

ASCIT election statements due Wednesday at dinnertime

# THE CALIFORNIA TECH



Volume XC, Number 14

Pasadena, California

January 27, 1989

## Welders Burn Bridge Behind Them

by Scott Snyder and Chris Tully

At about noon last Friday, a heavy pungent smoke filled the halls of Bridge Laboratory. Workmen welding outside of Bridge near a ground level ventilation shaft generated sparks which were drawn into the air duct, igniting an air filter.

Although a large quantity of smoke rapidly accumulated, it was a full half hour before the fire was reported. Building staff called security and physical plant, as well as the emergency number. The smoke alarms went off soon after.

Workers from physical plant were the first to respond. They im-

mediately shut off the building's ventilation system. Shortly thereafter, the Pasadena Fire Department arrived. They initially tried to put out the fire with fire extinguishers, but this proved unsuccessful. They then attempted to run a hose to the fire. Unfortunately, when the water was turned on, the hose burst, drenching several spectators. Another hose was promptly run; this time they succeeded in dousing the fire.

The pungent smell of the smoke caused a few people to become sick, and induced many others to leave for the day. Several classes were relocated to other buildings,

but, with the aid of fans, open windows, and propped open doors, the freshman physics lab met as usual.

According to Rex Marrison, the construction foreman, the sixty year old building was never in any danger, as the fire was completely enclosed in a metal box and the building is constructed primarily out of concrete.

The basement of Bridge is being renovated to house the new Quantum Pulsed Optics lab. The fire is not expected to have any impact on the completion date of the lab, which is in mid-February.

## Women's Weekend to Include Men

by Ruchira Datta

Preparations are under way for Pre-Frosh Weekend, to be held from Thursday, April 13 through Sunday, April 16. Admitted freshmen are given the opportunity to visit campus during this weekend, so that they can learn more about Caltech before deciding whether or not to attend. In previous years, only female and underrepresented minority students were invited during this period, earning it the title "Women's Weekend"; however, this year, all admitted students will

be invited to attend.

Director of Admissions Dan Langdale explains that "an informal assessment of the community attitude" resulted in the decision to extend Women's Weekend to include all admitted students. Some members of the Caltech community thought it unfair or undesirable to single out women and underrepresented minorities to visit campus at this time. It is believed that members of these groups do need more encouragement to attend Caltech, however, so the Admis-

sions Office will continue to pay their full air fare for the visit.

As a result of the increase in invitations, it is expected that a considerably larger number of students will attend Pre-Frosh weekend than in previous years. Langdale calls for volunteers from among the student body, faculty, and staff to provide lodging for those attending, adding that he himself expects to board a few.

The prospective freshmen will arrive on Thursday afternoon, and attend classes with their student hosts on Friday. A variety of activities are planned for Saturday, including possibly a picnic, an Open House, and panel discussions on various topics. Langdale invites current students to offer suggestions for other activities, noting that they would have a good perspective on what would appeal to the prospective freshmen. He also calls for students interested in helping to coordinate the weekend.

Admitted students will receive additional opportunities to learn more about Caltech at twenty or so evening receptions sponsored by the Admissions Office, to be held around the country. Coordinated with the help of Caltech alumni, these receptions will be held in March, shortly after the sending out of admissions notices on the fifteenth. Current students who are home for spring break are also invited, to help answer prospective students' questions at these receptions.



Elizabeth K. Wood, demonstrating the use of her right hand

Photo by Marc Turner

## Sinister Statistics

by Jared Bronski

Do right-handers live longer than left-handers? Diane Halpern, a psychologist at Cal State San Bernardino, and Stanley Coren, a psychologist at the University of British Columbia, say "yes," but Elizabeth Wood of Caltech's Kellogg Radiation Laboratory says "no".

Halpern and Coren did a study of the life spans of right handers vs. left handers using data from *The Baseball Encyclopedia*. This study, which was published in the scientific correspondence of the May 1988 issue of *Nature*, claimed to find a statistically significant difference of about 0.7 years (approx. 8 months) between the life expectancies of right and left handers. These findings were met with skepticism by many, most especially Wood.

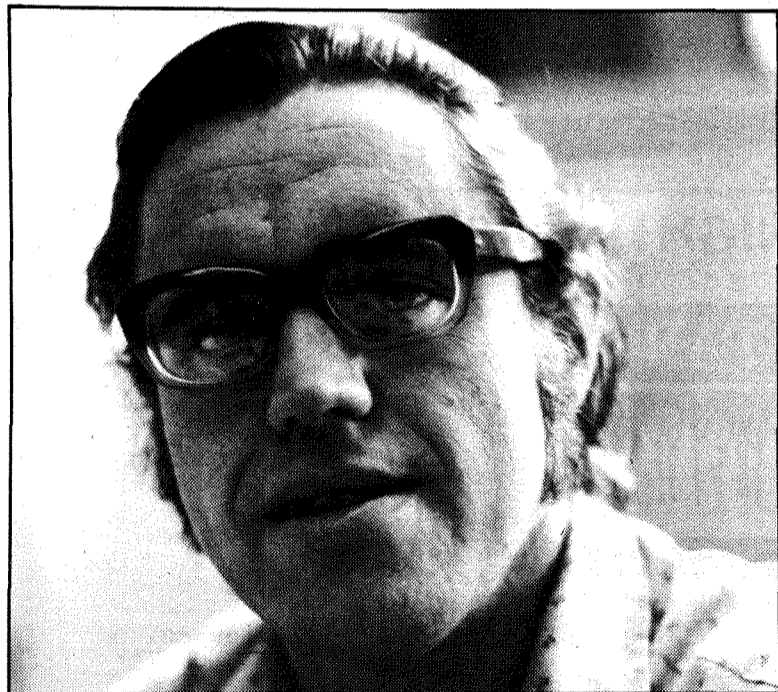
"You're sitting around the library and you read a title like 'Do right handers live longer?' and think 'This is stupid. This can't be right.'" says Wood (who is right handed herself.) Not only did Wood feel that Halpern and Coren's conclusions were questionable, but she also felt that their theories on the possible causes of a difference in life-span between right and left-handers were questionable. One of their theories, that left-hander's life spans are shorter due to an increased rate of accidents in a world designed for right handers, prompted Wood to say

"That's silly. I suppose they accidentally cut their wrists trying to use right hand scissors."

Wood felt so strongly about the Halpern and Coren study that she decided to conduct some research of her own. The data for Wood's study came from *The Baseball Encyclopedia*, the same source used by Halpern and Coren. Wood, however, used three times the number of data points Halpern and Coren did. Working with this data set and several data analysis programs she had written, Wood found a difference in the average lifespan between right and left handers of about 0.1 years, or about a month. She also found that a cumulative difference in lifespan equal to or greater than that seen by Halpern and Coren should arise by chance 98% of the time even if the two populations had the same mortality distribution. Wood's results were published in *Nature* in September, and her results have already been cited several times in *Nature* and other magazines.

Though understandably pleased with the reception of her work, Wood remains angry at Halpern and Coren's failure to respond in any way to her findings. They have responded to neither her results in *Nature* nor her personal correspondence. When asked for comment by a *Scientific American* reporter, Coren said "I can't comment be-

continued on page 3



Professor of Planetary Science David Stevenson

## Stevenson Finds Mantle Dynamic

[OPR]—The environment at the core-mantle boundary, 2,900 kilometers beneath the surface of the Earth, is far more dynamic than was previously thought, according to David J. Stevenson, professor of planetary science. Stevenson presented his findings last month in San Francisco at the fall meeting of the American Geophysical Union.

Stevenson's theoretical calculations are based on experimental work and observations performed by other scientists at a number of institutions including Caltech; the University of California, Berkeley; and Moscow's Institute of Physics of the Earth. Stevenson's calculations have revealed the existence of, and have quantified, three types of dynamic processes taking place at the boundary between the solid mantle, which consists mostly of magnesium silicates and oxides,

and the molten-iron outer core. The three processes are:

1. **Infiltration of core fluid** into topographic features of the mantle,
2. **Destruction of mantle topography** by mantle material becoming dissolved in the core liquid at topographic "lows" and similar material being deposited at topographic "highs," and
3. **Underplating of the mantle** as the core cools.

It has become clear in the last several years that the core-mantle boundary is not the smooth surface that geophysicists once assumed it to be. At this boundary there are topographic highs and lows with heights and depths of about one kilometer or so. The first two of these dynamic processes are dependent on these highs and lows (where "low" means a penetration

of mantle material into the core).

In the first process, fluid from the core is drawn into a mantle low, much as water is drawn into a sponge. The fluid may penetrate as much as a kilometer up into the mantle, and may, in fact, form a layer of core-mantle "slush" about 100 meters thick.

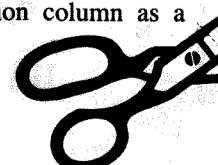
"These mantle lows generally occur beneath a downwelling convection column in the mantle," explains Stevenson. "Just before this downwelling column reaches the core-mantle boundary, the convective motions spread laterally. This leads to a sudden decrease of pressure within the mantle low. In a sense, you can think of the downwelling convection column as a

continued on page

### ASCIT Excomm Survey

a) Compelling Reason for a Student Faculty Conference: What is it?

b) No big deal



Please cut out and return.

# letters to the editors

## Student Faculty Conference?

To the Editors:

In last week's *California Tech*, two of the candidates for ASCIT President mentioned the need for a Student Faculty Conference. The last attempt at an SFC, which was held last year, fizzled because it was determined that the issues being brought up could be handled outside of an SFC. This year Sam Weaver assigned the task of running an SFC to the ASCIT Executive Committee. We were under the impression that no SFC is needed for this year. The White Paper seems to have sparked significant discussion on campus, but there have been several forums where students have been able to discuss the issues raised by the White Paper.

Additionally, an ASCIT planning retreat is being scheduled at the Capra Ranch, on the weekend of March 4, to smooth the change associated with new people taking office. All of the new officials with jobs that directly affect the Student Body have been invited as well as the outgoing BOD and IHC (and the incoming BOD and IHC as soon as they are elected.) This will provide another forum for discussion of student issues. And following this retreat, there will be an opportunity for student leaders to write position papers on what we think—i.e. our own White Paper to show the Administration.

If all of this is still not enough, there may be a need to hold an SFC. Understand that when no SFC is held, money that Student Affairs budgets for the SFC then becomes available to fund additional student activities. If you think there is a compelling need for an SFC then fill out the survey in this week's *TECH* and give it to Sam Dinkin or drop it into the on-campus mail. It would be helpful if you told us what the compelling reason was. If you think there is no big deal, fill out the survey or let me know.

—Sam Dinkin

## Joe Gripes

To the Editors:

Josh Kurutz's "An Ex-Editor Rants at Everything" in the 13 January edition of the *California Tech* was, to my mind, a decent enough editorial. I want to add my two bits to the discussion about TACIT and the 'recruitment' strategy Mr. Kurutz imputes to this group.

Firstly, I find it hard to believe that "open positions available to undergrads are being denied", in Mr. Kurutz' own words. TACIT shares with the *Tech*, the *Big T*, and many other organizations on campus the problem of too little apparent interest from the student body to allow a completely student-run and

long-term organization. For the last four musicals, student turnout has been too low to allow putting enough students on stage to fulfil TACIT's goal of 50% student participation solely on cast size; the other TACIT shows suffer the same obstacles. (The only exceptions I can think of were three one-act shows in the past five years, prompted by students in whole or in part.) TACIT has normally made the 50% participation goal through its use of students in backstage and production crews.

Secondly, under the direction of Mrs. Shirley Marneus, TACIT has indeed used talent from outside the Caltech community proper (Caltech, JPL). This is not a bad thing, either. True, a role given to an 'outsider' is a role not available to a Techer, but then a tradeoff is being ignored here. I think that the assumption behind many of the previous letters was that "...all other things are equal." All other things are NOT equal in the case originally starting all this hoopla. It is my understanding that Ms. Angerson, who had lost out in her bid for the role of Kim in the upcoming musical *Bye Bye Birdie* did not have the requisite range, and therefore was passed over in favor of a young woman who does have the requisite range. This was the tradeoff made by the musical's casting crew, composed of Mrs. Marneus, the musical director Mr. Dave Holcenberg, long-time TACIT actor Mr. Gene Bryson, Ruddock alumnus and director Mr. Rich Doherty, and a Fleming freshman I only know as Pete.

As an aside, I would like to mention that the role of Kim was given to a high school student who has played the role of Kim before; the two main contenders for the role were Ms. Anderson and a JPL staff member. I do not know whether either were offered roles elsewhere in the cast; my understanding is that they were.

Thirdly, I have worked on TACIT shows as an undergrad and during my first months here as a staff member; I can only present what I know of Mrs. Marneus from our shows together.

Yes, she does have the attitude "I don't care if it's mid-terms, we have a show to put on." Stop a moment and think, though; what would happen if Mrs. Marneus took the attitude "Oh, I'll let you out of rehearsals for mid-terms"? The show would be minus the students for mid-terms, which normally hit the week before opening the show. WHEN DO THE STUDENTS NEED TO REHEARSE TO HELP MAKE THE SHOW HAPPEN? THE WEEK BEFORE THE SHOW!!! It's not as if the show consumes 24 hours of an actor's day, 7 days a week; it's not as if the show even consumes all available spare time, and then some, for the entire rehearsal sequence and run of the show, for all involved. True, there have been cases of

second-term flame-out of theater people: but then, how many non-theater people flame out? And Mrs. Marneus has said, and will continue to say, up front at the first rehearsal: "Theater takes time. Everyone, lighten your workload. Students, register for the 3 units of theater credit. Bring your homework to rehearsals. I and TACIT do not want you to flame out."

And no, Mrs. Marneus does not agree that participation and enjoyment are as important as the performance; she spent her collegiate years training in the arts of directing, and has for the past fifteen years been at Caltech doing theater. The first five years were based in the Humanities Department, while she worked out of the Public Affairs Room; the latest ten years Mrs. Marneus has been a staff member with a dedicated core of alumni, students and friends within and outside of the Caltech community who have all made the TACIT program both possible and manageable. Do you think that the hundred or so people involved annually in TACIT productions are doing so because they do NOT enjoy it?

To close, I feel that all this TACIT-bashing has been rather misguided. The casting crews at TACIT have always had to make the tradeoff: bring in 'outsiders' to shore up weak areas in a show, or do the utmost to work around the flaws which cannot be covered by Caltech community talent. Casting Ms. Anderson, in this particular instance, would have caused a flaw that the casting crew felt would have hindered the show's efforts to present an enjoyable show—there would have been major long-term questions and much effort in re-writing the role of Kim to fit a different voice range, not the least of which would be re-writing the scores, the effect of which would be more than TACIT wants to con-

template, thanks to copyright laws. TACIT can only do so much; it only has so much in the way of resources. Common sense demands that as little of that be wasted as possible.

—Joseph Beckenbach  
BS 1988

CS Department

P.S. Lest it be thought I have something against Ms. Anderson, I must say the following:

Ms. Anderson has done quite well with TACIT, with two leading roles, Juliet in *Romeo and Juliet*, and Rosemary in the musical *How to Succeed in Business*. I had no troubles working with her in these shows, and I have not myself heard of anyone who had. Personally, I think that Ms. Anderson is only guilty of assuming that the casting crew would regard her vocal shortfalls as less important than her acting strengths.

## Tracy Whacks Philosophical

To the Editors:

I think it's sad that many people have tried to stop this letter from being printed. It doesn't contain the profanity or bad taste that many of the features printed in the *Tech* contain. No, it contains none of that. It's about a perfectly normal action that's universal to nearly all males and most females. But still many people feel this letter isn't proper for publication. What is my letter about? Masturbation.

Until a few weeks ago I hadn't realized how uptight people are about this subject. People were shocked when I admitted that I masturbated. When I asked these people if they masturbated, they had no reply. They were afraid to admit the fact but they didn't want to deny it. What's the big deal about

masturbation? It's so natural and sensible. It's just like eating to satisfy your hunger. Similarly, you masturbate to satisfy your sexual desire. It's safe and it certainly is better than entering an undesirable relationship just for the sake of sexual gratification.

Masturbation is not the perfect solution to relieving sexual frustration, but it helps. So do it and do it often. Don't worry about making a mess; that's what the linen exchange is for. It's time we take the problem of sexual frustration into our own hands.

—Tracy Fu  
lamebutt freshman

## Everybody Who Is Anybody

### THE CALIFORNIA TECH

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Oscar Durán

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#### THE CALIFORNIA TECH

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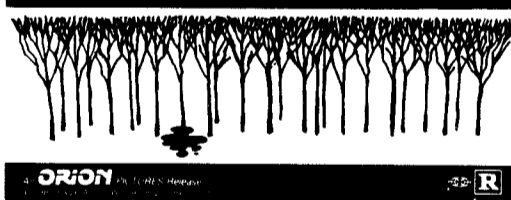
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## ASCIT FRIDAY NIGHT MOVIE

### GORKY PARK



BAXTER LECTURE HALL 7:30 & 10:00 p.m.  
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Next Week *Batteries Not Included*

## Caltech Counseling Service

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Bruce Kahl, M.D., Director

STUDENT/FACULTY CONFERENCE SURVEY  
ASCIT 41-58



# The Inside World:

This week's Inside World was brought to you by:

Dabney: David A. Edwards.  
Ruddock: Beat s me. Could've been anyone.

**Dabney:**

Dabney Inside World actually being printed in *The California Tech*, take three:

So Dabney House voted me the World's Biggest Crybaby, eh? Well, (as Maneesh would say) Waah! Speaking of Maneesh, please particiapte[sic] in his Damn Cheese Things. Otherwise, the poor residents of 360 will have to endure the smell and sight of its decay in their refrigerator (if they're lucky) or on the kitchen counter (if they're not).

Congratulations to all of the new Dabney initiates. It's good to see that all of you survived (it's probably because you didn't let Jon McGill drive you anywhere), even though we were a bit worried when Stan and Pey-jen were late. It's not **that** kind of initiation!

Okay, so I screwed up on my predictions of the roompick. The real results left four Alley 7 rooms as storage. Steve Anderson actually got a roommate (will wonders never cease?), and the frosh are holding on to their doubles more tenaciously than Dirk holds on to his pornographic magazines.

You know you're bored when you actually sit down and fold the origami beaver that appeared in the last issue of *Engineering and Science* magazine. After spending an half hour, it looks approximately like the picture in the magazine, but even the picture doesn't look like any beaver I've ever seen. To relieve the boredom, perhaps it would be better to see the new Dabnicorp release, **Psycho in Alley 5**: this time he's in the shower.

What's the big deal with spreadsheets? Is the formula "#ATAN(SUM(B7:B14)CINT(A15/HOUR(B12) LN(MINUTE(B7)-COUNT(B6:B16)CMAX(B14:B16))))" really that hard to understand?

The Well-Intentioned Award of the week goes to Oscar Durán, who, in the spirit of making the hired help feel at home, plays Spanish-language music loudly for the benefit of the custodial staff. Beginning with the arrival of the staff at 7 am, Oscar continually plays his music. Unfortunately, Oscar doesn't realize that the custodians leave at 3 pm, and the incessant mariachi music can last well into the night.

Since this is the last full day of the reign of the current Dabney officers, it's only fitting to look back on the momentous achievements of our officers: Well, that was touching, wasn't it?

I do want to pick one officer for special recognition, however. After being forced to listen to Dave Stevens for an hour due to the loudness of his voice (isn't **that** the pot calling the kettle black?) and the lateness of the hour, I am convinced that he is the **BIGGEST MALE CHAUVINIST PIG** I have ever met. (That's really quite an honor, Dave, since I've met some really **BIG** male chauvinist pigs.)

**VISITORS BE FOREWARNED:** Lunch in the Dabney House courtyard can be hazardous to your health, now that Pat "the Hooker" Huber has taken to launching wiffle balls through the air, they come down we know not where. Though there have been no fatalities as of yet, there have been several reports of casualties. It is our sincere wish that before trying out for the PGA tour, Pat switches to real golf balls. Otherwise, it takes such a long time to play 18 holes.

How does Robert Hanna spell success? Y-V-E-T-T-E. But how does he spell relief?

-Darbage Disposal

How does Dave Edwards spell jejunoduodenum? J-U-J-O-N-O-D-U-O-H-D-E-N-U-M.

-Dave's Worst Nightmare

**Ruddock:**

**MATCH THE MALES WITH THE FEMALES**

- |                  |                               |
|------------------|-------------------------------|
| 1. Charlie       | A. Meghan                     |
| 2. Victor        | B. Linley                     |
| 3. Meeten        | C. Yayoi                      |
| 4. Cheng         | D. Amy                        |
| 5. Larry         | E. Celia                      |
| 6. Cameron       | F. Kimiko                     |
| 7. Will          | G. Julie                      |
| 8. some phlegm   | H. Betsy                      |
| 9. Milton        | I. one of the Andrews sisters |
| 10. Greg         | J. Celia's friend             |
| 11. Mike Jones   | K. Fiancee                    |
| 12. Mark Ma      | L. Some Christian Chick       |
| 13. Brett        | M. Annetta                    |
| 14. Ron Park     | N. Nancy                      |
| 15. Dave Knight  | O. Lisa                       |
| 16. Duppy        | P. Elle McPherson             |
| 17. Ted          | Q. Patti Pratt                |
| 18. Dave         | R. Brettisy                   |
| 19. "Big" Ed Mao | S. "Well" Hung Nguyen         |
| 20. Nik          | T. Anything That Moves        |
| 21. Paul         | U. His Left Hand              |

-The Janitors of Anarchy



Don't let this happen to you! Call Security at x4701 or x4702 for an escort when crossing campus at night.

## Sinister

from page 1

cause we used different data" but hinted that they intended to prepare a new study with a larger set of data.

As a closing note, those wishing to see Ms. Wood's virtuosity in areas far removed from statistics should attend this evening's chamber music recital in Dabney Hall (see *what goes on*), which features Ms. Wood on cello.

## Solution to Crossword

```

S W A P   L O G   S P E M
B   R R   A R A   A E R I
A   I O   T E T   H A R E
S E A N C E   H E A R S E
   T E   S E A R   S
O H I O   M E R T A N I S
A I D   S A V E S   D O T
F E E T   I R E D   P O R Y
   T R A N   P O R Y
B A R R E D   P E S T E R
A R E A   T I R E   S A L E
C A N D   S O N   E R S E
E   T E   E N D   S E E P
    
```

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**Crime** From the Files of Hal Ginder **Beat**

**CRIMES:**  
1-24: Bicycle stolen from Fleming House west end stairway. It was locked with a cable lock.  
1-24: Car stereo stolen from a Hyundai parked on Catalina (400 block). Last week one was stolen from the same area.

**INCIDENTS:**  
1-20: Fire in basement of E. Bridge at noon.  
**Tip of the week:** Lock bikes with a substantial lock, and lock them to something.

# Stevenson

from page 1

tightly squeezed sponge held underwater. When the convective motions spread laterally, it's as if the pressure on the sponge were to be released. Liquid is just sucked into the topographic lows. And in some places there is so much liquid that the material must take the form of core-mantle slush."

While this first process is essentially a mechanical one, the second dynamic process involves chemical interactions between the core and the mantle. In this process, the material at mantle lows actually dissolves into the core liquid. At high points in the mantle, on the other hand, the same sort of material is deposited as it falls out of the core solution. This is a process that tends to flatten out the topography of the core-mantle boundary. In fact, Stevenson's calculations indicate that one-kilometer highs and lows should become completely flattened in just a few million years.

"The fact that we observe topography at the core-mantle boundary despite the relatively rapid destructive processes that are operating there indicates that there must be some counteracting process," says Stevenson. "Dissolving mantle lows may just be like trying to cut above-water portion off and iceberg. If you were to attempt this, you'd find that the iceberg would immediately rise a bit out of the water to compensate. Likewise, when the core takes a bit off a mantle low, the overlying mantle probably pushes down a bit maintaining the topography."

The third process — underplating the mantle as the core cools — was first theorized by S.I. Braginskii of Moscow's Institute of the Physics of the Earth in the 1960's.



Stan, Olivia, and Millikan

Stevenson's work constitutes a confirmation and a quantification of Braginskii's ideas. Braginskii and Stevenson reason that as the core slowly cools (which it has been doing since the Earth's formation five billion years ago), material tends to fall out of solution, coating the core-mantle boundary.

Says Stevenson, "You can visualize this as material leaving the liquid-iron core solution and snowing upward onto the core-mantle boundary. Or perhaps the formation of morning frost might be a more accurate analogy. In any case, there is enough time in the Earth's five billion year history for a layer 100 to 200 kilometers thick (60 to 120 miles) to have formed. It might be a coincidence, but 100 to 200 kilometers is the generally accepted thickness of a recently identified transition layer called D" [pronounced Dee-double-prime] at the core-mantle boundary."

As material from the core slowly falls out of solution and underplates the mantle, the core gradually becomes smaller. But since the core currently has a diameter of almost 7,000 kilometers (4,400 miles), and since it has taken five billion years to deposit just 100 to 200 kilometers of material, there's no chance that the core will dwindle away to nothing in the foreseeable future.

This work does, however, relate to theories of the Earth's formation, supporting theories that indicate that the Earth must have been heated to the molten state by numerous large impacts early in its history.

"These three active processes emphasize that there are just as many interesting geological phenomena at the core-mantle boundary as there are at the Earth's surface," said Stevenson.

**ACROSS**

- 1 Trade
- 5 Piece of cut timber
- 8 Stalk
- 12 Young salmon
- 13 Macaw
- 14 Danish island
- 15 Exchange premium
- 16 Southeast Asian holiday
- 17 Male deer
- 18 Spiritualist's meeting
- 20 Funeral car
- 22 Symbol for tellurium
- 23 Scorch
- 24 A state
- 27 Has reference to

**DOWN**

- 31 Assist
- 32 Rescues
- 33 Speck
- 34 Seesawed
- 36 Conservative
- 37 Country of Asia
- 38 River in Italy
- 39 Prohibited
- 42 Annoy
- 46 Region
- 47 Anger
- 49 Transaction
- 50 Alight
- 51 Offspring
- 52 Gaelic
- 53 Heraldry: grafted
- 54 Finish
- 55 Sow

Solution on page 3

- 3 Solo
- 4 Quickly: colloq.
- 5 Tardy
- 6 Native metal
- 7 Amassed

## The Weekly Crossword Puzzle

1	2	3	4	5	6	7	8	9	10	11
12				13			14			
15				16			17			
18				19		20	21			
		22			23					
24	25	26			27			28	29	30
31				32				33		
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39	40	41				42		43	44	45
46					47	48		49		
50					51			52		
53					54			55		

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**sports**

**Battlin' Beavers Rout LaVerne**

by Scott Karceski

Beaver Basketball showed promise in a rousing defeat of La Verne 65-45 last Friday at home. They demonstrated solid play on defense, while playing a seemingly inspired offense. Aram Kaloustian was the key man for the Beaver offense, exploiting La Verne's weaknesses and getting the ball to the open men. His efforts contributed to the near immaculate shooting by Jason Karceski (7 for 10), Bill Swanson (6 for 8), and George Papa (6 for 11), as well as a single rare (and welcome) three-pointer by Captain Brad Scott. Strong support was given by Sean Hillyard, Larry Ahle, and Randy Ralph who combined for 14 points, 5 rebounds and 4 assists. Dan Kollmorgen and the three frosh, J. Alex Duncan, Lanny Boswell, and Brian Duchovnay turned in promising performances in their

minutes of play.

The fans at the game were good and rowdy giving whole-hearted support as Beaver Fever spread throughout the arena. Despite their loud and varied vocal encouragements, the quote of the game goes to Aram. Commenting on Brad's incredible save of the ball from crossing into the backcourt and assist straight to the hands of Randy Ralph for a three-point basket, "Brad, that's the only purely athletic thing I've seen you do, ever."

Following the La Verne game on Friday, Caltech suffered defeat at the hands of Pomona 69-46 on Tuesday playing at Pomona. Pomona played a very physical game, often running a full court press on defense and dominating the inside on offense with sharp baseball-like passes. The Beavers showed a new-found confidence in their game by breaking the press on ev-

ery play and making smart interceptions of some Pomona passes. Unfortunately, Pomona with their aggressive play was able to force multiple turnovers from Caltech and take control of the game.

High scorers of the game were Bill Swanson, Jason Karceski, and George Papa with 11, 12, and 13 points respectively, with Jason Karceski shooting a phenomenal 71%. Aram Kaloustian was again the assist leader and "Big Bad Bill is Sweet William now" Swanson was rebound leader.

The Beavers play a tough Redlands team this Friday at 7:30pm and another exiting opponent, the Pacific Christian Blue Devils, on Saturday at 7:30pm, both at Caltech. Come cheer the Beavers to a dual victory this weekend at the Warren Emory Memorial Gymnasium.

**P-P-P-Paul**

by Pavel Rubinov

So you didn't go to a school whose football team is on TV every Saturday. That's OK, at least you won't have to hear about players using drugs and selling out and cheating. So you won't be able to go see the Beaver basketball team play for the national title. But Caltech offers something those big schools don't: it offers a chance to participate. There are lots of sports in which many Techers take part but this article is about one of the more unusual. Here are some hints: both men and women can compete, there are no tryouts and anyone who shows an interest in the team can participate. It requires absolutely no special talents or skills. Why, just look at me!

What is this ideal sport? Why, it's fencing, of course! The Caltech

fencing team has something to offer to everyone. People who never imagined that they would participate in a competitive sport, fence (and occasionally win) against schools like UCLA and UCSD. In the past the team has had truly outstanding individuals, but almost anyone can attain a respectable standing in the league. Also, unlike most other sports fencing meets only twice a week for practice, to better fit into Techers' busy schedules. For those who want to get their feet wet before jumping in, there is a beginners and an advanced fencing class. The next tournament is on the 28th and the fencing Beavers will be at home on the 4th of next month. Come out and watch!

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**WEEKLY SPORTS CALENDAR**

Day	Date	Time	Sport	Opponent	Location
Fri.	1-27	7:30 pm	Basketball	Redlands JV	Caltech
Sat.	1-28	11:00 am	Fencing	U.C.L.A.	U.C. Santa Barbara
Sat.	1-28	11:00 am	Swimming (M-W)	Whittier	Whittier
Sat.	1-28	11:00 am	Tennis (W)	Christ College	Christ College
Sat.	1-28	1:00 pm	Baseball	Alumni	Caltech
Sat.	1-28	1:00 pm	Tennis (M)	Faculty	Caltech
Sat.	1-28	7:30 pm	Basketball	Pacific Christian	Caltech
Sun.	1-29	11:00 pm	Ice Hockey	C.S.U.N. #2	Pickwick Ice, Burbank
Tue.	1-31	7:30 pm	Basketball	Whittier JV	Whittier
Wed.	2-1	3:00 pm	Tennis (W)	Pomona-Pitzer	Caltech
Wed.	2-1	9:45 pm	Ice Hockey	Cal State Northridge #2	Pasadena Ice Center
Sat.	2-4	11:00 am	Swimming (M-W)	CMS & Occidental College	Caltech
Sat.	2-4	11:00 am	Tennis (W)	Mt. St. Mary's	Mt. St. Mary's
Sat.	2-4	12 noon	Baseball (2)	Pac. Coast Baptist Bible College	P.C.B.B.C.
Sat.	2-4	1:00 pm	Fencing	G.S.L.B. & C.S. Fullerton	Caltech
Sat.	2-4	1:30 pm	Tennis (M)	Christ College	Christ College

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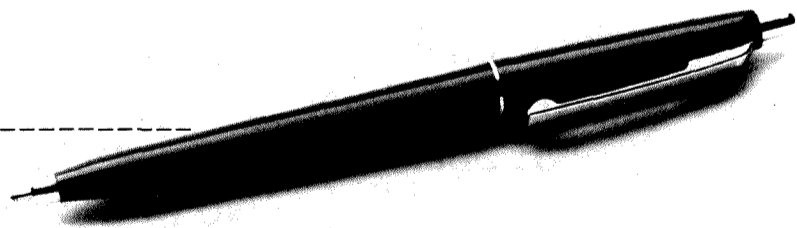
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Microsoft will be interviewing on campus for full-time positions **Friday, February 17, 1989**. See your Career Planning and Placement Office for more details.

In addition, we will accept resumes for **summer internship** positions. Please send your resume to: MICROSOFT CORPORATION, College Relations Dept., CAL-TECH, 16011 NE 36th Way, Box 97017, Redmond, WA 98073-9717.  
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Also, see us at Career Day, Thursday, February 16.

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— Steve Shaiman, General Manager, Hardware Group  
CalTech, BS '72

“My work involves CD-ROM systems software and I’m responsible for all aspects of my project, which I started from scratch. The environment at Microsoft is intense—but easy going. If you’re a developer, as long as you do your job well, you can work in pajamas if you want. The Seattle area is gorgeous. I can’t think of anywhere else to live. The only problem might be traffic, but with flexible hours you can avoid the jam. There’s tons to do, especially if you like the outdoors or water sports. It’s also cheaper up here. I bought a four bedroom house I could not afford in the Bay Area.”

— Dan Newell, Software Design Engineer  
Stanford, BS EE '83 MS candidate EE/CS

“Working at Microsoft means working with the best programmers around. You’re always challenged, and always learning. By the same token, you don’t waste time talking to people who don’t understand. Because all our managers are programmers too.”

— Doug Klunder, Software Design Engineer  
MIT, BS CS '81

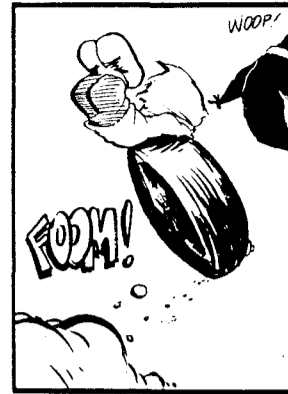
“As an OS/2 Program Manager, I am responsible for setting the technical agenda for the future of OS/2. My goal at the company is to make developers using OS/2 happy — whether by adding or changing system calls, developing new tools, or fixing minor technical oversights. It’s a real nice mix — I am in a very technical position, yet I don’t spend my days coding. Instead, I tackle high-level design issues, then negotiate them with the development team and sometimes other companies, such as IBM.”

— Michael Hyman, OS/2 Program Manager  
Princeton, EE/CS '87





BLOOM COUNTY by Berke Breathed

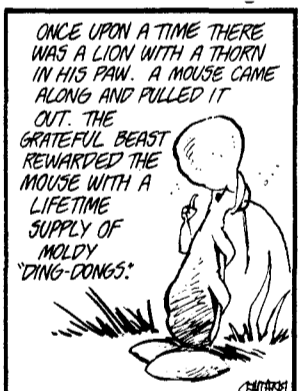
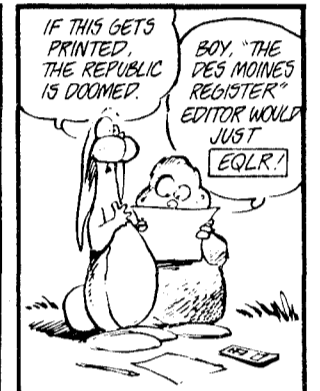
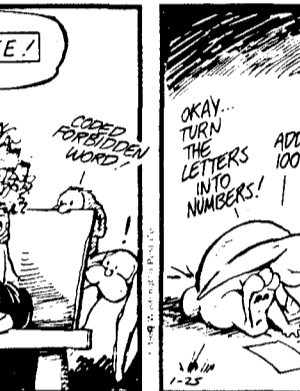
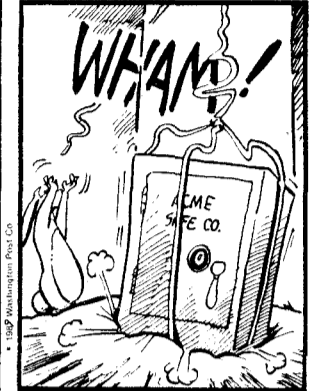


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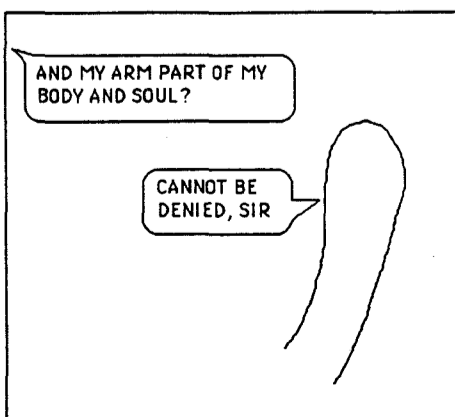
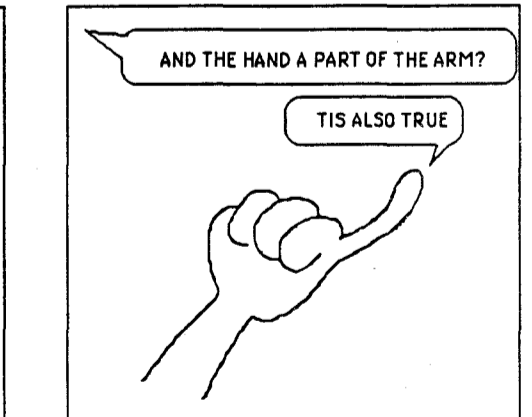
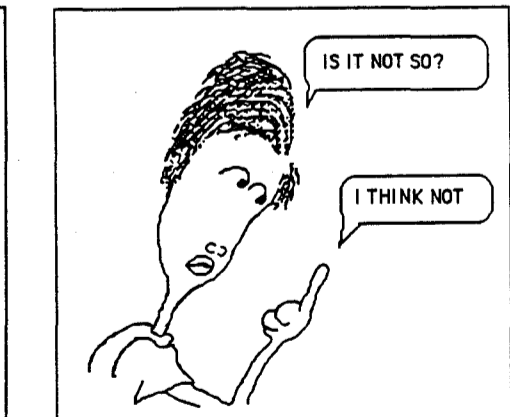
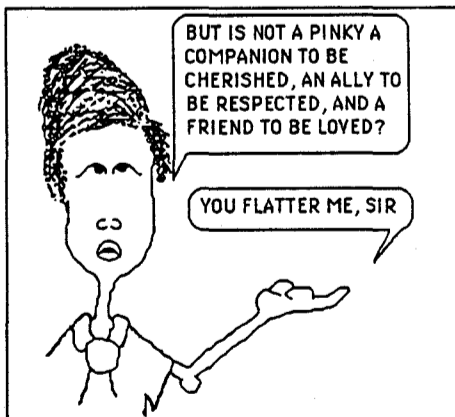
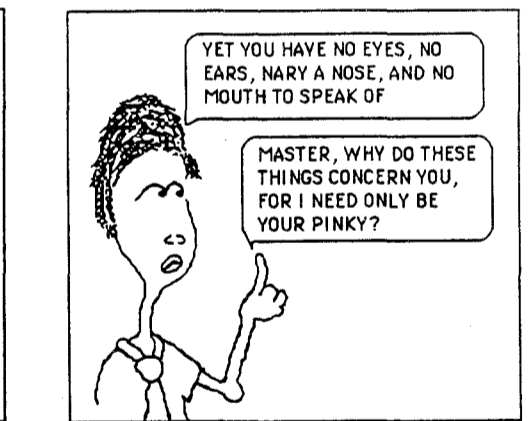
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Dialogue with my Pinky



by Donald Finnell and Stanley Chen



# THE CALIFORNIA TECH NEEDS YOU!

Next month, the *Tech* will celebrate the 76th anniversary of its founding way back in February 1913 as the *Throop Tech*. If it's here to celebrate. It needs your help.

Here are some of the staff positions currently available:

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The Boss. Responsible for the content and appearance of all editorial matter, and production for each issue. With the responsibility comes lots of egoboo from being the most influential student on campus. *Your* paper is must-reading on Fridays in such diverse places as the student houses and Parsons-Gates. Plus, you get a salary.

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News stories. Interviews. Feature stories. Caltech is a veritable gold mine for stories. Things are *happening* here. Want to see new movies or plays for free, and before anyone else does? Become an entertainment reviewer. Want to see Caltech athletic events for free? Become a sports writer.

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entertainment



Rage at the Cage

by Andrew Hsu

No this isn't about the satirical overtones that are present in the J. Geils song of the same title. But now that I have your attention...

Among the many inadequacies that Pasadena has to offer is the lack of any good places to listen to new, up-and-coming bands. You'd expect a town that has been the home of bands as famous as Van Halen to have at least one decent club where local acts can display their talent. Except for the noon concert series happening Fridays at Caltech, Pasadena still has a long way to go before it becomes a major showcase for live bands. One step in the right direction, however, has been the opening of the 'Cage.

Promoted by the Garrey brothers, the 'Cage, located at the Footsies dance club next to the Icehouse, has been featuring many local bands since it's opening late last year. Keeping the 'Cage fresh and fun has been the main concern for Chris and Cleve Garrey. According to Chris, "We were seeing so many good bands being treated poorly and being ripped-off by club owners. We wanted to see if we could make shows work and still treat the performers with respect."

The question that arises is, "Can this philosophy really produce a decent club?" Since this club relocated at Footsies, the answer turns out to be, "more often than not." Because Footsies is a relatively small place, the Cage offers the advantage of letting the audience sit and stand right next to the performers. It's also very easy to meet the performers since they can usually be found on the floor when not on stage. Audience size is never a problem as the intimate atmosphere of the club makes even the smallest audience come alive.

One problem that the club suffers from is an inconsistent sound system. Most nights the

sound at the club fulfills one's fantasy about having a loud stereo in a small room, while at other times, the club makes you feel that you are in a room with a jet engine.

Because the 'Cage has not developed an attitude problem yet, the crowd on any given night remains a mix all types of people. Musicians, students, regular club-goers, and even leftover yuppies from the Icehouse can be found engaging in cheerful social intercourse, making it easy to feel comfortable, no matter how you look, or what your net worth is.

The club also serves as a forum for some of the bands that are on Birdcage records, another Garrey brothers enterprise. In the past, the club has featured Birdcage bands such as the *Prime Movers*, *Dread Zeppelin*, and *Guitardom*. When the band's aren't playing, DJ Elvis can be found spinning the best of 50's, 60's, 70's, 80's and of course Elvis music.

So long as the music being showcased at the 'Cage remains at such a high quality, the place has potential to become a really big thing in Pasadena. The bands featured are usually quite interesting, and the DJ will play requests if you are nice to him. The waitresses are also very friendly, not pushy like the waitresses found in most Hollywood clubs. Drink prices are quite reasonable for a nightclub. Overall, a fun place to go and hangout, especially when nothing's happening on campus.

The 'Cage is located at 34 N. Mentor St. (next to Super A's and the Icehouse—yes it's walking distance from Tech!). Shows are Friday nights at 10:30 p.m. and sometimes on Thursdays at 9:00 p.m. Admissions is limited to those 18 and over. There is a full bar for folks 21 and over (with I.D.). For club listings and booking info call (818)-355-6579.

Reviews

by Nick Smith

*Oathbreakers*  
by Mercedes Lackey  
DAW, \$3.95

This is the second volume of a series, but it isn't necessary to read the first one, *Oathbound*, in order to enjoy it. *Oathbound* was a collection of shorter stories, while *Oathbreakers* is a novel.

The stories take place in a fantasy setting, and the central characters are two women, a sorceress and a warrior. Just to confuse everyone they meet (actually, there's a good reason, but you have to read the book), it's the sorceress who has the magic sword, and the warrior who has a familiar animal.

The book has a lot of non-traditional plot points: for example, the main characters are only in the mercenary sword and sorcery business in order to earn enough money and reputation to settle down and open a school, to teach other people to go out and risk their own lives on adventures. At the start of the book, Tarma and Kethry are working for a mercenary company of high repute, spreading their reputation around and pocketing as much gold as possible. Of course, *something* has to go wrong with such a simple plan, or book plots wouldn't exist.

One of the best things about Mercedes Lackey's writing is that she goes into such depth of detail about the world around the characters that you can almost breathe the air of the world she uses. One of the running elements in the stories is a bard who keeps writing songs about the two main characters. The songs are very good, but he keeps getting parts of the stories wrong, and otherwise driving Tarma and Kethry crazy. Well, Mercedes Lackey was so thorough that she wrote the songs themselves. The lyrics of some of them are in the back of the book, and they have been recorded and are available on cassettes.

Oh, yes, the plot of the book... Well, the first part is a military campaign that introduces the characters to the reader. The good guys are destined to win the battle, or else the rest of the book would be blank pages, right? Anyway, the real meat of the book takes place after the successful commander takes a vacation/political business trip to her homeland. (Did I mention that the very successful mercenary captain is a woman? No? Silly me...) She

And From the "Y"...

**NOON CONCERT TODAY** - The Caltech Y presents the **Bedshredders** for your listening enjoyment. Featuring Peter Galvin on guitar, the Shredders are a Pasadena favorite. They play a blend of folk and rock music, and have been know to take requests! Bring your lunch and enjoy some music in the sun!

**JULLIARD TICKETS**

The Caltech Y has free tickets to see the Julliard Quartet at Beckman this Sunday at 3:00PM. Get them while they're hot!

**COMMUNITY SERVICE**

students interested in helping the homeless and other volunteer efforts should come by the Y for more information.

**GARAGE DEMOLITION**

Community service can be fun! Next Saturday, students will help Haven House (a half-way house for abused women) tear down a garage. Remember: all students that want to attend this "event" MUST sign up in the Y by this Monday!

**SNOW! SNOW! SNOW!** - No, it's not a Y Ski trip, but it IS the mountains! The Y is having a Cookout this Sunday on Mt. Baldy. Space is limited, so sign up in the Y now!

**KID SCIENCE** - An on-going project sponsored by the Y, "Science for Kids" involves Caltech students in elementary school science demonstrations. For example: students today helped neighboring elementary students "calculate the density of saltwater." If you're sick of feeling dumb in your classes, come by the Y and find out about future demonstrations!

**SAT TUTORING** - If SAT prep classes don't help raise scores, why do so many students spend so much on them? If you want to help underprivileged kids prepare for the SAT, come by and check this out!

**UPCOMING EVENTS** - Margaret Rossiter on "The History of Women in Science," March 1 or 2; Brad Sorenson on marketing, February.

gets home, and full-scale political intrigue breaks out. Circumstances force Tarma and Kethry to go riding in and find out what the heck is going on. What they find gives them reason to be really *creatively* nasty to the bad guy.

Anyway, if you want a good fantasy novel with lots of details and interesting bits, try *Oathbreakers* or any of the other novels by Mercedes Lackey. So far, she hasn't written a bad one.

by Danny Rintoul

*Short Sharp Shocked*  
by Michelle Shocked  
Polygram Records

Those of you who missed *Let-terman* the other night really picked the wrong night to work. I don't remember very much since I had consumed an entire bottle of FEDCO-brand amaretto during the *Tonight Show*, but the singer that night was a pretty amazing gal.

Michelle Shocked (not a punk rocker as the name might imply) is one of the new folk/blues/protest singers that we have begun to see more and more often. This album is a follow up to an auspicious

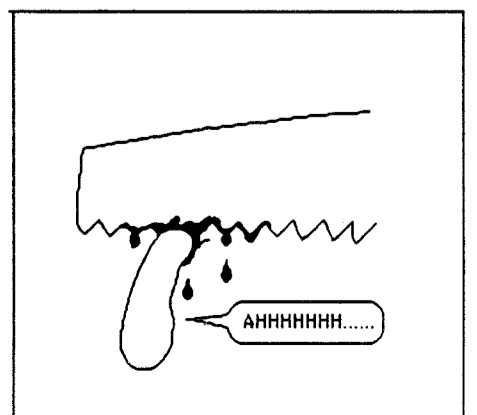
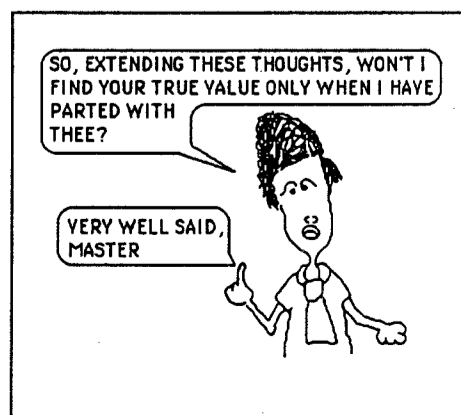
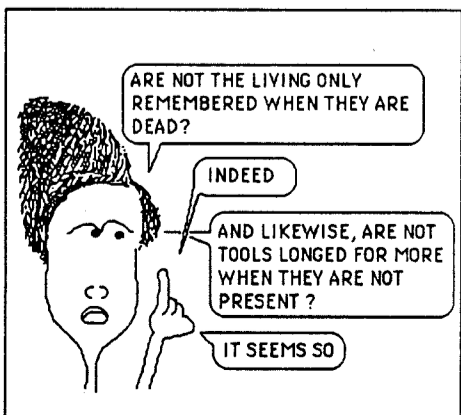
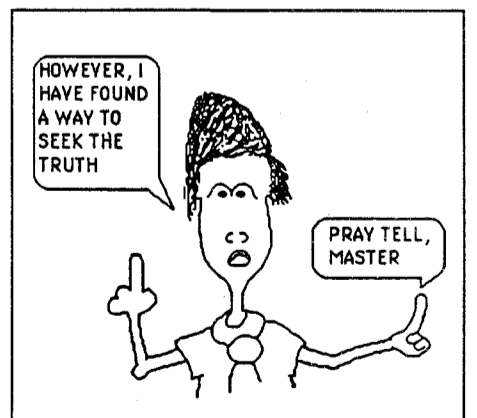
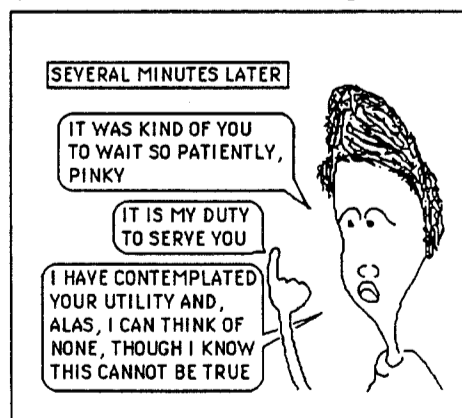
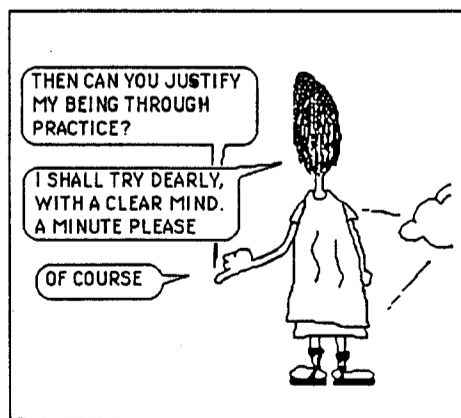
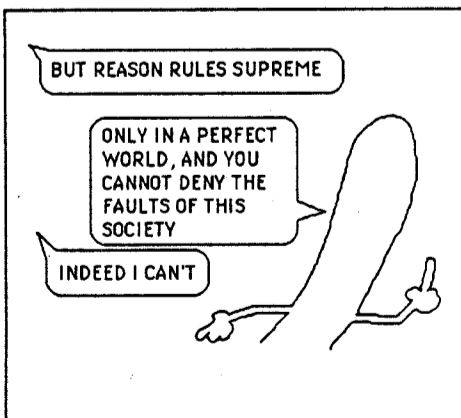
debut album which did pretty well on the underground charts in England. That's pretty amazing considering she recorded it on a Sony Walkman.

A couple of the songs, like "Anchorage," have a sort of upbeat folk sound to them, sort of Tracy Chapmanesque. The one cover on the album, "The L And N Don't Stop Here Any More," is one of the most amazing songs of this type that I have ever heard.

The real wins on the album, however, are the blues type songs. She handles an acoustic guitar mighty well, and her lyrics are really creative. They range from the traditional blues fare ("If love was a train/I'd throw my body on the tracks/I would feel no pain as/she rolled down my back"), to wacky ("I'm gonna marry myself a really old man/We're going to have 120 babies"). Pretty amazing, huh.

So here's the deal. You really can't do too much better nowadays than this album. It has sort of a 80's female Jim Croce feel to it, with a touch of avant-guard to keep it fresh and interesting. Buy it and you'll be amazed too.

Pinky continued from page 8



# ... and on and on and on...

continued from page 12

## SSSSP Tutors Needed

We will be needing tutors for our Summer Secondary School Science Program that begins June 26th and goes through August 10, 1989. The hours are from 9:00 am to 3:30 pm, Monday through Thursday. We will need:

- 4 Molecular Biology tutors
- 4 Chemistry tutors
- 4 Physics/Trigonometry tutors
- 4 Physics/Calculus tutors

Our first preference is to have seniors, then juniors and last sophomores. Applicants may call x6207 or x6208, or come by Lee Browne's office at 515 S. Wilson Ave.

## Gay/Lesbian Discussion Group

An ongoing discussion group on Gay/Lesbian topics is held on the 1st and 3rd Tuesday of every month from 7:30-9:30 pm at the Archibald Young Health Center. All members of the Caltech community are welcome. Refreshments are provided. For further information please contact Bruce Kahl, x8331.

## Stress Management Workshop

The growing body of research on the effects of relaxation indicates that the consistent practice of relaxation methods not only improves one's cognitive skills and sense of well being, but may in fact reduce one's chance of getting heart disease and cancer. Over four weekly one-hour sessions, Dr. Jon Pedersen will teach interested students a variety of relaxation techniques aimed at the management of daily stress. The workshop will include some lecture material but will primarily consist of individual exercises in relaxation techniques including muscle tensing, imagery, passive and active concentration, and an introduction to non-mystical meditation. The focus of the workshop will be on practical methods for everyday use, which can be learned quickly, with daily practice. The basics of nutrition and time management will also be taught, if time allows.

The workshop will begin on Monday, 6 February 1989, from 12:00 to 1:00 pm, and will continue for the next three Mondays. If you are interested, please contact the Counseling Center at 356-8331.

## Discount Movie Tickets

The Y has discount tickets for regular screenings of all movies shown at any Mann, Pacific, or UA theater. These coupons can be purchased at the Y for \$3 apiece (reg. \$5.50) and can be exchanged for tickets at the ticket counter in the movie theater.

## Leadership America

The International Leadership Center is seeking applicants for Leadership America, a summer program which includes one week in North Carolina, one week in the Rocky Mountains and three weeks in Dallas, Texas. It also includes a four-week internship in business, government, or community service followed by a closing session in Washington, D.C.

Students incur few expenses in Leadership America, since most costs are underwritten by corporate sponsors.

To be eligible for selection to Leadership America, a student must be currently enrolled in a four year (or more) undergraduate program and have completed the junior year of this program by June 9, 1989. The primary criterion for selection is that the student have an "outstanding potential for leadership." Selection will begin in February, 1989, and invitations will be extended in mid-March.

For additional information about Leadership America, contact the Deans' Office, 102 Parsons-Gates, x6351. Applications for this program must be returned to the Deans' Office no later than Jan. 30, 1989.

## Free AIDS Speakers Available

At no charge, members of the American Red Cross AIDS Speakers Bureau will come to speak to groups of six people or more and present the facts about Acquired Immune Deficiency Syndrome—AIDS.

The presentations stress the methods of transmission and prevention of the disease, and include a video as well as a question and answer period. For information, please call the Pasadena chapter of the American Red Cross at (818) 799-0841.

## Planetary Society Scholarships

The Planetary Society is offering five \$1,000 awards to students majoring in engineering and science. Awards will be made on the basis of scholastic achievement, a commitment to a career in planetary related science, and a written essay on a relevant topic. The deadline for completed applications is 15 April 1989. Mail-in cards for further information are available in the Financial Aid Office, 12-63 (515 S. Wilson, 2nd floor).

## Chamber Music Concert #2

Tonight, January 27, musicians ranging from freshmen to post-docs will present an 8:00 pm chamber music concert in Dabney Lounge. The concert is sponsored by Student Affairs and PA 31 and will include music by Mozart, Beethoven and Mendelssohn. As usual, a reception will follow the concert.

## Women's Trip To Scandinavia

San Jose State University is sponsoring a travel program to Scandinavia in June and July 1989, focusing on women's issues, including equality, government, representation, sports, the arts, academia, and the women's movement. There will also be seminars on international networking, women's organizations, and the history of women in each country visited, as well as a chance to meet local feminists. The tour, led by Dr. Margaret (Meg) Bowman, noted feminist author and a member of the sociology department at SJSU, departs the U.S. on 27 June, and will include Norway, Sweden, Denmark, and Holland, returning 15 July. An optional extension includes a week in London. For further information, write: Travel Programs, Office of Continuing Education, San Jose State University, San Jose, CA 95192-0135.

## Y Book Exchange

Bring your used, unwanted textbooks to the Y. We take them, display them on our bookshelves, and sell them to poor suckers who will use them in the future. They get a good deal on textbooks, you get some of your money back. Let's band together to beat high textbook prices. The Y also has ring and report binders, and novels new and old.

## Violin Master Class

Violinist Vincent Houser will conduct a chamber music master class on Monday, January 30 at 7:30 pm in Dabney Lounge. Three ensembles will play music by Weber, Haydn and Prokofiev, and Mr. Houser, a former student of Jascha Heifetz, will explain and demonstrate musical principles. The event is sponsored by PA 31.

## Career Development Tidbits

The City of New York is sponsoring the Mayor's Corps of Engineers, offering 75 outstanding engineering students who have completed their junior year of college the opportunity to work on some of the most exciting engineering projects currently underway in New York City. Deadline for applications is February 15, 1989.

IBM Latin America is seeking candidates to fill the positions of Marketing Representative and/or Systems Engineer to work in selected Latin American countries. (Openings are for citizens of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela).

Sandia National Laboratories sponsors the "One Year on Campus" Masters Degree Program. The program provides an opportunity for highly competitive minority bachelor-level individuals to continue their education for a masters degree. Candidates normally work at Sandia for several months to become familiar with the laboratories' environment before beginning the program.

Operation Crossroads is sponsoring a cross-cultural exchange project in Africa and the Caribbean.

Stop by the Career Development Center, 08 Parsons-Gates, for more information.

## Joanna Cazden In Concert

On Saturday, February 4, folksinger Joanna Cazden returns to Caltech in a Caltech Folk Music Society concert. Her music ranges from humorous jabs at the silly side of life to moving and poignant serious songs. The concert is at 8:00 pm, and tickets are \$6 in advance, \$7 at the door, (\$3 less for Caltech students). Don't miss this one. Trust me!

## More Scholarships for Gals

The American Council of Independent Laboratories is offering scholarships to one or more women in at least their junior year to further their studies in the fields of Physics, Chemistry, Engineering, Geology, or Biology. For more information contact the Financial Aid Office. The deadline is March 21.

## Ethical Sex

"Sex, Fraud, Piracy: Ethical Issues in Scientific Research" is the title of a talk to be given by Professor of Philosophy Philip Kitcher of U.C. San Diego. It will take place at 12:05 p.m. on Wednesday, February 15, in the Judy Library. There will be no refreshments, but you may bring a bag lunch.

## Yet Another Totem Poll for Art

Attention writers, poets, and artists! The second Totem in as many years will appear this spring and will contain a diverse, if not complete collection of Techer-expressed wisdom and imagination. Address submissions to 116-58. For information contact Sam Dinkin (1-59 or x3828), or Erik Russell (Annex #5, 1-59, x6188). Copies of previous issues of the Totem are available.

## Join A Computer Club

New to computers? Want to meet other computer enthusiasts? Willing to help others? Join CPU. With our growing library and knowledgeable members we can help you solve almost any computer problem. Come to our meetings Mondays at 5:15 pm in Rm. 15 SAC. Next discussion topic: using electronic mail to talk to other campuses.

## Money For Marin Residents

The Marin Educational Foundation is offering Marin Educational Grants for the '89-90 academic year. Applicants must be Marin County residents and must complete a SAAC or FAF. The deadline for applications is April 1, 1989. For more information, contact the Financial Aid Office.

## Red Cross Disaster Training

Red Cross Disaster Services volunteers are trained and ready to respond to assist the victims of any man-made or natural disaster every day of the year. Emergency food, shelter, medical attention, and other assistance is provided to disaster victims in order that they regain self-sufficiency as quickly as possible.

Citizens interested in helping their friends and neighbors may volunteer for American Red Cross and sign up for free Disaster Services training courses and workshops on various facets of disaster work.

Call the Pasadena Chapter at (818) 799-0841 for information.

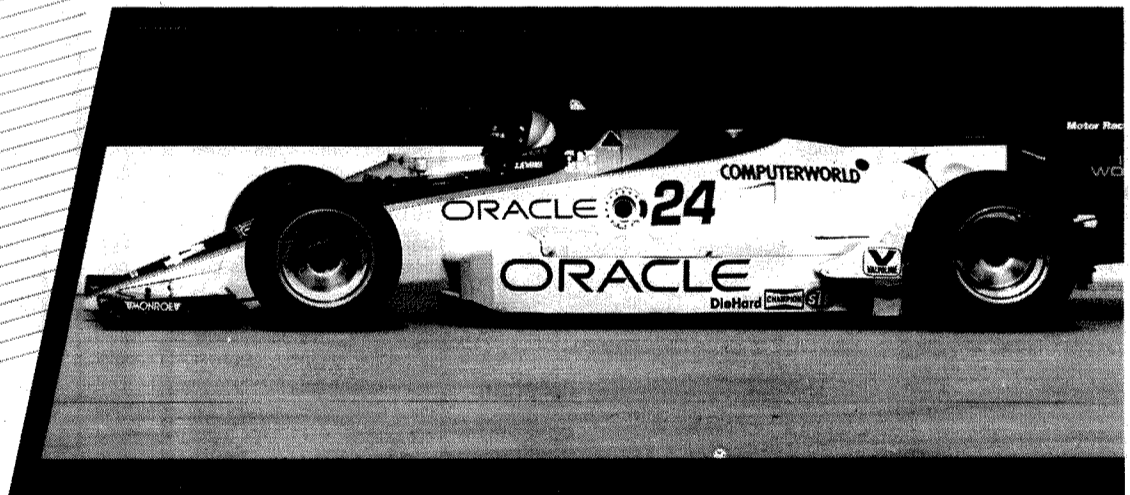
## Earn \$ By Driving

Occasional transportation needed for Iona Brown (Violinist/Conductor), L.A. Chamber Orchestra, Holiday Inn to Beverly Hills. If interested, call (213) 395-0076, Mrs. Kennedy of the L.A. Chamber Orchestra, or see Nancy Matthews, Rm. 64 SAC.

## Japanese Film Series

This week's showing in Prof. Rosenstone's Japan Film Series will be: *Double Suicide* (1969, directed by Shinoda). The showing will be on Monday, Jan. 30 at 7:30 pm in Baxter Lecture Hall.

# The Fast Lane Is For Winners



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### THE PAST

Oracle Corporation's revenues have more than doubled in ten of our eleven fiscal years (the other year we grew 91%). This unprecedented growth is the direct result of the focused efforts of our unparalleled, company-wide team of super-achievers.

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A 1987 Software News survey ranks Oracle as the ONLY top-five supplier of software for mainframes, minicomputers and personal computers. ORACLE, our SQL-based, relational database management system, and our family of application development tools and decision support products are emerging as industry standards for every class of computer.

### THE FUTURE

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We are recruiting for opportunities in Marketing, Consulting, Development, Finance, International and other areas within Oracle. On-campus interviews will be held Monday, February 6, 1989. For more information on scheduling an interview, please contact your Placement Office. If you are unable to meet with us, please call or write:

Larry Lynn  
Oracle Corporation  
20 Davis Drive  
Belmont, California 94002  
415/598/8183 or 4201



# what goes on

Submit announcements for *What Goes On The Back Page* on forms available outside the Tech office (SAC room 40A) and in the copy/mail room (SAC room 37), or use a plain piece of paper. Send announcements to 40-58, or put them in the IN box outside the Tech office. Indicate the date(s) the announcement must run. Announcements for the current issue must be received by 5 pm Tuesday and should be shorter than 75 words. Announcements will be published as space becomes available and will be chosen according to size and interest to the Caltech community. Announcements for commercial events unrelated to Caltech will not be published.

## More Engineering Money

Equal Opportunities Publications, Inc. offers two non-renewable \$500 scholarships to honor outstanding women, minority, or handicapped students pursuing careers in Engineering. For information contact the Financial Aid Office.

## National Roofing Bucks

The National Roofing Foundation offers a \$4000 scholarship for full-time students enrolled in architecture, engineering, or other curricula related to the roofing industry. Applications and information are available from Aimee Anderson, Scholarship Coordinator, National Roofing Foundation, One O'Hare Centre, 6250 River Road, Rosemont, IL 60018.

## SAMPE International Awards

The Society for the Advancement of Material and Process Engineering will provide 27-\$1000 awards in international competition in April. Students in their freshman, sophomore or junior year may apply. Applicants must be recommended by the department head or scholastic advisor. Deadline: 1 February 1989. For information contact the Financial Aid Office.

## Play With Money

The Caltech Student Investment Fund meets every Wednesday in Millikan Board Room at 5 pm. We have over \$140,000 we use to buy and sell stocks and bonds. Profits buy pizza and soda for every meeting, and pay for dinner at year's end.

## Polish Workshop

The Polish Language Workshop offers the opportunity to learn or review Polish in a friendly, relaxed atmosphere. It meets Thursdays from 7:30-9:30 pm in 210 Thomas September through June.

## Korean-American Scholarships

The Korean American Scholarship Foundation has 14 \$1,000 scholarships to aid full-time college students of Korean heritage, including graduates and undergraduates. The deadline for applications is January 31, 1989. For more information, contact the Financial Aid Office, 515 S. Wilson.

## Coors Memorial Scholarships

Adolph Coors Company is sponsoring \$500,000 in scholarships to sons and daughters of American veterans this year.

To be eligible, applicants must be 22 years of age or younger as of March 15, 1989, and already be enrolled full-time in an accredited four-year institution of higher education in the United States, or an accredited two-year program leading to a four-year undergraduate degree. Additionally, they must have a cumulative GPA of 3.0 and be the son or daughter of one of the following: an Honorably Discharged American veteran, Active Duty military, Guard or Reserve military (minimum six years or called to Active Duty), or American service person Killed in Action, Missing in Action or who has Died in the Line of Duty. Contact the Financial Aid Office or any major veterans organization for applications.

## Research Semester

The U.S. Department of Energy has announced a research program open to juniors and seniors interested in biomedicine, chemistry, materials science, engineering, reactor physics, atomic physics, nuclear physics, high-energy physics, environmental science, geoscience, mathematics, computer science, energy systems, waste technology, nuclear medicine, and automated inspection/measurement systems. The program provides a stipend, housing and travel reimbursement for a variety of activities including hands-on research, seminars, academic courses and advanced instrumentation training. Applicants must be U.S. citizens or permanent residents and must have GPAs of 3.0 or better. For further information, stop by the Deans' Office. Applications are due by March 15, 1989.

## SAC Ping-Pong, Air Hockey

Does anyone use the ping pong tables in the back area of SAC 50? (That's also the location of the air hockey machine formerly housed in the SAC gameroom.) There has been a suggestion to convert a portion of that space into a driving range (golf!). Please see Nancy Matthews if you have any comment about this. Also, for your convenience, ping pong balls are now available in the Game Room (at cost, 25¢) next to the vending machines.

## Be In The Top Ten

Caltech juniors are invited to participate in *GLAMOUR* magazine's 1989 All New Top Ten College Women Competition. This, the 23rd annual competition, will select the winners on the basis of solid records of achievement in academic studies and/or extra-curricular activities on campus or in the community. The competition is broken down into the areas of: Creative Arts, Communications, Science and Technology, Health, Public Service, Government and Politics, International Relations, Business and Economics, Entrepreneurship, and Sports. One outstanding woman in each category will win the big prize of \$2,500 and an appearance in the October, 1989 issue of *GLAMOUR*.

## SAMS Corporate Candidates

The National Multiple Sclerosis Society encourages the involvement of undergrads in its Students Against Multiple Sclerosis (SAMS) Corporate Candidates Program.

Corporate Candidates is to provide incentive to top SAMS campus chairpeople by affording them an opportunity to have their resumes circulated to major corporations for consideration for full-time and internship positions. Some of the corporations participating in the program include: Philip Morris Companies; Quaker Oats, Pfizer Corporation, Wells, Rich and Greene; Citibank (Northeast Region); New York Telephone; and Burson-Marsteller.

The top SAMS chairpeople are chosen to participate in the Corporate Candidates Program for their ability to set goals and follow a plan to accomplish those goals. Goals that are set correspond to the various aspects of the SAMS Program and include fund raising, marketing, and public awareness. Each chairperson works closely with a member of the SAMS national staff and/or a local MS chapter to determine individual goals. The resumes of the top chairpeople will be distributed to the participating corporations in the Spring of 1989.

Anyone interested in knowing more about SAMS or the Corporate Candidates Program please call 1-800-1-BUST-MS.

## Summer Biomedical Program

The Jackson Laboratory of Bar Harbor, Maine, is offering a summer program of biomedical research. Each student conducts original, hands-on research as a contributing member of a sponsoring scientist's research team. Projects are tailored to the student's background and interests. Research areas focus on advancing the knowledge of molecular, developmental, genetic, biochemical, and immunological mechanisms related to normal growth and development and human disease. The Laboratory's extensive resource of mutant and inbred mice strengthens this basic research.

Stipend: \$1,000 plus travel allowance. Housing: Room and board is provided at Highseas, a Jackson Laboratory residence at the shores of Frenchman Bay, and is paid for by Jackson Laboratory scholarship funds.

Application receipt date: February 28, 1989. Selections will be made and applicants notified in late March.

Program dates: June 18 to August 15, 1989.

For further information and application forms contact the Training and Education Office, The Jackson Laboratory, 600 Main St., Bar Harbor, Maine 04609.

## Carnegie Summer Bio Program

The Department of Biological Sciences of Carnegie Mellon University is offering a summer undergraduate research program in '89. The program is designed for college students who are interested in research careers in the biological and biomedical sciences and who aspire to attain a Ph.D. Students who have completed their junior year and who have strong academic records in the sciences will be given preference. Prior research experience is helpful but not mandatory.

Students selected into the program will receive a stipend of \$2400 and will spend 10 weeks working with an outstanding faculty member in one of the Carnegie Mellon laboratories. Students will also participate in special seminars.

An application and a complete description of the program, including a list of the sponsored projects and participating faculty, can be obtained by writing to: Dr. Eric Grotzinger, Department of Biological Sciences, Carnegie Mellon University, 4400 Fifth Ave., Pittsburgh, PA 15213.

## 1989 Recreation Tournament

This year Cal Poly Pomona is hosting the 1989 Recreation Tournament. Events include: Backgammon, Billiards (Women), Billiards (Men), Intercollegiate Bowling, Chess, Table Tennis, Table Soccer and Air Hockey. If you are interested in participating, see Nancy Matthews or Milly Pena in SAC 64 or SAC 38 for more details.

## Work In Japan?

If you missed the presentation about working in a Caltech alum's Japanese factory last week, you still have time to submit a brief letter of interest to the Deans' Office. The deadline is Monday, January 30th. If more information is required, talk to Paul Amadeo or Eric Hassenzehl, last year's participants.

## The Muppets Take Caltech

Do you have a talent for drawing? ... painting? ... making puppets? Well, have we got a competition for you! Jim Henson's (yeah, the Muppet Man!) *Character Design Competition* can actually win you BIG BUCKS! Your assignment is to create "a two-character team of any nature or creature type." Lotsa leeway, huh? The "jury" will be looking for originality of concept and quality of execution—but the actual style of the characters is up to you! The sky's the limit: anything from a three-faced animated fire hydrant to a purple Spuce (of course, everyone knows REAL Spuces are green with yellow and orange beaks).

The presentation can be in any medium: slides, 2D or 3D, puppets, videos, software—but no "live" performances! The deadline for all entries is 24 February 1989, so start concocting some goodies now. Only entries from full-time undergraduates and graduates will be accepted. The deadline for receiving the artwork at Jim Henson Productions is 1 March 1989.

Now for the important part: First Prize—\$1000; Second Prize—\$800; Third Prize—\$600; Fourth Prize—\$500; and Fifth Prize—\$400. To receive an entry blank, call Will Morrison at Jim Henson Productions, (212) 744-5207. (Come see the posters in the SAC at the California Blvd. entrance and at the Orange Walk entrance).

Good luck—and remember, it takes Teachers to come up with the truly freaky.

## Free Flying

Did you ever want to learn how to fly but weren't quite sure what was involved? The Caltech/JPL Flying Club has a limited amount of funding (courtesy of the GSC) for the purposes of giving free demo rides to graduate students who are considering taking flying lessons. During this short (45 minute) flight you will fly over Caltech and other nearby areas. You will also see first hand what is involved in piloting a small aircraft. The Flying Club has five aircraft based at El Monte airport, all of which are available at very reasonable rates. For more information contact Jim Kaufman, 264-33, x3807.

## CLASSIFIED ADS

### FOR RENT—

**MAZATLAN, BI-LEVEL CONDO** on best beach. Sleeps six, pool, kitchenette, two bedrooms, maid services, purified water. Available 3/19-26/89. \$600, call (415) 255-9467 or (415) 331-1376 evenings.

### HELP WANTED—

**MICROAGE/PASADENA** is looking for sales people. Knowledge of PCs and software required. Draw against commission. (818) 449-2884. Mon-Fri, 10-5. EOE.

**TUTORS NEEDED!** Individuals with high SAT scores are perfect for the job. High pay, flexible hours, materials given. Act now, call EXCEL-ED (818) 458-1068 for May.

**POST-DOCTORAL** opportunity for chemist, physicist, engineer, or physical biologist: a challenging opportunity to study the molecular basis of visual disorders using crystallography, NMR, MRI, and/or light scattering. Send C.V. and references to: Maria Courogen, Dept. of Biostructure, SM-20, Univ. of Washington, Seattle WA 98195.

### SERVICES—

**INSURANCE WAR!** We'll beat anyone's prices or don't want your business. Sports cars, multiple tickets, student discounts. Request "Caltech Plan." (818) 992-6966 or (213) 873-3303.

**WORD PROCESSING** or typing done to your draft copy. Reliable, reasonable. Call (818) 794-2458.

**WORD PROCESSING** on my personal computer in my north San Gabriel home. Papers, theses, you name it! Experienced, fast, and accurate. Call (818) 287-4819.

### LOST AND FOUND—

**CASSETTE TAPE CASE**, black, 15 slots, found in the SAC copier & mail room. If you can name all the enclosed tapes, it must be yours! See Nancy Matthews, 64 SAC, 1:30-3 p.m., Mon./Tues./Thurs./Fri.

**SUIT OF BANDED TYPE ARMOR**, lost from student shop. Worth more than \$100 plus 1 yr. of hard work. Please contact Charles at 356-9314 if you have information.

**RATES**. . . . \$3.00 for first 25 words; . . . 10¢ for each additional word. Send written ad with payment to 40-58. Deadline is 6 p.m., Monday before issue. No charge for on-campus lost & found.

## SURF's Up!

1989 SURF applications are available in the SURF Office, Room 3 Dabney. This year's applications have been revised, and students should pick up an application before they go to interview faculty. The first sheet of the application is a Vita Sheet. Students should complete the Vita Sheet and give it to any potential sponsors when they first meet.

The new SURF handbook is also available in the SURF office.

## Rotary Foundation Scholarships

The purpose of Rotary Foundation Scholarships is to further international understanding and friendly relations among peoples of different countries. Both men and women may apply for one of the five types of Foundation Scholarships to complete one academic year of study or training in another country where Rotary clubs are located. If interested, stop by the Career Development Center, 08 Parsons-Gates, for more information on terms of the scholarship and application procedures.

## E.T. Bell Competition

Juniors and seniors interested in fame, fortune and glamour should find a faculty sponsor and submit an entry to the E.T. Bell Undergraduate Mathematics Research Contest. Entries are due by the end of the 4th week of third term.

## Morgan Ward Prize

The Morgan Ward prize is open to all Caltech freshmen and sophomores. Entries should consist of a problem and a solution or significant progress towards a solution. Entries may be submitted by an individual or a group of students, and each student is limited to no more than three entries. All entries are due the fourth week of third term.

## Mensa Money

Mensa Educational and Research Foundation is offering opportunities for students to win scholarships ranging from \$200 to \$1,000 in the Annual Mensa Scholarship Essay Contest. Entries must be postmarked on or before February 1, 1989. Applications are available in the Financial Aid Office.

## Scholarship Money

The Danville/Alamo Branch of the American Association of University Women is accepting applications for their \$500 scholarship to deserving sophomore or junior women from the San Ramon Valley. Applicants will be evaluated on the basis of achievement, educational goals, financial need and campus or community involvement. For more information and application send a self-addressed long envelope to:

Anne Fletcher  
64 Larkstone Court  
Danville, Ca. 94526

## BIG MONEY!

The General Motors Corporation is offering one scholarship to a sophomore in Mechanical Engineering. The GM Scholarship includes full tuition, a book allowance, and a paid summer internship. The award is renewable for the senior year. Financial need is *not* a consideration in the selection process. Applications and additional information are available in the Financial Aid Office, 515 S. Wilson. Deadline is February 21, 1989. Apply now!

## Worms, Worms, Worms

Paul Rubinov, Ph 3 Teaching Assistant, will be holding a series of informal lunch-time discussions on the topic of worm consumption. The discussions will be Fridays at noon. Refreshments will be served. All are welcome.

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