

Bet you
didn't know ---

California Tech

Associated Students of the California Institute of Technology

It's Ground Hog
Day today!

Volume LVIII.

Pasadena, California, Thursday, February 2, 1967

Number 16

Special By-laws Vote! Amendment Would Allow Soph-Jr Prexy

Monday night's BOD meeting saw the introduction of a petition initiated by Joe Rhodes, to the effect that over 270 members of ASCIT feel that sophomores should be allowed to run for the offices of ASCIT president and vice-president. This petition requests a revision of the By-laws of the Corporation, and thus necessitates a vote by the Corporation at large.

The petition was posted in the Student Houses on Monday afternoon and was collected only four hours later, but more than

270 signees quickly surpassed the required 25% of the student body. The sheets were headed with the names of the seven House presidents as well as other student notables and Meo. When interviewed, the House presidents gave varying reasons for signing.

Greg Shuptrine of Ruddock feels that the present "dynamic" leadership in the higher ASCIT offices will encourage more candidates if the possible sources of presidential and vice-presidential candidates are enlarged. He also

expressed hope that candidates would learn more about their office if they were contested.

Dabney's John Eyler blandly expressed agreement with the reasons stated on the petition, but admitted he was not personally satisfied with the current candidates.

Tony Gharrett, Ricketts House Prexy, signed purely to give the student body a choice in the matter, although he did not imply support for any particular sophomore candidate. Bob Piccioni of Lloyd felt that if the student body wanted a particular sophomore for president, there is no reason why he should be barred

from running. Fleming's Randy Harslem thinks there should be no limitations since few enough people are running as it is.

Ben Cooper, Blacker president who introduced the petition into the meeting, feels that there is probably more political talent in the sophomore class than in the junior class, but that a junior would be elected in most cases anyway, while Schnuelle of Page doesn't see why anyone can't run who wants to.

Lamb set the election for this Monday night: if the By-law revision is passed, any sophomore candidate must file with the BOD by that night's meeting.

Lilly Talks on Interlocution With Dolphins

Dr. John C. Lilly lectured to a capacity crowd in Beckman Auditorium Monday night on attempts by man to communicate with dolphins. The author of the book *Man and Dolphin* mentioned that he was happy to return to Caltech, where he was an undergraduate from 1933 to 1938.

Vive le difference!

Lilly commented that differences exist between porpoises and dolphins. The porpoises have brains smaller than a chimpanzee's, whereas a dolphin's brain is considerably larger and more complex than a man's.

Lilly pointed out that dolphins produce three types of sounds: whistles, slow clicking, and fast clicking.

Blowholes

The sounds are produced by a complicated arrangement of air sacs, membranes, and tongue-like organs near the blowhole. Computer analysis of the sounds showed that they approximated those produced by resonant cavities driven by a regular series of pulses, a fundamental tone plus several variable overtones. In the human vocal apparatus, the vocal cords provide the fundamental and the shape of the mouth and nasal cavities vary the overtones; in a dolphin, the tongue-like organs by the blowhole provide the fundamental and the air sacs control the overtones.

High sopranos

One of the major problems in communicating with dolphins, Lilly explained, was that the

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Poets Leave Caltech After Fruitful Stay

Richard Brautigan and Andrew Hoyem visited Caltech last week in an attempt to bring culture to campus. The two are lively young poets from the San Francisco area, and one is part owner of one of the finest (though small) presses in California.

The handful of students who emerged from their pits to listen found the experience very stimulating. The poets expressed regret that almost no faculty members came to the readings. They did meet Nobel Laureate Richard Feynman, however, who mentioned that he, too, had poetic inclinations. Feynman said that when he was young he was determined to name something he invented a Porange (rhymes with orange).

Coffeehouse needed

Hoyem and Brautigan, being connoisseurs of coffee, immediately stepped into the coffeehouse campaign to help correct the lamentable coffee conditions on campus. The stuff at Chandler, they said, was hopeless. The

Student Houses had about one good cup in ten, but the poets weren't sure that all of the coffee was from the kitchen. Sampling the off-campus brews, results were better; apparently about 50% of the off-campus students made excellent coffee. Both poets gave their full support to the Coffeehouse effort.

Equal and opposite

Commenting on their thoughts about Caltech, Hoyem said, "Well, it's certainly not like reading to a hip group in San Francisco, but we were pleased with the reactions we got." The student reaction was good, though varied. "Do poems ever rhyme any more?" "What poets?" "What poetry?" and "They look like cops, man."

Certainly, most students had difficulty in picking up much of what the poets said. But some of it sank in, and the duo's lively and outgoing personalities were a refreshing change.

Our thanks to John Crawford, instructor of English, who arranged for the visit.

Huttenback Rescues Cross From Ignominious Failure

Dr. Huttenback confirmed Monday the California Tech's proposal of sending track star Pete Cross to run in the BAA marathon: "We'll try like hell to dig it (the money) up somewhere. I think he should go!"

About being sent as Caltech's representative to the BAA this year, Athlete of the Year Cross said that he would "love to go" and he would be ready for it "if someone wanted to send me." However, getting him to Boston seems to be a problem; \$160 would take care of transportation, but official budgets can't clear the way for the needed allotment.

Thin air

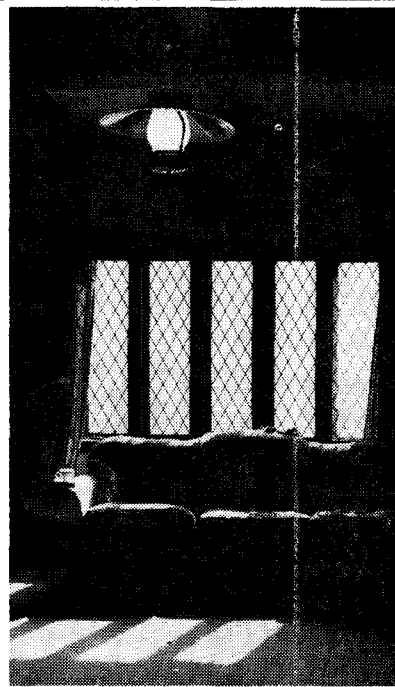
Paul Barthel, trainer and distance coach of the track team, will go along with anything Pete decides. But when Athletic Director Warren G. Emery was asked about the possible funds, he dampened hopes, asserting that the "money will have to come out of the thin air." Emery noted that he would be able

to provide the money if the event were intercollegiate competition, or if it were closer to Caltech.

Promoters of the Cross for BAA proposal next asked Dr. Robert Langmuir, chairman of faculty committee on Physical Education and Athletics about the possible sources of finance. Although he was in favor of sending Cross, Langmuir explained that his committee has no "budget" and it does not have the authority to make such allotments. He was not able to suggest any other possible sources, and upon being asked where the money might come from, Langmuir replied, "Now, that's an interesting question, isn't it?"

End of rainbow

Finally, Master of Student Houses Huttenback reacted favorably with a promise to get the necessary pesetas. Although no money has turned up so far, the Genial Abbot is following up the problem, and now it looks probable that Pete Cross may yet finish 40th in the '67 BAA.



—photos by Engebretsen

FAMED WWI ACE mysteriously appears (left) on the north face of Firestone over the weekend. He is obviously dreaming of the rustic hospitality he will find at the Coffeehouse (right). The Red Baron, however, was not so easily caught off guard; the villain seeded the clouds Monday and washed our hero away.

Fund Drive to Clear \$4000

The Coffeehouse fund drive concluded successfully with a total haul of more than \$3700, and the Pasadena zoning variance came through yesterday. Now we face the task of actually converting Prufrock House into The Coffeehouse, and this phase of the fight may well exceed the fund drive in difficulty and excitement.

We set a minimum goal for the fund drive of \$2000. The finance and publicity subcommittee, under the leadership of Ira Herskowitz, distributed pledge

cards to all students, faculty, and staff members.

The finance and publicity subcommittee, aided by the other subcommittees, also made valiant attempts to advertise the fund drive. Frequent forays late at night resulted in hortatory slogans greeting the day. In this respect we must thank Guggenheim and Firestone Labs for their solid support.

To date 390 pledge cards have come back. The pledge money, together with the profit from the open house party on Jan. 14 and

the film showing Jan. 21, totals \$3764.06 but donations are still coming in. It's quite possible that the drive will exceed twice its goal.

The City Planning Commission has approved the zoning variance after a five-day waiting span, and basic remodeling by the Tyler Construction firm under contract to the Institute began today. Our job, however, is not yet finished.

We must still clean Prufrock from ceiling to floor, refinish the entire living room floor, and make the many changes that will convert Prufrock House into a viable Coffeehouse. The construction sub-committee has prepared a work poll which will appear Friday. We need people to donate time over the next two months to remodel the building, and the only requirement is willingness.

BOC Considers Enlarging Honor System Obligations

Because of the large inventory loss of dishes and silverware from the north and south dining complexes, the Board of Control met last week to try and devise a solution to this apparently perennial problem. Nothing revolutionary came of the meeting; rather, the Board expressed hopes to slowly educate people into leaving the dinnerware in the dining room.

The actual nature of the problem is not as simple as some might expect. Though about

\$4000 worth of dinnerware disappeared during first term, the possibility exists that a large percentage of it remains in rooms in the Student Houses. In fact, a large number of pieces are collected by the maids at the end of each year, but this of course does not help the situation now. When SAGA ran the food service, it had to pay for all losses of the institute-owned dinnerware. As the Institute now owns and operates the food service, the administration feels that better us

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A candidate who doesn't write a statement for the Tech isn't a candidate at all. Statements should be about 250 words long and in our hands no later than next Monday midnight. Presidential candidates may also submit a picture of themselves for publication with their statements.

Editorial

Another Simple Issue

My, but we're having a spate of elections nowadays. You can hardly stop to catch a breath before the ballot boxes appear in the House Lounges to consume your votes. A couple of weeks ago the issue was whether or not to recall Michael Meo; next Monday it will be whether or not to let Joe Rhodes run for ASCIT president.

Naturally the question is more complex than that; indeed, long and windy dissertations can be delivered on the desirability of changing the By-laws; on the desirability of changing them now; on the loss of talent involved in compulsory retirement of a junior ASCIT president; on the maturity of seniors as compared to juniors. Such hesitation, such overriding caution, is unjustified in the face of the ease with which the By-laws can be altered. **Chuck 'em out, the brutes**

That's right, the ease. Last year witnessed a sweeping change in the By-laws, and so for this year we've seen three different proposals discussed. Both petitions for special elections have gathered the necessary number of signatures in under a day. Finally, if two-thirds of the student body ever think the By-laws need changing, out they go. Amendments are a simple matter in the ASCIT By-laws, and experience indicates that they will be passed whenever the need arises.

The need has arisen, for currently running for ASCIT president are two candidates, Sam Logan and Erno Daniel. Logan has served a colorless term as treasurer, but he, in our opinion, has not shown a great deal of leadership. Daniel is, pure and simple, totally unqualified to run for student body president. He **used to be** athletic manager for Ruddock House. Neither of the present candidates deserves the job.

The colossus of Rhodes

On the other hand, Joe Rhodes has bewitched the campus with his boundless energy and vast capacity for organization. He is czar of the entire Caltech Coffeehouse project, he runs all three YMCA tutoring programs, and he chairs the Activities Committee. In our opinion, Joe Rhodes should be the next ASCIT president, and we think you ought to so vote next Monday.

—Michael Meo
John Middleditch

Death Valley Days

Ronald Reagan's hip-fired shots at the University of California have followed his election hard on. The result of his "desert-mind" tactics are already known by most innocent bystanders, but for the edification of the out-of-touch, these include the **proposed** 10% cut in funds for universities and state colleges, \$400 tuition for universities and \$200 tuition for state colleges, and the **accomplished** firing of UC President, Clark Kerr.

The cut in funds is to be partially subsidized by the raise in tuition, as might be expected. Just whom, exactly, does this redistribution of income affect? The first group, some millions of taxpayers (mainly above the voting age), would have their taxes reduced by epsilon. The second group, academically qualified students (mainly under the voting age), will bear the entire burden of the redistribution by hundreds of dollars apiece.

Tax relief for Beverly Hills

Granted, many of the students, or their parents, will be able to bear this added cost. For the less well-to-do, the extra onus could easily thwart them or their progeny from obtaining a higher education. Even counting California State Scholarships, the net result will be a redistribution of cost from those who can most easily bear it to those who can ill afford it.

The concept of a free public education is a noble one indeed, but this concept is apparently as lacking in Governor Reagan's mind as elm trees in Death Valley. "Free public education," if it is to have real meaning, must be defined as that amount of education necessary in contemporary society, and it is generally agreed that a college education or some form of post-secondary educational training is necessary.

Education is a public good

In short, the general public should bear the burden of public education, for the benefits of an educated populace are universal. The costs are impossible for the student to pay in full and economically discriminatory for them to pay in part.

Unfortunately our dear Governor Reagan does not agree on this point, and perhaps he does not feel that the University of California (probably the best system of public education in the world) should exist at all. He certainly couldn't do a better job of it if he were trying.

—John Middleditch
Michael Meo

Brown-nose Awards

Four Caltech students who have shown strong potential for leadership are the first recipients of the newly established Donald S. Clark Alumni Awards. The winners are juniors Sam Logan and Ed Seguire and sophomores Linus Martin and John Cummings.

It always warms our hearts to see Teckers receive awards; perhaps they ought to get medals, all of them, for valorous service while under fire, just for attending Caltech. But we would like the Administration either to better delineate the requirements for these D. S. Clark awards or to choose more qualified recipients for the \$250 prizes.

Who springs to mind as a potential leader at Caltech? Fred Lamb, that's who, and then Martin Smith and Joe Rhodes. In second rank come Eric Young and then the House presidents. **These** are the people that have shown qualities of leadership—they are the campus formers of opinion, the men of action. Admittedly, they get honor keys for their troubles, but then what's this D. S. Clark affair?

It worries us to see an ambiguous prize awarded to nice guys for no special reason. Could you please elucidate us, Dr. Clark?

—Michael Meo
John Middleditch

Party at Arden House

After the regular channels were tried, and they failed, Dr. Huttenback promised to scare up some money to send Pete Cross to the Boston marathon. Yet one more example of the responsiveness of the present Master of Student Houses.

As for the Athletic Department, maybe it would be better not to mention those tight-fisted, itchy-palmed, stone-squeezing, penny-pinching, money-hoarding misers. Perhaps we shouldn't mention those uncharitable, rapacious, **niggardly** tightwads. So we won't. The Genial Abbot has promised to hold a charity party for Cross, the profits to go towards his plane fare. We'll report further developments as they arise.

—Michael Meo
John Middleditch

"Honor is a Mere Scutcheon . . ."

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es can be found for the \$4000 a term.

Tradition

According to Martin Smith of the BOC, to ask for the immediate return of the items and to punish all who refuse would be quite inconsistent, since the acquisition of service for apartments and on-campus rooms has been somewhat of a tradition. The Board has instead decided

merely to inform off campus members, students and House presidents and headwaiters of the urgency of the situation. Hopefully, this will foster, within about two years, an attitude whereby students will no longer take dinnerware for personal use. Smith feels that the problem is slightly outside of the province of the Honor System, but hopes that belief in the spirit thereof will solve this problem.

Letters

BOD Bites Back

Editors:

The ASCIT Board of Directors thinks that a complete, truthful account of its meeting of January 23, 1967 should be made known to the student body. An account of the meeting, until it was closed, was included in last week's **Tech**. However, the newspaper failed to note that the meeting was later re-opened, Michael Meo omitted to it and the Board and Meo discussed at some length the possibility of an independent newspaper. Plans were then discussed to place the issue before the student body, perhaps at the forthcoming general election. The Board was of the impression that Meo's response to the proposal was enthusiastic, and that a spirit of cooperation prevailed in the discussions. Meo then agreed to send up a reporter to record the proceedings and left.

The Board notes with dismay and displeasure the half-truth printed on the front page of last week's **Tech**. The latter portion of the meeting was not reported, and Meo permitted the distorted account to appear. The Board wishes to urge the editors to publish future accounts of its meetings in a more full and fair manner.

ASCIT Board of Directors

Meo's Recall

Editors:

The attempted purge of Michael Meo over his story concerning marijuana brings an important point to the fore. This point is that, had it not been for their screams of horror, the story would have gone relatively unnoticed outside the campus. As it is, many more people will now become involved than might have been the case.

It would be my suggestion that those 183 students who felt the need to suppress such dangerous articles would serve their purpose far better if they began working silently to set up a dic-

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ENGINEERING OPPORTUNITIES

for Seniors and Graduates in **MECHANICAL, AERONAUTICAL, CHEMICAL, CIVIL (structures oriented), ELECTRICAL, MARINE, and METALLURGICAL ENGINEERING**

ENGINEERING MECHANICS, APPLIED MATHEMATICS, CERAMICS, PHYSICS and ENGINEERING PHYSICS

CAMPUS INTERVIEWS

WEDNESDAY, FEB. 15

Appointments should be made in advance through your College Placement Office

Pratt & Whitney Aircraft
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SPECIALISTS IN POWER . . . POWER FOR PROPULSION—POWER FOR AUXILIARY SYSTEMS. CURRENT UTILIZATIONS INCLUDE AIRCRAFT, MISSILES, SPACE VEHICLES, MARINE AND INDUSTRIAL APPLICATIONS.

(Continued from page 2)
 tatorial form of government, rather than by attacking a single man in the structure. In this manner they could crush their opponents without unduly publicizing them.

Stan Conger
 Exchange Editor
 PCC Courier

BOC Faulted

Editors:

The primary goal of the American judicial system is to protect the rights of the defendant. The right to be present during the examination of witnesses, the right to call witnesses, and the right publicly to protest the verdict of those passing judgment are some of the prerogatives of the defendant. We believe it indisputable that these rights are both just and necessary in democratic society.

The Board of Control judges alleged violations of the Honor System and tenders recommendations which are usually followed by the Deans. These recommendations can seriously affect the status of a student at the Institute, and thereby his future career. An Honor System violation is a transgression against the societal code of the Caltech student body; the analogy between the BOC and a court of law is thus evident. Hence it is the duty of the BOC to allow, indeed even to encourage, the defendant to use all the means available to

plead his innocence.

Star chamber

The BOC is negligent in this duty. The BOC holds meetings with an aura of secrecy and mystery. Before a person is informed even of the accusations against him, he must swear an oath not to reveal the proceedings of the meeting to anyone. The accused is not present during the examination of witnesses, he does not know their identities, and has no access to any records of the inquiry. He can only present his own testimony and cannot offer rebuttal to the testimony against him. He entrusts his fate entirely to the judgment of the Board, and while we are not impugning this judgment, the situation is far from equitable. Under the present system the investigation is one-sided; if the defendant can call witnesses of his own, he certainly is not made aware of this right.

We know the procedures to be as we have stated from personal experience, and although we do not feel that the decisions in our particular cases were unjust, we do feel that the system could easily lend itself to injustice. We invite members of the Board and other students to express themselves on the subject of BOC procedures, as we feel a revamping is in order and open discussion is the key to a solution of the problem.

Tom Baze
 Martin Dowd

Offices Vacant

Editors:

Every undergraduate pays twenty-odd dollars a year for the privilege of being a member of

the Associated Students of the California Institute of Technology, Incorporated, but relatively few of them are actively aware of the functions of this organization, save when an incident such as a dramatic clash between the Excomm and the Tech editors occurs.

In addition to providing occasional melodrama, the Associated Students publishes the **California Tech**, the **Big T**, and the **little t**. All athletic and service awards are given, and paid for, by ASCIT. ASCIT provides the entire financial support for the Model United Nations, the Drama Club, the Band and various smaller organizations, and a substantial part of support for the Debate Team and Glee Club.

Snow your date

ASCIT supervises the game-room, produces the Alumni Series (Wednesday at 11), runs many of the student-oriented affairs in Beckman, and provides social events such as Lost Weekend and the Snow Party.

The Eliminators

Some of ASCIT's subcommittees, such as the EPC, handle many problems which affect students directly—the EPC played a major role in the decision to eliminate freshman grades. The Board of Control, the body responsible for ensuring the well-being of the Honor System, is included within the framework of ASCIT. The Chairman of the Interhouse Committee is an ASCIT officer. ASCIT provided the organizational structure within which the Coffeehouse project finally got rolling.

The individuals who bear the prime responsibility for ASCIT's activities are the elected officers. These officers are responsible to the entire undergraduate body—all seven Houses and off-campus students—and act as the primary interface between the students and the rest of the Institute. The scope and nature of these tasks, as well as their rewards, are greatly different from the House offices with which most students are familiar.

These offices—for which nominations are now open—are de-

scribed below:

PRESIDENT: Chairman of the Board of Directors and the executive head of the Associated Students. Duties are not specifically defined, but the office is the most difficult and demanding of those here.

VICE-PRESIDENT: Chairman of the Board of Control; must be a junior at the time of election. The Vice-President's prime responsibility is to "insure the continuance of the Honor System as a vital force among the students." He also acts as second to the President.

IHC CHAIRMAN: Must be a sophomore or junior at time of election. Responsible for matters affecting the Student Houses collectively and acts as liaison between ASCIT and the Interhouse Committee.

SECRETARY: Responsible for the maintenance of all ASCIT records, except for those of the Board of Control and those of the Treasurer. Often, with the President, represents undergraduates on student-faculty committees.

TREASURER: Responsible for the financial management of ASCIT. Keeps track of the approximately \$20,000 which passes through ASCIT's books each year. Has direct charge of the Corporation's property.

ATHLETIC MANAGER: In charge of the entire awards program, and all events connected with awards. Represents the student body in all matters concerning the intercollegiate athletic program.

ACTIVITIES CHAIRMAN: Responsible for the diverse multitude of ASCIT activities such as the Talent Show, the Alumni Assemblies, affairs in Beckman, etc., which are not a part of the social program. Chairman of numerous, and hard-working, committees which handle these affairs.

SOCIAL CHAIRMAN: Responsible for ASCIT social events. Generally in charge of social events which are campus-wide.

REPRESENTATIVE - A T - LARGE: Must be a freshman at
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Two Locations

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<p>GLENDALE 234 S. Brand Reservations Phone 245-5043</p> <p>HEARTS & FLOWERS Starts Feb. 7: THE TRAVELERS 3 Thru Feb. 5: THE STANDELLS</p>	<p>PASADENA 24 N. Mentor Reservations Phone MU 1-9942</p> <p>MIKE & BRYAN "As Exciting as Their Name" JOHN HORE CAROL HEDIN</p>
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Notices

TAXIS AND TIMERS NEEDED
 for Caltech's Annual (almost completely) Computer-Controlled Debate Tournament, February 15-19. If you wish to hear and time these debates, or have a car you could use those days, contact David Dockstader in 29 Fleming. There will be a small monetary remuneration for those who drive.

TOTEM NEEDS ART
 Totem is badly in need of artwork and photography for this term's issue. This and other material will be accepted through this Saturday. There will be a staff meeting this Saturday at 3 p.m. in the YMCA lounge. Material may also be submitted to Rich Rubinstein in Blacker.

FELLOWSHIP RESTRICTIONS LIFTED
 Application deadline for California State Scholarships has been extended to March 15, 1967. The competition for State Graduate Fellowships is now open to all full-time graduate students in the approved academic disciplines. Application forms are available in the Graduate Office (114 Throop) and Information Center (Room 24 Throop).

BURN, BABY, BURN — AFRICAN STYLE
 Anyone who wants to play in this year's War Games and hasn't signed up yet must sign up by Tuesday, February 7, at the Y office.

THE CALTECH SKI CLUB
 will hold a meeting at 8:00 p.m. on Thursday, February 2, in Clubroom No. 1 of Winnett. All members please attend.

THE TECH OFFICE
 received a photostat of selected Brazilian laws concerning prospecting and mining. Would the owner please step forward.

YMCA ELECTIONS
 will be held on Wednesday, February 15. Deadline for receiving "Statement of Candidacy" in the Y office is this Tuesday, February 7.

WRITE ALL ABOUT IT.
 You have a once-in-a-lifetime opportunity to express your creative talents — join the staff of Caltech's underground newspaper, **Notes from the Underground**. All undergrads, grad students, and any other sentient creatures haunting the campus are cordially invited to attend a meeting of the paper Tuesday, February 7, at 7:30 p.m. in Clubroom No. 1.

Coming: February 16 & 17, 1967

HUGHES RESEARCH LABORATORIES
 announce campus interviews for Electronics Engineers and Physicists receiving B.S., M.S. and Ph.D. degrees

Current programs include:
 Ion Physics Research
 Plasma and Gas Discharge Research
 Millimeter Wave Generation and Amplification Technology
 Coherent Optical Detection and Lasers
 Quantum Electronics and Solid State Studies
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Contact your Placement Office to arrange a campus interview. Or write
 Mr. W. K. Walker
 Hughes Research Laboratories
 Malibu, California 90265

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FLICK GUIDE

<p>ACADEMY 1003 E. Colorado 796-3191 Admission: \$2.00 (\$1.50 before 5:00) w Fox student card.*</p> <p>Friday: Arubisque — 12:45, 4:50, 8:40 Quiller Memorandum — 2:40, 6:50, 10:35</p> <p>Saturday: Arabesque — 2:20, 6:00, 9:50 Quiller Memorandum — 12:30, 4:10, 7:55, 11:40</p>	<p>ESQUIRE 2670 E. Colorado 793-6149 Admission: \$1.50 for students</p> <p>Friday: Georgie Girl — 7:14 The Last Mohican — 7:03, 8:57</p> <p>Saturday: Georgie Girl — 2:30, 4:23, 6:18, 8:13, 10:07 The Last Mohican — 4:12, 6:07, 8:02, 9:57</p>
<p>COLORADO 2586 E. Colorado 796-9704 Admission: \$1.00 for students</p> <p>Friday: Fantastic Voyage — 7:00, 10:50 How to Steal a Million — 8:40</p> <p>Saturday: Fantastic Voyage — 2:50, 6:50, 11:40 How to Steal a Million — 12:45, 4:40, 8:30</p>	<p>STATE 770 E. Colorado 792-7139</p> <p>Friday: The Venetian Affair — 7:00, 10:40 The Professionals — 8:30</p> <p>Saturday: The Venetian Affair — 8:40 The Professionals — 6:30, 10:20</p>
<p>CROWN 129 N. Raymond 796-3131 Admission: \$1.25 w Statewide student card, \$1.50 without.</p> <p>Friday: Is Paris Burning? — 9:00 Venetian Affair — 7:15, 11:00</p> <p>Saturday: Is Paris Burning? — 6:30, 10:30 Venetian Affair — 4:50, 8:50</p>	<p>UNITED ARTISTS 606 E. Colorado 681-6577 Admission: \$1.50 w United Artists student card, \$1.75 w out.</p> <p>Friday and Saturday: Prehistoric Women — 1:10, 5:32, 8:54 Devil's Own — 2:46, 7:07, 10:30</p>
<p>UPTOWN 2316 E. Colorado 793-4330 Admission: \$1.25 w Uptown student card,** \$1.50 w out</p> <p>Friday: Penelope — 7:00, 10:25 Cincinnati Kid — 8:40</p> <p>Saturday: Penelope — 3:15, 6:45, 10:20 Cincinnati Kid — 1:30, 5:00, 8:30</p>	<p>*If you are bereft of a Fox student card, one can be bought, included in an admission price of \$2.00. Good for six months. **An Uptown student card can be purchased under following plan — first night: admission plus card, \$1.50; second night: admission, free; following nights: admission, \$1.25.</p>

Chorale Planning Future Concerts

The Chorale is going strong this year, according to its director, Mrs. Priscilla Remeta. Formed as a low-pressure singing group, the Chorale is planning to sing on three occasions this year.

Concerts

The first concert will be this Sunday at the Redondo Beach Methodist Church, and will feature a program consisting of "Frostiana," an arrangement of Robert Frost's "Stopping by the Woods on a Snowy Evening," "Sheep May Safely Graze," a Bach Cantata, and "Santa Teresa's Bookmark." Later concerts will include a program for the blind at the Glendale Service Club and the home concert with the Glee Club.

The Chorale presently has fifteen members and is composed both of graduate and undergraduate students. Says Mrs. Remeta, "The primary purpose of the group is vocal training. We learn to read music and to use the voice correctly." Sometimes individual voice lessons are available for members. This year, for the first time, the group has jackets to wear in its programs.

Come and sing

New members are always welcome, regardless of singing ex-

perience. Those interested in the group should drop by the music office west of the Fleming game room right after any Monday dinner. Rehearsals run from 7 to 8:30 p.m. Monday.

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time of election. In charge of the ASCIT Blood and Charities drives, and is delegated numerous student-body matters during the year.

(The above are all members of the ASCIT Board of Directors.)

EDITOR(S) OF THE CALIFORNIA TECH: Officers responsible for the publication of the *California Tech*. Commonly work at odds with the "nine old women." Receive a salary of \$300/year, in return for which they yield body and soul to the *Tech*.

SECRETARY OF THE BOARD OF CONTROL: The second executive officer of the Board of Control. Responsible for keeping the BOC's records and for presenting the Board of Control's recommendations to the Deans. Must be a sophomore or junior at election.

(Note that most of these offices have little or no restrictions as to class.)

None of these jobs is easy, but all are rewarding. The successful handling of a matter that affects the welfare of the student body, or the successful presentation of student thought and needs to representatives of the faculty, brings a reward which is unique to ASCIT offices.

The opportunity is there. If you want to do something for this campus, or want to change something about it, ASCIT is the place to do it. **If you do,** 1) talk to the current office-holder; he can tell you something about it. Don't be modest, if you want something, go after it. And 2), submit a written nomination (of yourself) to John Cummings in Ruddock. Elections come but once a year—this is your chance, so take it.

Martin Smith
Fred Lamb

Dolphin Talk

(Continued from page 1)

dolphin's most efficient hearing and speaking frequencies are several times as high as a human being's. Although, with practice, one dolphin did get his voice down to the level of his human (female) partner, there was still a great deal of distortion. One attempt to get around this is a device which is designed to transform human speech to dolphin range and vice versa. Even then, Lilly said, communication between the two species is considerably more difficult than communication between two humans speaking different languages, because at present we aren't even certain what part of dolphin sounds carries the intelligence.

That dolphins are highly intelligent creatures is indisputable, however, from both an anatomical and a behavioral standpoint. If brain size is plotted against body length for infant and adult men and dolphins, they all lie on the same straight line. Both the computing components and the input/output components of a dolphin's brain are almost all as complex as or more complex than man's.

Lilly concluded with the comment that he and his group are not trying to teach dolphins English. They are merely attempting to establish a means of communication with what he considers another intelligent species.

CANADIAN STUDENTS OPERATION RETRIEVAL

A team of Canadian University, Civil Service Commission and Department of Manpower personnel will visit the Campus to acquaint Canadian students on the Campus with employment opportunities in Canadian universities, industry and the Federal Civil Service. Canadian students are cordially invited to attend the meeting.

There will be a general meeting in Room 206 Dabney on Thursday, February 16, 1967, at 8:00 p.m., and each student who so desires will have an opportunity for a private interview with a member of the team on Friday, February 17, 1967, from 9:00 a.m.

Arrangements at your University are being made by Mr. Donald S. Clark, Director of Placements. If you wish an interview on February 17th, please telephone extension 2362 for an appointment, indicating your preference between a University, a Civil Service Commission or a Department of Manpower Member of the team.

California Tech

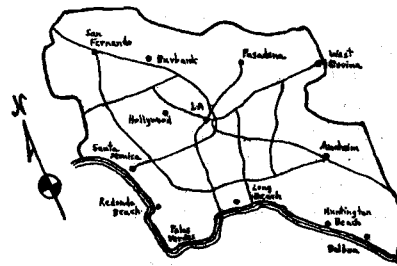
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Intelligence Report

by Fehder

Perhaps you like dates that start later in the evening. Or perhaps you'd like to take a "liberal-minded" date to see something besides the usual trash that Hollywood produces. Or maybe your years at Caltech have driven you "underground". In any case, you might enjoy a trip to see the "Movies Around Midnight" at the Cinema in Hollywood some Saturday night/Sunday morning.

The Cinema Theater, located at 1124 No. Western Blvd., is easy to reach. Just take the Hollywood Freeway to Santa Monica Blvd. — Western Blvd. exit, turn left at the end of the off-ramp, and right at the first light (Western). The theater is in the first block, on the right-hand side of the street.

The shows begin, as you might have guessed, at midnight on Saturday nights. The features are

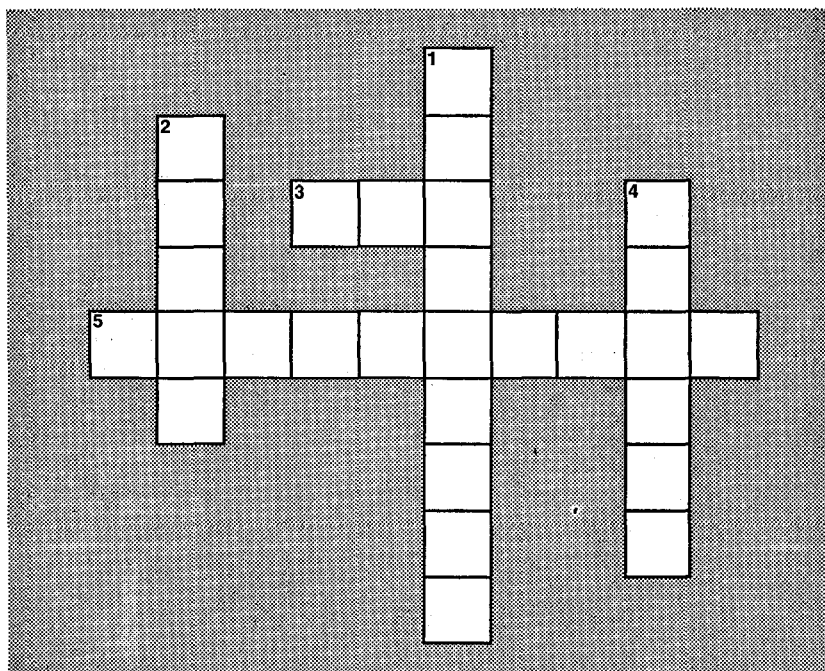
usually either several rather high-quality "underground" films, or regular Hollywood-type films shown in some unique manner.

Last Saturday, the two features were "Hallelujah the Hills" and "The Invasion of the Body Snatchers" (the classic sci-fi "peepod" movie) — which were both shown in entirety, but alternated at approximately ten-minute intervals. The editing job was, incidentally, quite good (artistic?).

Dress is more or less "optional"; anything from suit & tie to fuzzy vest should be OK. Indeed, watching the line of patrons assembled to buy tickets is entertaining in itself. To really be "in," take a date with long, stringy, blond hair.

Admission is \$1.25. Call the box office (HO 7-5787) to find out what's showing, since the playbill isn't given in the *L. A. Times*.

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- 3. You might be working on the guidance/control system for this manned space project.
- 5. You can be associated with the Company that is the leader in this scientific field.

ANSWERS ON PAGE 8

If you filled in the puzzle correctly, you've probably guessed we're in the business of guiding vehicles. If it floats, crawls, flies or orbits, chances are we're at work on a guidance, navigation or control system for it.

For instance, we're building the guidance/navigation system for Apollo and LM (Lunar Module); we're working on SABRE, the new Self-Aligning Boost and Reentry system for missiles; on the Manned Orbiting Laboratory (MOL); on the Titan III-C Space Booster; and on avionics systems for supersonic and subsonic aircraft of the future.

We're also working on the Ship's Self-Contained Navigation System (SSCNS) for the Navy; a fire-control system for the new Main Battle Tank, a joint U.S.-Federal Republic of Germany program; and advanced digital computer development for other military, space and commercial applications.

You might like to know that we take your career growth seriously here at AC, too. Our Career Acceleration Program includes "in-plant" instruction. There is also a Tuition Refund Plan available for any college-level courses taken to advance your career.

If you're completing your B.S. or M.S. degree in E.E., M.E., Math or Physics, check into the exciting career opportunities at any of our three locations — Milwaukee, Boston, and Santa Barbara. See your college placement officer or write: Mr. R.W. Schroeder, Dir. of Scientific & Professional Employment, AC Electronics Division, Dept. 5753, Milwaukee, Wisconsin 53201.

Ph.D.s, please note: positions are available in all three AC locations, depending upon concentration of study and area of interest.

CAMPUS INTERVIEWS

Thursday, February 16, 1967



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Do Go-Go Girls Play Go?

The beginners' class in Go will continue with a meeting this Friday at 4 p.m. in the Y lounge. Usually instructions are given from 4 to 5, and games are played from 5 to 6. All undergrads, grad students, faculty, and staff are welcome.

Go is a two-person game with about 3 to the 361st power possible games. It ranks with chess as an intellectual endeavor requiring foresight, intuition, subtlety, and "keen analysis."

The regular instructor, Dr. Richard Dolen, is a skilled amateur player, one of the best fifty or so in the LA area. Dolen will not be present this week, but he has promised a guest instructor for the class.

Go-go-go

Go is played on the intersections of a 19x19 rectangular grid; black and white pieces, called stones, are placed alternately on the board. The object, besides displaying one's virtuosity, is to surround the most territory.

Series Go players are ranked according to their ability. The Japanese professionals' highest rank is 9-dan, down to 1-dan. Amateurs rank from 6-dan down to 1-dan, then 1-kyu down to 9-kyu. The ranking indicates the number of handicap stones the weaker player may place before the stronger player places his first stone. Dolen, the usual instructor, is a 3-dan amateur.

VISTA Visits Next Week

Members of Volunteers in Service to America (VISTA) will visit Caltech next week. On Thursday and Friday, February 9 and 10, attractive young recruiters for this domestic peace corps will set up a table on the Olive Walk to recruit Teckers to altruistic service. It is possible to sign up either for the year-long program or a summer tour of service.

Coeds' hero

Information about VISTA can be obtained next Thursday, February 9, at the YMCA Grad Sack Lunch. The color film "A Year for Tomorrow," narrated by Paul Newman, will be shown.

The Critical Ear

On Sunday, January 29, the famous Julliard String Quartet performed at Beckman Auditorium in front of a near-capacity audience. The group played three pieces: **Quartettsatz**, C minor, by Schubert, **Quartet No. 6**, by Bartok, and the **B Flat Major Quartet**, Opus 130 with **Grosse Fuga**, Opus 133, by Beethoven. The performance of all three works was a masterpiece. Intonation, ensemble, and musicianship were of the highest caliber.

Typical of the professional New York concert, the first piece commenced immediately without the usual on-stage tuning. The

first violinist vigorously led the group through the difficult Schubert **Quartettsatz** flawlessly. This was a truly outstanding performance, lacking in no respects.

The next piece played was the Bartok **Quartet**. This superb work of the Hungarian composer was performed with equal vigor and enthusiasm. The Quartet beautifully displayed Bartok's many technical inventions for stringed instruments. All the members of the group showed an awareness and sensitivity for Bartok's melancholy; so much so that the work sounded almost bitter.

Beethoven

The final piece was the Beethoven work. As the Opus numbers show, this piece was composed near the end of Beethoven's life. It is amazing to think that this man, having been deaf since his early twenties, could retain the sounds of music so well and to compose his most brilliant quartets. The **Grosse Fuga** was of particular interest. It brought out the revolutionary aspects of Beethoven's writing and truly demonstrated the great foresight of Beethoven. It is hard to believe that the Bartok and the Beethoven were written nearly a hundred years apart.

Bravo!

The Quartet's rendition of the **B Flat Major Quartet** was exceedingly fine. Very rarely does one hear the famous **Grosse Fuga** performed so well. The audience received this final piece with cheers of "Bravo, Bravo!" attesting to the high quality performance of the Julliard Quartet.

Only one criticism can be raised about the Quartet: there is nothing unique about them, nothing by which they can be truly identified. They are indeed excellent musicians, but not special or unique. Such groups as the Budapest String Quartet or the Pasque Trio are representative of individual and distinct groups. One can easily identify with the Julliard group. Their identity remains in their flawless performances and general excellence.

Their performance last Sunday was a most worthwhile and splendid experience for the musically inclined.

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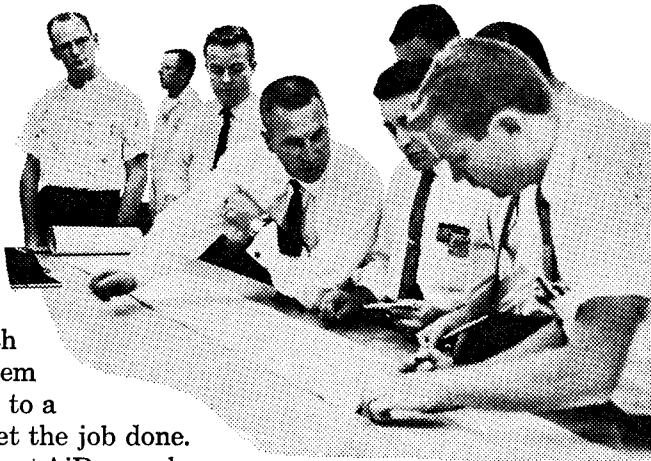
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Hoopsters Set Scoring Mark

In a single week the Caltech basketball team dived from the heights, a new scoring record, to the lowest of the low, a miserably played game against Whittier. In trouncing Pacific Christian 117-55 on Wednesday, January 25 the Beavers set a new school record for most points scored in a game. This erased the old mark of 112 set in 1954 against LaVerne when Caltech won the SCIAC championship. **117 points!**

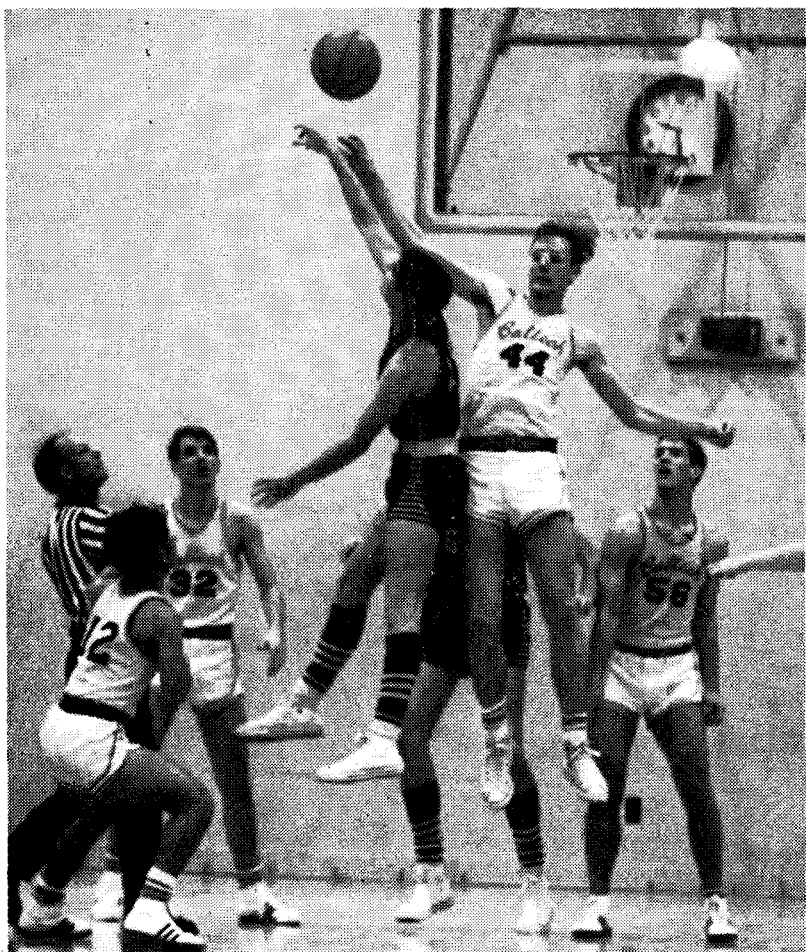
The second string started the game; Ed Hsi, George Fox, Cliff Tedder, Bruce Threewitt, and John Frazzini, with help from the first string, could manage only a 20-point lead at halftime. In the second half the lead fell to 68-52 with nine minutes left in the game. Then Caltech went into a full court press and turned on their power. Led by Jim Pearson and Jim Stanley, the Beavers stole passes, forced numerous turnovers by Pacific Christian, and scored at will. It was an impressive fourth quarter as Caltech outscored their opponents 49-3. Seven Teckers scored in double figures; Stanley led with 26 points.

On Saturday night, Caltech lost one more conference game to the Whittier Poets 101-59. Playing without Threewitt and captain J. Pearson, the Beavers appeared spiritless and weary. The game showed how vital Pearson is not only to the team's effectiveness but also to its spirit and poise. Whittier bothered Caltech with a full court press, but it was the Poet's tremendous board strength, especially that of 6' 8" center Eckmier, that killed the Beavers. Tech was out-rebounded 49-19 in the second half alone.

Whittier led by 12 at the intermission and the proceeded to run away in the second half.

The coaches voted Terry Bruns "player of the week" for his scoring and all-around fine play during the week.

Basketball action continues through midterms week as Caltech played Oxy yesterday and travels to Redlands on Saturday to face the conference leading Bulldogs. Next weeks sees Tech play LaVerne at home on Tuesday and Biola away on Wednesday.



—by Engebretsen

Terry Bruns, basketball player of the week, shows off his jumping form as he fights for a rebound in last week's game against Whittier.

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Ricketts	4
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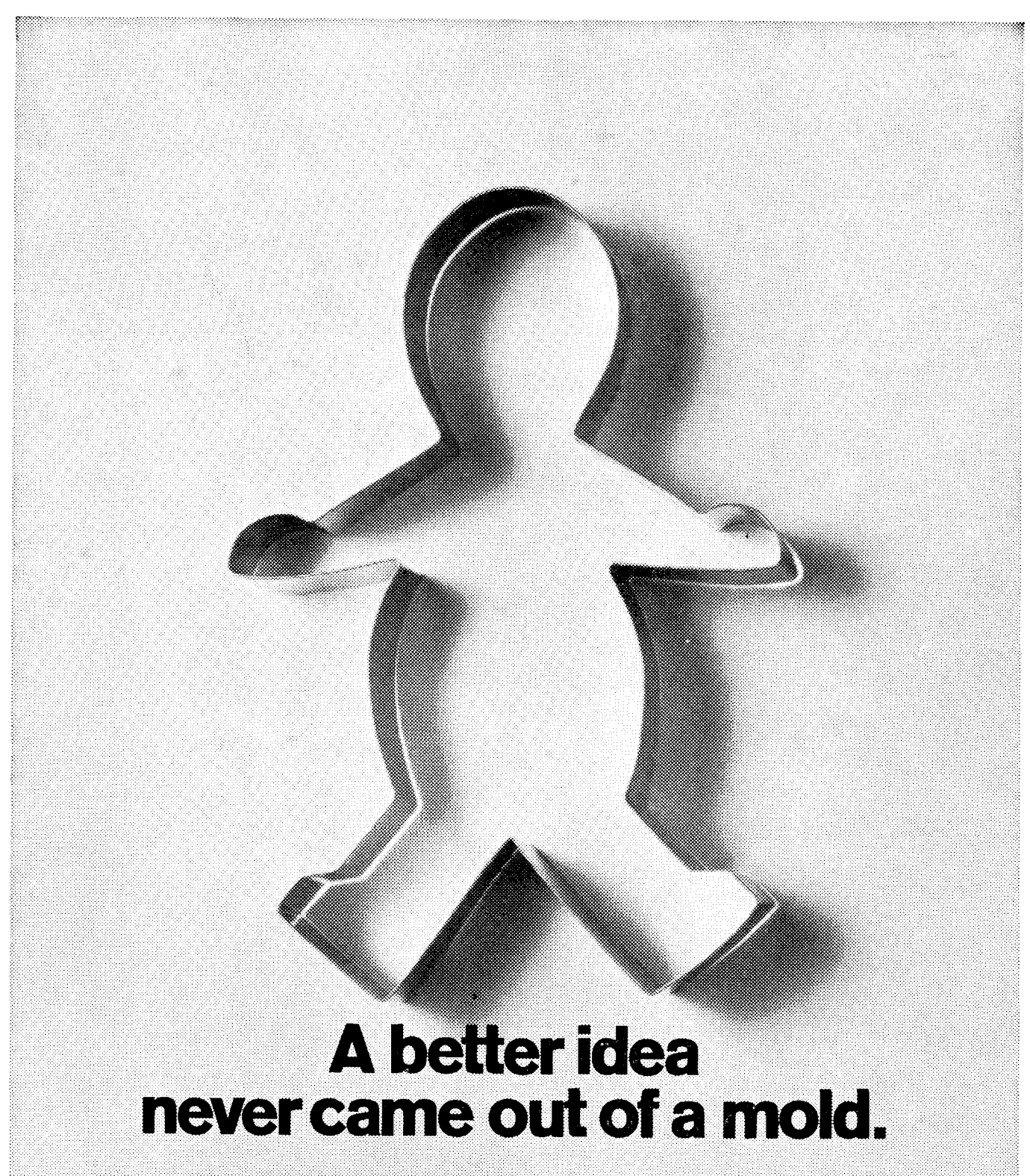
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Whatever your interests, see our representative when he visits your campus. (Or write: College Recruiting Dept., Ford Motor Co., Dearborn, Mich.) He's always looking for better people with better ideas.



Discobolus Tale Told Beagle Rolls On As Matmen Lose

Discobolus competition has gone slowly this year after several delays first term. Perhaps things will go more smoothly this term as competition has picked up somewhat. Last week's contest saw Fleming preserve its hold on the book by defeating Ruddock in bowling. The team of Terry Warren, Ken Yano, Jack Wilschke, Larry Waterland, and Rich Touton took an easy two-game victory as they scored an aggregate total of 747 and 807 in the two games.

Long story

In case you haven't followed the trail of the Discobolus book during the year, here is a brief resume of its progress. Lloyd

held the trophy at the beginning of the year, but Fleming beat them in pool and billiards. Page beat Fleming in badminton then kept the book by beating Ruddock in soccer and Dabney in pool and billiards. Blacker finally beat Page in swimming, then lost right away to Ricketts in football. Lloyd beat Ricketts in basketball. Fleming won from Lloyd by forfeit and kept winning in the aforementioned bowling match.

This week Dabney has challenged Fleming in tennis, ping-pong, and bowling with the match to be contested in bowling this weekend.

In their recent matches the Caltech wrestlers have shown further signs of their continuing improvement, and, had it not been for their two forfeits, they might have won Saturday's contest.

Last Wednesday, the team traveled to remote Cal Lutheran to meet one of the better opponents of the season; their wrestlers in the 123 lb. and heavy-weight classes being undefeated this season. The bulk of CLC's strength was in the lower weight classes, and including the two forfeits they took the first 25 points before Dick Thornberry

won by decision at 160 lb. Alan Beagle, wrestling at 177, came through with his usual pin and five points to bring Caltech's total to eight against Cal Lutheran's 33.

UC Riverside wrestled here on Saturday, and although they won 28-11 this was one of Caltech's best matches of the season. Doug Mason got five points by pinning Dave Dewitt of UCR in the third period. At the time he was enjoying a safe 16-1 lead. Alan Beagle, this time wrestling heavyweight, had to settle for a decision since at 177 lb. he was outweighed by 70 lb. by his opponent. The rest of Caltech's points were provided by Joe Devinney, the only sophomore on a team of freshmen, in what may have been his best match of the season. He took a well-earned decision, then wrestled later in exhibition and won again by decision.

The next few matches will be at home with Caltech battling Pasadena College on Saturday at 4:00 p.m. and Cal Lutheran again on Wednesday at 7:30 p.m.

Wrestler of the Week

Dick Thornberry, a freshman from Lloyd, is this week's "wrestler of the week." Coming into the season late because of illness, Dick has improved rapidly. On the mat he exhibits a natural instinct and poise that place him above the average wrestler.

About Thornberry, Coach Gutman says, "As a freshman, Dick shows great promise in his athletic endeavors. In football he played first string defensive half-back and did a fine job. Dick came to wrestling with very little experience, and as the season progresses he is improving with great strides."

"He has won several matches this year, and I'm sure, with his type of determination, he will become one of the better wrestlers in our league. I classify Dick, in all respects a true athlete." Thornberry won a decision last week in the match against Cal Lutheran.

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Electric Autos To Cure Air Pollution

by Wally E. Rippe

People usually lose the right to pursue happiness, or run a free press, or bear arms, a little at a time. So it is with our air — until one day, perhaps a day too late, we'll look around and wonder what happened. Little good will be our national parks if we can't see the trees and animals, and what little we do see looks a sickly gray. Even today, low density air pollution obscures distant mountain views and other scenic wonders.

Were we willing to stop burning things, we could easily have clean air again. The only catch is, we want to remain industrialized. Fortunately, there are several conceivable ways out, including liberating energy with nuclear, solar, and hydro-electric systems. Finally, where chemical processes must remain, we can enforce the use of filtering systems to precipitate solids and collect active gases.

Before talking about specific solutions, let us take a little closer look at the problem. Our combustion problems may be resolved into three components: Transportation, industry, and heating. The relative weight of each is a function of geography, and in some cases, season.

Expensive juice

Clean heat will be the easiest battle to win. In many areas of the U.S. electrical systems are gaining wide acceptance. Were it not that a calorie of "juice" costs about twice that of an oil or coal calorie, the battle would be over. The economic forces pushing electric heating are favorable. The F.P.C. expects electricity to cost 27% less in 1980,

while all predictions are that coal and oil will be up at least 10% by then. Furthermore, with government assistance, this transition might arrive much sooner.

More formidable are our industrial problems. Most industrial air pollution, it turns out, can be eliminated by mechanical and electrostatic precipitation devices. This is how Pittsburgh and other industrial cities have been cleaned up. With strict federal laws requiring precipitation in all cases, most of our visible industrial wastes could be eliminated.

Of course, the oxides of nitrogen, ozone, carbon dioxide, and other gases will remain. Presently, the worst offenders are the nitrogen oxides, several of which are poisonous, and one of which, nitrogen tetroxide, forms a sickly orange topping to the L.A. smog layer. If we are willing to pay the price, we can eliminate most of the industrial nitrogen oxides by fixation processes, the results of which can be used for fertilizers, explosives, etc.

Tidal wave is coming!

After all this, only carbon dioxide will remain in any quantity; Increasing concentration of this gas in the atmosphere and the oceans may ultimately have dire consequences on life processes. In the past 50 years, its average concentration has increased by about 10 per cent. What will be the long-term biological effects is not known. Another problem that it generates, known as the "hot-house" effect, threatens to melt the polar caps. This would cause a rise in sea level, and, in the course of several hundred years, diminish habit-

able land surface.

With potentially 60 per cent of the American air pollution removed, the toughest knot remains — transportation vehicles. The problem is rough, since any solution, in all aspects, must be economically flexible; about 30 per cent of our economy is at stake. The most obvious approach is to try cleaning up the internal combustion engine. After spending several millions, California and the nation have learned the futility of this approach.

A second solution is engine redesign. According to several authorities, the nitrogen oxides can be reduced by changing the time of air and fuel intake. Another aid would be the use of a constant speed engine, driving a generator, whose output is electronically controlled, and then fed to electric motors on the wheels. This would kill the excess hydrocarbons and nitrogen oxides produced during acceleration and deceleration.

A battery-powered vehicle would provide the complete answer, if somebody just know how to make a decent battery. First of all, the land transportation smog would be zero; second, an electric mile at present costs only one-third that of a gas mile. Mechanically electric vehicles can be ridiculously simple, with as little as six moving parts in the power train, including the four wheels; This, of course, would cut down maintenance costs.

In my next article, I would like to talk about electric cars in a little detail, including my own progress in building a 20 hp, 3500 lb. converted VW.

RAYTHEON CAMPUS INTERVIEWS

February 10

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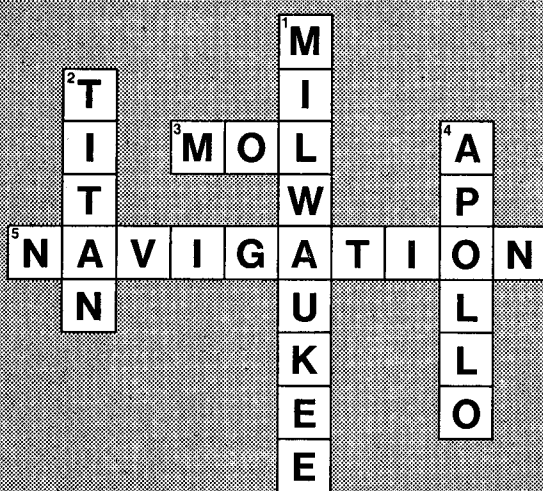
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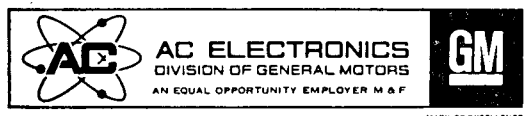
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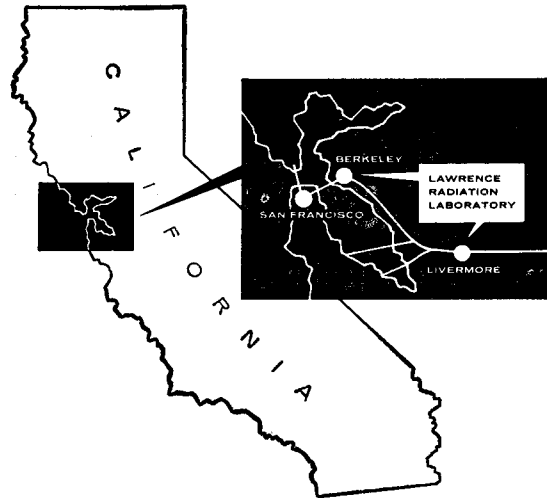
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