



This landscape will be one of the last to grace Baxter Art Gallery if the powers that be prevail. Photo by D. Wheeler

Copying Nightmare

by Greenie Tech Staff Writer

In the near future, Congress may vote to slow the pell-mell advancement of science to a crawl.

As anyone in the field knows, the progress of scientific work is dependent upon access to the work of others and the free flow of information. Science is truly a community of endeavor. This depends upon the ability to obtain copies of papers written by other workers.

The House of Representatives is considering a bill, already passed by the Senate, which would make any copying of any copyrighted material whatsoever

a violation of the law. This is the Copyright Revision Act, HR2223 (S22).

In the bad old days before the advent of modern photocopying technology, scribes were employed to copy out papers in longhand. The speed and efficiency of this procedure, as well as its unsuitability for figures, photographs, and other scientific data presentations, is obviously inferior to photocopying. Such conditions would mean that it would require weeks to gather information that today takes only a single afternoon. A research project could be set back by months; a literature search would be made next to impossible. It would become impractical for each worker in a laboratory to have his own copy of a crucial paper; thus decreasing the availability of the information. It would become highly impractical for a worker in a particular area to keep his own small library of recent papers relating to his own specialization. In classrooms, it would no longer be permissible for the professor to hand out copies of a particular paper to his students; the implications for

specialized reading for coursework are obvious.

The area of interlibrary lending would be even more of a problem. According to the new law, only actual journals could be lent, as opposed to photocopies of particular articles as is the current practice. This would bring lending of journal articles to a halt, since no library can deprive its own users of the use of the journal while it is lent out. Since no one library can carry all journals, this would mean that scientists requiring articles from journals seldom needed in their library would have to travel to another to obtain them. The impracticality of such a situation is obvious; in such circumstances the information would be simply unavailable in practice.

While it is no doubt true that the publishers of journals which are photocopied lose some revenues due to the situation, the difficulties to be thrown in the path of scientific research by prohibiting such photocopying must also be taken into consideration.

It is suggested by Joanna Tallman, Director of Libraries, in

Continued on Page Four

INTO THE SUNSET

by Gregg Brown

The present exhibit at Baxter Art Gallery is probably going to be the last ever, and almost certainly the last this year. A lack of funds, administration and possibly interest has all but killed the Baxter Gallery, which heads the faculty committee on programs. David S. Wood calls one factor in keeping Caltech from being a cultural desert. It takes money to run an art gallery and Baxter art gallery has very little. Now and for most of the past years the gallery has been self-funded. It has obtained grants specifically donated for running an art gallery as well as small donations from individuals. According to Dave Wood, it may have received small amounts of money from the humanities departments from grants given to the department, but it has not been receiving any money from the Caltech general budget. Wood charges that the Institute has been wasting your hard-earned money on what you may personally consider worthless and are patently ridiculous. Most of the funds came from Virginia Steele of the Steele Foundation (same foundation that gave money for the Steele Building) either from her own personal fortune or from grants to the foundation. Sadly, Virginia Steele died about a year and a half ago, and since she was exclusive go-between for the gallery and the Foundation, the major funding for the gallery ended with her. In the past, there was also an support group which drew support from the community for the gallery. However, such support groups require a regular program of meetings and guest speakers to maintain sufficient interest to keep them supporting the gallery, and there has simply not been enough administrative help available to maintain that sort of program. The lack of administrative help presents a problem even

more serious than the lack of money. The art gallery was formed as a part of a general arts program, which included courses in art as well as the gallery. The courses unfortunately were not offered for grades and as interest waned that part of the program died, leaving only the Gallery. The full weight of maintaining the gallery fell on the shoulders of David Smith, who has been running it for about eight years.

Smith is Tired

Except for six hours a week of secretarial help and the help of part time hired workers who do the manual part of getting works on the walls, Smith has done all the work of maintaining the gallery, selecting of material, contacting the artists, and preparing catalogues. To put on what Smith considers a good show takes a great deal of time; it took him eight months, at three days a week, to put on the show "Surrealism is Alive and Well in the West." Smith is not paid for this. If any of the exhibits have been less than fantastic, perhaps it's because the excess work and the now ever-present spectre of the gallery closing has pushed Smith into giving less of a damn than he did before.

Smith's Selection Policy

First, Smith feels he has responsibility toward more than one group in selecting the art. He feels that the gallery should not only serve the undergrads, but also the rest of the Caltech community, the rest of the outside community (the outside world knows we're here), and also the artists.

In trying to fulfill these responsibilities, Smith has tried to follow the policy of presenting six shows a year: art from a non-Western culture, art of a traditional nature, art in science, and a show of art currently being produced by local artists. This leaves two shows completely free for good

ideas from anyone to be explored.

Remember also that Baxter Art Gallery is not the MMA, and we don't have the facilities nor even the insurance for really fantastic and expensive exhibits. Its function is that of a college art gallery, to provide a look at new and interesting exhibits, not to provide you with tidbits of the best stuff such that you can become cultured.

Secondly the art that goes up is not selected or rejected simply on the basis of what Smith thinks is good or bad art; the man is a more responsible individual than that. While criticism is essential (an art exhibit that doesn't upset anybody doesn't make anybody think either), ad homin attacks on Smith are juvenile.

What the gallery needs is money and, if not a totally new administrator, at least some competent help for Smith. Ask the administration why they don't simply supply the necessary money and they come back to a single question: Does the Caltech student give that much of a damn about art?

Right now they apparently believe the answer is no, although men like Smith and Wood disagree that this is sufficient reason for allowing the gallery to die. There's a questionnaire (I hate the damn things too) and if you care, fill it out and see that it gets in the mail.

Or you could go see the exhibit that is being shown now. It's a display of the works of Norton S. Parker as collected by William Norris. Parker is an American artist who reflected many of the styles of painting and studio work of the early Twentieth century. It is easily recognized as art (there's a lot of clear pictures of nude women) by nearly everybody. If you didn't like the modern art recently presented, you should appreciate this exhibit.

Do you ever go to the Baxter Art Gallery?

- ☐ All the exhibits
- ☐ As many as possible
- ☐ A couple
- ☐ Not unless forced

Do you think the art exhibit is important?

- ☐ Yes
- ☐ No

Do you consider it:

- ☐ More important as an art form than music
- ☐ As important an art form as music
- ☐ Less important as an art form than music

Would you be upset enough to do anything if they closed the gallery?

- ☐ Yes
- ☐ No
- ☐ $\rightarrow \mathcal{X}:\mathbb{F}|s\phi'1^{\circ} \rightarrow /^{*}\pi'\mp\phi/\div f\uparrow$

Anything else you want to say?

THE CALIFORNIA TECH

T0: 105-51

Parry! Riposte!

The Editorial Page

Credit Women for the Future

The Editors
The California Tech

I should like to comment on the article in last week's *California Tech* concerning the record number of women offered admission to the freshman class. The data in the article were entirely accurate, but the implication of possible discrimination in favor of women was not. When I released the data to Mr. Silverstein, I pointed out to him that conclusions drawn from the percentages of such small numbers were not reliable, and he told me he would only print the numbers, and let readers compute the percentages if they wished.

Furthermore, there was another speculation in the article that had not been discussed in the interview that Mr. Silverstein had with me, that [the increase was] "partly due to the snazzy new booklet, 'Facts About Caltech'." This statement had been obtained from Dr. Shair in an earlier interview concerning the increase in total applications, but its placement in the context of last week's article implied that the revised "Facts" was responsible for the increase in woman applicants. Since "Facts" was not especially targeted toward woman applicants, there must be another factor to account for the greater proportionate increase in woman applicants than in applicants over-all.

Caltech woman undergraduates have been active in programs for recruitment of woman students for the past six months. In November, Louise Saffman and Ruth Ann Mullen sent almost 200 letters to woman National Merit Semifinalists who had indicated a preference for science, mathematics or engineering, to try to interest these high-level students in

applying to Caltech. Seventeen of the 55 admitted woman applicants were among the recipients of this letter, which might be an indication that such a recruitment program, aimed at the most highly qualified students, is directly responsible for the fact that we not only had an increase in woman applicants, but also a qualitative increase that enabled us to offer admission to an unusually high proportion of them.

Because there is a fixed number in the freshman class, the percentage of admittees is inversely proportional to the number of applicants as a whole. In 1970, for instance, the percentage of admits was 23, in 1975 it was 42, figures which substantiate the fallacy of making quantitative comparisons among qualitative judgments.

—Barbara M. Brown
Assistant Director of Admissions

[Ms Brown invited my reply before the publication of the above letter. I apologize if I was the cause of any misunderstanding about what was to be printed. In any case, I was not attempting to imply possible discrimination. I mentioned the figures in question and included the statement by Evensizer because I'm personally certain there was no discrimination, and wanted to prevent anyone from wrongly concluding otherwise.

Also (though not so important), I should point out that I've never interviewed Dr. Shair. My speculation about the Facts booklet was based on my talk with Ms Brown and on an article by Paul Mason in the Feb. 20 issue. I regret that I did not make it clear last week that I was referring to all the applicants, not just the women.

—A.S.]

Vazquez: Take 2

To the editors:

I think your reply to my letter in the last issue of the *Tech* warrants another, since it seems you didn't understand the basis of my "protest." You stated that there is a possibility that the notice was lost. I emphasize this word since it is in the singular. The fact is, if I had the key for two terms of EE-90, then two notices should have been sent. I don't believe you will seriously argue that both could have been lost in the campus mail!

Now assuming that notices were sent out second term, then there is a good chance that notices were not sent after first term. I say this also because in speaking to Mr. Campbell, he told me of some problems with the secretaries at the time (one had to quit and the new ones were confused at first, etc.). Now if this is true, then the stockroom, and not myself, was the first to break the agreement I made when I took out the key. Yes, the secretary did tell me the key would be due "around the end" of the term, but specifically when the notices were sent, and not before. Assuming that in fact no notices were sent first term, then the fact that the deposits were not taken then, makes it obvious that this was the stockroom's understanding also.

If Mr. Campbell can say for certain that notices were sent both terms as promised, then I feel that the forfeit was right and I have been the very, very unlucky victim of the mail. If on the other hand, the problems with the secretary after first term kept the stockroom from fulfilling their obligations, then I feel this should have resulted at least in a special effort to notify people after second term, since the mixup was theirs, not ours.

Thank you,

Alfonso Vazquez

[It seems that Mr. Vazquez didn't understand the basis of our reply. The people of the stockroom made the equivalent

of a special effort to see that those whose keys were due at the end of first term weren't billed unfairly by letting the keys remain out until the beginning of third term, at which time notices were sent out. They acted in a manner consistent with Mr. Vazquez's interpretation of the agreement. His key did not become due until after notices were sent out. If he believed that the key should have been due earlier, then he should have checked; otherwise, he should resign himself to the fate of anyone else who fails to receive notice through the mail that something is due: forfeiture of the deposit.]

The Editors

Our Business Manager Says:

Ignore This Letter

Concerning the Gallo Wine Ads in the *California Tech*:

There are few movements in recent years that have captured the heart and conscience of the American people as much as the struggle of the United Farm Workers. Shall not our workers of the soil be able to work and live with dignity? Shall there not be limits on the use of pesticides which affect the health (and sometimes the very life) not only of the farm worker but also of the consumer? Cities like New

York long ago officially endorsed their boycott. Support spread as far as the Scandinavian countries. Shouldn't we at Caltech do as much? I refer to the ads for Gallo Wine appearing in the *California Tech*. Boycott Gallo Wine along with table grapes and head lettuce not bearing the United Farm Workers' Eagle.

—Margaret Katz

P.S. I would like to see our cafeteria and Athenaeum respect the boycott, also.

LOCAL UDALL EFFORT MINIMAL

Caltech has never been known as a place where politicians run rampant, but one man here has decided to try and spark interest in the outside world. Tom Peterson has just organized a campus chapter for the Morris Udall for President effort. Realizing that most students here have little time for campaigning, Peterson feels his chapter will be very low-key. He hopes rather to make the students aware of Udall and the issues he is interested in.

Peterson commented that he finds Udall appealing because of his outspoken and honest manner. Udall was one of the first congressmen to speak out against the Viet Nam war, for example.

Udall is considered a liberal, but not extremely radical. "He favors abortion, equal rights for women, and implementing federally-funded day care centers

for children of working mothers.

"Though Udall agrees with the Supreme Court decision that busing is a viable means of achieving racial and educational equality, he encourages communities to explore alternative methods, and is open to better solutions.

"The major issue in Udall's campaign, however, is Energy and the Environment. Where other politicians have stressed developing coal and oil resources, Udall emphasizes the need to conserve. He is interested in sponsoring research on other energy sources, such as solar and tidal energy. But he is not totally against such things as strip-mining, as long as the operations are regulated so minimal damage to the environment occurs."

—Pamela Crane
(Cub Reporter)

THE ASCIT FRIDAY NIGHT MOVIE

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7:30 p.m. & 9:30 p.m.
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Admission: 50¢—ASCIT members and their guests; \$1.00—anyone else

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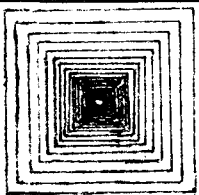
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**** playa brava

Four Seats . . .



Last Thursday this observer presented the *California Tech* at a press conference held by Senator Ted Stevens (R., Alaska) and then was the dinner guest of the Republican Associates of Southern California at the Altmore (I mention this last duty" only to point out the GWC available to those with the inclination to write for the *Tech*). Senator Stevens is the chairman of the Republican National Campaign Committee which basically means that he is in charge of making sure that Republicans are elected to the Senate. Predictably, the press conference centered on three issues — the Alaskan oil and gas pipelines, the upcoming Senate races, and teamster domination of Alaskan politics.

Concerning the Pipeline

The senator was quite critical of those who were responsible for delaying the pipeline. He contrasted British development of North Sea oil — which was discovered a year after the finds of Prudhoe Bay — with our own development of Alaskan crude oil reserves. North Sea oil came on line early this year while first deliveries of North Slope oil will not be made until late next year. Without the delays, Alaskan oil could have been on line by mid-1973, thus averting the repercussions of the Arab oil embargo and saving the US billions of dollars. In fact, if the Alaskan pipeline had been operational in 1973, it is

by Ngapuhi

improbable that the OPEC would ever have gotten off the ground.

The senator was also very critical of the lack of support that Alaska was getting from the West Coast States in their bid to gain approval for the Alaskan pipeline and for the upcoming battle over the All-Alaskan gas pipeline. In both cases the Alaskan routing of the pipeline was opposed by those who felt that the pipeline should traverse Canada and terminate in the mid-west. The Alaskan proposal, of course, calls for pipelines to Valdez and then shipment to west coast ports.

Considering the economic advantages to the west coast, Senator Stevens felt that the senators from these states — particularly California — should have given much more support to the pipelines. (It is interesting to note that the vote in the Senate on legislation to build the Alaskan pipeline split 50 — 50. The tie was broken by Vice-President Agnew. It was the first and only time he voted as President Pro-Tem of the Senate.) Currently before Congress is legislation to permit the construction of a pipeline across Canada to bring natural gas from the North Slope. Senator Stevens emphasized that Alaska was looking for the support of California's two senators on this bill. The Alaskans, in contrast to others

who sit on a majority of the world's oil, are anxious to see their reserves exploited by the Americans and find it hard to comprehend how one can complain about the high cost of Arabian oil one moment and oppose Alaskan pipelines the next.

The Senate Races

Senator Stevens was very optimistic about Republican chances in 1976. Eleven Republican seats and twenty-two democratic seats are up for re-election. The Republicans feel that they can gain at least four, if not more, of the Democratic seats. Listed as very promising races were Rhode Island, Hawaii and Michigan. One of the most prominent political trends is the big shift in the western mountain states. In recent elections these states have gone solidly Republican with Republicans gaining most of the Congressional and state seats. Colorado and Utah recently elected Republican Governors. The Republicans feel they have a good chance to pick up McGee's seat in Wyoming, Montoya's seat in New Mexico, Moss's seat in Utah and the Montana seat.

Teamsters

The last topic covered was alleged teamster domination of Alaskan politics. (The question was brought up by the men from the Examiner, the Times had published several articles on the subject late last month.) Senator Stevens disagreed strongly with reports of teamster domination of Alaskan affairs and reported contacts between Alaskan teamsters and the mob in the lower 48. He was also very critical of the articles that had appeared in the L.A. Times. Responding to reports that \$1 billion in supplies and tools had been stolen from the pipeline, he remarked that there wasn't a billion dollars in property on the project and put the figure at \$300,000.

His position is that Alaska was too small a community and too tightly knit for any outside groups to covertly gain control of the teamsters or any other group. He noted that the teamster-backed gubernatorial candidate lost the election.

The food wasn't half-bad either.

One Single

Solitary

News Brief

Pasadena Civic Gets Jazzed!

On May 15 (early warning, so you can get tickets), at the Pasadena Civic Auditorium (about a mile west of Caltech on Green Street), there will be a jazz concert of major proportions. The Akiyoshi/Tabackin Big Band is the listed lead, but it's the Jazz All-Stars Ensemble that count, featuring Ray Brown, Herb Ellis, Blue Mitchell, and a host of others. Tickets from \$4 to \$6, and probably available at the Caltech ticket office Ticketron thingie. That's 8 p.m., May 15, at 300 E. Green. Be there or be square, as they say.

Roy Andries de Groot, wine editor, Esquire Magazine says:

"I have never found any wine to equal the combination of quality and value of Gallo Hearty Burgundy."

Paul Kovi, wine editor, Sphere Magazine:

"Hearty Burgundy receives well-deserved recognition from both layman and expert."

Robert Lawrence Balzer, Holiday Magazine:

"Gallo Hearty Burgundy is the greatest value in red wine in America..."



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Three Comrades, There was a Father, Popeye, Birth of a Nation, Intolerance, Keaton, Laurel and Hardy, Harold Lloyd, A Trip to the Moon, Destination Moon, Blood of a Poet, The Music Room, Devi, Two Daughters (Did you really expect a headline after all that?)

by Alan Saul

Now that Filmex is over and I don't spend my time on buses and freeway ramps between Pasadena and Century City anymore, I can bask in the glow of kilowatt bulbs and finely beaded screens right here in Pasadena, undoubtedly, one of the hottest spots in the country now for the cinematic arts. We have a goodly number of unique opportunities to see great films in the next few months with very little pain. Either at Caltech or a few blocks away on Los Robles Ave. there are weekly programs which should delight the film freak and at least interest, if not totally flip out, the newcomer to informal cinema. The prices for these films reflect the ease with which one can enjoy them, rather than their quality: for a dollar or less you get accessibility, comfort, atmosphere, information, and far more beautiful, entertaining, and knowing pictures than you get for several dollars at more distant and stuffy theatres. This something-for-nothing feat is possible only thru the hard work of artists and programmers who aren't in it for the money and thru the support of the small class of people who are interested in trying to enrich themselves on the lonely side of the spiritual-material war. It's well worth coming to these films; they will surely elevate you, which I understand is important to many people. All of the following films can be partaken of for nominal or cheap admission, nearby, and in the luxury of informal comfort, where, when accompanied by the sensuous sauce of thought, they will yield that fragile satin bloom that we call freedom, beauty, or bullshit (in its finest sense.)

Caltech is providing a major source of the operations necessary to screen films. The excellent audiovisual team (who also provide some expensive equipment for free student use—subject to destruction of that equipment by those students not yet liberated) might find a few things to keep them busy in the next few months as Beckman presents a series of silent films and Cinematech goes crazy with about 22 hours of film in two months. Cinematech will be screening films on Wednesday

nights this term, continuing a Caltech tradition, as well as continuing their usual Saturday night shows. The first of these was on April 14 when Fritz Lang's *M* was projected. This series will continue on alternate weeks with Frank Borzage's *Three Comrades* on April 28, Yasujiro Ozu's *There was a Father* May 12, and an evening of farout American films, including works by five of the best independent filmmakers and the first Popeye cartoon on May 26. These shows are in Baxter Lecture Hall at 8 p.m. and you can see them for a nominal donation. Also, there will be refreshments to help relax you.

Beckman is keeping the rest of the Wednesday nights in place by showing some excellent silent films. The great early twentieth century filmmaker D.W. Griffith will be featured in two of the shows with his most famous monumental masterpieces *Birth of a Nation* on May 5 and *Intolerance* on May 19. These shows feature Chauncy Haines at the organ who actually accompanied at the original opening of *Intolerance*. On May 26 an evening of vaudeville and comedy shorts will be presented featuring films by Keaton, Laurel and Hardy, Harold Lloyd, and others. Showtime for the Beckman series is at 8 p.m.

Outside of Caltech, the big exhibitor is Pasadena Filmforum which moves into a new improved permanent location on April 30 at 54 S. Los Robles in the Community Services Building on the northwest corner of Green. Filmforum is a membership-supported nonprofit corporation which has been screening superb films since January in an attempt to provide on a community level rarely-seen unique films which express both artistic statements and issues which will generate in the local society understanding of personal and collective processes. Filmforum shows films every Friday night at 8 p.m. for \$1 for students. It's not only a place to see fine entertaining films, but an opportunity to expand thru interaction with your neighbors, who it turns out are a very nice bunch of people, at least as represented by the so far sparse turnouts for the first three months of Filmforum.

The next month of shows starts with the gala opening April 30 when a couple hours of George Melies animated films will be projected. These films were made before 1910 by the first filmartist, who used techniques which are even today a bit unconventional, though very effective. This night will probably be a pretty good party as well. On May 7 we'll see some highly entertaining experimental films from New York, with Victoria Hochberg to discuss them. May 14 brings a new star: a night full of moon shots. Melies' *A Trip to the Moon*, a NASA sequence of the real thing and George Pal's *Destination Moon* will precede a discussion with Bernard Herrman, a JPLer who knows a lot about everything. The next Friday, on May 21, Jean Cocteau's *Blood of a Poet*, plus a short, and an open

screening of amateur films will flicker by. Anybody with a film in any language including 8, super 8, or 16 mm is invited to present it: write Filmforum P.O. Box 5631, Pasadena 91107, or call 358-6255. Filmforum is an idealistic and worthwhile organization that badly needs support. Enjoy an aesthetic and intellectual forum and a calm social environment. Memberships for students are only \$10 for an entire year.

Pacificulture-asia Museum, at a reflection through the intersection of Colorado and Los Robles, is presenting a crowd of films by the great Indian director Satyajit Ray. On April 23, 25, and 30, *The Music Room*, *Devi*, and *Two Daughters* will be screened, on their respective dates. Admission is by donation. Call 449-2742 for information.

Magnum Force and Three Comrades

Ours is not to reason why, Ours is but to screen and die

Films on campus available for the pleasure of students this coming week are *Magnum Force* (1974), the ASCIT flick tonight at 7:30 and 9:30 p.m., and *Three Comrades*, the cheapo Cinematech show next Wednesday at 8:00 p.m. All films are projected in Baxter Lecture Hall: Admission to ASCIT's night out is fifty cents; the "Cinesthetic Evening" show costs patrons a paltry two bits.

The role of mass media as escapism is well known; from earliest times societies have employed dramatic and theatrical artistry to give audiences the vicarious excitement, pleasure, or titillation they crave to escape the burdens of everyday existence. Through technology, Western societies have developed this need through an evolution far surpassing the crude primeval drama of the vicarious antelope hunt, as presented by tribesmen around their campfire. Despite the sophistication of audio-visual techniques, the aspects of escapist art remain, catering to the bored and unenlightened psyches of audiences that desire to participate in the fantasy worlds which appeal to their sense of life's best values.

This function of cinema is separate and distinct from the sense of "art" or quality of presentation, and yet it is not so. Entertainment ever has served the purpose of the surrogate reality for those masses whose reality is humdrum, drab, unappealing. Separation of this need from the artistic criteria of composition, form, visual grammar, editing, tempo, montage, and from the socio-cultural criteria of relevance, taste, "beauty", and philosophy, is a dangerous ploy by the critic, for such separation of the values of a cinematic work neglects the requisite subjectivity of the worth of any film.

Still, the emphasis of the

literati is to deprecate the escapist value of cinema, to view the opportunistic appeal towards these bored and emotionally deprived audiences as cheap. After all, it is the highly developed sense of propagandistic values which sells the Pepsi generation ("You've got a lot to live...") of consumers all the menagerie of products which are associated in the buyer's mind with class, style, hipness (?) and otherwise worthiness, by depicting the gracious and exciting lifestyles enjoyed by those beautiful people who use XYZ underarm deodorant, or whatever. In such a way a generation of moviegoers tuned in to the exciting romance of Rhett Butler and Scarlet O'Hara in *Gone With the Wind*, and a hundred other romantic films featuring beautiful people and the extravagant lives they led.

Romance is not the only desire sought by deprived audiences in their cinematic escapades. Greed was catered to by the Broadway musical extravaganzas of Depression America, when audiences lustfully watched chorus girls dressed in gold coin costumes tap-dancing across imaginary stages. Sexual lust is vicariously gratified by lonely people in the pornographic exploitation film houses where handsome, well-muscled men do the deed with buxom, lascivious, anatomically endowed women, in full 35mm color and closeup lenses. And bloodlust, the need for active violence and expressions of hatred and hostility, is gratified by many a crime-cop-gangland Hollywood production, or even television show nowadays.

Exploitation is the term applied to the opportunistic use of the film media to release surrogate sexual energies on audiences; the same term is applied to the exhilarating release

Fooled You:

Two More!

Briefs, That Is

Strategic Planning

There will be a naval miniature game at 7:30 Saturday in Dabney Hall Lounge. Also plans for the upcoming Greater LA Simulations Convention will be discussed. We hope to have a board game of our own ready for release at the convention (in June). Playtesters are needed urgently.

Calling All Jocks!

Letter jackets will be ordered 7:30 Monday, April 26 (next Monday) in the Page Library. Be there if you want your jacket.

Photocopying

Continued from Page One

a circular on the subject that concerned individuals write to their congressmen describing how the progress of their own research would be inhibited by the Copyright Revision Act. She suggests two California members of the Subcommittee on Courts, Civil Liberties, and the Administration of Justice:

Hon. Charles E. Wiggins, Rayburn House Office Bldg. 2445, Washington, D.C. 20515; Local Address: Hon. Charles E. Wiggins, Representative, U.S. Congress, 39th District, 1400

Harbor Blvd., Fullerton, CA 92635.

Hon. George E. Danielson, Cannon House Office Bldg. 312, Washington D.C. 20515; Local Address: Hon. George E. Danielson, Representative, U.S. Congress, 30th District, 879 So. Atlantic Blvd., Monterey Park, CA 91754.

It is vital that concerned people act as soon as possible.

It may soon be too late to prevent passage of this disastrous bill. And it will be our generation of scientists which will suffer its consequences.

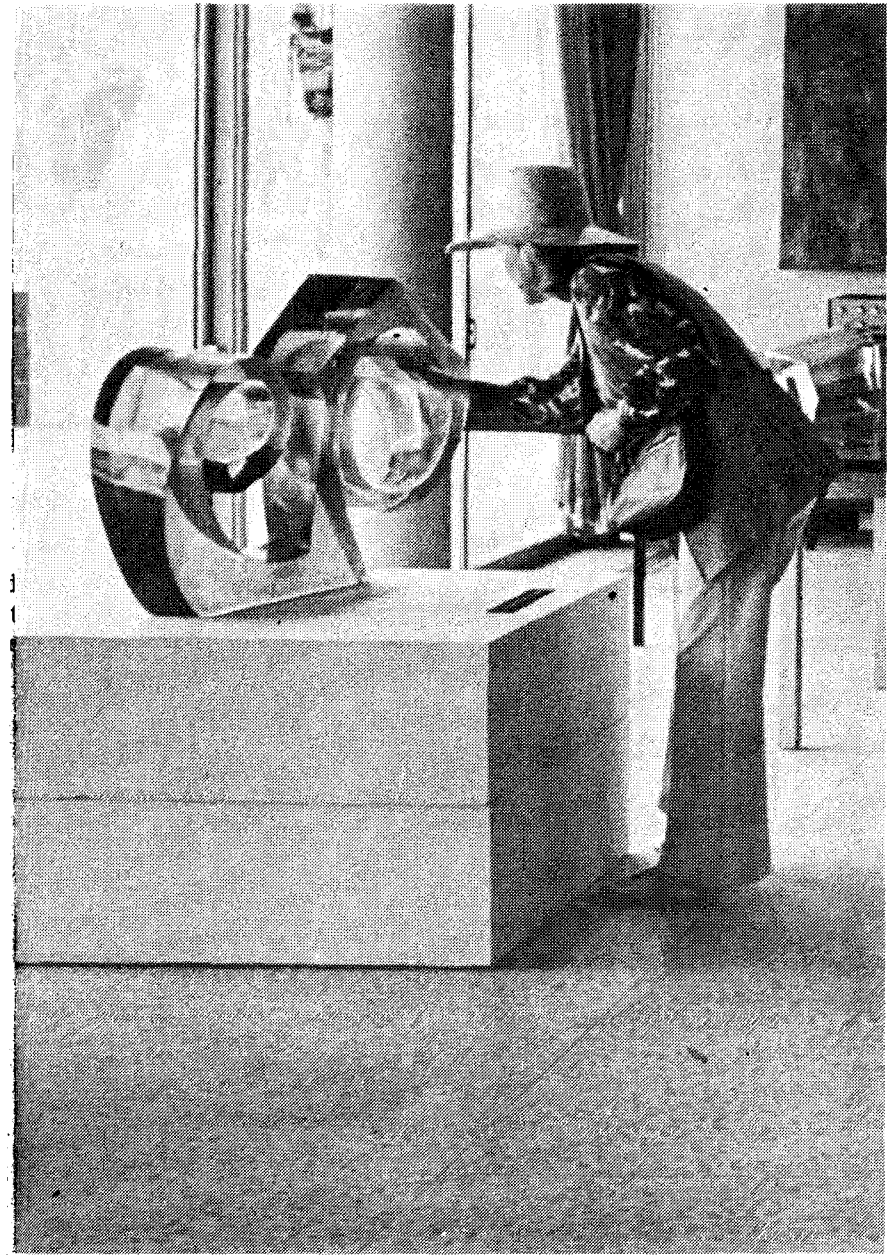
Which brings this to tonight's film: *Magnum Force* is an exploitation film keyed to a subculture of American males which worships the ideals of machismo, toughness, and the exercise of violence to achieve desired ends. It has an appeal to the redneck fascist rowdy in all of us. Dirty Harry Callahan (Clint Eastwood) of the S.F.P.D. discovers that a series of brutal and meaningless murders have been committed by a death squad of vigilantes composed of brother cops who are impatient with the wimpiness of the existing justice system. Surprisingly, Dirty Harry believes in change-through-the-system except for the immediate problem of stopping the murders. "Magnum" describes a rather powerful sort of hand weapon which will knock the user upon his fundament if not cautious. The direction of this film (by Ted Post) is inferior to the work of Don Siegel in *Dirty Harry*, the immediate precursor of this loner-cop. Still, violence is violence, and Clint Eastwood is such a cool dude, that this may provide quite fair entertainment for a Friday night in Pasadena.

—Lewis Hashimoto

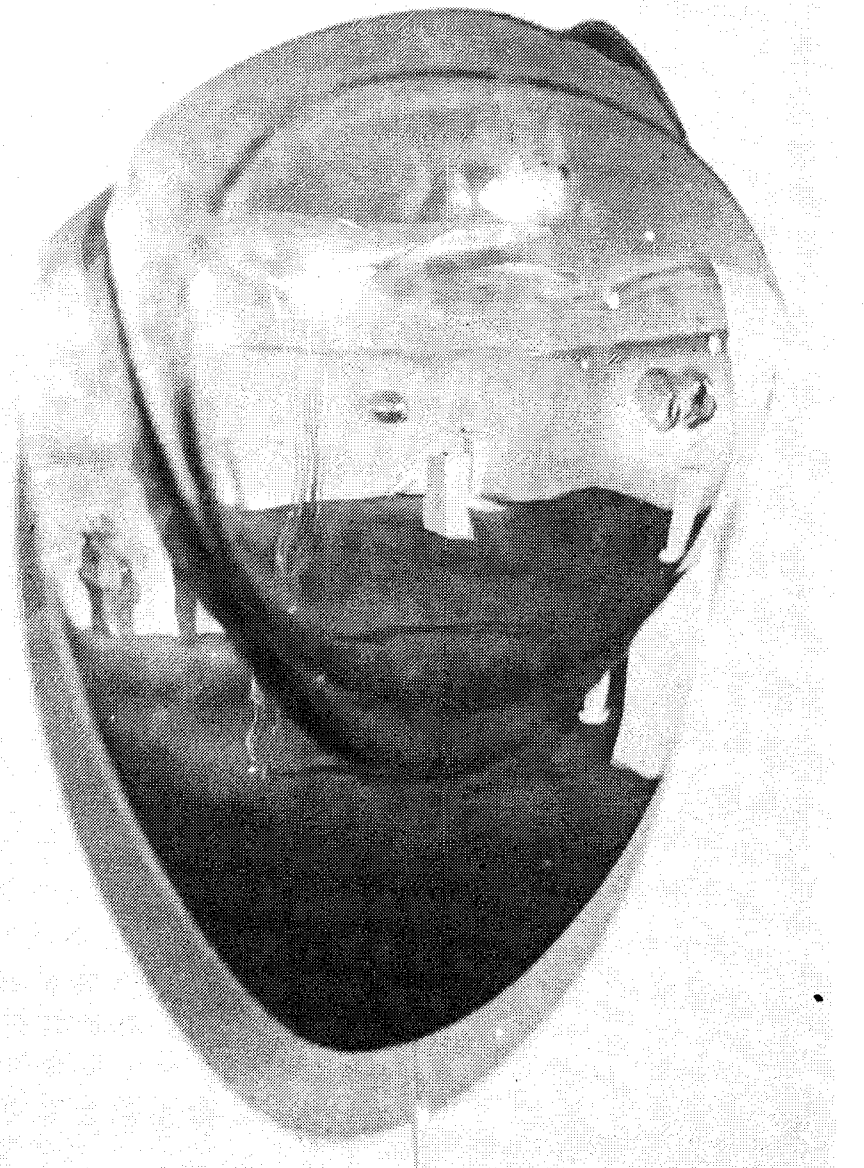
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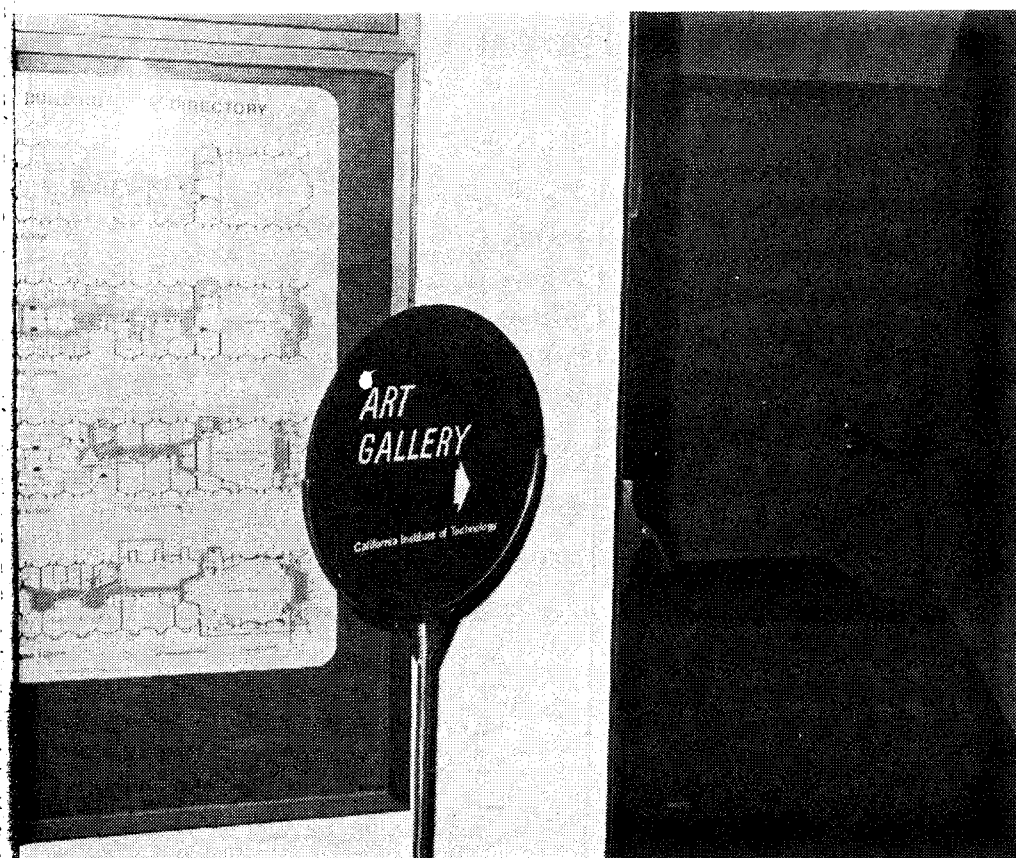
A Tribute to David Smith



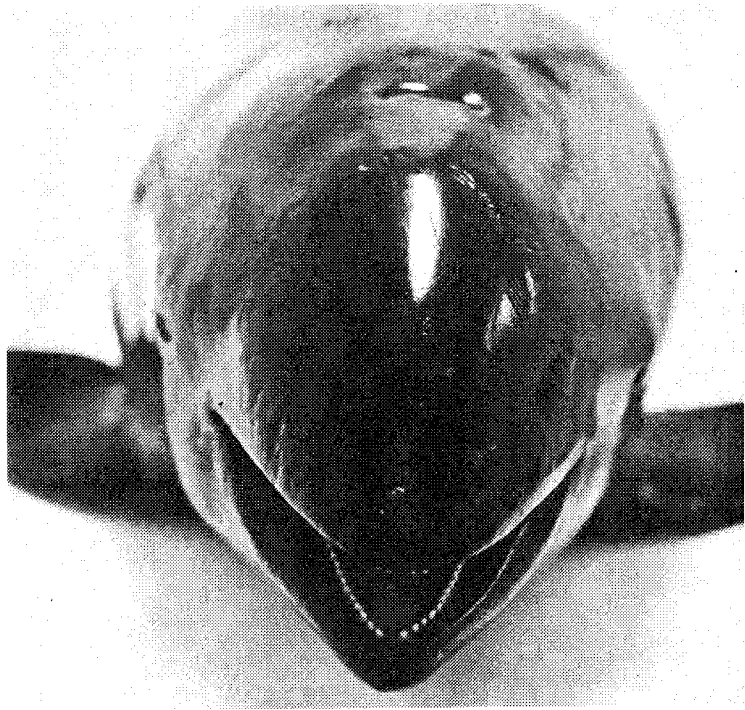
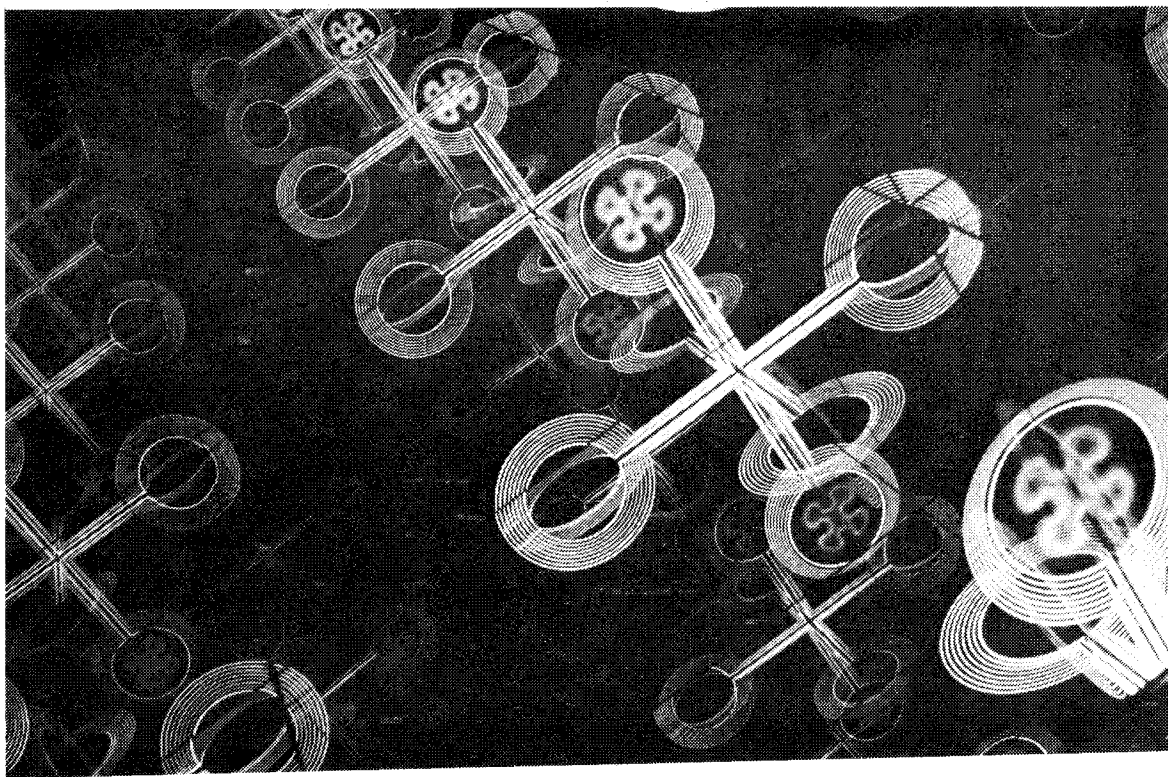
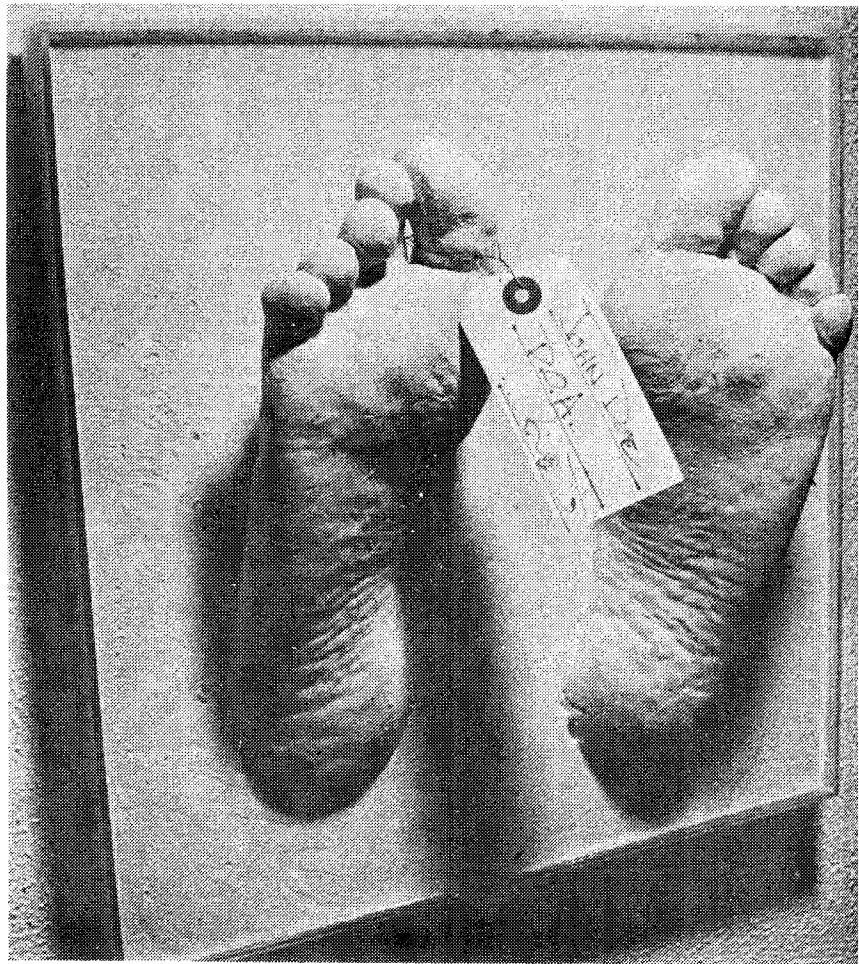
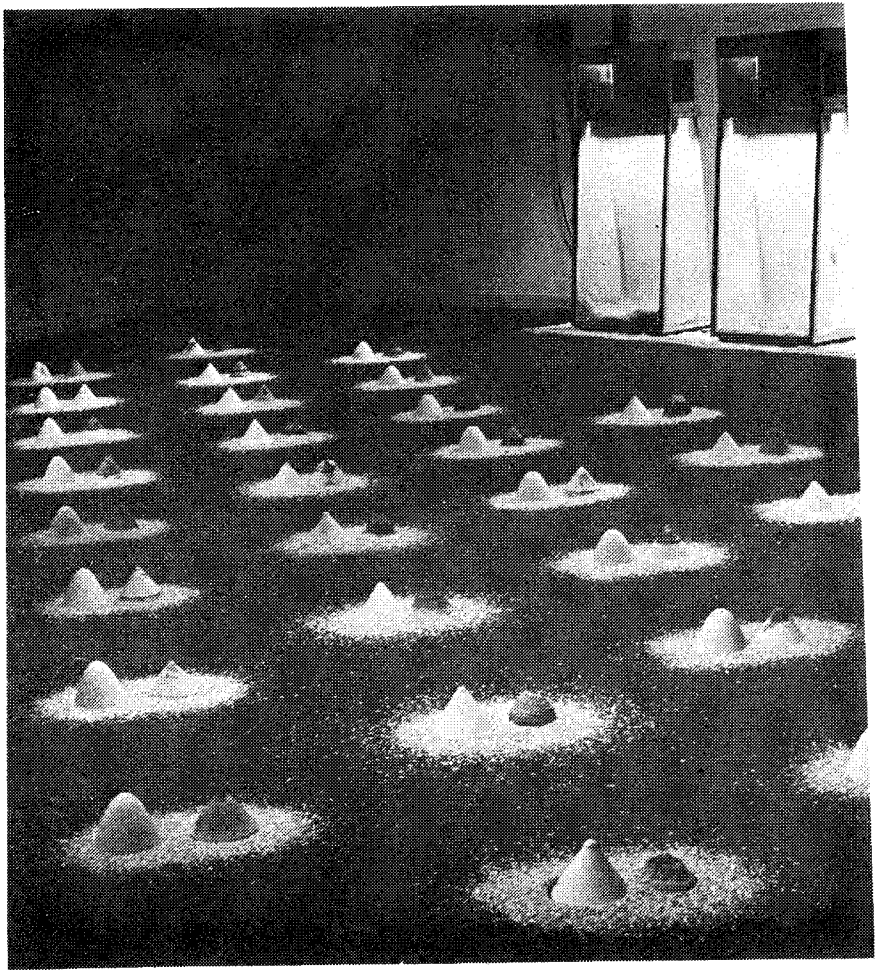
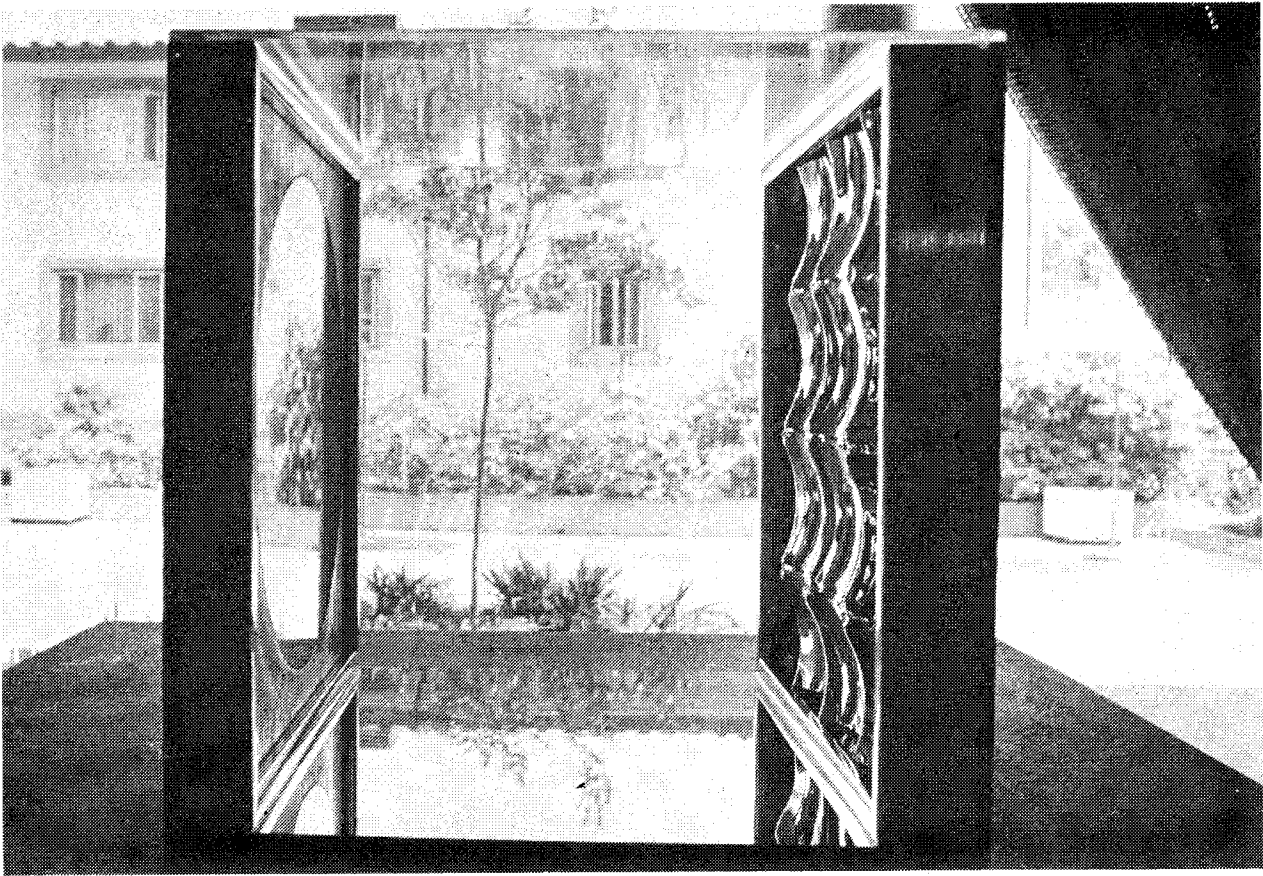
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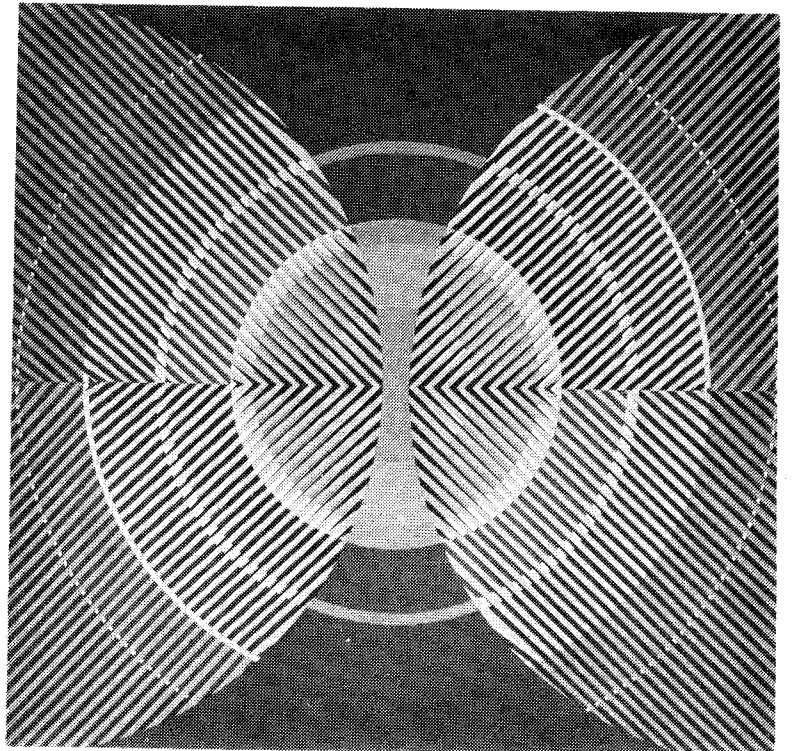
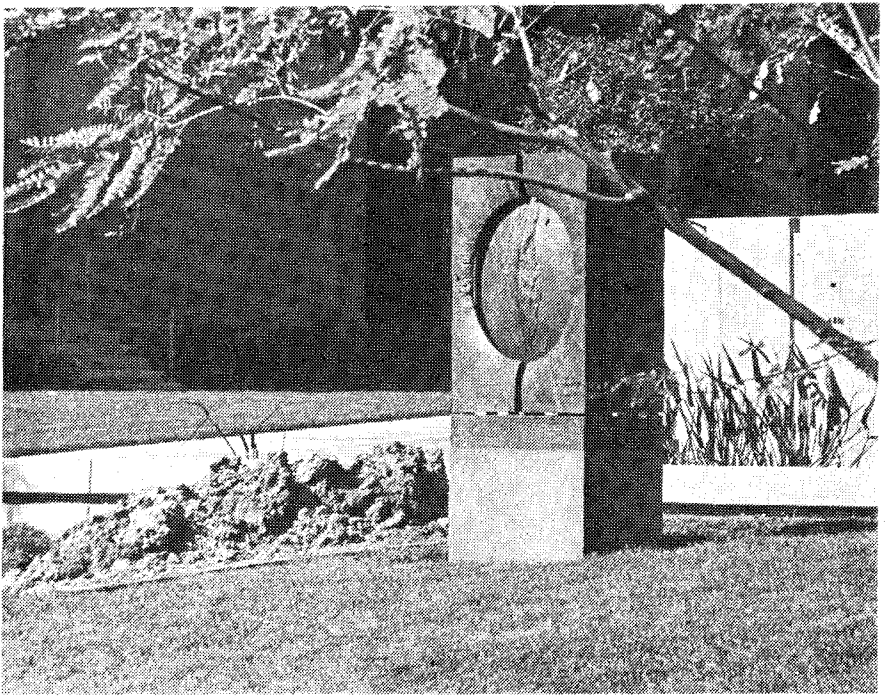
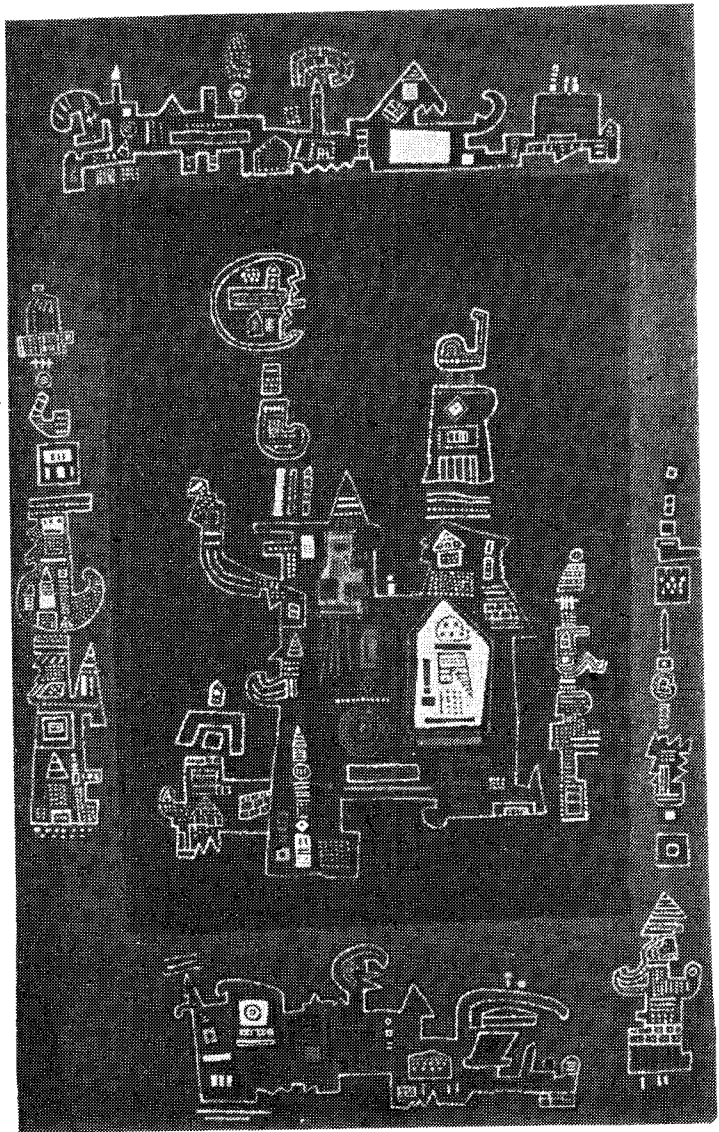
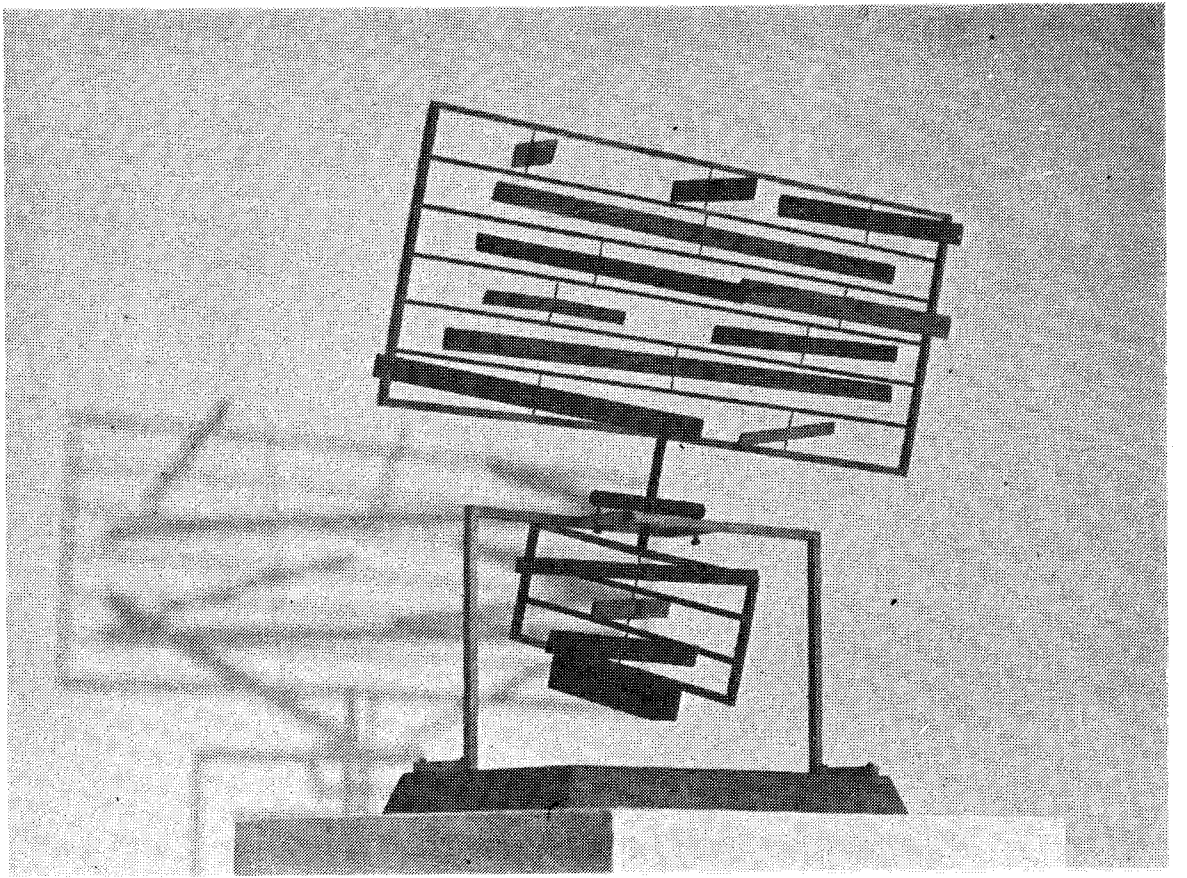
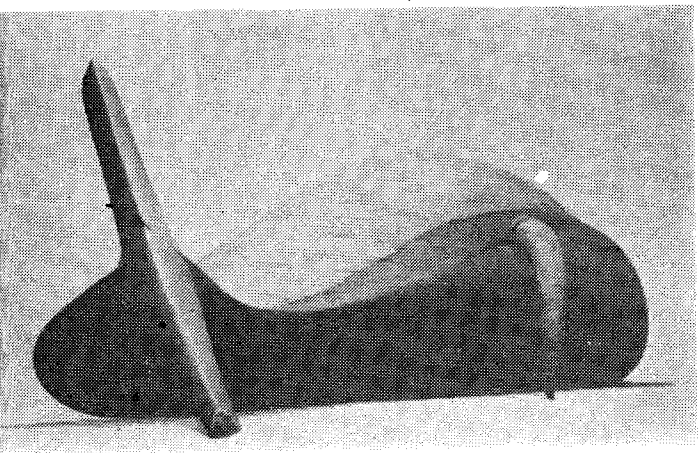


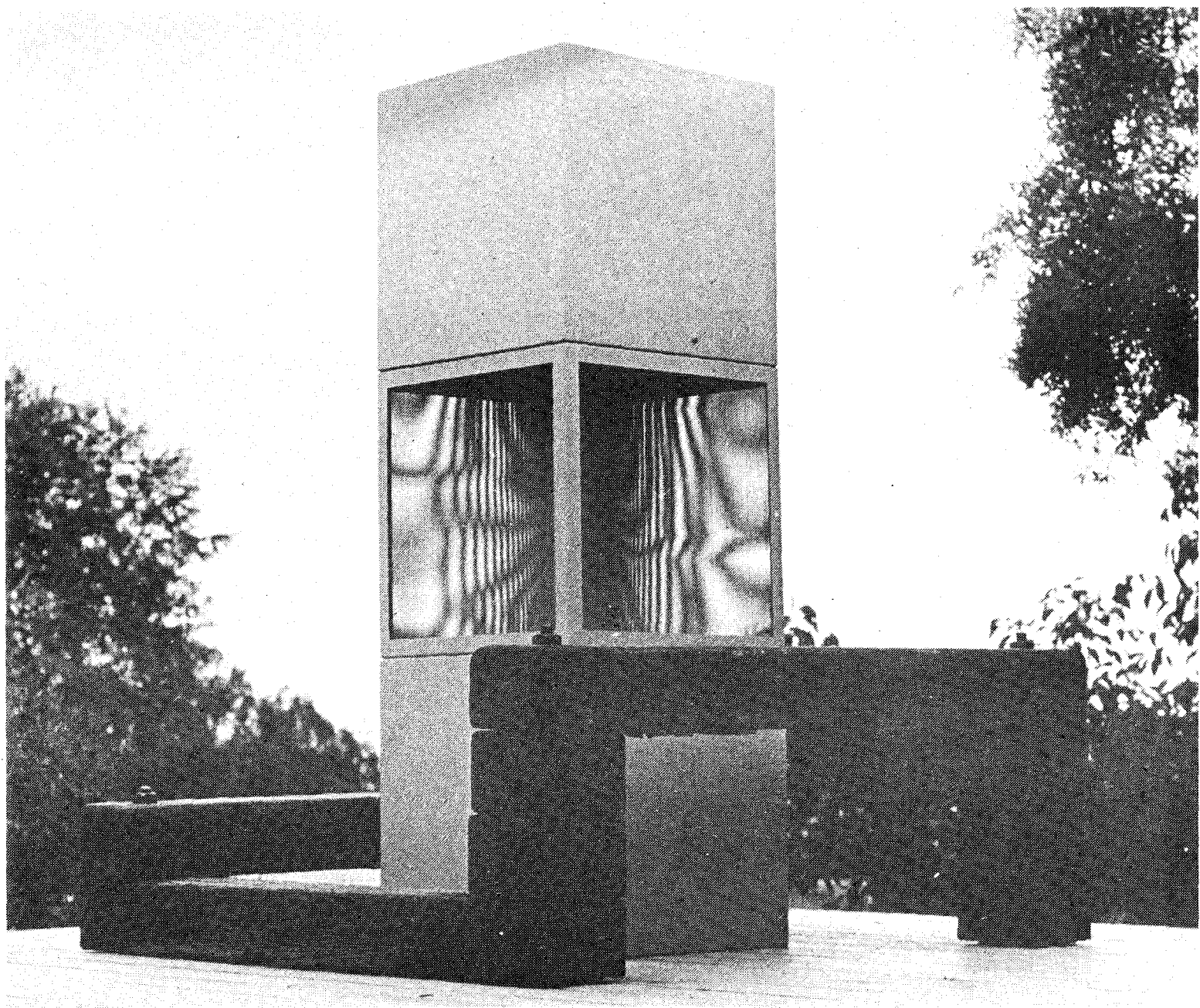
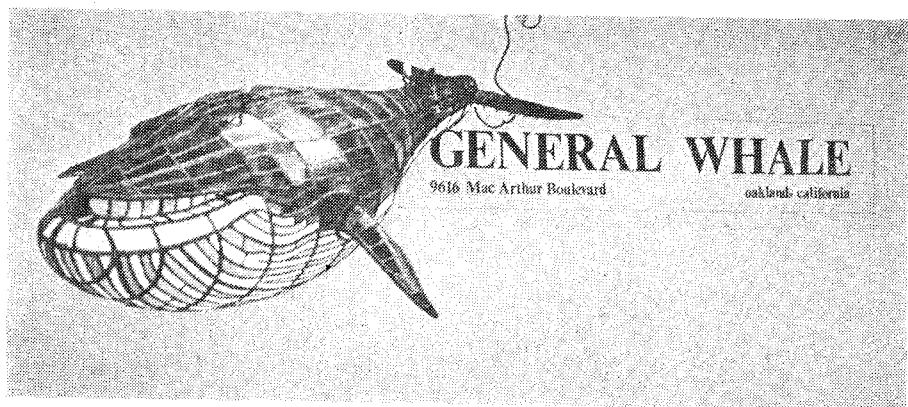
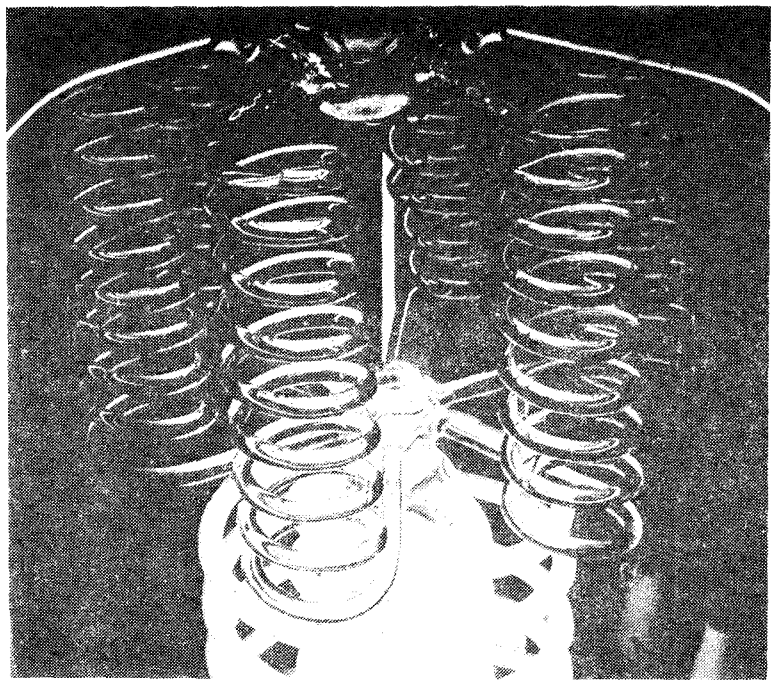
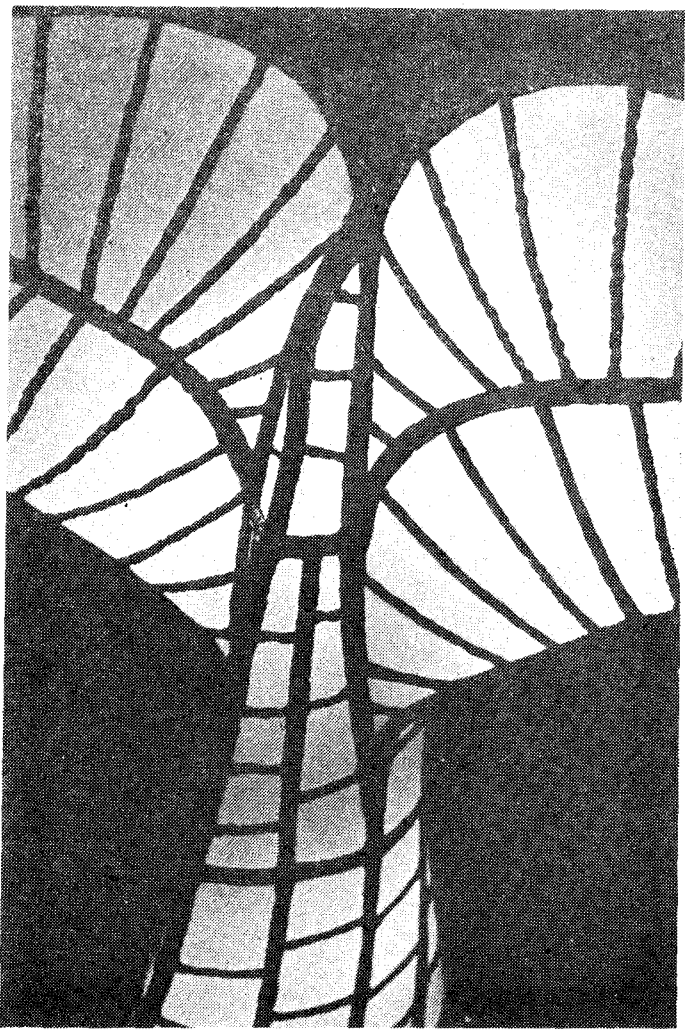
Virginia Steele

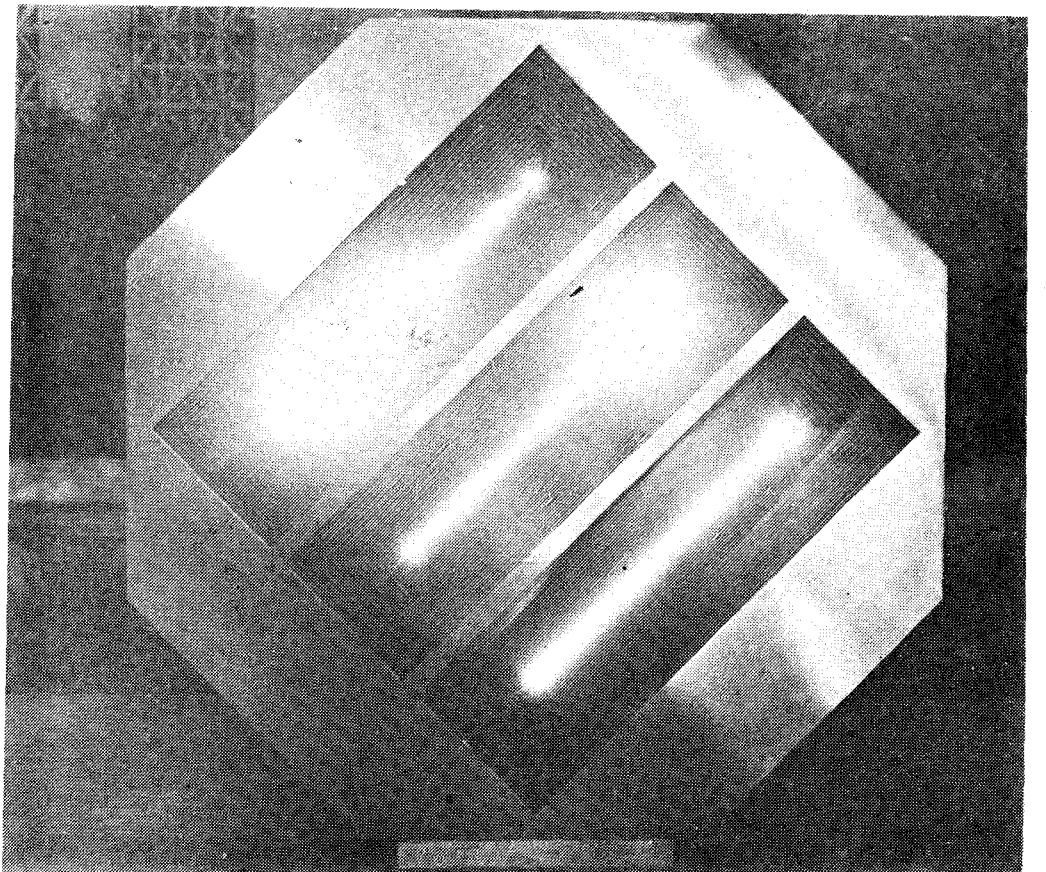
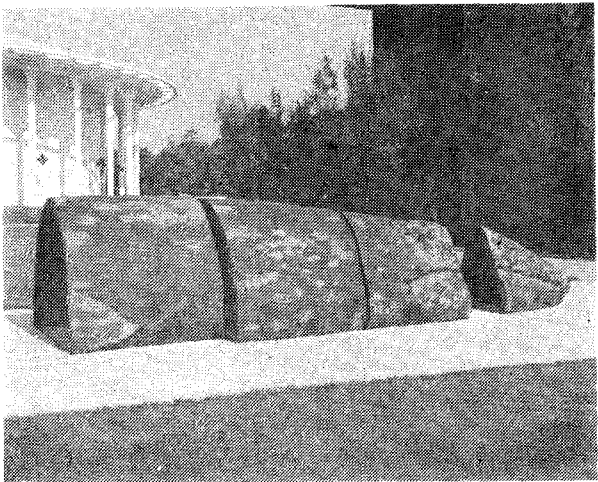
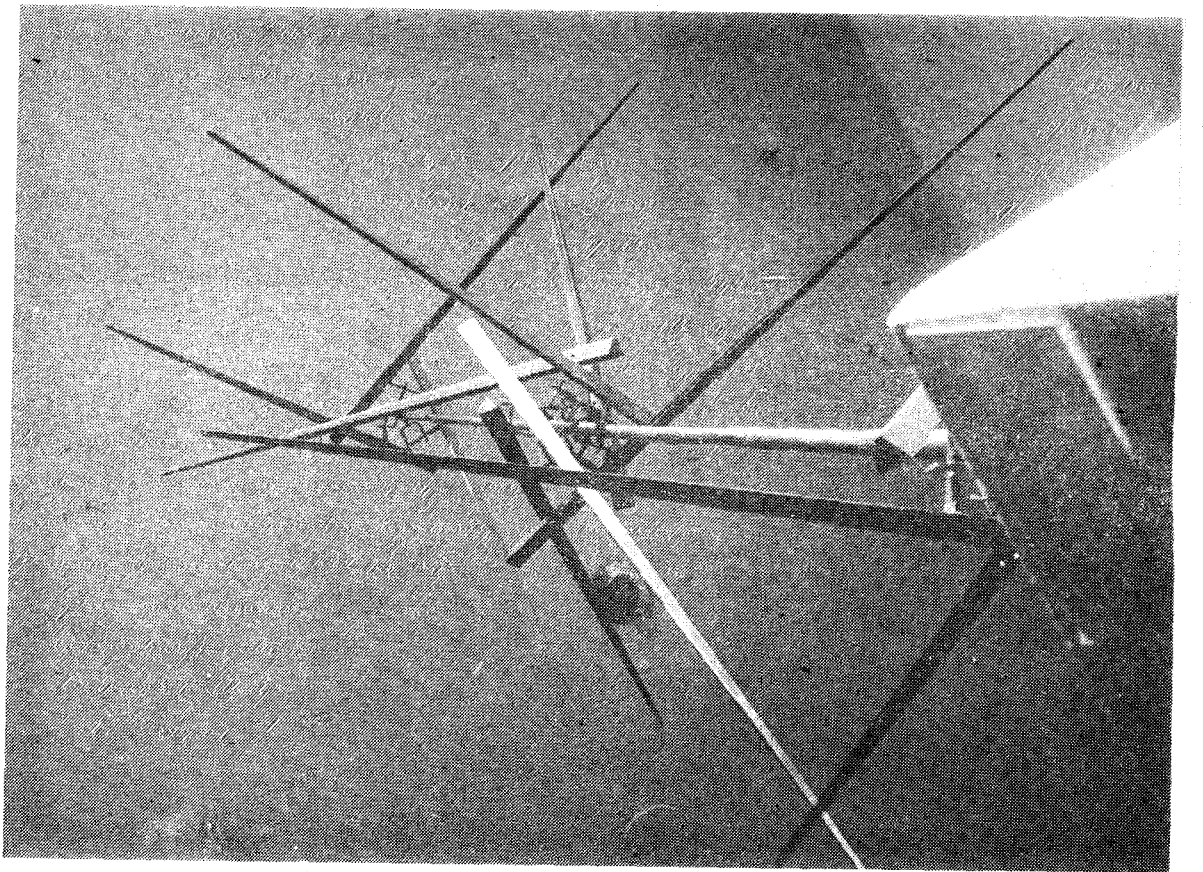
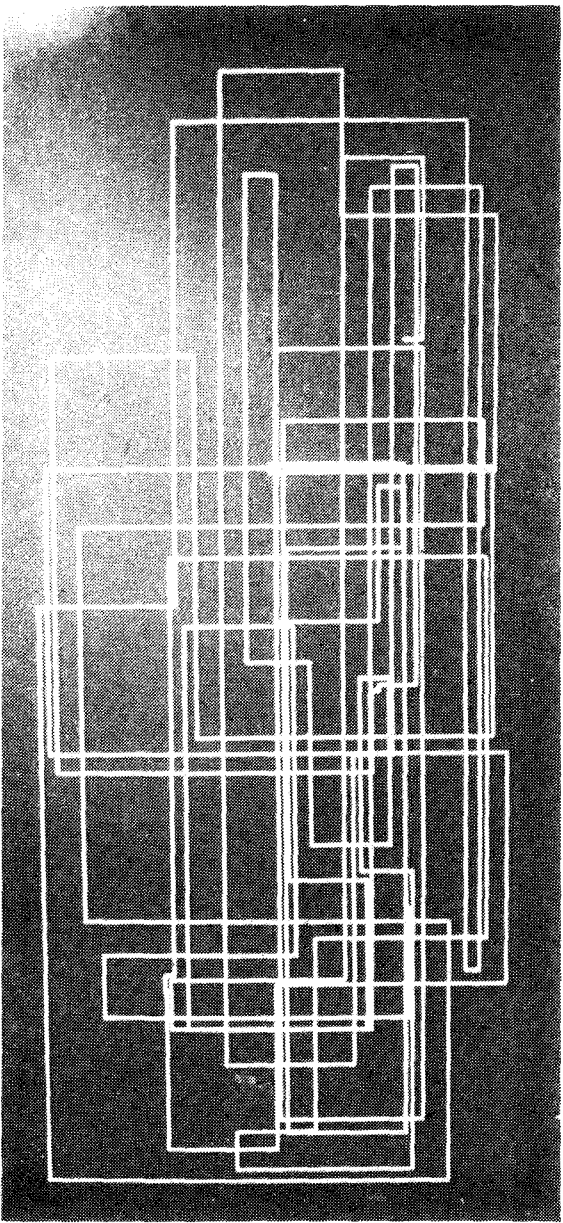


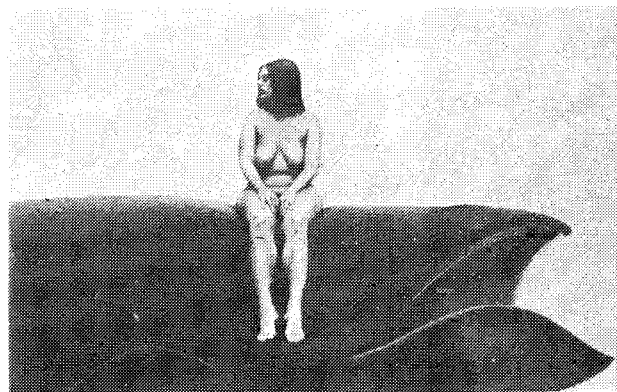
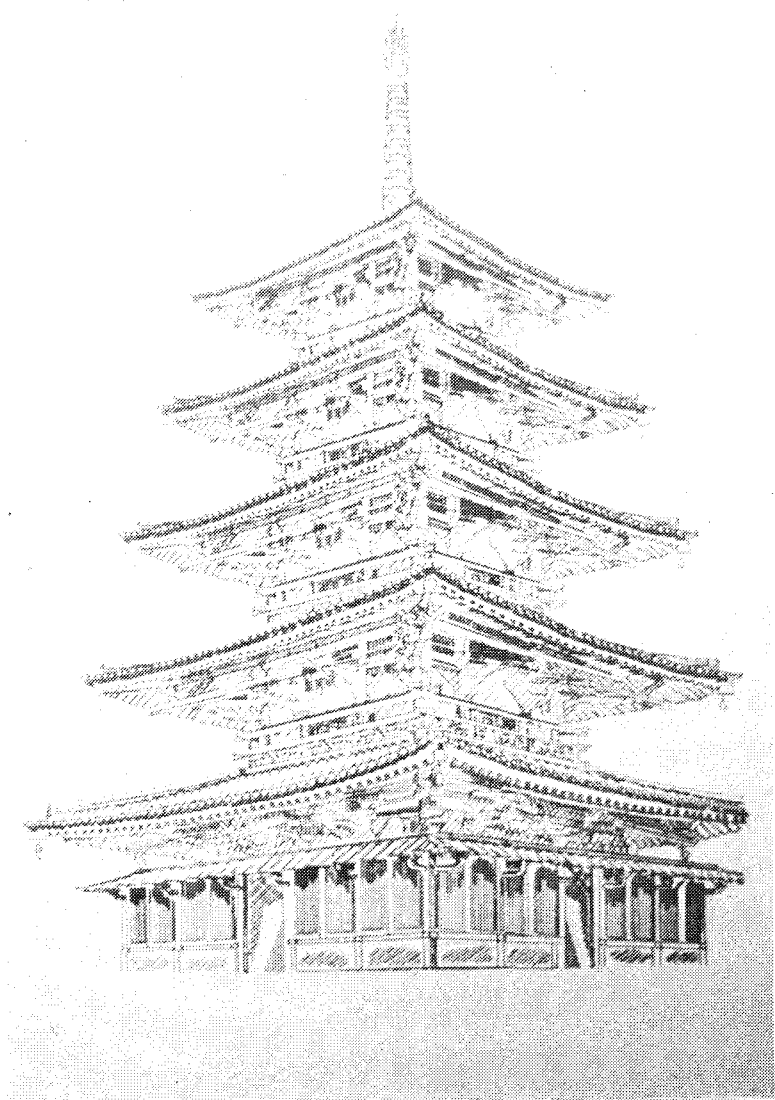
Photos by Tech Photographers Past and Present

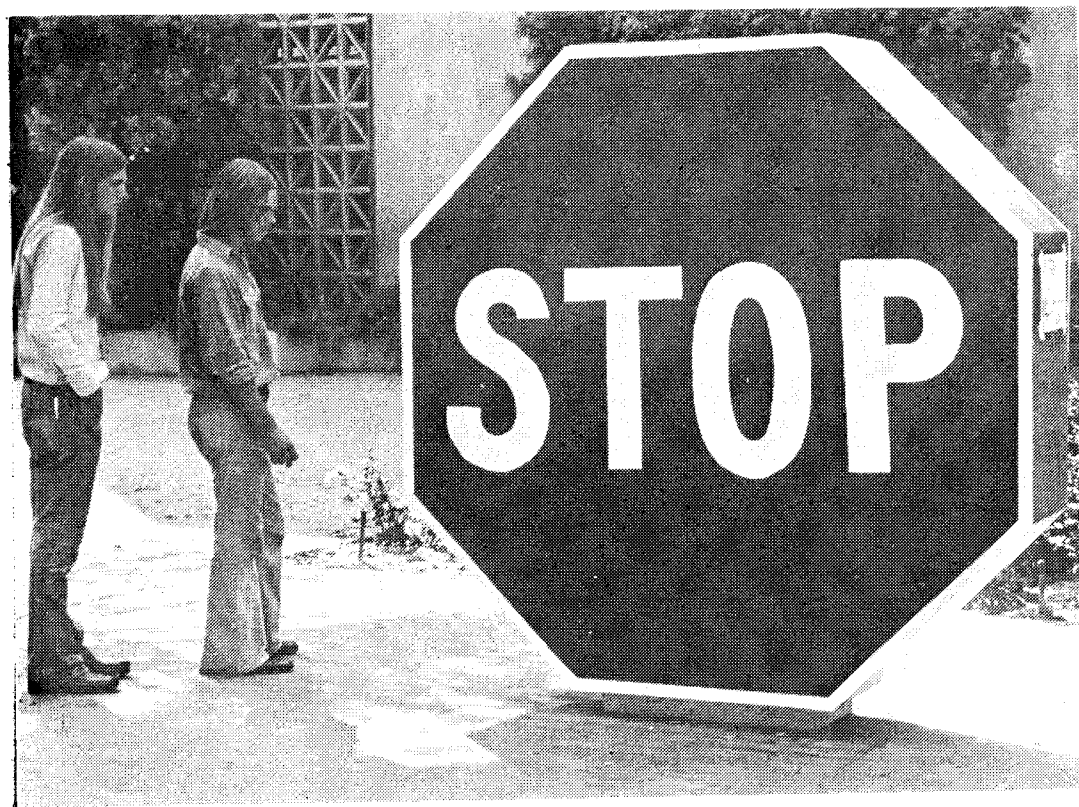
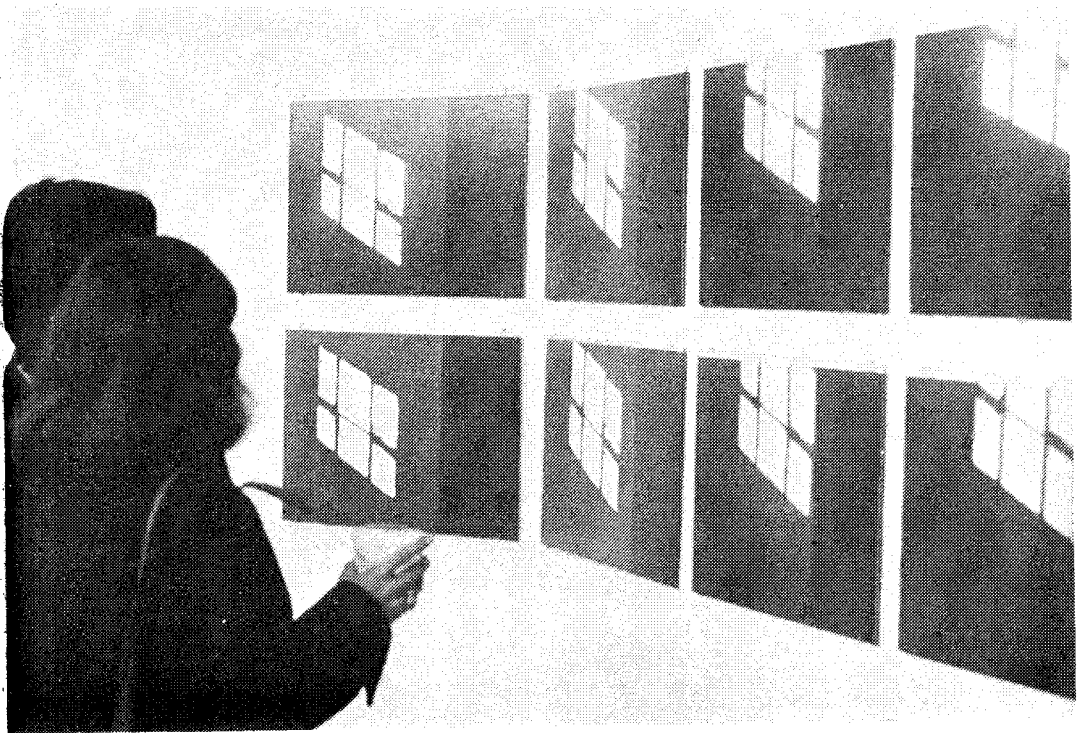
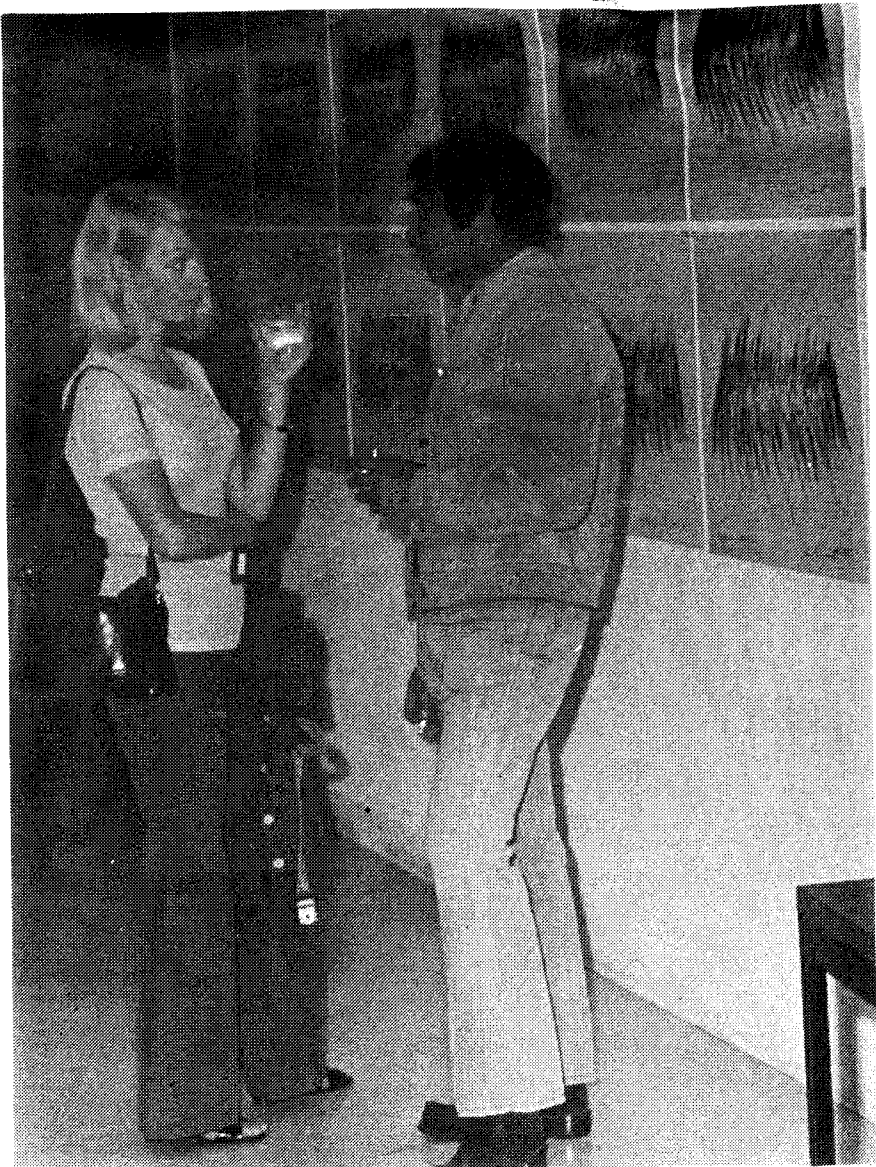
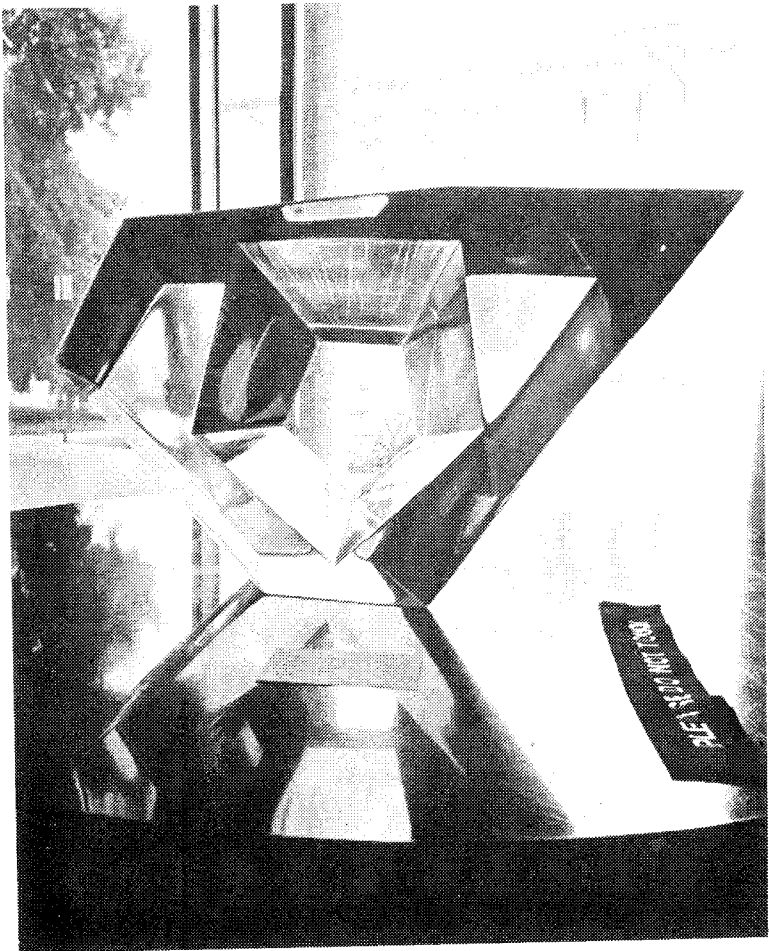


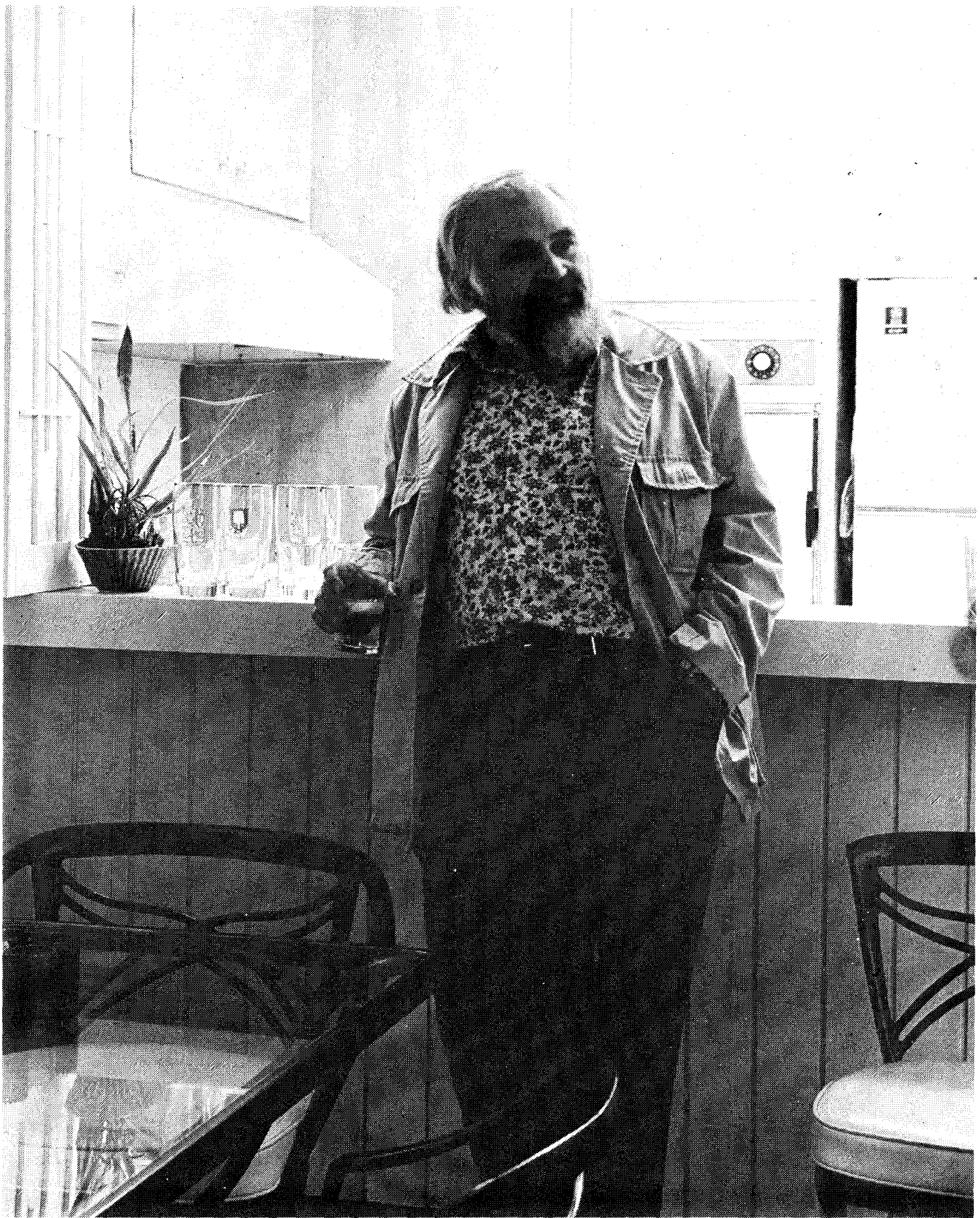












In Memoriam



Silent Cine Superb *Wings*

Consider a simpler age of film, when heroes were strong, virtuous, manly, when villains lurked or leered lasciviously, when heroines were pure in thought, chaste in manner, and dignified as the new-fallen snow. . . . Such an age never existed, even in the perceptions of the audiences of a younger, less world-weary cinema. In the days before anti-heroes and disillusioned youth and sexual liberation, the film world was populated by imaginary beings whose lives were straight-forward and uncomplicated, whose virtue and villainy was obvious to the viewers from the white hat and the beautiful face or the mustache and the snarl. Humor was also uncomplicated, dwelling in the guise of clowns and fall guys. Life was uncluttered, conflicts were never surmountable, and the hero ways triumphed, and won his true love's heart.

Such a dated view of life is available for the entertainment of the viewer in the current classic silent film series being presented on occasional Wednesday nights. Much of one's enjoyment of really old films is inadvertent, deriving from one's pretentious, sophisticated, all-knowing smile at the silly and hammy way Hollywood once made its players

act. Still, the viewer can also see beyond the culture shock of a vintage epic from the age of American intolerance, to the merit of a simple story well-told and amply filmed. This Wednesday the movie was *Wings*, wherein Buddy Rogers, Clara Bow and Richard Arlen fought, loved and died, respectively, in the grand heroic tradition of old American good guys.

To modern viewers, the techniques and gimmicks of the old directors and script-writers are painfully obvious; the nuances of the plot are transparent and predictable. This is only because such complexities as plot and acting had to be developed first by the pioneers of film-making, before the creators of movies could refine their technique and discover the sophisticated uses of camera and editing which made modern films acceptable to the jaded modern eye.

Much of what is objectionable in such a simple, naive film is not its simplicity or naivete, but rather its representation of the era which gave it birth. The protagonists are affluent, clean-cut WASPS who are thrown of their own volition in a nasty little mess which was once called the Great War. They fly above it all, and foot soldiers are

represented as objects which move below just adding to the spectacle of what is essentially a blind and romantic view of war. The largest humor intended by the film's makers (aside from what a seventies audience reads into the captions) derives from a fall guy who happens to be Dutch, and a sergeant who happens to be Irish. The obvious reactionism and intolerance of a generation which romanticized maiming and killing and made light of discrimination gives the viewer a twinge of unpleasant consciousness of the maculate sort of America which produced such a film while Europe was creating *The Cabinet of Doctor Caligari* (speaking of discrimination, the next stab from the past will be *Birth of a Nation*, which ought to be a gas if you're not black).

Old films are amusing and enthralling and technically fascinating. The print of *Wings* seemed to be excellent. The accompaniment by Chauncy Haines is superb, and a marvel in itself—such a feat takes quite a bit of talent. Caltech students who pass four years here without ever taking advantage of the arts available on campus are wasting an opportunity they shan't have again.

Lewis Hashimoto

Vinograd First to Occupy Chemical Biology Chair

Jerome Vinograd, internationally known for his research concerning the structure and function of DNA in viruses and animal cells, has been named the first Ethel Wilson Bowles and Robert Bowles Professor of Chemical Biology at the California Institute of Technology, it was announced last week by beloved Caltech President Harold Brown.

The professorship will be funded by the Ethel Wilson Bowles and Robert Bowles Memorial Fund established by Dr. Ethel Bowles to support medical research and treatment facilities, and by the personal gift of Mr. and Mrs. Emrys J. Ross.

Vinograd is well-known as the co-discoverer of an important method—called buoyant density centrifugation—for characterizing, separating and isolating large molecules and viruses, as well as for his co-discovery of an unusual form of DNA. (The double-stranded, closed ring type

rather than the more familiar double helix)

Vinograd and his colleagues have also discovered that mitochondrial DNA rings in white cells of patients with one form of leukemia are twice the size of those in normal cells. One of the main objectives of his present research is to find out why this size increase occurs and to help in the understanding of the differences between cancerous and normal cells.

Vinograd came to Caltech in 1951 as a senior research fellow and has been a professor since 1965. Previously he had been with Stanford University as a research associate and with the Shell Development Company as a research chemist. He received a PhD degree from Stanford University and a MA degree from UCLA, and studied at the University College of London, the University of Berlin, and the University of Minnesota.

American Romanticism: The Work of Frank Borzage

Next Wednesday Cinematech presents its second cineesthetic evening at 8 p.m. in Baxter Lecture Hall. The treat this week will be Frank Borzage's *Three Comrades*. This powerful drama set in manic mid-thirties Germany stars Margaret Sullavan, Robert Young, James Stewart, and Franchot Tone. It was made in 1937, and lasts 98 minutes.

Frank Borzage won the first academy award in 1927 (alongside last Wednesday's Beckman show, *Wings*) for directing *Seventh Heaven*. He was the most outstanding director of the great period in American cinema dominated by the romantic drama. He achieved great success, and made films every year thru the thirties and forties, with fancy production and excellent casts. Yet he went far beyond this established industrial base and achieved success in the aesthetic realm. His vision included beauty in some of its most extravagant forms, but also in simple smiles. He had the skills to present adventure, crime, comedy, and music so that they would deliver an audience's attention to his sole interest, love. As an artist he was ultra-romantic. As an American filmmaker forty years ago, he was the master of his medium.

At this stage in film history, there was a sharp contrast between American and German styles which most critics explain as artlessness and commercialism in Hollywood vs. high art in the expressionism of the Germans. The American film industry was developing its gloss in the open air of sunny California, and everything was blooming as if to

stay, with the giant studios turning out musicals and dramas with blind optimism. The monstrous German machinery was meanwhile shocking their view of an unstable, miscast and deluded world with pessimism tainted only by occasional commercial interests. The common critic sees expressionism as more valid than romanticism, perhaps because of the commercial dichotomy, and perhaps since expressionism eventually took over in this country, with the migration of many European filmmakers here, with the war, and with the emergence of a great American expressionist in Welles.

There are good arguments for the superiority of directors like Wiene, Lang, and von Sternberg over the best three American romantics: they explored more elements such as camerawork, editing, sound, lighting, and special effects. But a movement's worth is that of the smallest root on the tree of the artist—and Borzage demonstrates the heights which can be attained above the standard while accepting, even exaggerating, that norm. The word which describes perfectly what Borzage did is 'transcend'. He transcended romanticism by making love his perfect object, by in fact bestowing transcendental qualities on love so that the standard treatment of it does not picture its power. Only in the most expansive, outlandish, unjust circumstances can Borzage's beauty appear, and then its power is ultimate.

In *Three Comrades* Borzage took advantage of a classical setup: the Three Musketeers arrangement of a small group

who must preserve their integrity in the midst of a punishing world. James Stewart, Robert Young, and Franchot Tone play three young men who vow eternal friendship for each other, only to be tested by the divisive flames of fascism. The d'Artagnan of the story, the outsider who must become one with the group and in fact is responsible for its cohesion, is cast here as a young woman who falls in love with one of the comrades. Borzage sees the sentimental aspects of this love as providing a bond too powerful for the evils of society to break. Thus, even though the comrades have been separated in mind and body by their environment, at the end they are completely united by their enduring spirit of love. The ending is one of the most powerful moments in motion picture history, as the comrade who was killed in an equally affecting moment joins his friends as they walk away from the world, transcending all evil: for Borzage, love is akin to death as a transcendental phenomenon.

The emotional impact of Borzage's films derives from his use of reality in its harshest settings to portray the hardships confronting lovers, who live in an unreal fantasy world of soft focus, fluid motion, and tinted visuals. Borzage depicted the depression with the insight of a hobo (while getting up to \$100,000 for a film) and predicted the events in Germany with the foresight of a spirit. Throughout the 1930's he made films portraying German society as a hopeless depraved mob. By

Continued on Page Seven

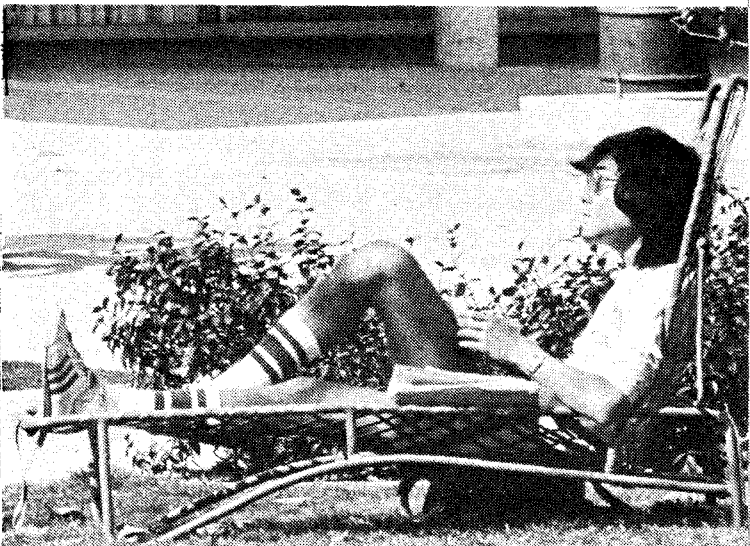
Standard Oil Gift

Last week it was announced that Standard Oil of California is giving Caltech \$100,000 in grants for the coming year as a part of Standard's overall program of aids to American education. This program of aids will total \$2.8 million this year, with \$229,330 of this money spent in the Los Angeles area, most of which goes to Caltech and USC (\$90,630).

The money is part of a matching gifts plan, according to L. E. Clarke, Southern California Vice President of Standard. The plan was instituted to broaden Standard's support of higher education and to give employees a voice in the distribution of the

Company's financial aid to colleges and universities.

The \$100,000 coming to Caltech breaks down as follows: \$29,000 is an unrestricted grant, the kind President Brown recently mentioned as so useful in taking care of short-term contingencies; \$20,000 is for Caltech's Industrial Associates Program; \$15,000 is for scholarships and fellowships; \$45,000 goes to a grant for a Visiting Professor program. (The more astute of you may have noticed that the above figures add up to \$109,000. Well, so did we.) [You expect more from Standard, and you get it?]



Caltech Movie Editor Lewis Hashimoto relaxes at the bottom of a page bubbling over with information on the celluloid concoctions.

Photo by Ken Li

Toys In the Attic by Aerosmith, Columbia Records.

Turn up the volume, kiddies, because it's time for some more of that hard rock music to straighten out those convolutions in that brain of yours. And don't sit down now. After all, these are songs that would get straight 98's on American Bandstand 'cause "you can dance to it."

Aerosmith is a rather mediocre hard rock band that plays mostly to the teenybopper top 40 crowd. Unfortunately they are not as talented as Led Zeppelin or Foghat; not as cute as Queen or Sweet; not as spectacular or vulgar as Kiss; and not nearly as good songwriters as, say, Bad Company. Still they will be happy and rich as long as those smash singles keep bustin' the charts. "Sweet Emotion" is the single from this album and though any appeal it may have had to me was gone by the time I heard it twice, it seems to be doing very well, thank you.

As for the rest of the album, the less said the better. Most are standard rock pieces with a surprising lack of anything at all besides a steady beat. Some of the meatier lyrics have to do with taking a chance at a teenage dance. *Heavy stuff!* And if "Big Ten Inch Record" is their idea of a joke, they should be writing comedy scripts for television.

So after all this trash you get

Rock on Rock

Aerosmith,
Neil Young, Dave Mason

to the last cut of the record hoping for a merciful and quick finish. What one hears, though, is a beautiful and haunting melody called "You See Me Crying." This song has excellent vocals, a fine instrumental portion, and a very striking and dramatic chorus. It's enough to make one wonder whether Aerosmith has the potential for putting out good music in the future. I think they just might. But I doubt they will.

Zuma by Neil Young with Crazy Horse, Reprise Records.
It's a fallen situation
When all eyes are turned in
And a love isn't flowing
The way it could have been.

Up till now Neil Young has been the most successful of the Crosby, Stills, Nash, and Young quartet. This despite numerous heartaches and troubles in his life. Since the splintering of CSNY, Neil has managed to put out one magnificent solo album after another. His latest, *Zuma*, may not at first listen seem quite up to the level of excellence of previous works, but a few listens convinced me that it is very good in itself.

It's a sad communication
With little reason to believe

When one isn't giving
And one pretends to receive.

The best thing about any Neil Young song is the lyrics. Neil has a perceptive and intelligent outlook on love and life. This is reflected throughout the album such as in "Pardon My Heart" whose lyrics are reprinted in this article. Unfortunately, this particular song has the drawback that the melody of the verse is virtually identical to the verse of "Jump For Joy" by Kingfish. This is distracting since I can't help but thinking about gentle fingers beating upon my eardrums and feeling the rhythm (Lord) take her as she comes. Oh, well. Such is life.

Musically the album is right in step with Young's previous works. Personally I like Neil's voice better than either Crosby, Stills or Nash. It seems to have a broader range of emotional impact than the others. This versatility allows Neil to sing effectively with the diverse emotions that are found in songs such as "Don't Cry No Tears" and "Stupid Girl". This, then, is a fine album that I have no trouble identifying with. So please:
Pardon my heart

If I showed that I cared
But I love you more
than moments
We have or have not shared.
Oh, and it feels so good
When love flows the way that it
should
It feels so good
It feels good
You feel good.

Split Coconut by Dave Mason, Columbia Records.

And the legend lives on!
The first few seconds with its disco flavor is enough to indicate that this is something a bit different from Dave Mason. A few more seconds pass and Dave's into a guitar solo which confirms that all of the skill of which legends are made is still around. By the time the surprise of the first song rubs off, Dave's at it again with a cute version of an old Buddy Holly tune, "Crying, Waiting & Hoping", played with marimbas in lieu of guitars! Finally Dave moves into a song that is more like his usual style. From here the album does not surprise you anymore. It merely amazes you.

To give an idea of the quality and consistency of this album imagine asking which song was my favorite from the disk while I am listening to it. Undoubtably I would reply that the cut we happened to be listening to was my favorite cut. At this point,

though, the song would end and the next song begin. Immediately I would change my mind and state that this song was actually my favorite. I wouldn't kid you. It's reawry twue.

For those not familiar with the Mason legend I will explain. Mason first came into musical prominence many years ago with a tremendous band that is too often forgotten nowadays, Traffic. A few years ago he put out his first solo album, *Alone Together*, and it's been uphill ever since. The music relies heavily upon his accoustic guitar which is excellent and still improving, and his voice which is natural, organic, and totally convincing. *Split Coconut* also incorporates a little disco, funk, and organ into certain cuts. Manhattan Transfer gives their vocal support on two cuts and David Crosby and Graham Nash chip in on a few other songs. Finally, the excellent work by the other members of Dave's band, most notably Jim Krueger on guitar, should not be overlooked.

So if you like listenable music with good guitar work, natural rhythm and enjoyable lyrics, let me recommend Dave Mason and *Split Coconut* to you. As for me, I'll have to buy the album for myself unless Harry fails to notice that his copy is missing.

-Rock

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Borzage

Continued from Page Five

1940, he climaxed with *The Mortal Storm* in which the lovers barely escape Germany, but Margaret Sullavan dies at the border. Borzage then stopped making anti-Nazi films, and moved on to less socially relevant situations with heavier religious overtones.

Borzage is noted for his treatment of actresses. Janet Gaynor won the first Oscar for her acting in *Seventh Heaven* and Margaret Sullavan acquired a

great reputation through her many roles for Borzage, including her outstanding performance in *Three Comrades* which brought an Oscar nomination, which she lost to Bette Davis. In Borzage's pictures she acquires a beauty unlike that of any other star. She has a transcendental quality about her which derives not from an exaggerated sensuality (as in the case of Dietrich) or openness, but from her slight facial twists and mannerisms and the always sympathetic and loving camerawork. She portrays Borzage's realization of love with a strength of character which brings forth our emotions at the sight of her suffering and

ultimate endurance. She always seems weak and sickly and yet transcends the wordly strengths of the men around her.

If you're at all a romantic, *Three Comrades* will touch your deepest sentiments, and will grasp you and take you to its elevated domain. If you are anti-romantic, the film may seem melodramatic and sweet in its sentimentality, but its power cannot be denied. The story is tight and the acting superb. It screens April 28 at 8:00 p.m., for just a 25 cent donation, at Baxter Lecture Hall, and there will be refreshments to sip.

—Alan Saul

Service League Bash

The Caltech Service League is sponsoring a bake and plant sale, to be held on the Winnett Student Center Patio, on Friday, April 30, from 9:30 a.m. to 2:30 in the afternoon. Coffee, tea and home-baked goodies will be available for your "breaks" as well as being able to purchase an assortment of these specialties to take home to your family. All members of the Caltech community and the public are invited, so be sure to come early so that you won't be disappointed.

A great selection of potted plants will also be available for sale.

The entire proceeds from this sale will go to support the Caltech Service League's projects for Caltech students—such as the decompression nights, the Glee Club and Caltech Y, Thanksgiving turkeys and Christmas boxes for each student house, well-baby clinic, baby furniture loan service—to name a few.

Your support of this event will be greatly appreciated.

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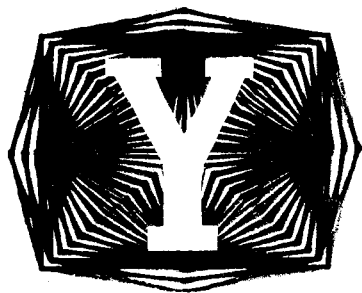
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CALTECH



Programs

Readers! It has come to my attention that the Caltech Y will be sponsoring the following activities for this coming week:

Today, April 23—Hardcore bluegrass fans should come to see "Smokewood" for today's Noon Concert on the Olive Walk. If you think Acapulco Gold or Panama Red is good, just wait until you try bluegrass from the hills of Kentucky. Some home-grown music that's good when it's smokin'.

Tuesday, April 27—Don't eat lunch alone today. Melvin J. Hinich, Sherman Fairchild Distinguished Scholar, would like to discuss "Aspects of the Electoral Reform Act" with you to help your digestion. Bring your cornbeef-on-rye to the Y Lounge at twelve noon.

Wednesday, April 28—Genial abbot and former Master of Student Houses, Dr. Robert A. Huttenback, and Edward J. Hutchings, Jr., California Tech reader and editor of *Engineering and Science*, discuss "The Scientific Pursuit of Nonsense: Reflections of Caltech Pranks". A good chance to stack two important people in the Winnett Center at 7:30 p.m.

Thursday, April 29—Zubin Mehta and the Los Angeles Philhies play Mahler's *Symphony No. 8* with support of the Los Angeles Master Chorale and the California Boys Choir. With James Dudziak conducting the audience. Sign-up in the Y Office. Only \$1.50.

—Robert Tajima

Buckminster Over Easy

An Interview With
Buckminster Fuller
Big Nuke Writing

Do you believe the human race is declining? It has been said that we have reached the end of an epoch, and are declining socially and economically.

You don't have to know very much to say that. The less you know, the more brilliantly negative you can be. For example, you can stand by the ocean for a hundred thousand years and say, "Nobody'll cross this thing," and nobody does cross it in a hundred thousand years, but suddenly they do. But in order to cross it, you have to know quite a lot. You have to know how to design a ship, how to provision it, how you sail it, how you guide with the stars. I've found that most people get paid just for footage, so that 99 per cent of their writing is negative.

The discussion shifted to the topics of evolution and what man has to do with the scheme of things. There really was no leading question that could clearly be picked out, thus we pick up with:

I feel that man is countering what evolution's trying to do. Evolution has it checks and balances—there's no instant anything, so the Universe has gestation rates for different arts and sciences, so she has her checks and balances in those different gestation rates.

How about architecture for one art?

What about architecture? Architects have been dealing with the most backward of all human activities—building. Building arts on the land are about 5000 years behind building in the sky or ocean.

You mean building architecture today is 5000 years behind airplane and ship design?

The arts of designing an environment for the land versus an environment control for the sky. The arts of sky and the sea have been for armaments, and the antipriority's been the home

front, so the arts (of the land) get low-performance materials or all the left-overs. I'm sure you can tell this very quickly: you probably know the weights of many ships—we say the Queen Mary is a ninety-five thousand ton ship, and the big tankers are now getting into the hundreds of thousands of tons. We know a Boeing 747, fully loaded, is one-hundred fifty tons, and so forth. With that ship, you know everything, the amount of material you put in, the last erg of energy put into it.

But with a building, do you know the weight of any building within one hundred thousand tons? We don't talk about the weight of buildings, let alone their performance. I'll give you an example—if you're going to build a house of, say, twenty-five feet by twenty-five feet, two stories, you have to have a twelve inch foundation. Now with concrete, you have an ultimate compressive strength of fifty-thousand pounds per square inch. But the building arts are so backward that you have to have a large safety factor that is called five to one. In aircraft, they can be one and a half to one, or one to one, but you know what you're doing. If you don't know what you're doing, you have to have these large safety factors. With this foundation and these safety factors, you've found you can carry the Queen Mary, when all you have to worry about is ten people. Typical.

From here the conversation drifted into the area of design applied to human beings, and what principles, if any, applied. Again, there were no clear-cut leading questions.

The point is, you're born naked, helpless, ignorant, hungry, thirsty, all built-in; curious, procreative urge in due course; that's in there to drive you. I think we're an extraordinary piece of design in a very extraordinary Universe. How does your eye work, for instance, how do you hear me? How did you sit down on the

floor, there? A great piece of design.

Do you imply design by someone or something?

Of course. Not by someone. We have a biosphere in which we have things holding such extraordinary temperatures, not freezing up all the time and going wrong, and the most incredible complementarity of design all the way through, and we are here as the most extraordinary and complex of those designs I would assume has some very important reason, and we were given our drives so we could learn.

You have been involved with a lot of design in your lifetime. What process do you go through

when you design something and how is this process similar to that you described in relation to humans?

I'm trying to think whether I can really answer you in the time we ought to be taking for this sort of thing. I'm confident that whatever I've done is part of a grand strategy started close to half a century ago. I undertook what I call a design science strategy to find out what I meant by design science; I did not do it to amuse me or make money.

Does it amuse you?

I find life amusing, in that it makes us think.

By amusing I mean enjoyable.

I find life very enjoyable.

Tech Pockets Putnam

For the fourth time in five years, Caltech has won the coveted William Lowell Putnam Mathematical Competition. This year, the three-member Caltech team won over rugged competition from teams from 354 other universities in the United States and Canada, including second-place University of Chicago, third-place MIT, fourth-place Princeton, and fifth-place Harvard.

The winning team was composed of seniors James B. Shearer and Franklin M. Liang and junior Christopher L. Henley, Jr. Shearer was also a member of Caltech's victorious Putnam team in 1974.

Henley placed among the top five individual contestants whose exact rankings in the competition are not revealed. Shearer placed seventh, while Liang was 45th in the competition which drew 2,203 participants. Team scores are determined by totaling the rankings of the three individual members.

A rigorous, mind-breaking, day-long event, the Putnam test consists of 12 problems and stretches from 9 a.m. to 5 p.m. with a two-hour break for lunch. In addition to the three team members, 21 other Caltech students took the exam.

Dr. Gary A. Lorden, associate professor of mathematics who supervises Caltech's Putnam participants, explained that the

problems require more in the way of perseverance, ingenuity, and aggressive, agile thinking than memorized knowledge. Contestants also require the ability to work fast and the courage to keep them going when the outcome seems discouraging.

Because of the nature of the problems, Lorden believes there is little to be gained from coaching students extensively for the contest.

"Some schools conduct regular seminars for their Putnam contestants but we simply show them how to work some problems from previous tests in one brief session," he said. "Our students get plenty of experience in solving hard problems in their regular mathematics courses."

The Putnam has been held annually for the past 36 years to stimulate interest and a friendly competitive spirit among college mathematics students. This was the seventh win for Caltech in the Super Bowl of the numbers game.

The \$500 prize received by Caltech for the team's victory is placed in a fund to finance prizes for excellence in research projects by undergraduate mathematicians.

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Bill — Dinner at 7 tonight at my house — be discreet.

Valerie

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