



The CALIFORNIA Tech

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Great Newspapers

Volume LXXIX Number 15

Pasadena, California

Friday, December 9, 1977

Sabersky Honored

Professor Rolf H. Sabersky of Caltech recently received the Heat Transfer Memorial Award of the American Society of Mechanical Engineers at its 1977 Winter Annual Meeting.

He received the award for his contributions to the early development of boiling heat transfer and to an understanding of heat transfer to complex flow structures.

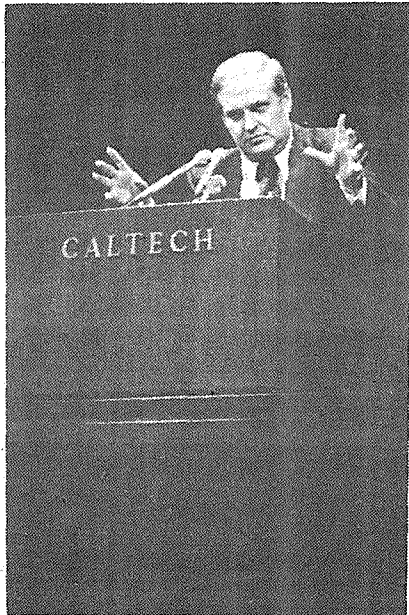
Born in Berlin in 1920, Sabersky earned his Bachelor's and Master's degrees at Caltech in 1942 and 1943 respectively and then went to work for the Aerojet General Corporation where he was engaged in the design of liquid fuel rockets. It was here that he became involved in the area of heat transfer applications.

In 1946 he returned to Caltech to earn his Ph.D., joining the faculty in 1949. Professor Sabersky then embarked on research of some of the unsolved problems of boiling heat transfer that he encountered at Aerojet General. He has emphasized that his research was always done in close cooperation with his Ph.D. students who, he feels, deserve a major share of whatever credit may be given to the research results.

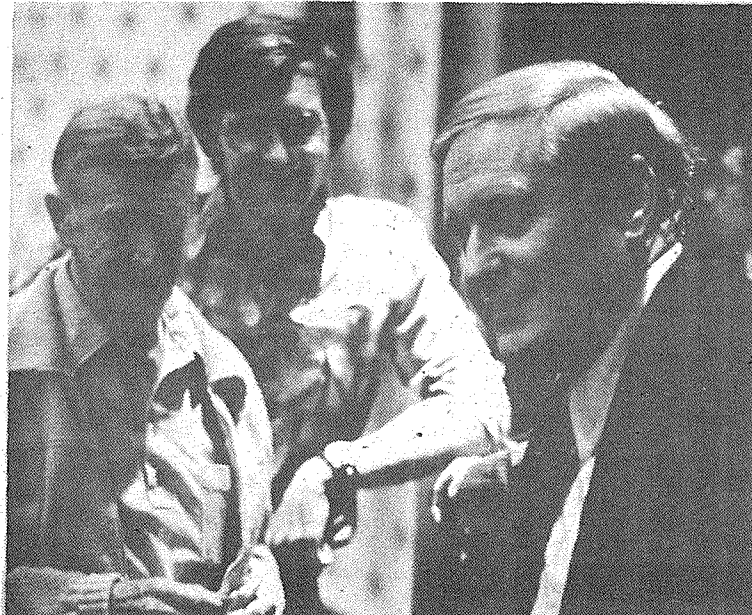
BOD Minutes

Minutes of the ASCIT Board of Directors Meeting of November 21, 1977: The meeting is called to order by Wells at 7:34 pm. Present were Wells, Sexton, McDonnell, Kaler, Gutierrez, Beausoleil, Gray, Crane, and a whole bunch of Flems. This week's controversial discussion, featuring Jesse Slater and Harry Gray, centers on the subsidy to the ASCIT Musical.

1) Wells reports that he has talked with Wheeler who has received some quotes from Walsworth regarding the projected cost of the coming yearbook. Wells states that the cost of the next Big-T, \$11,000, can be paid for by subscriptions alone. Sexton asks why the anticipated cost is so low in view of the \$16,000 price of the previous edition. Wells replies that the plan is to cut the amount of color in half and the size by 35% (208 pages/32 color), for a total cost of \$9987.20. The advertising



Jack Anderson during, and after his presentation.



Photo—Joe DiGiorgio

Columnist Jack Anderson Lashes Out

By Jim Reichle

Columnist Jack Anderson blasted everything from the Carter Administration to the CIA in a lecture in Beckman Auditorium Tuesday night.

He attacked President Carter for appointing so many Georgians to government positions. Anderson said he asked Carter who his most trusted advisors were. Carter replied that he trusted his wife, Charles Kirbo, and four others the most. All of them are from Georgia. Anderson said that Carter and the Georgians around him lack Washington political experience. He compared Carter's political maneuvering to date to a "boyscout" trying to do surgery. The president has originated a great deal of legislation since he took office. Anderson said most of it has gotten nowhere. Carter

has not learned how to deal with Congress, he said.

Anderson then turned to the Panama Canal question. He said the U.S. should give the canal to Panama immediately. This drew a few boos from the audience. Anderson projected that twenty years from now, the major threat to U.S. security will be Latin America. He said that Latin America could easily turn into a large communist bloc. Anti-American sentiment is already prevalent in this area. We have a history of exploiting and abusing these people, said Anderson. He likened the Panamanian view of the U.S. occupation of the canal to what Americans would think if the Soviet Union occupied the Mississippi River. All Latin America takes offense at our

presence in Panama. He said we should take the first step toward quelling hostilities by returning the canal to Panama.

Anderson went on to attack U.S. oil policy. He claimed that our dependence on overseas oil sources has made us more vulnerable than we have been at any time in the last 200 years. He charged the big oil concerns with wanting to "squeeze every last dollar out of every last drop out of every last well". The only reason they tell us to conserve, he said, is so that there will be more oil left when the price is higher. Anderson said the government's oil policy is identical to that of the oil companies. There are substitutes for oil, he said, but we are not developing them. He said that

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obtained will be used to help pay off the current sizable Big-T debt; last year, advertising receipts totaled \$2000-2500. McDonnell asks if Wells had talked to Gross regarding last year's financing; Wells says that he has, but that the figures are not yet down on paper.

Wells also states that the staff was unable to get a refund of the sales tax (6%) from Walsworth. The projected figure of \$11,000 for next year's budget includes sales tax. Wells does point out that Wheeler has not yet been officially appointed Big-T editor.

Salaries remain as the only unfinished item of business in this affair. Assistant editors receive \$100 each, and the editor receives \$300 plus a possible \$100 bonus dependent on whether the yearbook is

published on time. The yearbook was not out on time this year, partly due to the staff getting behind in its work. Wells mentions that proofs were sitting in the Tech office and staff members were on vacation, contributing to a delay of about 5-6 weeks. Some people had argued that Cohn had worked hard on the book and deserved the bonus.

Replying to a question from Sexton, Wells states that there were three assistant editors, amounting to a total of \$600 in salaries for the entire staff. Sexton responds that the people who put out the book assume the responsibility to get it out on time and stay within their budget. Sexton moves to pay the staff salaries without bonus, and

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Supernova Started it

Scientists here at Caltech, probing chemical and physical records of early solar system processes preserved in a meteorite, have uncovered evidence that a supernova may have exploded in the vicinity of our solar system near the time of its formation.

Their findings give new insight into the astrophysical processes occurring during the birth of the solar system, clearly indicating that as much as one percent of the chemical elements in the solar system were produced by one, last-minute supernova. The results provide the first hard data supporting the theory that a supernova explosion may have triggered the formation of our solar system from a low-density cloud of interstellar gas and dust. Such an explosion might have produced enough pressure and density increase to have begun the collapse of the interstellar cloud to form the solar system.

The researchers reporting the discovery are Dimitri Panastassiou, Malcolm McCulloch, Typhoon Lee, and Gerald Wasserburg, all of the Division of Geological and Planetary Sciences. They presented the results of their work last month at the Welch Foundation Conference on Cosmochemistry, in Houston Texas.

The scientists examined material from the Allende meteorite, a two-ton object which fell in northern Mexico in 1969. The meteorite, representing a large sample of

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Quake Warning Studied

Caltech seismologists studying records of earthquakes in central and southern California have found that clusters of tiny earthquakes have often preceded larger ones. Their discoveries include the first evidence of anomalous clusters of small earthquakes preceding the San Fernando earthquake of 1971. Their findings offer considerable encouragement that such earthquake swarms may be used to predict larger earthquakes.

The scientists, Professor of Geophysics Hiroo Kanamori, and Research Fellows Karen McNally and Mizuho Ishida, presented three papers on their studies this

week at the American Geophysical Union meeting in San Francisco.

Dr. McNally, studying the records of six moderate earthquakes ranging from Richter magnitude 5 to 6.5, in central and southern California, found that all were preceded by relatively large clusters of small earthquakes. These earthquakes occurred in clusters of as many as 30 earthquakes between magnitudes 2.5 and 4.7 in seismically active areas, and as few as 6 earthquakes between magnitude 2.5 and 3.6 in seismically quiet areas. The

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Administration Ignoring Responsibility

For the past several years, the Master's Office has been paying for the Saturday Art Workshops, wherein students could learn the fine points of painting, ceramics, and stained-glass working. After this weekend, the workshops will close down. (See also the letter in this very paper.)

Jim Mayer has searched for other sources of funds, but has found little support. Thus, most of the cost of the workshops is paid for from undergraduate funds. At the same time, most of the people who attend the workshops are not undergraduates (see also the signatures on the letter in this issue).

This state of events has forced Jim Mayer to very, very reluctantly conclude that it is inappropriate to continue using undergraduate funds to pay for the workshops. I agree with this conclusion.

I also, however, agree that the Institute is responsible for providing a rounded education. The workshops should be but one aspect of this diversification. The Ballroom Dancing classes, another Jim Mayer Production, also fall in this area. But this is the *Institute's* responsibility, not Jim Mayer's. The Institute must not take the view that the students' education takes place only in the classroom. Unfortunately, this seems to be the case.

The workshops need to continue, indeed, they need to be reorganized and expanded, as an *Institute* program. The Institute Administration needs to stop foisting this problem onto Jim Mayer, and start dealing with it themselves. Soon.

—ed. Bielecki

Pyramid Criticisms

To the Editor:

The recent Tech article about Dr. Flanagan's talk on "Pyramid Power" was overly critical, and critical in the wrong ways.

There is a tendency to confuse the phenomenon of "Pyramid Power" with Flanagan himself, while the two should be

considered as separate and distinct. Flanagan was duly criticized, but this criticism should not be automatically carried over to the pyramid phenomenon. That is, if Flanagan's explanations of why "Pyramid Power" works are completely wrong, unscientific, and even mystic, it is wrong to construe that "Pyramid Power" itself is a false idea. On the contrary, there are actually properties of the pyramid, as evidenced by many observations, that can't yet be explained scientifically. Scientists shouldn't laugh at something simply because they can't understand it or explain it. Rather they should patiently wait for someone—who has enough courage that he won't fear ridicule by his colleagues—to seriously study the phenomenon.

Unfortunately, Dr. Flanagan does not fit this description in that he has not subjected his findings to strict scientific scrutiny. Also, since he runs a pyramid business, he has exaggerated his claims to the general public in order to sell more of his products, and he has surrounded them with mysticism.

Because he has done these things in the name of science, severe criticism is due him. However, it is a shame that ridicule of people like him discourages those who might otherwise do serious work with such things as pyramids. There are many natural phenomena which affect us but can't easily be subjected to scientific investigation, but which nevertheless should be studied. People who enter such pursuits with a true scientific attitude should have the feeling that they will be commended, not treated with contempt.

John Whitehead
Ricketts House

The Problems of Asking

To the Editor:

Recently I have noticed some strong feelings and motivations in myself during situations which seem to recur quite often. I would like to share with you my thoughts and reflections on those feelings.

The first situation typically occurs about forty minutes into a lecture, which I have understood none of, when the instructor asks "Any questions?" Of course the question that I want to ask is "I didn't understand any of what you just did, could you please explain it again?" Quite frequently I also want to add to that "Also I didn't understand the last lecture, or any lecture last week, so could you please explain them too?" As you have probably guessed by now, what I usually say is nothing.

I first noticed as a reason for why I felt as I did the following: it is very difficult for me to admit, in effect, that I am

stupid. It requires (from me) a lot of guts to speak up and admit I just don't understand. Of course, it is much harder for me when just as class (or sometimes the term) starts, the instructor says "stop me if you have any questions" and then never stops to ask if anyone has a question. Somewhat paradoxically, though, I don't mind too much at all asking questions, even very simple questions, in a course where I think I have a strong grasp of the material.

I subsequently noticed another motivation for this feeling, but I would like to say more about this later in the letter.

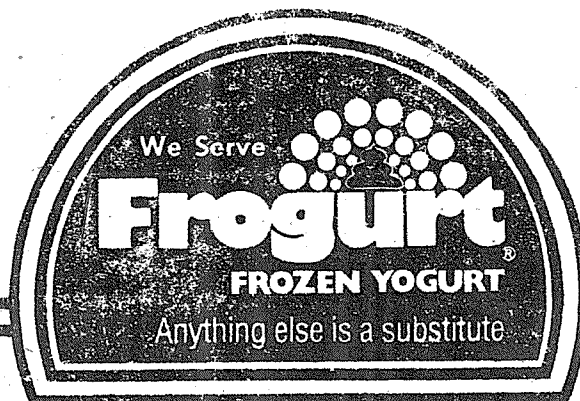
The second situation occurs just before a class like the one described above. The less I understand in the class, the less I am inclined to go to it. Perhaps better is the less I understand in a class the more I am inclined *not* to go to it, as the feeling is definitely one which has to be

overcome. Conversely, the more I understand in a class, the more inclined I am to go to it, even to the point where I think I know already almost all that will be presented.

As the term progresses, and I get farther behind in my class, I find it harder and harder to go to it. And as I go less and less of course I find it harder and harder to go talk to the instructor and tell him how behind I am and try to get help. Again conversely, if I am understanding a class and I happen to miss a day I find it a pleasure to go talk to the instructor about the class I missed.

After I noticed these feelings I decided to try to compensate for them in a rather obvious way that is by forcing myself to ask questions even if I look "stupid", by forcing myself to talk to the instructor if I go behind. It was only after I started doing this that I realized the second motivation for the feelings I had. As I started on my plan of asking questions and seeking help, the first reaction

Continued on page



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The CALIFORNIA Tech

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Editor in Chief
Ed Bielecki

Business Manager
Kevin Drum

Writers
Pam Crane, Spencer Klein, Mike Kurilla, Sandy McCorquodale, David Ritchie, Mark J. Rosker, Steven Sawkins, Geoff Sommer, Brett Stutz, Bert Wells, Richard Willson

Photographers
Dave Wheeler [Darkroom Chairman], Don Bacon, Joe DiGiorgio, Al Kellner, Chris (Mach 1) Wheeler

Production
Flora Boyer, Nick Smith

Circulation
Carl Lydick [Manager], Bill Gould

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Two Tech Women's views of Tech Life

To the Editor:
If someone calls me pretty I almost feel insulted. I avoid people who place stock in superficial appraisals. If I am treated as a "real" woman in the manner of A Frosh's letter I do feel insulted.

Speak only for yourself, frosh. How is it that by virtue of being male you are unbiased and qualified to speak for women? Personally I like the atmosphere here. Having been raised in a stultifying and typically feminine manner I am more than grateful for the opportunity to be treated as "one of the boys" regardless of any derogatory comments such attitude may elicit.

I also have the guts to sign my name to what I write.

Judy Powelson

De-compression and Films

By Michael Kurilla

Sad to say, film viewer, but this weekend neither Cinematech nor ASCIT will be presenting any films however, for those of you who really would like to see something on the silver screen there will be a chance on Saturday and Sunday nights. The Caltech Y will be hosting its end of the term—get ready for finals Decompression.

For any of you who don't know what I'm talking about, Decompression is an event, a happening, that takes place every term on the weekend that finals begin. If you've just finished a final and can't sit down to begin another one, or you're just hungry and can't find anyone with a car, or can't find anyone for that matter; chances are if you go over to Winnett Lounge you'll find everyone. From 8:30 pm to 1:30 am on both Saturday and Sunday there will be food and drink and plenty of games,

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To the Editor:
I was pretty impressed by the letter from 'a frosh' in the December 2nd issue of *The Tech*. But I became pretty amused when I got to the end, when he seemed to pull an 'about face' from his prior concern about the second class status of women students at Caltech, to the attitude that if we really want to get rid of the dogs we have now, and pull in some winners, we'll have to get a good reputation by treating the dogs nicely.

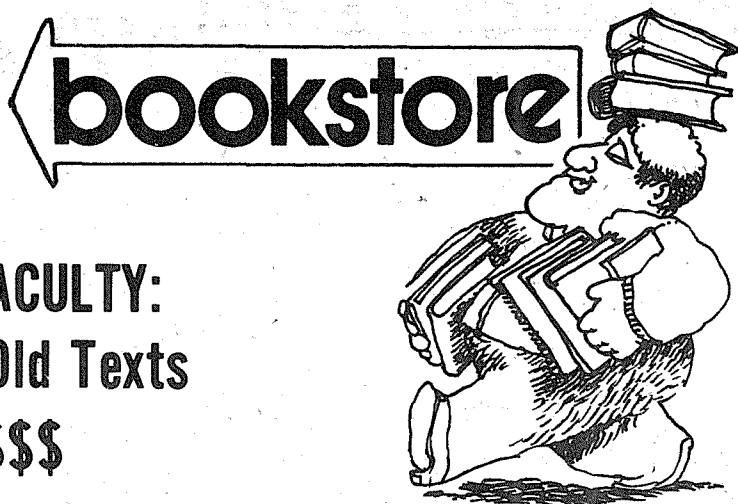
Ignoring his ending, however, I'd like to comment on one of the points he made earlier in his letter. What was very impressive was his discernment of the subtle putdown, i.e., the over-rated distinction between real girls and Tech women.

A Tech female can get that drummed into her a lot, for better or worse depending on the company she keeps. It can be a nice ego-trip if she ends up hearing often of how real girls seem to be just lipstick and eyeshadow, whereas a Tech woman can really be a friend and companion, besides or in addition to a bedwarmer. But it is a real problem putdown when the boys refuse to take Tech women seriously at all, especially as friends, and who remark loudly and repeatedly about the lack of girls at Tech, the unfemininity of Tech women, (which is usually defined as makeup, a dress, and a prick-tease attitude) and about their sexual prowess in grade school with real girls.

Now, there is a lack of women at Caltech, everyone agrees to that. But it is a lot of B.S. to malign the women that are here.

And to put things in a different perspective—I have yet to hear someone dismiss their friends at Tech, (while complaining about the lack of normal and reasonable people at Tech) by casually remarking about looking forward to entering the real world and seeing real friends.

A Senior Woman



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All The News That Fits

Big Tinker Toys

Students of architecture and engineering are being invited to participate in a contest to design a bridge or a building which incorporates, or features, the New Tubular Structure by Inventor Thomas Ferwerda. The object of the contest is to promote and introduce the new structure concept to the architectural world.

Two awards of \$2,500 each will be presented in the spring for the best concepts based on originality, esthetics, practicality, etc, which college students submit on 30" x 40" illustration boards by March 13, 1978.

According to inventor Ferwerda, "There are no loopholes and no pitfalls to this contest. It is perfectly straightforward. The contest will be judged fairly. It is being sponsored by a young inventor desirous of seeing the success of a new concept."

Students of architecture and engineering attending accredited American colleges and universities may obtain entry form, rules and regulations by writing Thomas Norvin Ferwerda, Inventor, care of Universal Public Relations, 441 Lexington Avenue, New York City, New York 10017.

Money For Women

The Margaret F. Lamb Award of \$2500 is given for one year of graduate study. The field of study is open, but consideration will be given to an unusual field for women. Applications will be considered from graduating seniors, graduate students, or alumnae. For more information, contact the Placement Office, Room 10, Dabney Hall.

Applicate For Fellowships Now

California State Fellowship Applications are available in the Placement Office, Rm. 8, Dabney Hall.

Stock Up On Reading Matter

Millikan Library will be closed all day Dec. 25, Jan. 1 and Jan. 2, and after 6 pm on Dec. 24 and 31.

The Life You Save

Red Cross first aid and CPR (cardiopulmonary resuscitation) classes will be taught regularly at Pasadena City College, starting December 3, 1977, in a new program inaugurated at the college with the cooperation of the Pasadena Chapter of the Red Cross.

The Pasadena City College first aid and CPR classes are non-fee and non-credit courses, but a small charge is made for books and materials used. The minimum age for attendance at the PCC classes is 18. No pre-registration is necessary. Classes will be held in the Nursing Building of the college—at 1570 East Colorado Blvd., Pasadena.

The PCC first aid and CPR class schedule for December and January is: Multimedia First Aid—10 am to 3 pm for two Saturdays, January 7 and 14, or January 21 and 28. CPR—9 am to 4 pm for two Saturdays, January 7 and 14 or January 21 and 28.

Money For All!

The American Institute of Aeronautics & Astronautics has announced a scholarship competition for students interested in science and engineering. To be eligible, a student must have at least a 3.0 GPA. Recommendations and an essay are also required. The scholarships are for \$1000 per year and are not based on need. If you are interested in applying, please come to the Financial Aid Office at 208 Dabney Hall and pick up an application. Deadline is January 15, 1978.

The Ride Board Is Up!

Need a ride this vacation? Driving somewhere and need company or help with driving or expenses? Visit the RIDE BOARD in Winnett across from Flora's office.

Blown?

After blowing your finals, why not get even by blowing up an opponent in the naval battle being staged by the Caltech Gamers on Saturday, Dec. 10 at 7:30 pm in Dabney Hall Lounge? A WWII Japanese-American night action recreated blow by blow is a great way to blow an evening without blowing your wallet, so just blow on over.

Bambi Meets Who???

This Friday and Saturday nights, the 9th and 10th, there will be showings of Superman cartoons, a Star Trek bloopster film of scenes you never saw on the boob tube, a Lenny Bruce feature, and the ever-popular "Bambi Meets Godzilla" cartoon. All this will be at Sexson Auditorium at PCC. Doors open at 7:30 pm, shows begin at 8. Admission is \$2.00, and worth every penny of it.

More Money For Women

California State University, Northridge has received a \$93,670 grant from the National Science Foundation for a Career Facilitation Project for Women in Engineering. The purpose of the Project is to provide training which will enable women who hold degrees in the physical sciences and who have been absent from the scientific workforce to reenter in engineering positions. If you are interested or know of someone who might be, contact the Student Information Center in the Placement Office, Room 10, Dabney Hall.

Upcoming Mud

The junior class officers, after due deliberation while walking to their one o'clock class yesterday, had decided that the Mudeo will be held at one o'clock on Sunday, 8 January, weather permitting. The event will be held off-campus for the first time, in the empty lot on Del Mar Blvd. between Michigan and Wilson.

Bon Voyages

Prof. Huttenback, current chairman of the Humanities and Social Sciences Division, will be leaving Tech Jan. 1 to be chancellor at Santa Barbara. Prof. Paul will take over the administrative duties of the post until a replacement is found. The search committee has presented its recommendations, and a candidate is expected to visit the campus in the near future.

Maarten Schmidt, Chairman of the Division of Physics, Math, and Astronomy, is also planning to leave Tech. He will succeed H.W. Babcock as Director of the Hale Observatories when Dr. Babcock retires June 30, 1978. Schmidt, who has been division chairman since 1975, is known for his discovery of the red shift of quasars. Candidates for his replacement are expected to be announced by Jan. 1.

Still More Money

Notice to all juniors and third-year graduate students: Applications are currently being solicited by the Josephine de Karman Fellowships Program. Approximately 12 scholarships are awarded for one academic year for approximately \$2500. The deadline for submitting applications is January 31, 1978. All students interested should write for information and application forms on or before January 15 to: T.E. Beehan, Secretary, Fellowship Committee, Josephine de Karman Fellowship Trust, c/o Aerojet General Corporation, 9100 East Flair Drive, El Monte, California 91734. Students may contact the Financial Aid Office with any questions they may have. 208 Dabney Hall, ext. 2280.

Unhostile Hostels

If you plan to travel this year, you can get info about America's Youth Hostels (a member of International Youth Hostels) by writing AYH, Dept C, Delaplane, Virginia, 22025

Relaxed As a Pretzel

A new form of tension release is now available at the Young Health Center. Richard Lawson, a psychology intern, has initiated weekly yoga classes held Wednesdays from 4:30 to 6:00 pm. There is no charge for those willing to participate.

At the introductory meeting held November 30, Lawson explained that he intends for the sessions to be as informal as possible. Whether yoga, group therapy, hypnosis, or simple relaxation is covered depends on the desires of the participants. Those present at the first meeting were put through various body-movement exercises, followed by meditation and muscle-control. The name of the game is tension release. The only way to see if it works for you is to go try it yourself.

Found: Male Puppy

A German shepard mix puppy, with white belly and brown and tan mottled back was found near the Grad houses on Dec. 6, 1977. Contact Carolyn MacDonald or Shevaun Gilley in Lloyd House Rm. 209 (Ext 2180) or phone 449-9294

Be Civil For the Summer

The 1978 edition of Summer Jobs Announcement, No. 414, is scheduled to be issued January 4, 1978. However, the U.S. Forest Service and the National Park Service and Bureau of Land Management have established filing dates for accepting applications prior to the release of the announcement. These jobs are listed in Announcement No. 414A, which is available now in the Placement Office, Room 8, Dabney Hall. Deadline for filing forms for these jobs is January 15, 1978.

Baby, The Wind Must Blow

The Caltech Wind Ensemble and Jazz Band concert will be performing in Baxter Lecture Hall of the Humanities on December 9 at 8 pm and not in Beckman Auditorium as erroneously listed in JPL Universe story carried in the Nov. 25th issue.

Continued from page 1

Supernova

primordial solar system material, has been the object of considerable study by scientists around the world. The meteorite contains calcium and aluminum-rich inclusions which are thought to represent the first matter condensing from the collapsing cloud of gas and dust.

The Caltech scientists, analyzing these inclusions in the meteorite, discovered "isotopic anomalies" in three elements—calcium, barium, and neodymium—which scientists had heretofore not detected.

The isotopic mix of each element, observed in mineral samples from the earth, moon, and meteorites, is almost always in a fixed proportion. This constant proportion represents the average ratios of these isotopes when they were incorporated into our solar system. This average is apparently the result of thorough mixing of gas and dust produced from many different stellar sources.

The discoveries by the Caltech scientists of deviations from this average—"isotopic anomalies"—in material from the Allende meteorite, prove that the

interstellar gas and dust which made up our solar system were at first not a completely uniform mix, but contained injected material from particular astrophysical sources.

The isotopic anomalies discovered by the Caltech scientists were not the first found in material from the Allende meteorite. Other scientists had discovered that the isotopes of oxygen were also present in anomalous proportions, which indicated that they resulted from injection of material from special astrophysical sources, or by particles from the early sun bombarding dust grains within the solar system.

However, the discoveries of the scientists demonstrate that a supernova was the probable cause of the production of such anomalies in elements across a wide range of the periodic table. According to nuclear physics theories, many of the anomalous isotopes of calcium, barium, and neodymium detected by the Caltech scientists could only have been produced by the "rapid neutron capture process" of isotope formation which occurs in very hot exploding stars. The scientists' measurements indicated that from 0.1 percent to 1 percent of the chemical elements in the solar system may

have been produced by the supernova which was probably about ten times the size of our sun. The prospect of anomalies in such a wide range of elements is promising to astrophysicists, for such anomalies can be valuable indicators of processes in stars which produced the matter now present in the solar system.

The scientists dated the explosion of the supernova to within less than two million years before the solar system was formed, using a sort of nuclear "clock"—the ratio of magnesium-26 to other magnesium isotopes in the meteorite material. In previous tests on the meteorite the scientists had found about ten percent more magnesium-26 than would have been expected. Since magnesium-26 is the product of radioactive decay of aluminum-26, this told them that a significant amount of aluminum-26 must have been present at the time of formation of the calcium-aluminum rich chondrules in this meteorite. Since aluminum-26 decays with a half-life of 700,000 years, an appreciable concentration of aluminum-26 could only have existed if the aluminum-26 was produced within a few million years of the time of solar system formation.

Stickles

by
Geoff
Baskir

HMM... "IT CAN BE SHOWN THAT IF THE X_i'S ARE A PROCESS OF INDEPENDENT NORMAL RANDOM VARIABLES WITH TWO UNKNOWN PARAMETERS, AND IF THE CONJUGATE DISTRIBUTION ON μ AND σ^2 IS USED, WITH PARAMETERS \bar{x} , s , AND n ...



THE VARIATE $(\bar{x} - \bar{x})/KS$ HAS THE T DISTRIBUTION WHERE K IS:
$$\frac{\sqrt{(n-1)(n+1)}}{n(n+2)}$$

a) USE TABLES OF T TO FIND VALUES OF X WHICH HAVE A 5% CHANCE OF BEING EXCEEDED...



Continued from page 1

Earthquake Warning

Earthquake clusters occurred from one to 20 kilometers from the larger earthquakes and from a few months to ten years before them. In some cases, several episodes of earthquake clustering were observed in the same area, spanning two to ten years before a larger earthquake. Dr. McNally said that the large clusters of small earthquakes were distinct from the usual background level of small quakes in the area.

According to Dr. McNally, her findings suggest that the small earthquakes may result from points of weakness or stress concentrations due to an impending larger earthquake. Such stress concentrations occur in any material possessing a particular area of weakness. For example, if a steel plate with a hole in it is subject to stress, prior to fracture this stress will concentrate near the hole—the area of greatest weakness in the plate.

"While these results suggest a means for monitoring the stress of the earth's crust and for predicting earthquakes, we still can't understand the local and regional processes involved in the generation of these clusters," said Dr. McNally.

"There are many mechanical properties affecting a local faulting environment," she said, including how often a fault moves, how complex the fault system is, and the faulting mechanism." Thus, according to Dr. McNally, seismologists are not ready to attempt to use the earthquake swarms as predictive tools, although they have detected similar swarms in other areas.

For example, Dr. McNally and Dr. Kanamori, in a second paper at the AGU, reported the continuation of unusual swarms of small earthquakes along a 10-kilometer section of the San Andreas fault near Palmdale, California. Dr. McNally's examination of the earthquake catalog, which dates back to 1932, indicates that the current swarms represent a 20-fold increase in earthquakes of magnitude 2 to 3.0 over the long-term average for this area. The earthquakes began in November, 1976, and continued through September, 1977.

The discovery by Dr. Ishida and Dr. Kanamori that small earthquakes preceded the 1971 San Fernando earthquake has lent further support to the idea that "foreshocks" may be used to predict earthquakes. Until now it was believed that, although many earthquakes throughout the world are preceded by foreshocks, and they have been used as predictors in China, there was no remarkable foreshock activity before California earthquakes.

Examining the seismic records of the 1971 earthquake, the Caltech scientists found:

- relatively low, random activity prior to 1961;

- High activity from 1961 to 1964 (this period corresponds to the inferred onset of the "Palmdale bulge," the uplifting of a large area near Palmdale);

- an almost complete absence of activity within 15 kilometers from the epicenter of the earthquake from 1965 to 1968, and;

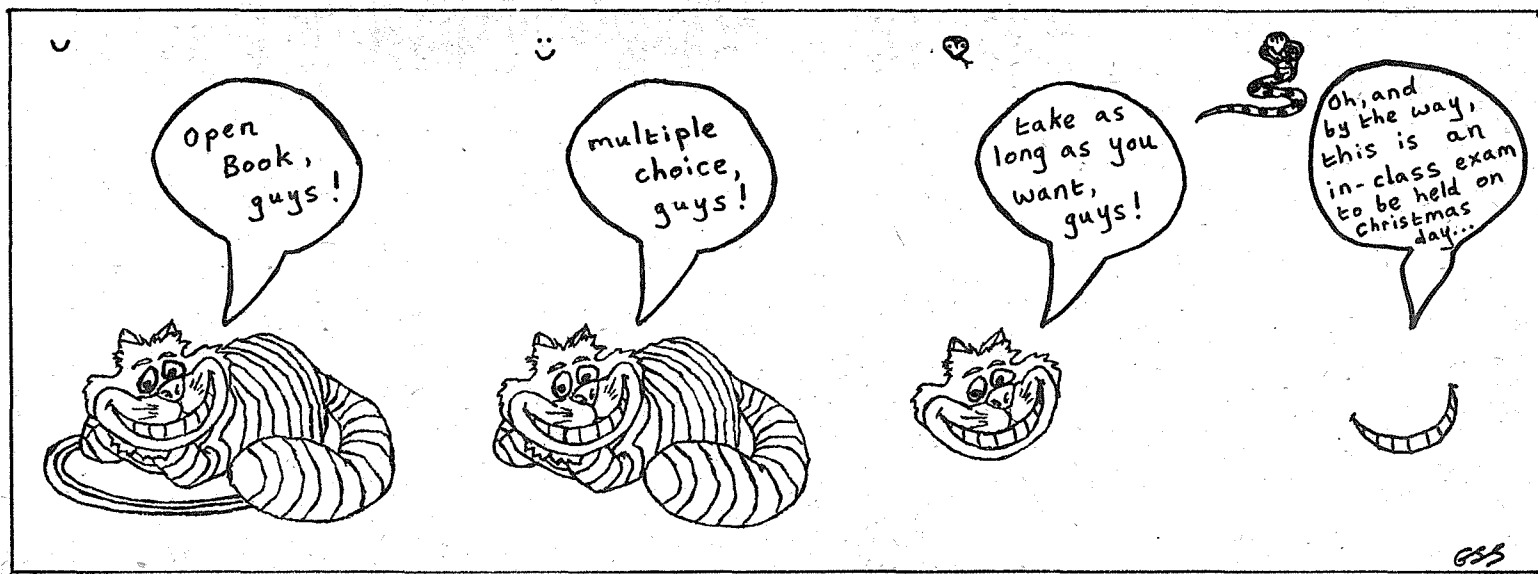
- a resumption of activity around the epicenter from 1969 until the 1971 earthquake.

During this last period five small earthquakes occurred very near the site of the main shock.

"Although it is not clear from the minimal seismic records of this period whether these five events should be called foreshocks," said Dr. Kanamori, "they are clearly different from the previous earthquake activity in the region."

According to Dr. Kanamori, the small earthquakes gave higher frequency readings on the seismographs than was usual, indicating they stemmed from fault structures under higher stress. The wave forms from the

Continued on page 6



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BOD Minutes

this is passes unanimously (Sexton/Beausoleil: 5-0-0).

2) Consideration of a further subsidy for the ASCIT Musical begins with a general discussion on present ASCIT finances. It is mentioned that ASCIT has a budget surplus of \$2120, however, after taking into account salaries yet to be paid and ESC expenditures to date, a residual surplus of around \$1000 is cited.

Crane distributes copies of the letter from D.S. Wood, Chairman of the Programs Committee, which appeared in the California Tech voicing support for an increased ASCIT subsidy, and copies of the estimated budget for the musical (attached). She presents an outline on the present progress of the musical. Tryouts began yesterday. At present there is a cast of 61 people, including 30 undergrads, 2 graduate students, 11 faculty, 6 staff members, 2 former students, and 10 friends. At present, there is a \$350 imbalance between income and expenses; an increase in the ASCIT subsidy from \$250 to \$600 would cover this.

Crane also points out that students receive a \$1.50 discount over general admission. Beckman Auditorium seats 1600; last year attendance averaged 1400, of which 247 were students.

Gray: "The GSC contributed \$400 to the musical. I would like to argue in favor of increasing the ASCIT subsidy. The musical is a good place for close faculty/student interaction. Last year, in two months I interacted closely with maybe 40 or 50

students. I'm incensed by the chickenshit subsidy you guys have come up with. You guys mouth about faculty/student interaction. We bust asses for two months. I want you to give me a good reason why you shouldn't give more money to support the musical."

Baker: "\$300 would pay for a two-house party which gets 100 students. I'd like to know why we should spend \$600 on the musical in which 30 participate."

Wells: "It's not at all the same thing as a party. There is a tremendous involvement by the students involved and a great deal of interaction with the faculty. Also, about 1/4 to 1/3 of the students see the musical."

Slater: "The ASCIT Musical doesn't affect Flemings or others who don't give a ****. I don't care whether Harry's in it or not, or whether he cares about a "chickenshit" attitude. I think they've already been given \$250 which shouldn't have been spent."

Wells: "Then maybe the answer is to give Fleming its dues back?"

Slater asks Wells where he derives the figure of 1/3 to 1/4 of the student body. Wells replies that it is based on the attendance figures for student ticket holders. Gutierrez: "I don't see how the subsidy will affect two-house parties. It won't, you'll still get money for parties."

Slater: "Unless you increase the amount. What about the Big-T budget? Flemings don't like the ASCIT Musical. There are lots of Flemings, just like there are lots of Rudds on the other side."

Gray: "I know how hard I worked last year and I know how you feel. I'm in favor of funding parties, but to me it's not the money but the commitment. If it's a burning issue I think the students should have a voice."

Wells: "Jesse, what you're arguing is that Flemings don't like the musical. There is little interest and you think that there are better ways to spend the money..."

Baker: "As a representative of Fleming House, I don't see it as a Flem issue, but as an issue of all the students."

Slater: "But all the Flemings are united on the issue."

Gray: "Is this musical believed to be the property of a few houses?"

Sexton: "Yes, at least that's the way it turns out."

Crane: "Most of the undergrads involved in the musical right now are in Lloyd, Page, and Ruddock. But I don't see where that's an issue."

Gray: "I was arguing from another point of view."

Wells figures that if the musical were subsidized in a manner similar to other activities, i.e., about \$10 per ASCIT

member, as well as covering the student discount ticket, the figure would be ((\$10 x 30 students) plus (\$1.50 x 250 students)) or \$675.

Gray argues that the student tickets should be subsidized no matter what. Wells adds that there is one outstanding element of the musical's budget request which is the request and financial statement were very carefully done. Slater counters that this had also been thought of the Big-T.

Wells continues that the \$400 budgeted for the director will go to pay the director of Spectrum Productions, and that the musical director (budgeted \$300) is the same one who has worked with Caltech for the last two musicals.

Kaler feels that ASCIT should subsidize the student ticket discount and recommends increasing the subsidy to the musical to \$525: \$5 per involved ASCIT member, or \$150, plus the \$1.50 subsidy x 250 students attending—total, \$525.

Sexton: "1400 tickets were sold last year. Will this play be as popular?"

Crane: "That has little to do with what the show is. The musical is very much a sponsored activity and gets regular support from the Gnome Club, Pasadena, etc."

Sexton moves to increase the present \$250 ASCIT allocation to the musical by \$275 to a total of \$525. The motion is passed unanimously (Sexton/Beausoleil: 5-0-0).

3) Wells announces the names of appointees chosen by the IHC for the remaining positions on faculty/student committees, as well as those individuals who were retained on those committees which had been overallocated:

Programs: (add) Kent Daniel, Colleen Ruby;

Upperclass Admissions: (add) Tom McDonnell, Rick Morriss, Chris Sexton;

Academic Policies: LeRoy Fisher;

Curriculum: Eric Eichorn, Ken Rousseau;

UASH: Robert Chess, Lloyd Maxson, Ken Rousseau.

The appointments are approved by the BOD (Kaler/Beausoleil: 4-0-1 (McDonnell)).

4) Kaler reports on a meeting of the Ad Hoc Administration/Student Committee on the Coffeehouse held that afternoon. Wells and Kaler were present at the meeting. The present position of the committee is to obtain another Institute house, hopefully on Holliston, as the future Coffeehouse. The new house will be closer to the student houses than the present Coffeehouse. The move would probably take place over the summer. No problems with the plan are expected.



Art Workshop's Closing Hit

To the Editor:

Five years ago, Caltech began offering the Art Studio Workshop as an extracurricular non-credit class. Some two hundred thirty students registered since then for this class and for the ceramics class added two years ago. All who participated enjoyed using the school's facilities under the tutelage of Anya Fisher and Roy Kidd. These two working artists have been a special resource of Caltech, bringing to the campus an added dimension with their unique perspective. The Art Studio Workshop held a show in 1975 which was one of the best-attended and best-received campus activities ever. This month it was announced that Caltech would no longer support these classes, and that the rooms used for them would be converted to offices. The following is a petition protesting this decision.

We, the undersigned, registered for the classes in art and ceramics. We did so because we feel art is a necessity in our lives. We feel that the Institute has abdicated a responsibility to offer us a rounded curriculum in its failure to continue funding these classes. If one is to enjoy learning, one must have the opportunity to learn things one can enjoy. An education without the arts is a barren education. It is shameful that the Institute cannot make even this small gesture acknowledging the practice of the arts as an aspect of the human pursuit of knowledge. We protest the decision to cancel funding for these programs and demand their immediate reinstatement.

- K. Wyatt Brown
- Bill Power
- Stu Blackburn
- Lynne Blackburn
- Alice Tang
- John Fuen
- Marilyn Kehry
- Susan Berkley
- Tim Paschki
- Sandy Ewald
- Maureen Steiner
- Linda Shaevitz
- Frank Merritt
- Tadgh Begley
- Elaine Johnson
- Kathy Dutton
- Alean Stone
- Doug Rountree
- Cecilia Rodrigues
- Costos Synolakis
- Doug Heinrich
- David Crane
- David Ting
- Cindy Friedman
- Mark Altobelli
- Doug Early
- Basil Iatridis
- Jin Chen Hsu
- Richard Flammang
- Barbara Kaleth
- Cathy Hill

Continued from page 5

Earthquake

earthquakes were also different from those previously seen in this area.

"The current seismic network is far more extensive than it was before the 1971 San Fernando earthquake," said Dr. Kanamori. "My feeling is that if our network had been as extensive then, careful analysis would have revealed the kinds of anomalous activity that might enable prediction.

"Although I have in the past been pessimistic about the use of foreshock activity to predict earthquakes, the findings regarding the San Fernando earthquake and others have made me far more optimistic," he said.

"Our studies make it clear that the extensive, high-gain seismic network we have currently installed in southern California offers considerable promise for advances in this area."

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Continued from page 2

Asking

got (from the instructors) was one of interest and concern; but shortly after this reaction turned at least as I see it, into disappointment and frustration. Please believe me, it is no fun at all talking to a disappointed frustrated person, especially if it was hard to go talk to him in the first place. This seems an even stronger motivation than the first.

It is my sincere hope that every student and every faculty member will read this letter, and at least reflect for a minute or two on its ideas. And of course if anyone is interested enough to get in touch with me, I would be more than happy to discuss my ideas (and your ideas) on these very difficult problems.

Tim Rentschler

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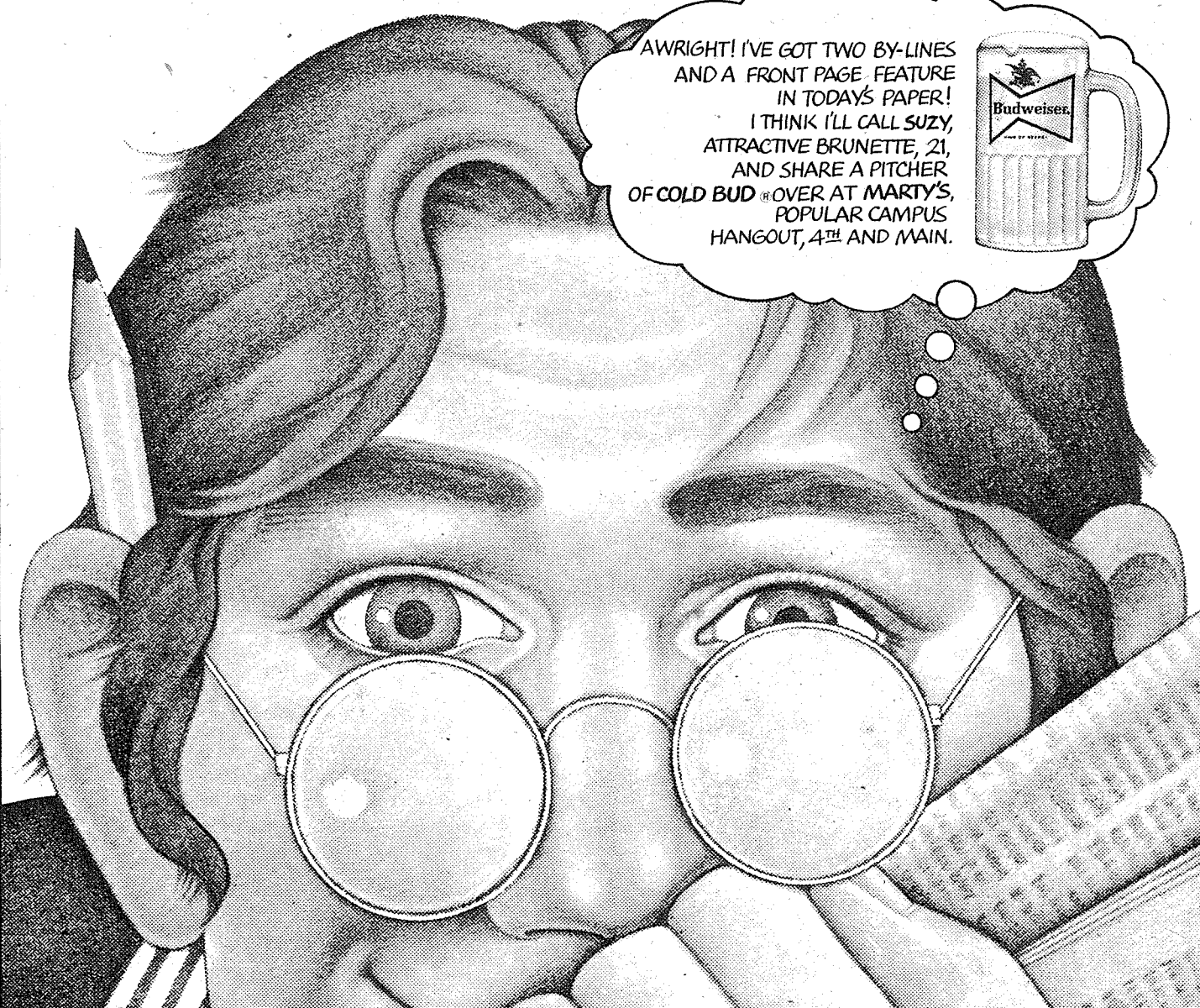
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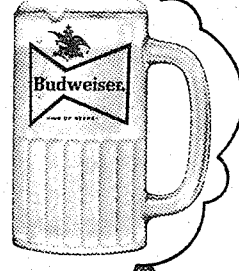
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Continued from page 1

Anderson

the government, like the companies, wants to keep us "hooked" on oil.

Anderson talked about the recent scandal involving U.S. Congressmen and the Korean Central Intelligence Agency. He said that the KCIA was organized, trained, and originally funded by the American CIA. The KCIA has copied the CIA's tactics, said Anderson. He said our CIA has bribed Korean officials in the past. This gave the KCIA the idea to bribe U.S. officials, according to Anderson. The difference, he said, is that our CIA does it everywhere.

The press is the watchdog over government, big business, and organized labor, said Anderson. He won the Pulitzer Prize in 1972 for proving that Richard Nixon and Henry Kissinger had lied to the public about the U.S. stance toward the Pakistan-India conflict. He broke many of the major stories from Watergate. He closed his lecture by saying that the president of the U.S. is the "servant of the people, not their master." Nixon's greatest service to the American people was to inadvertently demonstrate this to them, said Anderson.

IH Swimming

By Mark J. Rosker

The Interhouse swimming competition took place on Tuesday. When the waves had died down, Fleming House had taken first place, dominating the competition. The other houses finished as follows second, Page; third, Ruddock; fourth, Ricketts; fifth, Lloyd; sixth, Blacker; and seventh, Dabney.

Interhouse records were broken in two events. Steve Brown of Fleming took the 50 yard breast stroke in 30.8. Bill Power of Lloyd broke the record that he himself had set in the

semifinals on Monday with a 57.8 in the 100 yard individual medley.

Power also was victorious in the 50 yard butterfly with a time of 26.4. John Reimer of Fleming won two events: the 50 yard and the 100 yard freestyles, with 24.4 and 54.0 respectively. Werner (Cueball) Pyka, of Page, won the 50 yard backstroke. His hair, however, did not even show.

The team events were both won by Fleming. They took the 200 yard medley in 1:53.4. and the 200 yard freestyle in 1:43.5.

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Marathon Flick

Kellogg's Eighth Light Regiment Of Foot is forming an expedition to the Mission Bay Marathon, Jan. 14. For application forms, talk to Robert Colgrove in Page.

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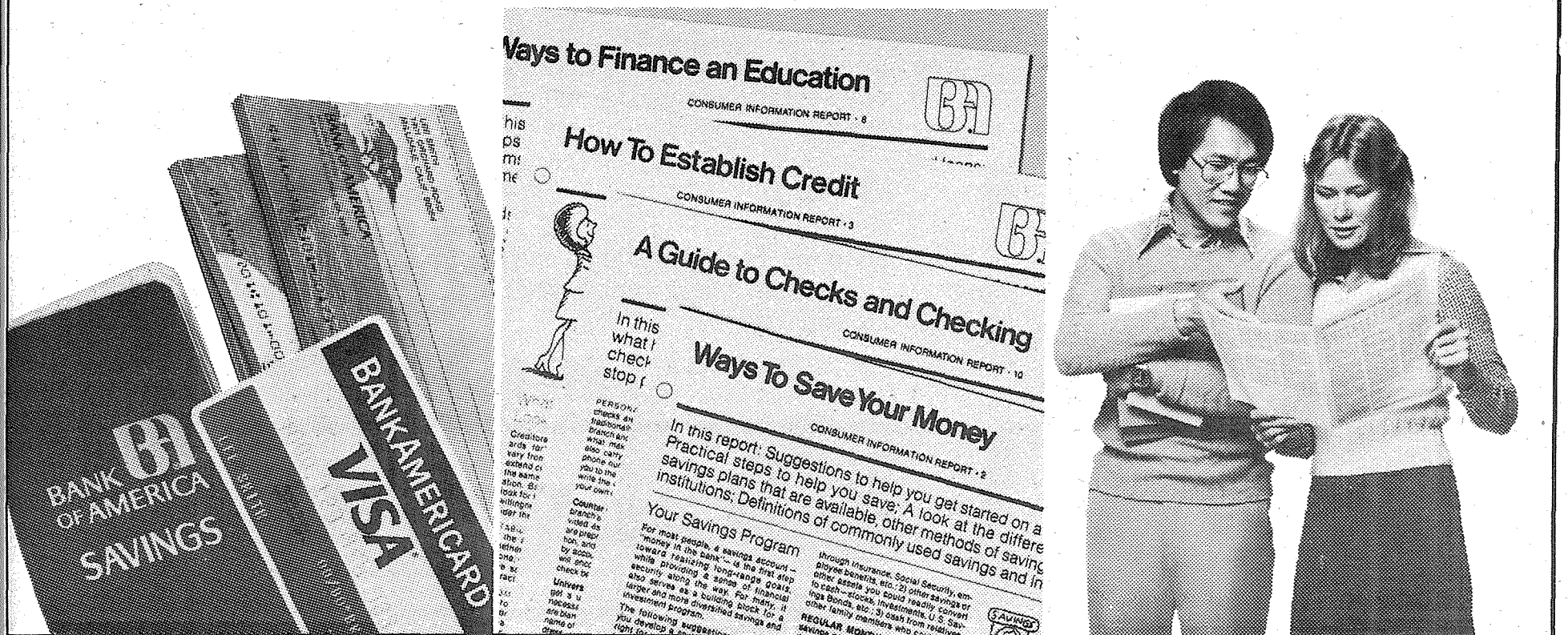
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To the right of the reports is a black and white photograph of two young people, a man and a woman, looking at a document together. The man is wearing glasses and a light-colored shirt, and the woman is wearing a light-colored top and a dark skirt.

Continued from page 3

De-compression

toys, music, and cartoons going on continuously.

The food will be straight from the Farmer's Market and guaranteed to be good and fresh. Fruits, carrots, celery, and peanuts will be featured with peanuts being the big star this year. Lots of milk and juice to drink also. Games and pastimes will range from tinker toys to the child guidance toys rated ages 2 to 6. For the artistically inclined, a graffiti board will be up to allow drawing on the walls and free expression of thoughts or ideas about finals, Caltech, or life in general (Walt Meader loves the graffiti, so put up some good stuff so his office wall can be filled).

For your listening enjoyment, the Steve Pope Band will be playing for about 2 hours each night. In between the band, and whenever the projectionist gets around to it, there will be about 2 hours of cartoons. The main features will be a selection of the Road Runner, Bugs Bunny, Foghorn Leghorn, and Daffy Duck. Also a special animation will be presented, "Closed Mondays". This excellent work of art won an Academy Award in 1975. The clay animation concerns a drunk who stumbles into a museum after closing. His stay is frustrated by the works of art that come to life. There is even a chance that there might be some 3 Stooges shorts also, but that is still tentative.

This Decompression will have a slightly different atmosphere than former ones. The rugs will be removed and the floor covered with sawdust. Also due to the large amount of peanuts that will be consumed, everyone is invited to throw the peanut shells on the floor; don't be surprised if some faculty type walks up to you during the evening and throws peanuts at you; it's all part of the fun. The mood is completely casual, come and go as often as you like, and let your hair down and enjoy yourself as much as you can, since that's what it's here for.

As a special note to anyone really into animation and coming back early, the Nuart Theater will be presenting an all new "Animation Festival". This is by the same people who brought you the "Fantastic Animation Festival". The show is one night only on Dec. 29. The shorts are being auditioned by the producers to make up the "Fantastic Animation Festival 2". I can't comment on the quality, but it will probably be worth attending.

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