

Encounter — the true color picture above and the false color picture below were taken last week by Voyager 2. At the time, Voyager was 9.1 million km. from Uranus. The closest approach will occur today.

Uranus Captivates World Observers

NASA's Voyager 2 will make its closest approach to Uranus, flying 81,500 kilometers above the cloud tops of the seventh planet, at 10 a.m. today. It will be the first spacecraft to reach the planet, providing our first close look at this system.

Caltech students, faculty, and staff will be able to view the photographs sent by Voyager both

today and tomorrow in either Ramo or Beckman auditoriums. The information will be relayed to Caltech as it is received at JPL. Viewing will be open from 8:30 a.m. to 5:30 p.m. today and from 8:00 a.m. to 8:00 p.m. tomorrow.

The Voyager 2 Uranus encounter, which began Nov. 4, 1985, continues through Feb. 25, continued on page 4

Watson Lecture

Goddard Does His Thing

by Doug Gray

It's been three years since my frosh class jumped off the boat from Catalina and into Wild Bill Goddard's Ch 1a, the class that stands out the most in my memories of Freshman Year. In his Watson Lecture this week, with the characteristically informal title of "Designing Drugs, Catalysts, and Materials Using Graphics to Watch Molecules Do Their Thing," Dr. Goddard dispelled any suspicion that those memories might be the least bit embellished; he was just

as out-of-control as I remember.

Being an official Caltech event, the lecture was not a complete Goddard experience. He wasn't dressed from head to toe in multicolored Izod Lacoste. He didn't sport a cowboy hat. He didn't write on a board with invisible chalk (although the Scurves provided him with both). He didn't ask questions to people in the audience, instructing them to just reply "Duh" if they didn't know the answers. Still, he did give a colorful and entertaining talk on various areas

of research where computer graphics are used to help understand chemical processes and to aid in the design of molecules.

Goddard demonstrated a color graphics system that displays a detailed picture of a molecule and can easily move the image around, rotate it into any desired viewing position, zoom in and out on it and pass through it in order to see details inside a complex molecule such as an enzyme, and even display it in three dimensions if the user has the necessary viewing equipment. The molecule can be depicted just as a framework of bonds (which Goddard called "chicken wire"), as a mass of lumped spheres, or in a combination of the two where the chicken wire is surrounded by yellow dots to represent the "surface" of the molecule.

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ADD DAY TODAY!

\$12.5 Million for Biology

[CNB]—Caltech will aim at becoming a world center for the study of developmental biology—that is, how living organisms develop from single cells to adulthood—thanks to a \$12.5 million grant from the Lucille P. Markey Charitable Trust of Miami, Florida.

Developmental biologists seek to understand how the genetic information in DNA is programmed to be translated into proteins that in turn form the patterns of life. They study how embryos develop into full-fledged adult animals, and how simple cells grow to form intricate structures such as the brain. This basic knowledge can lead to the understanding of, and ultimately to treatments for, an enormous variety of diseases, including birth defects and genetic disorders.

"We owe a deep debt of gratitude to the Markey Trust for enabling us to launch this promising new effort to understand the machinery of life," said Caltech President Marvin L. Goldberger in announcing the grant. "With this new fund, we propose to become the world's leading center for the study of developmental biology," he said.

"Caltech's Division of Biology can already provide a superb nucleus for such a program. We possess outstanding developmental biologists on the faculty, talented students, unique capabilities in microchemical instrumentation known popularly as 'gene machines,' and a tradition of excellence."

The Markey Trust grant will permit Caltech to expand its studies in developmental biology by funding novel research ideas propos-

ed by Institute faculty. Funds from the grant will also allow Caltech to renew outdated research equipment, to acquire new advanced instrumentation, and to further develop a microchemical facility where scientists and engineers will build new machines for genetic engineering. This facility is also providing a protein and gene analysis and construction service for other Institute researchers.

Caltech biologists use such animals as sea urchins, fruit flies, zebra finches, and mice as models to prove the mechanisms of development. They also use cultures of human cells to study the body's immune system and the development of the nervous system.

Caltech has also led in the development of automated machines to analyze and construct genes and proteins. These devices are enabling researchers to carry

out in a matter of weeks genetic engineering experiments that would have been impossible by hand, because they would have required decades of manual laboratory work.

The Markey Trust was created by the late Lucille Parker (Wright) Markey, who directed that all funds be spent by 1997 exclusively for supporting and encouraging basic medical research. The estate, now in probate, is expected to amount to more than \$300 million.

Trustees administering the trust are Chairman Louis J. Hector, President William P. Sutter, Mrs. Margaret Glass, Miss Laurette Heraty, and George L. Shinn.

Mrs. Markey was the owner of the famed Calumet Farm, a thoroughbred breeding operation and racing stable based in Lexington, Ky. She died in 1982 in Miami Beach.

Bishop Tutu Honors Dr. King

by Nancy Drehwing

"I have a dream today. I have a dream that one day every valley shall be exalted, every hill and mountain shall be made low, the rough places will be made plains, and the crooked places will be made straight, and the glory of the Lord shall be revealed, and all flesh shall see it together. This is our hope. This is the faith with which I return to the South. With this faith we will be able to hew out of the mountain of despair a stone of hope. With this faith we will be

able to transform the jangling discords of our nation into a beautiful symphony of brotherhood. With this faith we will be able to work together, to pray together, to struggle together, knowing that we will be free one day."

On January 20, at the Westin Bonaventure Hotel, over 2,000 people celebrated the birthday of the man who spoke these words, Dr. Martin Luther King, Jr. The event was the ninth annual such dinner celebration held by the

continued on page 4



Birthday Speech — Bishop Desmond Tutu speaks at the Westin Bonaventure Dr. Martin Luther King Jr. birthday celebration.

photo by Michael Keating

Elections Monday

Statements of Candidates for ASCIT President and Treasurer can be found on page three.

OPINION

Editors' Desk

This year's ASCIT elections are an opportunity for candidates to really get involved in the campus activities rather than passively watching their Caltech careers flow by. Some students have already done this, and their statements can be read on page three. We must select those who will treat their positions responsibly and competently, and have demonstrated this ability by the way they've dealt with us up until now.

Of special importance will be the selection of new editors for the *Tech*. This is a very rewarding thing. This is a very fun thing. It is not however, something to be

taken lightly. As an editor of the *Tech*, you can say what you think people should hear. We're talking power trip on a grand scale. You can air a gripe, expose scandal, or incite unrest. If you're looking for a soap-box, this is your baby. The equipment is great, with a voluptuous new IBM-PC in addition to the svelte typesetting machine. This means that production is even more streamlined than before. This job is the top of the ladder. This is what you want.

If you are interested in this, if you are the kind of guy who likes to feel the wind run its fingers through your hair, and the sun on

your back, stop by and talk to us.

A word of warning though; while other ASCIT officers may on occasion be able to position their duties around their academic schedule, the *Tech* is less forgiving. If you fail to do something with the paper, or do a shoddy job, everyone knows about it. Your successes as well as your mistakes are a matter of public record. We urge you to consider carefully the candidates for this and all offices as you will have to live with your choices for the coming year.

—Paul Gillespie
Peter Ashcroft

Life's little Necessities

David Malis: A baritone from the San Francisco Opera, another of the SFO recital series. Ramo Auditorium. Sunday, January 26, 3:30 pm. \$12.00.

the items most commonly demanded by the respondents. Also popular would be some sort of gaming area with video games, pool tables, and ping-pong tables. Beyond these, requests ranged from automatic teller and copying machines to a used-book exchange to a wall for practicing rock-climbing.

Among the problems which we listed, students in all years considered the humanities and social sciences requirement to be the most serious problem. Complaints were primarily about the rigidity of the requirements and the availability of classes. The next most important problem was the selection of introductory science classes. About one third of the people who responded cited a need for more survey courses, with topics ranging from the law and business to civil engineering. Students were also asked to list any good survey courses which they had had. As we collected results, it became clear that one of the largest problems was with making students aware of the courses available.

Of course, people would not be able to take survey courses if they had to spend all of their time on required classes. More than a third of the students who were sophomores and older complained about the amount of work required for Ph2. There were a handful of other courses which were cited, but the only ones which received a large percentage of complaints were Ch3 and AMa95. One of the changes being considered is to allow people to substitute similar courses with somewhat different emphasis for courses in the core curriculum. An example would be Ph2c, which covers statistical

mechanics. Students generally favored allowing another thermodynamics course to be taken instead. Students also were interested in allowing different math courses to be taken in place of Ma2c, but those who had already taken Ma2c were evenly divided over this issue. A number of students felt there was a need for more advanced placement, with nearly 20 percent of all respondents feeling that they could have placed out of Ph1a.

To find more about these and other exciting results, or to put your own two cents in, take an active role in the Faculty-Student Conference.

Conference Survey Results

by Castor Fu

Some of you may remember filling out surveys on student facilities and the core curriculum last term. Most of these were actually read by people preparing for the upcoming Faculty-Student Conference to be held on February 22. Topics to be covered at the conference will include the above-mentioned student facilities and core curriculum, as well as student morale, teaching quality, and the humanities at Caltech. If you are interested in participating, please contact Lisa Henderson at x3961.

On the student facilities questionnaire we received about 180 responses from both graduate and undergraduate students. Many of the responses commented on the

lack of information about facilities available. One student even asked where the gym was located. However, the most surprising result was the demand for racquetball/squash courts. Although there was no mention of them on the survey, nearly a quarter of the students said they wanted racquetball courts. This was true of both grads and undergrads, and was independent of where people lived, unlike the requests by grad students from one house for more math books, and requests from another undergrad house for a heliport.

One of the purposes of the student facilities survey was to assess students' feelings about a new student center. About 60 percent of undergrads and 40 percent of grad students thought Caltech could use

an improved student center. As many people pointed out, Caltech lacks a place where students from different houses can get together. Winnett Lounge was called cold, uninviting, and ugly. Several people pointed out that Winnett Lounge's primary purpose seems to be as a meeting place for clubs and for small lectures, and any attempt to remodel it into a form more suitable for informal gatherings would prevent it from serving its current function. In fact, out of the people who thought the student center needed to be improved, about 60 percent of the students thought that a simple renovation or expansion of Winnett would be insufficient. However, no one mentioned the renovation of the South House basement as a possible solution.

Of course, what is inside a student center is more important than how it is physically organized. Places to buy food and lounge areas, possibly with some reading material and a television set, were

Tonight's Movie

The Killing Fields
by Susan and Your ASCIT Movies People

The Killing Fields, the ASCIT movie this week, was widely acclaimed after its release in 1984. It won numerous film awards, including Academy Awards for Best Supporting Actor and Best Cinematography.

The film centers on the friendship of Sydney Schanberg (Sam Waterston), a New York Times

journalist, and Dith Pran (Dr. Haing S. Ngor), his Cambodian assistant and interpreter. In a war torn Cambodia, the two risk their lives to report the coming of the Khmer Rouge. They are separated, and Sydney returns to the U.S. while Dith is sent to the Khmer Rouge death camps. Dith's struggle to survive and his friend's struggle to find him creates an intensely moving film that simply must not be missed.

THE **ASCIT MOVIE**
TONIGHT at 7:30 and 10:00

THE
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The Caltech Y Fly-by

Friday... January 24

Noon Concert—Traditional Irish Music with Mick Moloney, Jimmy Keane, and Robbie O'Connell. At noon on the Quad. Bring a friend and a Shamrock.

L.A. Philharmonic—Sibelius, Sibelius, and more Sibelius! Concert starts at 8 PM, so the Y-Car leaves at 7:15 PM.

Saturday... January 25

Sailing Trip! All day long! Leaving Caltech around 8 AM, so meet at Winnett at 7:30 AM.

Tuesday... January 28

Uranus watching! See pictures being sent from Voyager and maybe the Voyager Control Room. Leaving Caltech at 7:30 PM. FREE!

Wednesday... January 29

Noon Update—"Rock Pavements in the Desert." Peter Haff, Senior Research Associate in Physics. Lunchtime, in Clubroom 1.

Friday... January 31

Noon Concert—La Bottine Souriante—French-Canadian folk music from Quebec. At noon on the Quad. Bring a friend and a Mountie.

L.A. Philharmonic—Music by Pergolisei and Stravinsky. Concert starts at 8 PM. Tickets are \$3 each.

Saturday... February 1

"Romance Language"—At the Mark Taper Forum. Tickets \$5. Play starts at 8 PM. Y-Car leaves at 7:15 PM.

Saturday... February 8

Whale watching! Boat leaves at 1:30 PM. Tickets \$6. Sign up by Friday, January 31!!!

Movies! Movies! Movies!

The Y has discount passes to the Mann and Pacific Theatres! \$3 each.

Any questions, comments, or ideas?
Come see us in the Y office or call x6163

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ASCIT Elections

President:



Clea Bures

The office of ASCIT President not only involves many administrative duties, but also requires a sincere commitment to improving student life—both academically and socially. To be effective as the representative of the Caltech student community, the president must be constantly aware of all student opinions—not just those of one house or one small group of students. The ASCIT President must also be able to communicate well with the faculty, the administration, and other students.

I am highly aware of student opinion because of my participation in a wide range of campus activities and membership in several of the student houses. My committee memberships have included the following: the Caltech Y Excomm; the upperclass admissions committee; freshman admissions committee alternate; and the search committee charged with finding a new

track and field/cross country coach. I have also served as the Ricketts House Athletic Manager. I have, through these positions, gained necessary experience in working with both students and faculty.

Caltech students currently do not have sufficient access to ASCIT. Students lack awareness of the activities of the ASCIT Board of Directors. As president I will work to make ASCIT more visible and more responsive to student needs. I will encourage those students with sufficient time and desire to participate in BOD meetings and discussions. I will increase student awareness through articles in the *California Tech* together with dinner announcements which will notify students of the agenda for upcoming board meetings. Also, I support more activities and projects (interhouse parties, renovation of Winnett Student Center, etc.) which promote interaction between the student houses.

I believe that my enthusiasm and my ability to effect positive changes make me the best candidate for the office of ASCIT President. If you have any questions, please contact me at 304-9526. Please support me in Monday's election.



Kathleen Hayashibara

The office of ASCIT President demands much from a person. First of all, you must be willing to donate a significant portion of your time no matter how busy you may be with other things. Also, a person must have some experience or knowledge of how to carry out administrative duties so that ideas presented in meetings can be evaluated and put to work effectively. In addition, the ASCIT President must be able to communicate well with the student body in order to determine what its general viewpoint is on particular issues so that intelligent decisions can be made. Finally, the president must be deeply concerned with the needs of the people he or she represents.

I believe that I have enough time available in order to do the job well since I am nearly finished with all my requirements. Furthermore, I am a responsible, hard-working person so you can be assured that I will commit enough of my time to the duties involved.

As far as past experience is

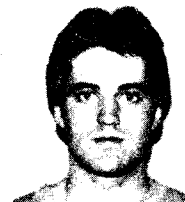
concerned, although I have not held an office at Caltech, I have worked for a corporation (TRW) for eight months and gained experience participating in section meetings and thus have become familiar with the process of getting organized for meetings, voicing ideas, and putting them to work. In addition to my experience at TRW, I have a good service record from my career at high school. For example, I received the Gold N award in recognition of my service to the school, and I also belong to the Ephebian Society, whose members are elected to this city-wide (Los Angeles) organization based on citizenship, leadership, scholarship, and service to school and community. Also during high school I gained experience working with faculty members by serving on the AB 65 Student-Faculty Council, whose task was to determine how money given to the school by the state by Appropriation Bill #65 was to be budgeted.

Another characteristic that I feel makes me qualified for presi-



David Parkinson

Soon, you will be asked to make a choice. You need to know the facts. Never make a decision without the facts. Do you know the facts? I do. Can any other candidate offer two years of ASCIT BOD experience? As a matter of fact, no. The big difference is the word that follows. Experience. As ASCIT Director at Large for two years, I have gained valuable insight into the inner workings of the board. Last year, I was in charge of the publication of the UROP handbook. Lately, I have been responsible for the ASCIT Van—providing transportation for the Caltech community. Evidently, there is no substitute for experience. Yulp, the more you hear, the better I sound.



Chris Schofield

The ASCIT President has the responsibility of overlooking ASCIT operations such as the Coffeehouse, the *Big T* and the *little t*,

and as President I actively intend to do so. The President must also have excellent communication skills since he represents the students of all houses at functions such as faculty meetings, alumni meetings, and at frosh camp. I feel that knowing people in every house gives me an idea of how students feel about issues. In addition, I feel that I am approachable and open to new ideas which I might not otherwise see.

I would like to add that in the year ahead there will be issues that will affect each student. When these issues appear, I am confident that I can make a positive contribution as President.

Treasurer:



David Bruning

During the past year, I have served as the ASCIT Treasurer. This period gave me many chances to get involved with ASCIT operations as well as the bookkeeping. Participation in the upcoming Faculty-Student Conference has been one of the most rewarding activities thus far.

One major accomplishment while in office was the switch to an interest-earning account outside of the checking account. In less than eight months, ASCIT earned over \$600, enough to finance two more clubs or sponsor an even larger social event.

Two reasons exist for my desire to retain my current position. First, is the general participation in ASCIT decision-making. Although it may not sound like much, there is a sense of pride in actually having a say in the decisions of the student government. The other reason is to follow through on some reforms that are currently being devised by the Excomm. These deal mainly with control over the bookkeeping of the Big and little T's. Hopefully, this will prevent any further budgetary problems caused by lack of financial bookkeeping, as has happened in previous years.

Thank you for your continued support.



David Goldreich

I would greatly appreciate the opportunity to serve you as ASCIT Treasurer. It is important that the Treasurer be able to conduct business on behalf of ASCIT and also to keep accurate records. As Business Manager of the *California Tech* for the past year, I gained experience and have had much success in both of these matters. When the fiscal year ends in February, the *Tech* will have grossed over \$45,000, roughly comparable to the entire ASCIT budget. Under my management the *Tech* has had its most profitable year ever.

I would now like to have the opportunity to serve the campus in a broader way. I am diligent, conscientious, and determined to perform the duties of Treasurer to the utmost of my abilities.

Thank you for your support on election day.

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Tutu

from page 1

Southern Christian Leadership Conference of Los Angeles, but held special meaning this year as it was the first national holiday dedicated to King (who founded the SCLC thirty years ago). Attendees not only saw five awards received by deserving social/political advocates, but also were honored by the presence of Bishop Desmond Tutu, the keynote speaker of the evening.

Los Angeles is only one of the many stops for Tutu, who has been making appearances across the country to thank the American people and ask them for continued assistance and support. His tour, sponsored by the Adelpia Foundation, covers ten U.S. cities and is most demanding. In fact, Bishop Tutu arrived in Los Angeles (after speaking in Atlanta on Sunday) no more than an hour before appearing in a press conference at the Bonaventure. The dinner, awards and Tutu's speech followed.

Although many parallels have been drawn between Dr. King and Bishop Tutu, the Bishop is careful to keep the two entities separate. During the press conference, he

claimed, "I do not belong in the same league as Dr. Martin Luther King, and I am not being falsely modest...." Tutu described King as an "original thinker" and "a pacifist, which I am not. I am a peace lover. I do think that there would be circumstances where violence is justifiable." He cited Nazi Germany as an example. Tutu also stressed the basic difference between his cause and that of King's: while the struggle in America was for civil liberties already in the Constitution but not granted, the fight in South Africa is for *basic human rights* in a land where the laws, the very constitution is against the people.

Bishop Tutu reiterated some of these thoughts and added others later that evening. After being introduced by Mayor Tom Bradley as "a courageous, committed man" who "will never be forgotten," Bishop Tutu greeted the audience and delivered an eloquent keynote address, full of wisdom, wit, strength and emotion. He praised King as "someone who belongs not just to the world but belongs to the universe; someone who is God's greatest advertisement." He also thanked the Americans for their efforts and especially for the sanctions against South Africa, assur-

ing them that "you *do* make a difference...what you do and what you say matter."

Perhaps the most emphatic section of Tutu's speech was that on the horrors of apartheid. "You who have been victims of injustice and oppression know only too well just how debilitating, how demoralizing, how conditioning oppression can be.... You are brainwashed into an acquiescence in your own oppression and exploitation. You come to believe what others have determined about you, filling you with self-disgust, self-contempt, self-hatred, accepting a negative self-image." However, Bishop Tutu did not think this the worst aspect of apartheid. He postulated that "the most blasphemous thing about apartheid is that it can make a child of God doubt that she or he is a child of God."

The conclusion of the address stressed the need for interdependence and working together on resolving topics such as world hunger, the arms race and apartheid. Tutu again said that "the law of the land is against us" regarding basic human rights in South Africa and that "there isn't any sectional freedom...." No one can ever be truly free unless all are free, "a concept understood very well by Martin Luther King, Jr."

Tutu's final remarks praised King and proclaimed hopes for the future: "Thank God for Martin, thank God that he was a giant among women and men, thank God for his vision, thank God for his moral and physical courage.... How else could Martin have proved his great love for his brothers and sisters, black and white, than by laying down his life for them and so emulating his Lord and master?" Lastly, he spoke of the fulfillment of another visionary's dream: that of St. John in the Book of Revelation.

"And after this, I looked and saw a vast throng which no one could number, from every nation, of all tribes, peoples and languages standing in front of the throne and before the Lamb. They were robed in white and had palms in their hands, and they shouted together, 'Victory to our God, who sits on the throne, and to the Lamb!'"

Perhaps the togetherness described by St. John will soon be achieved through the efforts of people such as Martin Luther King, Jr. and Bishop Desmond Tutu.

ASCIT Highlights Alternative Job Fair

by John Beck

Sports Day is going to be Sunday, February 16. We need people to organize ultimate frisbee, tug-of-war, and the triathlon. There will be a meeting of the organizers of each sport at 4:00 pm on Thursday, January 30 in the MOSH's office.

The job descriptions of ASCIT's appointed committees listed in the *little t* have become obsolete and need to be revised. Statements are requested from the faculty chairman of each of the committees so that next year's *little t* can be accurate.

There is a new position as a Human Relations Advisor being created at Caltech. The job is to "serve as confidential impartial advisor and counselor to staff, faculty and students in the resolution of intra-Caltech problems. These sensitive classroom or workplace conflicts would cover a broad range of personal problems and might include such issues as sexual harassment, perceived discrimination on any basis, and general personality conflicts."



Uranus

from page 1

1986. During that period, the spacecraft's 11 instruments will perform closerange studies of the planet and its known satellites and rings. The spacecraft also will search for a planetary magnetic field, new satellites and new rings.

Encounter activity peaks during a 6 hour period today, Jan. 24, 1986, when the highest priority observations will take place. In about a quarter of a day, scientists will obtain more information about Uranus, its satellites and rings, than has been learned since Sir William Herschel discovered the planet on March 13, 1781. Much of the data collected during the spacecraft's closest approach, however, will be recorded on the spacecraft for playback to Earth on following days.

Uranus will be the third planet visited by Voyager 2 since the spacecraft was launched from Earth on Aug. 20, 1977. Voyager 2 flew past Jupiter on July 9, 1979, and then Saturn on Aug. 25, 1981.

The Inside World

Dabney: In the 21st Century...

It had been about ten years since I'd been on campus. My job with Dabney House-West Europe kept me away from the States most of the time as it was, and the occasional visit I made to North America usually found me in DC testifying before the Supreme Board.

Boy, things had changed. There weren't *any* Dabney House exits on the 210 when I was an undergraduate. I took the exit for the Dabney Building, and followed signs to the executive parking garage just north of the corporate headquarters. I passed by the Security car, all decked out with its stolen PPD lightbar and the cute little sign reading "Security - Stop or We'll Shoot." (They meant it, too. Gone were the days of parking enforcement for these men - now they had full powers to arrest people for murder and related crimes, as well as to pull over speeders. And they went at their duties quite vigorously; the traffic BOC was full of offenders daily.)

I got out of my car and went over to an elevator. I punched up the lobby. The door opened, revealing a plush reception area. An information desk was directly across the room from me; over it was a large sign reading "Dabney House - the House of Academic Standards and Honors."

The receptionist took my name and pointed me toward my destination, handing me a small plastic card. I went over to the private elevator to the Presidential Penthouse and put the card in a slot. The elevator doors opened.

The elevator whisked me up to the 53rd floor. I stepped into the waiting room. "The president will be right with you, sir," the secretary said. "Please have a seat." After a few minutes, four men in dark suits, carrying fine leather briefcases, stepped out and walked silently to the elevator. A telephone buzzed; the secretary picked it up, listened, said "Yes, sir," and hung up. The four men looked nervously at her; she looked back, not smiling. The elevator door opened. The men hesitated, then stepped in. The door closed. The secretary pushed a concealed button on her desk; screams erupted from the elevator shaft, then fell silent.

"You may go in now, sir," she told me. I gulped, nodded nervously, and stood.

-J

Fleming: Well, there may finally be somebody to challenge Fleming's athletic prowess. Congratulations to the Blacker Moles for an Ultimate game well played (and won).

Congratulations also to Fleming House's new officers: Ed Zanelli, President; Steve McAdams, Vice President; Bill Grey, Secretary; Brian Daniels, Treasurer; and Sue Danek, Librarian. Let the Deed Shaw.

This week's mystery equation: 1 Randy * 4 frosh * 1 shower * 4 coolers in 1:05? It hardly seems possible....

As for the Boy's Moron Rambo-Challenge: if you want to buy us some of your toys to play with, maybe we'll come out and beat you with them.

Humbly submitted,

-Al Fansome

Ricketts: The following is a rebuttal from *Samer*: A challenge, a duel, a slaughter - midnight at the Lost and Found. Beware Dwarf - 10 watts is a lot of sound in a small ear. Back at waiter's corner. Joy still has no seat. Guess why. Martin Luther is King this week, but the Queen of Scurves is a shrimp. Luckily, elections will soon save us from the Grouch. Madonna for President (or Graduation Speaker) - at least she eats green M&M's. Or how about Pee Wee Herman, even he would have more guts than our present "leader." Look out, those in E5 - the midget thinks that a hologram is just like a holokilogram, except smaller.

About the frosh: the Fisch smells great in the closet, so Donahue haters are in luck. The triple R in 22 needs help from the triple A - his brain seems to have stalled. Reports of a Diana Chu sighting in Snatch turned out to be false.

Next week - The LD Fish Market

MaMa's little Joyboy has Lobster, Lobster... -Saxy and Samer



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ENTERTAINMENT

A Visit to the Museum

by Bengt Magnusson

While I visited Scandinavia this Christmas, I planned on visiting several of the art museums we have up there. Well, I only got to one of them. True, I travelled about 15,000 kilometers to get to Sweden, but my mom thought it was *much* too far to travel the remaining 350 km to the Munch Museum in Oslo, Norway. Parents are strange sometimes. So I had to be satisfied with visiting the Louisiana Museum in Humlebaek, Denmark.

Louisiana is undoubtedly Scandinavia's foremost museum for modern art. The museum itself is a nice piece of art, by the way, with a very interesting architecture, and beautifully located on the western shore of Oresund. It has a large permanent collection of later 20th century art, with world-famous artists like Andy Warhol, Anthony Tápies, and Frank Stella well represented.

The most interesting part of Louisiana, though, is its hall for visiting exhibitions. In the past, they have shown large collections of works by Gaugin, Munch, Picasso, and Miró. Their latest show, which I had the fortune to see, was entitled "Russian Avant-Garde, 1910-1930," and was, in one word, stunning.

This period, just around the revolution in Russia, was one of the most exciting ones in art history. The artists were constantly experimenting, and although some were just plain weird and led to dead ends, others succeeded in pushing the frontiers of art forward

at a rate never seen before or since. Unfortunately, the communistic government grew increasingly hostile toward these expressions of freedom, and Stalin finally put an end to it all by imprisoning or expelling the artists.

But back to the show! All the famous names were shown: Kandinsky, Malevich, Popova, Goncharova, Tatlin... Several less known artists were also represented. One of Popova's paintings can be seen at the Norton Simon here in Pasadena; at Louisiana, she was represented with several very good cubist paintings and painting-sculptures. Kandinsky was covered well with both earlier, figurative works, as well as several of his later, characteristic abstract works, like "White Line" from 1920. The works shown by Malevich were of quite varying quality. Some of it was really bad, nothing but scribbles on dirty graph paper—it should not be called art, and I doubt Malevich intended it to be exhibited. However, some of his best suprematist works were also shown, for example "Dynamic Suprematism," 1916, which is a very energy-filled geometric composition. Unfortunately, none of his "White on White" were shown. On the other hand, they showed one of Rodchenko's "Black on Black," 1918. The painting is entirely black; only varying textures and paint thickness let you see the pattern in it. It is wonderful.

Sculpture took a new turn in the hands of these Russian artists. Most famous is probably the so-

called "constructivism," which was an entirely Russian movement. Its most important contributors were Vladimir Tatlin, El Lissitsky, and Naum Gabo, and they were all given room in this show. Unfortunately, most of their original works were destroyed in the chaotic circumstances present in Russia in those days, forcing the later construction of replicas of their sculptures. Tatlin showed for the first time that good sculptures could be made out of untreated junk, like his "Hanging Corner Relief," 1915. He also built a model to a Monument to the Third International in 1920, a monument which was to be a 400m-high rotating spiral tower. Needless to say, it was never built, but a replica of the model was shown in Louisiana.

The best and most lasting impression was given by a more well-known couple, though—Michail Larionov and Natalia Goncharova; Goncharova's works were especially impressive. Together, they formed—and constituted—a movement called rayonism. Much influenced by cubism, they wanted to move on to something new. By letting light rays—thus the name rayonism—from a multitude of invisible sources strike, and reflect from, their depicted objects, they created a pattern of intersecting rays and planes of light, sort of like the cubist facet-planes. These elements interact in a very dynamic and expressive way. Goncharova's rayonist paintings are somewhat

continued on page 6



Feynman gets into KISMET.

photo by Chris Meisl

KISMET Production

It's that time of year again when a group of dedicated Teachers, professors, staff and JPL personnel come together for two months of hard work and fun, and escape from the academic grind. What are they doing? They're preparing this year's musical, *Kismet*, which has been a 15-year dream of the people associated with theater arts at Caltech.

The cast features beautiful women, Dick Feynman and his world-famous drums, poets from El Monte, and a Welsh boa constrictor named Rhys. Rehearsals are a chance to be bawdy and boisterous to the musical themes of Borodin. The show features belly-

dancing, juggling, flashing sword-play, and all the exotic glamour of the 1001 Nights.

But it can't happen without your help! The cast still needs basses and baritones, and the orchestra desperately needs violins. Also, anyone interested in creating an animated cobra to come out of a basket and dance can also be part of the fun. If you can't do any of that, don't despair! You can still help with set construction, makeup, or the myriad of technical details associated with any major musical. If you're interested in any of these, call Deena at x2158. Take some time out from your homework and be a part of *Kismet*!

Theater Review

Tracers

by David Hull

Tracers is not one of the great literary works of the twentieth century, but I don't think its creators ever intended it to be. *Tracers* was made to tell us about one thing, the Vietnam war. It tells about Vietnam from the point of view of people who were actually there. The original version of the play was co-written by John DiFusco and the original cast, all of whom are Vietnam vets. The version playing in LA contains some new writing and some changes in the cast, but everyone who wrote and everyone on stage did serve in the war. These people have something to say, and they know what they're talking about.

I hesitate to review *Tracers* in the usual terms of writing, acting, quality of the sound and lighting and such. Suffice it to say that the production did not get in the way of the play, and in cases like this the message is more important than the medium. If this sounds like damning with faint praise, it isn't. Very seldom can one watch a play or movie without being distracted by some minor technical problem. In this performance, whatever technical problems there may have been didn't distract, which is really all one could ask.

Tracers is not a drama. The action does not revolve around a storyline, but a situation. Watching *Tracers* is more like leafing through a photo album, piecing together a big picture from smaller pieces. Monologues by individual characters are interspersed with group scenes and dialogues, simulated battles, pantomimes and dances.

The whole production is saturated with music, ranging from "Walking on a Thin Line" by Huey

Lewis and "Born in the USA" to "The Unknown Soldier" by the Doors and "Gimme Shelter" by the Stones. There is even some live music, including "The Star-Spangled Banner" and "Captains of Courage," a montage of typical remarks ("You were a hero," "You were a fool," "What does it feel like to kill someone?") performed by the whole cast. The music is an essential part, the well-chosen selections at times beautifully complementing the action on stage.

The format is that of individual scenes, with each emphasizing a particular character or aspect of the war. The individual scenes are not particularly notable on their own. There is the obligatory Sergeant-grilling-the-new-recruits scene, a drug scene, a serious-meta-physical-rap-while-on-dope scene, and some gruesome battle scenes (though the blood is in the imagination of the audience). Thanks to the hundreds and hundreds of old World War II movies, most such scenes might quickly be dismissed as clichés (and isn't that a comforting thought?). The honesty and experience of the veteran cast make all the difference. Without that, everything would be trite and overblown.

Becoming self-consciously artsy or preachy is a constant danger in productions with a message, but with the cast working from experience and from the heart, everything works out well. The cumulative effect is significant. I felt as though I'd learned something that a lot of other study of Vietnam just hadn't quite gotten across.

Tracers does not stand on a pulpit and scream hellfire and brimstone at the audience. The "War is hell" aspect comes through,

continued on page 6

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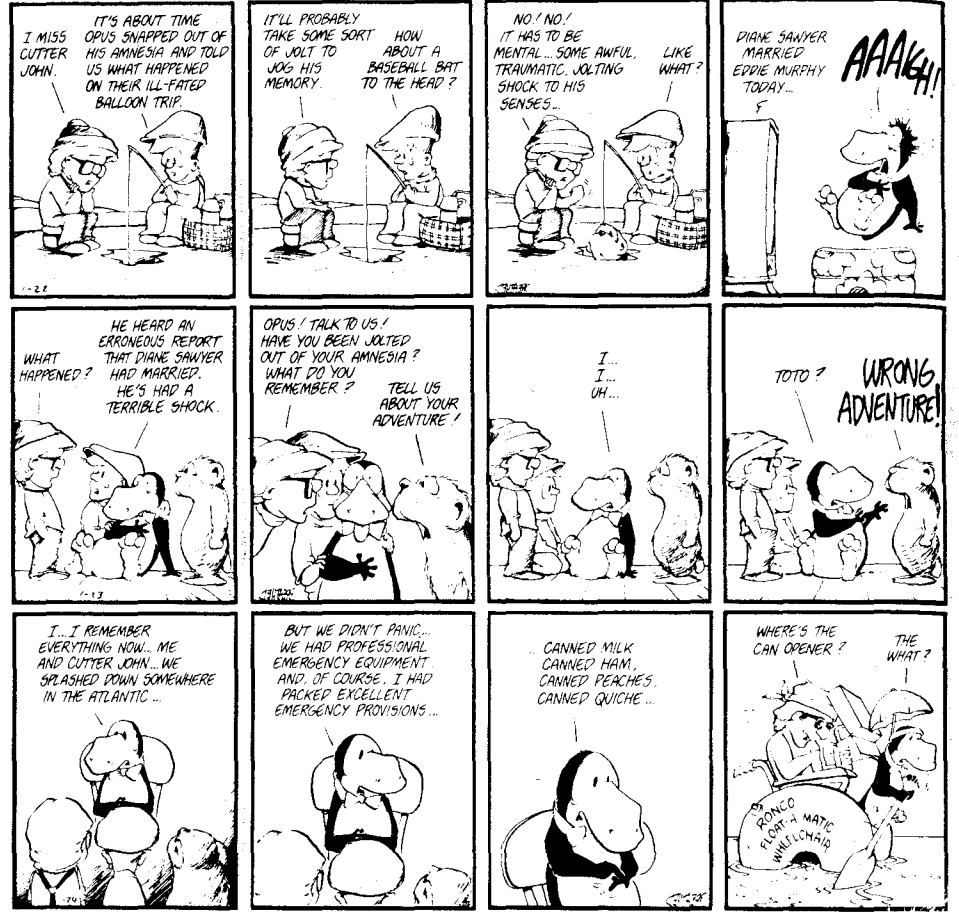
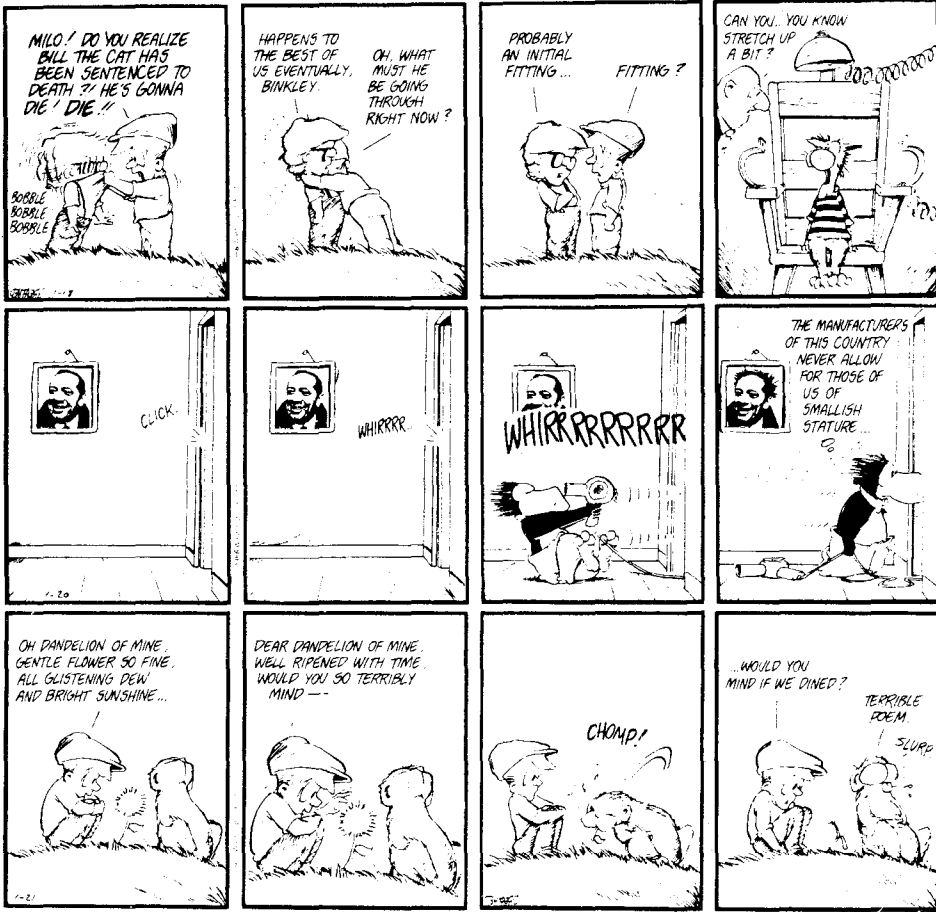
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BLOOM COUNTY

by Berke Breathed

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Hayashibara

from page 3

dent is my ability to communicate with others. Over the past two years I have spent here I have become acquainted with many people from different houses so I believe I would be a good representative of the student body. In addition, I am very easy to talk to, I have no biases against other houses, I am open-minded, and I respect the opinions of others.

Finally, the main reason anyone should vote for me is that I care about the people in this school and I sincerely want to improve the difficult life that we live going to a college with one of the toughest, if not the toughest, academic curriculum.

through which smaller molecules could pass, and finding the most stable bonding configuration between atoms on the surface of a silicon crystal (a problem Goddard gave in Ch 1 last year; apparently his answer was wrong).

In addition to the video, Goddard had a few slides, mostly with dense print and combining every imaginable color on one slide. Harry Gray helped him with an onstage demonstration of bond geometries on the silicon surface. They stood a few feet apart, with their limbs outstretched: "Harry and I are subsurface atoms, and our arms and legs are electrons..." It was an unorthodox method, to say the least.

He talked fast, at one moment risking alienation of the general audience with possibly unfamiliar terms ("inhibitor," "cofactor," "methyltrexase") and the next moment using words like "thingamajig." Some of the material surely went over the heads of the audience, but that's the nature of a Goddard lecture. You may not understand everything he says; at times, you may not understand anything he says. But everyone has fun, and Wednesday night was no exception. I'm just glad there's no quiz due today.

Goddard

from page 1

Much of the talk was given along with a videotape which was made from the graphics system and showed the kind of problems it was being used for. The examples included trying to design an antitumor drug that would attach to a DNA molecule in areas that were rich in a certain amino acid pair, studying large molecules with holes

Museum

from page 5

easier to interpret than Larionov's, and in my opinion, she succeeded better.

If I have to name one painting in the show as "The Best," it would without doubt be Goncharova's "Yellow and Green Forest," 1913. It is a very striking and expressive painting, with beautiful colors. The motif is most likely a sunset over a forest with a little lake in the foreground, perhaps with a boat in it. All elements in the painting are dissolved and broken up into sharp, narrow surfaces, many of which are connected with rays, in a very typical rayonist manner. The entire forest is vibrating with energy, as if in torment. It is painted with very rapid brushstrokes, which amplify the energetic impression—it took a lot of energy, both physical and mental, to paint this masterpiece. The setting sun is very good with its bright orange rays. It is said that

only two artists, van Gogh and Munch, knew how to paint the sun. With this painting, I would almost like to add Goncharova to this group—unfortunately, she did not pursue this style much further. The light in this painting is marvelous, just like that of a clear, cool evening in September in northern Scandinavia or Russia. It is remarkable that a painting with such a tormented message can be so beautiful.

Louisiana has long been Scandinavia's foremost museum for modern art, and its visiting exhibitions bring in works by famous artists from all over the world. Their latest show, "Russian Avant Garde, 1910-1930," gave an excellent exposition of art from this epoch. Painting and sculpture, controversial and acceptable art, more- and less-known artists, it was all there. Natalia Goncharova stood out as one of the absolutely best artists in the show; her "Yellow and Green Forest" is especially good. If you ever get to Scandinavia, be sure to visit Louisiana—there is always a good show there to see.

Tracers

from page 5

as it must in any honest depiction of war. The play realistically shows people forced to live with each other under extremely harsh conditions, so we see the resultant camaraderie. But these familiar notions are not the main thrust of the play. Mostly, it gives a glimpse of what it was like for the hundreds of thousands who are just now being recognized. As such, Tracers is a valuable source of first-hand

information, which would seem to be at a premium in the age of People and MTV.

Tracers must be seen on its own terms. Trying to force it into a category, as with most things of value, will only distort it. But seen on its own terms, Tracers succeeds quite well in advancing an important cause.



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SPORTS

Caltech B-ball Puckers Split Pair

—Zanelli Healed



Grimace — Caltech's Brett bush strains in an effort to bypass an obstinate Claremont defender. The Tech side were unsuccessful in their attempt to stop the Staggs.

Following a double overtime loss to Claremont at home and a win over Whittier, the Caltech basketball team are now 3-2 in league play.

On Saturday, Claremont used fine outside shooting as Rich won round one of the battle of the Zanellis. Although Claremont were accurate from the field, they were forced into two overtimes thanks in large part to the fine play of Jim Helgren, who had twenty-two points. In the end, free throw shooting killed Caltech as they failed to convert in crucial situations.

Wednesday, Caltech celebrated

the comeback of Ed Zanelli, who had missed 3 1/2 games due to an ankle injury. Zanelli played 38 minutes and scored 16 points. Captain Brian Porter led all scorers with 17, and center Brett Bush tossed in 16 in a strong performance.

Part of the game was filmed for a possible spot at halftime of the Syracuse-St. Johns game, which will be nationally televised on February 1st.

Also, five players were interviewed after the game by a Dallas *Herald* reporter who is traveling across the country. Porter, Helgren, Zanelli, Bush, and Jeff Lester (who had an outstanding 8 for 8 performance against Pomona 10 days ago) spoke about Caltech basketball and athletics in general. The interview will be printed in Dallas and might be used in a book.

The next home game is Wednesday at 7:30 vs. Marymount. Last time against Marymount, Porter had 29 points, Bush had 32, and the team almost broke 100 in a lopsided victory. See you there.

by Marty Zimmerman
With Christmas over, it's time for the Caltech hockey players to get back in shape. As usual, our first game of the new year was a terrible debacle, with this year's culprit being USC. On the bright side Rick Miake-Lye, Simon-Goldstein and Marty Zimmerman scored goals.

Last Thursday was the last away game of the season (hurrah!)—a midnight meeting with UCLA. As in previous away games we were badly outnumbered, but those present put on one of the best performances of the year. Thanks to two goals by Phil Askenazy, both assisted by Marty, the score was only 4-2 after the first period. In the second period George Yates again pulled Caltech to within two points with a goal assisted by Martine Brouillette. Martine, a new player, played much of the game on the "French Connection" line with Jean Pierre Bardet and newcomer Pierre Laroche. Although the game never got out of control, UCLA steadily added goals and won 10-3. The next UCLA game on our smaller Pasadena rink should be much closer. We will now have four home games in a row, starting Tuesday night with Cal State Northridge.

WEEKLY SPORTS CALENDAR

Day	Date	Time	Sport	Opponent	Location
Fri.	1-24	TBA	Swimming (M/W)	Las Vegas Invitational	Las Vegas
Sat.	1-25	TBA	Swimming (M/W)	Las Vegas Invitational	Las Vegas
Sat.	1-25	6:00 pm	Basketball	La Verne JV	La Verne
Sun.	1-26		Women's Soccer	Bonkers	La Salle High
Tue.	1-28	7:30 pm	Wrestling	Pomona-Pitzer	Pomona-Pitzer
Tue.	1-28	9:30 pm	Ice Hockey Club	Cal State Northridge	Pasadena Ice Center
Wed.	1-29	7:30 pm	Basketball	Marymount College	Caltech
Thu.	1-30	4:00 pm	Swimming (M/W)	Colorado College & Redlands	Caltech
Sat.	2-1	10:00 am	Swimming (M/W)	Claremont-Harvey Mudd	Claremont
Sat.	2-1	1:00 pm	Baseball	Alumni	Caltech
Sat.	2-1	1:00 pm	Fencing	Cal State Fullerton & UCSD	Caltech
Sat.	2-1	1:00 pm	Men's Tennis	JPL	Caltech
Sat.	2-1	1:00 pm	Women's Tennis	Claremont-Mudd-Scripps	Claremont
Sat.	2-1	7:30 pm	Basketball	Redlands JV	Caltech

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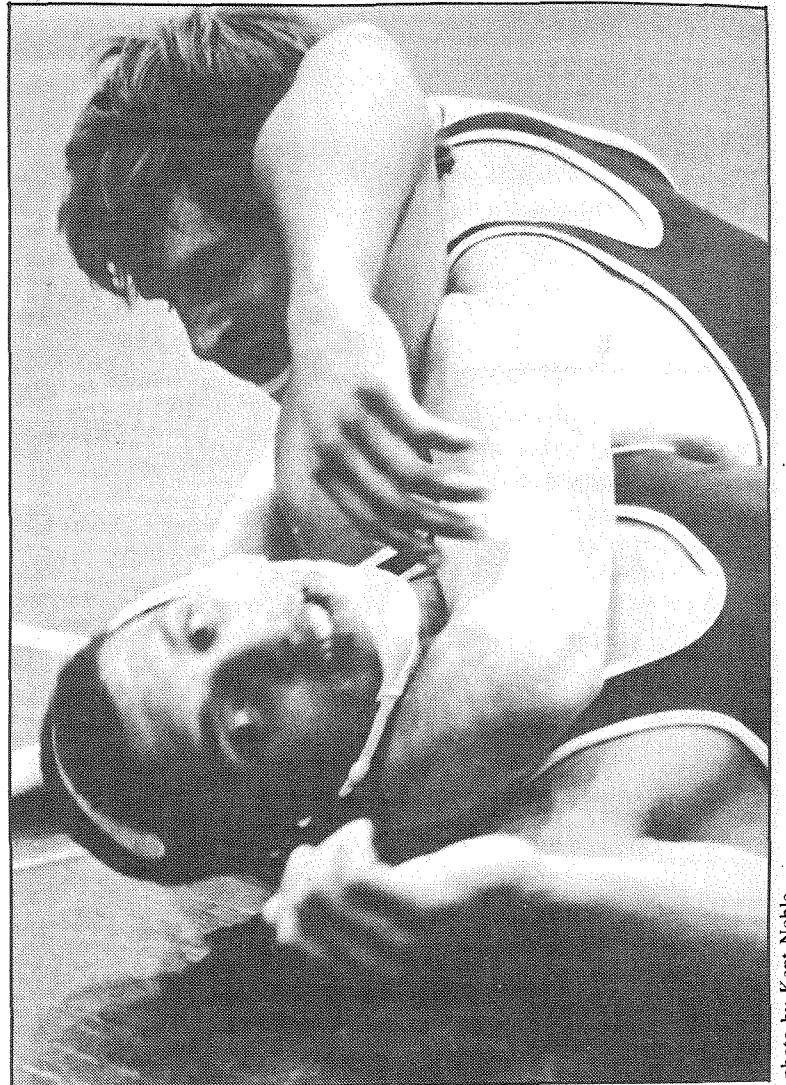
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Rasslin' — Caltech's Konstantin Othmer (above) controls his LaVerne University opponent. Tech's Mike C. Burl (below) is oblivious to his opponent's cringing agony. The Beavers won the match, losing only one but.



photo by Kent Noble

WHAT GOES ON

Surf's Up for 86!

SURF applications are now available for 1986. Interested students may pick them up in the SURF Office, Room 3 Dabney. Completed applications must be submitted no later than 4:00 pm on Monday, March 3. A notebook containing possible SURF projects is available for students to peruse in the SURF Office. If you have any questions, please see or call Carolyn Merkel in the SURF Office, Room 3 Dabney, Ext. 3675.

Cal Grant Applicants

All freshman students who have completed a Cal Grant Supplement (or who will) *must* complete the "Additional Report Request Form." **Failure to do so will result in automatic denial of the Cal Grant.** Please stop by the Financial Aid Office as soon as possible to pick up this form. Cal Grant deadline: February 11, 1986.

Soroptomist Fellowship

Soroptomist International of Los Angeles announces the Gertrude Schuckert Award in the amount of \$3,000 for graduate study for women in 1986-87. The field of study is open and competition is open to women who are U.S. citizens and residents of the State of California. Candidates must be enrolled in a graduate degree program in the 1986-87 academic year. For further information, contact the Financial Aid Office, Room 10, Parsons-Gates. Application deadline: Saturday, February 15, 1986.

Whale-watching

Come whale-watching with the Caltech Y on Saturday, Feb. 8! We'll be looking for gray whales and may also see porpoises, dolphins, gulls, terns, loons, and more! The cost is \$6, and some transportation is available. Sign up at The Y.

CCF Retreat

"Growing in Christ's Love" will be the theme of this year's Caltech Christian Fellowship retreat. The retreat will be held at Capra ranch, Jan. 31-Feb. 2. Cost is \$25. For information call Kevin Wilson, 578-9696 or John McGill, x6079.

C.C.F.

Paul Smith will be speaking on Christian unity in honor of Christian Unity Week tonight at the CCF meeting, 7:00 p.m. in 210 Thomas. All are invited. There will be refreshments after the meeting.

Charity Bridge Game

The Caltech Bridge Club is holding a Charity Game at 7:00 p.m. Monday, January 27th in the Red Door Cafe. Don't miss it! Big master point awards! Lots of fun! Questions: Call Jeffrey Pugh (x4543).

This Time for Sure

Don't miss this special showing of "Hirelings and Accomplices," an anti-Semitic Soviet film shown originally on prime time television in Leningrad, this Sunday, January 26 at 5 p.m. in the Red Door Cafe. Everyone welcome—NO charge. Find out how the Soviet Union portrays one of its minorities. Film will be followed by a deli-dinner for which there is a \$3 charge, and an RSVP is requested. Hillel now owns a copy of this film so we *guarantee* it will be shown. RSVP's for deli dinner *only* contact Myra at x6163 or (213) 208-4427.

STRIVE Launched

There's a new group on campus called STRIVE (Society To Reduce International Violence on Earth). STRIVE will focus on raising awareness on the issue of war and peace in the peculiar context of this scientific community we live in. Proposed projects include a job fair with non-military companies. The first meeting will be in the Y Lounge from 5 p.m. to 6 p.m. on Wednesday, January 29th. Sign up in the Y office if you're interested but can't come to the meeting. For further information, contact The Y (x6163).

Attention "Swingers"

There will be a performance by the two Caltech Jazz Bands. That's right, Caltech now has two jazz bands. On January 25th, Saturday, at 8 p.m. in the Garland Theater on the Polytechnic campus, the concert will feature the music of Joe Curiale, composer for the Johnny Carson *Tonight Show* orchestra. Joe will be there to conduct his music. The Caltech Jazz Bands sound great and will provide you with a cheap (free) evening of good music—from swing to rock and roll. The Garland Theater is close by—only one block south of California on Wilson—just about across from the football field.

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Anyone interested in playing water polo on Wednesdays is encouraged to call David Bruning at 578-9971 (115 Page). This is a recreational group from 7:30-9:00 p.m.. All levels of ability welcome.

Free Money!

The Student Investment Fund will disburse up to about \$4000 for projects of broad interest to the students. The disbursements should not be used for

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GM Scholarship

Three sophomores will be selected to be General Motors Scholars: two electrical engineers and one mechanical engineer. Tuition, fees and a \$200 stipend will be paid on behalf of each scholar, *without regard for financial need*. Pick up the applications at the Financial Aid Office, Room 10, Parsons-Gates. Application deadline: February 17, 1986.

Free Money for Seniors

This is it, seniors—time to turn in your senior photo to the *Big T* office (first floor, Winnett). Photos are due no later than Feb. 7. They should be black and white (any size), preferably on glossy paper. Please include your name, option, and hometown. Call us at x6154 if you need a photographer.

Totem Reborn

The *Totem* is being resurrected again this year. If you draw, write, or photograph, I will gladly accept drawings, poems, short stories, prose, and photographs of any kind. Talent is not a prerequisite; just express yourself! I'm trying to publish two *Totems* this year, so please contribute something by Feb. 7. You can mail contributions to Richard Lawson 1-55, or drop them off at my room, 221 Rud-dock. Questions? Call me at x6182.

Korean-American \$\$

Scholarships are being offered to full-time students with Korean heritage. Students may be undergraduate or graduate students. Application forms are available from The Korean American Scholarship Foundation, Western Region, 20281 Running Springs Lane, Huntington Beach, CA 92646.

Application deadline: January 31, 1986.

Guitar Classes

The Beginning Guitar Class (no experience necessary) has been reformulated to include not only classical repertoire but a new jazz and folk chord system as well. This will give the student a strong classical technique and enable him to branch into other forms of guitar if he desires. For further studies in classical and flamenco, Intermediate and Advanced Guitar Classes are also offered. Classes are free to Caltech students (and other members of the CIT community, space permitting). Undergraduates can receive 2 units of credit if they choose. Classes will be on Tuesdays starting January 14 in Fleming Music Room as follows:

Beginning, 4:30-5:30 p.m.
Intermediate, 3:30-4:30 p.m.
Advanced, 5:30-6:30 p.m.

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