



# The California **TECH**



Volume XCVII, Number 18

Pasadena, California

Friday, February 23, 1996

## Astronomers Find Elusive Primeval Galaxies

submitted by Public Relations

PASADENA — A group of astronomers has identified the most distant population of normal galaxies yet found. Using a new technique designed to isolate large numbers of extremely distant, young galaxies, the scientists have discovered what are very likely the progenitors of the bright galaxies—spirals and ellipticals—seen today. They observed the galaxies at a time very soon after they first formed, roughly 10 billion years ago, at red shifts between 3.0 and 3.5. These objects show that galaxies were already forming in large

numbers at an epoch when the universe was only 10 to 20 percent of its current age.

"Galaxies are the fundamental structures into which matter is organized in the universe, yet we don't have a clear understanding of how they formed or how they have evolved into the varieties we see today," explained Chuck Steidel, assistant professor of astronomy at Caltech. Steidel's colleagues in the research, which is in press at *Astrophysical Journal Letters*, are Mauro Giavalisco of the Carnegie Observatories of Washington;

Max Pettini of the Royal Greenwich Observatory in Cambridge, England; Mark Dickinson of the Space Telescope Science Institute in Baltimore; and Kurt Adelberger, a graduate student in astronomy at Caltech.

Astronomers know that there was an epoch soon after the Big Bang when there were no galaxies in the universe, and a later epoch, after the universe had slowed its expansion and cooled sufficiently, when galaxies began to form. But just when and how this formation process got started is still

unknown. The discovery reported here opens a direct observational window into galaxies' mysterious pasts.

One of the most important aspects of the new finding is that the team of astronomers now know how to systematically observe distant, young galaxies. For more than two decades astronomers have been searching, with little success, for the earliest-forming galaxies, often called primeval galaxies because they existed long ago in the early universe.

The apparent general absence of very distant galaxies, despite intensive searches, had supported

some theoretical ideas in which matter from the Big Bang did not begin to clump into galaxies like ours until the universe was relatively old, or that the incipient galaxies are hidden from view by large amounts of dust. The discovery of Steidel and his colleagues shows that bright galaxies had in fact formed quite early in the universe's history, and that it is now quite straightforward to observe them.

Astronomers have had difficulty finding these young galaxies for several reasons, including their extreme distances, which

SEE GALAXIES ON PAGE 5

## New Hampshire Primary: Republicans Divided

by Ryan Clancey

This past Tuesday, New Hampshire held the nation's first presidential primary, as it has for the past half century. As the campaign began last summer, conventional wisdom said the race would be between Sen. Bob Dole (R-Kansas) and Sen. Phil Gramm (R-Texas). But late entry Steve Forbes, the millionaire publisher, shifted the focus to the issue dejour of the flat tax. New Hampshire voters have a history of voting on economic issues, rather than social issues. So all the pundits seized on the notion that Forbes would tap into the anti-tax votes and take Gramm's place as Dole's chief rival.

But while the political establishment focused on Dole and Forbes, two previously ignored candidates began to gain

momentum. Pat Buchanan, conservative commentator and former aide to presidents Nixon and Reagan, and Lamar Alexander, former Tennessee governor and Education Secretary, beat the odds of low funding and low media exposure. Two weeks ago, Buchanan beat Gramm in the Louisiana caucuses (Dole did not participate). Then came the first real shock: Buchanan came within three percentage points of front runner Dole in

*... Then came the first real shock: Buchanan came within three percentage points of front runner Dole...*

the Iowa caucuses, with Alexander coming in a close third, Forbes squeezing past Gramm to capture fourth place. Within the week, Gramm dropped out of the race and cast his support for Dole. With Buchanan and Alexander making such a strong showing in Iowa, the New Hampshire



Buchanan takes the lead in the New Hampshire Primary

scene shifted from Dole and Forbes to Buchanan and Alexander. Buchanan, whom most thought had no chance with New Hampshire's socially moderate voters, tapped into the economic worries of the state's middle class working population attacking multinational corporations and the North American Free trade

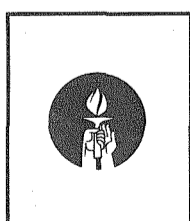
Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT). Alexander campaigned against Buchanan as too extreme, against Forbes as too rich, and against Dole for running a negative campaign. (He also added that he was in favor of some things, but nobody remembers what.)

The real importance of the

New Hampshire primary and the Iowa caucuses is not the number of delegates one can win. (New Hampshire has 16, Iowa has 25; 996 needed to win the nomination.) Money is the key significance of the nation's first primary. Candidates who fail to

SEE PRIMARY ON PAGE 8

### Alumni



Association

The Alumni Association is sponsoring lunches for small groups of students (1-3) interested in meeting alumni and having lunch with them. If you are interested, please call Kerry at x6852 or email her at [kerry\\_etheridge@starbase1.caltech.edu](mailto:kerry_etheridge@starbase1.caltech.edu).

The Alumni Association has funding available for student organizations that encourage interaction between students and alumni. To be considered for funding an application form must be completed and returned to the Association no later than March 15, 1996. To receive an application form, call Kerry at x6852 or email her at [kerry\\_etheridge@starbase1.caltech.edu](mailto:kerry_etheridge@starbase1.caltech.edu). Decisions on funding will be made in April by the Student/Faculty/Alumni Relations Committee of the Alumni Association Board of Directors.

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CALTECH  
public events

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**Armchair Adventures**

**HIGHWAY TO ALASKA**

NARRATED BY

**DON COOPER**

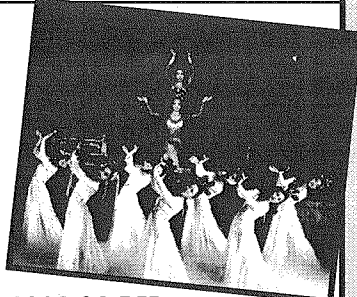
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## CALTECH-OCCIDENTAL SYMPHONY ORCHESTRA

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## Telecommunications Bill Causes Controversy

I feel that I am being dragged unwillingly to respond to the TechnoGeeks' article that you put on the front page of your 16 Feb edition. With all the anti-environmental anti-science and anti-freedom excesses being put forth in the new Congress, I would hope to spend my time fighting those rather than having to object to misuse of our freedom of speech, but the TechnoGeeks seem aiming for a response, and by putting such an offensively opinionated piece on your front page rather than on the editorial page, you as Editors are as well.

It is accepted that freedom of speech has limits, such as one cannot yell "Fire" in a crowded theatre. I do not want to argue about what is pornography but simply state that women's groups have made it clear that terms and pictures such you had in this article are a threat to how women are viewed. The attack on the Mormon religion is obviously wrong and only serves trying to make enemies.

Please don't try to engage me in a long letter debate as I would rather spend my time fighting things such as the attack on the environment now being waged in Congress, and I think that you have better ways to spend your efforts fighting Internet restrictions. What you (TechnoGeeks and paper) have done I'm sure is more counterproductive, and I ask for apologies and that in the future you police your actions internally to not do harm to your own causes.

Well, our Big Brave Government, the one We support with Our Taxes, demonstrated once again that they have a severe case of Hole-in-Headia. Not only is the CDA (Communications Decency Act, or Congressional Descent to Absurdity) another attempt by the Religious Wrong to control what and how We share Our Minds, which is a moral slap in the face as far as I'm concerned, but the whole (bleep) thing is just plain unenforceable. Many media pundits realize that The Internet has a mind (and some would say, a body as well) of its own, and that includes one helluva (oops, that should be heckuva) strong survival system. I can't think of any way that Net contents can even begin to be controlled; I mean if someone wants to send out info, they're damn sure gonna send it out. Maybe small children will be shielded from objectionable language (as I feel they should), but Christ, that's what parents are for! Furthermore, any kid past the age of twelve who really wants to get into any net site, regulated or not, is gonna do it, no matter what you, I, or The Man in The Moon think, feel or believe.

Did I say objectionable language? Well, I read no mention of "piss, shit, fuck, cunt, cocksucker, motherfucker, tits". What about other, even more objectionable words, like "nigger, kike, spic, wop, chink, faggot, and, oh yeah, why not 'fatherfucker'." I don't hear of their being regulated, and they do a lot more damage than the seven that are.

The whole CDA, or even the concept of thinking that a CDA will change anything, is one big (bleep bleep bleep) pile of dreck, and I'll bet my appendix that it won't, in the long run, change a damn (oops, darn) thing. I guess I lose. What will change is in which lawyers' pockets the big bucks will accumulate while this whole fakockta law is being debated for its constitutionality.

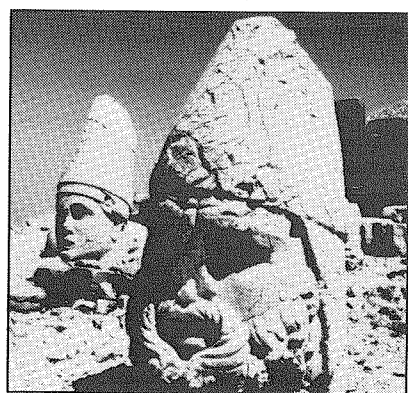
Alan Rosenstein Staff, Biology

rosensteina@starbase1

Stuart Taylor  
Solar Astronomy

*(It was felt by the Editors and The TechnoGeeks that the article was as unbiased as possible while reflecting the general feelings of campus. The editorial cartoon, which was not really part of the article was commissioned at a later time and was only there because of the similarity of topics.*

-Eds and TechnoGeeks)



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The Tech

## The California TECH

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The countdown has now reached two! (There are 21 days until the end of the term.) "All the world seems in tune on a spring afternoon when we're poisoning pigeons in the park."

Spring training has begun, marking the rise of a new baseball season. Inevitably, the Dodgers will get to the World Series, Cal Ripken won't miss any games, and Chris Berman will fail to shut up at the most inopportune times.

The California Tech is distributed free. Issues will be mailed off-campus upon receipt of \$11 per year to cover third-class postage and preparation costs. Printed by News-Type Service, Glendale.

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# An Appeal to the Public

Submitted by Francisco Gutiérrez

The U.S. Government has recently passed an act which enforces censorship on the Internet. A group of internet users has now come together to kick back at this oppression, and have a bit of fun at the same time.

The aim of this exercise is to re-establish the United States as "The land of the Free", not a fascist state where freedom of speech and thought are curtailed. Communist Russia fell as a result of such limits being placed upon the minds of the general populous. Please pass a copy of this on to as many friends or E-mail lists as you can. We predict that if everybody copies the letter to 5 other addresses, by February 29th 1996, this letter should have reached in excess of 2 million people. That's when the fun begins...

On February 29th, please send the message: Dear Mr. President, Do you remember this: Afterwards enclose the pre-typed copy of the Bill of rights. By sending the letter on the date above, you will contribute to either one huge petition for freedom, or else lead to a crash of the Whitehouse server. Send all letters to: [president@whitehouse.gov](mailto:president@whitehouse.gov) or to: The President of the United States, The White House, 1600 Pennsylvania Ave., Washington DC. Remember that solidarity is the key to success.

## THE BILL OF RIGHTS

**Amendment I** — Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

**Amendment II** — A well regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms, shall not be infringed.

**Amendment III** — No soldier shall, in time of peace be quartered in any house, without the consent of the owner, nor in time of war, but in a manner to be prescribed by law.

**Amendment IV** — The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

**Amendment V** — No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

**Amendment VI** — In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the state and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defense.

**Amendment VII** — In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise reexamined in any court of the United States, than according to the rules of the common law.

**Amendment VIII** — Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

**Amendment IX** — The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

**Amendment X** — The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people.

## Buchanan for President '96

by Erik Streed

For those of you who haven't connected to the outside world lately, let me fill you in a little. It's an election year and that means dirty politics. However, instead of the usual selection of bad and worse vying to be President, a truly frightening apparition has surfaced. He's won the GOP primary in New Hampshire and has had strong showings in Iowa and Louisiana. I am referring to the former conservative commentator Pat Buchanan.

Although he is running for the Republican Party nomination, Citizen Pat is very much against the GOP pillar of free trade. He has directly attacked both NAFTA and GATT as jeopardizing our national sovereignty, claiming it will lead to a foreign invasion of regulators intent on destroying American jobs. In addition Citizen Pat wants to erect tariff barriers the likes of which this nation hasn't seen since the beginning of the Great Depression. Isolationism on this scale would certainly cause more harm than benefit, closing markets into which our nations corporations would expand.

While Citizen Pat's economic views are out of line with the GOP,

his social positions are just plain out of line. He has frequently called for strict Christian religious instruction in the public schools. This is his cure for all of America's social ills. Unfortunately Citizen Pat appears to have forgotten some-thing he should have learned about in school: namely, the separation of church and state.

*...Citizen Pat stated his opposition to religious and moral tolerance...*

Easter, 1994

More frightening was his April 3, 1994 Easter speech. In this our beloved Citizen Pat stated his opposition to religious and moral tolerance. It's hard to get more un-American then to go against religious freedom, a founding principal of this nation.

Citizen Pat's world is a very interesting place. Filled with the forces of light (himself and the Christian right) and darkness (everybody else), the only gray area appears to be in his hairline. Since the '92 GOP convention he has claimed that "we Americans are locked in a cultural war for the soul of our country". Hopefully he won't win. The Communications Decency Act looks like kids stuff compared with what Citizen Pat might pull.



## Hear Yea! Hear Yea! Court Is Now In Session!

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- Winnett Lounge:** 1-5pm on Sunday, Feb. 25th
- Club Room 1:** 7-10pm on Monday, Feb. 26th

For more Information  
Call 395-6259 or email: [tacit@cco.caltech.edu](mailto:tacit@cco.caltech.edu)  
Please see the TACIT Web Site: [www.cco.caltech.edu/~tacit](http://www.cco.caltech.edu/~tacit)

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# A.S.C.I.T. Minutes

NOVEMBER 20, 1995

Present: Dave R., Dave B., Kohl, Emily, Kristie, Grace, James, Francisco, Heidi and Gavin

- Meeting starts at 10:10 p.m. Everyone present who were new ASCIT officers were sworn in by James. It was decided (meaning Grace and Dave were foolish and volunteered their oh so copious time) that Grace and Dave B. would help Dave R. to count the votes for today's election. Gary Lorden wants to know if the students would like a partially funded dental plan. The students would pay \$31 and Caltech would cover \$58. The members of the IHC will ask around to see if the stu-

dents think it's a good idea. All the students will be placed on the list to receive the dental plan unless he or she has declares that he or she does not want it and has other dental insurance. Also, student affairs wanted to know when the ASCIT BOD could have lunch with them.

- The ASCIT BOD, being as efficient as it is, spent ten minutes deciding that the best time for everyone to meet is at 10:00 p.m. MONDAY, which it was doing anyway.
- Kristie brings up the vagueness of the interhouse fencing rules. Dave B. will see that the IHC discusses it.
- Officers' Reports Kohl is talking to Ken Walsh about the CLUE. Emily is working on the ASCIT formal. Kristie decided that going to the bank on a national holiday was a dumb idea,

so she didn't. Grace declared that OPI was great. Dave R. And Dave B. had nothing to say.

- At 10:28 p.m., closed meeting starts. (In other words, it's none of your business)
- At 10:49 p.m., Gavin asks that Dave R. and Kristie sign to transfer signature power. Meeting is over at 10:51 p.m.

Respectfully submitted,

Grace Yang

ASCIT Secretary

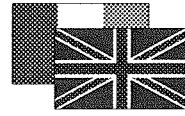
The phrase for the week:  
"Mouth to mouth advertising is more effective."

— Francisco Gutierrez

Have a nice day!

## The Outside World

by Myfanwy Callahan



London, England - After a series of

Irish Republican Army bombings, anti-terrorist officers found large caches of IRA bomb-making equipment and explosives. The most serious recent event was the blast on February 9 that killed two people and injured 100.



Moscow, Russia - The

Russian military attacked Chechnya's principal rebel stronghold, Novogroznensky, reportedly killing 170 Chechens. Yeltsin continues to promise a resolution to the war in his reelection campaign.



Vogosca, Bosnia-Herzegovina -

Hundreds of residents are scrambling to leave Sarajevo after Bosnian Serb leaders encouraged them to do so. The new government will take control in the coming weeks and may not be Serb friendly.



New York

- A report

published Wednesday in the Journal of American Medical Association showed that potential Alzheimer's patients may be identified as early as in their 20's. The study examined the writing style of 93 nuns.

Those with complex grammatical structure remained healthy 60 years later.



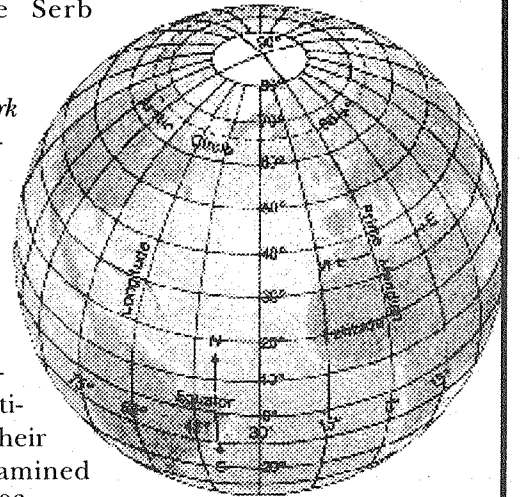
Washington, D.C. -

After 14 deaths in commuter train wrecks in the last two weeks, the Transportation Department ordered engineers to slow down when leaving the station. Last Friday 11 people were killed in Silver Spring, Md., and 3 on Feb. 6 in Jersey City.



Santa Barbara -

Chevron plans to dismantle four of its oil rigs, located along the Santa Barbara Channel, by August. This will be the most extensive project of this kind yet attempted. As the wells are almost dry, Chevron will make an effort to remove the unsightly machinery.



THEATER ARTS AT THE CALIFORNIA INSTITUTE OF TECHNOLOGY PRESENTS

# K2

by Patrick Meyers

Phillip Rodriguez and Michael Vanier are two climbers attempting the world's second highest mountain. And the most dangerous. . . .

LAST 3 DAYS!

Fri., Feb. 23 at 8 p.m.  
Sat., Feb. 24 at 8 p.m.  
Sun., Feb. 25 at 2 p.m.

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# Galaxies: A Look Back

CONTINUED FROM PAGE 1  
makes them exceptionally faint as seen from Earth. In addition, astronomers did not know exactly what these early galaxies would look like. Having almost no examples, the scientists had based previous searches on uncertain theoretical expectations about the appearance of galaxies soon after their formation. The new technique does not rely on any particular theory, but is designed to detect anything harboring ongoing star formation, which any young galaxy must, by definition, contain.

The method involves taking images of the sky using three custom-made color filters, allowing light of only red, green, or ultraviolet (UV) wavelengths to be seen. Young galaxies have a strong blue or UV tint, but when they are very distant, the UV wavelengths are strongly absorbed by hydrogen atoms both in the galaxy itself and in any gas that might be present between the galaxy and us. If a galaxy is within a particular range of high red shifts (corresponding to large distances from us), its UV light will be completely absorbed by the intervening hydrogen. By screening digital images of the sky through these filters, and watching for objects that are present in both red and green but vanish in UV, the astronomers have located many objects that are likely to be distant galaxies.

One of the advantages of this technique over previous methods is that astronomers can look at a much larger volume of space in a single viewing, up to 100 times larger, so that in one or two nights of observing on a large ground-based telescope they can find as many as 30 or 40 extremely distant galaxies based on their unique color signatures. The team has taken images over the last five years at the 200-inch Hale Telescope at Palomar Mountain, California; the 4.2-

meter William Herschel Telescope in La Palma, the Canary Islands; and at the 3.5-meter New Technology Telescope at the European Southern Observatory and the 4-meter telescope at the Cerro Tololo Inter-American Observatories, both in Chile.

To confirm that the objects they found are distant galaxies, the team had to see their spectra. A galaxy's spectrum contains information on its redshift, or distance, but these objects are so faint that, until recently, seeing their spectra was impossible. The recently commissioned W. M.

of today's luminous galaxies — the elliptical and spiral galaxies, like our Milky Way. First, the number of distant galaxies found in the new survey is large: they appear to be roughly as common in the early universe as bright galaxies are in the present-day universe.

A second important clue came from the sharpest-ever images of the distant galaxies taken with the Hubble Space Telescope. These images show that most of the infant galaxies are relatively round and compact, with intense star formation occurring in relatively small regions. The astronomers believe these regions of new stars in young, distant galaxies correspond to the conglomerations of much older stars seen nearby in the cores of elliptical galaxies and central bulges of spiral galaxies like our own.


Third, the astronomers can estimate masses for the galaxies by examining the width of absorption lines in the spectra obtained with the 10-meter Keck Telescope in Hawaii, and the inferred masses are in line with those of bright galaxies in the nearby universe. Detailed analysis of the distant galaxies' colors shows that this population of objects was quite "new" at the time being observed, and probably had

*The recently commissioned W. M. Keck Telescope on Mauna Kea, a nearly 14,000-foot extinct volcano on the Big Island of Hawaii, has made getting spectra from extremely faint objects — and thereby confirming their distance almost routine.*

Keck Telescope on Mauna Kea, a nearly 14,000-foot extinct volcano on the Big Island of Hawaii, has made getting spectra from extremely faint objects — and thereby confirming their distance — almost routine.

In late September and October 1995, Steidel and his team went to the Keck Observatory to measure the distances to about 25 of the candidates that they had chosen from previous deep images of the sky. At least 18 of them turned out to be at the distances predicted on the basis of the galaxies' colors, placing them at red shifts far beyond where any sample of galaxies had previously been studied.

Several pieces of evidence lead Steidel and his colleagues to believe that they have identified the long-sought progenitors



by Donna Ebenstein

**Boffo Bonecrusher Broomball** is Sunday from 9 PM until 2 AM. Signups end today at noon, so hurry and sign up! Schedules will be available at the Y by 5 PM today.

Haven't made plans for this weekend yet? Don't forget—the Y sells **discount tickets** to nearby movie theaters and theme parks, and also rents camping equipment. Have a great MURF Day weekend!

**Black History Month** concludes today with a **Reggae band** at noon in Winnett Quad, a **Gospelfest** at 7 PM in Dabney Lounge, and the **NESBE/CLASES Party** at 9:30 PM in Dabney Lounge. Come join in the festivities!

formed no longer than about one billion years previously — a relatively short time by cosmological standards. The existence of these objects at such early times fairly accurately pinpoints when the bright galaxies like ours were first coming together.

The color technique and the power of the Keck Telescope turn out to be a winning combination for picking out these extremely distant galaxies from among the myriad dimmer objects that are much nearer. The astronomers have identified more than 100 additional objects as possible distant galaxies, and estimate 90 percent of them will turn out to be at high red shifts.

The astronomers will continue to add to their sample of young galaxies, with the ultimate goals of gaining a reasonably complete picture of conditions in the universe when the galax-

ies seen today were forming, and of understanding how the early structure of the universe led to its present state. Now that the technique of finding these extremely distant objects has been shown to work, it will be possible to learn a great deal about how far the process of galaxy formation had progressed during the early years of the universe.

This research has been supported by grants from the National Science Foundation's Young Investigator program, from the Alfred P. Sloan Foundation, and from NASA by way of the Associated Universities for Research in Astronomy and the Space Telescope Science Institute. The research also would not have been possible without the help of the W. M. Keck Foundation, whose generous gift allowed construction of the 10-meter telescope on Mauna Kea.

## Y.E.S.S '96

Positions for the Young Engineering and Science Scholars Program (Y.E.S.S.) are available for Summer '96 in the following areas:

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Y.E.S.S is a five-week residential program that exposes 40 high school students to the joys of intensive scientific investigation. The program runs from July 8th to August 9th.

Applications are available in the Caltech Y and are due on **Friday, February 23rd.**

Contact Athena at x3180 or email at [castroa@starbase1](mailto:castroa@starbase1) for more information.

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## “Inherit the Wind” Blowing onto the Caltech Stage.

Hear ye! Hear ye! Court is now in session. Come take part in the “First” Trial of the Century. Before O.J. and Nicole, there was the “Scopes Monkey” Trial where Evolution and Creationism collide to decide the fate of science education in the United States. The play “Inherit the Wind” is a fictionalized telling of this “First” Trial of the Century. Theatre Arts at Caltech wants you to take part in their production of this important dramatic work.

### The Case

Did Bertram Cates, a school teacher in the town of Hillsboro, break the law by teaching Darwin’s Theory of Evolution to his students? More importantly, should a law that bans the teaching of evolution be obeyed? You might hold the answer to these questions, come take part in the decision.

### The Prosecution

The prosecution has called in the best defender of the Bible in the country, Matthew Harrison Brady. Senator Brady, defender of the common man and self-proclaimed expert on the bible, must use his powerful orator skills to bring Mr. Cates to justice. Could you fill his powerful shoes?

### The Defense

For the defense, the Baltimore Herald has brought in the most controversial lawyer in the country, Henry Drummond. Mr. Drummond, defender of thinking men and the rights of individuals, must use his all of his skill and resourcefulness to expose the dangers that a conviction of Mr. Cates might bring. You might be the person to bring him to life.

### The Media

As the media descends on the small town of Hillsboro, they are lead by the Baltimore Herald’s most famous columnist, E. K. Hornbeck. The overly cynical Hornbeck and his colleagues have come to report “the real story”. This could be your chance to dabble in the frenzied world of the news media.

### The Defendant

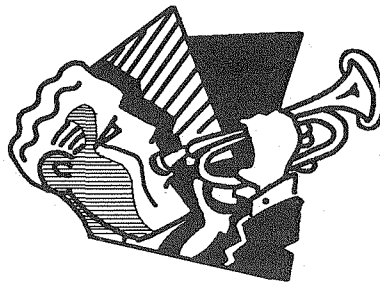
Bertram Cates never intended to create such a controversy. Now, his actions may not only cost him the ability to teach, but they may force his girlfriend, Miss Rachel Brown, to chose between her love for Bert and her loyalty to family and friends. Could you find the best path for either of them to follow?

### The Town

Hillsboro is populated with god-fearing individuals that have always taken the word of the bible as truth. Now their entire belief system has been jeopardized by this irresponsible school teacher. Are they capable of opening their minds to new ideas, or will they follow Brady’s charge to crush the trouble maker? You could be the right person to sway them.

“Inherit the Wind” will be directed by Chris Springfield, a graduate student in Applied Physics. Chris, a veteran of several TACIT productions, was a co-producer of the video feature “Green Eggs and Hamlet”, shot on Caltech’s campus last year. He hopes that a large number students will be attracted by the large number of small speaking and non-speaking roles which will require only a small time commitment. He also points out that there are several larger roles, for the more adventurous members of the Caltech community. Furthermore, many of the technical roles have yet to be filled, so anyone interested in lighting, set construction, costumes, props and stage management will be enthusiastically received. They look forward to seeing you no matter what time constraints you might have.

Auditions will be held Saturday, Feb. 24th and Sunday, Feb. 25th from 1 p.m. to 5 p.m., as well as Monday, Feb. 26th from 7 p.m. to 10 p.m.. All auditions will either be in Winnett Lounge or Club Room 1 of the Winnett Student Center. Performances are scheduled for the week-ends between April 26th and May 12th. For more information call 395-6259 or send email to [tacit@cco.caltech.edu](mailto:tacit@cco.caltech.edu). Also, please check out the TACIT Web page at <http://www.cco.caltech.edu/~tacit>.



# Jim’s CD Reviews

by Jim Pierce

The CD’s reviewed are all ones that I liked enough to buy, and as a result, the starring scheme is a little weird. It works like this:

- Ø - a gift, saved only to be a ride chaser
- ★ - It’s okay, so I keep it around for those occasional urges
- ★★ - It’s pretty good, but either not great or not my usual genre
- ★★★ - It’s good, gets listened to regularly, and I plug it to friends
- ★★★★ - It’s really good and spends more than its share of time in the player.
- ★★★★★ - It’s absolutely awesome and I can’t live without it. (note that there are not very many CDs that make it this high.

mean=3, std dev=1

The halves are because I can never make up my mind. If you want any more info on any cd, or think I should hear one of yours, just drop on by my room (Dabney 11) or email me at [jpierce@ugcs](mailto:jpierce@ugcs).

**Edie Brickell - Picture Perfect Morning**

Much more bluesy than her first, much less bitter than her second, *Picture Perfect Morning* is the most tempered Edie Brickell yet. It’s great for offices, falling asleep, of being depressed. The music is ok. I really like one song on it, “When the Lights Go Down”, and I keep it around for that one. Certainly this album won’t bother anyone, but it won’t excite anyone either.

**Edie Brickell and the New Bohemians - Shooting Rubberbands at the Stars**

Far and beyond her later albums, *Shooting Rubberbands* is really good. “Yeah, What I am” is annoying, but the rest of the album has a 10,000 Maniacs lyrical feel and a Paul Simon “new Bohemian” (whatever that may mean) sound. The guitarists is great, this album is light, happy, and the kinda thing I get caught singing

along to more often than I’d like to admit. The video for “Love Like We Do” sometimes on VH1 and is a cool little animation flick that would be an awesome .vfingerpic if we had sound.

**George Carlin - Parental Advisory-Explicit Lyrics**

George Carlin was Rufus in Bill and Ted, himself on TV, and has been doing comedy for a long time. He has an attacking, overbearing, inappropriate, offensive style that is bluntly honest and sometimes political. This is the first thing of his that I got on CD, and by far the most political. The “I Love My Dog” spiel is the best part.

**Tracy Chapman - Tracy Chapman**

I bought this album for “Fast Car”, and it got only better from there. Her lyrics are so deep that they are sometimes hard to handle, and they often deal with personal problems, familial problems, and social problems. The saddest song is sung a capella by her and deals with wife abuse from a child’s perspective. I really like this album.

**Chick Corea - Time Warp**

I don’t know much about jazz, nor do I own many jazz albums. This particular one arrived in my hands by the strange method of “hey, here’s some money: buy me a good jazz album.” I have to admit, this is a damn good jazz album. I happen to have Chick Corea playing with Bobby McFerrin, and I am seriously impressed with Corea’s creative ability, and how he feels the music. This album works wonderfully as a “My First Jazz” album (Hooked on Jazz worked for me!).

**Chopin - Waltzes**

Purchased for \$3.99, this CD is a digital recording of an Israeli pianist playing Chopin’s Waltzes. He is pretty good, in a Glenn Gould way. Lots of speed like a speed freak. I’m waiting for the Moby re-mix of the minute waltz.

**ColdStream Guards - Regimental Marches**

For those of you from Pennsylvania, the Liberty High School Grenadiers (Bethlehem, PA, one of my old schools) patterned themselves after the Coldstream Guards, red jackets, white belts, black pants, and those huge black fluffy hairskin hats with the chain hanging on your chin. Liberty was ok, but the originals were stunning. They play all the “Regimental Marches” (quick and slow), “Triple Crown”, “Crown Imperial”, and, get this, a bunch of British drinking songs, including Colonel Bogey (you actually know the tune: dink-dink...in Spaceballs, whistling in the Breakfast Club...). Like, it rules.

**Clarence Cater - Dr. CC**

He is the most sexist pig I have ever had the pleasure to hear. It is early-late eighties funk, lots of bass, and all the lyrics have to do with sex. Although the funniest song is by far “Try Me”, I bought and save this album for my #3 of all time ride chasers, “Strokin’”. Let me sample you a lyric:

I stroke it to the East  
I stroke it to the West  
I stroke it to the woman  
That I like the best

I stroke it to the North  
I stroke it to the South  
I stroke it everywhere  
I even stroke it with my mouth...

word

c-ya later—jp

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# Official ASCIT Election Results 1996-1997

**Office: President**

Candidate	Votes	Percent
David Relyea	149	28.57%
Jamie Walls	76	28.57%
No	33	12.41%
Abstain	26	n/a
Write-In8	3.01%	
<b>Total</b>	<b>292</b>	<b>100% Error=7</b>

**Action** David Relyea wins.

**Write-In11** 3.77%

**Total** 334 100% Error=8

**Action** No winner, redistribute No

Candidate	Votes	Percent
David Bacon	155	58.05%
Terry Moran	21	7.87%
Leonard Sung	80	29.96%

**Action** David Bacon wins

**Office: Vice President/BoC Chair**

Candidate	Votes	Percent
Jim Pierce	72	25.90%
Maria Satterwhite	162	58.27%
No	33	11.87%
Abstain	14	n/a
Write-In11	3.96%	
<b>Total</b>	<b>292</b>	<b>100% Error=7</b>

**Action** Maria Satterwhite wins.

**Office Upperclass Director at Large**

Candidate	Votes	Percent
Shay Chinn	65	23.99%
Alexis Johnson	145	53.51%
No	40	14.76%
Abstain	63	n/a
Write-In21	7.75%	
<b>Total</b>	<b>334</b>	<b>100% Error=8</b>

**Action** Alexis Johnson wins.

**Office: Secretary**

Candidate	Votes	Percent
Jeanne Wilson	114	40.14%
Grace Yang	126	44.37%
No	30	10.56%
Abstain	50	n/a
Write-In14	4.93%	
<b>Total</b>	<b>334</b>	<b>100% Error=8</b>

**Action** No winner, redistribute NO

**Office Freshman Director at Large**

Candidate	Votes	Percent
Jim Buckwalter	56	20.59%
Kara Swedlow	103	37.87%
Brett Tolman	78	28.68%
No	31	11.40%
Abstain	62	n/a
Write-In	4	1.47%
<b>Total</b>	<b>334</b>	<b>100% Error=8</b>

**Action** no winner, redistribute No

Jeanne Wilson	116	44.62%
Grace Yang	130	50.00%

**Action** No Winner, redistribute write-ins

Jeanne Wilson	116	47.15%
Grace Yang	130	52.85%

**Action** Grace Yang wins.

**Action** no winner, redistribute Write-Ins

Jim Buckwalter	59	23.89%
Kara Swedlow	105	42.51%
Brett Tolman	79	31.98%

**Action** no winner, redistribute Write-Ins

Jim Buckwalter	60	24.59%
Kara Swedlow	105	43.03%
Brett Tolman	79	32.38%

**Office: Interhouse Committee Chairman**

Candidate	Votes	Percent
David Bacon	151	51.71%
Terry Moran	20	6.85%
Leonard Sung	78	26.71%
No	32	10.96%
Abstain	42	n/a

**Action** no winner, redistribute Jim

Kara Swedlow	120	57.14%
Brett Tolman	90	42.86%

**Action** Kara Swedlow wins

## PRIMARY: Dole Shaken

CONTINUED FROM PAGE 1

meet expectations in the primary lose a lot of fund raising support, and candidates who do much better than expected benefit from more campaign contributions. In this year's contest however, the poor showing by Dole and Forbes will probably not significantly hurt either in the financial race. Dole has solid support from the GOP leadership, and is expected to be the nominee, so his support should remain solid. The millionaire Forbes is bankrolling his campaign with his own fortune, so he does not have to worry about fundraising. On the other hand, Buchanan and Alexander, who have been suffering from underfunded campaigns, should see a significant rise in their respective campaign coffers.

As far as the nomination goes, Dole has a rough road ahead. Unlike the delegate allocation in the general election, primary delegates are not awarded on a winner takes all basis. For instance, though Dole won the Iowa caucuses, he only won 8 of the state's 25 delegates. To win the nomination automatically, Dole will need a majority of the delegates (996 or more). As the race progresses, candidates often run out of money and drop out, allowing the front runner to pick up momentum and have a majority by the time the convention rolls around. But in this race, Buchanan is unlikely to drop out — his campaign has been running more on grass roots support than high priced television ads — and Forbes doesn't have to worry about money. If Alexander remains strong through the end of March, when most of the primaries are over, Dole will still be facing a four-way race, potentially leaving him with a plurality of delegates, but not the necessary majority. Should this happen, we will see a brokered convention, in which the candidates bargain for platform concessions or leadership positions in return for delegates. The last time this happened was the Democratic National Convention in 1968, which featured riots inside and outside the convention hall.

Oh, and by the way, the Republicans weren't the only ones battling it out in New Hampshire. Bill Clinton barely edged out his twenty opponents with a ninety percent margin of victory. Among those listed in the "Other" category, was perennial candidate and comedian Pat Paulsen.

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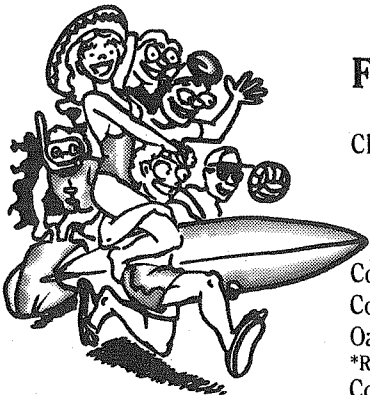


**Foxtrot**

by Bill Amend



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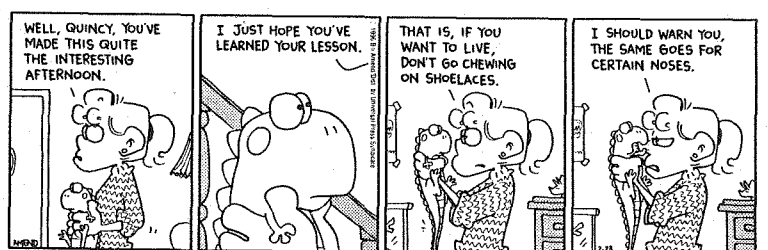
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# To the Death



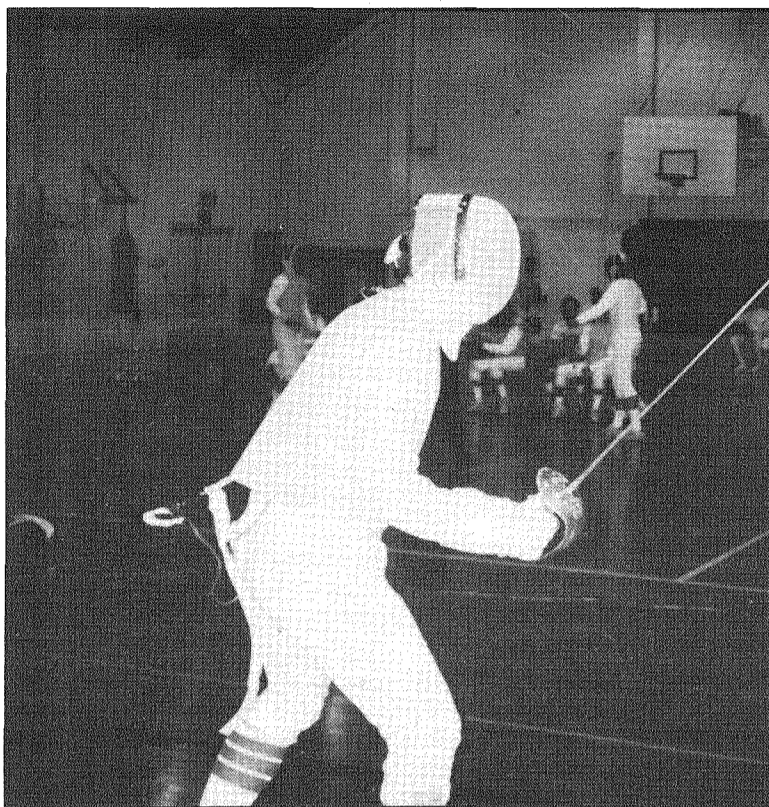
## Men's Volleyball Victorious Over Azusa

Beavers Take 2nd in Pomona Invitational

by Angie Bealko

After only fencing for seven months, junior Austin Collins took third place at the NCAA Division I Western Conference Sabre Championships as a freshman. After seven months, he was the third best sabreur west of the Mississippi at the college level. While he was fencing his way over some of the best fencers in the country, most of his friends were worrying about how to finish a Math I homework set.

As a result of his hard work, Austin obtained his "C" classification in the USFA (United States Fencing Association). The USFA is amateur competition, and at a much higher level than collegiate fencing. This is where the Olympic team members are selected from. Thus, Austin's accomplishment was no small feat. Fencers are rated on a scale of 'E' to 'A' with 'A' being the highest. Currently there are only a handful of 'A' sabreurs in the area and a dozen 'C' sabreurs. Austin earned his 'C' by winning the Southern California Division II sabre circuit. This win quali-



How to fail Math I... three times

fied him to attend the USFA Pacific Coast Championships. Unfortunately Austin was unable to attend due to the distant location.

As a sophomore, Austin took second in the conference individual sabre competition (Division II) to then senior and

former Junior National Champion and Junior Olympic Team member Kevin Boyce.

Austin was also selected to fence on the Southern California team at the USFA Pacific Coast Championships in Las Vegas, and this time attended the event. Currently Austin is the captain of Caltech's sabre team. They haven't lost a conference match in the last five years.

They compete against UCLA, UCSD, USC, UCSB, Fullerton, and Long Beach. Last year the team won the Western title for the second time in a row defeating Stanford and Air Force.

Before fencing, Austin has played high school football in Dallas and competed in full-contact martial arts. He's a physics major at Caltech and hopes to pursue a career as a theoretician (specifically, gravitational physics).

Austin is very optimistic about his team's chances at Westerns this year. Although the team has no more home tournaments, they do have one more away meet and then Westerns. Hopefully Collins will be able to continue moving up the sabre ladder and grab first place this year at Westerns. He certainly deserves it.

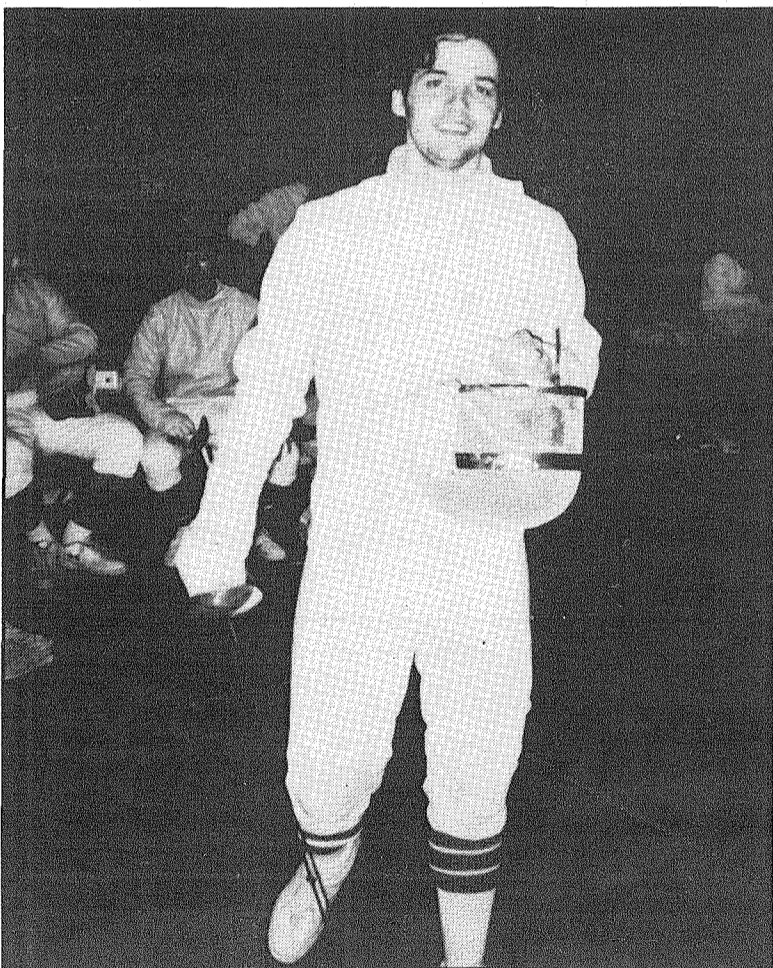


PHOTO BY ANGIE BEALKO

"I am Inigo Montoya. You killed my father. Prepare to die!"

by Rich Chin

The week of February 12th was especially busy for the Caltech Men's Volleyball Club team. Apart from the close victory over La Sierra as reported previously, the team also traveled to Azusa Pacific University for a match on the 14th, and then played in the Pomona-Pitzer Invitational Tournament on the 17th.

The Caltech squad started slowly in the Azusa match on Wednesday. Though it was able to build a good lead in the first set off good serving and defense,

the offense was not yet running smoothly. Faced with a team that played a slower tempo offense, the Caltech block tended to go a bit early, leaving many opportunities for the Azusa hitters to put the ball away. This led to Azusa taking the first game, 15-12. The second game was mainly Azusa, as they got into a good serving and defensive groove as the Caltech squad was still adjusting to the Azusa game and environment, and Azusa was able to take it 15-8. Caltech, however, was not about to give up just because it lost the first two of the best-of-five game match. It roared back in the third game, finding the holes in the Azusa defense, and completely shutting down the Azusa offense.

Suddenly, Azusa's best middle hitter was looking at a blocking wall three feet high and six feet wide every time he went to swing, and Caltech rallied to a 15-5 win. The fourth was more of the same, as Caltech found the answer to everything Azusa had to give. Caltech continued to steamroll to a 15-8 victory. The fifth game was in a quick-score, point-per-serve format which led

to tentativeness from the Azusa squad, but Caltech was aggressive as ever. With the expert setting of Chad Edwards, passing by Steve Sears, Aaron Kiely, and Andreas Masuhr, opposite hitting by Mike Burl, and middle blocking by Ken Wiberg and Mike Machczynski, along with the defensive skills of Weng Ki Ching and Rich Chin, the Caltech squad took the fifth game and the match, 15-7.

On Saturday, Caltech went to the Pomona-Pitzer Tournament. The eight participating teams were divided into two pools, and Caltech faced

*Even though Azusa was out for blood, Caltech still remembered how to play against their offense.*

Pomona-Pitzer Blue, Azusa Pacific University, and Southern California College in its division. Each match was best of three games, the third game quick-scored.

The first match was against Pomona Blue. Caltech was determined to avenge its earlier loss to the Pomona squad and came out on fire. Neither game was really a contest as Caltech went on to a 15-11, 15-8 victory. Outside hitter Mike Burl provided almost a continual highlight-tape as he hit at about 80% efficiency, finding holes in a seemingly-solid block and seams in the Pomona defense. Caltech then played Azusa Pacific in its second match.

Even though Azusa was out for blood, Caltech still remembered how to play against their offense. Although Caltech had slight misgivings entering into the match as Azusa had a starting player who was not at the Wednesday match and seemed to be one of its prime weapons, once the match started, Caltech was able to quickly figure out how to shut him down. Again, Caltech was able to take the

SEE VOLLEYBALL ON PAGE 11

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Actually, this ad is completely fake space filler. Write for the Tech, your tears and some overfies. Remember the Alamo.

## Velo Starts Strong

by Michael Kantner

Caltech Velo opened its cycling season in Long Beach with 2 top 10 placings in the Men's C criterium. Michael Kantner placed 5th, and Cyrus Behroozi finished 6th. Due to a combination of sickness and other responsibilities, no other Caltech'ers were able to race last Saturday.

Caltech looked strong from the beginning, with Cyrus leading the group early during this flat 50 lap race. After a few laps, he moved back into the pack, and Michael moved closer to the front. Two laps before the first prime, a sprint where additional points are awarded to the first four cyclists who cross the finish line, Cyrus attacked. He quickly gained a 1/4 lap gap on the rest of the field. However, he was not able to hold off the field for two laps, and was caught before the prime sprint.

After the first prime, the race slowed. Several other cyclists attempted to break free from the pack, but none succeeded. With two laps to go before the second prime, a UCSB rider attacked, and Michael followed. Unfortunately, Michael never caught the UCSB rider's wheel and was reeled in by the pack. The UCSB rider won the prime, but was

caught immediately afterwards. The race then settled down, and little happened until the last few laps.

With three laps remaining, a UCSB rider attacked. Michael and two UCLA riders followed, and quickly gained a small gap on the field. After one lap, another UCSB rider bridged to the breakaway group. With two laps to go, it appeared that this break of 5 people had a chance to stay clear until the end of the race. The break stayed clear, and the UCSB riders finished first and second. The UCLA rides finished third and fourth. Michael, tired from working in the break, finished fifth.

Cyrus, who didn't have to work during the last three laps since Michael was in the breakaway, was well rested for the final sprint. After it was clear that the break would not be caught, he moved to the front of the pack. He led the group through the final turn, and easily won the field sprint, taking 6th place overall.

Caltech Velo's road season continues this weekend with the Mt. Baldy hill climb time trial and the Cal Poly Pomona criterium. For more information, send mail to [cycling@cco](mailto:cycling@cco) or visit the club's web page at <http://www.cco.caltech.edu/~cycling>.

## Caltech Assistant Basketball Coach Sets New Guinness World Record

by Angie Bealko

Coach Fred Newman traveled to San Antonio the weekend of February 9th to the 11th for the annual NBA All Star Weekend to try to set a new Guinness world record.

Coach Newman currently holds four world records: for free throws made in 24 hours (20,371); consecutive free throws while blindfolded (88); most free throws in ten minutes using two balls (336); and percentage made in 24 hours (98%). The Guinness committee cleared Newman to attempt a record for free throws made in an hour during the All Star Weekend.

Since Newman was the first

person to ever attempt such a feat, his initial attempt of 1,808 on Thursday was an automatic world record. On Sunday the 58 year old assistant coach beat his own record sinking 2,034 shots out of 2,243 attempts (90.7%). When asked about his technique, Newman said that "if you're going to do it right, it has to be a special shot. You want to use as few muscles as possible. That's why I shoot a one-handed push shot."

Besides being a coach at Caltech, Newman also earned his Bachelor's degree here and played varsity basketball for the Beavers. He currently is a building supervisor for the athletic department.

## JV Men's Basketball Squad Battles Claremont Mudd

by Angie Bealko

This past Saturday night some of the younger players on the Men's Varsity Basketball team got a chance to take the court for the first time this season. This JV squad met the Claremont Mudd Stags for its first of two games this season. Despite showing excellent offensive control and grabbing some key steals, the Beavers still fell to the Stags 63-39.

Coach Gene Victor set up two JV games for the younger players to give them a chance to see some playing time this season. "We have 17 young men that come out to practice every day and work extremely hard. I admire their dedication to the sport and this team. I wanted to give the younger guys a chance to play in some real games since they've given so much throughout the season" stated Victor. Tech gained control at the onset grabbing the tip and setting up a patient yet strong passing game. They played phenomenal defense, pressuring the Stags well on the perimeter. However, their nemesis proved to be their lack of rebounding. It would haunt them for the entire game. Freshman Brett Tolman scored Caltech's first basket around the 17 minute mark. About a minute and a half later junior Bob Webbink had a powerful block that drew some oohs and ahhs from the crowd. Tolman and freshman Matt Hall did a nice job moving the ball around on offense, as Tolman throw a few intimidating elbows, and Hall sank a three early on in the game. Hall also registered three steals during the first half. Tolman sank two free throws and two ten footers to lead the Beavers in scoring at half-time. Freshman Rajat Kongovi sank a pair of baskets, grabbed a defensive board, tallied an assist, and ran away with two steals in the first 20 minutes of play for the Beavers. Freshman John Niccolai was the only Techer to grab more than one rebound before heading into the locker room, bringing down to defensive boards.

At half-time the Stags were up 33-17. Despite playing a stronger second half, the Beavers couldn't pull out a win. Kongovi

continued his consistent play, scoring 6 more points for Tech, and registering an assist, a rebound and two steals while playing the back court. Tolman grabbed two assists, one which came off of a beautiful pass underneath to a wide open Niccolai. Hall led the team in the second half with his three assists and four rebounds. Freshman Matt Ensley pulled in a total of three rebounds, stole a ball, sank 3 baskets, and blocked one unsuspecting Stag. One of his baskets came off of an excellent offensive rebound. My "thug of the game award" goes to Tolman for earning him-

self four personal fouls. Hats off to Tolman's aggressive play.

Leading scorer was Kongovi with 10, followed by Tolman and Niccolai with 8. Freshmen Caleb La Vergne and David Djambazov also saw playing time and helped control the offense for the Beavers. Djambazov grabbed a steal and two points during his minutes, while La Vergne earned himself a rebound and an assist. Assistant varsity coach Fred Newman got his first opportunity to head coach, as coach Victor stepped down from the helm. Congrats to the team on an excellent first showing.



## UPCOMING EVENTS

by Angie Bealko

Day	Event	Location	Time
Friday 2/23	•SCIAC Swimming	Cerritos	All Day
	•Baseball	La Verne	HOME 2:30 p.m.
	•Men's Club Volleyball	BIOLA	AWAY

Day	Event	Location	Time
Saturday 2/24	•SCIAC Swimming	Cerritos	All Day
	•Men's Tennis	Whittier	HOME 9:30 a.m.
	•Women's Tennis	Whittier	AWAY 9:30 a.m.
	•Fencing	CSLB	11 a.m.
	•Baseball	La Verne	AWAY 11 a.m.
	•Track Invitational		HOME noon
•Men's Club Volleyball	Mt. San Antonio	HOME 1:30 p.m.	

Day	Event	Location	Time
Monday 2/26	•Golf	Cal Lutheran	HOME 1 p.m.

Day	Event	Location	Time
Tuesday 2/27	•Men's Club Volleyball	USC	AWAY

Day	Event	Location	Time
Wednesday 2/28	•Golf	La Verne	AWAY 1 p.m.
	•Women's Tennis	Pomona Pitzer	HOME 3 p.m.
	•Men's Tennis	Pomona Pitzer	AWAY 3 p.m.

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## SCOREBOARD

by Angie Bealko

Day	Event	Location	Result	Score
Wednesday 2/14	•Men's Tennis	Chapman	LOST	9-0
	•Men's Basketball	Cal Lutheran	LOST	84-40

Day	Event	Location	Result	Score
Thursday 2/15	•Women's Tennis	Whittier	WON	8-1

Day	Event	Location	Result	Score
Friday 2/16	•Baseball	Claremont Mudd	LOST	13-2

Day	Event	Location	Result	Score
Saturday 2/17	•Women's Tennis	La Verne	WON	9-0
	•Baseball	Claremont Mudd	LOST	18-10
•JV Men's Basketball	Claremont Mudd	LOST	11-0	
	Claremont Mudd	LOST	63-39	
•Men's Basketball	Claremont Mudd	LOST	70-33	

# VOLLEYBALL: Tech Takes Azusa for Win

FROM PAGE 9

match in two games, 15-8, 15-7. The third match was against Southern California College, who had not done well at all in its previous matches against Pomona and Azusa Pacific. However, the SCC squad was fired up against Caltech, and the Caltech squad knew that the match would not affect its first place seeding in the pool.

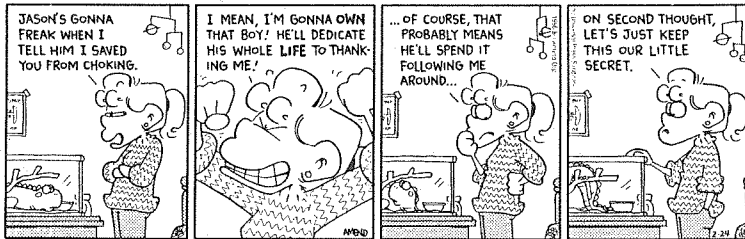
The laxity of Caltech's play was evident in the numerous errors it committed, none of which were evident in its earlier matches, and it gave the match to SCC in two games, 8-15, 6-15. Coming in first in its pool, Caltech then went on to play the second seed team from the other division, Cal Poly Pomona.

For sake of time, the championship matches were limited to 11 point games, and the third game again quick-score. Cal Poly came out strong, taking the first game 11-6. Caltech then roared back with an 11-4 victory in the second. It then built a good 10-7 lead in the third, but had a brief scare as Cal Poly tied it 10-10. However, Caltech's solid play won out, and the squad took the match, 12-10. The championship match was against Mount San Antonio College, in almost a re-hash of last year's championship. Caltech took the first game 11-4, but became complacent in the second, and Mt. SAC won the momentum, 11-6. The last game was tight throughout, but this time Mt. SAC got the breaks and won the title, 12-10.

This Saturday, February 24th, is Caltech's homecoming match. It will be at 1 o'clock in Brown Gymnasium against Mount San Antonio College. The Caltech squad will be fired up to avenge the loss at the Pomona tournament, and the match is sure to be a thrilling display of power volleyball. Come out and support the team this Saturday at 1:30 p.m. at its first home match of the season!

FoxTrot

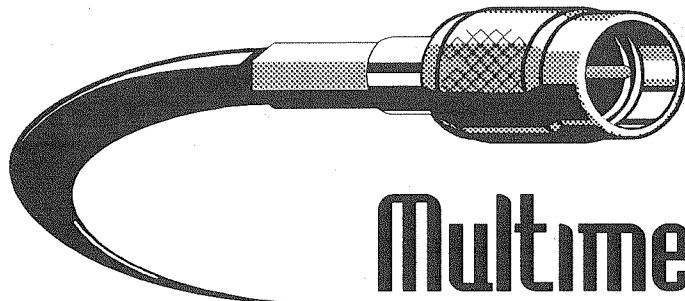
by Bill Amend



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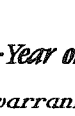
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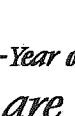
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**Announcements**

➦A representative from P.I.A. will be on campus to answer questions about **student health insurance coverage** and assist in resolving claims problems. The P.I.A. representative will be available on Wednesday, February 28th, in the Winnett Club Room #1 from 11:00am to 1:00pm. For further information please call Marie at the Health Center, extension 6393.

➦Physical Plant has announced that there will be a **temporary closure of Lura Street** for repaving from Sunday, February 25th through Friday, March 1st, at 5pm. No parking lots will be closed, but exits onto Lura street will be blocked off. For further information, please contact John Rousseau at extension 6094.

**TACIT** will be holding auditions for the show **Inherit the Wind** on February 24th and 25th from 1 to 5pm and on February 26th from 7 to 10pm in the Winnett Student Center. All members of the Caltech/JPL community are encouraged to participate. This show contains many large and small roles which can accommodate various schedules.

The **Graduate Housing Office** has relocated to 405 S. Catalina #105 (Campus Building #104). Their new extension is x6178 and new mail stop code 105-104. Linda Chappell and her assistant Dave Nuttall will be happy to answer any questions you might have about graduate and guest housing. All other functions of the Office of Housing remain unchanged.

The **Jazz Improv Class** will begin again soon. This class is open to all Caltech students, staff, and faculty who want to learn more about the basics of music as it applies to improvisation. Scales, intervals, chords, and styles of music are studied and applied to whatever instrument you play. It's a private non-credit class that costs about \$10 per class. All levels are welcome. Please call Josh Levy at (213) 934-0373 as soon as possible if you are interested in enrolling in the class.

**Clarinetists** are needed for the Caltech-Occidental Concert Band. If you play the clarinet and are of an intermediate to advanced level, and are free on Thursday nights, please call Bill Bing at (213) 684-8964.

**Delta Airlines** is offering special "extra credit" student fares as low as \$138 round-trip (and as high as \$318, depending upon locations of travel) for travel between today and March 31st. Tickets are nonrefundable and must be purchased at least seven days before departure, with certain black-out dates. To get these special rates, students are to call Delta at 1-800-9DELTA0.

**Events**

➦The Caltech Division of Humanities and Social Sciences and the Caltech Y present **Pulitzer Prize-winning Poet Maxine Kumin** in a lecture entitled **Women, Lambs, and Vegetables** on Wednesday, February 28th, at 4pm in the Judy Library.

➦John Spelman will be performing his one-man version of Mary Shelley's **Frankenstein** on Friday, March 1st at 8pm in the Beckman Auditorium. Tickets are FREE to Caltech Faculty, Staff, and Students through the Caltech Ticket Office while supplies last.

The Men's and Women's Glee Clubs present **American Sampler** on Friday, March 1st, at 8pm in the Dabney Lounge. Included on the schedule is: Testament of Freedom and Frostiana by Randall Thompson, and American Folk Songs by Aaron Copland, plus spirituals, Jazz, and Barbershop Quartet. The performance is free, but seating is limited.

# What Goes On

➦ denotes a new announcement.

Theater Arts at the California Institute of Technology present **K2**, by Patrick Meyers in the Ramo Auditorium on February 23rd, and 24th at 8pm, and on February 25th at 2pm. Tickets are \$10 general admission, \$6 for students.

**Club Announcements**

➦The **Caltech Ballroom Dance Club** is starting up a new class on Waltz Friday evenings from 7:00 to 8:30 p.m. in the Winnett Club Room 1 (2nd floor, Winnett Center). The first class will be held Today, Friday, February 23rd. Taught by Enio Cordoba and Terry Jones, the national champion instructors who have taught us for the past year, no experience nor partner is needed. Four classes cost \$12 for Caltech students/staff, JPL employees, or their partners, and \$20 for all others. Contact Chingliu at chingliu@uges.caltech.edu or at 795-0660 for more information.

➦The **Caltech Ballroom Dance Club** is continuing its Wednesday evening West Coast Swing classes in Winnett (1st floor) from 7:00 to 8:30 p.m. Taught by professional instructor Richard Orozco, both classes are followed by open dancing.

**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 and Scholarships**

➦**Project Vote Smart** has announced that a generous grant from the Hearst Foundation is making over \$50,000 in scholarships available to students who want to work on the "Voter's Self-Defense System" this spring and during the entire 1996 presidential election series. This project, through a phone hotline and a web sight, attempts to help give voters "a way to defend themselves from the manipulative mudslinging of political campaigns" by providing an instantaneous way for voters to access the facts. Students interested in learning more can contact Ann Yoders at either (541) 737-3760 or by e-mail at [ann@vote-smart.org](mailto:ann@vote-smart.org).

Finding that Science and Math aren't your only interests? The **J.P. Getty Museum** understands. In fact, they have a program for people like you: The J.P. Getty Trust is now accepting applications for summer internships from culturally diverse undergraduate students interested in exploring careers in art museums and related areas of the visual arts and the humanities. Students of all academic disciplines are encouraged to apply. The internships can be held at a variety of J.P. Getty locals in the Southland, go from June 17th through August 23rd, and provide a \$3,000 stipend. The deadline

for applications is **March 4th**.

From the **Fellowships Advising and Resources Office**, extension 2150, e-mail [lauren\\_stolper@starbase1.caltech.edu](mailto:lauren_stolper@starbase1.caltech.edu).

**Attention Graduating Seniors:** Many private high schools and middle schools offer one year fellowship programs for graduating seniors who would like to teach for a year. Positions are usually paid. Some fellowships are in day schools and some in boarding schools. If you would like to have us send you a copy of a list of such programs plus a guide that tells you more about these fellowships please e-mail the Fellowships Advising Office. Give your name, specify teaching fellowships in the subject or body and give your box number.

The **Lindbergh Foundation Grants Awards** support innovative ideas at their early stage of development. The grants are open to citizens of all countries and support research and educational projects that address in some way the balance between technology and the environment. Ten grants in amounts of up to \$10,580 are awarded each year. Applications are available through the Fellowships Advising Office.

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.

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 prect 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 Spain and conversational French 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.

From the **Deans' Office**, 102 Parsons-Gates:

➦The **Beckman Internship** will be available for the summer of 1996. The internship, supported by friends of Arnold Beckman, will pay a stipend of \$3600 and allows a selected intern to spend the summer working in the office of a politician to see the inside process of government. The intern is expected to make arrangements with the appropriate political persons. It is open to any undergraduate who intends to be a Caltech student next year. If interested, submit a brief proposal describing where and how you would use the stipend, to the Deans' Office, 102 Parsons-Gates, by **Monday, April 8, 1996**.

Teachers are needed for this summer's **Academy by the Sea** academic boarding program in the fol-

lowing areas of expertise: English, English as a Second Language, Computer Science, Math, French/Spanish, Science (Environmental/Oceanography), Social Sciences (World, U.S. History). The qualifications to work in the program are a Bachelor's degree in a related subject and previous experience with youths. All applicants must also be able to work from July 3rd through August 10th. The program is set up for the teachers to teach three morning classes, assist in two recreational activities, and live on-campus in Carlsbad, California. Teachers will also be asked to assist in supervising weekend excursions to Southern California attractions, as well as attend to periodic dorm supervision duties during some evenings and weekends. All participants will be provided with room and board as well as \$2,200. This is a terrific experience working with youth in a California seaside academic program. To apply, please send a resume and cover letter to the attention of: Ms. Eowyn Schute, Academy by the Sea, P.O. Box 3000, Carlsbad, CA 92018-3000. For more information, please call (619) 434-7564 or Fax (619) 729-1574.

The **Lindsley F. Kimball Research Institute of New York Blood Center** is announcing openings for undergraduate science students for summer research positions in New York at the Research Institute. Participants will be provided with a \$1,500 a month stipend plus housing for the summer. Transportation to and from New York, however, will not be covered. If you are interested, the Deans' Office has a list of the research opportunities at the Research Institute. To apply, please send a curriculum vitae by April 5th, 1996 to: Jan W.M. Visser, D.Sc., New York Blood Center, 310 E. 67th St., New York, NY 10021.

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 \$3,600 stipend. Applicants are required to identify the projects in which they wish to participate. All arrangements with the principal researcher will be the responsibility of the student. Interested? Identify a sponsor for your experience at a research facility for a ten-week period. In a short essay, describe your project, and submit it to the Deans' Office, 102 Parsons-Gates, along with two faculty recommendations. Proposals are due Monday, **March 4th, 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 **Thai Government** is offering scholarships to Thai students studying in the U.S., who are also under 30 years of age, and who are majoring in computer science (2 scholarships), economics (1 scholarship), and business administration (1 scholarship). Students must have no commitments to other scholarship donors, as they will be required to work for the Thai Revenue Department, Ministry of Finance for a period of time following graduation. Both undergraduate and graduate students are eligible. Applications and supporting documents are due by **February 29th, 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 1st, 1996**.

The Zonta Club of the Santa Clarita Valley Area is

offering two \$1,000 undergraduate scholarships to female residents of the Santa Clarita Valley. Applicants must be full-time during the 1996-97 academic year, and must have legal addresses within the Santa Clarita Valley. Applications are due **March 1st, 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 2nd, 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 15th, 1996**.

The **Society of Women Engineers, Los Angeles Section (SWE-LA)** is pleased to announce their 1996-97 scholarships. In addition, they are announcing a new Microsoft Scholarship specifically for software engineers. Scholarships are available to all women in undergraduate and graduate engineering programs, with special consideration given to those students under unique circumstances and financial need. Applicants must have at least a 3.5 GPA to be eligible. The amount of each scholarship will be \$1,000. All applications and supporting materials must be postmarked no later than **March 30th, 1996**.

The **Coalition of Higher Education Assistance Organization (COHEAO)** is accepting applications for three \$1,000 and six \$100 scholarships. Interested applicants must complete and mail a postcard (available at the Financial Aid Office) in order to receive an application. Postcards must be mailed by **April 1st, 1996**, and the completed applications must be submitted by **June 1st, 1996**.

The **American Association of University Women (AAUW)** will be awarding several scholarships of \$500-\$1,000 to female college students who will be juniors or seniors in 1996-97, and who have lived in the San Ramon Valley. Applicants will be evaluated on the basis of scholarship, achievement, educational goals, financial need, and campus or community involvement. For more information and an application package, send your request with a \$ .64 stamped, self-addressed large envelope (9 x 11 1/2) to: Charlotte Orren, 248 Belaire Court, Danville, CA 94526. Applications must be postmarked by **Tuesday, April 2nd, 1996**.

The **John Gyles Education Fund** is offering financial assistance to students in Canada and the United States. Canadian or American citizenship and a minimum 2.7 GPA are required. Selected students will receive up to \$2,500. Deadlines for 1996 are **April 15th, June 15th, and November 15th** (postmark date). To receive an application, send a stamped (U.S. \$ .32), self-addressed No. 10 envelope to: The John Gyles Education Fund, Attention: R. James Coughle, Administrator, P.O. Box 4808, 712 Riverside Dr., Fredericton, New Brunswick, Canada E3B 5G4.

➦The **Jewish Family and Children's Services** is pleased to announce the continued availability of financial support for Jewish individuals and their families. JFCS provides hundreds of students loans, grants, and scholarships to Jewish students. Individuals may apply for up to \$5,000. Special scholarships are available for study in Israel. To be eligible, students must have financial need, have at least a 3.0 GPA, and be residents of San Francisco, the Peninsula, Marin or Sonoma counties, or the Bay Area. There are no deadlines—applications are accepted throughout the year. The Financial Aid Office has applications.

**Concert Lecture Series Schedule**

- Theory Seminar
- Aron Kupperman, Caltech Professor of Chemical Physics, will be giving a talk entitled **Can Cross Sections and Rates of Chemical Reactions be Accurately Calculated from First Quantum Mechanical Principles, and, If So, Are Chemical Laboratories Obsolete? Today, February 23rd, at 2pm in the Baxter Lecture Hall.**
- William Bennett Munro Memorial Seminar
- Biological Complexity and Theoretical Pluralism will be explored by **Sandy Mitchell**, professor of philosophy at UCSD, in her seminar to be held Today, February 23rd, at 4pm in the Judy Library.

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