

Fowler a Nobel Laureate

Shares Physics Prize with Chandrasekhar



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Astrophysicist Emphasizes Cultural Value of Science

by Ken Whang

This morning, it was announced that William Fowler, a Caltech Institute Professor of Physics, Emeritus, was awarded the 1983 Nobel Prize for Physics for his work in nuclear astrophysics.

He shares the 1983 prize with Subrahmanyan Chandrasekhar of the University of Chicago.

At a press conference held this morning in the Athenaeum, he was contacted by phone to comment. He is currently attending a conference at the Yerkes Observatory in Wisconsin.

"It's a great thrill to receive the Nobel Prize," he said. Of the co-winner of this year's prize, he noted that "Chandrasekhar ... has been an idol of mine all my life."

Fowler described his attitude today as uncharacteristically humble, since his work "has been in collaboration with students, post-doctorate fellows, and faculty." He considered the Nobel a "prize for Kellogg" and acknowledged his colleagues Charles Barnes, and

Ralph Kavanaugh of the Kellogg Radiation Laboratory, Frederick Hoyle of the University of Cambridge, and Geoffrey and Margaret Burbidge of Kitt Peak and U.C. San Diego, respectively.

In 1957, Fowler, Burbidge, Burbidge, and Hoyle published a major work on nuclear astrophysics titled "Synthesis of the Elements in the Stars." This work led the way to a better fundamental understanding of nuclear reactions in astrophysics, which has helped to explain the abundances of elements in the universe, stellar evolution, and energy generation in main sequence stars.

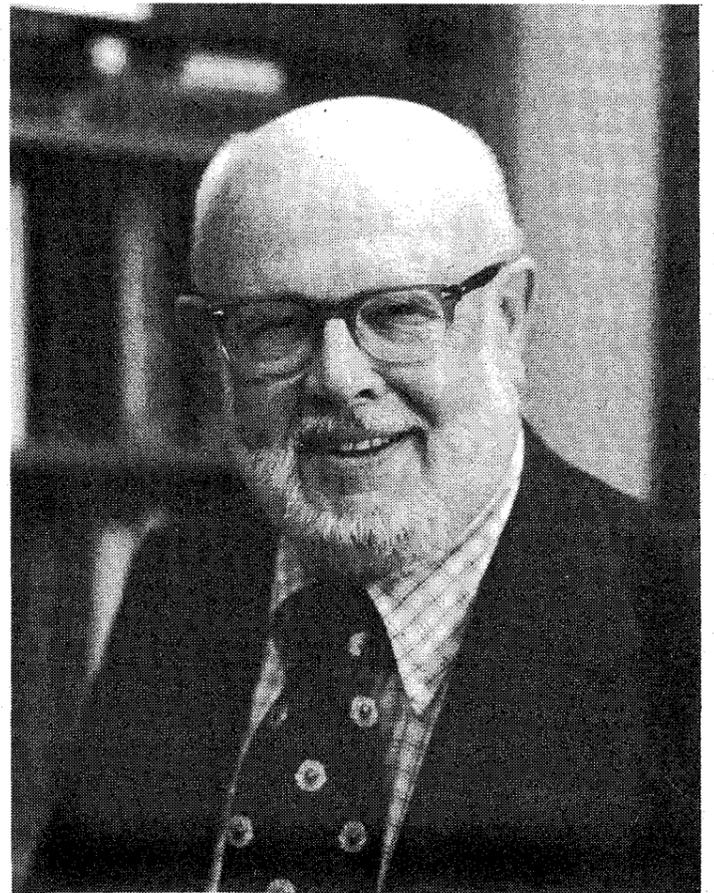
Fowler is currently working on explaining the formation of supernovae.

Fowler chuckled when he was asked how he first learned of his award this morning. He was interrupted during his morning shower by a the important call, and "you can't hear the phone very well from the shower." At the time of the conference, he had not yet received official word from Sweden.

Asked what he plans to do with the prize money, Fowler explained that he is currently receiving Social Security and TIAA retirement money, but that "It will be very welcome, I can assure you."

Fowler de-emphasized the practical aspects of his research, a topic that came up several times during the conference. When pressed for examples of applications in energy or defense, he explained that his work is remotely related to nuclear fusion work, but "not directly related to nuclear processes in bombs ... or in fission reactors."

Furthermore, "practical applications are not what have motivated me." Instead, his goal of his research efforts was "cultural, intellectual contribution to the sum total of human knowledge."



Fowler: "I think it is important that the human race understand where sunlight comes from."



Dennis Meredith and Provost Robbie Vogt relayed questions to Dr. Fowler at press conference

Caltech's Nobel Laureates

Robert Millikan	physics	1923
Thomas Hunt Morgan	physiology and medicine	1933
*Carl D. Anderson, B.S.'27, Ph.D.'30	physics	1936
Edwin M. McMillan, B.S.'28, M.S.'29	chemistry	1951
Linus Pauling, Ph.D.'25	chemistry	1954
William Shockley, Ph.D.'32	physics	1956
George W. Beadle	physiology and medicine	1958
Donald A. Glaser, Ph.D.'50	physics	1960
Rudolph Mössbauer	physics	1961
Linus Pauling, Ph.D.'25	Peace Prize	1962
Charles H. Townes, Ph.D.'39	physics	1964
*Richard Feynman	physics	1965
*Murray Gell-Mann	physics	1969
Max Delbrück	physiology and medicine	1969
Leo James Rainwater, B.S.'39	physics	1975
Howard M. Temin, Ph.D.'60	physiology and medicine	1975
William Lipscomb, Ph.D.'46	chemistry	1976
Robert W. Wilson, Ph.D.'62	physics	1978
*Roger W. Sperry	physiology and medicine	1981
Kenneth G. Wilson, Ph.D.'61	physics	1982
*William A. Fowler, Ph.D.'36	physics	1983

* in residence

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Cited for "Study of nuclear reactions of astrophysical interest. . ."

Caltech News Bureau

Dr. William A. Fowler, 72, has been named co-winner of the 1983 Nobel Prize in Physics. Dr. Fowler is an Institute Professor of Physics, Emeritus, at Caltech. He shares the prize with Subrahmanyan Chandrasekhar of the University of Chicago.

According to the Nobel Committee, "Fowler has done extensive work on the experimental study of nuclear reactions of astrophysical interest, as well as carried out theoretical calculations." He and several colleagues during the 1950s developed "a complete theory of the formation of the chemical elements in our universe," they said.

Dr. Fowler's research has ranged widely in physics, including studies of the atomic

nucleus, of how the thermonuclear furnaces of the sun and other stars burn and create elements, of the constitution of meteorites, and of the nature of quasars, pulsars, and black holes.

Dr. Fowler has been at Caltech since 1933, when he entered as a graduate student after receiving his Bachelor of Engineering in Physics from Ohio State University. He received his Ph.D. in Physics from Caltech in 1936 and became a research fellow in nuclear physics. He became an assistant professor of physics in 1939, an associate professor of physics in 1942, and a professor of physics in 1946. During World War II, he worked on proximity fuses and on rocket and torpedo ordnance.

In 1970, he was named the first Institute Professor of

Physics at Caltech, an honor given to outstanding faculty members. He became Institute Professor of Physics, Emeritus in July 1982.

His awards include the National Medal of Science (1974), the President's Medal for Merit (1948), NASA's Apollo Achievement Award (1969), the Eddington Medal of the Royal Astronomical Society, London (1978), and the Bruce Gold Medal from the Astronomical Society of the Pacific (1979).

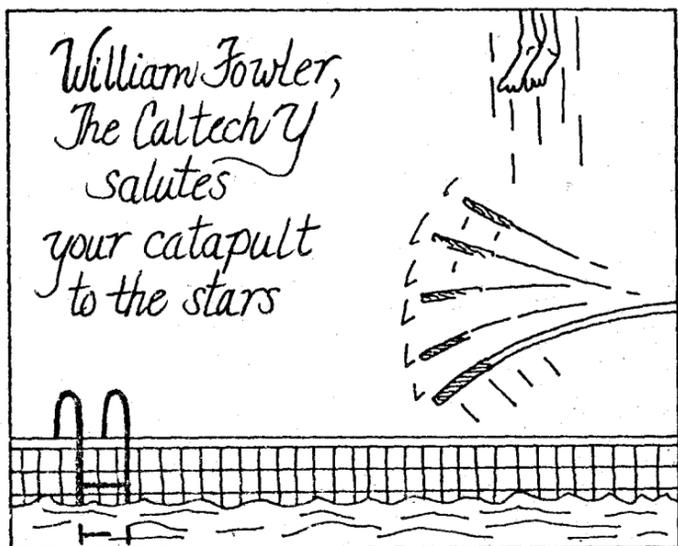
He has been a member of the National Academy of Sciences since 1956 and has served on numerous scientific committees of that organization. In 1946, he was named a Fellow of the American Physical Society and in 1976 served as its president. He was a member of the National Science Board from 1968 to 1974.

He holds honorary degrees from the University of Chicago, Ohio State University, University of Liege (Belgium), Observatoire de Paris, and Denison University.

He is a steam engine buff, and among the personal honors he particularly treasures are his memberships in the Los Angeles Live Steamers and the National Association of Railroad Passengers.

Dr. Fowler and his wife Ardiene live in Pasadena. They have two daughters, Mary Fowler of Washington, D.C. and Mrs. Martha Schoenemann of Paulet, Vermont. He is a native of Pittsburgh, Pennsylvania.

Dr. Fowler is the 20th Caltech faculty member and/or alumnus to receive a Nobel Prize. Nobel Prizewinners currently at Caltech are Carl D. Anderson, Richard Feynman, Murray Gell-Mann, and Roger W. Sperry.



Congratulations
Dr. Fowler

from the
Deans' Office

Chandler Dining Hall
congratulates

Dr. William
Fowler

Nobel Laureate

Congratulations
to
Dr. William Fowler

the Master's Office
and the Students

Congratulations

Dr. Fowler

from the staff of
the Physical Plant

congratulations

Dr. Fowler

from the Office
of Public Events

To Dr. William
Fowler---

Cordial
Congratulations!!!

The Athenaeum

in recognition

Dr. Fowler

Caltech Bookstore

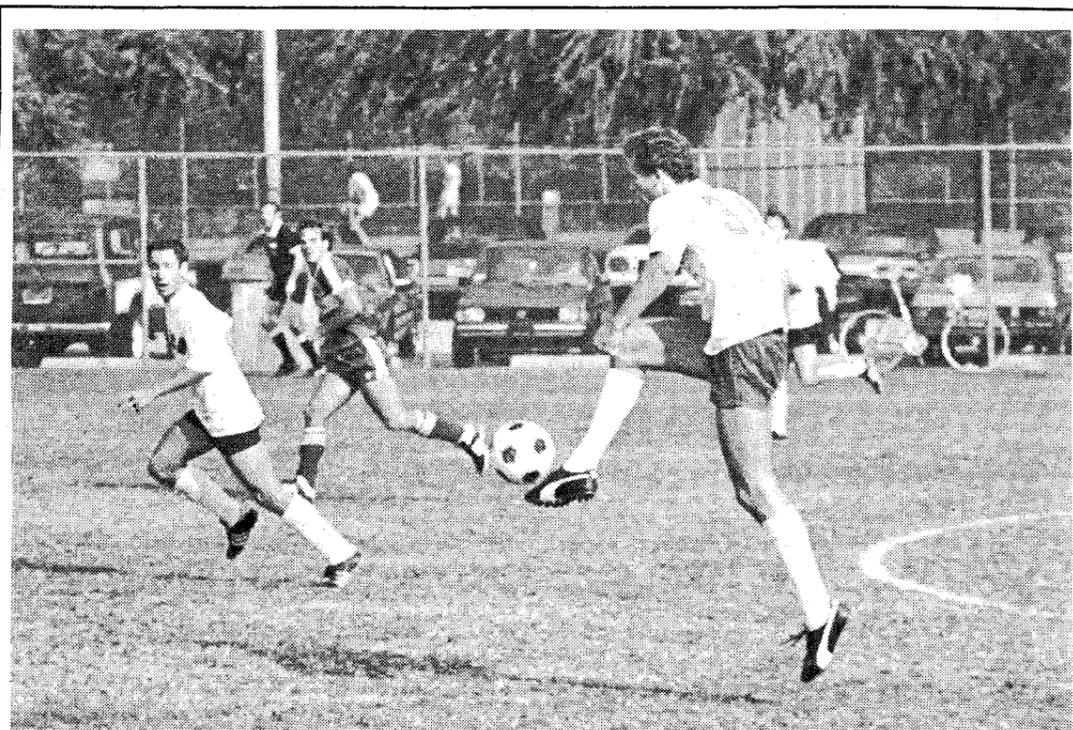


photo by Chris Mihos

SOCCER BALLET? Evan Cromwell moves the ball upfield against Southern Cal College.

The New "Mosh Frosh"

Chris Brennan talks about his new job

by Biffalo

The tall, slender man spoke in a soft voice, with a distinct Irish accent, eyeing students with a warm facial feature, in a small dining hall of Camp Fox. As he told the story of an engineer's humorous experience he provoked numerous laughs and smiles in the audience. The man was Chris Brennan, the new Master of Student Houses, or the "Mosh Frosh" as he refers to the new position.

Prof. Brennan is originally from Belfast, Ireland, and graduated from the University of Oxford. After receiving his Ph.D., he worked at a government lab, the National Physical Laboratory located near London.

It was about this time that he came across Caltech professors working in his line of work, and got a general impression of the institute. When he was invited to Caltech by Prof. T. Wu, he accepted the offer and arrived here in 1969 as a research fellow.

Concerning his decision to come here, he explained, "It was the opportunity to do research with people who are at the very top of the field in the world and I was attracted by the highly intellectual and scientific atmosphere."

His stay, originally intended for one year, became a two year stay, then three...and as time drifted, he became a research associate, then a professor, and now a MOSH. He commented, "I became involved with students and developed personal relationships within Caltech and outside of Caltech

in the scientific community, which inevitably does happen over time. It would be very difficult for me to see moving somewhere else and starting all over again."

"As a professor and a faculty advisor, he enjoyed the numerous contacts with students, and said he, "I derived a great deal of satisfaction in interactions with students, both in the context of the classroom and in social contexts. He added, "I've always had an interest in their [the students'] welfare."

When the opportunity of becoming the MOSH arrived, he accepted the position, hoping to do what he enjoyed doing at a larger scale. He stated, "I felt I could contribute to the welfare of the undergraduates here, and it was a challenge that I accepted. I also hope to help individuals in difficulties."

Concerning his job so far, he commented, "I'm still in a learning process, and a great deal of my efforts have gone into getting to know more students and getting to know what goes on within the social contexts of the students." He has done this through speaking to audiences and individuals, and by participating in Rotation.

Concerning the somewhat bizarre but fun atmosphere of Caltech, Prof. Brennan expressed approval, saying "I think high spirited students anywhere go beyond what would otherwise be called reasonable behavior." In fact, he recalls a rather embarrassing personal experience of his own

as a student:

"After one particular lively party...there was this fire escape. But this was not a normal escape, and you would hang onto a handle attached to a rope outside the room and you're lowered four stories down. As I was going down, I heard a voice from below, 'This is not a particularly satisfactory way to meet, Mr. Brennan.' It turned out that it was the dean...I did receive a series of admonitions later on."

When asked if green was his favorite color, he responded, "politically, I ought to answer 'yes' but in fact, it's really not. Most of my shirts are blue, and I would have to say blue is my favorite color, judged by the facts."

So far, Prof. Brennan has enjoyed the numerous contacts with students, in both new and old acquaintances. Yet he somewhat regrets not being able to interact on an individual level as frequently as he had in the past.

Regarding his goals as the MOSH, he stated, "One of my objectives is to try to encourage a wider spectrum of activities in Caltech. It's so easy here to work very hard indeed, in some cases too hard, in my opinion. For example, the breaks they get are inadequately short. Despite that, I'd like to do everything I could to offer a wider range of intellectual and cultural activities that are available to Caltech students. That's a general statement that is easy to state, but that summarizes my long-term objectives."

Gene for Nerve Protein Isolated

Caltech News Bureau

The gene that codes for the major protein of myelin—a vital component of the nervous system—has been isolated by biologists at Caltech and UC San Francisco. They have also discovered that the gene is defective in a particular strain of mouse that exhibits a myelin-related nervous disorder.

The scientists' achievement marks the first report that a mammalian neurological disorder has been traced to a specific gene defect.

Their accomplishment also opens the way for a promising, new approach to the study of human demyelinating diseases such as multiple sclerosis or Guillain-Barre's syndrome.

In an article in the October issue of *Cell*, released yesterday, the researchers described how they had isolated and cloned the gene for myelin basic protein (MBP) from rat DNA. The article's authors are Caltech graduate student Arthur Roach, UCSF medical student Kevin Boylan, Caltech staff scientist Suzanna Horvath, UCSF Associate Professor of Neurology Stanley B. Prusiner, and Caltech's Bowles Professor of Biology Leroy E. Hood.

MBP is a major component of myelin, the protein-lipid sheath that surrounds all nerve cells, facilitating the conduction of nervous impulses. Scientists suspect that MBP may play an important role in

demyelinating diseases.

"There exists a whole series of demyelinating diseases in man whose origins are unknown," said Dr. Hood. "It is possible that some of these diseases represent fundamental defects in the myelin gene. Since the rat gene for myelin basic protein is very close to the human gene in structure, we expect to be able to use it as a probe to isolate the human gene in both normal and affected humans and to compare them."

"In the case of multiple sclerosis, the fact that the disease has cycles of exacerbation and remission has led researchers to believe that the disease is immunologic in character," said Dr. Hood. "This disease may represent an immune reaction to a defective myelin basic protein. If so, we should be able to identify differences between the normal and abnormal genes."

The scientists isolated the rat MBP gene by first constructing a "library" of rat DNA using material from the brains of 18-day-old rats, the age at which myelin synthesis is at its maximum. The library was constructed by first extracting RNA from rat brains and making a DNA copy in the test tube. The scientists then inserted that copy into a special strand of "vector" DNA inside *E. coli* bacteria—essentially a biological copying machine—to manufacture large numbers of copies.

Faculty-Student Conference Planned

More Student Participation Needed

by Doug Cutrell and Hossein Mohammad

As the preparations for the 1983 Faculty-Student conference enter a critical phase, the need for more student participation becomes clear. A meeting of several undergraduates and faculty members to discuss the conference last week demonstrated this issue.

Tentatively scheduled for next February, the Faculty-Student conference is designed to allow for open and constructive discussion of certain key issues. Student committees are being formed to investigate these topics for presentation at the conference. The last faculty-student conference was held two years ago, after a lapse of several years.

Led by Candi McCoy, the

ASCIT Board of Directors has pushed for a new approach to the conference. The focus will be on presenting solid, well-researched recommendations rather than reiterating the problems. Secondly, only a few selected issues will be raised. This will allow a thorough analysis of these problems.

On Wednesday, October 12, the first of a series of meetings to coordinate efforts for organizing the conference was held. At an ASCIT meeting early this summer, several students had volunteered to look into specific areas of concern. They were to conduct preliminary studies on the proper approach to the problems. At last week's

continued on page 7

the gadfly

Number 1

An examination of student life at Caltech

The Social Problem

Houses or Dorms?

When pre-frosh ask why they should come to Caltech as opposed to any other school, one item usually mentioned is that, well, at Tech, we have *houses* rather than just dorms like in all those other places. The houses, though, seem to be the center of most of the social problems that have caused recent unrest.

First, it is the obstacle to unity in the Caltech student body. There is inter-house rivalry, competition, even hate and paranoia. After being picked into a house, students gradually lose track of all other people on campus. It is rare for upperclassmen to know the frosh of other houses after rotation. The house system has you sleeping, eating and socializing with only your one-seventh of the campus. For a student body as small as Tech's to begin with, one simply cannot afford to further segregate the 800 into sevenths. The dinner and membership arrangement of each house seriously discourages inter-house friendships. Being from house B, you are forced to make a special effort to befriend John Doe in house A. Depending on the nature of A and B, A may dislike your visits and try to prevent them or B may start ostracizing you for being an A sympathizer.

To further reinforce individual house allegiances, there are house traditions which Techers follow with a shocking degree of mindlessness considering the nature of their academic training. While being encouraged to question, experiment, understand and explore in all classes, the students just go back "home" to their houses and follow tradition by rote. Many even get defensive when these traditions are questioned. They insist that unless the doubter has a perfect alternative solution, then he has "no right" to complain. Well half of any problem lies simply in recognizing that one has a problem, and hopefully, the day will never come when dissidents are shut up as spoil sports or for simply wondering why without having a full-blown alternative.

Some houses are more fraternity-like than others, but the ex-comm structure, the traditions, slogans and spirit makes all of the houses a frat of some sort. Students are forced to choose between seven frats in their first week on campus and those who dislike the system gradually move off-campus. But it is the frats that should be off campus! Everyone should be able to move into an institute dorm and those who wish can join a frat of their choice as their own personal outside activity.

Once the dorms replace the houses, there would be no more interhouse pranks or animosities. The frats off campus could do all the pranks they wanted to which would only involve those strictly interested. It would alleviate the pressure on the frosh to impress or fit into one of the seven personalities. The emphasis will shift from house social events to Caltech social events. House activities will become campus-wide activities and movements. Such a transition can easily be possible considering that with everyone included, there are still only around 800 people (the size of many high school senior classes). Totally insensitive rotation meetings and petty interhouse spying would be done away with. Localized events would still occur, and that's good, but there would no longer be set and fast membership requirements and it would lead to a more *tolerant*, unified, and realistic living situation. This is the living arrangement that exists in so many other colleges of all sizes and types, and it works well.

The last item I will address is the "advantage" that most people see in having houses. They say there is a greater feeling of togetherness and closeness in a house than in a dorm, but it is a very artificial situation when a person can get 100 guaranteed companions just by being picked into a house. Meeting people takes longer in dorms, but each individual makes his own effort to act social, and those who really don't want to, simply don't. In the real world, no one will have the security or convenience of a house of 100 to belong to. Those who are more socially inept can learn to deal with people by trying on their own in college. Caltech's current house system eliminates this much needed step for students to mature socially by thrusting them into the houses. And in some houses, the closeness is not even real because now residents feel obligation to be close rather than their genuine desire to be close. A common thing that is said in rotation meetings is that no matter how we rank a particular frosh, if he gets in, treat him like all the others because a Rudd is a Rudd.

The changes mentioned here are major and the old traditional attitudes are even more major. It all takes time, but start now! For all the years that technology has moved with and ahead of the times, the student life and living atmosphere has stagnated. Let everyone from your house president to the institute president know how you feel, and insist on change.

—Lily Wu

letter

"Different System for House Selection" Proposed

To the Editor:

In light of all the recent discussion of Rotation and its various flaws, I have my own analysis of the situation and a suggestion for improving matters. The suggestion proposes a radical change to the current system, but I believe such a change may well be in order.

The two biggest flaws that I see in Rotation and the housing system are first, the period of time given for upperclassmen to meet freshmen and for

freshmen to get to know the houses is too short. Second, the current house system tends to isolate individuals from people outside their own houses, which is a true tragedy when one considers how small the undergraduate student body is to begin with.

Consider a completely different system for house selections. Freshmen would be assigned at random to houses at the beginning of the year, much as they are now, but in-

stead of having one intense week of parties and house meetings, we delay the house selection until later in the term. During most of first term, houses would be encouraged to have their usual collection of social events, and freshmen would be encouraged to move around and get to know the houses in an unregimented, casual manner. I believe that this will lead freshmen to actually making friends in various houses in a relaxed fashion. It will allow them to see houses more as how they are than how they can portray themselves for a week. Most of all, it will allow the selection process to take place on more

of a personal rather than a "meat locker" level.

Upon hearing this, several people have told me that they think undue bias is inherent in this system; however, I feel that if freshmen are made to understand that their housing over this period is temporary, and that they should spend their free time in different houses, the plan should work. House parties and events should be left open to all freshmen, since they'll have no official house affiliations during this time. As the term progresses, freshmen will most likely gravitate to the house or

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The Caltech Y Fly-by

Friday...October 21

Noon Concert—The Aquari String Quartet on the Quad—Be there!

Creativity Workshop—Getting the Tech blues? Try expressing yourself through art. Relax, enjoy—Y workroom, 3–6 pm.

Sign-ups start today for the **Sailing** trip on Sunday October 30. They will continue thru Monday October 24 only. You cannot beat the \$9 price. Hurry.

Sign-ups for free transportation to Daniel Berrigan's presentation 'Nuclear War and Armageddon', part of 'Fate of the Earth' series. Free admission, Hancock Auditorium on beautiful USC campus, Sunday October 30, 2–4 pm.

Sign-ups for free tickets given the Y for the Pasadena Chamber Orchestra's performance of Mozart's 'Requiem', Sunday October 23, at 5 pm, Civic Auditorium.

Wednesday...October 26

Noon Update—Plasmatics?? I don't think so, however Dr. Paul Bellan will discuss **Plasma Physics** in Clubroom 1, upstairs Winnett. Feel free to bring lunch.

ASCIT Social Notes

by Dan Schwartz

Next Saturday, October 29, the Executive Social Committee will be sponsoring a trip to Magic Mountain, a big amusement park about 45 minutes from here.

The park will be open from 10 am to midnight. The group "Sparks" will be playing at night. Techers can carpool to Magic Mountain at any time Saturday—additionally, we'll have seven buses to carry those who can't find rides or would rather bus. There will be several bus departure and arrival times, to accommodate those trolls who insist they must do *some* studying Saturday!

Come on folks, no matter how serious midterms look, bust loose for a couple of hours with some buddies at Magic Mountain. It won't hurt your pocketbooks, either.

The cost for the whole day? \$4.00 per person! For those who take the buses, there'll be an extra \$3.00 fare. These prices are for any ASCIT member.

Sign up and pay the Social Teams by midnight Tuesday, please. Thanks.

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THE ASCIT MOVIE

TONIGHT at 7:30 and 10:00



in Baxter Lecture Hall

50¢ ASCIT members

\$1 all others

Sigma Xi and The Y Assist in Grade Schools

A dozen or so Caltech undergraduate and graduate students will be sent back to grade school in a teaching-assistance program being developed by The Caltech Y and the Sigma Xi society.

Students will be recruited to help in the classroom teaching of science to children attending two schools in Altadena.

The Caltech participants will be encouraged to enlarge existing science programs and possibly create new ones. With funds provided by Sigma Xi, moreover, they will be able to purchase such necessary equipment as computers, microscopes, and telescopes.

The two schools taking part initially in the program are St. Mark's, a private school on East Altadena Drive, and Burbank, a public school on North Allen. Any science that would interest young children will be considered.

Children in the first through the sixth grades will be involved, and the Caltech

students, each working with four of the children, will spend two or three hours each week at the schools. An hourly stipend may be paid the Techers.

"We envision an opportunity that will benefit both the children and the Caltech teacher aides," said Dr. Fred Shair, president of the Caltech chapter of Sigma Xi. "With Sigma Xi underwriting the expenses and The Y coordinating the logistics, we see this as an extremely exciting opportunity for everyone involved."

"Other Sigma Xi members, Dr. Shair said, will assist the Caltech students in devising curricula and programs.

Next week, officials of the two schools will meet with Theresa Birdseye, Ron Pekar, Erik Fernandez, and other representatives of The Y and Sigma Xi. Undergraduates and graduates interested in becoming involved with the program, meanwhile, should notify The Y office. Follow-up meetings will then be arranged.

House Selection

from page 2

houses they like, and similarly spend less time in houses unsuited to their tastes.

House selections could take place at the end of the term, and freshmen could move in to their new homes come the first day of second term, right in time for house initiations and elections. By the very process of first term, freshmen will already know their new house fairly well, as well as knowing what the other houses are like. I foresee more friendships extending beyond house lines from all this, and I view that as a good thing. Nor do I think that it will in any way lessen house spirit or interhouse competition. The best rivalry is a friendly rivalry. Besides, I

think houses will be more likely to get the sort of people they want.

No doubt many freshmen will want to stay in their original house. If so, then that seems fine. People who know what house is for them (and people really will know) will be free to move, and likewise upperclassmen will have a much better basis to determine who belongs in the house.

I encourage feedback on this proposal. I realize it is liberal, but I think it merits consideration. I'd like to hear from all quarters of the Caltech community on this. The process of discussion is very useful.

Sincerely yours,

—Bill Callahan

The Inside World

Blacker: Wait! Before I begin (or is it too late for that already), I'd like to mention that last week, Blacker had this great picnic at the MOSH's joint. All Moles present (especially me) had more fun than humans should be allowed, so we won't be having another for a while. (Don't want to deliberately taunt the gods, you know.)

Now... where was I?

A courageous squad of fearless volunteers ventured into the real world (i.e., Vidal Sassoon), and surrendered themselves unto the whims of mentally unstable hair-styling students, but returned generally unimpressed with the imaginative creativity of said students, although elated with the sight of long-hidden ears. The Blacker House softball machine was slightly rusty when we played Ricketts and los 118 to 117 (or something like that), although the erasure of a single inning would have provided us with a victory (for what that's worth). The Blacker railroad, on the other hand, was in perfect operating condition as it chugged through the house, leaving frosh work chairmen, tutors, ombudsmen, and Interhouse play writers in its wake.

Tune in next week when we answer questions such as "Will the boy sit in the chair?," "Why does a dutch wheat tiger make a hardy companion?," and "What about Naomi?"

—Monster Ban

Dabney: This Saturday marks the annual Dabney House Frosh Bonfire in the courtyard. It is the first (and probably only) totally frosh organized event of the year. We'll see how they measure up to previous classes.

One week from tonight, on October 28, Blacker, Dabney and Ricketts will sponsor a three house open party featuring *A Band Called Sam* complete with their brass section. Rhythm and Blues dancing will be the key event, and drinks will be available via the Green Elephant Bar. Tentative site is Dabney House Courtyard. Come ready to dance!

—Bill Callahan

Fleming: No entry.

Page: No entry.

Lloyd: The Lloyd Juggernaut Rolls On with a 9-7 downing of weakling Page House in interhouse softball. Lloyd sits at three wins and one loss (before Thursday's game against the Big Red), the lone defeat a (shall we say) *close* game against Ruddock. Once again, we prove our athletic prowess to the world!

Robin Wilson has been collecting money from most of the house (no, not for services rendered) for sponsoring her Birdathon, a day-long excursion in which she and her compatriot sighted 122 different species of birds, for which their sponsors donated a fixed amount per species. The money will be donated to the Point Reyes Bird Observatory.

In this same spirit, the Myles Sussman Steroathon is asking for pledges for each species of stereo spotted in a 12-hour period. Donations will go to buying Myles a stereo; the goal is \$6764 plus tax.

The Lloyd House Marching Band is building! Look out! Of particular quality are the violin and camera sections, as well as our twirler, John Rostykus. The band will perform a week from tomorrow at halftime of the Caltech football game. Come out and watch! Bring your kazoo and play along!

—Gordon P. Smith

Ricketts: This week began on a formal note with the first meeting of the Caltech Organization for Weddings of the 1983-84 year. The happy occasion was graced with the joining of Ricketts own illustrious (but unwilling) Prez Janet Saylor and spouse to be Amiram Nieman. The "surprise" ceremony was conducted by the Caltech Y's own Insta-Priest Huston Horn with ex-Ricketts grand-Zot Mr. E.J. Holstaeghe both giving away the bride and preventing her escape. The ceremony and rice throwing was enjoyed by all.

The next minor miracle in Ricketts was the surprise victory achieved by the mighty Ricketts ath-men on Tuesday in interhouse softball, our first in four years. While the house so disgraced will remain nameless, it is significant to note that one of Blacker's ath-men resigned Tuesday night.

Finally, on Wednesday night on a less surprising note, the sophomore class continued its undefeated streak by vanquishing the Frosh in this year's



first interclass Brakedrum competition, achieving victory in a mere nine minutes. (Don't forget: 18 days and our Treasurer still needs to meet 7 showers.)

—Bob Bolender

Ruddock: Ruddock held a party in Spalding Penthouse on Saturday (tonight?) and it was a real blast. The room was decorated in blue and white balloons and stars and there was a live DJ. Attendance was great, as was the ratio, and the party lasted until 2 am.

Alley I seceded from the "union" and became Berkeley South house. No one really seemed to mind except for the waiters, who decided one set of dinner announcements was enough.

Saturday's Grand Amalgamated Alley Challenge (GAAC) went off without a hitch and Ruddock found it had two new frosh music sensations — Biff "Keith Partridge" Yamazaki and Tuyen Pham the Go-Go. Along with the veteran Aaron "Donkey" Roodman, they provided exciting pro-GAAC entertainment.

—Dierdre McClure

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Cinemattech Presents Comedy and Drama

This weekend Cinemattech offers a variety of entertainment. Saturday night shows will start at 7:30 pm with *The Amazing Dr. Clitterhouse*. Following at 9:35 pm will be *The Fountainhead*. Both films will be presented in Baxter Lecture Hall.

The Amazing Dr. Clitterhouse is an amusing comedy written by John Huston. It stars Edward G. Robinson as a rather unconventional psychiatrist who takes charge of a gang of thieves. He then directs them in robberies in order to study the workings of the criminal mind. Unfortunately, complications arise when Bogart, the former gang leader, attempts to regain control.

Based on the novel by Ayn

Rand, *The Fountainhead* provides more serious entertainment. The film centers on Howard Roark (Gary Cooper), an avant-garde architect. Roark is an extreme idealist, and therefore is compelled to destroy the very buildings that he designed when they do not meet his expectations. The screenplay was written by Ayn Rand, and so has managed to preserve the spirit of the novel extremely well.

Whether comical capers amuse you, or probing drama appeals more, *The Amazing Dr. Clitterhouse* and *The Fountainhead* should not be missed.

—Karen Kurowski

Next week: *Night of the Living Dead!*

Cinemattech

The Amazing Dr. Clitterhouse 7:30 pm

The Fountainhead 9:35 pm

Saturday Evening in Baxter Lecture Hall
Students, \$1 All Others, \$2

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Announcement from the Bookstore

Nov. 14

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SIF to Make Disbursements

Once again it's time for the Caltech Student Investment Fund (SIF) to make its annual disbursements to the Caltech community. During first term each year, SIF is authorized by its by-laws to disburse a limited amount of money to campus organizations who submit requests meeting the following criteria: 1) the object of the request must be of lasting value (capital improvements or acquisitions); and 2) proposed projects must benefit a reasonably broad segment of the Caltech community.

Any group or organization associated with Caltech may request funds by completing a SIF Disbursement Form, available from any SIF officer, no later than November 18. The Board will decide on all requests before the second week of December. For more information contact Lynn Forester in 117 Spalding, Joseph Lee in 208 Page, Mike Curtin in 223 Ruddock, or Darrell Schlom in 227 Ruddock.

SIF came into being in 1979 when Mr. Stanley Johnson, a longtime friend of Caltech, donated approximately \$60,000 in cash and securities to create a fund to be managed by a twelve-member undergraduate and graduate board, elected in February each year by the stu-

dent body. The primary purpose of this endowment is to 1) enhance students' interest in investments and the basic techniques of investing, and 2) provide an understanding of and a learning opportunity in the field of business economics and management.

Currently the Fund has total assets of \$106,500, with approximately 50% in stocks and the remaining in cash. Our

stock holdings recently have included blue-chip issues such as U.S. Steel, IBM and Exxon as well as positions in high-tech companies like Electronic Data Systems, Genentech, and Object Recognition Systems.

The SIF board meets every week on Wednesday at 5:15 in the Millikan Board Room. All interested students are welcome and encouraged to attend. Bring those 'hot tips'!

Next Friday at Beckman Brueggan Plays Baroque

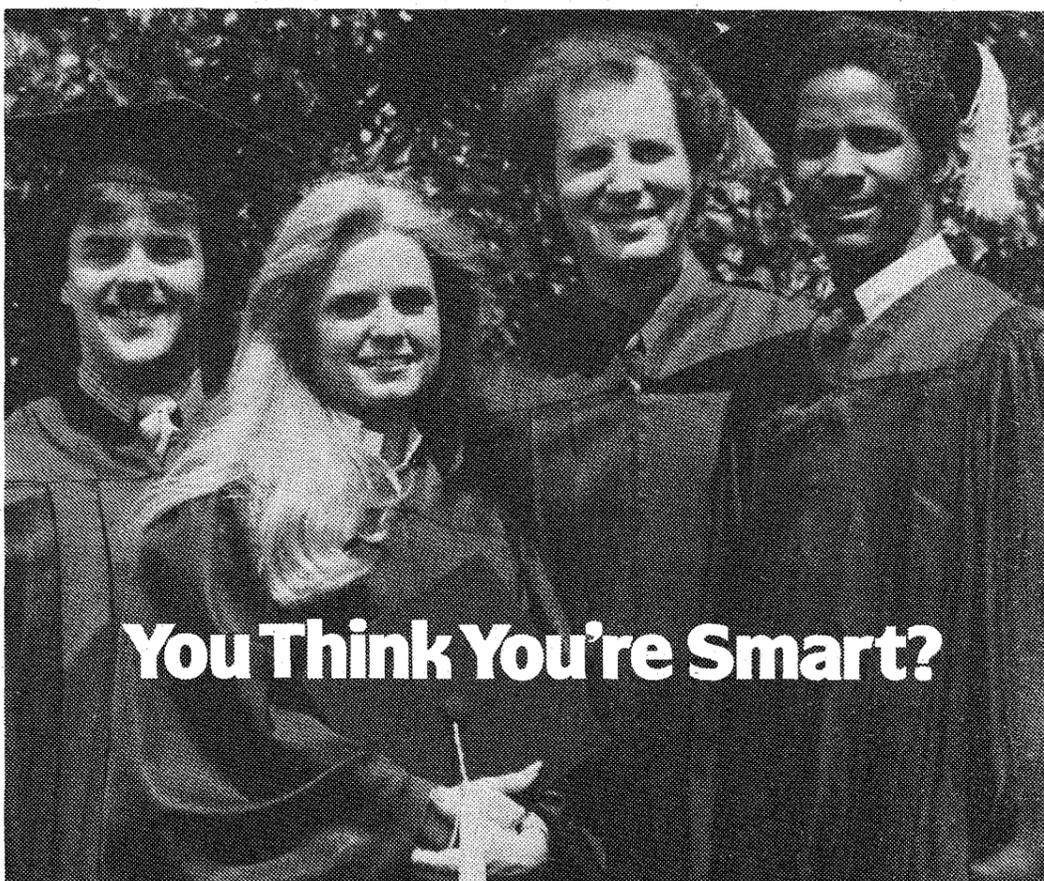
Frans Brueggan, specialist of the recorder and transverse flute, will perform a program of Baroque music, Friday, Oct. 28 at 8 pm in Beckman Auditorium. Accompanying him will be John Gibbons on harpsichord.

Included on the program will be Bach's Sonate in E minor for traverso and basso continuo and Sonata No. 6 in G Major from Sech Clavier Sonaten; Mozart's Sonata in G Major, KV 301, for harpsichord and flute; Cesare's Conzona "La Giorgina"; Riccio's Canzona; Merula's Sonata II; Picchi's Canzona; Fontana's Sonata X; and Castello's Sonata I.

Brueggan began playing the recorder at the age of six. Since joining the faculty of the Royal Conservatory at age 21, he has developed an international reputation for performance of music written before 1800. He is the founder of the Brueggan Consort and the Orchestra of the 18th Century, and is the Director of the Mozart Ensemble Amsterdam.

Gibbons currently teaches at the New England Conservatory and performs internationally.

Tickets to this concert are priced at \$13-12-11; students \$1 off. They are available at the Caltech Ticket Office, 332 S. Michigan Ave. For information, call 356-4652.



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The Fantasticks

Caltech Musical Begins Next Wednesday

by Diane Hood

Don Caldwell, director of choral music at Caltech, will direct the upcoming production of *The Fantasticks*, October 26 through November 6, in Winnett Lounge. *The Fantasticks* stars Dean Elzinga, of Ruddock House, and Susan Cave, Caltech staff.

According to Caldwell, after *Brigadoon* (last spring's successful Caltech Musical, which Caldwell directed), some people from the show were interested in doing another. The small cast in *The Fantasticks* made it the "perfect vehicle for utilizing the talents we have." It has two youngsters, a girl and a boy, and their fathers, who are sort of an "odd couple," and are played by Chemistry graduate student James Garvey and Economics Professor Robert Oliver.

On Parents' Day, (Sunday, Nov. 12), there will be a special free performance in honor of the parents. Caldwell feels that *The Fantasticks* is particularly appropriate for Parents' Day because of the nostalgic nature of the show. The parents, presumably, will be looking back on the romances of their own youth, while at the same time identifying with the play's two fathers, who are coping with "almost grown" children. On the other hand, students who see the show may be going through similar rites of passage into adulthood, and so do not have the same "retrospective."

"It's 'Try to remember that kind of September' that opens and closes the show," says Caldwell. "I think the show has survived so long because it encompasses all emotions, from the hilarious to the heartfelt. And it is sentimental, but it's the kind of sentiment that most people respond to," and then he adds, "if they don't fight it."

Caldwell came to like the show while working in professional summer stock theatre in Maine, in which he played El Gallo, in 25 performances of *The Fantasticks*.

El Gallo (pronounced el GUY-OH), is a mysterious character, part narrator, part villain, part savior. In this production he is played by Chemistry graduate student Pete Felker. The character resembles in some ways Mr. Roark of *Fantasy Island*, which is ironic, because Ricardo Montalban played El Gallo in the television version of *The Fantasticks*.

"*The Fantasticks* is poles apart from *Brigadoon*," Caldwell adds. "The audience is invited by the narrator to be a part of the goings on—they are not just observers. It is very 'one-on-one', and very exciting."

After having directed *Brigadoon* and *The Fantasticks*, Caldwell is getting the acting itch again. He will be performing in two 1-person plays in the coming year, and will be doing one here at Caltech in January. "The hardest part in acting is to become liveably the person, and to reveal yourself to the

audience in that way. You have to believe in the character, not be self-conscious, and just look the people in the eye."

The Fantasticks is being produced by James Garvey. He would like to remind the undergraduates that there is a special night set aside for each of the seven student houses. On the designated night, house members may buy tickets at half the regular student price.

The discount nights are the following:

Blacker—Oct. 26
Dabney—Oct. 26
Fleming—Oct. 27
Lloyd—Oct. 27
Page—Nov. 2
Ricketts—Nov. 2
Ruddock—Nov. 3



Bellomy, played by Jim Garvey, and Huckelbee, played by Bob Oliver, fight it out.

CORRECTION— In last week's *Fantasticks* photos, Susan Cave was mistakenly identified as Susan Berkeley.

RESEARCH...

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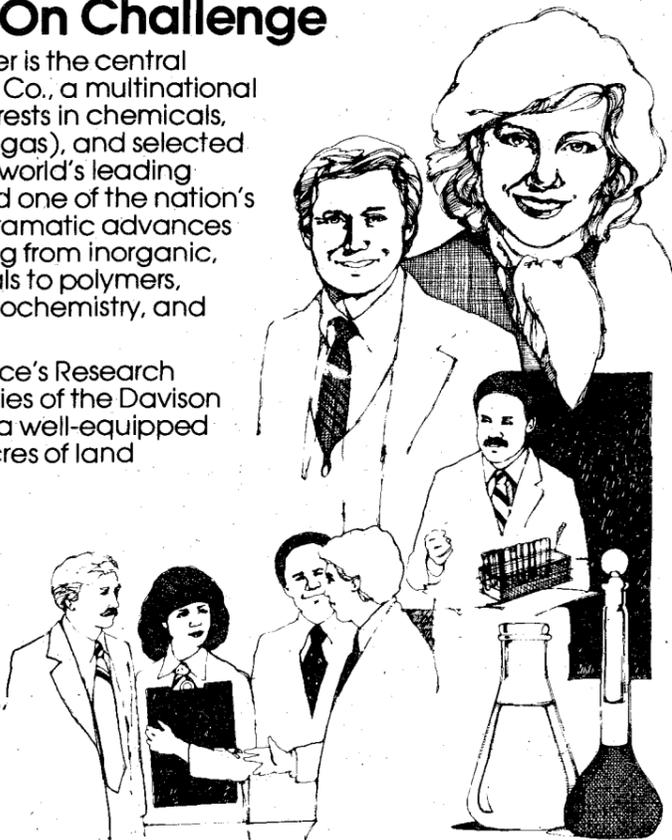
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GSC Volleyball Scores

A League (Oct. 12)

Brute Force didn't play Six Hitter's
Fleming nosed out Tapir 9-15, 15-10, 7-4
Jet Setters flew by HP's 15-7, 15-4
Ruddock riddled Aesops 15-11, 8-15, 11-2
Brute Force pounded Page 15-7, 15-3
Up-Setters outset Kong's Killers 15-8, 15-8

B League

Gangbusters splashed We're Mudd 15-12, 15-11
Face hit Hydraulic Jumps 15-9, 16-14
Overpaid Amateurs overwhelmed Besops 15-0, 15-9
Magnum Force mangled Jerry's Kids 15-7, 9-15, 15-5
Smashers outnumbered Reynolds Numbers 15-11, 15-4
Scurves beat a Strange Bruise 15-4, 15-9
Chow Dogs bent Tire Irons 15-9, 4-15, 15-13

Weekly Sports Calendar

DAY	DATE	TIME	SPORT	OPPONENT	LOCATION
Sat.	10-22	9:00 am	Fencing	Cal State Northridge	Northridge
Sat.	10-22	9:30 am	Cross Country	Pomona & Claremont	La Verne
Sat.	10-22	10:00 am	Soccer	Whittier	Whittier
Sat.	10-22	10:00 am	Water Polo	Whittier	Caltech
Sat.	10-22	1:30 pm	Football	Northeast Bengals	Caltech
Sat.	10-22	2:00 pm	Women's Volleyball	Redlands JV	Caltech
Wed.	10-26	3:00 pm	Soccer	Occidental	Caltech
Wed.	10-26	4:00 pm	Water Polo	Rio Hondo	Rio Hondo
Sat.	10-29	1:00 pm	Fencing	Cal State Fullerton	CS Fullerton
Sat.	10-29	10:00 am	Soccer	Pomona-Pitzer	Pomona-Pitzer
Sat.	10-29	11:00 am	Cross Country	SCIAC Finals	Redlands
Sat.	10-29	1:30 pm	Football	Covina Demons	Caltech
Sat.	10-29	2:00 pm	Women's Volleyball	Pomona-Pitzer JV	Caltech

Rudds and Flemings Ahead in Softball Women Volleying Away

by Ath Man at Large

As one of the more intriguing Interhouse Softball seasons in recent memory draws to a close, it appears that, barring any major upsets, two of last year's tri-champions, Ruddock and Fleming, will tie for first place,

while the third one, Page, will finish fourth.

Page started the season off on a bad note, losing to an extremely well-prepared Fleming team, 14-6, in their first game. Page then lost to Blacker (the Moles' only victory) before beating Dabney

for their first victory.

Meanwhile, Ruddock and Fleming swept through their first few games undefeated until last Friday, when they met in the game that figured to decide the championship. Ruddock jumped out to a 9-1 lead, and a fifth-inning Fleming rally fell three runs short. (The Flemings gained a measure of revenge on Sunday as their pitcher found the strike zone and the Ruddock sluggers could only muster two hits and lost, 8-0, in a Discobolus game.)

Seemingly assured of first place, the Rudds ran afoul of Page, which had been left for dead after losing to a surprising Lloyd squad. (The Lloydies, appear headed for a third-place finish, having lost only to Ruddock so far.) Page, bolstered by the late-inning arrival of some soccer-playing softballers, came from behind and defeated the Rudds 11-7 in extra innings.

As things stand now, it appears that Dabney, with a 2-4 record, will finish fifth, while Ricketts, by virtue of its upset victory over Blacker, will tie the Moles for sixth.

by Busy Sue

Well, I've kept you waiting long enough. It's time for me to tell you all about the women's volleyball team.

We have lots of returning players. Sue and Chris are setting again, Chris is big-middle-blocking and hitting (blam), Lynn and Eliza play down-low-defense (they're already down there anyway, so what else?). New players are Julia who hits HARD, Bev who middle blocks sometimes without even jumping, and Sue who plays defense.

Big news this year is that we got some new balls. We also got a new coach: Her name is

Becky and she is cool. We know she is cool because she likes Häagen-dazs...even if she doesn't like "PHYSICS BITES."

To date we have played seven matches. Pomona wiped their gym floor with the entire team, but they're bigger than us. We beat Redlands, Whittier twice, and L.I.F.E. We lost to Pacific Christian in five dead games. Our most recent match was against Christ College; we won, but gave new meaning to the word "procrastination."

Our next home game is at 2 pm on Saturday October 22 against Redlands. See you there!

The Body Shop About AIDS

AIDS (immunodeficiency syndrome) is a disease which seriously decreases the cells in the body which maintain immunity to infectious disease. Some AIDS victims develop an unusual cancer: Kaposi's sarcoma. The cause is unknown, but many experts believe it is a virus in the blood. The fatality rate is high.

AIDS seems to be transmitted by direct exposure to the

blood of an infected individual, although it is possible that saliva or semen can also transmit it.

Signs of AIDS include swollen glands, weight loss, fever or night sweats, chronic diarrhea, purplish bumps on the skin, unexplained and prolonged fatigue, cough and shortness of breath at rest.

Currently, people known to be at highest risk are homosexual men with many partners (75% of the victims). The remaining segment are mainly drug users, hemophiliacs and Haitians. The most likely cause of transfer among homosexuals is anal intercourse. It is not known if condoms provide protection.

The advice, of course, is prevention. For more detailed information, contact the Health Center (x6393), your own M.D. or phone L.A. AIDS Project, 871-1284 or AIDS Hot Line, 871-2437.

—Barbara Montgomery, R.N.

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Faculty-Student Conference

from page 1

meeting, the students reported on their ideas and discussed them with the people present. Twenty undergraduates and four administration members attended the session.

The major topics presently under study concern the Young Health Center, Graduate/Undergraduate affairs, Freshman Humanities courses, and the status of the course Ch1 abc.

Problems related to the Young Health Center are being investigated by Kurt Anderson. According to Anderson, several of the more common student complaints, such as long waiting periods and closing on weekends, are difficult to correct due to financial limitations. However, this is not clearly the case with the question of student insurance coverage and the competence of the staff in diagnosing serious or unusual health problems. Help is needed to prepare a questionnaire surveying student opinion on the subject.

Glen Crawford and Paul Filmer are examining the Freshman Humanities courses. Evaluation of the new system implemented last year is one of their major concerns. Although advanced humanities courses have increased in variety in recent years, Freshman Humanities courses have actually decreased. Input from the students will be sought on these issues as well.

Candi McCoy is studying the TA situation. A questionnaire will be sent to each department to survey current departmental policies on the use and assignment of TA's. According to McCoy, the TA selection processes in some options need to be modified to insure quality teaching. The use of more undergraduate TA's, she believes, will improve TA/student rapport.

The relationship between graduates and undergraduates was a major topic of concern in the meeting. Eliza Sutton, ASCIT Vice-President and chairperson of the Board of Control has been acting as the provisional liaison to study the subject until interested undergraduate and graduate students volunteer to direct the project. Two particular areas of interest are social interactions and the honor system.

Teresa Solberg is in charge of investigating the Chem One problems. Here, too, a questionnaire to seek student input is being planned. The approach to be adopted calls for preparing a student outline or syllabus for the course. According to Solberg, however, the major difficulty is the lack of

faculty members seriously interested in teaching the course.

In addition to the speakers, several interested students participated in the discussion. Also present at the meeting were the Deans, the Master of Student Housing, and the Vice-President for Student Affairs.

At the present, much of the work in each area is being carried out by one or two individuals. The work done so far lays the foundation for the student committees to start their analysis of the problem. ASCIT is urging all interested students to contact the organization to join any committee or offer any kind of help and suggestions.

The next such meeting is scheduled for early November.

Solstice and Sketches

The third Theater Arts production this year is a combination of two short sketches, "The Twa Corbies" and "Subduction", and a one-act play, "Solstice," all written by Greg Tomko-Pavia. These will be performed in Ramo Auditorium the first two weekends of November.

Tomko-Pavia is a graduate student in physics at Caltech, though he is presently on leave. He works at JPL on the synthetic aperture radar project.

Tomko-Pavia spent his undergraduate years at Occidental College which is where both "Solstice" and "The Twa Corbies" were originally pro-

duced. "Solstice" also won the Playwriting Award at Occidental in 1979.

The program will open with the two sketches directed by Astrid Howard. The first piece, "The Twa Corbies," is medieval in tone. In the dark silhouettes of the corbie's (raven's) wings the meaning of death is the essential question. This will be followed by "Subduction," subtitled A Modern Faust for Three, which is a lighter and more deceptive piece. The final piece, "Solstice," directed by Tomko-Pavia, takes place on a scientific research station that circles the sun. Though very

funny at times, the play asks serious questions about people's motivations for being in science; whether art and science are really the same in principle: a means to search for order in the universe; and how can we, as human beings with our limited perceptions, come to understand the universe, or can we?

"Solstice and Sketches" will be presented November 4, 5, 6, 11 and 12 in Ramo Auditorium. All performances will be at 8 pm with one matinee at 2:30 pm on Sunday the 6th. For further information and reservations please call the Caltech Ticket Office at 356-4652.

SCI-TECH BOOK SALE

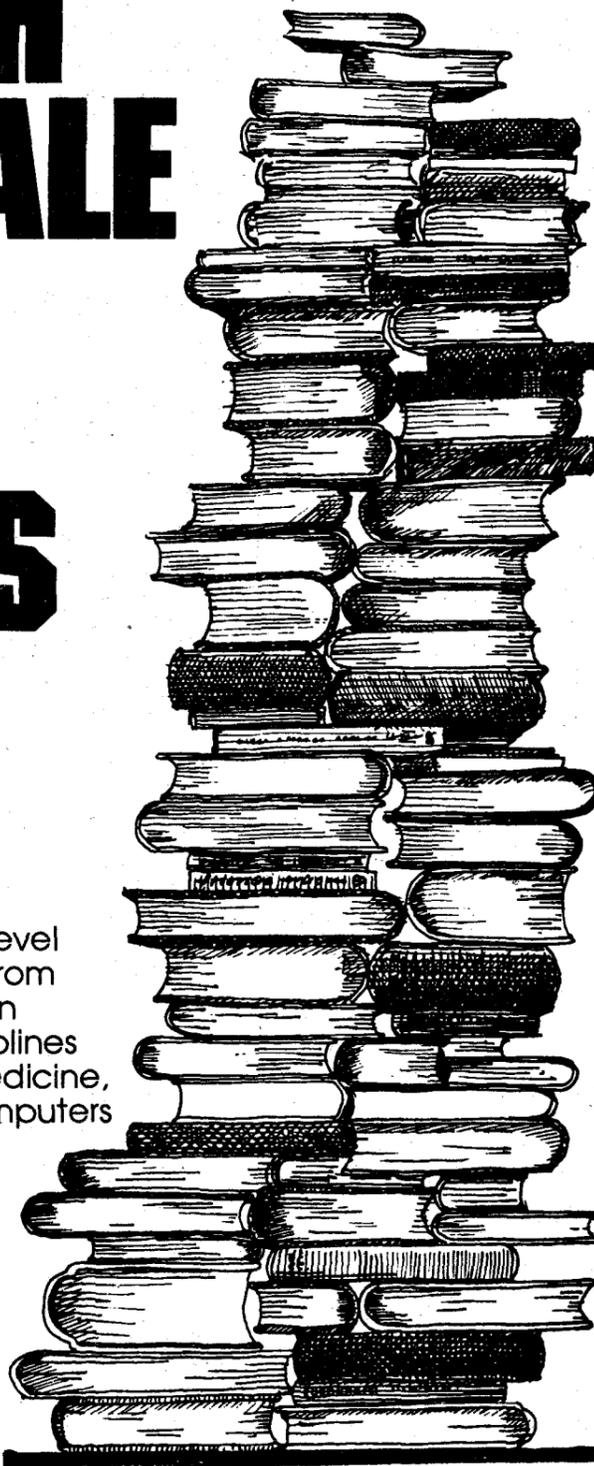
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P.D.Q. Bach!

Professor Peter Schickele returns to Caltech, Saturday, Oct. 29 at 8 pm with "The Intimate P.D.Q. Bach." This musical spoof will be held in Beckman Auditorium.

Performing with Schickele will be the Semi-Pro Musica Antiqua, John Ferrante, Bargain counter tenor; David Oei, Keyboardist; and William Walters, Stage Manager. Included in the first half of the program will be Schickele's Sonata "Abassoonata" in F Major (S. 888) for Bassoon and Piano; "Sheperd on the Rocks, With a Twist" (S. 12 to 1); and "Goldbrick" Variations (S. 14).

Also appearing in the second half of the show will be the Caltech Glee Clubs under the direction of Don Caldwell. They will perform Schickele's "Liebeslieder" Polkas (S. 2/4) for Mixed Chorus and Piano Five Hands.

Tickets to "The Intimate P.D.Q. Bach" are priced at \$15.00-13.50-12.00; students \$1 off. They are available at the Caltech Ticket Office, 332 S. Michigan Ave. For further information, call 356-4652.

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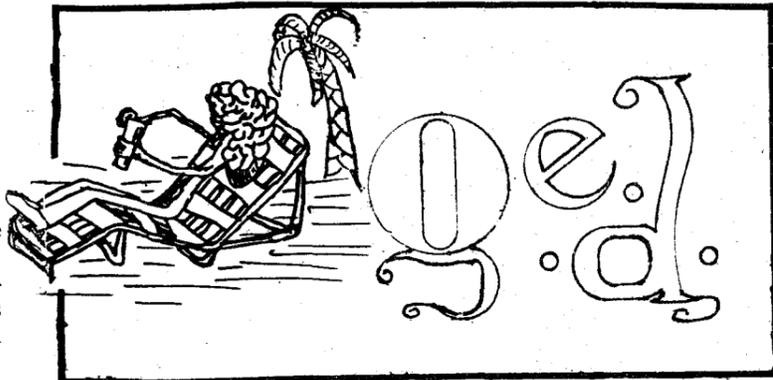
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by Zobi-Wan

I have been asked whether I might consider as suitable for publication [Ed. note: i.e., unleashing] in this column, in addition to my standard fare of theorems, lemmas, etc., the solutions to some of the various mathematical and logical problems and puzzles that have plagued mathematicians and logicians for centuries. I am at last happy to grant this request. Below is a brain teaser which has been known to mankind since Day One; within one week I was able, by repeated application of the Common Sense technique, to derive a satisfactory solution—destined to become a classic—to this knotty problem. This printing, in fact, marks the very first publication of the solution, together with all the steps leading to it. I would

announcements

Tech Staff Meeting Rescheduled Photogs Wanted

The Tech staff will meet on Mondays at 12:15 pm until further notice. As usual, bag lunches will be served and all interested Techers are welcome.

The Tech staff will meet on Mondays at 12:15 pm until further notice. As usual, bag lunches will be served and all interested Techers are welcome.

The Caltech Theater Arts production of "The Fantasticks" needs photographers to take pictures of the performances for personal use and for publicity. If you are interested in getting involved, give a call at x6197 (Don) or at x6510 (Jim). Your talents will be warmly welcomed.



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like to extend a sincere and heartfelt Bronx cheer to all the "great" thinkers of the last few eons who have striven in vain to derive this proof. Ha ha—beat you to it, fellas.

PROBLEM 3.1. How much wood could a woodchuck chuck if a woodchuck could chuck wood?

This problem can be rewritten as follows: Given P, a unit pile of wood, and W, the woodchuck operator, find the unique eigenvalue λ such that

$$WP = \lambda P, \quad 0 \leq \lambda < 1,$$

if such a λ exists. I.e., before chucking we have exactly one unit pile of wood; after chucking, we have λ unit pile of wood. (If such a λ does not exist, then the problem has no solution; the woodchuck is spastic.)

To solve the problem, we take the following approach, in which the math is trivial, although the algorithm is rather sneaky: We know W is nonsingular since, despite the Second Law of Thermodynamics, any wood once chucked can be likewise "unchucked," that is, replaced on the pile. So we attempt to define W^{-1} . Since the (normalized) woodchuck chucks in random directions, the wood will, in general, fall within a 2-ball of radius 1, which is a unit circle. Therefore, the total work done in unchucking equals the work done in chucking scaled up by the work involved in walking all over the circle. But the scaling factor is just the area of the circle, namely $\pi r^2 = \pi(1)^2 = \pi$. Thus,

$$W^{-1} = \pi W.$$

Now we solve for λ :

$$\begin{aligned} WP &= \lambda P \\ W^{-1}WP &= \lambda W^{-1}P \\ IP &= \lambda \pi WP \\ P &= \lambda^2 \pi P \\ 1 &= \lambda^2 \pi \\ \lambda &= \frac{1}{\sqrt{\pi}} \end{aligned}$$

SOLUTION. A woodchuck would chuck all the wood he could chuck ($= 1 - \frac{1}{\sqrt{\pi}}$ unit pile of wood) if a woodchuck could chuck wood (which he can, since $\lambda \neq 1$).

Note that the woodchuck has about 44% success chucking, probably enough to earn him a position with B&G. Isn't math useful!

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