

Brown Inauguration Today

by Paul Levin

Today the Caltech community will experience a very rare event: the inauguration of a new President. Only one other inauguration has occurred in the history of the school, that of Lee A. DuBridge, and that didn't even happen on campus.

The One and Only

Since Robert Millikan refused the title of president, DuBridge's inauguration on November 11, 1946, is the only precedent for today's activities. Since rain was a definite possibility at that time of the year, all planning was made for an in-doors ceremony at the Pasadena Civic Auditorium (at Green and Garfield Streets) because Caltech had no large auditorium. This planning was justified; it was really pouring that day. As it was, 1500 people showed up and forty-four schools were represented at the ceremony. Officials from the City and County of Los Angeles and from the U.S. Armed Forces were present, too. The principal speaker of the afternoon was Karl T. Compton, then the President of the Massachusetts Institute of Technology.

Today's event has been in the planning stage for several months. The ceremony is to begin at 10:00 a.m. at the Beckman Mall, but it might be advisable to get there a little earlier (say 9:00 or 9:30). While there will be 4526 seats, the latest attendance estimate is 4653. That figure has got to be low; only 205 students are expected. (This number was scientifically arrived at; they counted the cards the students filled out at registration.) In order to accommodate this many people, the seats will extend from the steps of Beckman to San Pasqual Street. Anyone sitting at the back would be advised to bring a pair of binoculars with him.

You Can't Get 'Em Up

Activity started bright and early this morning with a breakfast in Chandler for the student car parkers, the guides and hosts. There they were instructed by Bill Bradley, the ASCIT Social Chairman and the person in charge of the student workers. Since these people will be working right up to the time of the inauguration, they will have reserved seats—good ones, too.

The faculty greeters, approx-

imately one for every ten official guests, also started early. They have to sort out those people who will be in the procession and send them over to Keck to be robed. All others must be ushered to their seats. In Keck over two dozen are working to make sure that everything is set for the Procession. In order to keep these gentlemen from starving there is (or at least was) a large supply of coffee and donuts. Even the donuts are special: non-sticky types so that the robes will remain clean.

The event itself will begin with a procession which will include 204 representatives from other schools and institutions. Since it is traditional for the representatives of the older schools to go first, this part of the procession will be led by Mr. P. H. J. Lloyd-Jones, a professor of Greek at Berkley, who will represent Oxford (12th century). Following him will come the representative from Harvard (1636), and at the end will come the representative of Moorpark College (1967).

Aesthetic Ecstasy

All of this will be accompanied by the music of the Caltech Band, playing "March Processional" by Nino Marcelli, "Grand Processional" by Don Haddad, and "March from the Consecration of the House" by Beethoven. At the conclusion of the ceremony the band will also play "Royal Pageantry" by Albert D. Davis and "Academic Procession" by Clifton Williams.

Following the Procession the Caltech Glee Club will "render" (so reads a preliminary program) the National Anthem. With the help of a brass ensemble they will later perform "Thy Will Be Done" by Paul Nelson, words by John Hay. This very difficult piece was commissioned by the Brown University Glee Club on the occasion of that school's 200th anniversary. In order to have the piece learned in time, the Glee Club spent almost the entire weekend after classes began up in the San Bernardino Mountains for their First Annual Repertory Camp.

Friends, Romans, Countrymen, Etc.

Next come the speeches, and more speeches, and still more. After an invocation from Reverend S. J. Merrifield and some opening remarks by Dr. A. O. Beckman, Dr. DuBridge, representing President

Nixon, will speak. Then, following in (hopefully) rapid succession will be greetings from Lt. Governor Reinecke, Los Angeles County Supervisor Warren Dorn, Pasadena's Mayor C. Bernard Cooper, and, representing the academic community, Dr. Howard Johnson, the President of MIT.

After this will be greetings from the Institute. Dr. Robert Christy, the Faculty Board Chairman, will speak first, followed by ASCIT President Stephen Horner, Mr. Richard Nielson of the Graduate Student Council, and Mr. Craig T. Elliot of the Alumni Association. Dr. DuBridge will then speak again, this time in the capacity as a former Institute President.

Now Down to Business

After the Glee Club interlude the ceremony of investiture will take place. Dr. Beckman and Mr. Norman Chandler will preside over this. Mr. Thomas J. Watson, Jr. will then introduce the new President and then Harold Brown himself will get to say something. Following this Dr. Beckman will make some closing remarks and Reverend Merrifield will give a Benediction.

Following this there will be a luncheon at the Athenaeum for about 700 people, quite a crowd, considering that the place normally handles 400. In fact, it will require eleven closed-circuit televisions to make sure that all of the guests can see and hear the speaker. The staff will just barely have recovered from this when it will be time (4:00 p.m.) for the faculty reception.

Long about six it will be time for student-run Twilight Buffet and afterwards *Harper's Bizarre*.

And What If . . .

Even though the Faculty Convocations Committee has gambled on an outdoor performance, a detailed rain plan does exist. As might be expected, the proceedings would take place inside Beckman, leaving 3400 people outside. Anyone who wished to (up to eight hundred) could listen to the proceedings in Dabney Lounge, Culbertson Hall, or 22 Gates. This would also necessitate moving the Candlelight Buffet into Chandler and several student houses. A canopy would be erected to shelter the robed delegates on their way between Keck and Beckman.

NOW LET'S ALL HOPE IT ISN'T RAINING!



Dr. Harold Brown today becomes the third chief administrative official in Caltech's history, succeeding Robert A. Millikan and Lee A. DuBridge.

Beckman Gets Ticketron

Have you been wondering what the reason behind those funny-looking tickets coming out of Beckman Ticket Office these days is? The strange Ticketron tickets are a new service to the Caltech community. There are several advantages to the new system. First, you get the tickets immediately—no standing in will-call or box-office lines. Secondly, you get the best seats available for the price at the time that you ask for them. Also, when you are ordering tickets for events at Beckman Auditorium, you can specify any seat or seats that are unsold, if you prefer. Finally, you can get tickets for almost fifty different attractions in Southern California.

Among the events on the TICKETRON System are "Hair," the Dodgers (in season, of course!), Olympic Auditorium (Roller Derby Games, Boxing, and Wrestling), Coconut Grove, The Forum in Inglewood (Lakers basketball, etc.), some UCLA Theatre events, as well

as all Beckman events. Tickets for all these events are available in person or by mail, and can be paid with check or cash. Beckman Ticket Office will also accept Mastercharge or BankAmericard. There is a service charge on all non-Caltech events of 25 cents per ticket, up to one dollar per event (for a couple, this is cheaper than Mutual). The service charge is eaten by the TRS/TICKETRON computer in Beverly Hills.

Beckman Auditorium Ticket Office is still a Mutual Theatre Ticket Agency outlet, and handles tickets to the Music Center, Shrine Auditorium, Greek Theatre, Pacific Cinerama, and Angel Stadium, among others. The charge for a Mutual Ticket order is 75 cents per event. Also, you must pick up tickets ordered through Mutual at the will-call window at the performance.

So, next time you wander by Beckman, walk in and see the computer at work . . . maybe even buy a ticket or two!

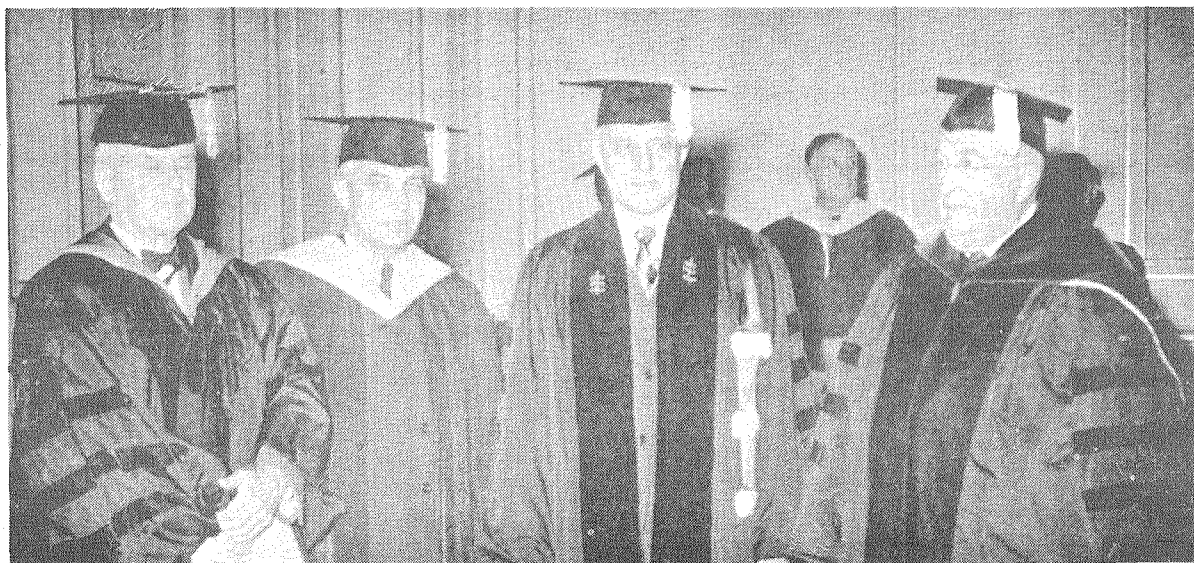
The Great Electric Car Race II

Plans for a trans-continental race of low pollution cars are now being made by engineers at Cornell, MIT, and Caltech. Scheduled for September of 1970, the race hopes to be more broadly based than the 1968 Electric Car Race. Entry will be open to any university sponsored car employing "novel means of propulsion, control, or construction" to substantially lower pollution levels due to automobiles. To permit competition between a wide spectrum of vehicles, there will be no unique winner. Instead winners will be announced in several categories such as Transcontinental

Time, Minimum Pollution, and Performance.

At the present time, Cornell plans to enter Wally Rippel with an improved version of his Electric VW Bus which narrowly edged out MIT in '68. MIT is working on a hybrid car which will carry a small internal combustion engine for non-urban area recharging of its batteries. Caltech participants, who do not yet have a car, indicate that they will pin their hopes on modifying an internal combustion engine to make it suitable for the race (or vice-versa).

Please turn to page eight



Participating in Caltech's only other inauguration are Robert A. Millikan, Lee A. DuBridge, Karl T. Compton, and James R. Page.

LETTERS

More On Moratorium

Dear Sirs:

On October 15, last Wednesday, what I believe to be a dangerous precedent for education at Tech was set. It was not set maliciously—those who asked for and got a no-attendance-taken policy on Wednesday wanted the day set aside in a sincere gesture of political opposition to Administration policies. But did their opposition, no matter how honest, entitle them to cripple the teaching process for even one day?

By getting the decision on tests and attendance that they did, those who organized the Moratorium here placed great pressure on instructors to teach effectively nothing on that day. No tests could be given and students could not be held responsible for things taught on that day. It was an effective paid holiday for Institute teaching, the implication being that the Moratorium was more important than the class material.

Was that so for all of us? Did we all pay over \$28 for one day at Tech to hear the "Dogsh-t Blues Band," or build an obscure "monument" in front of Winnett, or hear a group of speakers, at least one of whom urged us to "get rid of your draft cards," an illegal act? If you felt that these things were worth your \$28+, that is *your* decision. But it was not *my* decision. Somehow an apparent majority made up their minds that

it was worth my \$28, too. Shall that majority make up its mind that tomorrow is a fit day for me and others of my beliefs to spend another day celebrating Ho's birthday, or Che Guevera's? I fear that they might, and I do not want their idea of a "relevant" education rammed down my throat repeatedly.

Once was enough.

—Terrence Jay O'Neil

Christy Disputes
Figures in
Sarazin Editorial

Dear Sirs:

I regret that your editorial of October 23 stated, "The women will be admitted in addition to the regular male admissions." In fact, this will be considered by the faculty at the next faculty board meeting and the administration proposal on the number to be admitted is subject to ratification by the faculty. Further, the proposal sets a ceiling of 220-225 freshmen which is not 25 more than this year but 9 to 14 more than this year. The faculty needs student views in determining policy on questions of this kind and welcomes the advice of the students, individually and through their elected governments.

—R. F. Christy

Chairman of the Faculty

Throop Lives On!

Problems Worked Over

by Etaoin Schroedlu

Did you know that there is an Institute committee on the Selective Service System now? It is chaired by Dr. Ireland in Chem and includes two grad students and one undergrad, Bernard Unger from Lloyd. This committee has already recommended that the Institute obtain professional counseling help for those who feel in need of it. . . This is now being done. Peter Marx, Hollywood resident who has been through the mill and can tell you all about it. [sic] Mr. Marx is currently holding evening sessions on the first and third Tuesday of every month in 151 Crellin. Stop by and rap with him on your own problems. There is a special session on December 2 on the problems of the graduating seniors in particular.

Lyman Bonner thinks that all classes on Inauguration Day should be cancelled. . . The situation with female admissions is still up in the air. No one knows exactly what will come out or who will come in. The Admissions Office has been working on publicity. . . Apparently the Institute feels that \$7500 per room will be enough to replumb, rewire,

paint, and generally renovate the Old House rooms in which the girls will be placed next year. Let's hear a good laugh on that one. . . At least the Institute is admitting that old house rooms are less than entirely habitable.

Dr. Peter Miller, Dean of Admissions, reports that early scanning of Early Decision applications indicates no significant difference from last year in number and quality of applications. Decisions on early admission will be made in November. . .

The Admissions Committee is meeting next week. One topic on the agenda will be the requests of schools in nearby minority districts to have us send representatives to explain to them our Minority Admissions Program, and sounding out Committee members on doing this. Probably there will only be information transfer from such representatives, not commitments. . . Dr. Miller is keeping busy answering "coy" letters from female writers who claim to be interested in admission, as biochemists or astrophysicists or something. What kind of wenches want to go here, anyway?

EDITORIAL POLICY

The opinions expressed herein are solely those of the writers under whose by-line they appear. Only the upper left hand portion of this page represents the editorial opinion of the CALIFORNIA TECH and the undersigned writers. All letters received by 6:00 p.m. Monday evening will be considered for publication on a FIRST COME, FIRST SERVED basis; the CALIFORNIA TECH reserves the right to cut letters to a maximum length of 300 words if the context of the letter can be preserved. We disclaim all responsibility for errors in editing, printing, or timing of the letters received and/or printed. Letters received from off-campus as well as all stories will not be returned.

—The Editors

HONOR SYSTEM

Security Officers Defended

by Carroll Boswell

About three weeks ago I wrote an article on the Security Officers at Caltech. I had intended to follow it up immediately but it has taken longer than I expected.

The letter by Mr. Szolovits in the *Tech* two weeks ago said many things I would like to clarify. Mr. Szolovits seems to me to be taking a limited view of the Honor System as a whole. He seems to be saying that the Honor System is a method of establishing good relationships within Caltech.

However, the Honor System is *not* simply a way students relate to each other or to the faculty. It is not a Caltech concern which is concerned mainly with Caltech. If the Honor System is to survive at all, it must be virtually a way of life, on campus and off; it must be a way of relating to the outside world as well as to Caltech itself.

A World Alone

There was a time when Caltech was a world in itself. This is no longer true. We have a completely open campus. Caltech can never again withdraw into itself. Therefore it is long past the time for expanding the Honor System to include non-Caltech dealings.

I intend to write about only one facet of this problem now, the security officers. The function of the security officers is essentially to protect Caltech. (Remember, the "outside" world is not run on the Honor System.) So read the statistics on crime at Caltech.

For example, the value of thefts from students on the Caltech campus has doubled in the last year. The rate of these thefts vary from month to month, the highest point being around April. Last April, \$2,709 worth of goods were stolen

from students on the Caltech campus that were reported. A good month is one in which this value is less than \$500. In the first two weeks of this October, \$565 was stolen from students. The rate of thefts from the Institute has fallen below that of the students several times. Even this last summer, in August, students on campus lost about \$2000.

So now the security officers can not wear guns during the day. What will be next? We seem to be so concerned about a hypothetical police "image", that it overrides our concern for the survival of the Honor System. Ask a security officer how not having a gun affects his performance in the day. Ask a security officer how seven to ten of them can adequately protect Caltech 24 hours a day, seven days a week.

No Longer Safe

It is no longer safe to leave your room unlocked when you leave if you live near a door to a student house. This can only breed distrust for all the "outsiders" coming into Caltech. From there, it is only a small step to distrusting the guys in the nearby houses. The Honor System can not possibly survive under those conditions. There are very few statistics on how much of the thefts are done by non-students.

The head of the security department, Mr. Ken Charles, has asked me to issue an invitation to anyone who has questions, to come and talk with him about them. He also asked me to express public thanks to Blacker House for the dinner on October 23 and the talk afterward.

Finally, I would like to say that I'm writing these articles specifically because I do not want to be "the coroner of the Honor System." Nor do I want anyone to do that job.

Teamsters Try to Organize B & G

Claiming that they are underpaid and have no voice in determining their working conditions, a group of Physical Plant tradesmen have begun a drive to unionize the Physical Plant shops under the International Brotherhood of Teamsters.

The drive is being run by the Teamster's Caltech Physical Plant Organizing Committee, with Virgil Farnsworth, a carpenter, as chairman. The unionization drive began with the following letter, dated July 22, 1969:

Dr. Lee A. DuBridg, President [sic]
California Institute of Technology
1201 E. California
Pasadena, California

Dear Sir:

Please be advised that the following listed employees of your organization are members of the Teamsters Cal Tech Physical Plant Organizing Committee and shall

perform acts in accordance with their legal rights in an effort to demonstrate to concerned persons the desire of the Teamsters Union to provide appropriate representation:

Virgil E. Farnsworth—Chairman
George Sopko
Jimmie Childress
Henry F. Englyng
Milburn Hirschman
Frank Wheeler
Reuel Oertle
Parvin Harpster
Ronald Kibbee
Monroe Kirkpatrick

This Committee's objectives shall be concentrated among employees classified as: Electrician, plumber, carpenter, laborer, heat & vent, paint shop, grounds and heavy equipment.

We further request that your firm post copies of this communication on employee bulletin boards

Please turn to page seven

Occidental College Homecoming Concert

The Sunshine Company,
featuring Steve Martin
November 8, 8:15 p.m.
Thorne Hall.

Tickets \$2.00 \$3.00
All seats reserved.

For information please write
Oxy Student Information Center
1600 Campus Rd.
Los Angeles, CA 90041
or phone 255-2547

Without Respect
To Sex....

by Etaoin Schroedlu

Last week it was reported in the *Tech* that the admission of women will be made in addition to the regular male quotas. This release was premature. The final decision on the goals for distribution has not been made (see the letter from Dr. Christy in this issue), but will certainly not be anything like an addition of 25 over this year's admissions.

In session on Monday, the Admissions Committee briefly discussed the situation. At the moment, the Committee is waiting for official word from the faculty on what the number of total admissions to aim for next year is, and hopes that the faculty will agree to a goal of about 220 or 225 frosh each year (the current number runs about 210). Current space limitations will place an upper limit on the number of girls admitted the first year, probably to 25 or so, but up to this number the Committee will admit qualified girls, on normal admissions standards, without respect to sex.

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Paul A. Harmon

The
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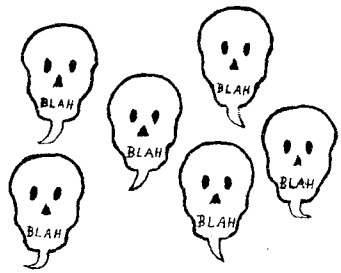
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**Dan O'Neill
D
BODKINS**

TALK IS CHEAP



Is That Where I Said I Lived?

by Larry Goldman

Did your job acceptance arrive on campus three weeks late, two weeks after you told your "boss" where to go? Did Aunt Jane's cookies taste like concrete because they too were way past due? If these are your problems, cheer up, they're shared by many on campus. Just don't make any bets that they're the fault of the Caltech mailroom.

This receiver and sender of good and bad news is located in the Business Services Building on California near Wilson. They annually handle some three million pieces of mail, going to and coming from the furthest extremes of the Tech campus. And contrary to popular belief they make few blunders.

Headache Houses

The mailroom's biggest headache tends to be the students houses (isn't everyone's?). Mr. Paul Bradford, the mail room supervisor, said that he cannot overemphasize the importance of using the correct addresses provided for students which are posted in each house. In

general, the address should be:

Your Name
c/o Your house - CIT
1301 E. California Blvd.
Pasadena, Calif. 91109.

Another problem tends to be that of individuals who change their address without informing the mail room. Freshmen are particularly susceptible to such problems due to Rotation. Crafty alumni also use this dodge to avoid their regular Tech bulletins and requests for support. Should you desire to inform the mail room of your new address, you need only walk over there and fill out a pink change-of-address form.

A Real Operation!

Regular operations in the mail room do run smoothly six days a week. The mail comes in at 7:00 a.m. each morning from the Pasadena Post Office. A staff of eleven full-time mail room operators and a "talented crew of student help provide daily mail service for the Institute," according to Mr. Bradford. This crew sorts the mail according to its route designation and ultimate destination. It is then

delivered in two trips around campus by Phil Schieldge, once in the morning and again in the early afternoon. Outgoing mail is taken to the post office at 12:00 and 4:00 on weekday afternoons. Only one pickup and delivery is made on Saturday.

Pride And Prejudice

The mail room itself is something of which to be proud. A group from UCLA recently expressed some wistful jealousy about its operations. On hand are an addressograph, a device for printing up those "personal" labels everyone at Tech receives on his envelopes from the Institute; and a Bell and Howell processor which stuffs, seals, and stamps up to ten thousand envelopes per run. These devices are indeed impressive.

Finally there is a post office adjoining the mail room on the west side of the building. If you have any complaints or comments about the mail room you are advised to contact Mr. Bradford at ext. 2371, or Mr. Schieldge, your "contact for any complaints or tips at Christmastime."



—Photo by Bean

One of many artists(?) demonstrates his talent at the Inaugural Paint-In last Saturday.

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NOTICES

<p>ZAJAC! Paintings by Corda Zajac and sculpture by Jack Zajac are on exhibit in Dabney Hall now thru November 14. The exhibition is open from 9 to 5 weekdays and until noon Saturdays. No admission charge.</p>	<p>FRISBEE MEETING Organizational meeting at 2 o'clock Friday in Winnett Lounge. Send somebody if you can't make it or contact Ric Lohman in the O.C. Box in Ricketts. BRING FRIENDS. Grads, faculty, girls, etc., welcome.</p>
<p>EPC POLL ON THE PE REQUIREMENT EPC House Reps. will be conducting a poll on the PE requirement starting Monday, November 3. Off-campus students can vote either in the houses or at Louise Hood's office.</p>	<p>REACTIVATION: ACTIVITIES COMMITTEE Help plan and promote activities at Tech. Needed are at least one person per house, plus off-campus people. Contact Marc Aaronson, Ru or Mike Stefanko, 798-4536.</p>
<p>JEWISH SERVICES ORGANIZING Jewish faculty and students interested in holding Saturday morning services on campus should contact Larry Goldman, 107 Page. We'll need a minyon (10 men).</p>	<p>GENERATED NOTICES There are those who complain of space filler and those who worship it. The Tech is running a poll. Verify our assumption about your opinion. Write a notice!</p>

**THIS YEAR IT'S
EASY RIDER!**

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Starring **PETER FONDA · DENNIS HOPPER**
JACK NICHOLSON · COLOR · Released by COLUMBIA PICTURES

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<p>HOLLYWOOD, FOX THEATRE—463-2184</p>	<p>VAN NUYS, VAN NUYS DRIVE-IN—786-7510</p>
<p>ENCINO, ENCINO THEATRE—784-8233</p>	<p>COMPTON, COMPTON DRIVE-IN—638-8557</p>
<p>REDONDO BEACH LOEW'S SOUTH BAY 1—371-8131</p>	<p>INGLEWOOD, CENTURY DRIVE-IN—673-1824</p>
<p>ANAHEIM, LOEW'S CENTURY 21—772-8902</p>	<p>SANTA ANA, ORANGE DRIVE-IN—547-6011</p>

End of Laugh-In In Sight

by Bruce Reznick

All signs point to the demise of Laugh-In, possibly as soon as next fall. This startling observation is the only conclusion which can be drawn by several recent events. First, and, by far, most importantly, Paul W. Keyes, head writer, and producer, resigned last week in protest of what he called "Laugh-In's vulgarity and slantedness." The importance of Keyes' departure can not be over-estimated. In addition to the obvious decline in morale, Laugh-In will lose a needed balancing voice, and great influence in Washington. Paul Keyes is a conservative whose viewpoints have kept Laugh-In from swinging so far to the left as to lose a great part of its audience. (Contrary to popular belief, the Smothers Brothers were axed because their ratings had slipped to the point where their opinion needed no longer to be tolerated by the CBS brass.) Paul Keyes was also

a very close friend of President Nixon and was at one time rumored to be in line for a post with the FCC. Undoubtedly Keyes' influence kept Laugh-In from being harmed by the Pastore investigations.

In addition to the Keyes' departure, several other key performers have already left, and several others are indicating a readiness to leave. Dave Madden, Dick Whittinghill, and Chelsea Brown are already gone; and Judy Carne is not filming any more episodes. Arte Johnson is preparing his own show for January; Jo Anne Worley is dusting off her old night club act. (She has already appeared on Ed Sullivan.) Finally, Goldie Hawn has made "Cactus Flower" with Walter Matthau and Ingrid Bergman, to be released in December, and is now asking \$150,000 (!) for her next film. These are the hay bales in the wind which indicate to me that the days of Laugh-In are numbered.



Greek songstress and balladeer Nana Mouskouri will entertain in Beckman Auditorium on Wednesday, December 3 at 8:30 p.m. A Belafonte "discovery," the talented Nana will be accompanied by a combo called The Athenians. For ticket information, call ext. 1653 or 793-7043.

Cronyn, Hadrian VII Now in L.A.

HADRIAN VII, starring Hume Cronyn, is now playing at the Ahmanson Theatre, the Music Center, at 8:30. The play, arriving from a 5½ week engagement in Chicago, will continue at the Ahmanson thru Saturday, November 22. A current success in both London and New York, HADRIAN VII will go on from Los Angeles on a national tour continuing until May 30th.

HADRIAN VII is an imagined "success story," a dramatization of a novel by Frederick William Rolfe detailing the honored career he longed for but never achieved. Denied realization of his dearest ambition—priesthood—Rolfe consoled himself with a fictional life in the church which carried him to the supreme office of the Papacy. Though driven by personal torments to write the novel, Rolfe nevertheless kept it relatively free of vengeance and, indeed, gave it a

sparkle of wit and gaiety. Peter Luke, who dramatized the novel, has given the play a rich content of comedy.

To Be Or Not To Be

Players in support of Mr. Cronyn, who were recruited largely from the Stratford Festival Company, include Malcolm Armstrong, Margaret Braidwood, Paul Craig, Donald Ewer, Louis Guss, Amelia Hall, Paul Harding, John Maddison, Edward McPhillips, P. L. Pfeiffer, and Jack Saunders. The play was directed by Jean Gascon. Robert Fletcher designed the settings and costumes and the lighting is by Lloyd Burlingame. The play is presented by Lester Osterman Productions, Bill Freedman, and Charles Kasher.

Evening performances are at 8:30 and the Thursday and Saturday matinees at 2:30. For ticket information, call 626-7211.



Neil (Richard Benjamin) and Brenda (Ali MacGraw) shower after making love, when Brenda informs him that she never uses any form of contraception in this scene from "Goodbye, Columbus."

You DON'T???

by Phil Neches

"Every father's daughter is a virgin" proclaims the subtitle to *Goodbye, Columbus* but Philip Roth, the author of the novella from which the film was made, knows differently. *Goodbye, Columbus* deals with the foibles of the Jewish nouveau riches. All of the sub-stereotypes can be found in it: the over-eaters, the fawners, and all of the rest.

Goodbye, Columbus amalgamates the snide comments Jews make about one another into a single film. Every character in the movie probably has dozens of equivalents in reality, but the entire atmosphere of the film neglects the positive things people can do: the characters, or many of them, are little more than stereotypes which one sees and then says, "How gross."

The film is also wildly funny in parts, sardonic in others, and

blackly farcical in still others. Sometimes, it seems that Roth's humor resorts to the broadsword when it should use the rapier.

Goodbye, Columbus will soon be released for general distribution after a long and successful exclusive run at the Crest Theater in Westwood.

THE MUSEUM
103 SO. FAIR OAKS
PASADENA



THE MUSEUM is an international folk dance cafe in Pasadena that encourages the pleasures of ethnic dance and music. The most esoteric requests can be filled, while the more common joys are sensitively provided for: meeting friends, playing chess or backgammon in the patio, or simply mending frayed nerve ends over a cup of coffee. The mood is casual, the people are warm and enthusiastic.

an international folk dance cafe
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Civic Auditorium
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November 6, 7, 8.
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NOTICE

Under the new bill which is being considered by Governor Reagan, stating that Topless - Semi Nudity - Complete Nudity entertainment will be left up to the adult people of the community, The HI LIFE (1758 E. Colorado) is now conducting a poll to find out what the adult people of Pasadena want to see as entertainment.

We would like you to express your opinion by voting at our Private Ballot Box at the Hi Life. Then we will be able to give you the type of entertainment you want without offending anyone.

All Three Types of Entertainment are being shown daily to help you decide the type of entertainment you want, thank you.

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INTERVIEWS ON CAMPUS

NOVEMBER 6, 1969

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Jennings Lectures At Beckman

Last Monday, at Beckman Auditorium, Dr. Paul C. Jennings of Caltech, an internationally known expert on earthquake engineering, gave another lecture in the Monday evening series, entitled, "Earthquakes and Tall Buildings." According to Dr. Jennings, tall buildings are not as great earthquake hazards as are generally believed. Much research has been done into the effects of earthquake stress on buildings of more than 30 stories, research which is hampered by the lack of much actual data. Known and simulated earthquake stress patterns are placed upon a computer and acted upon models of known buildings. Buildings are designed to withstand completely only earthquakes of a size which can be expected several times during the life of the structure. For the extraordinary quake, minor non-structural damage is allowed. In actual practice, wind stress can be twice as great as proposed earthquakes. In conclusion, Dr. Jennings said that tall buildings are generally safe in this section, the greatest danger being small buildings build before the code was established.



As a continuation of the Inaugural festivities, Harper's Bizarre, shown above, will invade Beckman tonight at 8:30.

by Pearl Fles

A contemporary sound comes to Caltech's Beckman Auditorium on Thursday, October 30, beginning at 8:30 p.m. Four young men with a lot of musical talent and calling themselves The Harpers Bizarre, will sound off with some early rock hits and then move into the "soft rock" sound which the group made so popular.

The Harpers Bizarre, comprising

Ted Templeman (lead singer), Dick Scopettone (lead singer), Dick Yount (bass guitar) and John Petersen (drums), shot into the national charts with their first record "59th Street Bridge Song" in January, 1967, and have not stopped since. This West Coast group has gone out on a limb for good contemporary music with a softer sound, and they have made it successful.

MAD Strategy?

Reprinted from *Ramparts*,
by John Raser

For more than twenty years, the U.S. and the Soviet Union have been trying to outdo each other in piling up more and bigger nuclear weapons against which there is no defense. Their military strategy has been grounded in defense by "deterrence." The name of this modern military game is the "Mutual Assured Destruction" or MAD strategy.

As some defense scientists have had the wisdom to point out, "the dilemma of steadily increasing military power and steadily decreasing security... has no technical solution." After spending the incredible sum of \$1,300,000,000,000 and diverting incalculable human and physical resources to "defense," the nuclear powers are less secure against catastrophe with every passing year.

Technical Solution

But the dream of a technical solution dies hard. A few years ago it was the fallout-shelter; today it is the ABM. According to all the available evidence, an ABM system capable of meaningful protection is pure myth. But even if it were a deterrent to nuclear aggression, it would only be the beginning—not the end—of an even more self-defeating arms race. For the means of circumventing any nuclear defense already exist.

Although nuclear arms hold center stage today, more novel and malignant weapons are waiting in the wings—CBW and soon geophysical, "environment wrecking" methods of warfare. The existence of true nuclear invulnerability would almost certainly make open warfare, forthright threat and "deterrence," instantly obsolete; but military strategy could then be based on silent, subtle techniques of subjugation. The bomb could be superseded by the aerosol spray, missiles replaced by weapons modeled on natural catastrophe. A vast new terrain, only scouted as yet, could then be justifiably explored by the "strategic calculators," the thinkers-about-the-unthinkable. It is highly likely that an effective ABM, far from insuring our survival, would usher in a nightmare era of stealthy, intangible, and psychologically devastating horror, a milieu of international paranoia, for it would

be impossible to know whether drought, flood, famine, and pestilence were acts of God or acts of man.

Defoliate Mace!

Napalm, defoliants, tear-gas and Mace, are already household words; all have been extensively used in Viet-Nam and on thousands of Americans in ghettos and on campuses, in the streets of Chicago, Berkeley, and Beverly Hills. The more lethal "toxic arsenal"—tularemia, Q-fever, botulism and the incapacitating psychic poisons ("incamps" to the trade), the hallucinogens, and who knows what else, are already stockpiled. Mr. Laird, our Secretary of Defense, states that though we would never use it first, the CBW armory is essential as a "deterrent."

Weapons in the toxic arsenal are cheap, easy to make, and easy to use. Should the shaky refuge of big-power protection crumble with the collapse of mutual deterrence, such weapons would be a tempting option, particularly for a weak or desperate small nation. But a technologically advanced nation has a second option as a means either of outright subjugation, or of gaining economic supremacy—the option of insuring a peaceful environment for itself while disturbing the environment of its competitors through geophysical warfare. Talk of geophysical weapons sounds like science fiction today, but such weapons are foreseeable within the next 15 or 20 years. It is already clear that in principle it might be feasible to trigger an earthquake in the San Andreas fault by setting off remote explosions in the China Sea; to create tidal waves by tipping loose material off the continental shelf; to create a new Ice Age by redistributing the Antarctic ice cap. In the 1980's it may well be possible to use chemical or physical means to destroy the protective ozone layer of the atmosphere over a selected area, thus allowing it to be burned by the intense ultraviolet rays of the sun. Natural low-frequency electrical oscillations in the earth-ionosphere cavity could be increased over certain areas—and because electrical activity in the brain is concentrated at certain frequencies, an adversary could seriously impair brain performance in a very large segment of a population.

Temptation

It is tempting to close one's eyes to such a sinister projection, or to look for arguments that prove it false. One such argument is that no nation would risk a geophysical assault on another for fear of endangering itself. That argument is hollow. Out of sheer carelessness and greed, flushed with technological hubris, the industrialized nations are already polluting the whole earth's biosphere in ways that are far more unpredictably and permanently damaging than mere drought, flood, or other natural catastrophe. How much more likely then, that the defense technologists

Please turn to page seven

Petition to Control Pollution

PEOPLE'S LOBBY, INC.

5504 Hollywood Boulevard, Suite 202,
Hollywood, California 90028
Phone: (213) 461-3071

INSTRUCTIONS FOR COMPLETING THESE PETITIONS

1. Circulator must be a registered voter in the county he/she obtains signatures.
2. Signer must be a registered voter residing in the county where petition is circulated.
3. Signer must sign own name and date in his/her own handwriting. The address should be printed. Do not use P.O. Box Numbers. Do not use ditto marks.
4. Do not insert precinct numbers.
5. If signatures are illegible, you may print the names and addresses above the line.
6. Circulators may sign their own petition.

NOTARIES ARE NOT REQUIRED! Simply fill in the petition and mail to PEOPLE'S LOBBY, INC.

PLEASE SIGN BOTH PETITIONS — They are separate initiatives
INITIATIVE MEASURE TO BE SUBMITTED DIRECTLY TO THE ELECTORS

POLLUTION. INITIATIVE. Declares state policy regarding pollution of air, land, and water. Within 6 months each industrial or manufacturing plant must record and publish statement of pollutants discharged and do so monthly thereafter. Requires certain designated law enforcement officers on request of any citizen to demand those causing pollution to reduce such pollutants on sliding scale to 1 percent in five years; imposes penal sanctions and civil penalties. Provides that 1972 or later model petroleum powered motor vehicles, and other specified vehicles, must have anti pollution equipment which meets prescribed standards. If this proposed initiative is adopted, undefined additional financing from state sources in the approximate amount of \$4,220,000 for the first year and \$3,500,000 annually thereafter will be required.

PLEASE RETURN 7 DAYS AFTER DATE OF FIRST SIGNATURE

SIGNATURE OF REGISTERED VOTER	PLACE OF RESIDENCE Street Name and Number	Please Print	DATE OF SIGNING MO. DAY YR.	FOR OFFICE USE ONLY
1			/ / 69	
2			/ / 69	
3			/ / 69	

DECLARATION OF CIRCULATOR

I am the person who circulated the attached and foregoing section of the petition of which said section is a part and who solicited the signatures to said section. I have circulated the section in _____, County, State of California. All of the signatures were made in my presence and upon the date shown after each signature, and were solicited by me in the above named County.

I declare under penalty of perjury that the foregoing is true and correct.

Signature of Petition Carrier _____ Address, Town _____ Phone _____ Date _____

INITIATIVE MEASURE TO BE SUBMITTED DIRECTLY TO THE ELECTORS

POLLUTION. INITIATIVE CONSTITUTIONAL AMENDMENT. DECLARES STATE POLICY REGARDING POLLUTION OF AIR, LAND, AND WATER OF THIS STATE, AND THAT PRIMARY RESPONSIBILITY TO ELIMINATE POLLUTION IS ON THOSE CAUSING IT AND MAJOR BURDEN OF POLLUTION CONTROL SHALL NOT BE PLACED ON INDIVIDUALS.

An Amendment to Article I of the Constitution of the State of California, relating to pollution. The People of the State of California do enact as follows: Section 1a is added to Article I of the Constitution of the State of California to read: Section 1a. All persons have the inalienable right to live in an environment free of pollution and contamination. Conversely, no one has the right to pollute the air, land and water of this State. The people find and declare that the condition of the environment at the time of the enactment of this Section is intolerable and deadly. The primary responsibility for eliminating environmental pollution rests upon the manufacturers of pollution-producing products and industries which cause pollution in their activities. The burden of pollution control shall not be placed upon the individual citizen by exorbitant profiteering, excessive taxes or otherwise.

PLEASE RETURN 7 DAYS AFTER DATE OF FIRST SIGNATURE

SIGNATURE OF REGISTERED VOTER	PLACE OF RESIDENCE Street Name and Number	Please Print	DATE OF SIGNING MO. DAY YR.	FOR OFFICE USE ONLY
1			/ / 69	
2			/ / 69	
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DECLARATION OF CIRCULATOR

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I declare under penalty of perjury that the foregoing is true and correct.

Signature of Petition Carrier _____ Address, Town _____ Phone _____ Date _____

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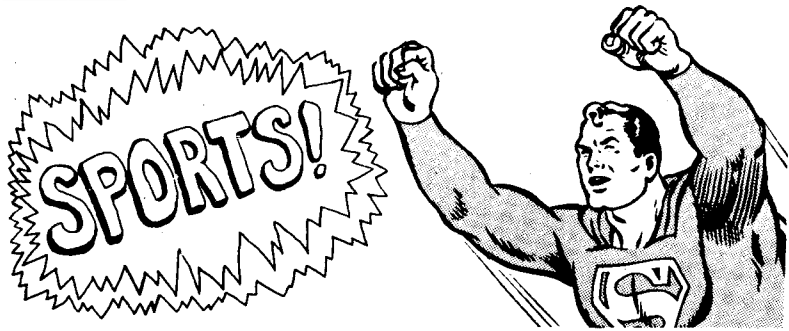
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Gridders Hand San Diego 20-6 Victory

The Caltech Beavers football team was defeated by the University of San Diego by a score of twenty to six Saturday in the Beavers' first game away from home.

The Beavers appeared to be evenly matched with the Toreros early in the contest. However, San Diego managed to block two of Caltech's punts in the first half and convert each of them into a score.

San Diego took advantage of one of the blocked punts to score a first period touchdown. In the second quarter the Toreros gained a safety to lead eight to nothing at half time.

Caltech's opponents from down South scored one more touchdown in each of the last two periods, yet they continued to fail in their

attempts at conversions. The toreros ended with a final tally of 20 points.

The Beavers scored their touchdown on a spectacular 39 yard pass play from quarterback Bob Bales to halfback Gary Stormo. Stormo's pass for the extra point fell incomplete. Tech's score came in the final stanza.

Looking at some statistics, we find that San Diego had 16 first downs to the Beavers' eight. USD gained 112 yards on the ground and 176 in the air. Tech lost four yards rushing but gained 91 passing.

Caltech travels to La Verne this Saturday for its fifth attempt at winning a football game this year. The contest will begin, as usual, at 1:30 p.m.



MIKE BRENNAN is dropped by three USD tacklers after a small gain.

—Photo by Moskatel

Pomona Trips Cross Country Runners 22-33

by Martin T. Smith

Pomona defeated the Caltech cross country team Friday 22-33 in the final Caltech home meet of the season.

Bob Johnson and Rich Johnson tied for first for Pomona. Gary Pope led the Caltech team, taking third, despite having a sore knee. Close behind Pope followed Watson of Pomona, Smith, and Higgins (both Caltech), respectively. Tardiff (9th) and Almquist (10th) com-

pleted the Caltech scoring.

Four of the top six Beaver runners ran their best times this year for the home course, and Pope came quite close in view of his painful knee.

Dave Evans, a promising frosh, was sidelined this week with a foot infection and was unable to run, spending the weekend in the health center.

Tomorrow the Caltech team travels to face a very tough Redlands team.

Beavers Resurface to Beat Pomona After Loss to CHM

by Mike Stefanko

The water polo team once more split the week into the bad and the good (always the ugly?). Wednesday, Tech let themselves be manhandled by an aroused squad from CHM. Tech grabbed the first score on a fine offensive play by Steve Sheffield, but a laggardly defense and poor passing enabled CHM to bounce back and dominate the second quarter. Tech fought back and played evenly the second half, but couldn't make up the

deficit, losing 6-2.

Friday at Pomona, the whole story changed, although the score stayed tied for nearly three quarters. Tech completely dominated in passing, swimming, and ball control. Only the fantastic playing of the Pomona goalie prevented a Tech rout. With Stefanko stymieing the opponent's hole man, and Coates, Tyson, and Hall pressuring the passers, Sheffield and Larry Watkins were able to shoot often. The final score was Tech 5, Pomona 3.

Coins Collect

On Wednesday, October 15, Walter Fritsche and Edward Tarantino of Foothill Coin Shop in Tujunga, Calif., presented a numismatic travelogue to the assembled members and guests of the Caltech-JPL Numismatic Society. Mr. Fritsche and Mr. Tarantino described a recent two-month tour of Europe, with a particular emphasis on their visit to the USSR. Coin and currency specimens were displayed and slides of both general and numismatic interest were shown.

On Wednesday, November 19, Elizabeth Case will speak on "Tokens and Medals." Mrs. Case is Vice President of the California Exonumist Society, Recording

Secretary of C.O.J.N., and Recording Secretary (soon to be President) of the West Valley Coin Club of Los Angeles.

Membership in the Caltech-JPL Numismatic Society is open to all Faculty and Students of Caltech and to all employees of Caltech and JPL. In addition, associate memberships are available to members of the families of the above. The Society meets on campus in Church Lab at the corner of Wilson and San Pasqual. Meetings are held on the third Wednesday of each month at 7:30 p.m. Visitors and guests are always welcome (whether eligible for membership or not) and refreshments are free. Door Prize drawings and a coin auction are held each month.

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—Richard Schickel

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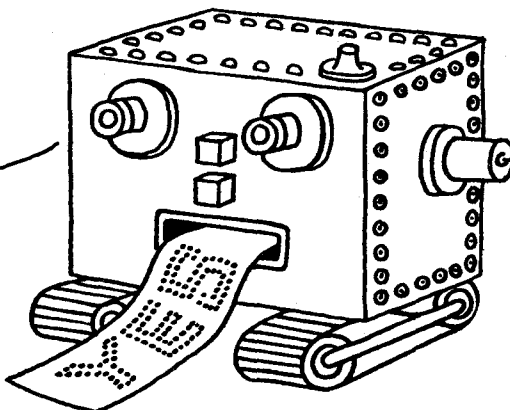
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Ramparts: MAD?

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Continued from page five

who play computer games with the power of the sun, the "strategic calculators" who measure "acceptable population response" in multiples of mega-deaths, will find it easy to justify "defensive environment modification" as a far more natural and humane way of achieving their country's supremacy.

Tactoca? Weapons?

The atomic weapons that incinerated Hiroshima and Nagasaki—mere "tactical weapons" by now—shattered all traditional concepts of weaponry, warfare, tactics, etc. Yet our thinking is still straightjacketed by them. We are offered prescriptions for deterrence and defense as though they were both still possible. The ABM, robed in dove-feathers is called a "peaceful deterrent"—although history, science, and everyday experience tells us that a peace-

eful deterrent is a contradiction in terms. "We are drifting" as Albert Einstein warned many years ago, "toward a catastrophe beyond comparison. We shall require a substantially new manner of thinking if mankind is to survive."

This is imperative. General Curtis LeMay is unfortunately immeasurably more representative of our true situation. "I sincerely believe," he has written in a way that makes explicit what every ABM proponent seems to think, that "any arms race with the Soviet Union would act to our benefit. I believe that we can out-invent, out-research, out-develop, out-engineer and out-produce the USSR in any area...and in so doing become more and more prosperous while the Soviets become progressively poorer."

Whom the gods would destroy, the first make MAD.

throughout your installation.

Very truly yours,
A. Dotson Bennett
Business Representative

The committee is distributing Authorization for Representation cards to the Physical Plant personnel. These cards, when signed by an employee, authorize the committee to represent that employee at negotiations. If the Teamster organizers are able to convince more than 60% of the Physical Plant employees to sign these cards, they will petition the National Labor Relations Board, a government agency, to order that an election be held to decide whether the employees want a union.

In the past the National Labor Relations Board has consistently refused jurisdiction in labor disputes involving university campuses; however, each case is judged separately.

At the present time the Teamster's petition for an election is still before the NLRB. The union has

also filed charges of unfair labor practices before the NLRB, claiming that a Caltech supervisor attempted to "interfere with, restrain, coerce, and discourage" is men from signing Authorization Cards. The NLRB decision on these charges is still pending.

When asked about the Teamsters' claims, Richard Mulligan, Director of Business Services at Tech, said "We have analyzed carefully the wage structure and the benefit program offered at Caltech, and we believe it is reasonable. However, there are benefit changes planned as a part of our continuing review. These changes were decided upon prior to any union activity."

Mulligan thought that the National Labor Relations Board would not accept jurisdiction. "The precedent has been quite the opposite. The regional board has already denied jurisdiction, and there is no California law which requires collective bargaining between the employer and the union."



The seldom told troll tale

ONCE upon a time a troll named Todd and his wife Beverly lived under a couple of bridges. Todd made his living by collecting a toll from those who used the bridges to cross the river. Many of the common folk were so poor, however, that they could only afford to pay him a few pennies. One day Beverly got fed up with his meager earnings. "Todd," she said, "I'm fed up with your meager earnings. Why can't you collect quarters like normal trolls do? Or dimes, or even nickels instead of just pennies. I mean, common cents can only take you so far."

So Todd grudgingly collected quarters from the travellers and stored them in a crock under his bed. But Beverly, who was a real ogre, continued to nag him. "Todd," she nagged, "why don't you take your crock down to Security Pacific Bank?"

"What would they want with my crock?" he asked. "I mean take the

money down there. It'll be safe, and we'll get interest. Maybe you can even open a joint checking account."

Well, Todd may have been a troll but he was no dope. So he hied himself over to the bank with his crock of quarters and opened an account. Soon their standard of living rose. They refurbished their dwelling in Early Swamp and began eating more than just stray goats.

Todd, however, began putting on a little extra weight. Then one morning he arose to go to the bank and crashed right through the bridges. But that was to be expected. For as everyone knows, if a troll gets a little extra money, he's bound to get too big for his bridges.

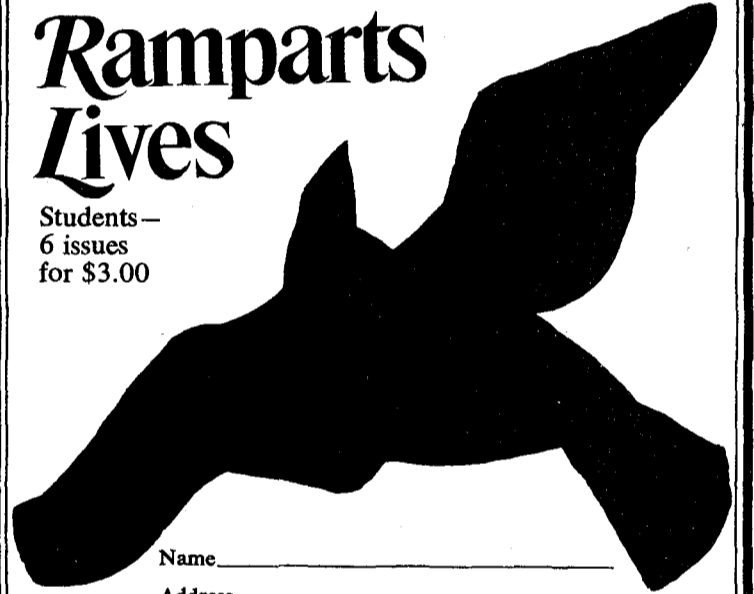
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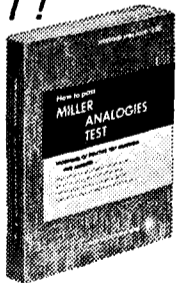


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Liquefy Petroleum!

Continued from page one

Caltech's decision to use a modification of a conventional engine came at a meeting on October 21. Students Mike Lineberry and James Henry presented results of conversions to Liquefied Petroleum Gas (LPG). Because of the more simple chemical structure of this fuel, cleaner combustion is achieved. In addition to the clean exhaust, LPG offers improved engine life, better economy, smoother operation, and virtually no reduction of power. Citing the very substantial existing technology for the conversion, Lineberry and Henry easily convinced listeners of the potential of the approach. Faced with the short time remaining for development, the Tech group voted to move forward quickly with an LPG or similar conversion.

Currently involved in Caltech's effort are about 16 graduate and

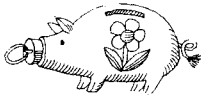
undergraduate students and professors Sabersky, Shapiro, and Welch as faculty advisors.

Rumors that Ambassador College will make a dark horse entry with a stage coach are being denied by all concerned.

I.H. Softball Results

The final standings in the Interhouse softball competition are as follows:

	w	l
Fleming	6	0
Page	5	1
Dabney	3	3
Lloyd	3	3
Ricketts	3	3
Ruddock	1	5
Blacker	0	6



coffeehouse doings

Thursday, October 30.

The Coffeehouse will be open one hour later for those who want a place to sit in after *Harper's Bizarre*.

Friday, October 31.

Free drinks for those in costume. Free trick-or-treat candy for all.



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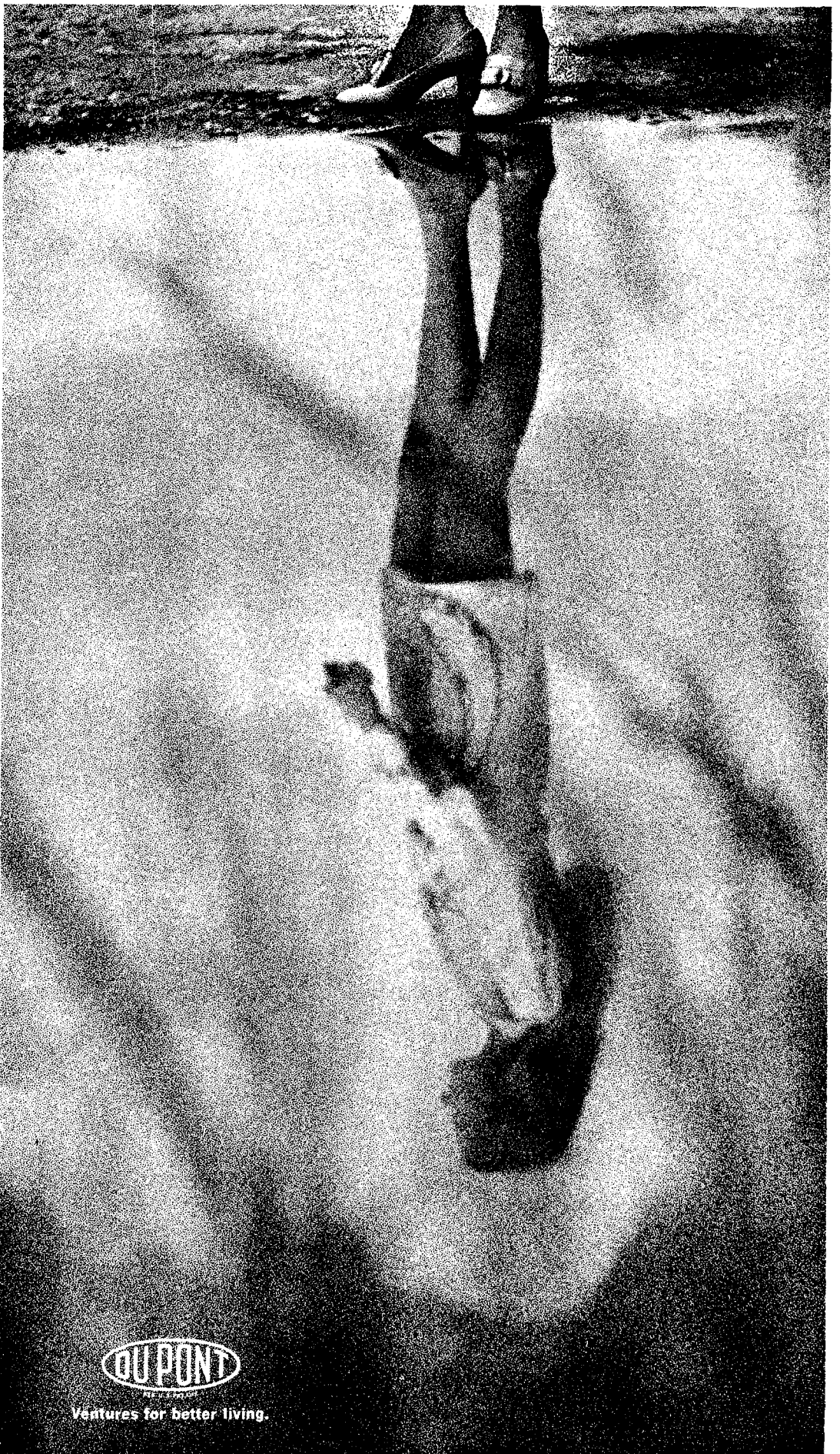
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GELL-MANN A NOBEL

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Dr. QUARK???

Physicist Wins Nobel Prize

Dr. Murray Gell-Mann, professor of physics at the California Institute of Technology, was awarded the Nobel Prize in Physics, the Caroline Institute in Sweden announced Thursday, October 30.

Dr. Gell-Mann, who is Robert Andrews Millikan Professor of Theoretical Physics has made major contributions to understanding what matter is made of. He has sought to bring order out of the chaos generated by the recent discoveries of some 100 particles of the atom's nuclei.

His Nobel award, according to the Royal Swedish Academy of Science, is for his "contributions and discoveries concerning the classification of elementary particles and their interactions." He is credited with doing "fundamental

What is Strangeness?



Dr. Murray Gell-Mann, newly minted Nobel, discusses his plans for a new eight-volume introductory physics course. —Photo by Dash

work in nearly all domains of his field and his contributions in many cases have been of decisive importance for the further development" of physics.

In 1961 Gell-Mann, now 40 years old, suggested the "eight-fold way" theory, and more recently proposed the "quark" as an elementary particle. In the eight-fold way, Gell-Mann proposed that many particles could be arranged in family groups of eight to ten and that they could, on occasion, change places, and that their differences lay in the energy and some other factors. This theory was also proposed independently by Dr. Yuval Ne'eman, Visiting Associate in Theoretical Physics at Caltech.

In his quark model, nuclear particles behave as though they were compounds of three new hypothetical objects—the "quarks." Mathematically, the quark theory is helpful in understanding matter. Recently, a physicist claims to have found quarks.

Before proposing his eight-fold way theory, Gell-Mann helped to uncover a new physical force—called the "weak force."

Caltech's Previous Nobel Laureates

Robert A. Millikan 1923, physics
Thomas Hunt Morgan 1933, medicine
Carl D. Anderson 1936, physics
Edwin D. McMillan 1951, physics
Linus Pauling 1954, chemistry
William Shockley 1956, physics
George W. Beadle 1958, medicine
Donald A. Glaser 1960, physics
Rudolf Mössbauer 1961, physics
Charles H. Townes 1964, physics
Richard Feynman 1965, physics
Max Delbrück 1969, medicine

What is Strangeness?

Only Your Quantum Mechanic Knows For Sure

There are "four kinds of forces, which are presumably responsible for all natural processes. Two have been familiar for a long time—gravitation and electromagnetism. Then there are the two forces or interactions discovered in the twentieth century: the weak interaction... and the strong interaction." So said Dr. Murray Gell-Mann, who has devoted his intellectual life to understanding "microscopic" physics: the science of the universe in its smallest units.

Dr. Gell-Mann has been in the forefront of one of the most exciting fields of human knowledge: elementary particles. His list of accomplishments in that field is impressive, indeed, it reads almost like a roster of the advances in particle physics in the last fifteen years. Dr. Gell-Mann and Dr. Ne'eman independently arrived at the "eight-fold way," which represents a first major step in making sense out of the profusion of sub-atomic particles.

The "eight-fold way" is sometimes compared to the periodic table of Mendeleev, which probably amounts to an overstatement. The eight-fold way does not make the same complete sense of nuclear interactions that the periodic chart made for chemical ones; rather, it is a step towards organizing known data. Just as quantum theory explained the why's and wherefore's of the periodic chart, physicists are now seeking a theory which will explain why the eight-fold way works.

One explanation may be quarks, which, for the moment, are just mathematical conceptions. A quark has 1/3 unit of mass, and a charge of either 2/3, 1/3, or -1/3. One experimenter claims to have actually detected a quark, however, his results have not been duplicated.

The greatest triumph of the eight-fold way has been the prediction of the existence and properties of the omega minus particle. Dr. Gell-Mann predicted its existence in 1961, and the Brookhaven Laboratory discovered it in 1964.

The omega minus particle has a strangeness of +3, which leads to an interesting question: just what is strangeness? Nobody quite knows for sure. Particles can be assigned "strangeness numbers" and generalizations can be made about how these strangeness numbers behave in interactions, but the whole concept of strangeness can only be comprehended as another mathematical conceptualization, one which Dr. Gell-Mann was prominent in formulating.

To add to the snow job, Dr. Gell-Mann has worked in the fields of dispersion relations and the structure of weak interactions. He developed the theory of strangeness, the theory of natural K mesons, and the eight-fold way theory of approximate symmetry.

The list of honors which have come Dr. Gell-Mann's way seems equally impressive. He holds a BS from Yale and a PhD from MIT, and has won the Lawrence Award, the Franklin Medal, the Research

Corporation Award, the Carty Medal of the NAS, and doctorates from Yale, the University of Chicago, the University of Illinois, Wesleyan University, and the University of Turin.

Dr. Gell-Mann has been with Caltech since 1955, and has been a professor here since 1956. He serves as a consultant to the Institute for Defense Analysis, RAND Corporation, and Los Alamos, and is a member of the President's Science Advisory Commission.

At forty Dr. Gell-Mann has earned the respect and admiration of his colleagues, and of the world

at large. His life has been an intellectual adventure to the frontier of human knowledge and beyond. Yet many fundamental questions remain unanswered. Some of the questions have been raised by Dr. Gell-Mann himself. What is the fundamental unit of matter? How do particles interact? What is the mechanism behind the eight-fold way?

The prospects are exciting, the way uncertain. Perhaps there is only one certainty in the field: Dr. Gell-Mann will be there, seeking an ever deeper understanding of how our world is put together.



—Photo by Ctein
Dr. Murray Gell-Mann prepares for Harold Brown's inauguration as Institute president.

Gell-Mann Meets the Tech

Seated at his desk the afternoon after being awarded the Nobel Prize in Physics, Dr. Murray Gell-Mann embarked upon the "full-time job for a year" that is entailed in being a new Nobel winner, and gave a few of his first impressions of his new role in an exclusive interview with *The California Tech*. At the same time, a photographer was taking pictures of Dr. Gell-Mann, and at one point the new Nobel Laureate had to spend several minutes on the telephone explaining elementary particle physics to someone from *Time*, who apparently had never had physics at Caltech.

Dr. Gell-Mann feels that it will be increasingly difficult for him to perform significant research now that he has won the Nobel Prize, especially as increased outside activities have made it more difficult for him to work in the last few years anyway. "Some people become rusty at my age, but I don't feel rusty," said Dr. Gell-Mann; the problem is finding enough time. "When I sit down at a desk and have some time, it's still there."

Will man ever come up with a model which he can accept as a true statement of the way the physical world operates, or will science continue to derive new systems which negate the old? "Probably we'll never get there," said Dr. Gell-Mann, speaking of a definitive model. "Anyway, how would we

know if we ever had one?" Only a model which withstood the attacks of the theoreticians and the experimenters for several generations could be taken as a likely "true" model, and it would always stand to be outmoded.

"There are many things that could happen in physics in the next few years which I would find very exciting," the Nobel winner said. "I would very much like to see some method of relating the fields of astrophysics, such as quasars and various forms of galaxies, with the fields of atomic and particle physics." Another possible development would be a model which synthesizes all of the known sources of forces, such as strong interactions and weak interactions as well as electromagnetic and gravitational forces, and enables them all to be discussed.

"There are always exciting things being done."

Very Strange

by Bruce Reznick

Dr. Gell-Mann won the Nobel Prize in physics for his discovery of an unusual property of subatomic particles known as "strangeness." By the early 1950's, physicists felt that they had a pretty tidy picture of what happened inside an atom—the sub-atomic particles and the forces which govern them. Somehow, the four quantum numbers did not, and could not account for all the properties known. Specifically, the reasons for strong and weak

Gell-Mann Meets the Press

by Ira Moskatek

"Well, I have a vague recollection of a bell ringing, and somebody mumbling something about Sweden and Elementary Articles."

That was what Murray Gell-Mann, Professor of Theoretical Physics and Caltech's most recent addition to its list of Nobel Laureates, answered when asked how he was notified of the prize.

The Caroline Institute was even more inconsiderate in their notification, than in their last announcement, forgetting about the Daylight Saving time and allowing the wire services to notify him at 3:30 in the morning. Dr. Robert Bacher, provost and former chairman of the Department of Physics, introduced Dr. Gell-Mann at a 9:00 a.m. press conference, remarking that Dr. Gell-Mann was noted for his "sense of timing."

The prize, given to Dr. Gell-Mann, was for his "contributions to the examination of the classification of elementary particles and their interactions." He described his work as "trying to explore the building blocks of the universe ... which make up the laws underlying all of the natural sciences." If the final goal of his work could be characterized, he said, it would be "trying to find the relations between the laws governing macroscopic and microscopic phenomena."

A television reporter asked "Dr. Quark" (really!) how one went about seeing the particles. "You would have trouble seeing them

results of his experimenting colleagues. He reported that the Soviet Union now has the most powerful accelerator and that in 1972, in Batavia, Illinois, the United States would have an even more powerful device.

The last part of the conference was devoted to the applications of his discoveries. Dr. Gell-Mann expressed the hope that his colleagues would make an effort to consider the possible ill effects of applications of high energy physics in the future, but stated that none of his work was concerned with the development of weaponry. Dr. Gell-Mann is subsidized by grants from the Atomic Energy Commission, as are many of the Theoretical and Users group members on campus.

How would the recent cutbacks in Federal spending affect him? Dr. Gell-Mann only expressed the concern that such cutbacks might hinder the progress of his research. When asked what he had been doing, he replied, "There seems to be a conspiracy to keep people who know things from doing any more."

His reply to what relation his research would have to the world was "We can all remember that we're made of all these particles. There'll be no new electric shoe polishers, if that's what you mean."

His final remark: "I hope I'm not upstaging Harold Brown."

It's In The Dictionary!

Physics 2d

Quarks For The Common Man

The following is a synopsis of the work for which Dr. Murray Gell-Mann won the Nobel Prize:

One of the most baffling phenomena of modern physics is the multiplicity of subatomic particles generally described as "elementary." For many years the term was reserved for the proton, the electron, and the neutron, but in the past two decades, high-energy accelerators—employed in the bombardment of atomic nuclei—have produced something over a hundred particles that are still regarded as "elementary."

In an attempt to bring some order out of this chaos, physicists have searched for relationships that would at least enable them to classify the particles. The hope has been to produce a theoretical structure comparable with Mendel's periodic table of the elements. By far the greatest breakthrough in this effort is Dr. Murray Gell-Mann's theory known as the Eightfold Way. (This theory was advanced independently in 1961 by Dr. Gell-Mann and Dr. Yuval Ne'eman of Tel-Aviv University). It provides a scheme for classifying certain of the subatomic particles into several families of eight or ten members each, according to such characteristics as spin, parity, and electrical charge.

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Editors-in-Chief Ira Moskatel
Craig Sarazin
Managing Editor Larry Goldman
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Photography: Steve Dashiell, Alan Stein

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not, and could not account for all the properties known. Specifically, the reasons for strong and weak interactions were not fully understood. Dr. Gell-Mann mathematically analyzed the situation, and discovered that a fifth quantum number was needed. This quantum number was directly related to the "strangeness" of a given particle. Dr. Gell-Mann and Dr. Kahuziko Nishijima of Japan independently determined this quantity which they called strangeness.

Quark" (really!) how one went about seeing the particles. "You would have trouble seeing them with the naked eye." The same reporter asked him to describe the "quark," one of his inventions. "The quark may not be," he said, continuing on to explain that it was a mathematical tool which proved extremely useful. Whether or not it exists, he explained, was immaterial. Gell-Mann described himself as working "with pencil, paper, and a wastebasket," trying to predict the

It's In The Dictionary!

From *The American Heritage Dictionary of the English Language*: **quark** (kwôrk) *n. Physics.* Any of three hypothetical subatomic particles having electric charges of magnitude one-third or two-thirds that of the electron, proposed as the fundamental units of matter. Also called "ace." [From a line in Joyce's *Finnegan's Wake*, "three quarks for Mr. Marks."]

eight or ten members each, according to such characteristics as spin, parity, and electrical charge. When the known particles were arranged according to this scheme, one family that should have had ten members was found to have only nine; one particle required by the theory was missing. A team of 33 scientists at the Brookhaven National Laboratory set out to look for the missing particle, using the 33 BeV proton accelerator, and since the theory predicted all the properties of the missing particle, they knew exactly what to look for and where to look. Their discovery in January, 1964, of the missing particle, called the Omega Minus, was widely hailed as a striking confirmation of the Eightfold Way theory—indeed, as a "crucial test" of a theory that could mark a turning point in particle physics.

In Recognition

Dr. Gell-Mann

Nobel Laureate

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A salute from the staff of
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Dr. Murray Gell-Mann

Caltech's newest Nobel Laureate