**Freshman Class**

Freshman Class Flight, Plumbing in Ruins

by Ann Orle

History is repeated again—a new freshman class flies into Tech. Upperclassmen are confronted with fresh attempting to “make it” at Caltech and getting lost in the process.

There will be 217 students in the class of ’77—a drop from last year’s high figure. The number was kept down by a system of “rolling admission.” The people on the waiting list were admitted as space became available (the last being admitted two weeks ago).

**Vital Statistics**

Now to the vital statistics: twenty-nine of the class are women (a three point gain from last year’s figure, and considerably more than the dismal of seventeen proposed earlier this year).

The number of applicants this year was up slightly, counting a long downward trend. The same trend has been noted in a majority of private colleges. This is due to recent upturns in costs caused by inflation and a lack of money available to supplement private education.

The upperclassmen who have been on campus during the influx of freshmen will have a brief rest in direction-giving and lost sheep-rescuing while the freshmen are trapped on Cata­lina. But we’ll be back Saturday.

**Y Camping Trips**

Frost Exposed to Western Wilds

by Peter W. Beckman

Over seventy members of the Caltech Community, divided into a Yosemite group and a Baja California group, participated in this year’s Y Camping Trip last weekend.

Both groups left Tech by bus late Friday morning. Upon arrival at Tuolumne Meadows the Yo­semite group split into four hiking parties. One party traveled down to the Yosemite Valley floor, the second went up to Clouds Rest, the third hiked up to Youngs Lake, while the fourth went down Lyell Canyon.

Aside from occasional raids by hungry bears, the trips were relatively uneventful, although one group did climb Half Dome in the dark so that they could watch the sunrise from the top. The water level in the area was extremely low—so much so, in fact, that Yosemite Falls itself was dry.

The Baja group, on the other hand, stayed more or less together at all time. They visited “La Bufadora,” a coastal blowhole, and spent one afternoon sunning on the sandspit that runs into Ensenada Bay. Sunday afternoon everyone went into Ensenada itself and quickly became bored by the tacky tourist establish­ments. That evening was spent consuming everything (primarily Tres Ejotes, Mendola, Corona, and Teqate) that couldn’t be taken back across the border.

While Monday’s return trip was relatively uneventful for the Yosemite group, the Baja group experienced the joy of a very thorough inspection by U.S. Cus­toms officials (including a rather menacing German Shepard with a fancy for duffel bags). About two hours later a tire went flat and the group was delayed for ninety minutes while it was fixed.

Everyone agreed that this year’s camping trip was a great success. The freshmen and upper­classmen talked and interacted a great deal and had a lot of fun. Just as important as the last two years, everyone returned safely to Tech.

**Registration Day Blues**

News Briefs

Fellowships Now Available to Grads

The Watson and Danforth Fellowships are now both avail­able from the Office of the Dean. Those students who have an interest ought to apply early. Anybody interested should drop in at the Deans’ Office to find out more.

Coffee, Tea, Or Me?

Coffee, tea, chicken soup (and others) in Winnett Center Office Sept. 24-28 from 10:30 a.m. to 5:30 p.m. every day. Doughnuts from 4-5: Come and get ac­quainted with Dr. Richard Hertz, Flora Constanten, and all the other people.

Precinct Workers Needed Immediately

Wanted: Three registered voters from this precinct to work on November 6, from 6:45 a.m. to 8:30 p.m. as election officials. Pay is $2.70. See Flora in Winnett immediately.

Tolkien Trolls

Hold Picnic

The Mythopoeic Society will hold their 8th-Anniversary Birthday Picnic from noon to sunset, Saturday, September 22 at Arroyo Seco Park (Pasadena). Fay to Ave. 57—Herman Ave. Turnoff. Organized events (games and costume judging) begin at 3:00 (frost camp returns about 2:30)..special avails­able through Jim Vibber ahead of time. Bring a mahlon; costumes encouraged but not necessary.

Lecture Beginnings

The energy crisis we are now facing in this country is causing energy every individual its spade hack upon his own inner resources. We are all experiencing a period of Arroyo Seco Park (Pasadena). Fay to Ave. 57—Herman Ave. Turnoff. Organized events (games and costume judging) begin at 3:00 (frost camp returns about 2:30). Special avails­able through Jim Vibber ahead of time. Bring a mahlon; costumes encouraged but not necessary.

Continued on Page Six

TheCALIFORNIA

First-Year Frosh

Volume LXXV

Pasadena, California, Thursday, September 20, 1973

Number 1

Krouth and Schneider Take Over Security

by Eric Eichorn

Caltech’s entire twelve-person Security Force has been dismissed, and a private security agency hired to take over its duties. This action, apparently decided on in June, was executed in a matter of hours, and with a level of secrecy that would make The Planners envious.

On the morning of Monday, September 10, the members of the now defunct Caltech Security Force were called to a special meeting. At that time they were given their final paychecks, includ­ing two weeks or severance pay. Depending on their individual length of service. Discharge from the job was immediate, with severance pay serving in lieu of advance notice. This lack of notice was said by Lee Chapman, current Security Manager, to be necessary in security operations, to avoid possible sabotage by employees who have been given notice of termination.

By Any Other Name

The firm of Krouth and Schneider, Inc. has been given the contract to take over the security offices at Caltech. It is a private police agency, listed in the phone directory under “Investigating,” and popularly known as “rent-a-cops” or occasionally as “dial-a-fuzz.”

This contracting of operations is preceded by the hiring of Saga, Canteen, and R&R to run food service, which was originally operated by the Institute itself. The contract was signed Friday afternoon, September 7, with service starting the following Monday morning.

The word has been in the wind for most of the summer, but the possibility was never mentioned to the public, or to our Usually Reliable Sources, until after the end of third term when most students had gone. Around June 9 John Elliott was fired as head of Security and replaced with Chapman. Interve­wes for the job began four to five months ago, with Elliott notified only on his day of termination. Two guards were fired in the last few months (for cause), and several more in response to rumors that Security would be disbanded, took jobs elsewhere.

An Explanation

The official reasons for the change are fairly straightforward. The previous force was sufficient to provide three officers on each

Continued on Page Ten
**Frosh: Read This!**

Hard to believe: another summer gone by. Or about to go by, at least. For you freshmen there still remain several carefree days at Campy Fox. Carefree (he’s heard to snicker). Free from care.

What you now hold in your hot, little hands is the culmination of several days’ work for the people who represent The California Tech. Their days of freedom ended quite a while ago.

You’d better like this issue, dumb frosh. It was designed with you in mind. In these twelve pages you’ll find articles laced with information on the Associated Students of the California Institute of Technology, its Board of Control, its Board of Directors, its Executive Committee, maybe even its movie program. You’ll find some random (good word to use) information on the upcoming Rotation week. You’ll find sports articles, some features, and a self-serving introduction to this paper.

This first issue of the year is slightly different from the other first issues of the year that we have on file: an experiment. We want to know how you react to it, so feel free to say anything you want to Claypool (he’s going to be on the island with you).

—Dennis L. Mallonee Eric H. Eichorn Gavin D. Claypool

**Security Blues**

The entire Caltech Security Force has been disbanded (see related article on page one). While the people responsible for the charge have given apparently valid reasons for the move, we feel that it was carried out in an entirely inept manner of one graduate student and violates a trust which the students put in the administration.

The bulk of the responsibility belongs to Richard L. Mulligan, Director of Business Services. While an ad hoc committee studied the issue (without the Caltech community being aware of the committee’s existence), the issue originated with Mulligan and was finally executed by Mulligan.

The committee claims to represent the students by virtue of the membership of one graduate student and one undergraduate. The students at large were not involved in the choosing of these “representatives,” nor was there any opportunity for students to express their views to them, due to the secret nature of the committee. While we have the highest respect for these individuals, we cannot believe the choosing of these “representatives,” nor was there any indication that the students put in the administration.

—Robert J. Ritter

**Just The Facts, Ma’am**

Start the new year off right with a pizza at ROMA’s!!!!

**THE CALIFORNIA TECH**

**Your Fearless Tech Staph**

Deep within the darkest pits of Winnett Student Center there resides an incomparable trio who compose the working body of *The California Tech*. Who are they? What are they? Are they the tall, good-looking, brown-haired young man with glasses and short pants who is Gavin Claypool. He has barely outgrown the fundamental year of sophomore editorialship and now begins his monotonous progression along the GPA ladder. Under rapidly multiplying preoccupations, he casts his blue suit straight for the enemies of editorial freedom. He is pure in heart, wood and deed.

The tall, short-squinting, dark-haired young man with glasses and long pants goes under the guise of Dennis Mallonee. He currently holds down a Tech editorship and a double major. Although he is obviously not stupid, he is obviously a dope.

The short, squirellly-looking, dark-haired young man with glasses and short pants and a car is Eric Eichorn. Eric comes from Imola. He fears no evil, and throws caution to the wind. He’s a bubbly, bibulous sort of Dude, of course.

Peter Beckman is an ex-Techno editor, recently converted into an Entertainment Editor with hopes of reviving the Tech About Town feature that used to be run once a while. He’s a bubbly, bibulous sort of Dude, of course.

—Bob Kieckhefer

**Just The Facts**

**by Eric Eichorn**

On Tuesday, September 11, the Caltech Bookstore was held up at gun point (that’s a 211 for you Adam–12 freshmen). The robbery, which took place at approximately 11:45 a.m., netted $885 for the robber.

This robbery took place one day after a new security force took over at Tech, but has no apparent connection.

Pasadena Police Department investigated the robbery at the request of Caltech Security.

**CALTECH FORUM**

**To Bryan Jack:**

I am writing to you in your capacity as head of the Honor System Board of Control to report a recent development regarding the photogrnograph record collection in the Charles Library. We have just completed our annual investigation of the collection and found that over 50 albums have disappeared. During the preceding year 155 albums were returned to the collection. Of these, 16 albums have been destroyed during this period.

This is a serious matter, and we are currently investigating it. We anticipate that a report will be made to the Board of Control in the near future.

—John H. Loestelle Humanities Library

**FRANKLY SPEAKING**

by Phil Frank

For the umpteenth time, I must point out that a $250.00 fine is levied for the nonpayment of fines. This is not a suggestion. I am not a suggestion. I AM A SUGGESTION.

**THE CALIFORNIA TECH**

**Volume LXXV Number 1**

**Masochism, Inc.**

**Editors-in-Chief:** Gavin D. Claypool Eric H. Eichorn

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**Entertainment Editor:**

Peter W. Backman

**Feature Editor:**

Steve Sweeney

**Photo Editor:**

Ray Foney

**Sports Editor:**

Bob Kieckhefer

**Copy Editors:**


**Photographers:**

Ted Broussard, Bob Grauer, Gerald Labe, Dave Peisner

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**FORUM**

**Who are they? What are they? Why are they? What are they?**

**THE CALIFORNIA TECH FORUM**

Thursday, September 20, 1973

Volume LXXV Number 1

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Editor-in-Chief: Gavin D. Claypool

Eric H. Eichorn

Dennis L. Mallonee

Entertainment Editor:

Peter W. Beckman

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Staff:


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Dave Peisner

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Rick Osier

**A Word of Warning . . .**

Don’t Feed the Bears

by Dave Malone

Camp Fox is nestled snugly at the landed end of a small inlet of Santa Catalina island, about 25 knots due south-west of Long Beach Harbor. At this Camp, you, the prospective Techer, will find yourself cut off from civilization, much in the manner that you will be cut off from civilization during the next few years.

Not quite. Camp Fox has delighted everyone who has gone to Freshman Orientation during the last two years.

The campgrounds are surrounded on three sides by cactus covered slopes that reach up to tickle the clouds (onetykoochty). On the other side, the interested person will find infinitely clear water fed by a rocky beach that continues at a seven degree slope out into the Pacific.

If geology is your bag, be warned: expeditions into the back country are organized continuously. If you’re an aspiring artist, you might take a look at some of the bare sections of the hillside and consider what could be done with them (maybe take some rocks and lay out a religious slogan). Jocks will find that the Glendale YMCA has bequeathed a miniature basketball court, volleyball areas, table tennis platforms, and a relatively flat surface designed for football.

Aquatic activities can include sailing, rowing, swimming and diving, snorkeling, dunk the Dolf, or anything else that can be thought up. Camp Fox offers a touch of nature that you won’t get on campus—unless you like to hunt moles or turkeys.

**Living in Sin**

Camp Fox offers a variety of living quarters. The lucky lads will get to roll out their packs in an open-air no-wall construction improbably called a cabin. Here they will experience nature at its finest. They will live with salt water spray, root beer loving bees, and a sunrise that hits them smack in the eyes. There are cabins with walls. These will be filled primarily with females, who will not be the objects of outdoor life. The lodge (the big building where meals are served) will hold camp officials, Caltech faculty, and all-night poker games. Also, out where the inlet meets the sea, many members of the faculty or administration will be anchoring sailing vessels, filled with interesting people and good stuff to drink.

**Bad Stuff to Eat**

Food will be abominable again this year. Meals will be semi-waited (you’ll hear more about that from your advisor, fresh), and you will have to eat what is served . . . unless you prefer to starve.

Enjoy. Catalina will be left behind sometime around noon on Saturday. You will thereafter return to Pasadena for a weekend of finding your way about. Classes begin on Tuesday. Cries from your advisor, frosh), who will miss the comforts of the building where meals are served . . . unless you prefer to starve.

Mark Johnson

**THE CALIFORNIA TECH**

Seismic Waves Changing Velocity

Dr. Hiroo Kanamori, professor of geophysics at Caltech, has reported that the seismic wave velocity in the earth’s crust beneath the city of Riverside has apparently been changing in recent years.

The variations were discovered by measuring the changes in the velocities of seismic waves under the Riverside area. The waves emanated from nuclear explosions in the Aleutians in 1965, 1969, and 1971, from dynamite blasts from a concrete quarry in the neighboring city of Corona, and from distant earthquakes, the geophysicist explained.

Using old seismic records of more than a dozen stations in the Caltech Seismological Laboratory’s network, Kanamori measured the velocity of the seismic waves by comparing the time that they activated seismographs at the various stations.

He found that the velocity did not change significantly over the years at any of the stations—except for the one at Riverside. There the velocity remained constant between the 1965 and 1969 Aleutian nuclear explosions. But waves from the 1971 detonation had increased in velocity about fourteen percent in the Riverside area, and not at other southern California stations.

Subsequent to 1971, seismic records of quarry blasts and distant quakes corroborated the finding.

“Because the velocity did not change significantly over the years at any of the stations—except for the one at Riverside,” Kanamori said, “we can use these records to determine the extent of changes in the seismic velocity over time.”

Seismic velocities in the Riverside area have returned to normal. Kanamori explained that the changes were caused by the end of a quiescent period near the center of a small earthquake region.

**Smog Profile**

More You Have — More You Get

The production of smog particles is a double-barreled affair. They are produced ready-made by such sources as factories and autos and at the same time their formation is a double-barreled affair. Smog particles are produced in their entirety from aerosol smoke and automobile exhaust. They are produced ready-made by such sources as factories and autos and at the same time their formation is a double-barreled affair.

The aerosol particles range in size from two to five thousandths of an inch in diameter up to five thousandths of an inch. They reduce visibility, carry toxic materials (such as lead) into the lungs, and even modify weather by preventing a normal amount of sunlight from getting through the atmosphere.

**Continued on Page Six**
The Tech About Town

by Peter W. Beckman

The Los Angeles area is noted for the great number and variety of social and cultural events offered within its boundaries. Musical activities, ranging from symphonic concerts to appearances by the latest pop stars, abound, while theater, both legitimate and experimental, flourishes. This column will attempt to keep Tech readers up to date by informing them of upcoming events in the area of entertainment.

Pasadena

Close to home, Caltech's own Beckman Auditorium opens its fall season on October sixth with a performance by Don Ellis and His Big Band. This exceptional contemporary jazz group, led by the composer of the soundtrack of The French Connection, will play material from their many hit recordings. Tickets are $6.00, $5.50, and $4.00. As an introduction, L.A. Times jazz critic Leonard Feather will talk on "Jazz: Yesterday and Today" in Ramo Auditorium at 8 p.m. on October fourth. Admission to this lecture is free.

Locally, The Icehouse, Pasadena's most famous and popular nightspot, will offer music by Ian Mcguinn, his Lost Planet Wirmen, Roger McGuinn, and The New Riders of the Purple Sage. Tickets to each event will be $6.50, $5.50, and 4.50.

Prolouging? This month L.A. is living up to its reputation as one of the popular music centers of America. First on the lineup is a concert by Procol Harum and the Los Angeles Philharmonic tomorrow evening at the Hollywood Bowl. Tickets are $7.50, 6.50, 5.50, and 4.50.

The following weekend a number of major groups will give performances. Saturday evening, September 29, Three Dog Night will appear at the Forum. For those interested in afternoon entertainment, there will be a Country-Rock Party at the Universal Studios Amphitheatre that Saturday and Sunday. Waylon Jennings, Commander Cody and his Lost Planet Wirmen, Roger McGuinn, and The New Riders of the Purple Sage will appear. Tickets to each event will be $6.50, 5.50, and 4.50.

The Hollywood Paladium will be the site of a performance by Rare Earth and Fleetwood Mac. September 30. All advance tickets will be $5.50.

With The Chinese Opera

The Music Center is currently offering two major theatrical productions. Gone With the Wind, Harold Rome's musical adaptation of the famous novel is at the Dorothy Chandler Pavilion, while the Ahmanson Theatre now boasts The National Chinese Opera Theatre. The Tooth of Orive, an experimental play by the Center Theatre Group, is opening at the Mark Taper Forum. Performances will continue through Sunday. For ticket information about any Music Center offering please call 626–7211.

Ellyshore down town Oh Howard, a musical kaleidoscope based on Noel Coward's works, is appearing at the Pantages Theatre and The Boys in the Band is at the Off Broadway.

Upcoming theatrical events include promises to a fabulous Carnival in the Streets—not to be missed.

The Art Fair is being sponsored by the Pasadena Artist Associates (as usual), and in being promoted and advertised is now boasting who will doubtless be found standing near the corners of Colorado and Lake or some of the other busy areas of Pasadena for the next several days, dressed in an incongruous outfit with a top hat and matched mix shoes, telling people what to expect.

The Pasadena Art Fair will be open 12 noon to 10 p.m. on Friday, 10 a.m. to 10 p.m. on Saturday, and 10 a.m. to 5 p.m. on Sunday. It may be well worth the time to take a look.

Pleau Did It

by Dick O'Malley

The 28th annual Pasadena Art Fair will begin next Friday, Sept. 28, at the Pasadena City Hall Plaza. This year, as in every year, it promises to a fabulous Carnival in the Streets—not to be missed.

The Art Fair is being sponsored by the Pasadena Artist Associates (as usual), and in being promoted and advertised is now boasting who will doubtless be found standing near the corners of Colorado and Lake or some of the other busy areas of Pasadena for the next several days, dressed in an incongruous outfit with a top hat and matched mix shoes, telling people what to expect.

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Caltech Women Unite!

by Mary Beth Ogilive

The Caltech Women's Coalition is an organization of women students, staff, and faculty designed to bring Caltech women together for discussion and action. The first meeting of the year will be held on Tuesday, October 2 at 5:30 p.m. in the Women's Health Center Lounge. Elections of officers and adoption of a charter will be followed by a talk by JPL scientist Dr. Marcia Neugebauer on "Being a Woman in Science." Consciousness-raising sessions will be held this fall under the leadership of Ivy Borts, one of the original members of the New York City chapter of NOW. A summer seminar during the summer was attended by a wide variety of women with diverse careers and interests, and proved to be a valuable experience.

One of the projects started during the seminar was the development of an affirmative action awareness seminar for the Institute for managers and others who work with women. Another project has been the preparation of questionnaires to be sent to women undergrads, grads, staff, technical staff, and faculty on such subjects as pregnancy-leave and leave, general health coverage, abortions, vasectomy, and attitudes towards jobs and people at Caltech. The information gained from the questionnaires will be used to help plan campus action programs for the coming year.

The women's movement has the potential to become a real force on campus. Please join in— all are welcome.

Learn Chamber Music

by Nancy Schilling

Caltech this year: instruction in nationally known Schoenfeld Duo, just returned from their 25 Baxter. The Humanities Division has brought something special to Caltech this year: instruction in nationally known Schoenfeld Duo, just returned from their world tour of their 18th birthday. Failure to plan serious action programs for the next several days, dressed in an incongruous outfit with a top hat and matched mix shoes, telling people what to expect.

The Pasadena Art Fair will be open 12 noon to 10 p.m. on Friday, 10 a.m. to 10 p.m. on Saturday, and 10 a.m. to 5 p.m. on Sunday. It may be well worth the time to take a look.
NSF Fellowship Awards

The National Research Council has again been called upon to advise the National Science Foundation in the selection of candidates for the Foundation's program of Graduate Fellowships. Panels of eminent scientists appointed by the National Research Council will evaluate qualifications of applicants. Final selection will be made by the Foundation, with awards to be announced on March 15, 1974. Interested NSF Graduate Fellowship awards are intended for students at or near the beginning of their graduate study. In general, therefore, the eligible to apply will be college seniors or first-year graduate students this Fall; in particular, eligibility is limited to individuals who by Fall 1974 have completed not more than one year of full-time or part-time graduate-level study. Subject to the availability of funds, new fellowships will be awarded for the period of the summer, the second and third years contingent on certification to the Foundation by the fellowship institution of the student's satisfactory progress toward an advanced degree in the sciences. These fellowships will be awarded for study or work leading to master's or doctoral degrees in the mathematical, physical, medical, biological, engineering, and social sciences, and in the history and philosophy of science. Awards will not be made in clinical, education, or business fields, in history or social work, or for work leading to medical, dental, law, or joint Ph.D.-professional degrees. Applicants must be citizens of the United States and will be judged solely on the basis of ability. The annual stipend for Graduate Fellows will be $3,600 for a twelve-month tenure with no dependency allowances. Applicants will be required to take the Graduate Record Examinations designed to test scientific aptitude and achievement. The examinations, administered by the Educational Testing Service, will be given on December 8, 1973 at designated centers throughout the United States and in certain foreign countries. The deadline date for the submission of applications for NSF Graduate Fellowships is November 26, 1973. Further information and application materials may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418.

European Lectureship Available Now

Applications will be accepted until November 1, 1973 for junior lectureships in American studies in Belgium, France, Italy and Spain for the academic year 1974-75. Applicants should be advanced graduate students or scholars who have recently completed the Ph.D. preferably in American literature, American history or government, but also in economics, geography, psychology, sociology. Knowledge of French or Spanish is required for appointments in France or Spain.

One award is also to be offered to a junior scholar for research in Belgium in some aspect of Atlantic studies.

Additional information and application forms are available from the Committee on International Exchange of Persons, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.
New Security Force

Continued from Page One

shift, providing that everyone always worked the regular shift, and that there was no conflict of interest. With vacation, sick leave, and special events, the force was freed from its usual duties. It would be available to be able to fill absences by bringing in employees who normally work at other locations, although there would be a regular crew of guards for Caltech and presumably a regular crew of substitutes. All of the regular crew had been hired back by Caltech, and officers on the old force are being encouraged to apply for work with the contractor, Chapman said. To date, four members of the old force have been hired back by Knott and Schneider.

By not having to pay over-time, and because rent-a-cops are basically cheaper than a resident professional security force, the Institute expects to lower its costs. The decision was made at about the same time that Chapman was handed the hire decision.

Opposition Bypassed

Pressured as to why the change was made so quickly and without prior announcement (which would have allowed for feedback from the campus community, and possibly averred later sur­prise and resentment about the new guards among the student body), Chapman responded that "drastic circumstances require drastic actions." It is not clear that the above mentioned reasons are sufficiently drastic for the action taken, and it seems likely that there were other reasons.

It has been argued by some of the regular crew that the New Security Force that it is unreasonable to expect three (sometimes two) guards to cover the entire campus with over one hundred buildings and occupying approach­ingly 80 acres.

Who's in Charge Here?

It is fairly certain that the decision to switch to contract security was made at about the same time as that to replace Elliott with Chapman, though Richard L. Mulligan, Director of Business Services, maintains that they were two independent deci­sions. It has been more difficult to determine who was responsible for the decision, since it came through an ad hoc committee, the identity of which has been difficult to determine. The formal announcement came from Mulligan's office. Mulligan confirmed that he was on the committee, but refused to reveal any of the other members (it being an ad hoc committee).

Dr. Lyman Bonner, Director of Business Services, maintains that there were two independent decisions. It has been more difficult to determine who was responsible for the decision, since it came through an ad hoc committee, the identity of which has been difficult to determine. The formal announcement came from Mulligan's office. Mulligan confirmed that he was on the committee, but refused to reveal any of the other members (it being an ad hoc committee).
Efficient Fuel Use & Energy Crunch

More efficient use of fuel by autos and dwellings could cut the rate of increase in energy demands of the United States from 4.2 to 2.8 percent per year by 1985, thus providing a 10- to 15-year "breathing space" in the energy crunch. Prof. Lester Lees, director of the Environmental Quality Laboratory of the California Institute of Technology, reported last Friday. He stated that this goal could be accomplished by increasing the production of smaller, lighter-weight, gas-saving autos at a rate of 10 percent a year until at the end of 10 years 80 percent of all cars produced are in this category, and building energy-saving dwellings: so that with proper insulation less intense lighting, and with apartments making more use of windows and air ducts during cooler weather the load on air-conditioning systems could be reduced.

Slow Down

Achievement of the goal would result in a less steep rise in fuel prices and substantial reductions in the importation of foreign fuels, Lees and Mingen Philip Lo noted in their EQL report on "Time Factors in Slowing Down the Rate of Growth of Demand for Primary Energy in the United States." The vehicle and housing factors account for virtually half the annual increased demands for energy in this country. "Reductions of the annual growth rate of the remaining 50 percent of U.S. primary energy consumption that seem quite feasible would bring the overall (energy) growth rate down to about 2.5 percent per year by 1985," they state in the report. "If reductions in growth rate of this magnitude could in fact be achieved, energy imports would peak in the mid-1980's at a level no higher than about 60 percent above the present (1973) volume of imports."

Strategy & Tactics

The energy strategy in the next 25 years should be based on a mix of four factors, according to the EQL report:

1. An increase in imports of oil and liquid natural gas.
2. An increase in the rates of domestic supplies, especially of uranium and coal.
3. Development of new energy sources—such as geothermal and solar energy.
4. Slow down the rate of growth of energy consumption by improving the efficiency of use and reducing "wasteful" practices.

The report deals only with the first factor, specifically with energy consumption—which comprises 25 percent of the demand increase—and residential heating, cooling and water heating—which takes 22 percent of it.

"The automobile" considered as a total system all the way from raw materials through production, distribution, roadbuilding, servicing and recycling is part of U.S. primary energy," the report stated, 14 percent of it being the fuel and power used to move the vehicles. 7 X 4 = 28

EQL took several factors into account in reaching its conclusion. They include: Gasoline consumption ranges from 7 to 28 miles per gallon, depending on the size and efficiency of the car; the average car increases about 1 percent a year; the auto population increases about 4 percent a year. Increasing by 10 percent a year the production of gas-efficient cars (those getting 20 miles per gallon or better) means that those cars would account for 50 percent of the vehicle population by the 10th year. This shift would reduce the national energy growth rate from 4.2 to 3.2 percent (4.2 percent is a projected annual growth rate between 1973 and 1985).

Residential heating, cooling and water heating consume 22 percent of the primary U.S. energy situation. The decrease in the growth rate of construction of new living units in about 3 percent of the existing population and the demolition rate about 1 percent a year.

Only 10 percent of all new living units built the first year are energy-conserving, 20 percent the second year, 50 percent the 10th year, and if a certain percentage of old residents begin to conserve energy, then the growth rate of total primary energy from this source will be reduced 0.4 percent per year.

Relativity

Because unavoidable uncertainties in estimated demand and domestic supply have large relativity.

Continued on Page Eleven

Coffeehouse To Open Very Soon, Maybe, Hopefully

by Marc Donner

When asked about the date of the punitive opening of the Coffeehouse the manager (who shall remain nameless) responded with the less than helpful statement, "Sometime next week, we're not sure when."

When asked for any comments he might be willing to make concerning the new term and the Coffeehouse, the reply was, "No comment."

Despite these inconspicuous beginnings, they are assured, dear frosh, that the Caltech Coffeehouse is an important fixture of life at Caltech. And that a large percentage of you will find it a home away from your home away from home. Upperclassmen need no convincing of the psychological and physical value of the Coffeehouse, and in fact very few upperclassmen will even read this.

After a few meals at the Greasy you too will be convinced that this antipousing house at the physical campus is truly the very pillar of life at Caltech. You will be even more convinced of the validity of this term at about 1 a.m. when, ravenous hungry from hours of travel, you will find yourself at the corner blue bird into the Temple of the Grill and are saved in the nick of time from the ravages of total starvation.

For less desperate situations the Coffeehouse is known far and wide as the repository of a comic book collection whose scope and magnitude are second only to that of Major Be-Zerkon. Similarly the managers play the music of their choice (and sometimes yours) over a powerful stereo.

The edible offerings encompass such delicacies as hambers and cheeseburgers (single and double), various soft drinks and coffee, tea, and hot chocolate; bagels; grilled cheese sand-

wiches; and various luncheonette fare which are imbued with a generous quality, is satisfying and inexpensive.

The coffeehouse hours last year were 9 p.m. to 2 a.m. daily and for want of any negative influence you can probably assume that they will be the same this year.
Your Student Government (Poor You)

by Simon Rapsnuzul

For every body of people collected together for a common cause, there are generally some sort of government, or ruling body. The government performs (supposedly) services for the people of that collection. For the students of California Institute of Technology, there is ASCITT, that infamous face of faces. Better known to the state of California since 1935 as the Associated Students of the California Institute of Technology, it has accomplished over its body of tight, stalwart stone faced students known as the ASCIT Board of Directors. Due to the lack of competence of any of the officers of the board, it was decided in the dark ages that each year there would be a fiasco to be known as the Elections, to be held sometime near the end of second term, to determine who the next unfortunate souls in the seat of infinite power would be. It also insured that there would be a BOD after 1939.

The Board of Directors consists of more than one person (sometimes). There is the all powerful president, who is to be looked upon with great awe as he sits in his bean bag, Tuborg, and cigarettes by his side. He gets to preside over board meetings, and talk with great figures in the Institute administration. Presently serving in this position is the ubiquitous Mark Johnson, complete with shades and motorcycle. The next position is that of (frontal lobe doctors) Vice-president. This unfortunate fellow gets to assist the president in his well meaning endeavors, and at the same time, is the Chairman of the Board of Control (BOC), which administers justice to the world. This office is now held by Bryan Jack, who only comes out of hiding after the winter has passed away, and there is plenty for all. At BOD meetings, he isn’t the only one who stares at the ceiling with two emots by his side.

Of course, there has to be a secretary, or else no one would remember what happened the last time they met. At meetings, he furiously writes, trying to get down everything everyone says that can be used for blackmail. He spends the rest of his time trying to put those notes into a publishable form for all posterity (and then some). Overworked, but diligent, Phil Mason does this job. He also gets to write letters to the real word, and read the ones that are going the other way. Greedily putting his hands on all of the money available within the confines of ASCIT, Dave Peisner is the Treasurer (of almost everything). He’s good at thinking up reasons for not doing anything (money).

Affairs, What Affairs?

The Degree of Academic Affairs is Bob Coleman. He performs the duty of preparing the teaching quality polls and is on the Educational Policies committee, and several faculty academic committees. The Director of Student Life, that great assistant organizer of things like social events, club programs, and other random jobs, is Bob Rutherford, who recently replaced Krueger, who replaced no one, (except, maybe himself).

And then there are the Directors-at-Large. These two indolent Sophomores really just do the random stuff for the BOD, like any of the President’s whims, and the Red Cross blood drive. Of one of them at the time of election must be a froh, so they are usually in the preparative stage. Paul Manis and Gary Wakai fill this position, and are doing fine, after their operations (frontal lobotomy). Typically Wakai is absent, and Manis mails over a beer, waiting for it to be dumped on.

BOD, IHC & YUCK

There are other offices which have no voting power, but are filled at the same time as those the BOD members. The Activities Chairman, Ed O’Reourke, is responsible for the movie program, (ASCIT) which costs something like 50 cents. These masterpieces of filming (?) are presented on Friday evenings, for the entertainment of all Techers in either Baxter or Rumo. BYOB

There are other offices which have no voting power, but are filled at the same time as those the BOD members. The Activities Chairman, Ed O’Reourke, is responsible for the movie program, (ASCIT) which costs something like 50 cents. These masterpieces of filming (?) are presented on Friday evenings, for the entertainment of all Techers in either Baxter or Rumo. The IHC chairman, Mac Marianti, heads the Interhouse Committee, which is composed of all the house presidents, and a secretary. The IHC is responsible for disputes over interhouse sports, and other things between houses.

The ASCIT Social Chairman has the most difficult job of all, that of forcing, yes, literally coercing Techers, to attend social events, where there might be anything from females to kites. Peter Beckman and Greg Simay are the driving force behind this game of hide and seek, poor souls. They get their first chance at this impossible job this term, and so . . . . . .

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The sight of bewildered Frosh wandering around asking questions of benign upperclassmen is nothing new. But one new twist occurs when the Frosh asks about the status of meals for this year. Even if the poor upperclassman remembers the long hassles at the end of last year, he probably doesn't remember or never knew the outcome.

The Food Service setup for Rotation Week is fairly straightforward. R& R (that's the new food service, by the way) has prepared a menu for the week that will become available shortly. The dinners will all be served in each house, waited, but each house will have to fund their own waiters (no, that's not covered in the $15.75 you are paying for the meal). The dinners in the South Complex will be at or around 6:30, and the South Houses will have to carry all of the stuff down from the North - the South kitchen will not be open. Dinners in the North will probably be 6:30 or a bit later.

Lunch and breakfast will be served in the North Complex, in Chandler and the north houses, Rotation Week and thereafter. They will be on a cash or meal ticket basis in both locations. After Rotation, it will be up to each house to arrange waited meals as they want them through R&R. R&R is currently putting together several different menu plans that the houses might want to try. They would be run roughly the same way the Rotation meals will be. That is, the house will have to hire waiters, clean up, and, in the case of the South Houses, bundle all the stuff down from the North. The preliminary consensus among presidents is that it might be a reasonable thing to try once or twice a week in spite of the hassle, especially in the North Houses.

The lack of a general food service for the student houses has caused some concern about food. Basically, the situation is this: food may be kept in a student's room, no food should be cooked in student's rooms. Lunch and breakfast will be served in the North Complex, in Chandler and the north houses.

Send Care Packages

by Doug McElroy

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Incidentally, when recently asked, R.W. Gang reported that the rule prohibiting cooking in the students' rooms will still be in effect and presumably will be enforced to some degree.

For further information, consult Mr. Tony Diek in Chandler, or your local house president.

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Middle Age Spread

A Bulge On the Sun?

The survival of Einstein’s theory of general relativity may depend on whether or not the sun has a bulging waistline.

This issue has become the center of intense controversy between scientists from Caltech and Princeton University. Other scientists throughout the country are avidly awaiting results because the validity of one of the most convincing tests of Einstein’s theory hinges on the outcome.

In the August 1 issue of the Astrophysical Journal, Andrew P. Ingersoll, associate professor of planetary science at Caltech, has used new data to press his case for the importance of faculae in causing the apparent out-of-roundness in the sun—a position supporting the validity of Einstein’s theory. His paper is co-authored by Gary A. Chapman of the San Fernando Observatory of the Aerospace Corporation Space Physics Laboratory.

Ingersoll’s opponents in the debate, Drs. Robert Dicke and H. M. Goldenberg of Princeton University, contend that their data show Einstein’s theory to be flawed.

Relativity

It is Einstein’s theory of gravity that is at the center of their debate. Einstein proposed his theory in 1916 and scientists eagerly accepted it—in part because it explained something they had been unable to explain before: the strange behavior of the planet Mercury at its perihelion.

Each time Mercury goes around the sun, the perihelion point shifts by a small (but regular) amount. Newton’s theory of gravity couldn’t explain why this shift occurred. Einstein’s theory explained it—and accounted for the exact amount of change in Mercury’s orbit that astronomers had observed.

Challenge

In 1966, Dicke and Goldenberg presented a serious challenge to Einstein’s theory. They asserted that the sun bulged abnormally around the equator—and that this bulge was considerably greater than what its own rotation should cause.

The conclusion was that if the sun’s shape was distorted, then its gravitational field would be distorted enough to account for the shift in Mercury’s orbit, and thus to create a flaw in Einstein’s picture of the universe.

But Ingersoll and Chapman believe that Dicke and Goldenberg have misinterpreted their data. They claim that much or all of the extra brightness around the sun’s middle may be due to bright patches of light called faculae.

These bright spots are concentrated around the equatorial regions—never at its poles—and are visible only at the edge of the solar disk: the same region where Dicke and Goldenberg’s observations apply.

If Ingersoll and Chapman are correct, then the difference in brightness has little or nothing to do with the gravity field of the sun.

In their current paper, Ingersoll and Chapman base their conclusions on Dicke’s day-to-day observations concerning the amount of light around the edge of the sun—data that had not been available in this form until it was published in Dicke’s most recent paper. These data cover sixty-four days of observation.

Based on this information, Ingersoll and Chapman conclude that from forty to one hundred percent of the extra thickness observed by Dicke around the sun’s equator is caused by faculae. Dicke contends that the faculae are only responsible for ten percent.

For Einstein

Ingersoll maintains that even if the theory proves to be flawed Einstein’s reputation will remain undiminished. “Einstein’s reputation is based on the enormous change that his interpretation of gravity made on scientific understanding and the step forward that he provided in our conceptual view of the universe—not on whether his theory was absolutely correct.”

“Scientific insight never ceases to grow, and most theories in time are superseded by those that are more precise.”

Ingersoll feels that one of his most useful contributions in this controversy has been to help motivate the design of experiments by other scientists.

It may be several years before better results are available. Until then, the controversy will continue—part of the scientific process that may ultimately lead to a better understanding of the universe in which we live.

Continued from Page One

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THE CLEAN AIR CAR PROJECT begins its 1974 season this year. If you have an interest in what may be going on, contact Janet Wainwright or Robert Cowan or anyone else connected with the CACP.

The report cited bonus and tax incentives aimed at increasing the number of owners of vehicles that consume fuel efficiently. The same incentives could be applied to stimulating the building of energy-conserving living units.

Fuel Problem
Continued from Page Seven
tive effects on required energy imports “it would seem desirable to encourage diversity in domestic energy sources,” the report pointed out. “The cost of this diversity may be less than the cost of increased imports that would be incurred if the available range of domestic energy sources were too narrow, and some of these sources failed to come up to expectation....”

Almost all recent energy studies agree that the unit price of energy in all forms is bound to increase substantially over the next decade or two. But increases in unit price may not be sufficient to reduce the rate of growth in energy demand in a timely fashion because they affect operating costs much more strongly than ‘first costs’, and because of well-known time lags in response to price changes.”

The report cited bonus and tax incentives aimed at increasing the number of owners of vehicles that consume fuel efficiently. The same incentives could be applied to stimulating the building of energy-conserving living units.

Octagon
by Ann Orel
Returning students were confronted with a new structure located in front of Firestone. The construction was bigger than a breadbox, smaller than a building, and had a unique shape that’s usually reserved for stop signs. This shape gave it its popular name: The Octagon.

The Octagon is a sculpture by Tony de Lapi. Its purchase was arranged by the Caltech Art Committee and Dr. David R. Smith. Another sculpture by Aldo Cusanoval will arrive soon, and will be installed on campus. The Committee plans to purchase several more constructions to be placed in appropriate areas.

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Track and Cross Country
A Coach For All Seasons

Leroy Neal, 32, who has had experience coaching and as an exercise physiologist at Cal State San Diego, has become the new head coach for track and cross-country at Caltech.

"Caltech is fortunate to find a young coach with Leroy's experience and enthusiasm for track and cross-country to replace Bert La Brucherie," Warren Emery, Caltech Athletic Director said. "His success as a middle distance runner during high school, junior college and at Occidental College speaks for itself."

"I am confident his enthusiasm will be contagious not only for the Caltech students, but also for the faculty and staff. He will be our first full-time trainer, and I am certain his knowledge in this area will benefit our whole athletic program."

Neal, who completed his master's degree in physical education last year at Cal State San Diego, has coached at Pater Noster High School in Los Angeles and at South Pasadena High. He also coached the San Diego Track Club and served as a graduate assistant for two years at Cal State San Diego. He was an exercise physiologist for Los Angeles County for two years and, in the exercise physiology laboratory at Cal State San Diego for the same length of time. He was in the Marine Corps three years, advancing to the rank of captain.

While at Oxy, Neal set a school and SCIAC mark of 4:05.4 in the mile in 1963, ran the half-mile in 1:49.8 and was SCIAC titlist with a mark of 9:18.2 in the two-mile. At Fullerton Junior College he was state J.C. champion in the 880 in 1960, setting a national J.C. mark of 1:57.7. The following year he was California state champion in the mile. He won several middle distance titles while at Fullerton High School.

Coach Gutman Says...

"We Want Your Bods!!!"

by Bob Kirkchefer

While freshmen have been on camping trips and upperclassmen have been sleeping, the past ten days have seen a select few Techers working out on the four fall athletic teams. With the exception of one team, the results have been the same: the select few are now in shape, but the teams NEED MORE BODIES.

Coach Leroy Neal reports that the cross country team, which lost nobody by graduation, has had a good turnout of freshmen, five at last count. Tech's other new coach, Ed Spencer, has not been so lucky, as the water polo team coach, Ed Spencer, has not been so lucky, as the water polo team currently has nine swimmers, five of whom have been on campus for the full ten days.

They only Need Eleven
The soccer and football teams are most hard-pressed for bodies.

Both teams need eleven players to play a game, and at last report each team had, well, eleven. If we're to have any bonfires this year, we'll probably need more than eleven men on the football team!

So, freshmen, it should be trivially obvious that Caltech's athletic teams offer great opportunities for advancement, exercise, fulfilling the PE requirement, and even fun. Most of Tech's varsity athletes have had little or no high school experience, so don't be bashful.

Competition begins minutes after return from freshmen camp, when soccer takes on Arizona-Pacific at Tournament Park (just north of the gym). The other teams have their first games next week -- see the sports menu for details.