

photo by Anoop Sinha

Tim Gerk massages Ed Etzkorn at Monday night's massage class in Winnett. The massage class was one of several activities that were part of Wellness Week. Today, a Health Fair marks the conclusion of the week.

Wellness Week Concludes With Health Fair

Steven M. Sobelman

From 12:00 to 3:00 p.m. today, in and around Winnett Lounge, the Health Fair marks day five of Caltech Wellness Week. This is the fourth and most elaborate event of the week, which continues with a concert by the band Moonwash Symphony, from 4:00 to 6:00 this afternoon, and concludes tomorrow with a showing of the film *The Accused*, at 8:00 p.m. in Baxter Lecture Hall. All events are free and open to the entire Caltech community.

This is the third Health Fair

Caltech has had. "It's quite a bit smaller than ones we've done before," according to Lori Mulvany, R.N., at the Health Center. Still, some 29 booths and exhibits will be on hand to provide people with an opportunity to educate themselves about how to improve their health, as well as a Moonwalk ride (one of those big inflatable things that you jump around in) so you can get some exercise.

Four of the most popular booths will undoubtedly be the ones offering free food. Health Valley will be giving out health food samples and coupons for their store. The

Place for Yogurt will have samples of a healthy frozen desert that tastes just like frozen yogurt but is much better for you. There will also be a booth where you can snack on fresh fruit before heading off to your afternoon classes. After you've had your fill, wash it down at the L & A Juices and St. Thomas Ice Teas booth.

Many of the exhibits are medically oriented. Marion Merrell Dow and Parke-Davis will be showing their products that are aimed at helping people to quit smoking. Allen and Hansburys, a company

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Students Plan Orbiter and Shuttle Projects

Ben McCall

Members of the Students for the Exploration and Development of Space (Caltech SEDS) have begun design work on experiments to be flown in the Space Shuttle and even into lunar orbit. The program is known as the SEDS Get Away Special (GAS) project, named after the space available on the Shuttle to Caltech students.

The GAS project will be holding its next meeting on Wednesday, October 28 at 7:30 pm in room 35 of

the Student Activities Center (SAC), beneath the south on-campus undergraduate houses. All members of the Caltech community (including graduate students and faculty!) are invited and encouraged to attend to get in on the ground floor of these exciting projects!

In the early 1980s, former president Marvin Goldberger, in conjunction with the Student Space Organization, purchased the rights to three GAS canisters aboard the Shuttle. These remain in Caltech's control, and all that is necessary to use them is to design and construct a suitable experiment.

The experiments that the GAS students are working on at present are a gamma-ray burst detector and a protein crystal growth experiment. The aim of the first is to detect mysterious bursts of gamma-ray radiation which are currently unex-

plained, locate the positions of these bursts, and determine whether any optical burst in the visible spectrum is associated with them, as some theories predict. The protein crystal growth experiment aims to grow crystals of proteins in space which cannot be grown effectively on Earth due to convection and sedimentation. The GAS project is also looking for new ideas for the third canister.

In addition, the GAS project may be able to secure funding for a small lunar orbiter, to be launched into low earth orbit and propelled to the moon using ion engines. The orbiter could be used to prospect for water near the poles of the moon, or for a number of other scientific projects.

For more information, feel free to contact Ben McCall at gas@cco.caltech.edu or 683-0750.

Rudolph Marcus Discusses Nobel Prize, Research

Kevin Du

It was 10:50 AM Thursday morning in Marcus' office, and I was nervously shifting my weight as I waited for Marcus to finish talking on his phone and busied myself by taking in his book lined office with its clusters of balloons left over from Wednesday's celebration and noticing the new carpet—a nice contrast from the old green shag. Finally, as my eyes were crossing at some formulae written on the whiteboard, he hung up and greeted me with a smile and handshake. (This is part one of the interview; part two will be presented next week)

Du: How are you feeling so far?

Marcus: Well, I'm feeling a little overworked, but otherwise fine.

D: That's good. How was the party yesterday?

M: It was absolutely marvelous. It was so in a sense representative of Caltech. When they do things, they do things in a grand style. It was just great to have it. I was a little surprised, they didn't need to do that. All I want to do is just get on with this research. But it was wonderful of them to do it. It was just a splendid event and I was very happy.

D: It was over at the mall?

M: It was in the courtyard of the Beckman Institute. Really a fitting place.

D: Definitely. You said you wanted

to get on with your research.

M: That's right. I thought maybe when I was much younger that maybe eventually things would ease up a little bit. But they haven't. If anything, I'm working more intensively, certainly not less intensively.

D: From a week's perspective, how do you feel now about winning the Noble prize?

M: Of course, I'm very pleased. At first, I was astounded when I heard about it, I mean I knew that people had nominated me from year to year, but I was still astounded when the news actually came. But now I'm prepared to accept the idea. And the main thing now is not so much the prize but getting on with the thing that I enjoy which is trying to solve problems and understand things. There are problems we're working on at least one of which we really don't understand. Part of the fun of this whole thing actually sometimes is the fact that you don't understand something. So you try things and sometimes things work out. I liken it to a bit like skiing. And anybody who is a skier or who isn't the most proficient skier like me will appreciate that sometimes you are faced with a slope and you look down it and don't feel entirely comfortable and you figure okay, the heck with it, let's go for it. And I think research has that sort of element. Some problems are a little bit more routine than that, or you

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State and Local Republican Legislature Candidates

Chris Echols

In case you're one of the few Republicans on campus, you might be interested in this summary of some of the 1992 Republican candidates.

Republicans running this go-around include Bill (Tax Reduction) Hoge for State Assembly, Newt Russell for State Senate, Carlos Moorhead for U.S. House of Representatives, and John Seymour and Bruce Herschensohn for U.S. Senate.

Bill (Tax Reduction) Hoge, as he calls himself, is a Pasadena insurance broker and is new to politics. For the most part, he holds standard conservative views. He is against abortion, gun control, affirmative action, and supports the current capital punishment laws. He would also like to reduce California's air-

quality rules to stimulate the economy.

Glendale resident and State Senate incumbent Newt Russell's strategy this campaign is to emphasize why he should be re-elected in a year when many are unhappy with "career politicians." He emphasizes his role as "Watchdog of the Senate." He has been praised as examining all bills closely and exposing legislators who try to pork barrel special interest concerns into law. He also emphasizes his good character: solid family man, churchgoer, a man with values in government.

Carlos Moorhead is running for re-election as U.S. representative. He supports a national governmental policy that would protect American business and industry from foreign competition. He is also against

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Presidential Debate Analysis

Shane Sauby

Over the past two weeks there were three Presidential debates and one Vice-Presidential debate. President Bush, Governor Clinton, and Ross Perot were present at all three Presidential debates, while their respective running mates attended the Vice-Presidential debate.

The first debate was more a testing of the waters than anything else. It also proved to be the only debate with a definite "winner." Both Clinton and Bush came out conservatively. Most people found Clinton slightly stiff and programmed, while Bush lacked energy. Ross Perot, however, was lively, humorous, and came out far ahead of his opponents. His performance went a long way towards mending the hurt from his leaving the campaign. The debate had little substance though, and resulted in more sound-bite material than substance.

The second debate was for the Vice-Presidential candidates. This debate did not so much have a winner as it had losers. Dan Quayle came to the debate with two purposes. First, Quayle wanted to improve over his 1988 performance. Second, he was to attack Clinton's character. He achieved both of these, but the second may have backfired. Quayle was forceful, outspoken and well prepared for the debate, a definite turnaround from his "deer caught in headlights" performance of four years ago. On the other hand, his constant harping on Clinton's character began to sound petulant and forced, and it began to detract from his answers to the questions presented. Retired Admiral Stockdale started strong with the rhetorical questions "Who am I?" and "Why am I here?" By the end of the evening though, most viewers may have been asking the same questions. Stockdale's halting, nervous answers were far different from his running mates performance in the first debate. He did score one good point, interrupting an argument between Gore and Quayle to point to it as an example of why the government has been in stagnation. Gore came out as the winner of the debate, more by default than by design. His polished, programmed answers were a little too much so, and he fell prey to the same criticism as Clinton did after the first debate. In the end, this was the most entertaining debate, but it lacked any serious ramifications on the election.

The third debate was set to be Bush's chance to follow up Quayle's accusations face-to-face. Unfortunately for him, this debate was formatted in a very different style. There was a single moderator and the questions were taken from an audience of about two hundred undecided voters. Bush was forced to answer questions about his plans and the issues, and only managed one small swipe at Clinton's character. Clinton, on the other hand, used the format to his advantage. He often got up and spoke directly to the person asking the question or to the television cameras. Both he and Perot were far more lively than the President. Bush seemed uncomfortable and unsure of himself, especially when asked how the recession had affected him personally. Perot did well in this debate, if not being a little long-winded, but his ideas were very thin. He often referred to how there are many great plans in Washington that are just waiting to be implemented. He had very few plans of his own to put forward, other than his fifty cent gas tax. In all, Clinton came out ahead in this debate, with Perot making a strong showing also.

President Bush came back into his element in the final debate, and followed through with his plan to attack Clinton on his character. Clinton responded, sometimes responding to Bush's allegations and sometimes patronizing his negative tactics. The knockout swing, however, came from Perot, who attacked the President's involvement with Iraq before the war. Bush's greatest strength to date has been his foreign policy record, yet this question, along with the lingering hints from the Iran-Contra scandal, questioned his foreign policy for the first time. Perot claimed that Bush and his administration had been supporting Saddam Hussein up until the invasion of Kuwait. Bush flatly denied the allegations, but this did not slow down Perot. He hammered at the President for a minute or two, questioning why certain documents had not been released and how Saddam Hussein had become so powerful. In the end, nothing was proven for or against Perot's allegations, but the blow hit Bush hard. The debate in general had a very negative tone to it, and almost no new territory was covered.

The four debates were very interesting, yet not very informative. The third debates format lent itself to more direct questions and more direct answers than the other three. In terms of polls and how people will vote, it is likely that most people saw what they wanted to see. The polls may not have changed much due to the debates, but the debates probably solidified supporters on all sides

Wilson's Coup Attempt

Michael Oder

Last Spring the Governor and his advisers came up with a plan. Phase I of that plan was to hold the state budget process hostage until the California electorate became thoroughly disgusted with the state Legislature. A small, vicious minority of die-hard Republican lawmakers aligned with Governor Wilson and held the state hostage for more than 40 days. They filibustered preventing the legislature from getting the 2/3 majority it needs to pass a budget, until the remainder of the legislature caved-in to their demands. This resulted in California's worst budget crisis since the Great Depression. Now comes phase II.

Proposition 165 is one of the boldest power grabs in American history. It gives the Governor sole power to set the states budget, if the legislature is unable to gather a 2/3 majority to pass a budget by July 1. He could slash funding for or eliminate entirely any programs not specifically protected by the state's constitution. These include services for the elderly, disabled and children, enforcement of environmental, worker, and consumer protection laws, state health services and higher education. And his decisions can be overruled only with his approval. This is too much power for one man.

Even after a budget is passed, if state revenues drop 3% below predictions, by the Governor's own political appointees, or state expenditures rise 3% over budget, the Governor assumes the power to slash funding for any of these programs.

Yes, the budget approval process is broken, but Proposition 165, will not bring that reform, it will just allow Wilson and his cadre to gain sole control of California.

But that's not all this proposition does.

Under the guise of reforming the states welfare, foster homes and disabled services, the proposition slashes support for those Californian's most vulnerable. It forces teenage mothers to attend school whether or not they can find child care or face a \$50 deduction in their aid. They cynically call this the Cal Learn program.

Proposition 165 cuts welfare benefits by up to 25%. Proponents say that recipients can make this up by getting a part-time job, but in a state where unemployment recently reached 10% and the economy shows no sign of improving soon this seems unlikely at best. It eliminates the cost of living adjustments for aid levels, so even if inflation will cut even deeper into aid levels. It is a sad statement on a society when their first recourse is to attack the weak.

Proposition 165 is not attempt to reform welfare. It contains no provisions to combat welfare fraud. Contrary to much popular belief, the vast majority of welfare recipients are on welfare for less than a year. This is just an attempt to abuse those who need it to get by hard times.

I urge you to read Proposition 165 for yourself. At it's heart, it is an attempt to eliminate the basic power of the legislature, the power of the purse. It removes the fundamental constitutional protection of separation of powers. No one person should have this much power.

EDITORIAL

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Wellness

that deals with allergy relief products will also have an exhibit. Both a dentist and a podiatrist will be there to check your health in their areas of expertise. You can go inside and check your blood cholesterol, then go to the Health Center's booth and check your blood pressure. At other booths you can get information on Diabetes, skin care, and women's health issues. The American Cancer Society and the American Heart Association will be present as well.

Some health problems are more than just physical and a number of the booths will have information about how to deal with some of them. The Pasadena Rape Crisis Center, the All Saints AIDS Service Center, MADD, and the Pasadena Council on Alcohol and Drug Dependency will all have exhibits, as will our own Counseling Center. Safety will be the theme of the Caltech Earthquake Preparedness booth, the Pasadena Fire Department booth, and, of course, the exhibit by the Caltech Safety Office.

It is a "very stressful time for people," according to Nurse Mulvany, and the Health Center is seeing people in record numbers (74 on Monday alone). So relax, take a long lunch, and head down to Winnett for the Health Fair. The Health Fair is sponsored by the Health and Counseling Center, the Caltech Y, ASCIT, the GSC, the Office of Student Activities, the Staff and Faculty Consultation Center, and the Undergraduate and Graduate Deans' Offices.

THE CALIFORNIA TECH

Volume XCIV • Number 5
October 23, 1992

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Published weekly except during examination and vacation periods by Associated Students of the California Institute of Technology, Inc. The opinions expressed herein are strictly those of the authors. Letters and announcements are welcome. All contributions should include the author's name and phone number and the intended date of publication. The editors reserve the right to abridge and edit all submissions for literacy, expediency, or anything else.

Turn in copy (preferably on Macintosh 3.5 inch disk) to the Tech mailbox outside SAC room 40. E-Mail may be sent to editors@tech.caltech.edu. The deadline for copy is Wednesday at noon; for announcements, Tuesday at 5pm.

The California Tech is distributed free. Issues will be mailed off-campus upon receipt of \$10 per year to cover third-class postage and preparation costs.

Printed by News-Type Service, Glendale.
ISSN 0008-1582

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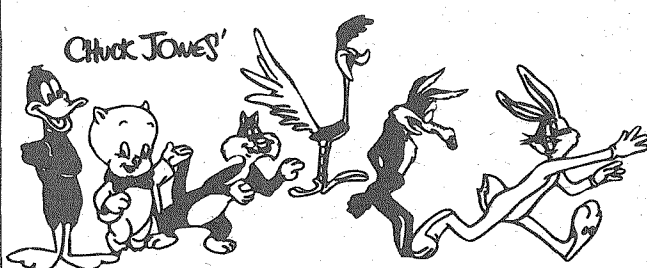
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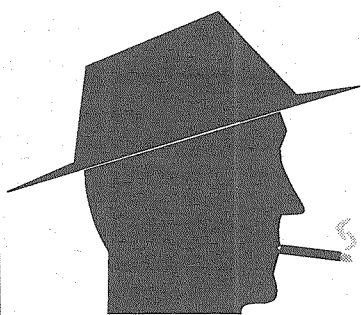
**Looney, Looney, Looney,
Bugs Bunny Movie!!**



Next Week:
Dead Again

Baxter Lecture Hall at 7:30 and 10:00
\$1.50 Ascit and \$2.00 non Ascit

Crime & Incident Beat



crime tip: "We live in the best of all possible worlds!"—Voltaire

10-13 daytime A 35mm camera was stolen from 274 Watson. (\$250)

10-13 daytime A battery was stolen from a car parked at the Chester Lot. (\$40)

10-13 night A man wearing only an unbuttoned

shirt was found masturbating on the Bridge Annex patio.

10-14 daytime A woman loitering at Downs was cited by Pasadena police for repeated trespassing on Caltech property.

10-16 night A bunch of teenagers including one known gang member threw a tailgate party at the gym parking lot. The Pasadena Police were called in and the kids were made to clean up their 40-50 beer cans.

10-19 daytime An employee of Business Services found his windshield smashed. His car was parked in the SW corner of the Tournament Park parking lot. (\$100)

10-19 night A bicycle was stolen from a wall rack in the Dabney-Fleming breezeway. Either the cable or lock were cut. (\$600)

10-20 daytime Two Black males aged 14 and 16 were found messing with the bikes locked at Braun House. When security arrived the elder boy was found urinating on the side of Keck House. Pasadena Police questioned and then released the boys.

Week Total: \$990

Dewey, Caltech Physicist, Running for State Senate

by Alycia Weinberger

On Saturday, October 24, 1992, come meet Rachel Dewey, California State Senate candidate and JPL physicist, at the Red Door Cafe. This "Meet-the-Candidate" event will be from 2:00 to 4:00 PM. Caltech Women in Science and Engineering (WISE) is sponsoring Dewey's appearance.

Dewey received her BA in physics from Harvard and her PhD from Princeton. At JPL, she specializes in the radio navigation of spacecraft such as Voyager and Galileo. Before joining the staff at JPL, Dewey taught high school in New York City and served as a Visiting Professor of Physics and Astronomy at Carleton College in Minnesota. She is a member of the American Astronomical Society, the American Physical Society and the Union of Concerned Scientists.

In her recent scientific work, Dewey used the 305 m Arecibo radio telescope to search for young pulsars in supernova remnants. Last year, she and her collaborators an-

nounced the discovery the 267 millisecond pulsar in the supernova remnant W44 (PSR 1853+01). This work is important confirmation that pulsars are indeed formed in supernovas.

Dewey has been endorsed in her race by the California Federation of Teachers, the California Abortion Rights Action League, the California Democratic Council, the California Labor Federation Committee on Political Education, the Southern California Americans for Democratic Action and the LA Weekly newspaper.

Rarely do scientists have the opportunity to elect one of their own to public office. State Senators have direct impact on our everyday lives. They make decisions on issues such as abortion, taxes, and funding for public schools and state colleges and universities. These subjects affect all of us!!! Come and learn more! All Caltech students, faculty, and staff are invited to attend.

For more information, call Alycia Weinberger at extension 3741.

Jim's Journal

Today at the copy store it was really busy.



We had copying jobs stacked up on the counter and long lines of customers.



I gave somebody her copies and she said, "Wait, these aren't mine."



I looked through the stack until she pointed and said, "That's mine—the one right there."



World



News

Nobel Prize

The 1992 Nobel Peace Prize was awarded to Guatemalan Indian rights activist Rigoberta Menchu Tum, for working to stop an ongoing civil war in her country between ethnic and social factions.

Los Angeles Riots

A special group of investigators, headed by former FBI director William Webster found after a five-month study that the L.A. riots last spring were not contained due to a poor emergency plan by city officials and the inability of the LAPD to recruit police forces from other cities. Much of the blame lies on a City Hall emergency system that spread out authority among bureaucrats and politicians. Recommendations by the Webster panel to redeploy officers back to patrol duties, to improve readiness in case of emergency, and to modernize communications systems were accepted by city officials because of fears of renewed civil unrest.

U.S.-Vietnam relations

Thanks to cooperation by the Vietnamese government in the release of documents on missing and captured Americans, the U.S. is now moving towards normal relations with Vietnam. One of the most important policy changes will involve the lifting of the 17-year-old trade embargo to allow U.S. companies to establish businesses in Vietnam.

U.S. and Middle East Peace Talks
The Bush Administration is planning to play a more influential role in the Middle East peace talks to push Arabs and Israelis into agreement.

Great Britain

The British government, currently headed by Prime Minister John Major, is under intense criticism as news are released that the country's economy continues to worsen and Britain dangerously approaches full-scale depression. Unemployment currently numbers 3 million, or 10.1% of the population, the worst in five years.

The Irish Republican Army is shifting its bombing targets from Belfast, the capital of North Ireland, to London. Police warn that there has recently been a significant rise in IRA terrorism.

Yugoslavia

Yugoslavian President Dobrica Cosic, a respected Serbian figure, asked Serbian President Slobodan Milosevic to resign. As a result, the Milosevic regime, accused of causing ethnic bloodshed in Croatia and Bosnia-Herzegovina, felt a severe blow to its political support.

Bosnian President Alija Izetbegovic gave up hopes of preserving the republic when he agreed under pressure to the division of Bosnia.

A new eruption in violence in Bosnia-Herzegovina forced the United Nations to temporarily halt aid flights to Sarajevo, where food shortage is worsening and winter is imminent.

South Africa

10,000 Zulus, supporting Mangosuthu Gatsha Buthelezi's Inkatha Freedom Party and armed with spears, marched through Johannesburg to protest the white

government and accused President De Klerk of siding with Nelson Mandela's African National Congress, with whom Inkatha supporters have been warring for eight years.

ANC President Mandela disclosed shocking documents revealing the 1980s torture of prisoners in ANC prison camp.

Despite a rejection by the Parliament, South African President Frederik De Klerk is pushing through a highly controversial amnesty bill which would give him power to pardon crimes while keeping their details secret. He is under pressure from security forces who fear that a future black-controlled government would prosecute officials for past crimes.

Sino-Japanese Relations

Emperor Akihito of Japan is visiting China to improve Sino-Japanese relations, but fears rising from past animosities still linger over talks. In addition, many Chinese believe that Akihito should make a formal apology for past war aggression, but many Japanese fear that the Emperor might be insulted and that consequently relations might worsen.

Russia

Russian President Boris Yeltsin extended the country's ban on nuclear testing until July 1993 and announced the possibility of keeping the ban active through all of next year.

Somalia

A military attack in Somalia has disrupted relief efforts to famine-afflicted areas. Many relief workers fear that the offensive might presage a new escalation in the civil war and halt international aid to 2 million starving Somalis.

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Republicans

taxes, claiming to have consistently voted against new taxes. He strongly supports the National Energy Policy Act. He would also like to crack down harder on illegal immigrants by strengthening border patrols and increasing the penalties for illegal immigration. He also pledges to be tough on criminals.

More information on the Republican candidates and the Republican party in general can be obtained at the Pasadena Republican Party Headquarters on Lake Avenue (telephone: 793-2018).

The Tech needs people to handle on campus and off campus circulation. These paid positions involve distributing The Tech and preparing it for mailing. If interested, contact the editors: editors@tech, x6153.

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See Ed Metzger in this one-man show on Sat., Nov. 7 at 8 p.m. in Beckman Auditorium. Techers: Super discounted tickets at the Y!

ASCIT Election News

Ewald Hueffmeier

The Junior Class Secretary/Treasurer election is now over! The new Junior Class Secretary/Treasurer is Moeen Abedin. The results were:

Moeen Abedin	38	Jeff Pasquino	15
"No"	20	Sarah Barwig	1
Angus	4		

The first general election of the year is coming up! That's right, every ASCIT member can vote in the next election regardless of class. On Monday, there will be an election for the Director of Academic Affairs, whose main duty is to publish next year's *Clue*. The candidates are Jon McDunn and Craig Smith. Read their statement's in today's *Tech*.

Three proposed by-law changes related to the BOC will also be on the ballot. These require a 2/3 majority to pass so consider your vote carefully. For the text of the by-law changes read the October 16 issue of the *Tech*. Anyone who cannot be present for the election can cast an absentee ballot with the Election Chairman anytime before midnight Sunday.

This is one election you don't want to miss, so make sure you vote. There will be a ballot box in each house from 11 am to 11 pm so you don't have an excuse to miss it. If you have any questions or concerns, feel free to contact the Election Chairman, Ewald Hueffmeier (Page 105 of the *Little T*).

ASCIT Election '92

Jon McDunn

Vote early, vote often! It's the election for the director of academic affairs, obviously the most powerful position on campus. And with that power comes an obligation to use it. (No, wait. That's not quite right.) With that power, the director of academic affairs can change the seasons, align the planets, institute global harmony. Well, maybe not, but he probably can publish perhaps the most important piece of literature on the course offerings here, the CLUE. Just think, another

way to judge what courses to take besides that fictional work, The Course Catalog. No one tells the truth in that thing. Sure, it overviews the general syllabus of any given class, but it doesn't give a student's perspective. Is the class fun? Would nine out of ten doctors take this class if stranded on a desert island? And most importantly, is the professor reasonable about granting extensions?

I guess I should explain why I am running. Well, I worked with Rob Ellis, the director of academic affairs

responsible for the most recent CLUE, last year. As a member of the educational policies committee, I worked on composing guidelines for humanities pre-registration. We took student and faculty input and came up with some proposals about how this could be done. What I mean to say is that I have seen what the position requires and I believe I can fill those requirements. Thanks for your time.

Craig Smith

Right to the point:

I am running for the office of ASCIT Director of Academic Affairs. I firmly believe that Caltech undergrads should be able to graduate under the requirements of any catalog under which they have registered. That is all.

Director of Academic Affairs

WASHINGTON.

Mark Alan Stamaty



YNEWSYNEWSYNEWS

Katy Quinn

Do you want to do something for the community but you're not sure how to do it? Then look no further than the Caltech Y! The Y is one of the best ways on campus to get involved and make a difference. Right now we have space on the student excomm for six more people and we are especially in need of graduate student and Ruddock Hovse representatives.

So you're wondering, "Is the excomm for me?" Just ask our current excomm members and they'll tell you all the great things about the Caltech Y, I don't have the space to list them here.

The Caltech Y excomm is Clo Butcher, President, Blacker; Katy Quinn, Vice President, Blacker; Jean Andino, Secretary, Graduate Student; Dan Sandoval, Treasurer, Lloyd; Christine Chen, Blacker; Seiya Fukuda, Page; Mark Fey, Graduate; Joan Marie Gimbel, Blacker; Becky Green, Blacker; Stephen Heise, Dabney; Mark Mazurek, Fleming; Gisela Sandoval (no relation to Dan), Ricketts. If you want to be a member of this elite group, come and see what goes on in our weekly meeting, Monday 12 noon, in the Y lounge. If you are interested in our community services there is a volunteer programs meeting 3pm Wednesday and recycling meetings 4pm Wednesdays.

On to more routine matters, do you realize that midterms are almost upon us? Do you also realize that I'm asking a lot of rhetorical questions in this article? It's time to pack some fun into this weekend and blow of your pre-midterm stress, so here comes BOFFO-BONECRUSHER BROOMBALL X, in yo' face! Teams are already signed up but even if you're not on a team, coming along to watch is just as much fun and definitely less hazardous to your health. The venue is the Pasadena Ice Skating Center, from 12:15 am to 6:45 am late Saturday night or early Sunday morning, depending on how phase shifted you are. We also have a Mountain Bike trip 10 am to 4 pm Sunday, see Stephen Heise in Dabney for more information.

Good luck with midterms everyone, see ya next week if I survive mine.

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ENTERTAINMENT

Bridge Without Sam

Jeff Goldsmith

What's Going on?

Playing in the last round of a regional barometer pairs final, we are in 6th place with a shot at first. Paul Soloway (the possessor of more masterpoints than anyone, living or dead) is on my right; he is playing with a client. The first board out, I pick up as dealer, vul against not:

♠ A ♥ A4 ♦ AK983 ♣ K8542

I open 1 ♦, the client jumps to 2 ♥, and this is passed back to me. What shall I do? We play negative doubles, so the normal action for me, being short in their suit, is to double. I think that is wrong for two reasons. Firstly, if partner has a heart stack, where are the spades? Probably in Soloway's hand. I doubt that partner has a stack in both majors; he'd've bid spades before taking a chance on passing; for all he knows, we might have a spade slam. Partner is, however, marked with some length in hearts because Soloway, white on red, did not raise. I'd guess that hearts are something like 6-3-2-2 or 6-4-1-2 around the table. We can still have a game so I must bid, and I think it is clearly best to bid 3 ♣. That could be made on a weaker hand, but partner knows that I might still be strong and just have the wrong shape (heart length, perhaps) for a takeout double. I bid 3 ♣, and the auction proceeds strangely. LHO passes, and partner bids 3 ♥, which Soloway doubles. The bidding has gone:

Me	Client	Partner	Soloway
1♦	2♥	Pass	Pass
3♣	Pass	3♥	Double
?			

What is going on? Partner's cue-bid shows a strong hand, presumably with a fit for one of the minors. What is this double? It must be for the lead, but he cannot have something like Ace doubleton or even singleton Ace because he would have bid 3 ♥ the previous time. Soloway would not be chicken to raise his partner for a lead white against red, so what does he have? Only one solution makes sense: he must be void in hearts with lots of bad spades and a bad hand. He's expecting us to get to a minor suit slam and go down on a heart ruff. He's not bidding spades, which he knows that his partner fits, since both of us have denied spades, so he must have a second trick somewhere in the minor suits, probably QJ10x in one of the minors.

What is partner's hand? He must have something like 3-5-1-4 shape or possibly 3-5-4-1, though I suspect a club fit since he'd be less likely to go for penalties with a hidden fit for my suit. With 3-5-4-1 and, say, ♥ KJxxx, I'd expect him to bid notrumps rather than pass. Could Soloway have diamonds wedged and a heart ruff? Yes, he could, but I think he'd pave the way for a spade sacrifice if he only had one minor. That's it! He must have a trick or prospective trick in each minor so that his ruff will not be their only trick. That means LHO has spades, too, so spades are probably 4-5. LHO must be something like 4-6-2-1 or 4-6-3-0. I think clubs are splitting very badly, either 4-1 or 4-0. I know hearts are zip-splitting.

Where will the field be? Probably split between 3NT, minor suit slams, and spade saves. Minor suit slams are going down. What about 6NT? I am not getting a spade lead, which is bound to doom 6NT, but will that be good enough? I shall possibly get three heart tricks, one or two spades, five of one minor and two of the other. If all that works, I shall make 12 tricks. I'm not sure whether 6NT will make or not, but I suspect that everyone else will get a spade lead or know that they are getting one, so they will not bid 6NT. Do they have a save if it does make? Spades are blocked, so we cannot draw two rounds of trumps early. If partner has a singleton diamond, we can take one spade, two diamonds, and maybe a club against spades. We might get another spade. 7 ♣ might or might not be a good save against 6NT. Will anyone in the field be there? I don't know, but I am sure some will be in 6 ♣ doubled. That might be a good save against our game.

If I bid 3NT, I beat all the people in a minor suit slam going down. I beat many of the saves, and I get the maximum if 6NT is going down. If 6NT makes, our opponents will not save against it, and that would be the maximum. I would not be willing to bet on 6NT with a spade lead, so I don't think many in the field will bid 6NT, either. The more I think about it, the worse I feel about 6NT. If a heart lead lets me make six, I think I'll win the board even if I'm in three. That does it. I bid 3NT, which ends the auction.

Partner held:

♠ 3 ♥ K9762 ♦ Q742 ♣ A76

Soloway had 7-0-2-4 shape, so all slams were going down. We have four defensive tricks against spades, so we beat even those who got six spades doubled three tricks for an excellent score on the board.

Inti-Illimani Brings the Music of Chile and Latin America to Caltech

Cara Stemen

Inti-Illimani performs traditional and contemporary music of Chile and Latin America on Saturday, Oct. 24 at 8 pm in Beckman Auditorium.

This group of Chilean musicians, performing on more than 16 wind, string and percussion instruments, united in music and political spirit in 1967.

Leading proponents of the New Song movement, a blend of cultural and traditional Latin American folk music and contemporary musical idioms, Inti-Illimani performed as cultural ambassadors for the Allende government.

Exiled from Chile when a political coup overturned the Allende government in 1973, the group settled in Rome, Italy. Their music shows the influence of their years in



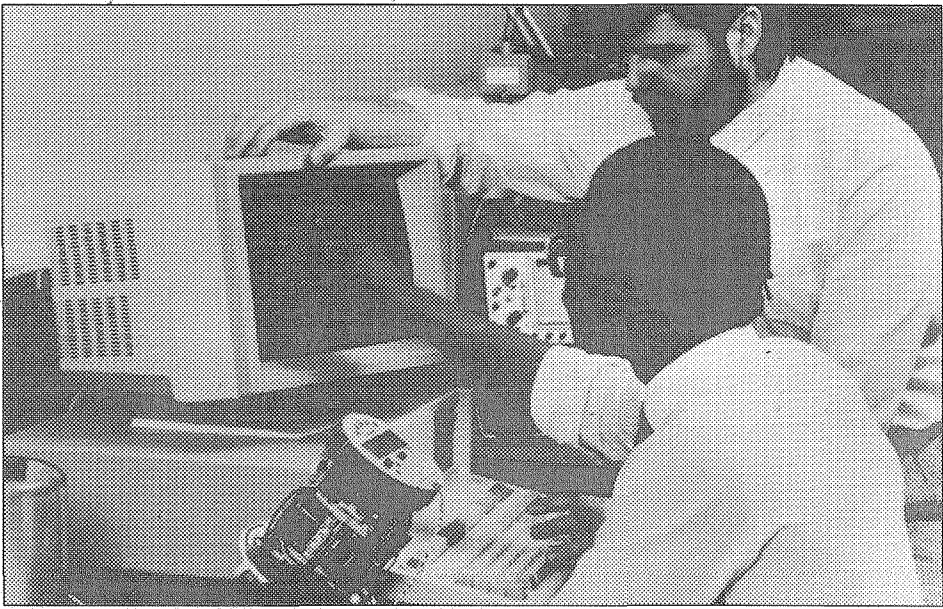
courtesy Caltech Public Events

Chilean musicians, Inti-Illimani perform in Beckman Auditorium on Saturday.

Europe.

Inti-Illimani has released more than 20 albums, including "De Canto y Baile" (Of Song and Dance)

in 1989 and "Fragments of a Dream" with flamenco guitarist Paco Pena and guitarist John Williams in 1988.



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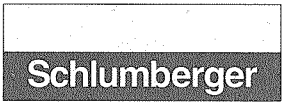
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| 5. Team Moosebreath | 10. Hogs II |

12:00 PDT - 12:20 PDT	9 vs. 10
12:25 PDT - 12:45 PDT	7 vs. 1
12:50 PDT - 1:10 PDT	4 vs. 7
1:15 PDT - 1:35 PDT	1 vs. 8
1:40 PDT - 1:00 PST	10 vs. 6
1:05 PST - 1:25 PST	3 vs. 2
1:30 PST - 1:50 PST	5 vs. 9
1:55 PST - 2:15 PST	6 vs. 3
2:20 PST - 2:40 PST	2 vs. 4
2:45 PST - 3:05 PST	8 vs. 5

Semi Final Round 1	3:20 PST - 3:40 PST
Semi Final Round 2	3:50 PST - 4:10 PST
FINALS	4:20 PST - 4:50 PST

SCIAC at La Mirada Park

Ned Bowden

For the second race in a row, Caltech's winning cross country team journeyed to La Mirada Park early on a Saturday morning. This was the first important meet of the season as both the men and women lined up against every team in the conference.

The men's race started at precisely at 9:30 A.M. after a delicious pre-race talk by Oxy coach Bill "Everyone Hates Me" Harvey. Francisco "Golden Ankle" Gutierrez, in his first race of the year, got out to a fast start and led the Beaver pack for 3/4 of a mile. He held on well for the entire race and finished in a strong time of 30:16.

Once again, Andy Zug crossed the finish line first for Caltech and placed 16th out of 81 runners. Behind him was Ned Bowden who cut three minutes off of his time this

meet to go along with his well shaven head compliments of Flora "The Barber" Ho. Schuyler "Ben Johnson" Cullen went out hard and paid for it at the end. He broke the 30 minute barrier for the second meet in a row and should break 29 minutes at the next race. Senior A.J. Lavin rounded out the top five and helped the Tech men defeat California Lutheran University and La Verne. The men did well considering we lost two of our top runners during the race to injuries.

By the start of the women's race the temperature had soared and the humidity was rising. At the sound of the starter's gun, the women took off hunting for blood. Tobe Corazzini and Aimee Smith paced together for much of the race before Tobe used her devastating final kick to finish 26th overall and Aimee crossed the finish line in 29th place. At the end of the race Amy Hansen looked strong and relaxed as she

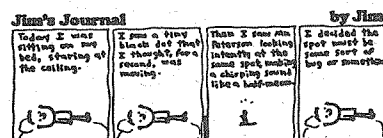
sprinted into the finishing shoot in 23:07.

Virginia "Iron Woman" Garcia continued to improve as she came in 20 seconds behind Amy. Fifth place on the squad went to Tristy Kibbey in 23:47. Finally, Fatima Ebrahim and Jesse "Nike" Haldeman captured the last two varsity slots. Similar to the men's team, the women finished sixth by beating Redlands and California Lutheran University.

On October 31st both teams race in the Conference Championships on a flat course. The top twenty finishers are considered All-Conference; Andy Zug, Ned Bowden, Tobe Corazzini, and Aimee Smith all have realistic chances of reaching that goal. Hopefully, everyone can run a personal best and leave this season on a high note while looking forward to next year.

Erratum

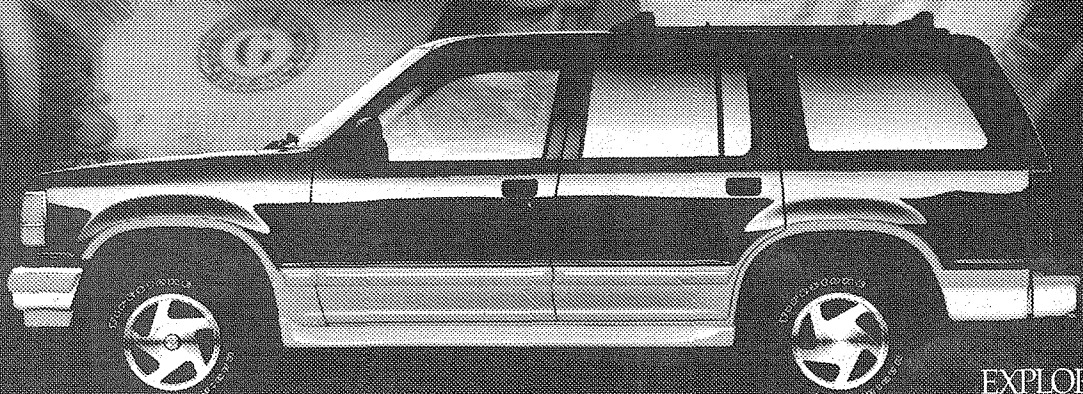
In Issue 4, "Tell the Truth, Mr. President" was incorrectly attributed to Ben McCall. Its author was George Stephanopoulos.



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Continued from page 1

Marcus

have a pretty good idea. So those are sort of like the easier slopes. But there are some that we are working on that we really don't know if we're going to be able to get the solution to it. We know enough about it to know we can start the ball rolling, to start trying to get a solution, but we really aren't sure how it's going to come out at all. So that's part of the excitement. It's a lot of fun.

D: *So that's your drive doing research?*

M: The drive doing research is trying to find answers to things or ways of doing things and also as years have evolved trying to see correlations between different types of experimental results so that one can look for relationships among things, not just calculating the particular quantity but looking for the underlying relationships there are that can be tested by the experimentalist.

I mean one of the things I try to allow for if I can is deriving equations that can be tested. An experimentalist might be able to measure something on the left hand side and measure various things on the right hand side to see if they are indeed equal. That's been characteristic of some of our work. But also seeing occasionally you come across some new things that are really quite unexpected. That happened in this electron transfer work. And it was sufficiently unexpected that it wasn't really accepted by many people, while I always felt it was true because I could see the physical origin of it. But it took twenty-five years of experiments before someone finally verified it, and then a whole bunch of people have since verified it. There are reasons why it wasn't verified before.

D: *You mentioned a bit about equations. For this electron transfer I heard from your students that it was a very simple equation to use.*

M: Absolutely! Absolutely. We introduced approximations here and there which well for example, the key one was the linear response approximation, that the medium would respond linearly to changing charges. That's a kind of approximation that is commonly used for other systems, not in these systems undergoing these kinds of fluctuations. And so we assumed this and later computer simulations seem to provide verification of it. But the main thing is that was the key element in deriving simple equations. We ran and gave a statistical mechanical derivation and got rid of the continuum in order to derive some of these relationships that we had previously derived in the with the aid of the continuum theory.

D: *That's interesting. So you specifically designed it to be very easy to use.*

M: Well, yes. In the original derivation, things came out that way, and then later on as we added increasing complexity and specification, we then introduced approximations that still permitted the equations to be simple, but now to have a somewhat more general foundation, because they are more molecular rather than particular.

D: *What was the original problem?*

M: The original problem was to explain the slowness of the particular electron transfer reaction between cobalt hexamine +2 and +3. That electron transfer from the plus 2 to the plus 3 form had been measured by isotopic exchange, and it was known that the rate was very

slow compared to many other isotopic exchanges, and it was also known that there is a large bond length difference, cobalt nitrogen difference, in the two redox forms. Libby in a symposium in 1952, had pointed out that somehow, for the electron to transfer, it had to handle the fact that the new ions were going to be formed in the wrong environments, in fact very wrong environments, and provide some sort of a barrier to reaction. He brought in what was called the Frank-Condon Principal, a very important principal in spectroscopy, and he applied it to that problem. I saw his paper about 1955, about three years after the symposium; I wasn't at the symposium, but it was published in an issue of the Journal of Physical Chemistry. I happened to see that paper, and other papers, including one incidentally by Norman Davidson, who is here at Caltech, and later went into biological things. I saw the kind of treatment that Libby had of this Frank-Condon Principal, as applied to this reaction, and I knew that there was a mistake, that there was something wrong,

and I didn't quite know what it was. I worked on it, and it turned out that I had worked on another kind of problem that provided me with a background: the electrostatics that was needed to treat this problem correctly. What Libby did not realize was that you couldn't just have an electron transfer. That would be a photo-induced electron transfer, not a thermal electron transfer. Instead, you needed a rearrangement of the bond's length, and of the solvent orientation, the solvent dipoles that are around there. You need rearrangements of that before electron transfer. You need fluctuations, and you need them after. I was able to derive a way of obtaining the free energy associated with those fluctuations, and a way then of finding what fluctuations would permit the electron to transfer and satisfy the Frank-Condon Principal in the appropriate manner for a thermal reaction. And then calculate the reaction rates. So that was the nature of what got me started.

Incidentally, prior to that, in order to work on some of this other

work that was not electron transfer but involved interaction of charges, liquids and charges with each other, it involved what are called polyelectrolytes, long chain molecules and long charges. In order to work on that problem, around 1953 I read every physics book on electrostatics that I could lay my hands on, at least the portion that would deal with these kinds of interactions. The one that I found most useful was one written in the 20s or 30s, Mason and Weaver, and it turned out that Mason, I believe, was a Caltech professor. I didn't know that at the time, but it was sort of ironic, in a way. The way they phrased things, a kind of fundamental approach, the way they phrased what the electrostatic potential depended on, not just on charges but on dipoles, provided the greatest insight for me, helped me in building up the necessary background in electrostatics for ions, solvent treatment. So when this came along, I had all that as background, and it was a matter of working out fluctuations and non-equilibrium conditions, free energy, these fluctuations. Using this sort

of equilibrium theory, this background, I was able to do that. As they say about some things that are much more important, the rest is history. But what I finally got at after this month of very hard work and getting things to work right in the meanwhile and recognizing them to work right, because they looked messy . . . and there's a symmetry, a beauty sometimes in the expressions you get. There's something that's sort of a lot of patchwork on top of patchwork—you see it in place. It's hard to describe it, but it's a feeling one gets. There was a point where I felt, now I had it right. That has been the most exciting moment in my scientific life. It has never been so exciting before, it's never been so exciting since; it's just a superb thing. There have been many moments of excitement after, various problems that we've tackled, finally finding a way of doing them, seeing insights, there's been a lot of that, but nothing that's quite equalled that moment in 1955, shortly before I submitted.

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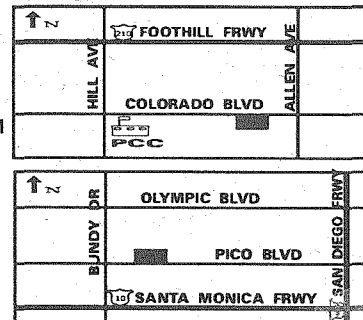
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WHAT GOES ON

NOTICES

Student Health Insurance - If you have not received the Preferred Provider Organization (PPO) local directory, please give me a call. I will see that you receive a copy promptly. The listing includes only those service providers whose offices are close to campus. The complete, national network is quite extensive. Don't forget to call 800/354-2464 for referrals to other preferred providers. Emergency and radiology services at Huntington Hospital are by their choice not part of the current PPO. However, Caltech has entered into special agreements with both services, so you will be billed only for the 70% of covered expenses that Monumental covers. There will be no co-payment on these services - once your \$100 annual deductible has been paid. If you have any questions call or send me an e-mail message at: jnoda@iago.caltech.edu - Jeanne Noda

Caltech SEDS Meeting - The Caltech chapter of SEDS (Students for the Exploration and Development of Space) will be holding a meeting on Tuesday, October 27th at 7:30 pm in 469 Lauritsen. We will discuss plans for tours of the Rockwell facility where the shuttle Atlantis is currently being refitted, the Hughes satellite assembly facility and a mockup of space station Freedom at McDonnell-Douglas in Huntington Beach. We will also talk about plans for speakers and other events, as well as updates on technical and educational outreach projects. Refreshments will be served at the meeting and after the meeting we will show a recent episode of program "Space Age". We are planning a star party this Saturday, October 24th, meeting at the Catalina III parking lot at 3:30pm. For more information contact Jeff Foust at 449-1345 or Ben McCall at 683-0750, or e-mail seds@cco.

Caltech Film Club - The Caltech Film Club holds meetings every other Wednesday in SAC room 25 at 8 pm. For further information contact Alex Protopapas.

Holiday Crafts Faire - Student Activities is sponsoring a craft fair on Dec. 8th and 9th. Anyone interested in selling or participating, contact Elizabeth Sheiman at x2935 for an application or information. Participation is free to all members of the Caltech community. The deadline is October 26.

Caltech Y Excomm meeting - The Y invites anyone who wishes to cosponsor an event to attend on Monday, October 26 at noon in the Wes Hershey lounge on the second floor of Winnett.

Caltech Surf & Windsurf Club is open to the whole Caltech community for affordable equipment rental, lessons and trips. For activities and info call: Branislav Kecman @356-4264, kecman@citsrl.srl.caltech.edu.

Hold The Date! - Auditions for the upcoming Winter musical will be held on Saturday and Sunday, November 21 and 22. We want students actors, singers, technicians, musicians and more. Start preparing. For more information call Elizabeth x2935.

Part Time Job for a Work Study Student - Professor Bjorkman's lab in Biology needs a laboratory helper. The duties would be as follows: Autoclave glassware, pick up clean glassware and reshelve, make bacterial medium, go to the stockroom to purchase necessary supplies. A Biology major is preferred. Estimated hours per week: 10. If you are interested, please call extension x8351 and ask for David Penny or Peggy Fahnestock.

Caltech Chess Club meets in Winnett Clubroom 1 at 7pm on Wednesday, October 28 for their Back-to-School Special Tournament. Entry is \$2 for the Caltech community and \$5 for all others. For more information call Paul at 585-9361.

EVENTS/SERVICES

Friday Prayer - Prayers organized by Caltech Muslim Students are held in the Caltech Y lounge at 12:30 pm every Friday.

Caltech Hillel/Jewish Community Weekly Meeting - An informal gathering, every Thursday at noon in the Y lounge. For information call Caty Konigsberg at 213-259-2959

Mass - Thursday at 8:15 in the Y lounge and Sunday at 10 am in Winnett lounge. Sacrament of Reconciliation (confession) is given 20 minutes before masses. Refreshments are served after mass.

Bible Study and Discussion - Every Wednesday at noon in the Y lounge. Bring your own lunch. For more information call Mike Gerfen at 356-4886.

Caltech Lesbian and Gay Society - Meets the first and third Tuesdays at 7:30 pm in the Health Center Lounge. This confidential meeting is open to all Caltech community members looking for a supportive context in which to address questions and concerns about sexual orientation - including coming out, being out, self-discovery, coping with families.... We begin with a focus topic but move to whatever is feeling most relevant to the group that night. Refreshments are served. For information, please call 356-8331.

Adult Children of Alcoholics - A 12-step group meets on campus every Tuesday, from 12 noon to 1 pm, in "Club Room Two". The group is open to any student, staff or member of the faculty who grew up with family alcoholism and other problems. For more information call Dinah Lee Schaller at 356-8331.

Open Line, Caltech's multicultural group, is having its second Multicultural Picnic open to the whole Caltech community, Sunday October 25, from noon to 6 pm at Tournament Park (south-east corner of the athletic track). Families of staff, students, faculty, and post-docs of all cultures and backgrounds are invited to bring their national food and take part in multicultural games, shirt and paper painting, volleyball, kid's games, etc. Feel free to come late or leave early. For more information call Pamela Croomes at 356-4723, or Branislav Kecman at 356-4264.

Poetry Workshop - In the Y lounge from 7:30 to 10 pm on the second and fourth Tuesdays of every month. For information call Silvania Pereira at 356-8343.

The CIT-KNIT Group meets at noon on Tuesdays in the Benioff Conference Room (Rm. 256 S. Mudd). For all levels of knitters. Come and join us.

Preschool Playgroup - The Caltech Women's club sponsors structured activities for mother's, father's and their children, on Tuesday, October 27 in the Caltech Villa Apartments, from 10 am to noon. For further information contact Valerie Murray at 287-8960.

Baby Furniture Pool - The Caltech Service League loans out baby furniture to students and postdocs on Wednesday at 324 S. Chester from 10 to 11 am. For more information call 952-1631.

ENTERTAINMENT

Inti-Ilumani - This group of musicians from Chile performs "Nueva Cancion" (New Song) music, a blend of contemporary and traditional Chilean musical styles. Come see them in Beckman Auditorium at 8 pm this Saturday, October 24. For ticket information call x4652.

The Pasadena Folkdance Co-op offers beginning and intermediate instruction every Friday at 7:45 pm in Throop Unitarian Church on the corner of Los Robles and Del Mar. A program of varied international dances follows the instruction at 9:00 and continues until 11:00. Wear soft-soled shoes. A contribution of \$1.50 is requested.

End of Wellness Week (October 23-24): Friday - Health Fair, a variety of displays to educate our community about health and wellness including: blood cholesterol checks, earthquake preparedness, AIDS awareness, moonwalk fun, etc. & "Moonwash Symphony" - will perform in front of Winnett from 4-6 pm.

Saturday - "The Accused" starring Jodie Foster and Kelly McGillis will be shown in Baxter Lecture Hall at 8 pm. Admission is free.

Miamon Miller and Friends - Put on a costume and wear your dancing shoes. It's Halloween party time! Join the Caltech International Folkdancers in Dabney Lounge on Tuesday, October 27 at 7:30 pm.

International Folk Dancing - Tuesday night in the Dabney Lounge. Beginning instruction starts at 7:30 pm; intermediate at 8:00 pm and open dancing takes place from 9:00 till midnight. Donations are accepted for more information call Mike McKenna (310) 692-0366.

Israeli Folk Dancing - Sunday in Winnett lounge. Beginning instruction starts at 7:30 pm, intermediate at 8:00 and open dancing goes on from 8:30 to 10:30. For information call Nancy Macmillan at 795-3655. Admission is \$2.00.

Scottish Country Dancing - On Wednesdays in Dabney Lounge from 8 until 10 pm. Beginners are welcome and no partners are needed. For more information call David Hills at 354-8741.

Music with James Boyk! - Pianist James Boyk gives a performance each Wednesday from 4:30 to 6 pm in Dabney Lounge. The performance is open to the public and free of charge. Feel free to come late or leave early. For more information call x6353.

LECTURES/SEMINARS

B&W Printing Class presented by Dark Room Users Group, Sun, Oct. 25, 2pm in the darkroom (SAC39). Open to the community.

Not to be Missed - Legendary professor of the history of architecture, Dr. Vincent Scully of Yale University, will speak in Beckman Auditorium, Thursday, November 12th, 8:00 pm. Title: "Louis I. Kahn: The Ruins of Rome." The lecture is free. Students who would like to be invited to dinner with Dr. Scully on Friday evening, November 13th, should contact the MOSH at x6295.

"Chinese Magic and Oriental Skepticism: Pseudoscience in China" - A presentation by five top magicians from the People's Republic of China on Saturday, October 24 at 2 pm in Baxter Lecture Hall. Admission is \$5 for Skeptics Society Members, Students and Seniors. General Admission is \$8.

Enhancing Your Telephone Effectiveness - A quick skill building course for anyone who uses the telephone. This three-hour course looks at customer service skills and critical telephone effectiveness. The workshop will be held in Winnett Clubroom 1 from 1 to 4 pm on Thursday, Oct. 29. If you wish to reserve a place, call Ronae Brooks at x6375.

VWR Caltech Show - Come find out about the latest in Biotechnology. In Dabney Lounge from 10 am to 3 pm of Thursday, October 22. Free refreshments and door prizes.

"Tests for Witchcraft: Experimental Science and the Paranormal in 17th Century England" will be presented in Baxter's Judy Library at 4:00 pm on Thursday, October 29 by Dr. Richard Olson of the Department Humanities and Social Sciences of Harvey-Mudd College. This talk is part of the series on Science, Ethics and Public Policy. Refreshments will be served.

SCHOLARSHIPS & COMPETITIONS

USA Today - USA Today is beginning its annual search for the nations best college students. Sixty will be named to USA Today's 1993 All-USA Academic Team. Chris Ho won last year. The twenty first team members will receive a \$2,500 cash prize and their awards in a ceremony in Washington D.C. Winners will be selected by a panel of judges who will select students excelling in scholarship and leadership roles on and off campus. For copies of the application form send your campus mail address to editors@tech.caltech.edu.

"Progressive Social Change in the 1990's" - *Monthly Review*, an independent socialist magazine, announces an essay contest for people 25 and under. Entries covering such topics as, How can we change progressive change in US society today? Are emerging movements creating new ideas and posing potential solutions? In what ways can new social institutions be constructed?, should be 2000 words or less, written in English and typed double-spaced. First prize is \$500, second \$300 and there is a \$100 third prize. All contestants will receive a free one-year subscription to *Monthly Review*. Send submissions to *Monthly Review*, 122 W 27th Street, New York, NY 10001. For more information call (212) 691-2555. The deadline for submissions is March 1.

The Future of Computing - The Institute of Electrical and Electronic Engineers Computer Society, NCR Corporation and *Computerworld* magazine are sponsoring a \$60,000 international essay contest on the future of computing. The contest is open to undergraduate and graduate students. First prize is \$10,000 and a NCR notebook computer. For more information, send requests and campus mailing addresses to editors@tech.caltech.edu.

Hughes Predoctoral Fellowships - The Howard Hughes Medical Institute will award 66 fellowships toward a M.S., Ph.D. or Sc.D. degree in biological sciences. The fellowships provide an annual stipend of \$14,000 and a \$12,700 annual cost-of-education allowance, effective June 1993. The fellowship is for both U.S. and foreign students and is aimed at students who have completed at least one year of graduate study. The application deadline is Nov. 6. Call (202) 334-2872 for an application.

Fritz B. Burns Prize in Geology - Undergraduates in the division of Geological and Planetary Sciences are encouraged to apply. The award(s) will be made up to \$1,500 for the best proposals for undergraduate research in the fields represented by the Division. If interested, submit a short statement (less than one page) describing the research you would like to do. The submission deadline is December 1, and they should be sent to Professor Kerry Sieh, Division Academic Officer, Division of Geological and Planetary Sciences, Mail Stop 252-21.

The Financial Aid Office has applications and/or information for the following scholarships. All qualified students are encouraged to apply. Our office is located at 515 S. Wilson, second floor.

The Northrop Corporation is offering a \$3,000 scholarship at Caltech for the 1992-93 academic year. The scholarship is open to freshmen through seniors in Electrical Engineering, Mechanical Engineering, Aerospace Engineering, Computer Science/Engineering or Manufacturing Engineering. Students must show evidence of a strong academic record and a career interest in the aerospace/defense industry. The applicant must be a U.S. citizen and may be a concurrent recipient of another company's scholarship. Resume's and academic transcripts must be received by the FAO by 5:00 pm, Friday, October 30, 1992.

The Data Processing Management Association is offering three scholarships for \$1,000 each provided by the Bert A. Monaghan Systems Management. The scholarship committee must receive the application by November 20, 1992.

The American Physical Society (APS) is offering \$2,500 scholarships to African-American, Hispanic-American or Native-American undergraduate freshman or sophomore students majoring in Physics. The deadline to submit completed applications to APS is February 26, 1993.

The Harry S Truman Scholarship Foundation awards scholarships to college students who have outstanding leadership potential, plan to pursue careers in government or elsewhere in public service, and wish to attend graduate school to help prepare for their careers. Truman Scholars participate in leadership development programs and have special opportunities for internships and employment with the federal government. In 1993 up to 85 Truman Scholars will be awarded on the basis of merit to junior level students at four year colleges and universities who: have extensive records of public and community service are committed to careers in government or elsewhere in the public sector, wish to influence public policies, have outstanding leadership potential, and possess intellectual strength and analytical abilities. A Truman Scholarship provides up to \$30,000. If interested, please contact the Dean of Student Office, 102 Parsons-Gates for further information. The deadline for completed nomination materials is December 2, 1992.



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