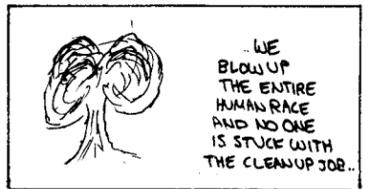


# The CALIFORNIA Tech



Volume LXXVI

Pasadena, California, Friday, May 23, 1975

Number 29

## Ronald's Prizes

In a brief ceremony last Monday in Encino, the McDonald's Operators' Association of Southern California presented prizes to the nine top winners in their "A Year's Groceries Free and a New Datsun Z" Sweepstakes. Among the winners was Becky Hartsfield, a freshman of Page House. She received one of four second place prizes, consisting of a Datsun 710 station wagon and a check for \$3,000.

Ms. Hartsfield was one of the twenty-six people whose names appeared on part of nearly 1.1 million computer entries printed by a group of students in Page. Her second place winnings were the only major prize won by any of the computerized entries.

Continued on Page Six



McDonald's officials present Becky Hartsfield with her \$3000 second prize check. Photo by G. Bone

## Glee Club Performs

### Ramo Springs with Sing

Sunbursts of song and instrumental music flooded the Ramo audience in last Saturday evening's Spring Concert. Director Monica Roegler leads her singers from strength to strength in a thoroughly delightful celebration of spring. Their stage presence is assured (and expressive), their diction is crisp whether they sing in French, Italian or English.

The Woman's Glee Club opened the concert, giving dignity to Hughes "Hymn of Peace". The Chamber Singers follow, lending strength to the Shaker hymn, "Simple Gifts". Then Olaf Frodsham's Apollo Singers evoked reverence with their sensitive rendering of Poulenc's "Laudes De Saint Antoine De Padoue". Pianist Kathleen Kong

captures the furious energy of Beethoven's *Sonata in C Major (First Movement)*—and she captured the audience, too. The Women's Glee Club summoned gentler melodies to calm the audience, drawing upon Butler's Spanish Ballades and Debussy's "Salut Printemps" (Welcome Springtime). Love is never far behind spring, and so the Chamber Singers rejoiced with "L'Innamorata," or "In Praise of Love". Then flautist Ron Carson, harpist Bert Wells and pianist Kathleen Kong united in a brilliant performance of Mozart's *Concerto for Flute and Harp (First Movement)*, ending the first half of the concert in grand style.

Humor and joy permeated the

second half of the Spring Concert. The Women's Glee Club set the pace with the strong sounds of "Fly Away" and "Corner of the Sky". Steve Aley, John Bacon, Ron Carson and Jeff Eriksen—the recently minted Hyatt House Holdovers—delighted the audience with hammy and harmonious renderings of "Rock a Bye Baby", "Pretty Baby" and "Afraid of the Dark".

The Chamber singers followed with the well-loved folk songs "Mother Country", "I Bought Me A Cat", and "Ching-a-ring Chaw". Moving from the 19th to the 21st centuries, they payed their respects to "The Space Child's Mother Goose", where

Continued on Page Two

## Guggenheim Scholar

### Scudder Speaks

by Ed Bielecki

The Guggenheim Fellowship that Dr. Thayer Scudder, Professor of Anthropology, was recently given can be attributed directly to a feeling he had 19 years ago as a graduate student. He felt that, as an anthropologist, he should do some field work, so when he was offered a chance to work in the, then, Central African Republic, he went. The impetus for this trip was a dam being constructed on the Zambezi River that would flood 55,000 natives. The Rhodes-Livingstone Institute for Social Research wanted to make a study of these people known as the Gwembe-Tonga, before and after their forced move. To conduct this study, the Institute chose Dr. Elizabeth Colson, a former director, who had done studies on a related tribe. Professor Colson, now at Berkeley, was at that time teaching in Boston, where she had become acquainted with Professor Scudder. She asked him to assist her in making the study.

They spent the year 1956-57 studying and recording the culture, society and way of life of the Gwembe-Tonga. This initial study was done not only to preserve their information, but also to serve as a baseline against which to compare the Gwembe-Tonga after their forced resettlement. From the dam's completion in 1958 through the present, Professors Colson and Scudder have made frequent visits to observe the Gwembe-Tonga, including another full year they both spent in Africa in 1962. Their work was complicated by the dissolution of the Central African Republic, which left some Gwembe-Tonga in Rhodesia, and some in Zambia.

They continued to work in the latter country.

By 1964, the impact of relocation was over, so from 1963 on, they concentrated on the effects of modernization on the Gwembe-Tonga. They recorded the changes as a people who had been subsistence farmers, branched out into a new world and become fishermen, or high school graduates, or moved to the capital of Lusaka. They noted, however, the great amount of continuity of the Gwembe-Tonga, despite the many changes.

Professors Colson and Scudder have already written up the aspects of their work pertaining to forced relocation. This included a theory that has been checked at other sites of communal relocation. Simply stated, the theory holds that a forced move is exceedingly traumatic, and as a result, the community draws closer around familiar things. This means that they are highly resistant to any further changes. This theory has been used to set governmental policies in cases of mass forced moves.

Professor Scudder plans to spend his year of work, paid for in part by the Guggenheim, here at Tech working with Professor Colson, who will be here as a Fairchild Fellow. They will write up their findings dealing with modernization, and attempt to produce a similarly useful theory in this area. They will still continue to observe the Gwembe-Tonga in the future. Professor Scudder has served as an economic consultant on many occasions, making use of his experience from the study.

Professor Scudder received his AB in 1952 and his PhD in 1960 following his initial study, from Harvard. He did postdoctoral work at the London School of Economics in 1961, eventually coming to the Institute in 1964.

## THE RIVET ARE COMING !?!?!?

### News Briefs

## Ad Hoc Committee is Existential

The IPS ad hoc committee was granted permanent status as a faculty committee in Monday's Faculty Board Meeting. [What is an IPS, anyway?]

### Class Nominees

Nominations for class offices are open and will close on Tuesday at 6:00. Sign up on Flora's door in Winnett or submit an application in writing to Eric Kaler in Ruddock. Offices are available are President, Vice-President, Secretary and Treasurer of next year's sophomore, junior and senior classes.

### Olive Walk Book Sale

Stroll, or preferably race over, to the Bookstalls-on-the-Olive Walk next Thursday and Friday, May 29 and 30, between 10 and 3 o'clock. Bargains and treasures, the choicest bookshelf prunings of the campus community are available for recirculation (Do you fancy *Peter Rabbit*—in Swedish—or maybe the 1969 yearbook of the Carnegie Institution? *Walden* or *The Girl in the Plain Brown Wrapper*?). Proceeds will benefit the Child Development for Caltech Families. If you have books to donate to the Sale, please bring them by May 27 to collection boxes at the Caltech

Y, the Athenaeum, or the Child Development Center. Clear off your crowded shelves, recycle your books for someone else's pleasure, and help the Center at the same time. For information or book pick up call Louise Silver, 792-0583.

### Frosh Camp Counselors

There will be a meeting for all of next year's frosh camp counselors and alternates today in Winnett Lounge from 1-3 p.m. Faculty and staff will be there.

Continued on Page Three



The Caltech Women's Glee Club performed along with the Chamber Singers, Apollo Singers, and several smaller groups at last Saturday's concert. Photo by K. Yoshida

# New Courses Offered

The following courses were not included in the first term course list, but will be offered first term:

**Bi/Ch 110a** (4-0-8), a course in Biochemistry, will be taught by Drs Richards, Raftery, Dreyer and Strauss. It has been scheduled for Tuesday and Thursday at 11:00 a.m. and Wednesday from 1 p.m. until 3 p.m.

**Psy 13** (3-0-6), Introduction to Social Psychology, will be taught by Dr. Beakel, but no class time has been decided on yet.

Also, the Faculty Board, Monday, approved the following changes and additions:

**Ae 103a:** Aerodynamics, has a different course description.

**Bi 7:** Units have been set as

(3-3-3).

**H 156:** History of Modern Science (a new course), will be taught by Dr. Kevles.

**SS 232a:** Historical and Comparative Perspectives in Political Analysis (a new course), will be taught by Drs. Bates and Kousser.

Revises course descriptions for **Ae 103a**, **Bi/Ch 110ab**, **Ch 125ab**, **Ch 227abc**, **Ge 125**, **Ge 101abc**, **Art 102**, **H 156**, **Pl 107**, **Pl 108ab**, **PS 141**, and a whole load of Lit and SS courses will be found on the door of the ASCIT office.

To give you time to adjust to all this, the deadline for preregistration has been moved to **Tuesday, May 27.**

# New Appointee

Philip M. Hawley, president of Carter Hawley Hale Stores, Inc., has been appointed to the Board of Trustees, President Harold Brown announced late last week.

The retail company executive, who is active in business and cultural affairs, has been with his company since 1958, moving from Oregon in that year.

Hawley is a vice president of the National Retail Merchants Association, chairman of the Central City Association, and a past president of the Southern California Visitors' Council.

He is a trustee of the Huntington Library, a director of the California Museum of Science

and Industry, and a member of the board of governors of the Los Angeles Music Center's Performing Arts Council.

Hawley is a director of the Bank of America, Pacific Telephone & Telegraph Co., and The Olga Co.

Born in Portland, Oregon, he obtained a BS degree from the University of California at Berkeley, where he was elected to Phi Beta Kappa. He did graduate work at Harvard Business School.

During World War II he was an ensign in the U.S. Navy.

Hawley lives in Los Angeles with his wife, Mary Catherine. They have eight children.

# FORUM

## Fred Again?

The Fred Logs suck rocks.  
—Paul D. Shubert

## Health Center

It has come to my attention that there is a nasty rumor going around to the effect that the casual sleeper policy of the Health Center no longer exists. Please advise your readers that this is not so. The Health Center is open continuously from Monday morning to Saturday noon. Students seeking to get away from it all are accommodated cheerfully, no questions asked, to the limit of space available.

Lyman Bonner

## Glee Club

Continued from Page One

little pigs build spaceships, Miss Muffet foils the spider with force fields, and Jack Horner extracts cube roots to infinity. Providing a strong finish, the Ensemble combined good choreography and fine singing in selections from "Bye Bye Birdie". You've come a long way, baby.

—Greg Simay

# Watson Grants Given

Three graduating seniors will spend the next year in independent travel and study abroad on fellowship grants from the Thomas J. Watson Foundation.

They are among 71 graduating seniors from 35 small private colleges and universities in the United States who will receive financial awards to work on projects of their choice.

The students are Stephen B. Aley, Joseph L. Kirschvink, and Alonzo M. Rollinson.

Aley, who is receiving a BS degree in biology, will spend a year in Canberra, Australia, comparing the different approaches to medical research in institutions there: a school-based, a hospital-based, and an industry-based approach. Aley plans a career in medical research with a specialty in immunology and will enter graduate school when he returns from Australia.

Kirschvink will study the magnetic properties of Precambrian rocks in the Australian central desert near Alice Springs. During the summer he plans to work analyzing magnetic properties of pilot rock samples at the Australian National University, Canberra. Kirschvink is receiving both a BS degree in biology and an MS degree in geology from Caltech this spring. He will

conduct his research project in Australia as a graduate student at Princeton University. He plans a career combining geophysics and chemistry.

Rollinson, who is receiving a BS degree in chemical engineering, will study chemical engineering systems as they are practiced at industrial plants in Finland, Sweden, and Norway. Rollinson selected Scandinavia because of its excellent reputation for efficient utilization of energy in industry. He plans to do graduate work in chemical engineering or business.

The Watson Fellowship program is the only national fellowship competition underwriting independent study and travel abroad for recent college graduates. Fellows are selected primarily for their commitment to their field of interest and their potential for leadership in it.

The fellowships are awarded annually by the Thomas J. Watson Foundation, a charitable trust established in 1961 by the late Mrs. Thomas J. Watson, Sr., in memory of her husband, the founder of International Business Machines Corporation. The fellowship program was begun in 1968. Since its inception, 469 fellowship awards have been made, with stipends totalling \$3,250,500.

# Red Cross Training

"What you don't know won't hurt you!" is not necessarily so, according to Dr. Russell C. Hunter, Safety Programs Chairman for the Pasadena Chapter of the American Red Cross.

Pointing out that what people don't know about water safety, handling small craft, and first aid can hurt—or even kill—them, Dr. Hunter said. The Red Cross will teach life-saving skills in these areas at a comprehensive 10-day training exercise at five western locales this summer.

Applications can be obtained now at the Pasadena Chapter for the Red Cross Aquatic, First Aid and Small Craft Schools at Davis Lake, Newport, Washington; Camp Redwood, Miramonte,

California; California State University, Sacramento; the University of Washington, Seattle; and the Coast Guard installation on Government Island in Alameda, California.

The applications can be picked up at the Pasadena Chapter House, 430 Madeline Drive, Pasadena between 8:30 a.m. and 5 p.m. weekdays, or can be obtained by phoning the Chapter at 799-0841.

The schools offer training as instructors in swimming, advanced lifesaving, first aid, cardio-pulmonary resuscitation, canoeing, power boating and sailing. There is no registration fee, the only charge is for board and lodging and text materials.

# Long Term Employees

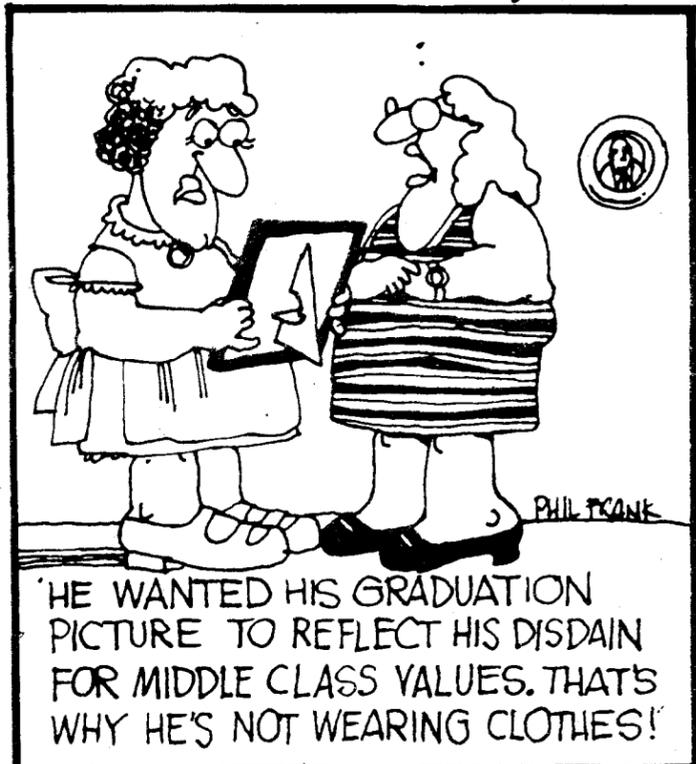
Ninety-one employees will be honored June 12 at Caltech's 20th annual service award ceremony. Four employees will receive 30-year awards, seven have been with the Institute 25 years and 10 for 20 years.

The 30-year honorees are Vernon V. Carter, Ruth E. Estey, Elizabeth J. Holben and Patricia M. Stephen.

Those with 25 years of service are R. Richard Barker, Helen F. Burrus, Jack R. Kingan, Joe P. Lackey, Marana O. Thompson, Gilbert D. Villegas and Frank G. Youngkin.

President Harold Brown will present the awards at 10 a.m. in Dabney Lounge, and Prof. Max Delbruck, Nobel laureate in biology, will speak.

## "FRANKLY SPEAKING" by Phil Frank



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**THE ASCIT FRIDAY NIGHT MOVIE**

# The Good, the Bad, and the Ugly

7:30 p.m. & 10:00 p.m.  
in Baxter Lecture Hall

Admission: 50¢—ASCIT members and their guests; \$1.00—anyone else

NEXT WEEK,  
**The Bed Sitting Room**

## The CALIFORNIA Tech

Friday, May 23, 1975  
Volume LXXVI Number 29

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The California Tech publication offices are located in Winnett Center (105-51), California Institute of Technology, Pasadena, CA 91125. Telephone: 795-6811, x2154. Printed by News-Type Service, 1506 Gardena Avenue, Glendale, CA. Represented for national advertising purposes by National Educational Advertising Services, Inc. Second class postage paid at Pasadena, California.

**Subscriptions** . . . . . \$1.50 per term  
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**News Briefs**

Continued from Page One

**Parting Shot?**

In order to celebrate Memorial Day, there will be a Zimm's naval game in Dabney Hall Lounge at 7:30 p.m. Saturday, May 24. Game fee will be 10 cents. This will be your last chance to sink Cowan before the end of the year.

**Leaving Tech?**

If you are considering a leave of absence, simply not returning, transferring or leaving for any other reason, the student/administration attrition project would like to have a word (or words) with you. Student interviewers will make an appointment to get your views on various aspects of the Caltech experience—or you may fill out a questionnaire yourself. The project needs your help! Call Nancy Beakel, Anita Delmer or Patti Schneider at the Health Center to arrange an appointment, ext. 2394.

**Evolution of Film**

Roman Gubern, who will be the Visiting Mellon Professor during first term of next year, will teach a new course on the evolution of the film in Europe.

The course, to be listed as Art 101, will consist of a lecture on Wednesday morning, and then a film showing on Thursday at 7:30 p.m.

The Thursday film showings would be open to non-members of the class. Some highlights of the schedule are: *The Cabinet of*

*Dr. Caligari; Metropolis; Battleship Potemkin; Storm Over Asia; and Triumph of Will.*

Mr. Gubern is well-known in Europe for his film-expertise. He is the author of several books on forms of mass media, including a two-volume set, *Historio del Cine*, which is viewed by many as the definitive work on the history of films. He has taught at the University of Barcelona and has made several films on his own.

**Little t Cartoons**

The little t needs some fresh cartoons, and we'll pay for them. Turn in finished cartoons portraying life at Caltech in Flora's office in Winnett. At least five \$10 awards will be given to authors/artists whose cartoons are printed. Enter as many as you like.

**Ultimate Deadline!!!**

Seniors! If you want your picture in the 1975 *Big T*, the editors must have it by Friday, May 30. Individual photos should be about 3½ by 5 inches, group shots may be bigger (we need more group pictures). If you can't get one by that time, leave a note wo we can reserve space for you. Leave pictures at the *Tech* office or see Gul Agha (301 Keck) or Rich Feldman (242 Ru).

**Hitchcock and Welles**

Orson Welles, the director of *Citizen Kane*, and Alfred Hitchcock will have their films features at Cinematech tomorrow. *The Lady from Shanghai* is Welles' wildest film, and *The 39 Steps* is Hitchcock's best known pre-war classic. Be at Baxter Hall at 8 p.m.

Continued on Page Seven

**Oil Money Awarded**

Standard Oil Company of California has pledged \$500,000 to Caltech's fund-raising campaign, Dr. Harold Brown announced last week.

H.J. Haynes, chairman of the board of Standard Oil of California, said in a statement accompanying the pledge, "We readily accept industry's dependence on higher education, and feel that we have a responsibility to support private institutions such as Caltech."

The pledge is made up of five components. One part is a grant which will enable a visiting professor to do research in energy-related areas, reflecting Caltech's and Standard Oil's common interests in energy problems.

Another part of the pledge ensures Standard Oil's continuing membership in Caltech's Industrial Associates program. Standard Oil was the first founding member of the program in 1949. The Industrial Associates program emphasizes research interactions between members of the

Caltech faculty and scientists and engineers in industry.

The pledge also has a provision for unrestricted aid to Caltech, along with pledges for student aid in the form of undergraduate scholarships in chemical engineering and geophysics and a graduate fellowship in chemical engineering.

In acknowledging the grant, Dr. Brown commented, "This pledge comes at a most opportune time. We plan to continue Caltech's programs of education and research, with excellence as our primary criterion."

"Excellence is expensive, but it is worth the price. Generosity as demonstrated by this gift from Standard will help us sustain our reputation at the leading edge of discovery."

More than \$54 million has been given or pledged to date to Caltech toward the goals of the fund-raising campaign, at the leading edge... The campaign, now in its second year, seeks to raise \$130 million for Caltech in a five-year period.

**Double DAA Awarded**

Two alumni received the highest honor that the Institute can confer on a graduate—the Distinguished Alumnus Award—at Alumni Seminar Day last Saturday (May 17).

The recipients were Dr. Matthew S. Meselson, professor of biochemistry and molecular biology at Harvard University; and Dr. Gordon E. Moore, president of the Intel Corporation, Santa Clara, Calif. The award, a silver medallion and certificate, is made to graduates for outstanding accomplishments in their field. Fifty-two alumni have been so honored since the award was established in 1966.

The presentation was made during the general session of the 38th Annual Alumni Seminar Day. Dr. Jonathan E. Rhoads, director of the Department of Surgery at Pennsylvania Hospital, Philadelphia, and chairman of President Ford's Cancer Advisory

Board, was the featured speaker.

Meselson, who received his PhD in Chemistry from Caltech in 1957, has distinguished himself both in scientific research and public policy. He won an international reputation for demonstrating how DNA duplicates itself in dividing cells, and he achieved distinction by inventing an important method for analyzing the densities of giant molecules.

Through his research, he demonstrated that genetic recombination results from splicing DNA molecules. His work also has contributed to understanding the process by which cells recognize and destroy DNA from foreign species.

In the field of public service, he played a major role in negotiations leading to an administration decision to renounce the use of biological warfare, and

Continued on Page Six

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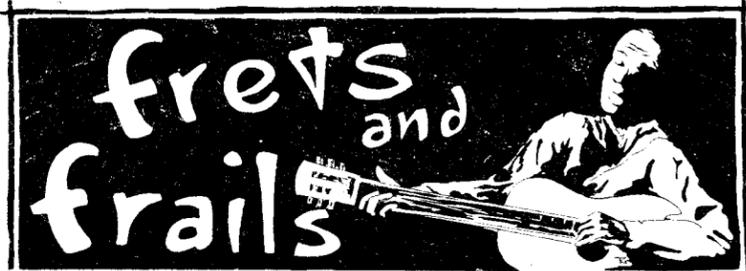
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Westwood, CA. 90024

(213) 272-7113 or 477-8647  
ask for Rabbi Schwartz or Rabbi Stillman



As I warned you last week, this is something of a special show at the Ice House this week. Each of the acts are headliners in their own rights, and good ones, too. If the Tuesday night show was typical, this is the best combination of acts in a long time.

The show opened with Bob Lind. While "Elusive Butterfly" was probably his best-known song, it was by no means his best work. Bob Lind is of the school of music that sets poetry to music to produce songs. He even has a book of poems and lyrics out that may still be available. (It was printed by a very obscure company, and I only saw a few copies.) The major difference between Bob Lind and most of the other songwriters of his type is that Bob Lind can sing. I mean, let's face it, Leonard Cohen sounds terrible singing his own songs, and Rod McKuen hasn't been able to sing since about five years before most of you ever heard of him. Bob Lind sings and plays quite reasonable guitar. Not fancy, not exceptional, but quite reasonable.

Bob did a number of new songs, somewhat to the disappointment of those in the audience who always want to hear "Elusive Butterfly". "XKE", "Nightwatch" and "Dwindle Down Days" were probably the best of the new songs. He did a couple of older songs, "Spilling" and "San Francisco Woman" (at least I think that last one was old) and a few of unstated age. Bob Lind's poetic style of song is interesting. It deals primarily with love in all its infinite variety and more infinite sameness. During two full sets of songs, perhaps one or two did not deal directly or indirectly with love, requited or un. Largely un, since that's what songs are all about. Happy lovers don't have time to write songs.

It finally sank in just how long Bob Lind has been around the music business. He looks about 25 on stage, but I just realized that "Elusive Butterfly" is old. My archives here (pause to blow dust off ancient bound volume of *Tech* issues) indicate that Bob Lind was reviewed in these very pages (under this very logo) on November 10, 1966. (Aha! He did "San Francisco Woman" in that set in 1966. I thought it was old.) At that time Lind was described as reminiscent of Dylan or pre-rock Donovan. Except for becoming a bit more mellow in spots, he still is. It still worries me a bit that he doesn't age, though...

L.A. Cabaret filled up the middle of the show rather nicely, with some fine examples of improvisational comedy. Richmond Shepard, leader of this insane group, led his cohorts through various skits based on ideas drawn from the audience. Sometimes the audience had to suggest opening and closing lines, other times characters and set-

tings, and one enthusiastic female became part of the cast of a Mexican porno-spy flick, complete with dubbing. Overall, this act requires more of the audience than most, but the effort is well worth it. My only regret was that Geoff Edwards had other commitments preventing him from joining the cast Tuesday. I've listened to his radio shows for more years than he would care to remember (would you believe all the way back to his relatively minor-league days in San Diego?) and he is very funny. L.A. Cabaret did all right without him, though. Their skits, from the opening lecture to the Orgasmatron machine, were fine examples of improv comedy.

Chuck Mitchell, the technical headliner of the show, was at his best Tuesday night. His first set was so much fun that the show ran about a half-hour overtime, including encores. It seems that neither Chuck nor the audience wanted it to end. Chuck Mitchell isn't just a singer and guitar player, although he does both very well. 'Rap' is such an insufficient word to describe what he does, but modern vocabulary is rather limited. He talks to the audience, sometimes to tell a story about the song, sometimes to say something else entirely.

Chuck Mitchell's promo material refers to him in terms of troubadours and Renaissance men. I'm afraid that that, too, is insufficient. He sings songs ranging from the traditional to the bizarre, from sad reminiscences to rejoicing. He follows a Carl Sandburg poem set to music with "Mr. Bojangles". He does Brecht songs (including "Mack the Knife") the *ri ht* way instead of the popular way. He invites the audience to sing along

on songs that most of them have never heard before, and most of them *do* it. He sings of glorious mud and Tennessee studs. "Have Some Madeira, My Dear" (theme song for dirty old men) rings out quite clearly, to be followed by a song about the plight of the gnu. He sings happy songs, sad songs, songs about living in the past. His version of "Bilbao" (another Brecht) is nearly ten minutes long, and worth it. He finished the last show of the night with a song that is usually a sort of downer, "The Dutchman". For those of you unfamiliar with either of the recorded versions of this song, it is a beautiful song about an old man who has gone quite mad, and his wife who has loved him all the years. It has a treacherously happy flavor to it, and there are undoubtedly thousands of people (the sort who listen only to tunes and choruses) who never realize just what the song is about. Chuck Mitchell is the sort of performer who can get away with ending a show on that sort of note. It isn't his style to leave them laughing. He leaves them remembering (and applauding) and listening for that final note that resounds in the heads of the audience.

"Long ago, I used to be a young man, and dear Margrit remembers that for me."

Go see this show. You'll probably never get a chance at this combination again.

—Nick Smith

## A Lonely Brief

### Vietnamese Refugees

Anyone wishing to donate used clothing to the Vietnamese refugees should put it in a large paper sack and mark it with a large V. These sacks will be picked up by the Salvation Army and delivered directly to Camp Pendleton upon calling 795-7291.

## Drop Day is Today



## Grand Opening

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CT



This evening, Clint Eastwood returns to the ASCIT screen in *The Good, the Bad, and the Ugly*, one of the famous, or infamous, "spaghetti westerns". Do not, however, be put off by this rather strange designation, which derives from where the movies were shot: Italy. The "spaghetti westerns" have much of the flavor of old westerns, but

are distinctly different. In addition, *The Good, the Bad, and the Ugly*; *A Fistful of Dollars*; and *For a Few Dollars More*, all with Clint Eastwood, have excellent scores, done by Hugo Montenegro. So whether you like westerns, Clint Eastwood, Hugo Montenegro or just a good movie be sure to see *The Good, the Bad, and the Ugly* tonight.

—Ed Bielecki

## Gourmet of the Seas

Why does the lowly sea cucumber—a gourmet of sorts that eats its way through the mud at the bottom of the ocean—wear a unique cape of microscopic, wine-red, iron beads a few layers beneath the surface of its skin?

Is it the evolutionary beginning of nature's first known iron suit of armor or is the cape a storehouse of protein iron to be withdrawn as needed to replace the tired iron in its red blood cells?

These are the kinds of questions that are irresistible to Dr. Heinz Lowenstam, professor of paleoecology here at Caltech. Fascinated by the capacities of living creatures to perform geological feats within their bodies, the scientist reports on his discovery of the beads in the current issue of the journal "Chemical Geology."

It was he who discovered that another sea slug-like creature, the chiton, has teeth of iron, and that a mollusc called the limpet has teeth of opal, the teeth capped by iron.

There is increasing interest in these biological processes for synthesizing iron, opal and such

things as calcareous shells and other protective devices. Ancient accumulations of some of these deposits form many present-day oil fields. Delicate biological processes are able to duplicate geological ones, synthesizing aggregates of minerals without the need of the heat and pressure required inside the earth to produce them.

Dr. Lowenstam has been working on whether the chiton's magnetic iron teeth help it find its way home by serving as a "biological compass" tuned to the earth's magnetic field. Although sightless, most chitons have an unerring homing instinct.

However, he has found that the beaded iron cape of the sea cucumber cannot serve such a purpose because it is similar to ferritin, which is an iron protein that is only weakly magnetic. He thinks the unique cape is less likely to be an incipient suit of armor than a storehouse of iron because ferritin is the same kind of iron stored in the human spleen to incorporate into red blood cells.

As a first step in learning the purpose of the beads, Dr.

Continued on Page Eight

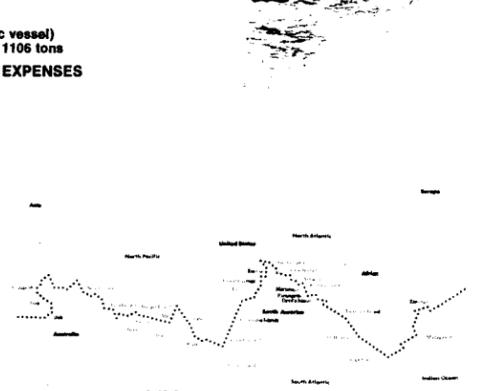
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I don't know about you people, but I've found my entertainment for the week in tonight's Chicago-Beach Boys concert. Not that I'd actually go; I'm entertained—nay, grossed out—by the fact that on Wednesday Anaheim Stadium announced presales of 49,000. Which works out to half a million dollars in gross receipts for a single concert.

If you find your entertainment in less esoteric matters, I'm sure we can still do something. My first recommendation is to frisbee, which is good always—any time, any length, although any place is not an equally good dictum. My second recommendation is to figure out just how you'd like to entertain yourself. I try to supply a sample spectrum, but there are so many possibilities that you really owe it to yourself to check them out.

For example, I'm told that sex is indeed the most entertain-

ing thing around as far as most of you are concerned. Well, I'm not convinced it's true, but let's assume it for the sake of example. As I noted last week, there is still the *Straights & Swingers Freak Ball* (over 21) and the *Ribald Classics*. I didn't note, however, the Lloyd House stripper, whom I presume has come and gone. So to speak.

Entertaining sex is still to be had on campus, though. I should warn you now, however, that I'm not referring one way or another to participation. Participation is great, but I'm not going to set people up. I'm referring to the imminent return of Dirty Dave's annual masterpiece, the belly dancers. If you desire more (perhaps novel?) navel contemplation, talk about it. There are several troupes of belly dancers that are touring.

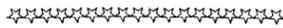
Prospects are not so bad after that, either. At the Tree House Fun Ranch (even the name gives

one pause) some benevolent group will be staging the Miss Nude U.S.A. Beauty Pageant this June, the tickets to which may be had from any Liberty Ticket Agency [not Caltech, I'm afraid to say] for a most nominal fee. The preliminary, or first heat, if you will, is on June 8, and you can make a weekend of the finals on June 21-22. You might even pick up a summer tan.

Conventional diversion is to be had, also. Spring also turns fancies to musicals, which exist in great profusion. *Jesus Christ, Superstar* is at the Shubert. *How to Succeed in Business Without Really Trying* is at the Music Center. *The Magic Show* is coming to the Shubert. *Company* is in Long Beach at Jordan Auditorium, and *Cabaret* is at Hummer Auditorium in Fullerton, to name just a few. The whole list may be had in this week's "Calendar" section of the *Times*.

So I leave you with visions of summer seasons at the Hollywood Bowl, Greek Theater, and Ojai. And just in case you remember Home Entertainment Kits, this week we feature volumes of John Donne while waiting at the bus stop.

—Chris Harcourt



### Student Revolt

## Letter from Athens

We, the student body of Athens College, are writing this letter to the Student Bodies of the United States of America in the hope that it will meet with your understanding and support concerning the matter of an independent Cyprus.

Since the recent history of Cyprus has been extremely complex, we thought that a brief review of events since the island's independence in 1960 would be appropriate.

After five years of guerilla warfare between the Greek-Cypriots and the British, the latter withdrew following the signing of an agreement between representatives of Turkey, Britain, Greece and the Turkish and Greek Cypriots. According to this agreement, Cyprus would henceforth be an independent republic. During the following fourteen years, the Cypriot government managed to resist external pressures and maintain this independence.

On the 15th of July, 1974, the Greek military dictatorship, which had always been hostile to Cypriot independence, organized and carried out a coup d'etat

against the elected government of the Republic of Cyprus. President Makarios managed to escape assassination by fleeing the island. Five days later, the Turkish army invaded and occupied northern Cyprus, claiming that by this action they would restore Makarios' government.

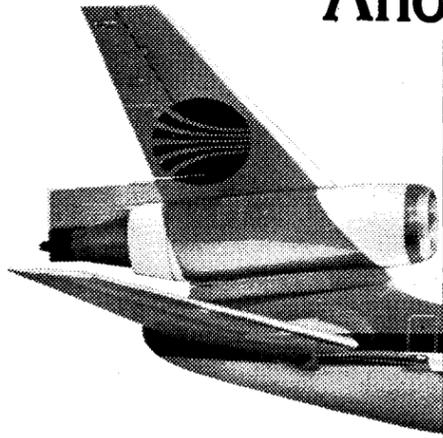
Following this invasion, the Greek dictatorship relinquished the government to constitutionally lawful politicians.

At the same time 200,000 Greek Cypriots, comprising a third of the island's total population, fled as refugees from the invading Turkish army; these refugees have since been living under wretched circumstances.

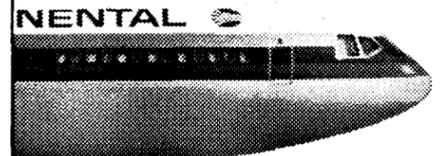
After the dictatorship in Greece relinquished the government to politicians, a constitutionally lawful government was reestablished in Cyprus. Since then, however, continuous landings of Turkish reinforcements and the recent proclamation of the so-called "autonomous Turkish-Cypriot state" have made it clear that the restoration of a legal government in Cyprus (which had already occurred) was

Continued on Page Eight

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# The CALTECH Coming Events

How would you like consensual sex? Now that I have your attention once again (it gets harder every week), let me inform you that the **Honorable Willie Brown, Jr.**, California State Assemblyman, will be the guest of the Y next week for a presentation on "Consensual Sex Among Adults: As You Like It." He was the sponsor of the consensual sex bill (AB489) which was recently passed by the Legislature on a narrow margin and after much debate. By Mr. Brown's efforts, effective January 1, 1976, all criminal sanctions against "sodomy" and oral copulation performed in private by

consenting adults over 18 will be removed in California.

Mr. Brown will be on campus this coming Wednesday at noon. First there'll be a luncheon in the Athenaeum Hall of Associates, open to the public for only \$2.75. At 12:30 he will begin his presentation, in the same room. Note that the lunch is optional—you can come in for the second half only if you like, free. After the lunch, at 1 p.m., Mr. Brown will move to the Y Lounge for more informal discussion on the topic of interest. You are invited then, too, if it's more convenient for you.

How about consensual SCUBA, if the above didn't turn you on? The next night, our new Master of Student Houses **Dr. Jim Mayer** will conclude the series "Conversations with a Scientist: Science, Values and Beliefs." Here's a terrific opportunity to meet him personally—but remember, admission is limited to the first twenty, by necessity. That's Thursday, May 29, 7:30 p.m., Y Lounge.

Today's noon concert will be the last of the school year. It features **Professor Wayne's Anonymous**, a Tech amateur group, playing popular-style music of their own invention on all electric instruments. Bring your lunch and don't forget those insulating sneakers.

The annual **Lost and Found Auction** is still scheduled for June 5. *Everything* goes—so claim those lost sync bricks before they're sold. Also, anyone out there listening (is there?), if you have anything you'd like to donate, please call the Y office. Remember, proceeds will go to charity, and Techers will buy almost anything...

Be thinking about pre-college camping trips. Sign-up lists will be hung in the student houses soon, so take note if you're interested in going.

The expression-of-interest sign-up sheets are hanging in the student houses for season tickets for the LA Philharmonic. If you want good reserved seats next year at low cost, with transpor-

tation provided, sign up now.

If Ditch Day hasn't happened yet, and you're a Senior, and you need nails, or even if you're not a Senior, but you still need nails, and if they haven't been sold yet, we have six pounds for sale, at a discount. Contact the Y office.

—Alan Silverstein

## McDonald

Continued from Page One

Statistically this was somewhat of a disappointment. With nearly one-third of the entries, the students received only 20% of the prizes. This includes 315 five dollar gift certificates for use at McDonald's.

The Datsun station wagon was immediately donated to the United Way, while the three thousand dollar check was given to Page House. The money will be used to pay taxes and for expenses incurred in printing the 1.1 million entries. The remainder will be used mainly for improvements in the house.

## Alumni

Continued from Page Three to U.S. agreement to a 50-year treaty banning chemical warfare.

Dr. Moore, who received his PhD in chemistry and physics from Caltech in 1954, is one of the most honored and respected people in modern electronics technology. He was a founder of the Fairchild Semiconductor Corporation which became the Semiconductor Division of the Fairchild Camera and Instrument Corporation—the leading innovator in this field during the 1960s.

Under his leadership as director of research and development for the company, much of the work took place on which the modern semiconductor industry is based.

Later, Moore was a co-founder of the Intel Corporation. With this firm, he has played a leading role in bringing many new semiconductor products into being.

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## Piesner Returns

## Great Scott Considered

Compared to E. Schroedlu's building at UCLA, Scott Hall of Basic Medical Sciences can only be considered paradise. It is part of the new Detroit Medical Center and supposedly is the largest classroom building in Michigan. Someone also said it's the second largest medical school building in the nation.

The state and federal government have spent close to half a billion dollars in the past eight years to build this center in an area that used to be slums. Now it has four or five hospitals (I lost count and they just broke ground for another one), two clinics, a rehabilitation institute, several research institutes, and a medical library. It is about the size of Caltech and is devoted completely to medicine.

To give you an idea how large Scott Hall is, consider that there are 256 students in my class. Each of us has our own lab bench and there are 16 of us in a lab. Each lab is approximately the size of Winnett Lounge and each has its own preparation room. The building is so huge

that all 16 labs are on the same floor. This, of course, does not include the 20 offices and three 280-seat auditoriums also on the same floor. Sophomores have an identical arrangement one floor up.

There are nine stories and a basement, but the upper six floors are only half the size of the lower four. Nevertheless, it defies the imagination. If you fused Church, Kerckhoff, and Alles along with the courtyards and made them 9 stories high, you'd have a building the size of Scott Hall. At least I won't have to venture outside during the winter.

## Plus Ca Change . . .

I bought cafeteria food only once. They have Canteen Corporation here and the food is worse than it was at Tech (Arrrgghh!!!) They precook all food a mile and a half from here.

As at UCLA, conservation of elevators also holds true. One time I pushed the "Up" button and got on the elevator when the bell rang and the door opened. I pushed '3' and the door closed

but we didn't go anywhere. Fortunately, the "Open Door" button worked and I got out. When I pushed the "Up" button again, a light came on outside the same elevator saying, "This Car Up." I entered and this time the car went up, but no faster than the elevator in Church. Stairs are much faster.

When I discovered the gross anatomy labs, I could not believe their location. At most schools, they are on the top floor, but here they are in the basement, directly beneath the cafeteria. I guess the ventilation system is pretty good.

Lecture halls are fantastic. Instead of moving from place to place, the professor comes to us. In the room itself, each row has one long table—quite a relief from the postage stamp desks at Tech. But it is the projection system that boggles the mind. In addition to the usual array of projectors and motor driven screens, they have color TV. And they have a color TV projector. In anatomy lectures, the professor conducts his presentation from a preparation room while we watch a projected color TV picture of his work.

To supplement lecture material, there is a self-instruction center. That is where we can obtain tapes (all the lectures are recorded) and study. Each carrel has its own cassette recorder and in the back, we can watch color videocassettes of selected lectures or listen to a heartbeat simulator.

The lectures themselves are quite different. They are more like multimedia shows than lectures. Each professor must plan his lecture months in advance and coordinate it with the projectionist in the booth above the hall.

There is no set schedule and no set courses. Instead, we follow a curriculum schedule given to us at registration and listen to a different doctor at every lecture. The lectures are

grouped in three areas of medicine but overlap to provide a more complete picture.

One of the hardest things to get used to was the extensive workday. Caisces are generally scheduled from 9 to 5 every day, usually including three to four hours of lab. It is not really that bad but I must learn how to get up early again. Tech was a great place to learn how to sleep until 11:00 every day. Now, I must unlearn this to get up at 7:30.

Fortunately, all nighters will be scarce because there are no papers in med school. There is, however, anatomy. At every lecture, we learn about 20 more muscles, 10 more nerves, and many other squishy things and their interrelationships. The professor draws all of this on the board and it is completely full by the end of the hour. Nearly everyone uses colored pencils.

Handouts are frequent, too. Upperclassmen have warned us to expect a total of 5000 sheets of paper from one place or another before the year is out.

To add to that, the freshmen have started a note service. Each lecture is scribed, typed and distributed to each of the other freshmen at a cost of about 20 cents per lecture per student.

## . . . Plus C'est La Meme Chose

Pressure is, of course, immense but no greater than it was at Tech. I was surprised there were so many shrinks at Caltech but here there are twice as many, not including the priests and rabbis.

Along with the pressure comes increased responsibility. There is very little supervision and students are pretty much at ease to come and go as they please. Professors exist only to answer questions (if they can).

Perhaps one of the biggest adjustments I had to make was getting used to the examination system. There is no honor system here and we sit at every other desk in the lecture hall to take a test.

All of the tests are scored by computer and therefore all are multiple choice but don't let that fool you. The first test, con-

sisting of 109 questions in a 40 page book, was just as hard as anything I took at Tech. We marked the answers in pencil on three computer cards. ("Make sure you use the red card first and the green card second.")

Everyone was very tense, especially when one toad asked about five ridiculous questions in a row such as whether we could leave the room to go to the bathroom. He was finally shut up by some irritated neighbors who could not concentrate on the questions.

In much of this ramble, I have expressed great satisfaction with Wayne's medical school. That is true but just to put things in perspective, let me conclude with an experience I had this summer. At one of the study skills sessions, the counselor reminded us that Wayne was a public institution.

## News Briefs

Continued from Page Three

## Turn In Those Keys

All seniors, grad students, and undergraduates not planning to return to Tech next fall should turn in their gameroom keys to Flora, 105 Winnett, by June 6.

## Enormous Electrified

A rather large *Rana catesbeiana* (frog, for the unenlightened) [the unenlightened thank the delegate for the simultaneous translation], has turned up in Throopond. Anyone wishing to claim him(?) should come to the office of 419 Steele, with a four foot cage and adequate funding to pay the food bill.

## Last Bus To Clarksville

The last UCLA/Westwood shuttle on the ASCITBus will leave from the Athenaeum parking lot next Tuesday at 6 p.m. The Ellison SF class will feature Joanna Russ, D.C. Fontana, and Kate Wilhelm. On June 3, a special screening of "Once Upon a Time", an Israeli film loosely based on Sturgeon's *More Than Human*, will be shown at the Academy Award Theatre; departure time to be announced. See Gavin Claypool (72 Ricketts) for further information.



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# Tennis Finishes Season

The Caltech Tennis Team finished the season in a blaze of glory, winning three out of the last five matches to finish in a tie for fourth in the SCIAC.

The wins included 5-4 wins over La Verne and Whittier and a 6-3 defeat of Occidental. As the season ended the squad of Tim Ahern, Fleming; Mo Nakatsui, Lloyd; Joe Alonis, Page; Lee Paul, Ricketts; Dave Dummit, Page; and Ara Minasian, Page;

were at their peak and playing very tough tennis.

Tim Ahern and Dave Dummitt represented Caltech in the league championships. Tim was eliminated by John Blomberg (the eventual runner-up) in a tough second round match 6-2, 7-5. Tim and Dave carried the eventual winning doubles team from Redlands, Doal and Rahimi, to a 7-5 third set; the only team to do so.

## "Tomorrow" is Yesterday



"Tomorrow" finally arrived early yesterday morning as underclassmen began work on the 1975 Ditch Day stacks.

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## Athens

Continued from Page Five

not at all their aim: it was rather the realization of their ever-present desire to partition the island into two separate states—a Turkish and a Greek one.

It has become our conviction by now, that this desire has been shared, and covertly assisted by, the U.S. government. One cannot forget the fact that U.S. military aid was granted to Turkey up to recently, nor can one ignore the efforts made to resume this aid by reviewing the decision taken in Congress. The conduct of the U.S. government in the diplomatic field, on the other hand, is equally discouraging.

Given the composition of Cyprus' population, (82% Greek-Cypriots, 18% Turkish Cypriots), it is obvious that partition imposed from outside Cyprus would lead to a civil war, with disastrous consequences in the Mediterranean.

In the light of this situation, therefore, it is clear that the independence of the Cypriot is in the gravest danger. Knowing of the dynamism of American youth, we write you this letter in the hope that you will be able to influence and inform public opinion in your country regarding the Cypriots' struggle to maintain their independence and to govern their own fate.

The Student Body  
Athens College

## Cucumber

Continued from Page Four

Lowenstam, in research supported by the National Science Foundation, has isolated and observed them in an electron microscope. The beads are spherical or oval in shape and come in a variety of sizes up to one twelve-thousandth of an inch in diameter. They are generously sprinkled over the back of the sea cucumber, the larger ones being nearest to the body cavities.

The beads are built of many microlayers like the sedimentary microlayering of rock. The microlayers themselves are composed of very small spheres 80 to 100 angstroms in diameter.

The larger beads are composed of a variety of chemical elements, with iron being consistently the most abundant. Surprisingly, some sub-units of the beads are of opal. The proportion of the opal in the beads increases with the depth at which the sea cucumber lives. The opal is synthesized from silica. Above the iron bead layer in the skin is a layer of calcareous spicules. These calcium carbonate crystals apparently are in the process of being converted into iron beads. In determining whether the



sea cucumber uses the iron in the beads to replace that in its hemoglobin, Dr. Lowenstam plans to place the creatures in mud containing iron-55, which is a radioactive tracer. They will feed on the mud and as a consequence will take in iron-55. It will appear in the body fluids, blood, and hopefully in the outer layers of the beads.

Then the sea cucumbers will be transferred to mud containing little or no iron. There is a short turnover rate for the hemoglobin, Lowenstam explained, so its iron will have to be replaced.

"If the iron-55 is picked up in their hemoglobin, then we will know that at least in the case of stress they utilize the iron in their beads," he said. "This we want to know: if they can't get iron from any other source, do they solubilize their beads and transfer the iron back into body fluids."

## Classified Ads

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