

the california TECH

Volume LXXIX Number 10

Caltech, Pasadena, California

Friday, October 28, 1977

Tech Scientist Predicts IC Revolution

By Jim Reichle

The world can expect continued advancement in integrated circuit technology, according to Caltech computer science professor Ivan Sutherland. In a lecture Wednesday, Oct. 19 in Beckman Auditorium entitled "The Integrated Circuit Revolution Is Only Half Over," Dr. Sutherland predicted that we can make integrated circuits even smaller and cheaper than they are now.

Integrated circuits, of course, are those electronic devices that are the hearts of calculators and digital watches. In recent years, the sizes and prices of IC's have come down drastically.

IC's are manufactured by etching patterns on wafers of silicon through a photographic process. However, the patterns on IC's today are so tiny that they are not much larger than the wavelength of light used in the photographic process. For this reason, some authorities feel that we have reached the practical limit in IC size reduction. Dr. Sutherland said he thinks we will overcome this handicap soon, possibly through the use of X-rays or other short waves.

Integrated circuit engineers are also improving the "cleverness" of their designs by making them more efficient with regard to space. However, large electronics firms are reluctant to design new IC's when they can use a portion of an old one to do the same thing.

A typical IC of today can duplicate the functions of several tens of thousands of transistors. Dr. Sutherland said he hopes that we will eventually be able to make IC's that can perform the functions of ten million transistors. This translates into a thousandfold reduction in the

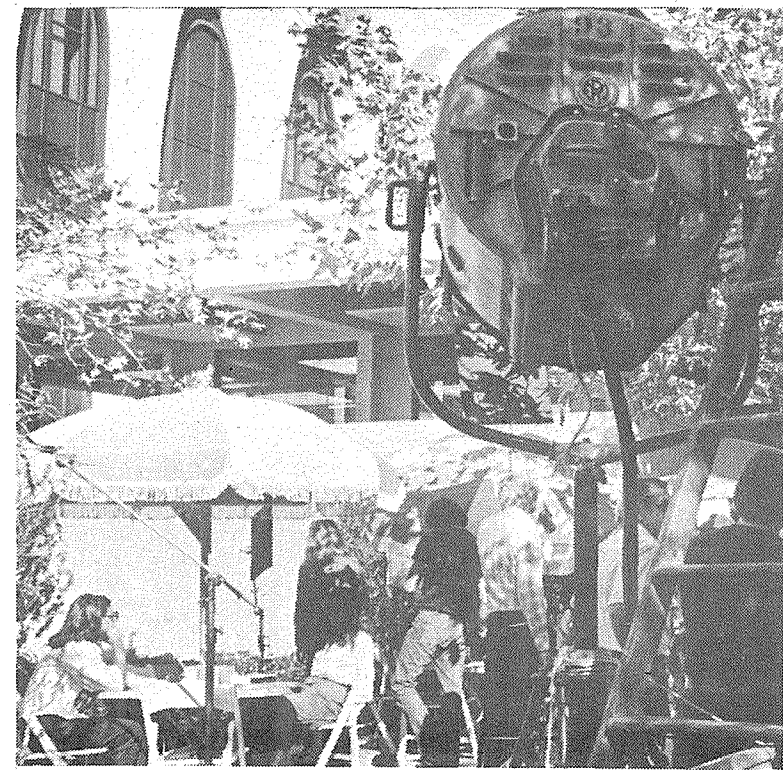
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BOD Suing Former ASCIT Treasurer Ole Anderson

By Spencer Klein

The ASCIT BOD is suing ex-ASCIT Treasurer and Big T Business Manager Ole Anderson. Anderson is being sued for \$550 in small claims court in connection with allegedly unethical dealings with Jostens Yearbook company and ASCIT.

In 1974, when he was both ASCIT Treasurer and Big T business manager, he received a bid of \$10,700 per year for the next two years' Big T's. After negotiations, which are common practice, he was able to get them to reduce their price by \$3700 over two years. The controversy begins here. ASCIT claims that the reduction was in the form of a discount. Anderson claimed that the price reduction was actually in the form of an advertisement despite the fact



ABC Television film crews were on campus recently for the shooting of an episode of the weekly series "Family." Photo—Ed Bielecki

Theft Problem Remains but Burglary Rate Down

By Richard Willson

Although the burglary rate here is declining, Caltech continues to have problems with thefts, according to Lee Chapman, director of campus security.

In addition to the sundial earlier reported stolen [the Tech, Oct. 14] missing items include the brass letters spelling out "California Institute of Technology" on the wall at Wilson Avenue and San Pasqual Street; two calculators, a small stereo, and a clock radio from the Personnel Office; and a stereo system that was temporarily left in a hallway while being moved.

Nonetheless, progress is being made, even if fitfully. Last fiscal year, the total value of items stolen from the campus was about \$37,000; three years ago, the figure was close to \$60,000.

Chapman attributes this decline to several factors. Buildings are increasingly equipped with silent alarms that alert security officers of disturbances. Officers now patrol the ground on foot, by car or electric car, and on bicycles. Security officers occasionally work in plainclothes and are assisted by Caltech students (who are paid \$2.65 per hour. Incidentally, new applicants are being sought).

To help Techers prevent thefts, the security office now

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My Life as a Hired Gun

By Spencer Klein

"My Life as a Hired Gun" was the title of Dr. John Andelin's account of his experiences in Washington as science consultant to the House Committee on Science and Technology. During the Monday evening 'Y' discussion Dr. Andelin described himself as an information broker and expeditor. His job consists mainly of gathering information on various bills before his committee, condensing it, and distributing it to congressmen on the committee. He also suggests bills and modifications of bills to congressmen, and generally keeps them advised on scientific topics under consideration, his specialty being solar energy research.

He said he gets his information from many official sources—the General Accounting Office, the National Academy of Sciences, the National Science Foundation, and the Office of Technological Assessment—as well as from calls and letters to colleagues all over the nation. The thirty pounds of mail per week and thirty or forty calls per day that this amounts to is almost overwhelming, he added. Dr. Andelin received his BS

HSS Sweeps Four of Six ASCIT Teaching Awards

Six Caltech professors—Robert Bergman, William Corcoran, David Elliot, Holly Jackson, Edwin Munger, and Rodman Paul—are the recipients of the second annual ASCIT Awards for Excellence in Teaching, it was announced today.

The ASCIT Board of Directors based the choices on data gathered for this year's *Teaching Quality Feedback Report* the course-evaluation booklet. Instructors who rated highly in the categories of clarity, enthusiasm, and interest were considered for the awards.

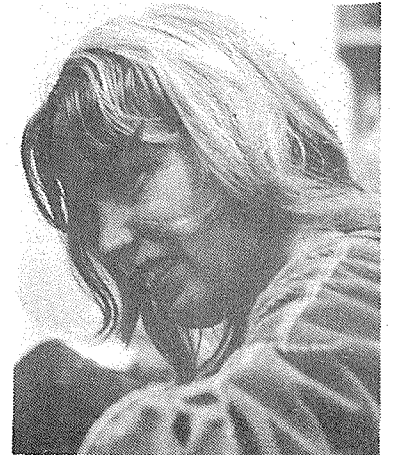
Interestingly, four of the six winners are from the Division of the Humanities and Social Sciences. Holly Jackson, assistant professor of english, has been here only since 1975, yet in that short time has impressed students with her enthusiasm for her subject (Shakespeare).

Professor of History David Elliot was cited for his Introduction to Europe class, which one student explained was "excellent" because of the concentration on "trends and reasons rather than dates." Rodman Paul, professor of history, was also commended for his teaching a freshman class, American Life and Thought.

For his seminars in political geography, Professor Edwin (Ned) Munger was commended by the BOD. Munger, a noted expert on Africa, received entirely positive comments in the *TOFR*.

The two winners from science are from the Division of Chemistry and Chemical Engineering.

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Chem Lab Gets New Director

By Geoff Sommer

Dr. Jane Raymond, new Director of Undergraduate Laboratories, is perhaps the most aesthetic acquisition of the Chemistry department in recent years. Despite this, it is evident after meeting her that she wants people to regard her as just another faculty member.

Formerly a visiting professor at U.C. Berkely, Dr. Raymond was approached there by Tech's Dr. Sunney Chan. After touring this campus and meeting chemistry faculty and administration, she decided to accept the task of integrating the various chemistry

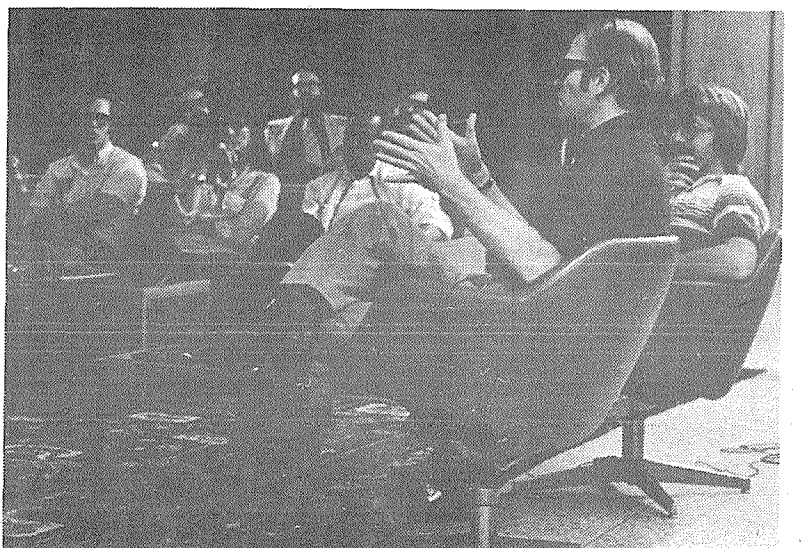
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Washington Exposed by Former RA

from Caltech in 1955, went to Stanford for a year of graduate work (he described it as "easy", after his undergraduate work), and returned here, finally receiving his PhD in 1965. During this period he was Ricketts House Resident Associate. After that he worked for Ford and Hughes doing liquid helium research. He then went off to Harvard to work on orbiting telescopes. He

left because he became fed up with both NASA and the Harvard astrophysics group he worked with. He said Harvard was submitting proposals for OSO (orbiting satellite observatory) that were virtually the same as experiments done on an earlier satellite, and he was upset with NASA because they didn't care that one of the interferometers

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Dr. John Andelin at Monday evening Caltech Y presentation.

Photo—Joe DiGiorgio

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Commentary

Panama Canal-A Chance to Make Amends

With the agreement between Jimmy Carter and Panama's General Omar Torrijos two weeks ago and the plebiscite in Panama this week, the reasons for quick Senate approval of the Panama Canal treaty are becoming more apparent than ever.

In his meeting with Torrijos, Carter erased doubts surrounding two key elements of the treaty. A three-paragraph statement released after their meeting affirmed that the U.S. has the right to defend the canal after 1999 and that U.S. warships have priority in using the canal in emergencies. At the same time, it provided that nothing in the treaty should be interpreted by the U.S. as a right of intervention in the internal affairs of Panama. This last provision was a much sought after face-saving concession desired by the Panamanians.

It is this problem of face-saving that seems to be at the root of opposition to the treaty in both countries. Conservative Americans charge giveaway and worry about the U.S. losing stature in the world community if we give in to Panama. At the same time, militant Panamanians, citing the fact that the canal was obtained by the U.S. in a completely unethical manner, say that the Canal Zone is legitimate Panamanian territory and demand full and immediate control of the canal.

An additional worry of many Americans is that the canal will not be in safe hands if the Panamanians control it. They cite the Suez Canal as a prime example. However, this argument ignores two basic facts. First, that since the canal ethically (if not legally) belongs to Panama, it should not really matter how well they can run it. Second, that the canal is no longer of prime importance to the U.S. The joint Chiefs of Staff have said that the canal is of little strategic importance to the U.S. And commercial shipping through the canal has dropped to the point of near insignificance.

If the canal treaty is not approved, the issue of who runs it could become of no importance anyway. There are many groups in Panama that would rather bomb the canal than leave it in U.S. hands. Various reports have shown that small groups of saboteurs could effectively disable the canal, and American soldiers are no match for Panama's when fighting in their tropical jungles.

The American-held Canal Zone cutting through the middle of their country is an irritation to most Panamanians akin to what ours might be if the French still owned the Mississippi River. It gives America the image of a repressive, imperialistic superpower throughout the world. This is something we can ill afford in this day and age. The Panamanian people have compromised enough to support American control through the end of the century by a margin of two-to-one. An equal showing of good grace by the U.S. Senate would approve the treaty. It is time to amend our mistakes. The treaty should be approved.

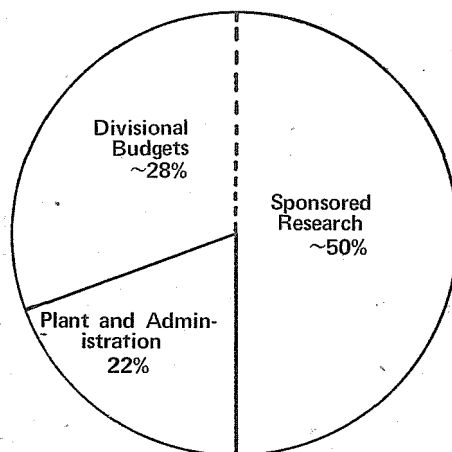


Figure 1. Institute Budget

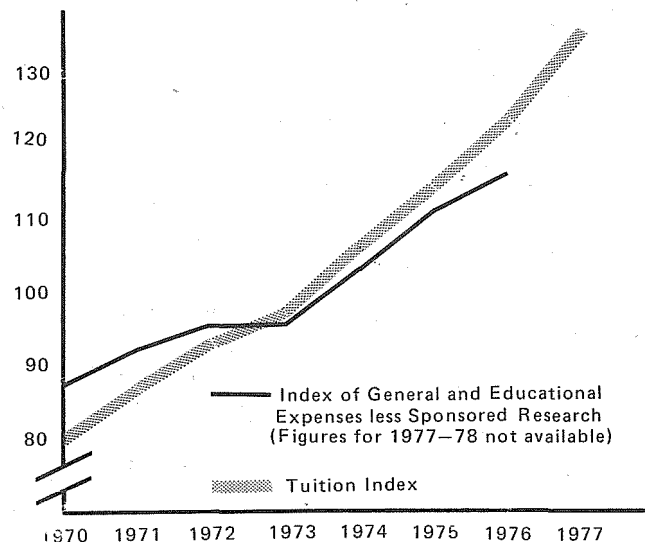


Figure 2. Comparison of Changes in Tuition and changes in Educational Expenses

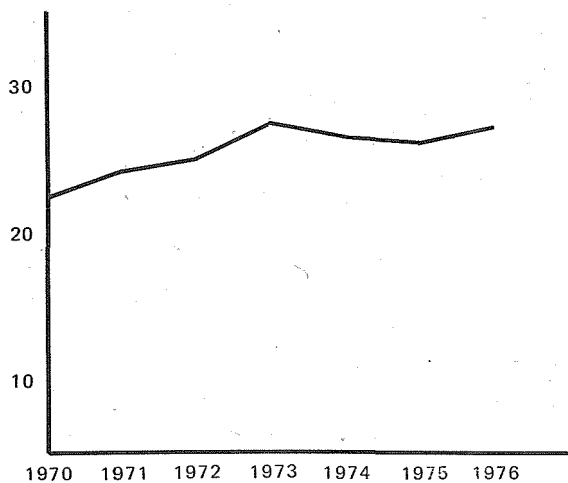


Figure 3. Tuition Revenue and Student Notes Receivable as Percent of Educational Expenses

Table 1
Tuition at Leading Universities

School	1976-77	1977-78
Caltech	3648	3939
Harvard	4300	4700
M.I.T.	4000	4300
Princeton	4300	4700
Stanford	4275	4695
Yale	4400	4780

Analysis

Students Bear Higher Tuition Burden

By Brett Stutz

In spite of annual increases in recent years, tuition at Caltech remains rather low. Increases have been basically justified by increasing expenses. However, it appears that tuition is providing an increasing part of educational costs.

It costs roughly \$15,500 per year to educate a student at Caltech. The Institute's annual budget is about sixty million dollars. About one half of this is for sponsored research. There is a hazy distinction between this and the 28% allocated to the divisions. From this 28% come professors' salaries and other educational costs. Plant expenses and administrative costs account for the other 22% of the budget. Making the approximation that plant expense is shared in the same proportion as the rest of the budget gives a figure of 40% for educational expenses. (See Figure 1).

Caltech tends to have high plant expense because of the large amount of laboratory space. The comparatively great opportunities Caltech students have to use sophisticated equipment and do research increases the cost of a Caltech education. Even so, comparison with other top schools shows Caltech to have

relatively low tuition (Table 1).

To make comparison of tuition and educational expenses easier, I have constructed two indexes, graphed in Figure 2. These indexes are for tuition and general expenses less sponsored research expenses. The base period for both was taken to be 1970 through 1976. The graphs show that increases in tuition have followed increases in tuition fairly closely.

However, looking at the figures in another way, tuition has been increasing at the rate of 6.3% per year while educational expenses have been rising at only 4.1%. This is during a period of increasing enrollment. At the same time, Figure 3 shows that the percent of educational expenses accounted for by tuition revenue and student notes receivable is creeping upward by about two thirds of a percentage point each year. This may indicate that Caltech is suffering from the same problem as most private schools: a decline in private gifts. Administrative sources, on the other hand, claim that the proportion of non-tuition funds has been relatively constant. I was unable to find any information that would resolve this contradiction.

In conclusion, tuition at Cal-

tech is fairly reasonable and is lower than that of institutions of a comparable level. Roughly 75% of the cost of a Caltech education comes from non-tuition sources. However, it seems that the portion of the educational costs that students will be asked to pay is increasing.

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Editor Pro Tem
Henry Fuhrmann

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, Ed Bielecki, Joe DiGiorgio

Production
Flora Boyer, Nick Smith

Circulation
Carl Lydick [Manager], Bill Gould

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Thuncan

by P.M.



News Briefs

Sign Up to Get Out

All seniors are advised that they should stop by the Registrar's Office not later than Monday, November 7, to review their course records and sign declaration of candidacy forms.

The Pumpkin Falls At Midnight

From the south end of Millikan on the night of Halloween. Come and be festive. Another Dabney House production.

Black is Beautiful

There will be a Black Mass this Saturday midnight in Ricketts. Christians are especially welcome.

Now Just Find a Ballroom

Ballroom dancing will begin on Friday the 28th (that's tonight) at 7:30 pm in Winnett Center. Lots of women are promised.

Starship Captains Wanted!

The Caltech Gaming Society will present a scenario of Alien Space this Saturday at 7:30 pm in Dabney Hall. New players are welcome.

Speak Out on Financial Aid

The Faculty Committee on Scholarships and Financial Aid is anxious to have undergraduate student opinion on all aspects of financial aid at Caltech—including the size of the self-help package, loan policy, and prize scholarships. Anyone with an opinion (as distinct from a gripe about some detail of his or her case) will do us all a favor by bringing it to me, Peter Fay, (Baxter 238, I'm there most of the time and the door is literally open) or to the two undergrad Committee members, Bert Wells and Marta De Jesus (both of Ruddock).

Big Bucks for Future Fatgrads

California State Graduate Fellowship applications are anticipated to be available in the Placement Office in early November. The deadline date for the 1978-79 competition will be February 6, 1978.

Got Your PhD? Now Get a Job

The following companies will be on campus to interview PhD's for possible employment during the period Nov. 1-Nov. 4. Appointments may be made in the placement office, Room 8

Dabney Hall.
Nov. 1—Standard Oil, Continental Oil Co., Union Carbide.
Nov. 2—3-M Co., Union Carbide, Allied Chemicals.
Nov. 3—3-M Co., Shell Development, Atlantic Richfield, Du Pont.
Nov. 4—JPL, Harvard University, Graduate School of Business Administration.

Beyond Mars: Voyages to the Outer Planets

A two-part symposium for students and the public will be presented on Sunday, October 30, 1977, from 1:00 pm to 6:30 pm at the California Museum of Science and Industry at the G. E. & Mattie B. Kinsey Auditorium. The keynote address will be by Gentry Lee, the section manager of the mission design section at JPL. Several talks will be given by persons from JPL, Caltech, and TRW. The symposium will also include a music program featuring "The Sounds of Earth," a recording sent into space aboard the Voyager probes for the benefit of potential extraterrestrial listeners.

National Research Council Fellowships

The National Research Council is pleased to announce the NRC Research Associateship Programs for 1978. These programs provide opportunities for post-doctoral research in many fields of science and engineering.

Appointments are awarded on a competitive basis to recent

recipients of the doctorate and, in some programs, to senior investigators. Certain programs are open to non-U.S. nationals as well as to U.S. citizens. Stipends (subject to income tax) will begin at \$17,000 a year. Grants will be provided for family relocation and for professional travel during tenure.

Food Co-op Hungry For New Members

The Caltech Food Co-op seeks new members. We buy fresh fruits and vegetables, cheese, eggs, and other good food weekly at wholesale prices. For further details, call Joel Rubenstein, 795-8983 between 4 pm and midnight.

Caltech Y Presents...

Today: The Caltech Dixieland Band will be entertaining in the quad. Bring your lunch and enjoy this informal concert at noon.

Tomorrow: Bill Schaefer and Dave Wales will lead a day hike to Mount Baldy. Come by the Y office today and let us know if you're interested.

Come as You Were (in a Past Life)

You're all invited to a costume dance party tonight in Dabney Lounge at 8 pm. A dollar donation is requested. The theme is: "Come as you were (in a past life)." For information call Moses Ma at 792-0086.

Get High This Week

The Caltech Cycling Federation will be riding to Mt. Wilson this Saturday. Meet at 7:30 am at the Quad.

Let's Get This Over With, Part II

Nominations are now open (again) for the offices of Junior Class Secretary and Treasurer. This may be your last chance to enter the race for these coveted positions.

And, if you act now, you could be in the running for the challenging position of California Tech Editor. Nominations are open for a limited time only (closing Monday, October 31). Sign up on Flora's door in Winnett.

Finally, nominations are open for new positions on the following committees: Programs, and Upperclass Admissions.

The California Tech needs writers, photographers, and production help (not to mention an Editor in Chief). No experience necessary. Drop by our offices in Winnett for details.

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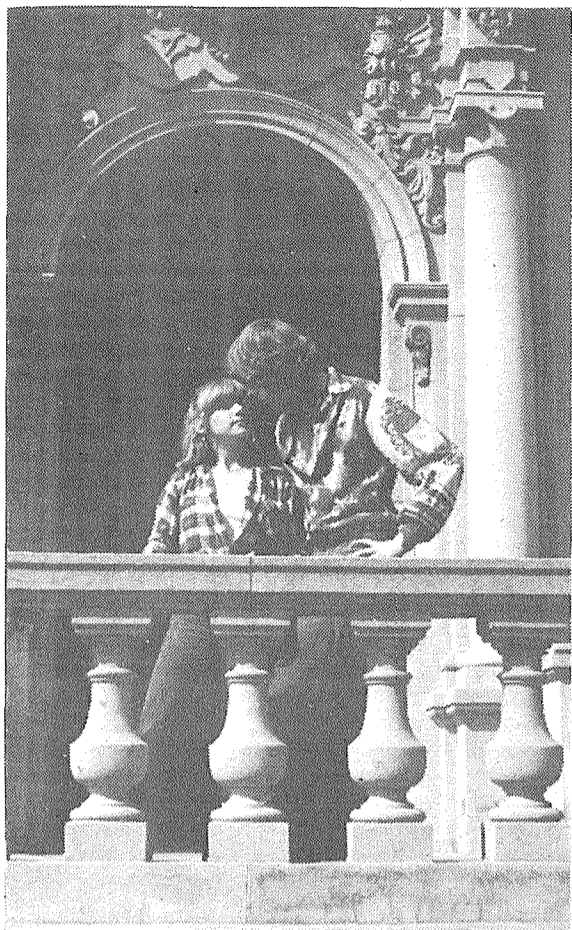
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'Ramona' to Premiere at Gates



The premiere performance of *Ramona*, a surrealistic play called by its director "both theater and a formal visual art experience," will be held on the steps of Gates Laboratory Friday and Saturday, October 28-29. The drama, presented by the SSB, a fine arts resource center of Los Angeles, is sponsored by Caltech's Baxter Art Gallery. The performance begins at 8 pm and runs approximately one hour.

In *Ramona* artists-playwrights Guy di Cointet and Bob Wilhite, also known for their graphic art and drawing, present their audience with the kind of surreal symbols, cryptograms, codes and subliminal levels of activity that characterize their work on canvas.

The play's simple plot revolves around a sensitive young woman in a new home overlooking the Pacific Ocean who is visited by friends, family members, and a stranger. However, the drama's main thrust is the use of music, props, action, and dialogue to give viewers "a different way of looking at everyday symbols that they take for granted."

Baxter Gallery selected this work for performance on the campus partly because of the authors' interest in the technical side of Caltech—in numbers and systems as they are used in the Caltech environment and elsewhere.

Tickets for *Ramona* are \$3.50 (\$1 to Caltech students). For further information contact SSB at (213) 396-1312 or the Baxter Art Gallery 795-6811, ext. 1371.

Swords & Starships

'Damnation Alley'

By Nick Smith

A couple of years ago, an announcement was made in the papers that someone was planning to make a film out of one of the books by SF writer Roger Zelazny. This was good news. Then they announced which book would be adapted: *Damnation Alley*. That was bad news. Eventually, it was announced that the title might be changed to "Survival Run." That was worse news. Finally, it was announced that Jan Michael Vincent would be starring in the adaptation, and that was the worst news of all.

Damnation Alley is one of Zelazny's worst books, and it would be difficult to make into a movie. In fact, it is almost fortunate that the filmmakers didn't really try to use the book. Zelazny's works are mainly character studies, often weakest in the area of a plot that can be readily visualized. This one had unnamed holocausts, flying rocks, and a rotten motivation. Somewhere along the line the producers of the film may have noticed this and decided to rework the essentials. Unfortunately, they picked a pair of apparent hack writers. The result is a 1950's science fiction film with a few 1970's special effects.

The Original Story

In the original story, an ex-Hells Angel leader gets coerced into driving an all-terrain vehicle (ATV) across the remains of the central U.S. to deliver a supply of vaccine to one of the few remaining pockets of humanity after a series of disasters. Hell Tanner, the driver, finally makes it across the country from California to the east coast, after a lot of hardships and soul-searching. Most of the actual trip involved a climate gone literally insane. This was the weakest part of the story, reminiscent of J.G. Ballard and other authors who use outrageous winds and other

weather devices as a means to start a story in motion.

In any case, the movie version converts Hell Tanner into an Air Force officer who helped return missile fire against an apparent Russian nuclear strike. The only parts of the book that were kept were the last name of the main character, the ATV, and the destination of the trip. George Peppard was stuck into the plot to be Tanner's commanding officer. Vincent, as Tanner, was simply unbelievable as either the original Hell Tanner or as the obnoxious punk Air Force misfit he tried to play. These two, along with the ATV, were the actual stars of the movie, everyone else having bit parts (no matter what the movie ads say).

'Decent Special Effects'

As it happens, the movie version of *Damnation Alley* did come up with some decent special effects, since they had to do unusual sky scenes for almost half of the film. They also had to build an actual working ATV. Unfortunately, they spent all of their time and money on these things, and thus did not achieve such things as having a simple mock-up of the ATV for use in certain scenes that required two such vehicles to be shown. This omission requires a lot of overlooking, since it requires a machine to play twins without using mattes or a split screen. It fails.

World War III

Another weakness of the film is that almost one-fourth of the film deals entirely with fighting World War Three, while glossing entirely over the two years immediately following it, as well as failing to explain the less possible events that occur near the end. Suspension of disbelief is pushed beyond any reasonable limits here, and you just have to grimace and bear it. It does, however, grate when the writers of the script didn't bother to

Continued on Page Six

Cinematech Halloween Special Promises to Scare You Right Out of Your Seat

By Mike Kurilla

This week Cinematech is offering a Halloween special to scare you right out of your seats. For cultists of the horror film we are presenting *The Night of the Living Dead*, and for those who specialize in silents we have *Phantom of the Opera*.

The Night of the Living Dead opened on 42nd street in 1968 and was expected to have a very short run and die an undignified death of a typical Class C flick. To make the situation seem more bleak, the film was made in Pittsburgh by a gentleman who previous to this film had been making commercials in a studio he owned himself. With all this going against it, the underground critics jumped on it and proclaimed it as a serious work of film art. They were so adamant about it that by 1970, the film was being shown at the Museum of Modern Art with George Romero, the director, present, smiling ear to ear.

The beauty of the film is in its overcoming everything against it. Being filmed on a shoestring, it is probably one of the lowest-budget films ever made. There are almost no professional

actors in the film. Romero used all the local talent he could find and when he ran out of local talent, he used anybody off the streets. Also to his credit, the planning was so good that it actually came in on budget.

In retrospect it is probably one of the best experimental works of 1968. The use of atmospheric lighting and handheld camerawork is delightfully refreshing. Not attempting to create any suspense, the film goes against all the rules of horror films and begins immediately with terror and screams.

As for *Phantom of the Opera* there isn't much to say about this classic film. Perhaps a tribute to its greatness is that it was remade twice, but the original was never equaled. The story concerns Eric, horribly disfigured for life, who takes refuge in the sewers beneath the Opera House. He finally kidnaps the beautiful Mary Philbin and tries to turn her into the best opera singer in the world.

Lon Chaney, "the man of a thousand faces," plays Eric. His makeup in this film is about the best found in the silent film era.

Considering what he had to work with, it is a very impressive feat. The mask of Red Death that he wears as he enters the ball is all makeup. Eric's face may well be one of the most horrifying ever to appear on the screen.

Cinematech shows are Saturday nights at 7:30 pm in Baxter Lecture Hall in Beautiful Pasadena. Donations are \$1.50 for general and \$1.00 for ASCIT and GSC. Refreshments will be served during intermission.

ASCIT Friday Movie

For anyone who was really turned on by Kurosawa's film last Saturday or anyone who missed it and deeply regrets it, this week's ASCIT movie is *Rashomon*. This film predates *The Seven Samurai* by about 3 years and is the film that is responsible for bringing Japanese cinema to the Western world. Hollywood responded to this film by making *Outrage* about 13 years later.

ASCIT Movies are also in Baxter, on Friday nights at 7:30 and 9:30 pm. Admission—50 cents for Techers, \$1.00 for anyone else.



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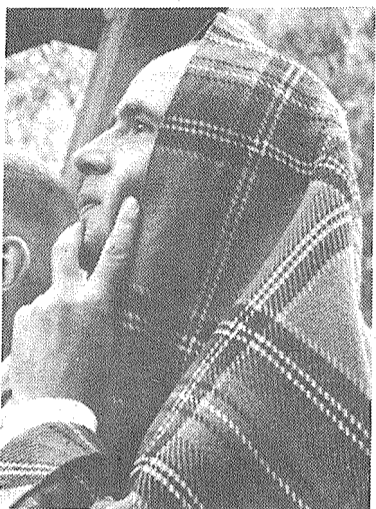
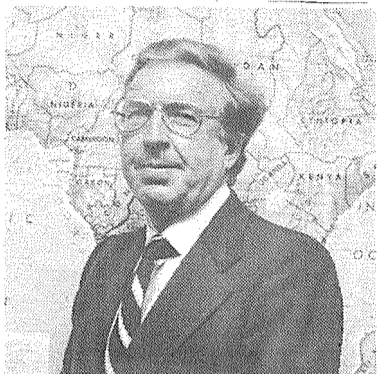
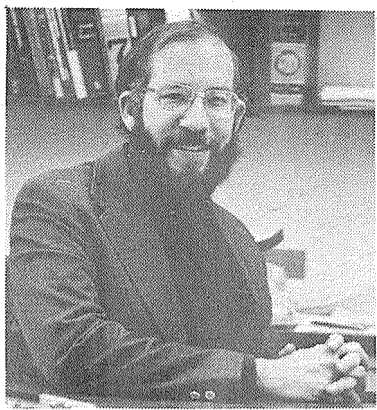
Lectures can be scheduled in your
classroom, lecture hall, forum, or
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or 213-422-8996 or write the section
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TEACHING AWARDS

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Professor of Chemistry Robert Bergman had the difficult task of teaching Ch 41, the beginning organic chemistry course, but still managed to impress students with his lecturing. William Corcoran, professor of chemical engineering, was widely admired by his students, who admitted that his courses, which involved a "hell of a lot of work," were nonetheless fair.

The awards plaques will be presented today at the Board of Trustees meeting at Palm Springs. Five members of the ASCIT BOD will be in attendance to present the awards. One purpose of the awards is to show that teaching is the function of the Institute dearest to undergraduates. The Board of Trustees last year commended ASCIT for both the *TQFR* and the award selections.



Winners of the ASCIT Teaching Awards, clockwise from bottom left: Rodman Paul, Ned Munger, Robert Bergman, William Corcoran, David Elliot. Not pictured: Holly Jackson.

HIRED GUN

Continued from Page One

wasn't working properly before launch.

After that, Andelin decided to run for Congress, but thought he should find out first what he would have to do if he were to win. So, he went to Washington, and looked around for a job, offering to work for free. Mike McCormick accepted his offer, and a year later he was put on the payroll, and still later was transferred to working for the whole committee.

Andelin described his work as very satisfying. He said he felt he is having some effect on America's progress, and has dropped his plans to run for congress.

BURGLARIES

Continued from Page One

provides an engraving tool for marking valuable items. The marker is available for free check-out at the Security Office in the Central Engineering Services Building and "should be in use all the time," says Chapman. Since access to Social Security number files is tightly restricted, it is suggested that students mark their belongings with driver's license numbers, which can be looked up easily.

Burglars have been encouraged by Techers' tendency to leave their doors open or unlocked, allowing easy access to opportunists who wander around looking for small, valuable items that can be spirited away. Security has tried to make things difficult for burglars by promoting crime consciousness through memos to administrators and orientation meetings with students.

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LAB DIRECTOR

Continued from Page One
laboratory courses. To this end, the position of "Director of Undergraduate Laboratories" was created.

Due to the importance of the work ahead of her, no research responsibilities were assigned the new director.

Born in Oregon, Raymond studied at Reed University and M.I.T., and has taught at Reed, the University of Chicago, and U.C. Berkely.

At M.I.T. she found that women had a hard time securing teaching assistantships, since professors considered females to be both incompetent and laboratory distractions.

Lecturing at Berkely, however, the professor were isolated from the students. Because neither of these things is true at Caltech, she feels that Caltech offers the best of both worlds.

BOD SUING ANDERSON

Continued from Page One
matter to the BOC.

According to Bob Chess, the BOD then asked the BOC to rule on the case, but the BOC refused to get involved.

Anderson then asked the BOC to convict the entire 1976-77 BOD on the grounds that they were taking unfair advantage of him by asking him to return the money. The former BOD rejected the charge because the matter

had come light only recently and because Anderson was the only one to have knowledge of the financial details at the time the incident occurred. By the time these affairs were resolved, he was a graduate student at USC, beyond the reach of the BOD, except for legal measures.

Last May, the BOD appointed Bob Chess as special prosecutor in the case. Over the summer, he sent Anderson a registered letter

asking for the return of the money and threatening legal action if necessary. The letter was accepted by an "authorized agent" and it is not known if Anderson ever received it.

This fall, legal action was begun. Anderson was sued in small claims court. The trial is scheduled for next Thursday in municipal court. Chess has asked the country marshalls to serve a subpoena on Anderson. The

marshall who usually serves the USC area is on vacation, so the subpoena has not been served yet. Supposedly, there will be an attempt to serve it today.

There have been rumors that Anderson left USC and went back to Wisconsin. When asked about these rumors, Chess replied that it "might be worth \$550 to get rid of the bum." If he has left the state, collecting the money will be a lost cause, he added.

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'DAMNATION ALLEY'

Continued from Page Four
learn how to read either a compass or a map before writing a set of directions into the climax. Oh, well.

The film also contains the obligatory amounts of blood and gore for either a George Peppard or Jan Michael Vincent film, although they had to give up sex entirely for their PG rating. After all, destroying 99% of the world's population during the opening 20 minutes is followed by killing off much of the rest in gory ways throughout the rest of the film, so something had to give. I still think that there is something wrong with Jan Michael Vincent's riding off into their destination with a 12-year-old boy instead of the beautiful girl, though. Anita Bryant would have a fit over the implications.

Basically, as a 1950's, low budget, black-and-white film, *Damnation Alley* isn't bad. Unfortunately, it was a 1970's, high-budget, color film with no excuses for a poor job. Miss this one if you can.

IC REVOLUTION

Continued from Page One
cost of computers.

Sutherland said that the widespread availability of personal computers due to this cost reduction could change our lives significantly. He devoted the last part of his lecture to demonstrations of the influence of the computer on three areas he thinks will be most affected—speech, music, and pictures. He showed how a male voice could be made to sound like a female's using current IC technology. He also displayed an impressive collection of computer-produced art, a field in which he is a pioneer. Dr. Sutherland concluded the lecture by saying that tomorrow's computers will be able to change our lives so drastically that we may hesitate to use them.

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I sure could go for some of Mom's good ol' ☐ apple pie ☐ Riz de Veau à la Financière ☐ blood transfusions ☐ Trailways tickets paid for at your local station and picked up at mine.

Dad, next time we get together, I want to tell you ☐ about my part-time job ☐ how I suddenly realized what a truly wise and magnanimous fellow you are ☐ where I left your car last New Year's Eve ☐ thanks for making this trip possible with a prepaid Trailways ticket.

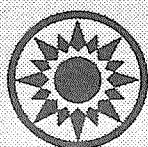
I also need some advice on ☐ a personal matter ☐ my backhand ☐ where one can hire decent servants these days ☐ how to separate you from a few bucks for a prepaid Trailways ticket.

Got to sign off now and go ☐ to class ☐ to pieces ☐ drop three or four courses ☐ to the Trailways station to see if anyone sent me a prepaid ticket to get out of here for the weekend.

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caltech sports

Ambassador Falls to Beavers

Water Polo Wins

By Ed Bielecki

Despite its 3-1 record of the last week the Tech water polo team is quite cheerful, and has good reason for being that way. The first game, a 19 to 4 loss to Oxy was reasonably well played, but against the tremendously strong Oxy team this did not, alas count for much. Though weakened by the loss of Bill Power due to illness, the team still made good showings in their Saturday loss to Pomona-Pitzer (18 to 5) and their Monday victory over Ambassador (13 to 12).

The victory was hard-fought, with the winning goal made in the last 15 seconds by Jim Findley, who had already scored 5 other goals in the second half. Another of the team's strongest players Werner Pyka, was out of action due to an impacted finger

early in the game. Werner was still out when the team met Claremont-Mudd on Wednesday. (The team has really been getting a work out.) Hampered in addition by having only one substitute for the field we went down 18 to 7. Considering, however, that Claremont's third string goalie was an all-American, Tech put in a very credible performance.

The team is pulling together very well, in fact captain Chris Sexton says that the teamwork is the best in several years. With this old weakness gone the team looks confidently to the future. They go against Whittier here on Saturday at 10 am. Come by and welcome back that battling beaver, Lloyd Maxson, now recovered from giving his all for the team.



Doug Jones and Oxy's number 6 contest the ball as Chris Sexton looks on.

Photo—Ed Bielecki

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Stretches Three Game Streak

Soccer Beats the Leader

By LCA

The soccer team has thrown off its early season lethargy and is endeavouring to ruin Caltech's spotless athletic reputation with a three game unbeaten streak.

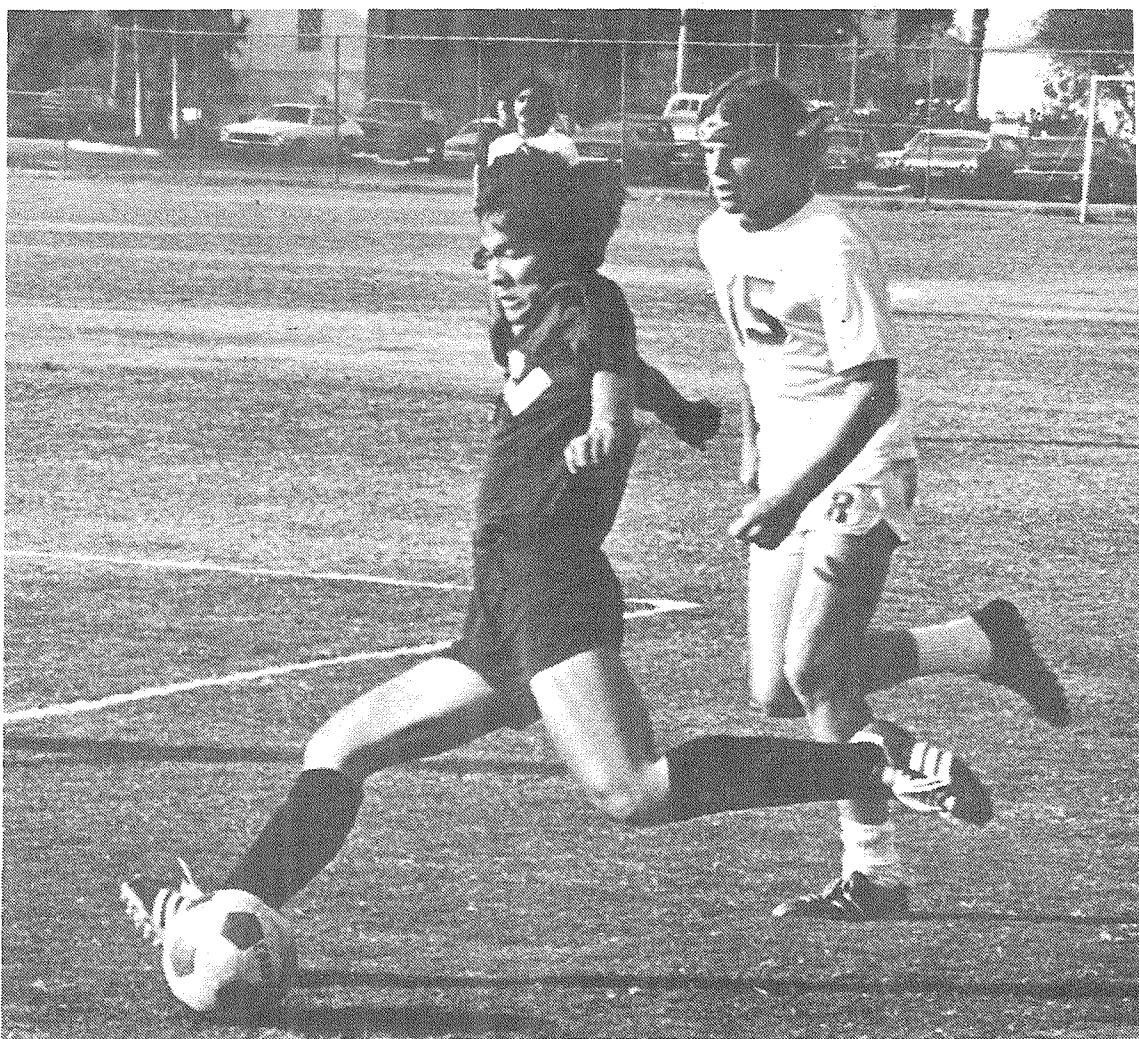
Neighboring Occidental was the first to feel the bite of our aroused Beavers. Despite the tiring journey our heroes hustled to a 4-1 lead in the first half. Peter Kezios made things interesting by getting himself thrown out of the game in the second half. Forced to play one-man-down, the defense managed to hold on and Tech triumphed 4-3.

After enjoying a night among the delights of Disneyland, a surprisingly awake (well, most of them were awake) team met league leader Claremont. Quickly making mincemeat of Tech's standard strategy, our champions rolled up a quick 3-0 lead before Claremont could figure out that they really were playing Caltech. With Bruce Baker re-

turning home to center back (after a vacation at center half) our eager Beavers easily made the early lead stand up. Bruce gave Claremont a penalty kick so they wouldn't feel totally humiliated, but they had few other chances and Tech wound up on top again, 3-1.

After the outstanding victory, the offense took a day off Wednesday against Redlands. Though they outplayed their opponents at times, they just couldn't get it in. The defense did its usual superb job, with special credit to heads-up play by Bruce Behymer. The result was a frustrating 0-0 tie.

Nonetheless the unbeaten streak was extended to three and the team attempts to extend it Saturday at Whittier. For making the best goal that wasn't a goal, and especially for being the first Caltech player thrown out of a game in over four years, Peter Kezios is named *Beaver of the Week!*



Yeung Tsang tries for a goal as Caltech beats Claremont 3 to 1.

Photo—Joe DeGior

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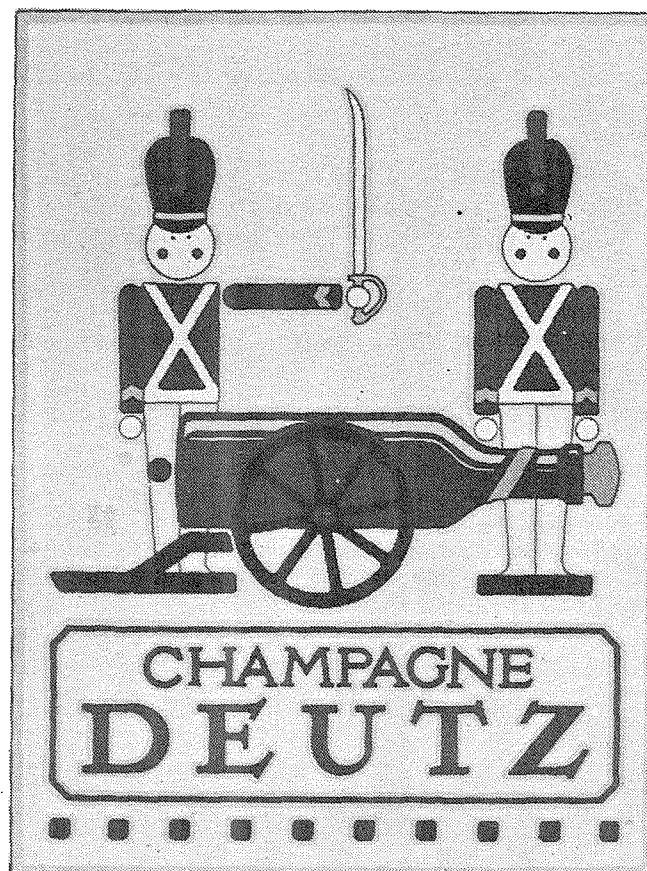
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