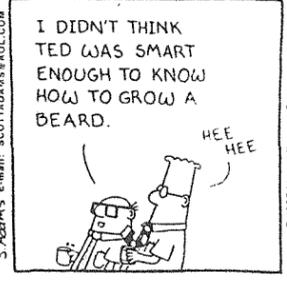
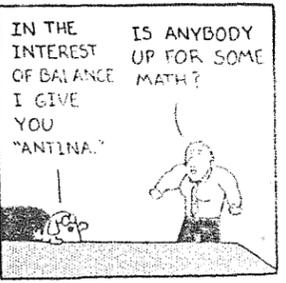
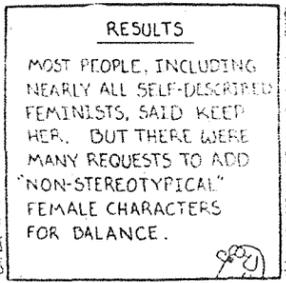
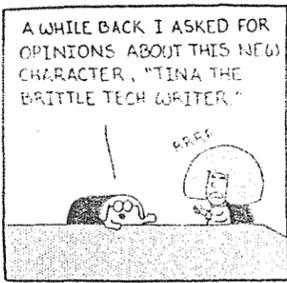
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Rennie Dudek  
Career Development Center  
08 Parsons-Gates  
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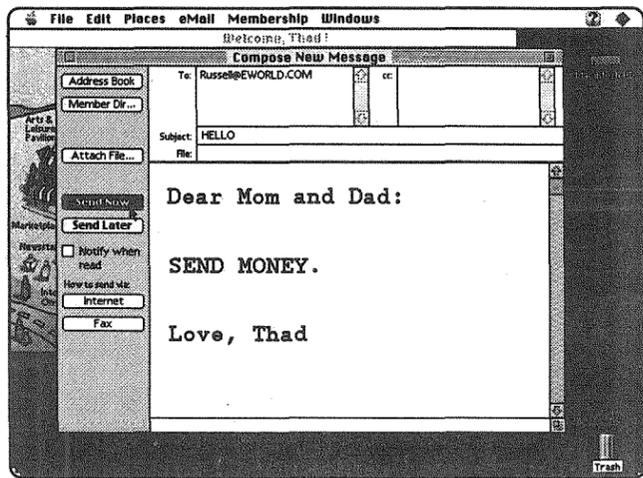




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# ADAM VILLANI: MEDIA GUY

by Adam Villani

## Holiday Movie Wrap-Up



I saw a whole bunch of movies over the holidays, reaching my goal of seeing one hundred movies in theatres during the year with a December 29th showing of Orson Welles' classic *Citizen Kane* (1941) at the New Beverly, a great revival house near Hollywood. Without any further ado, here's the reviews:

**Richard III**—This is a fascinating new movie of Shakespeare's play based on a British stage production that recasts the story in an alternate 1930s fascist England, with Richard of Gloucester's blood-thirsty rise to the British throne paralleling Hitler's rise in Germany. All of the dialogue spoken in the film is Shakespeare's words, but the new setting gives the film an intense relevancy. Sir Ian McKellan, in the title role, has been given a worthy Golden Globe nomination, and the other actors are excellent as well. It's playing now in L.A.; it might come to Pasadena.

**Shanghai Triad**—*Shanghai*

*Triad*, the least political of Zhang Yimou's (*Raise the Red Lantern*, *To Live*) recent films, is a breathtakingly beautifully photographed look at the intrigue in 1930s Shanghai crime underworld, seen through the eyes of a crime boss's mistress's young servant. Gong Li is at her best as the bitchy-yet-sympathetic mistress, and the film has a strange detached quality about it due to our point of view being that of a young outsider looking in. The fact that we're not let in on everything that's happening adds to the movie's bleak tone, and it all pays off at the end—I was genuinely angry at the evil characters and felt powerless to stop them. Don't expect to be too peppy when you leave the theatre.

**Heat**—Michael Mann's new three-hour crime drama, with its much-touted pairing of Robert DeNiro as a high-stakes thief and Al Pacino as the cop tracking him, is an exhilarating, stylish movie reminiscent of Mann's TV show "Miami Vice," but with a surprising amount of

depth to its characters. Certain elements of the screenplay seem overly staged and the final product's length could have easily been trimmed, but the attention to the wives and girlfriends of the main players and their relationships with the men are what really sets this movie apart.

**Sabrina**—After taking a while to warm up, Sidney Pollack's new adaptation of the 1954 Humphrey Bogart-Audrey Hepburn romance takes off as a nice, satisfying comedy with three good performances from Harrison Ford, Julia Ormond, and talk show host Greg Kinnear. Of particular note is the fact that this is one of the few Hollywood romances in recent years to somehow sneak past the giant schmaltz-and-treacle machine studios seem to have near their exit doors.

**Father of the Bride Part 2**—This movie apparently did double time in the schmaltz-and-treacle machine to make up for *Sabrina*. Steve Martin is fine with the material he has to work with, but the material here is painfully thin, with one-dimensional characters galore and the laughs slight and sparse. Watching this movie is a pleasant enough diversion, but there are plenty of better movies out there to see.

**Toy Story**—Disney's latest offering is quite good, easily their best animated film since *The Jungle Book* and orders of magnitude better than garbage like *The Lion*

*King*. Of course, this was produced by an outside company, Pixar, so direct your praise accordingly: *Toy Story* is a clever, funny, and original adventure that is much more than a mere technical marvel. Its only flaws are the three insipid Randy Newman songs that will, unfortunately, probably get an Oscar nomination.

**Sense and Sensibility**—Definitely no sit-around-and-sip-tea movie, the most recent Jane Austen adaptation is a brisk comedy of manners skillfully executed in every aspect, most notably by screenwriter Emma Thompson and Taiwanese director Ang Lee (*Eat Drink Man Woman*, *The Wedding Banquet*). This movie is genuinely fun to watch.

**Persuasion**—Several apparently anhedonistic film critics, most visibly Roger Ebert, have said that this is the better of the two recent Austen adaptations. There's nothing really wrong with this movie, but while *Sense and Sensibility* actually had vigor, *Persuasion* is a staid production very much like lengthy 19th-century prose—there's a good story with good characters and good dialogue here, but it's boring.

**Ace Ventura: When Nature Calls**—It's dumb, it's wacky, it's funny. Sure, these movies could be made a lot better, but Jim Carrey's performance had me busting a gut laughing in a few scenes.

**Leaving Las Vegas**—Certainly no *Ace Ventura*, *Leaving Las Vegas* is a searing look at an alcoholic writer (Nicolas Cage in excellent form) who goes to Las Vegas determined to drink himself to death and his relationship with a hooker played by Elisabeth Shue, leaps and bounds beyond her *Adventures in Babysitting* days. Director Mike Figgis' small film has been gathering armloads of critics' awards, not only because the critics are probably suicidal alcoholics themselves, but because it really is an excellent movie.

**Casino**—Not as good as Scorsese's similarly-themed

*Goodfellas*, but then, Beethoven didn't compose the Ninth every year, either. *Casino* is still an extraordinary look at Las Vegas from the inside, with time and careful attention given to the rise and fall of one mobster and the people around him. The ultra-tacky 70s Vegas costumes are a real hoot to watch.

**The Postman (Il Postino)**—This is the charming story of a simple postman in a fishing village who gets poet Pablo Neruda to help him woo a woman. Italian movies like this always make me want to visit Italy; even if you're not Italian it's sweet enough to make you want to do the same. Watch out for this movie's big fizzle about 2/3 of the way through, though; it's as if they were afraid of making the movie too short and kept the cameras running after they'd already completed a great film.

**Devil in a Blue Dress**—This cool detective story set among blacks in 1940s Los Angeles does an exceptional job evoking the jazz-age feeling of the era. The actual plot is rather standard for the genre, but the atmosphere of the film and the performances of Denzel Washington as Easy Rawlins and Don Cheadle as his trigger-happy sidekick make this movie worth watching and could be an excellent jumping-off point for a good series of pictures based on the Walter Mosely novels.

**Wild Bill**—Jeff Bridges, as always, is good in this rather muddled examination of Wild Bill Hickok's life and what it means to be a legend. Though I normally like Westerns, *Wild Bill* seems about an hour longer than it is, as the story told in numerous episodic flashbacks often leaves you wondering why what was put in was put in and why what was left out was left out. The movie's interesting enough but never really makes a point.



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Home vs. Swarthmore  
Tuesday 1/9 7:30 p.m.  
Home vs. La Sierra  
Friday 1/12  
7:30 p.m.  
Home vs. Pacific Christian  
Thursday 1/18  
7:30 p.m.  
Caltech at La Sierra

**MEN'S BASKETBALL**

Fri-Sat, 1/5 - 1/6  
Hi-Tech Tournament II at Caltech  
Wednesday 1/10  
Caltech at Occidental  
Saturday 1/13  
7:30 p.m.  
Caltech at Whittier  
Wednesday 1/17  
7:30 p.m.  
Home vs. Redlands  
Saturday 1/20  
7:30 p.m.  
Home vs. Cal Lutheran  
Wednesday 1/24  
7:30 p.m.  
Caltech at Pomona-Pitzer  
Wednesday 1/31  
7:30 p.m.  
Home vs. La Verne

**SWIMMING**

Saturday 1/6 11:00am  
Home vs. Pomona-Pitzer  
Saturday 1/20  
11:00am  
Home vs. Redlands  
Saturday 1/27  
11:00am  
Home vs. Claremont-Mudd

**BASEBALL**

Saturday 1/27  
11:00 a.m.  
Home vs. Dodgertown West

**MEN'S TENNIS**

Wednesday 1/24  
3:00 p.m.  
Home vs. Occidental  
Saturday 1/27  
9:30 a.m.  
Home vs. Redlands  
Wednesday 1/31  
3:00 p.m.  
Home vs. Occidental

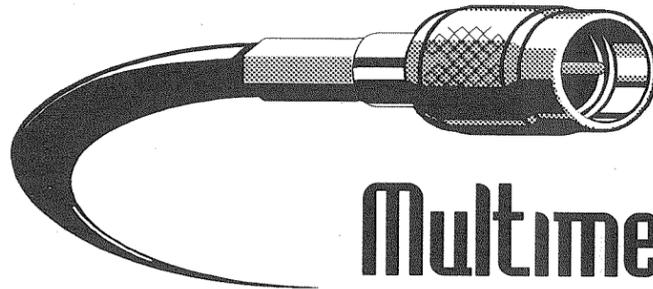
**WOMEN'S TENNIS**

Wednesday 1/24  
3:00 p.m.  
Home vs. Occidental

**GOLF**

Monday 1/29 1:00 p.m.  
Home vs. Whittier

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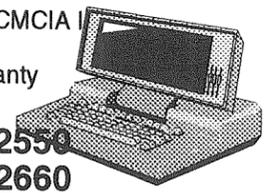
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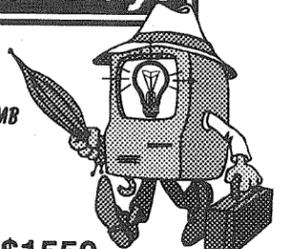
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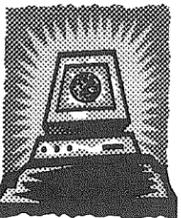


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Announcements

Caltech Guitar Classes for the Winter quarter will meet on Tuesdays starting on January 9th in Room 1 of the Student Activities Center (SAC). Beginning classes will be held from 4:30 to 5:30pm, intermediate from 3 to 4pm, and advanced classes from 5:30 to 6:30pm. Classical and Flamenco repertoires are explored but techniques transfer to other styles of guitar. The Beginning Class includes a jazz/folk chord system. Classes are free to Caltech students and other members of the Caltech community (space permitting). Undergraduates can receive 3 units of credit if they choose. Private instruction on any level can also be arranged. The instructor, Classical Guitarist Darryl Denning has an international background in performance, teaching and recording and can be reached by phone at (213) 465-0881 or by e-mail at [ddenning@cco.caltech.edu](mailto:ddenning@cco.caltech.edu).

Events

Storyteller Jackie Torrence will appear on Saturday, January 13th at 2pm in Caltech's Beckman Auditorium for a 60 minute Family Faire presentation designed especially for children. Tickets are priced at \$9 for adults, \$5 for children and can be purchased at the Caltech Ticket Office. For more information, please call x4652.

The Pacific Classical Winds will give a free Paco A. Lagerstrom Chamber Music Concert on Sunday, January 14th at 3:30pm in the Dabney Library. The program will include Beethoven's Sonata in F, Op. 17 and Quintet in E-flat, Op. 16, as well as Kreutzer's Trio in E-flat, Op. 43 and Weber's Variations, Op. 33. The performance will be played in total on instruments authentic to the music's period.

The Caltech Jazz Bands will hold a concert with guest trumpet soloist Bobby Rodriguez on January 27th, 1996 at 8pm in the Beckman Auditorium. The concert

Los Anuncios

denotes a new announcement.

and parking are free.

The Women's Glee Club is accepting new members until January 10th. This will be the last time new members may join the chorus this year. No previous experience is required to sing, but a three hour per week time commitment is necessary on Mondays from 7:30 to 9:30pm and Wednesdays from 5 to 6pm. The winter season repertoire will include the Choral Finale from Beethoven's 9th Symphony (to be performed with the Santa Monica Symphony); American folk songs by Aaron Copland; selections from Randall Thompson's "Frostiana"; spirituals, including some arranged by Ysaye Barnwell who composes and manages Sweet Honey in the Rock; and a couple of barbershop quartets. All singers interested in joining Women's Glee Club are asked to contact Monica Hubbard ([mhubbard@cco](mailto:mhubbard@cco) or X6260). Be sure to include your name, mail code, extension and e-mail address. The next rehearsal will be Monday, January 8th, at 7:30pm in SAC 1. The glee club's new home page address is <http://www.cco.caltech.edu/~musicpgm/mhubbard/glee.html>

The Caltech Swedish Club will meet at 3pm on Sunday, January 14th, at 975 San Pasqual Apartment #118 for a "julgranspunding" (post-Christmas celebration). Anyone interested in Scandinavian culture or speaking Swedish is welcome. For more information please contact Mikael Sahrning at either phone: (818)583-9001 or e-mail [mikael@lapir.caltech.edu](mailto:mikael@lapir.caltech.edu); or Lena Peterson at phone x6994 or (818)683-9102 or at e-mail: [lena@pemp.caltech.edu](mailto:lena@pemp.caltech.edu).

From the Counseling Center

Looking for a safe and supportive place to discuss issues such as coming out, being out, dealing with family, coping with a homophobic culture, and being GLB at Caltech? Want somewhere just to make new friends? You are invited to the Gay/Lesbian/Bisexual Support Group, which meets on the first and third Tuesdays of each month from 7:30pm till 10:00pm in the Health Center lounge. This is a confidential meeting and attending does not imply anything about a person's sexual orientation—only that he or she is willing to be supportive in this setting. The group usually discusses a particular relevant topic and then moves on to the general discussion. Refreshments are served. If you would like more information, please call x8331.

Fellowships, Internships, and Scholarships

From the Fellowships Advising and Resources Office, extension 2150, e-mail [lauren\\_stolper](mailto:lauren_stolper)

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If any interested Juniors, Seniors and Grad students missed the December 1st Rotary Scholarship meeting, the application is currently available in the Fellowships Office. The deadline date for this application is February 1st for those applying through the Pasadena branch. A completed application and all supporting material including references and transcripts are due to Lauren Stolper in the Fellowships Office on that date. Students can also look into applying through the club in which their permanent residence is located.

Women who are U.S. citizens can apply for a travel grant to Sweden if they plan to study or research in Sweden. More information is available in the Fellowships Advising Office. Students can request an application from The American Women's Club in Sweden, Scholarship Foundation, P.O. Box 12054, S-102 22 Stockholm, Sweden. Be sure to include a self addressed envelope with your application request.

Summer language fellowships are available through the University of Michigan's Japan Technology Program to students interested in Engineering Science or Management from any U.S. institution. The fellowships are not for study in Japan, but fund study at the University of Michigan's Summer Intensive Japanese Language Program in Ann Arbor. Fellowships include tuition, fees, and a living stipend, but no travel costs.

Work as a volunteer in one or more of 23 countries this summer: Volunteers receive room and board and can work from 2 to 4 weeks on a project. More than one project can be scheduled. Projects include tasks such as restoring a castle, organizing a festival, planting trees, building a playground or implementing a recreation program for children. This program is sponsored by the Council on International Exchange (CIEE). It is a very popular program, and it is highly advisable to apply early. No language skills are needed with the exception of Spanish for North Africa. There is a placement cost of \$195 for one 2-4 week project. Information brochures are available in the Fellowships Office or we would be happy to send you one via campus mail: e-mail your name, the fact that you want an International Volunteer Projects 1996 brochure and your mailcode to [lauren\\_stolper@starbase1.caltech.edu](mailto:lauren_stolper@starbase1.caltech.edu). A listing of last year's volunteer projects is available for review in the office. Note that special fellowships for minority students interested in this program are available through the CIEE.

Attention seniors interested in pursuing a Masters of Science degree in aeronautical, astronautical, or aerospace engineering: Student members of the American Institute of Aeronautics and Astronautics who are planning to attend graduate school next fall can apply for a one time Francois-Xavier Bagnoud Fellowship. The award will provide six students with full tuition up to \$20,000 plus an \$18,000 stipend for one year. The Fellowships Advising Office has applications; the deadline for this application is February 1st, 1996.

The Computational Science Graduate Fellowship Program supports full time doctoral study in an applied science or engineering discipline with applications in high performance computing. Applicants must be in their first year of graduate study and be either U.S. citizens or permanent residents. The postmark deadline for completed applications is Wednesday, January 24th. Applications are available in the Fellowships Advising Office.

Attention seniors and first year graduate students. Applications for the National Defense Science and Engineering Graduate Study Program (NDSEG) are available in the Fellowships Advising and Resources Office. Applications are also available via the web at <http://www.battelle.org/ndseg/ndseg.html>. At this point the application is not live-it can only be printed from the web. A live application is still under development. Although, it was hoped that it would be available this year, this will probably not be the case. The NDSEG supports work in almost all fields of science and engineering. If your field of study does not appear on the list (e.g. astronomy), then list the field closest to it as your main field of study and your actual field under subdiscipline. (In the case of astronomy, a person would probably list either physics or math with astronomy as the subdiscipline.) If you have any other questions, please contact Lauren Stolper at the Fellowships Office. The NDSEG provides three years of support for graduate level study. Applicants must be

U.S. citizens or nationals and be graduating seniors, recent alumni who have not yet begun graduate school, or 1st year graduate students. No military service or sponsorship of the Department of Defense is required of applicants. All NDSEG materials including transcripts and references must be received by, not postmarked by, January 17th.

The Department of Energy Computational Science Graduate Fellowship supports full-time Ph.D. level study in areas where the computer is used as a tool to solve problems in a scientific or engineering discipline. Examples of projects in this area might be computer based predictions of environmental changes, plasma dynamics for fusion energy, semiconductor design, or the study of fluid flow through geologic structures, etc. Therefore, students from a wide range of fields may find themselves eligible to apply for this fellowship. The application deadline is January 24th. A small number of applications are available in the Fellowships Advising and Resources Office.

From the Deans' Office, 102 Parsons-Gates:

The National Academy for Nuclear Training awards scholarships to engineering undergraduates with outstanding academic achievement and interest in careers in the nuclear power industry. For the upcoming year, 200 college sophomores, juniors and seniors will be awarded scholarships of \$2,500 each. To be eligible, you must have 3.0 or better GPA and be majoring in one of the following: nuclear engineering, power generation health physics, mechanical, electrical or chemical engineering (with nuclear fission or power options). If interested, contact the Dean of Students Office, 102 Parsons-Gates. The deadline for applying is February 1, 1996.

The Morris K. Udall Scholarship and Excellence in National Environmental Policy Foundation has created a scholarship program to attract students into careers in environmental public policy, health care, or tribal public policy. Scholarships are awarded on the basis of merit to students who are sophomores or juniors during the 1995-96 academic year and who have excellent academic records and demonstrated interest in and potential for careers in environmental public policy or are Native Americans or Alaska Natives who have excellent academic records and demonstrated interest in and potential for careers in health care or tribal public policy. The scholarship covers eligible expenses for tuition, fees, books, and room and board to a maximum of \$5,000 for one academic year.

From the Financial Aid Office, 515 S. Wilson, second floor:

The Elie Wiesel Foundation for Humanity is sponsoring its annual essay contest for full-time undergraduate juniors and seniors. Students are challenged to examine and analyze urgent ethical issues in essays of 3,000 - 4,000 words. First prize is \$5,000, second prize is \$2,500, and third prize is \$1,500. Essays must be postmarked by January 12, 1996. For essay guidelines and additional information, come to the Financial Aid Office.

The American Concrete Institute (ACI) is offering several awards. The Peter D. Courtois Concrete Construction Scholarships are two \$1000 awards for undergraduate study in concrete construction for the 1996-97 academic year. Eligible students must be enrolled at least half-time and must be seniors in 1996-97. The application, available at the Financial Aid Office, with all required supporting documents is due

January 15th, 1996.

The Chinese-American Engineers and Scientists Association of Southern California (CESASC) is offering scholarships awards for outstanding achievement. Approximately 10 awards will be made to undergraduate students for the 1995-96 academic year. The award consists of a certificate and a scholarship of at least \$400. Full-time undergraduate students with a minimum GPA of 3.5 are eligible to apply. Applications and all supporting documents are due January 25th, 1996.

The Korean American Scholarship Foundation, Western Region, is offering scholarships of \$1,000 to \$2,000 for full-time undergraduate and graduate students of Korean heritage. Application forms are available upon written request from: KASF Western Region Office, P.O. Box 486, Pacific Palisades, CA 90272. The deadline to apply is January 31st, 1996.

The College Women's Club of Pasadena is accepting applications for scholarships for the 1996-97 academic year. The competition is open to both undergraduate and graduate students who are planning to enroll full-time for 1996-97. Women who are U.S. Citizens, who will be at least sophomores in 1996-97, and who have a minimum 3.0 GPA are eligible to apply. Applications are due at the Financial Aid Office, 515 S. Wilson, on February 8, 1996.

The Society of Manufacturing Engineers announces five undergraduate scholarship programs and one graduate fellowship program. The scholarship programs will be awarding a total of 40 scholarships; awards range from \$500 to \$2,500 each. The graduate fellowship program will be awarding ten \$5,000 awards. The scholarship programs require full-time enrollment in a manufacturing engineering or manufacturing engineering technology program, and also require a minimum GPA of 3.5. The graduate fellowship program requires full-time graduate enrollment in a manufacturing engineering or industrial engineering technology program, and also requires a minimum GPA of 3.5. Applications and supporting documents are due March 1, 1996.

The Marin Education Fund announces the opening of its 1996-97 undergraduate grant application process. To be eligible, applicants must be undergraduates, must be enrolled at least half-time, and must be residents of Marin County. Financial need will be considered, and copies of 1995 tax returns will be required. For applications or additional information, call the Marin Education Fund at (415) 459-4240. Applications are due March 2, 1996.

The American Scandinavian Foundation of Los Angeles Scholarship Program announces five 1996-97 scholarships of \$1,000 to upper level and graduate students in arts and science, music, and business. Applicants must have strong academic qualifications, demonstrate some connection to Scandinavia either through field of study, life experience, or heritage, and must show financial need. To request an application form, write to: ASFLA Scholarship Program, c/o James Koenig, 3445 Winslow Drive, Los Angeles, CA 90026. Applications must be submitted by March 15, 1996.

Scholarship applications are now available from The Jewish Community Foundation and The Jewish Vocational Service for 1996-97 academic year scholarships. Applicants must be Jewish students who will be sophomores, juniors, or seniors in 1996-97, and must have financial need. Applicants must also be legal and permanent residents of Los Angeles county, and must have a minimum 2.5 GPA. To receive an application, write to: Jewish Vocational Service, Room 415, 6505 Wilshire Blvd., Los Angeles, CA 90048 before March 1, or call (213) 653-2858. Completed applications are due April 15, 1996.

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