



RECENT PHOTO taken at Peking's China Institute of Technology during a peace rally.

## 'Mars and the Mind of Man' Topic For Panel of Writers, Scientists

by Peter Beckman

Panel discussions are usually thought of as dry uninteresting conversations that accomplish zot. Fortunately, this was not the case Friday afternoon in Ramo Auditorium when four panelists discussed "Mars and the Mind of Man."

Of course, the panelists were not random trolls. Two of the world's most famous science fiction writers, Ray Bradbury, and Arthur Clarke, were matched against two of this country's most distinguished scientists, Carl Sagan, Director of Planetary Studies at Cornell, and Bruce Murray, Professor of Planetary Science here at Tech.

Sagan began the discussion with a short history of man's belief's about Mars. Classically, the War God's planet was long thought to be a drying dying sphere. These traced back to the 17th century belief that the age of each planet was

proportional to its distance from the sun. Then, in 1877, Schiaparelli discovered his "canali" and all hell broke loose.

**A Canal Is A Canal Is A Canal**  
Percival Lowell popularized the idea of Martian canals that had been built by intelligent beings, but his ideas were opposed by a group of scientists that included Alfred Russel Wallace, co-originator of the theory of evolution, who pointed out the fallacy of Lowell's arguments. In fact, Wallace's book "Is Mars Habitable?" contained many postulations about conditions on Mars that have only recently been confirmed by the Mariner probes.

This history was continued by Ray Bradbury who discussed how science fiction had shaped man's ideas about Mars. Edgar R. Burroughs was, perhaps, the most influential in this area. His "flying moons of Barsoom" caught the

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## BOD Makes Sweeping Financial Changes

by Gavin Claypool

The ASCIT Board of Directors approved legislation Monday allowing students to designate how their second term dues would be budgeted.

The motion was proposed by Ron Horn as the culmination of a two-hour long discussion on the role of ASCIT and its responsibilities.

While the final details still remain to be worked out, the plan is that students registering for second term will receive a form listing the following categories: athletics, clubs, social programs, and ASCIT mobvies. The clubs will be listed by name, with blank spaces at the end for any club inadvertently left off. Each student then fills in how much

of his dues he wishes to be budgeted for each listing. Three dollars will still be used for a subscription to *The California Tech* and an additional amount for the general operation of ASCIT (stationery, phone bills, etc.).

Rumored threats of large scale House secessions from ASCIT caused the BOD to debate—sometimes heatedly—on the manner in which the corporation dues have been budgeted.

The discussion bounced back and forth from the loss of revenue due to massive withdrawal of members, to the idea of lowering the dues so that the dissatisfied members would be getting their money's worth. Opposing a cutback in dues was

Sharon Spivak, who asked for reasons for "cutting the budget, except to please certain people."

Supporting the lowering of dues was IHC Chairman Ron Horn, who moved that a bylaws change for lowering the dues be drafted and that the budget be revised. Norris Krueger seconded the motion, but it was defeated 3-4 with President Steve Watkins casting the deciding vote.

Watkins asked the BOD what their function would be, if funding to random campus clubs was cut out. (These subsidies, according to treasurer Tom Matoi, range from petty cash amounts to \$1,000, which goes to the glee club.) It was

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## The CALIFORNIA Tech

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Volume LXXIII Pasadena, California, Thursday, November 18, 1971 Number 9

### New Theater Group Springing Up Here, Volunteers Needed

by Jeff Mallory

A new theatre group has sprung up at Caltech, under the leadership of Dr. Oscar Mandel, called Spectrum Productions. It is designed to supply dramatic performances for Baxter's Ramo Auditorium.

Spectrum will book events (hopefully three of four productions a year) into Ramo and receive its publicity as a regularly scheduled event on the Beckman calendar. The Faculty Committee on Programs will finance the company and admission will be charge; to help cover costs. Spectrum Productions is essentially a club, however, and all work will be volunteer.

Membership is open to everyone, and the public is welcome to audition, but Spectrum is particularly interested in non-union people talented in acting and directing or set, and costume design, and "in short... anyone who can bring to the theatre talent of professional calibre." The audition/interviews for club membership will be held in Humanities Lecture Hall, on Sunday, November 21, from 3:00 to 6:00 p.m. and on Monday,

Continued on Page Seven

### Interhouse

## Lots of Work for One Night

by E. Burner Pilate

If someone asked you to spend all your free time doing hard-hat construction work, or making paper-mache or learning a skit that would be used for a single evening, would you do it? Of course you would, that's Interhouse. Last Saturday we had the Interhouse Dance, the climax to several weeks of "Build Interhouse". The "Build Interhouse" phase is characterized by the ingenuity of the upperclassmen who time activities so as to keep the frosh in suspense. "Will we be finished by Saturday night?", until the last possible moment. The upperclassmen seem to have succeeded this year, for preparations were under way in the houses until the first arrivals.

All of this year's Interhouse themes were quite different, if you forgive the teacher's obsession with falling water. Ruddock's interhouse theme was The Barn. Upon their straw-strewn courtyard was displayed a windmill, a pond with a Polynesian waterfall, and other structures including an Interhouse Outhouse. Those tired of watching the livestock in the courtyard went inside the barn and attempted square dancing.

Next door Lloyd's New Orleans Jazz Club offered a quite different atmosphere. Ancient Clay, the official Caltech Jazz Quartet, provided the music. None were

surprised to see Lloyd's bar there, and those interested in imbibing could purchase authentic Borubon Street beverages at authentic prices.

Across the Olive Walk Ricketts was doing its best to Honor America! The lounge was converted into a malt shop (c. 1957), complete with soda jerks. Every hour a twenty-by-thirty-five-foot American flag was raised in the courtyard, next to an ill-fated oversize dollar bill. In the dining room several box-office pleasers played, including a Nike missile movie and a Ronald Reagan Anti-litter flick.

The Blacker House Country Club sported a nine-hole miniature golf course. Besides complicated mechanical holes, there was a Physics 2 hole, with track A and track B. Refreshments were served under the watchful eye of McElroy's moosehead. Those who wandered from Blacker House to Dabney were unable to locate Dabney's Interhouse, the wherabouts of same being one of the best-kept secrets of the week.

Fleming's Flood the G.D. Courtyard was vaguely reminiscent of last year's effort. The courtyard was flooded and bridged by a foil-enclosed pontoon structure that exhibited several modes of yaw, pitch, and roll. In the lounge a series of skits in television format

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### News Briefs

## Health Center Closed for Thanksgiving

From 7:00 p.m. on Wednesday, November 24 until 8:00 a.m. Monday, November 29, the Health Center will be closed.

For first aid care while it is closed, contact: Dr. Gregory Ketabgian, 795-7793, Dr. R.F. Webb, 796-6121 or Huntington Hospital (First Aid Room) 100 Congress Street, 796-0381.

### Campbell Laboratory Isn't Coming Down

B&G informs us that Campbell Laboratory is not fair game for salvage operations.

### Bio Division Announces Tutorials

For the past several years, the Biology Division has offered a tutorial program for undergraduates, listed as Bi 23, and staffed by faculty members, post-docs, and grad students. Tutorials offered include a broad range of subject

matter tailored to the interest of individual students and staff.

The tutorials are flexibly organized; the final format and content of each are up to the tutors and tutees involved. A list of tutorials available for next term, including the tutors and subject areas, is now available in the Biology office (156 Church) from Fanny Warren.

### ROTC Talk

#### Friday

Lt. Steve Paterson, a 1970 Caltech graduate in Physics, will speak on "Research and Engineering Opportunities in the Air Force Systems Command", November 19, in Winnett Clubroom No. 1.

### Help Give the Needy A Merry Christmas

A campus wide effort to provide toys and gift certificates for a "Merry Christmas" dinner for the

needy is being organized. The campaign for gifts will be from November 15 to December 15. Funds should be directed to Charlotte Roth (Baxter) 228-77 Ext. 1066. Check with Division Administrators or supervisors for toy collection locations. Contact Charles Mayfield, ext. 1063 for further information.

Santa needs "Elves" for the children's party. Persons wishing to help should call ext. 2279.

### Elections

#### After Thanksgiving

Elections on the proposed amendments to the ASCIT by-laws will be held Tuesday, November 30.

### Music and Film

#### Discussions Continue

Discussions with Charles Lloyd, an internationally-known jazz musician, and with Eric Sherman,

Continued on Page Two

## Livable World Discussed



FORMER SENATOR Albert Gore (left) and Nobel Laureate Max Delbrück of the Caltech faculty met with students last week to discuss the Council for a Livable World, in a seminar sponsored by the Caltech Y.

—Eric Vella

Editorial

Is ASCIT Worth Saving?

"We should begin publicizing the fact that we've screwed up."  
—Steve Watkins

It is very seldom that the head of an organization—any organization— talks so candidly about its failures, but last Monday night's BOD meeting was not very ordinary. Basically, the Board of Directors came to the realization that ASCIT is in very deep trouble which could lead to a mass exodus of members. Although money plays a very important role in the crisis, the basic problem is not monetary, it is spiritual. The average Techer no longer really believes in ASCIT. To him the organization is an inept money sink whose benefits represent only a small fraction of the dues he must pay.

Two recent fiascos have highlighted the organizations inadequacies. The first was the election to approve the proposed amendments to the ASCIT Bylaws. Not only were the ballots tallied incorrectly, but the very election itself was void since the text of the changes had not been published seven days previous to the election. Next came the Interhouse Dance band or lack thereof. ASCIT had promised to provide a rock band for Interhouse, and the houses proceeded to build their displays on that assumption. At the last minute it was discovered that no band had been hired, and without some quick legwork on the part of some students the Interhouse Dance might have been danceless.

In fairness, it must be stated that boondoggles like this have always occured. It has only now become apparant that for ten years most votes cast in Winnett during ASCIT elections have been technically invalid because a member of the Election Committee was not present. In fact, under normal circumstances the Election Committee has seven members each of whom should watch one polling place. Unfortunately, there are eight offical polling places.

All this leads to the question "Why haven't large numbers of students left ASCIT before?" Well, until last year, undergraduate membership was all but mandatory. This is the case in most colleges and universities, and it is obvious that if ASCIT wished to be bastardly it could arrange that membership by undergraduates be mandatory. Fortunately, ASCIT does not want to force itself upon the student body; those who wish to depart may do so while those who wish to stay have something to look forward to.

Starting next term it will be up to each individual ASCIT member to decide how the greater part of his dues is spent. No longer can he complain that his money just seems to disappear. It will go to those organizations that he chooses—and no others. This will obviously lead to dislocations in the ASCIT budget. Some organizations might suddenly find themselves rich beyond their wildest expectations while others might feel a severe financial strain. Competition between organizations for student favor might occur, with the best persuader taking the lion's share of the cash. But we believe that the advantages of this plan outweigh the disadvantages. The fact that students will decide how their money is spent is of supreme importance.

It should be noted that this is merely a first step in a complete reevaluation of the purpose and function of ASCIT. There is no doubt that ASCIT has been complacent, and complacency is one of the worst sins of omission. Whatever ASCIT's faults are, the organization is worth saving. But it can only be saved if students are willing to put their time and effort into helping to rebuild the organization.

Peter W. Beckman  
Paul A. Levin

THE ASCIT FRIDAY NIGHT MOVIE PRESENTS:

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Friday, Nov. 19, at 7:30 p.m. and 10:00 p.m.

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their guests, \$1.00 other Caltech personnel

IN TWO WEEKS:

BONNIE AND CLYDE

Letters

Peeved With Our Advertisers?-Write!

Editor,  
I note that advertisements of Martin Lewin Transcargo, Inc. appear regularly in The California Tech. I believe that the campus community and the foreign students to whom the advertisement is addressed should be cautioned to investigate thoroughly the insurance offered by Martin Lewin if they are considering shipping goods overseas with that firm.

Responding to a Martin Lewin ad in the Tech in Spring 1970, I had them ship four small trunks to Paris. I purchased supplemental insurance they offered with the assurance that it was the best available. In transit two of the trunks were opened and contents worth \$250 were removed. My claim filed in Paris was not honored because the best insurance Martin Lewin could offer its customer covered only a total loss. Inquiries in Paris confirmed by suspicion that far better insurance is available, insurance that covers almost any degree of a partial loss and, further, that the company that underwrites the Martin Lewin insurance offers

such protection. In her response to my letter of complaint, Myriam Lewin Coria, evidently the manager of the firm, denied that such insurance existed.  
Upon my return I made sure that my shipment was adequately covered. I will be happy to make information available to anyone considering shipping goods overseas.  
James Greenlee

To the members of Ricketts,  
I sincerely apologize to you for ruining the poster which meant so much to you. I would never have done so if I hadn't been quite drunk. It was neither from a spirit of mischief nor one of malice towards you that I did so. I regret that I so totally forgot the people that might be concerned. I was barely aware of what the poster was and totally oblivious to the people who put it there. Such a distorted outlook was due entirely to alcohol and not at all to my true character or feelings.  
—Brian Doherty

Throop Beat

Recycling Business Back

by millikan troll  
CEAC may be back in the recycling business soon if negotiations now in progress conclude successfully. CEAC hopes to take over a portion of the lot between the Beckman Auditorium offices and the corresponding house on Chester for a recycling center. If all goes well, the new recycling center could be open sometime early second term.  
Unbeknownst to most students, the Institute maintains an Emergency Medical Fund to help students pay major medical expenses not covered by the health insurance plan. The fund started about eight years ago when the Institue switched from an in-house medical coverage plan to Blue Shield, which has \$100 deductible and covers 80% of the costs. The Health Committee then decided that the Institute had some sort of responsibility to students incurring major medical expenses.  
Medimoney  
Since then, a certain sum has

been set aside each year. While in the past, the amount has proven adequate, the demands on the fund have been unusually heavy this year. But still, it's nice to know it's there.  
Speaking of medicine, the Biology Division has a plan in the works to accommodate the apparently (drastically) rising number of undergraduates with medical aspirations. The plan would essentially have students cover work typically given in the first two years of med school during their undergraduate years, and could thus enter med schools as third year students upon graduation from Caltech. The plan has been presented to the Trustees, and remains "in the works".  
Top of The Week  
The Great Pumpkin has finally been excised from the pinnacle of Throop. . . . "Startling revelations" impend, according to our sources: "It's the calm before the storm."...Next year's Interhouse play has been tentatively entitled, "The Toad Monster from M.I.T."

FRANKLY SPEAKING

by Phil Frank

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November 5, 1971  
Editor,  
ASCIT Bylaws, Article IV, Sec. IV. Duties of the Secretary . . . The Secretary shall keep a record of the proceedings of the meetings of the corporation and the Board of Directors. He shall post, or otherwise make public, copies of the record of each meeting within three days subsequent to that meeting.  
The last published minutes of the ASCIT BOD were for the October 11 meeting. Since that time there have been at least three meetings, for which minutes were not published. During this time significant expenditures have been made and important business conducted that should be brought to the attention of the students. Is it reasonable that the BOD should conceal its proceedings in a year in which ASCIT is proclaiming an effort to get the student body more involved in its activities?  
Robert Panek  
Gregory Sharp

News Briefs

Continued from Page One  
an authority on films and film-making, are continuing on Wednesday nights at 7:30 p.m. in Dabney Lounge. The film discussions are occasionally highlighted by the showing of films. There will be no session on the day before Thanksgiving.



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And here they are...

Proposed Bylaws

Proposed Amendments of the ASCIT By-laws  
Article VI  
The Executive Committee  
Sec. 1 Membership

The Executive Committee shall consist of the President of the corporation and between four and eight members appointed at the beginning of the third term by the President and the Executive Committee members of the previous term of office, with the approval of the Board of Directors. A maximum of two of the appointees shall be members of the incumbent Board of Directors. They shall be appointed for one year terms; vacancies shall be filled by the remaining members of the committee with the approval of the Board of Directors. The chairman of the committee shall not be a member of the Board of Directors.

From: A maximum of two appointees shall be members of the incumbent Board of Directors.

To: A maximum of one appointee shall be a member of the incumbent Board of Directors.

Article VII  
The Board of Control

Sec. 3 Membership  
(For parts (a)-(c) see p. 128 of the "little t")

Add: (d) None of the appointees shall be a member of the incumbent

Board of Directors or the incumbent Executive Committee.  
Article XII  
Sec. 8 Faculty Committees  
(See p. 132 of the "little t")

Add: Restrictions to Membership  
(a) No member of the corporation shall be appointed to more than one committee except in the case of vacancy. In the case of vacancy the maximum number of Faculty Committees for which a member of the corporation is eligible shall be restricted to two.

(b) None of the appointees shall be a member of the incumbent Board of Directors, or the incumbent Board of Control, or the incumbent Executive Committee, except in the case of vacancy. In the case of vacancy the maximum number of Faculty Committees for which a member of the above mentioned Boards and Committees is eligible shall be restricted to one.

(c) None of the appointees shall be a member of the incumbent Board of Directors except in the case of vacancy. In the case of vacancy the maximum number of Faculty Committees for which a member of the incumbent Board of Directors is eligible shall be restricted to one.

Vote for (b) or for (c) or for neither.

Lose Your 2—S  
The Easy Way

Young men who wish to drop draft deferments in favor of 1-A classifications may still do so. Local boards will continue to grant these requests even though the young men continue to meet the conditions for which the deferments were granted. Six categories are included: 1-S, high school students; 2-A, occupational deferments or vocational/technical students; 2-C, agricultural deferments; 2-D, divinity students; 2-S, undergraduate college students; and 3-A, hardship deferments.

This policy was instituted in late 1970 and was of particular interest to young men with random sequence (lottery) numbers above the highest RSN called for induction. By dropping their deferments at the end of the year, they became part of that year's prime selection group. On January 1, they were placed in a second priority position. Because of this, they are not subject to induction until the manpower supply in the first priority selection group is exhausted; a development likely only if a major national emergency occurs.

The policy was reaffirmed in a Local Board Memorandum sent this week by Draft Director Curtis W. Tarr to all 4,000 local draft boards. Registrants who desire to take advantage of the policy in 1971 must have been born in 1951 or earlier, have RSNs of 126 or above, and not be a member of the extended priority selection group. Moreover, they must submit their request in writing. To be considered as part of the 1971 prime selection group, the requests must be postmarked no later than December 31.

RSN 125 has been set as the year-end ceiling for 1971 draft calls. Unlike 1970, when the year-end ceiling was not necessarily reached

Millikan's Monastery?

Nelson says, 'Scientists don't care!'

by Claude Anderson

Architect and designer George Nelson was on campus for the first few days of this week. Mr. Nelson has been concerned for a long time about what our society and technology are doing to our world. His lecture Tuesday night in Baxter was titled "Design, Technology, and the Pursuit of Ugliness," and this was the subject of his seminar on Tuesday afternoon in Winnett Lounge.

Mr. Nelson received his degree from Yale University. In 1947 he started a company which not only is involved in architecture but in design as well. The company is currently revamping the station design, graphics, and packaging for BP Oil Corporation. Mr. Nelson is on numerous councils and boards of colleges and societies concerned with architecture and art. He has written many books and has taught at Yale, Columbia, and Pratt Institute.

Mr. Nelson is interested in solving the problems of technology that involve people. He says that technology creates more problems than it can solve. He believes that

by all local boards, the authorization in the 1971 draft amendments of a Uniform National Call insures that all eligible registrants will be considered for induction if they: (1) are in Class 1-A on December 31, (2) are 20 years of age or older on that date, and (3) have RSNs of 125 or below. If young men meet these criteria, but are not inducted during 1971, their liability for induction will be extended to 1972. They will be prime candidates for induction during the first three months of the year along with other men who are now in the extended priority selection group.

technology has come to a dead end and has little to offer to society. There is no hope if technology continues on its present course "Technological scientists don't give a damn about human beings."

He implied a strong comparison between Techers and Zombies and seemed to be amazed at the atmosphere here. "In a way it's like a monastery. I thought I'd just come up and make some waves."

And make waves he did! Tuesday's seminar developed into a lively argument about the comparison/contrast of the scientist and the artist. The communication gap was never broken and no one got his point across very clearly.

Mr. Nelson thinks of society like a spectrum with the scientist on one end and the artist on the other, having almost no contact with one another or with the people in the middle of the spectrum. His aim is to end this isolation and to bring everyone together for the common good.

He does not feel that art can be reduced to simple equations as can physics. When asked about this at a lecture in Moscow, he gave an ingenious answer. He said that it was too bad that the communist party had killed God, because if he were there they could ask him about design; he had done a good job of it when he created the universe. But for man there is no way to put art into a formula.

As soon as it became apparent that the science-art conflict was not going to be resolved, at least not in Winnett Lounge that afternoon, Mr. Nelson stated that his spectrum is not flat, but circular with the two ends close together. This certainly didn't help to make his point clearer. In fact, after listening to him for one-and-a-half hours, I'm no more sure of what his point is than before I met him.

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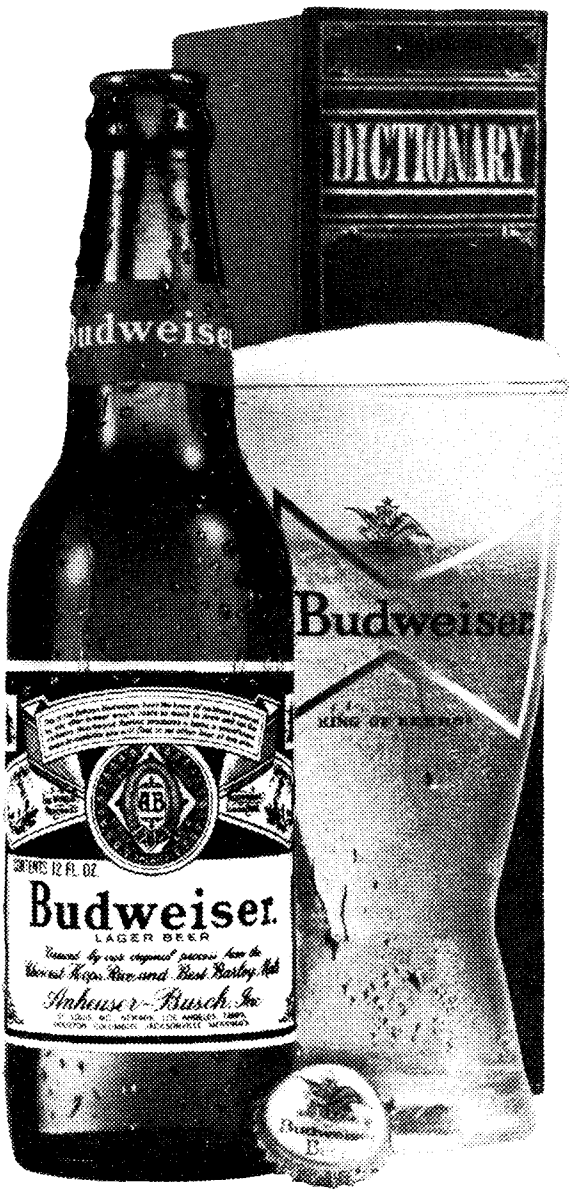
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## The Critical Ear

### We Got Behind In Our Record Reviews

#### From the Inside, Poco

Poco has to be viewed in the context of Buffalo Springfield, the supergroup-in-hindsight, who had only limited singles success until they broke up, then went on to become folk legends. The superstar status of former members of the group was first established by Steve Still's inclusion on side two of Al Kooper's Super Session album, and by the enthusiastic reception of the new supergroup Crosby, Stills, and Nash. Neil Young's first solo album was largely ignored, but with the emergence of interest in the solo star, his musical and lyrical genius was acknowledged. And with Deja Vu and the addition of Neil Young to C.S.&N, the audience experienced the reunion of the prime forces of Buffalo Springfield in the new context of superstar freedom ("uh, well, Neil's gonna do an album this month; then Stevie's gonna do one, and then maybe we'll try a tour, or something."). This kind of casual virtuosity has resulted in great albums (After the Gold Rush) and second rate ones (Steven Stills 2) and has lent suspense to the current Crosby-Nash tour ("I hear all four of them will be here tonight, with Bob Dylan and Grace Slick!") "Far Out.")

In the midst of all this long-delayed acclaim for Young and Stills, one wonders about the fate of the rest of Buffalo Springfield. Dewey Martin has his own group, Medicine Ball, and Bruce Palmer has a solo album out. Richie Furay, of course, went out and formed Poco, who appear to be slowly gaining recognition. Richie was the lead singer for the Springfield and wrote sad ballads like "Kind Woman" and "The Hour of Not Quite Rain". Young and Stills may be seen as developing along their own individual lines, while Richie has gone on to concentrate on country music, his real love. It was a city boy playing complex country music that he appeared on the first Poco album. Although Poco claimed to be just "pickin' and a-grinnin'", their licks and their lyrics were just not that simple, more Hollywood than country-indeed. Poco is the last of Buffalo Springfield to stay in L.A., with Young in San Francisco and Stills in England. Coming as it did at the start of the country revival, the first Poco album was largely ignored — the intricate harmonies and complex melodies were too much for funk fans and too little for hard rock veterans. This situation was not helped by the second album, in which the melodies were even more complex. Still, Poco had been building a small core of fans at live performances, and the spirit they emanate live was partially captured on the second side of the second album in the long instrumental "El Tonto de Regressa, Nadie", built from "Nobody's Fool". This promise was fulfilled in the live "Deliverin'" album, which captured Poco live and lively and won a lot of new listeners. The singing of Richie and

new bassist Timmy Schmit, and the pedal steel guitar of Rusty Young stand out. Especially live.

The new album marks a return to the studio, and a new guitarist, Paul Cotton, from the hardrock Illinois Speed Press. This album is important to Poco, as a followup to Deliverin', but it seems to suffer from the same lack of spirit that hurt the first and second albums. The dynamics are controlled; the harmonies are tight and countrified; there is still the city country rhythm (heavy accent on the first and fourth beat), but the spontaneity of the live album is missing.

Richie wrote 6 of the 10 songs on the album, and though I have listened to them several times, I still have trouble telling them apart, or from Richie's other songs. They are pretty, but absolutely lacking drive, seeming as if Richie had taken any undistinguished melody and worked it into a Poco arrangement. Schmit's song on this album is the title cut, and sounds much like Richie's songs—there is the same use of high harmony and tight rhythm, which has become a Poco commonplace. The real surprise of the album is Paul Cotton, whose three songs seem the most memorable—"Railroad Days" is hard and electric, sounding like something Cotton might have done with the Speed Press, but "Ol' Forgiver" (which sounds a bit like The Band) and "Bad Weather" are quite nice, especially "Bad Weather", where the sameness of Schmit and Richie's harmonies is broken by Cotton's low, simple voice.

This album, then, suffers from a certain sameness; though the music is pretty and listenable, in the end it is too listenable; the concentration of the hearer inevitably wanders.

It may be true that with the breakup of the Springfield, the members of the group were able to pursue their individual talents more fully. If this is so, it would appear that though lacking Richie's lovely voice, Young and Stills have the ability to write more consequential songs. Although Poco is pleasant and even exciting live, and plays quite happy music, Stills and especially Young seem to have the more important talent. (I have still not heard a song by Poco that I like as much as Richie's own "Kind Woman", or anything on Everybody Knows This Is Nowhere.)

Flake

#### Medicine Ball Caravan by Various Artists; Warner Brothers BS 2565.

This is the soundtrack from the movie of the same title—a movie about several groups and single artists who live and travel together, giving concerts in obscure places all over the country. Since it is done by six different artists, it is only fair to look at them individually.

The Youngblood's rendition of "Act Naturally" sets the mood for the rest of the album—a kind of free, easygoing experience. Their "Hippie from Olema" has both

thought-provoking lyrics and a good country-rock sound. Also in the country vein is Doug Kershaw, who seems to be pretty much of an unknown here. However, anyone who has seen his performance in *Zachariah* or heard his songs from this album will agree that he is indeed an upcoming star of far-out country rock.

What can be said about B.B.King that hasn't been said a thousand times already. As always, the master of blues is up to par, making both his live audience and his record audience want to clap and sing along.

In the hard rock department are Alice Cooper and Stoneground. Alice Cooper does "Black Juju", perhaps the one weak point of the album. Rather than doing a live version for this album, they merely shortened the one from *Love It to Death*. Stoneground does a jam number and then gets into the best version of Dylan's "It Takes a Lot to Laugh, It Takes a Train to Cry" that I've ever heard.

The album ends on a happy note with "Free the People" by Delaney and Bonnie. With such a combination of atmosphere, talent, and variety, I don't see how it can miss. Buy it!

#### Ian & Sylvia, by Ian and Sylvia Tyson, Columbia C 30736

This is a fine album, produced by the aforementioned plus guitarist David Wilcox, and a few friends. The songs include a Jerry Garcia song, "Last Lonely Eagle," sung in a different style from the original version. "The Shark and the Cockroach" is a modernized "Frankie and Johnny" mixed in with a little "Stagger Lee." "Lincoln Freed Me" is a song of the bewilderment of a slave at being freed. "Needle of Death" is on hard drugs. These and the other songs on this album make it a very good one. Ian and Sylvia are Ian and Sylvia. There is no other way to describe it.

#### Byrdmanix Columbia KC 30640

It is not really fair to call this a Byrds album, just as it would not be fair to call Crosby, Stills, Nash and Young the Buffalo Springfield. Except for one member, these are not the Byrds of old, and the aim is not that of an old Byrd album. Gone is the soft psychedelia of the "Eight Miles High" era. Also gone is the strong country influence of "The Notorious Byrd Brothers." In their place is a new direction, but it may be a long trip to their goal. I only found two of the songs memorable, "Citizen Kane" and "I Wanna Grow Up to Be a Politician (And Take Over This Beautiful Land)". Unless you are a Byrdophile, the only other good thing about the album is a very beautiful cover. I don't really think the album is worth buying.

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THE ACE TRUCKING COMPANY RIDES AGAIN! Those of you who watch television may have seen this group of improvisational comedy artists on the "Tonight" show, Tom Jones, or Mike Douglas. If so, you will remember that they are a cross between the Committee, the Firesign Theater and Ernie Kovacs. They make splendid use of improvs and blackouts, as well as sight gags. Indeed, they would put the "Laugh-In" crew to shame.

The Ace Trucking Company is a collection of four men and one woman, in various combinations. The humor is so fast-paced that one occasionally has trouble finishing one's laugh before the next blackout. The Ace Trucking Company is definitely worth seeing.

The Ice House also features Lambert & Nuttycombe, a guitars and vocals duet of lesser fame than they deserve. They do some of their own songs, as well as songs by other writers. For example, they did "Mr. Bojangles" as well as I have ever

heard it sung, and with a little better guitar work than I'd heard on the song. They also did a Big Brother and the Holding Company song called "I'll Change Your Flat Tire, Merle," a reply to "Okie from Muskogee." The guitar work is comfortable, their voices smooth. They are one of the better duos that play at the Ice House.

Clark Maffitt is the other act this week, and was formerly one half of Maffitt and Davies. He is an interesting entertainer whose act includes folk songs, humor and Bach (I kid you not. He is a competent classical guitarist.) Clark Maffitt is an excellent guitarist overall, and he provides a good opening act for this show.

Note: for those of you who have forgotten or did not know, the Ice House is at 24 N. Mentor, just north of Colorado and a couple of blocks west of campus. Cheap admission and no minimum serve to make this a good punt.

—Nick Smith

#### How Hard It Is, by Big Brother & the Holding Company, Columbia C 30738

This album consists almost entirely of Sam Andrews vocals. BB & the HC now consists of the original group (minus the late Janis) plus guests. Three of those guests are what prevents this from being a mediocre album. Mike Finnegan plays keyboards on five songs, David Shallock plays lead guitar on five cuts, and Nick Gravenites wrote and sang the best song on the album, "Buried Alive in the Blues." Shallock and Finnegan combine on "How Hard It Is" and "Black Widow Spider." David Shallock gets to really perform on an instrumental entitled "Promise Her Anything But Give Her Arpeggio." Finnegan handles "Shine On" very well. About the only memorable cuts not involving the guests overwhelmingly are "House on Fire" and "Last Band on Side One."

—Smith

#### Tupelo Honey, Van Morrison WS 1950

By now anyone with any contact with the current rock scene knows that Wild Night, the first song on this album is a great one. This album does not stop at the first song however. (Straight to Your Heart) Like a Cannonball, Old Woodstock, You're My Woman, and Tupelo Honey are all excellent reasons for acquiring this album. I Wanna Roo You has a very non-subtle work substitution that clarifies the meaning of the song. This album is one of the best of the current releases.

—John Tristano

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SILVER SCREENING

Bless The Beasts and Children

by Ira Moskattel

Stanley Kramer's Bless the Beasts and Children is a masterpiece. With Kramer's sense of humanity and his unerring technical command, this movie follows the sudden growth of six problem children into men. It is tragic in theme and triumphant in its conclusion that inhumanity can be overcome.

When the theater lights go out, we see six children running in a fenced field, screaming and falling down motionless. Then we see the six boys waking up from nightmares in the bunkhouse of what I assume is a typical boys summer camp. As the movie progresses we see the boys determining to do something about the cause of their collective nightmare. The story centers around the pilgrimage of the boys-now-men to a ranch miles from their camp.

What are they trying to stop? Every year 100 people draw lots for the privilege of shooting 100 American Buffalo in a fenced field in Arizona. Their "sport" is incompetent slaughter. The boys, all misfits by the American set of standards, cannot bear the bloody massacre of the helpless beasts.

This motion picture deals with the lives of the fifteen year old boys comically, flashing back to the events of the summer and each of

the boys' life at home. The picture paints of life at summer camp is not pretty, however. The boys all live in one cabin and never win any of the absurd competitions. When awards are passed out, they get a chamber pot (my ill-conceived sense of impropriety keeps me from listing the less euphemistic descriptions) and are designated the "Bedwetters".

The acting on the part of both the children and adults in the flick is superb. The photography is not the classic Kramer high key, but a low key, almost hazy view. The score is really only one song, by Carpenters; and it augments the action perfectly.

This is one motion picture you should see. Kramer claimed when I asked him about theme at a press conference that he has never made a "message film." I now do not debate that. Bless the Beasts and Children handles the topics of violence and growing up with tenderness, not heavy handed sermonizing. The result is devastating; the audience didn't move for several seconds after the curtains closed. The beauty of the film is, that though the ending was in a great sense tragic, the overwhelming sensation was of beauty and grace.

Music Center Offers Group Opera Tickets

The Music Center Opera Association will offer a special student discount to five performances during the forthcoming season of the New York City Opera, opening Nov. 17 in The Music Center's Pavilion.

Students with proper accreditation testifying to full time enrollment in school, up to 30 years of age, may purchase all tickets remaining unsold, regardless of price, at \$4.00 each, beginning at 7:45 p.m. for evening performances and 1:45 p.m. for matinees to the following performances only:

The evening performances of "Un

Ballo in Maschera" on Monday, Nov. 22; "Louise" on Tuesday, Nov. 23; "The Makropoulos Affair" on Tuesday, Nov. 30; and, "Il Barbiere di Siviglia" on Wednesday, Dec. 1. The only matinee to be made available is "Le Coq d'Or" on Saturday, Nov. 27.

Armchair Adventure Series Begins With Film on Paris

by Jeff Mallory

The first of Beckman Auditorium's Armchair Adventure Series will be presented tomorrow (Friday) at 8:30 p.m. Eric Pavel will narrate his film, *Paris*. Pavel has had considerable acclaim as a photographer and traveler and his work has been used in textbooks, Encyclopedia Britannica, and the *National Geographic* magazine.

Two musical events on Sunday (Nov. 21) combine to form a polyphonic spectacle for the classical buff. The first is the Fine Arts Quartet in Beckman at 3:30 p.m. presented as part of the Coleman Chamber Music Series. The Quartet will perform pieces by Haydn, Hindemith, and Brahms.

The Dabney Lounge Chamber Music Series follows up at 8:15 in Dabney Hall of Humanities Lounge with a concert by the U.S.C. Trio. The Trio, opening the Dabney Music Series this year, is planning to play three tios by Louillet, Beethoven, and Kirchner. Tickets for the Coleman concerts are \$5, \$4, \$3, and \$2.50, with \$1 reductions for students. The Dabney performance is free and the public is invited.

Dr. Albert R. Hibbs will give the third talk in the Caltech Lecture Series November 22 (Monday) at 8:30 in Beckman. Dr. Hibbs will speak on New Solutions for Traffic Congestion. As usual, the lecture is free and no tickets are required.

Tuesday (Nov. 23) brings John Whitney to Ramo to give his views on A Computer Art for the Video Picture Wall. The Caltech Art & Light Series talk will start at 8:30.

\$2 Students Tickets Available for L.A. Philharmonic Season

The Los Angeles Philharmonic will guarantee at least 100 student tickets, specially priced at \$2, for each of the 1971-72 Winter Season concerts (including the four recitals).

In spite of the heavy demand for tickets to these concerts celebrating Zubin Mehta's tenth anniversary season with the orchestra, a minimum of 100 tickets will be placed on sale for students only, 90 minutes prior to performance time. This policy remains in effect whether or not full-priced tickets are still available. And whenever possible, additional student reserved seats at these low prices will be allotted.

Performance times for Philharmonic concerts this season are 8:30 p.m. Thursday and Friday evenings, Friday afternoons at 1:30 p.m., and Sunday afternoons at 3:00 p.m. (with the single exception of the November 14 concert, which begins at 2:00 p.m.). Student tickets become available to those with approved identification 90 minutes before the beginning of each concert. For further information, call the Music Center Box Office at 626-7211.

Views of Young Caesar

by Emden Gansner

The Encounters series opened its 1971-1972 series November 5 with a brilliant world premiere of the puppet opera *Young Caesar* by Lou Harrison. The performance was highly successful and left his listener with the desire to hear more of Harrison's music and to hear more music composed for the gamelan, a major instrument in the Orient.

The vocalists were excellent, and, combined with the acoustics in Ramo, the libretto was, in general, easily understandable (a goal Harrison admitted he was purposefully aiming for). As most of the work was recitative or just dialogue, it is impossible to judge the vocalists too heavily on their musical presentation. But on those aspects for which they displayed their talents—tone, clarity, rhythm, character adaptation—their work was very good.

Harrison's electric music, his East-West style, especially as displayed on the gamelan, was the main winning feature of the evening. The sounds were unbelievably rich, especially considering the small size of the ensemble. The music possesses a soft, melodic quality, even the most martial and rhythmic sections were not devoid of this. It was undeniably attractive and interesting, especially the more rhythmic sections and those parts where Harrison used the gamelan to the fullest.

Robert Gordon's libretto, historically accurate, makes for an interesting play. Although none of the characters, including Caesar, are developed by their one or two main characteristics, we are provided with a goodly amount of insight and an equally good amount of humor, especially in those scenes where Caesar's naivety is fully exposed.

Overlooking the appreciable number of technical and timing errors that occurred in this production, it must be confessed that *Young Caesar* is a good opera, but definitely not a great opera. What good the work has is in its music and libretto. But it appears that in trying to attain his goal, writing music for a play instead of blending the music and words in proportion, he simply separated them. Excluding a few well-combined scenes (especially the first two), the opera gave this listener the impression that he was attending a concert and a play at the same time, each excellent in themselves; but together, too Cagian for me to enjoy to the fullest.

There are two minor points Harrison should consider if he ever decides to edit the opera. First, whatever instrument he used for Nicomedes' fanfare, he should throw it out. It totally dispels the mood of the plot at that point, forcing the audience into a good chuckle, which I don't think Harrison intended. Secondly, as long as Harrison has the advantage of size working for him, he should use it. If a fleet of ships is setting sail, with puppets it is almost as easy to sail 100 ships as it is to sail one, and much more effective.

by Peter Beckman  
Jeff Mallory  
and Channon Price

A very queer thing happened at Caltech November 5, of all places, Ramo Auditorium. *Young Caesar*, an x-rated puppet opera by Lou Harrison was publically performed for the first time. This may have been a mistake.

The opera was the first production of this year's Encounters Series, was jointly commissioned by Encounters and the Jutith S. Thomas Foundation. It follows the life of Julius Caesar from his sixteenth birthday through his affair with the King of Bythinia three years later.

Like legitimate opera, the puppet production had three major elements: music, dramatic performance, and story line. The first was excellent; the second, professional; and the third, intolerable.

Gamelan Anyone?

The music, composed, directed, and partially performed by Lou Harrison, had his indelible stamp of genius written all over it. Using the gamelan, an important oriental instrument, and nonwestern musical scales, Harrison produced a musical score that was beautiful, yet hauntingly different, in its oriental overtones. It fitted perfectly the theme "East meets West" that provides the basis of the latter part of the opera.

The puppeteers, gave a very professional performance. They knew exactly what they were doing, and there was excellent coordination between them and the singers who provided the characters' voices. Harrison's use of hand and rod puppets for main dramatic sequences combined with shadow puppets for flashbacks was imaginative and unique.

Unfortunately, the dramatic material produced by Robert Gordon, fell well below the high standard set by the music and puppetry. Basically, he destroyed the story by filling the opera with extraneous scenes, inane conversation, and redundant narration. The limp libretto emasculated the historically forceful personalities of the characters and gave them very little in the way of characterization.

Up Yours!

At the highpoint of *Caesar's* affair with Nicomedes the opera suddenly became symbolic. The characters were replaced by four flying phalli which proceeded to pair off in various mathematical permutations before attacking three flowerpots. While Harrison may have been attempting to protect our sensibilities, the unfortunate method he chose to portray the happenings of the night was not only inconsistent with the rest of the opera, it was also sick!

Friday night's audience seemed acutely aware of the opera's flaws, and its applause at the end revealed no tremendous amounts of enthusiasm. As an Encounter Harrison's work was successful in that the audience was exposed to a creative type of theatre and music seldom found in the west, but as a production *Young Caesar* could have been much better if Harrison had been able to instill the prose of the libretto with some of his own musical brilliance.

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David Miller

# Garble Tom Visits Tech

by David Miller

Garble Tom Headweak left the theater where he had been watching "Wilbur, the Rat Fink" in a thoughtful mood. And one of the things he thought of was that he had not visited the biology labs at Matador College for quite a while. Since that silly business at Disneyland with the woodpeckers and the Excedrin he had been trying to take life easier, and there were a few things he had neglected lately. What indeed were they doing in the bio labs now? He was trying to remember, so he didn't pay much attention to the display of televisions in the window of a store he passed. Thirty-seven George Puntem (a famous football player who had turned to newscasting) simultaneously announced, with his customary aggressive self-confidence, as Garble Tom approached, that "Dr. Ken Sticker, professor of astronomy at Caltech," had announced that the sky would fall on the San Gabriel and San Fernando Valleys on November 8, 1971 at 9:32 a.m., Pacific Standard Time. As Garble Tom continued past, the figure on the screens continued with visible dismay that all persons allergic to nergium and philutium, or suffering from Benchley's Disease, were hereby advised to— at this point he vanished and was replaced by a frizzy-haired old man who announced that he was Minus Ap-palling, and that it was very important for people to eat enough fish, because they contained vitamin "sea." After this the screen went

blank for more than a minute, but Garble Tom didn't notice any of this.

Insects and hybrid flowers. . . yes, those were the projects. In the greenhouse was a small boarded-off area, in which two students were watering a large plant with a funny long-handled gadget. Garble Tom wandered over by them and said, "Hi. What's this? I don't think I've ever seen it before."

One of the students grabbed his hand, where he had been about to touch the plant, and pulled him back, saying, "Don't touch that, sir, it's a night-blooming fatal!"

"Really? I don't think I've ever heard of it."

"We just bred it here. We crossed a Venus' fly-trap with a deadly nightshade and quadrupled it number of chromosomes to give it strength and vitality. As you can see, it grew seven feet tall, with leaves the size of bear traps, surrounded by poisonous spines. The name is sort of a pun on "night-blooming cereus."

"Oh. Does it catch insects with those big leaves?"

"Ordinary insects are too small. But the entomologists came up with these about the time the flower got too big to eat giant water bugs and Texas grasshoppers." He opened a small door near the floor and a black and yellow furry thing the size of a medium-sized dog wobbled out. "This is a rumblebee. As long as you keep giving an insect its juvenile hormone, it stays in the larva stage, and keeps growing. So

we grow them to this size and call them rumblebees because when they flap their wings it sounds like thunder. They're too heavy to fly, but they kick up a good breeze. Actually, since they're so much bigger than an ordinary insect, their respiratory systems don't give them enough oxygen to keep them active in a normal atmosphere, so we keep them in an oxygen chamber, or let them go into a dormant state. We sort of hate to feed them to the fatal, because they're sort of affectionate. They'll ride on your shoulder or the top of your head when they're dormant."

"Do they sting?" asked Tom.

"Well, not ordinarily, but, ah, that is, these vandals got in, you know, and took a dormant one that was under the table, back in the back, and then, well, they put it into the rhinoceros cage at the zoo that night, and . . ."

"Oh, so that's why they closed the large animal house temporarily."

"Yes, they didn't want to have to explain why the rhinoceros had a bee sting this big."

"Say, will the night-blooming fatal ever produce seeds?"

"No, you have to have something to cross-pollinate them. There is another one at UCLA, but the rumblebees can't fly, and ordinary insects would be paralyzed by the fumes of the nectar. We'd have a real problem if something did pollinate them, but I can't imagine anything that could. There's no danger."

To Be Continued Next Week

## A Course Upon You

by millikan troll

With preregistration lurching to a close, many may still wonder what to take next term, especially freshmen who face the vicissitudes of choosing electives by preregistration for the first time. To ease you over the end-of-preregistration-week hump, we have thoughtfully prepared a brief guide to some of the more interesting electives available, together with comments not found in the catalog.

**APH 9 — Solid State Electronics Laboratory** (6 units — counts towards freshmen lab requirement). This is one of the most popular lab courses at Tech, and with good reason. One can recreate demonstrations done in APH 3 lectures, or go beyond them. Students are encouraged to actually build and test a semiconductor device of their own, and will find full facilities. The lab is perhaps the best equipped lab available to freshmen. APH 3 is a very necessary prerequisite.

**Ay 1 — Introduction to Astronomy** (9 units) Last year, this course was taught to both freshmen and sophomores, which proved somewhat unsatisfactory due to the disparity in backgrounds in physics between freshmen and sophomores. This year the course is primarily for freshmen. The course involves a fair amount of reading from a rather elementary text: the lectures provide supplementary material.

**Ay 2 — Current Problems in Astronomy** (9 units) A course mainly for sophomores interested in astronomy. Enrollment is limited to 15 according to the catalog.

Student-prepared seminars alternate with lectures on basic material.

**Bi 2 — Introduction to Biology** (9 units — distribution to be arranged) An unusually unstructured course. Bi 2 has provisions for individual arrangements for lab work. The course is available pass-fail only and the lab units count towards the freshman lab requirement. The course is ever popular even with non-biology majors.

**Ch 3 — Experimental Chemical Science** (3 or 6 units, at the student's choice) This is the basic chem lab, available to roughly one third of the freshman class each term. The lab can be straight out of the ole' cookbook or very interesting, strictly at the discretion of the individual student.

**Ec 4a — Economic Principles and Problems** (6 units) The basic econ course, and a prerequisite for most advanced econ courses. Well worth the effort, but occasionally taught at weird hours.

**EE 4 — Introduction to Digital Electronics** (6 units). EE 4 is a first course in the circuits which underlie the giant number grinders of Booth. Little prior contact with electronics is required. The course is brand new (this is only the third year of its existence), and is brilliantly lectured by Carver Mead. EE 4 is worth taking, if only to hear Mead's lectures.

**E 5 — Laboratory Research Methods in Engineering and Applied Science** (6 units). A wide range of projects from the diverse fields covered by E&AS are available to

the student, many of which are not duplicated in labs available to freshmen. Counts towards the freshman lab requirement.

**En 8 — The Bible as Literature** (9 units) Hallet Smith is an expert in the field, and this course is accordingly highly informative. It counts towards the 27 unit English requirement.

**IS 10 — Introduction to the Use of Computers** (6 units) A good course in which to learn BASIC and FORTRAN if you don't know them already; otherwise a waste of time.

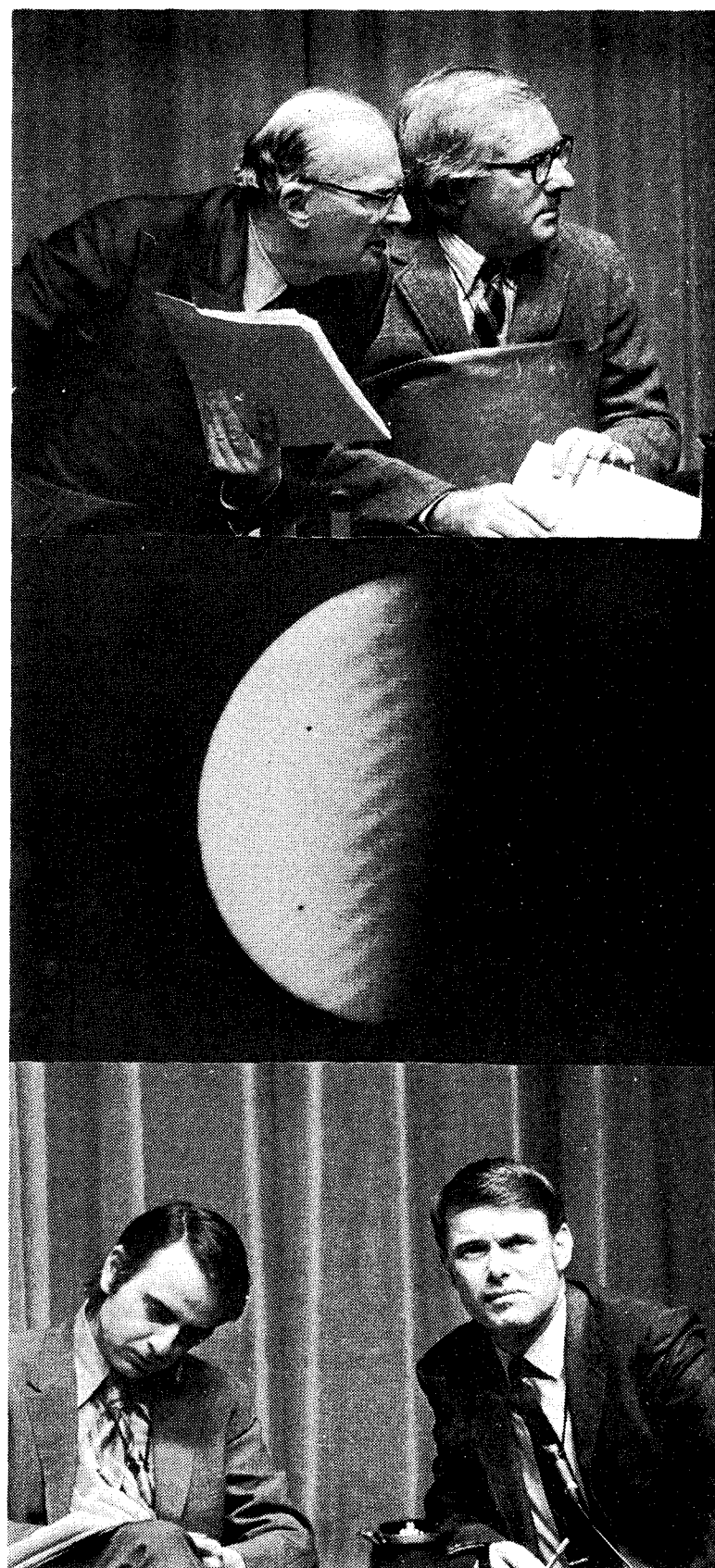
**Ph 3 — Physics Laboratory** (6 units) This lab counts towards the freshman lab requirement and is ultimately required of Physics majors. However, the lab is highly structured and vastly underunited, but is the only rigorous introduction to data reduction and error analysis available to freshmen.

**Ph 10a — Special Topics in Introductory Physics** (6 units) Investigates topics brought up in Ph 1 in greater depth, and is effectively the only culture course in Physics available before the junior year. The choice of topics usually follows the interests of the class quite closely. The class is worth taking not just for content, but also to experience Leighton as an instructor.

## DUE TO THANKSGIVING —

The *California Tech* will not be published next week. Publication will resume December 2.

You lose!



## MARS AND THE MIND OF MAN

readers' imaginations along with Lowell's canal builders. The underlined hopes created by these stories still persist in the face of scientific information. "I was hoping, as the dust cleared, to see Martians with signs, 'Bradbury Was Right!'"

### Wishful Thinking

Bruce Murray then brought in his view that this wishful thinking had distorted man's scientific view of Mars. "Lowell's Legacy", as he called it, contributed to the misinterpretation of some information in the 1969 Mariner fly-by. A technician interpreted some data as indicating life on Mars because he wanted to see life on Mars according to Murray. Arthur Clarke pointed out that science fiction and Lowell's theories served a useful purpose—they helped keep planetary astronomy alive in those dark days when few people cared about our sister planets. In this way, the idea of life on other planets proved to be an important spark toward scientific observation.

Today, according to Clarke, it appears that there isn't life on Mars, and the search has now turned to the next planet, Jupiter. But, Clarke ended his talk with a hopeful prophecy, "If there is not life on Mars now, there will be by the end of the century."

The rest of the discussion turned into a debate between Murray and Sagan on the probability of life on Mars, and the necessity of sterilizing

## Continued from Page One

the spacecraft. Murray took the view that since there is no way for earth life to survive Martian conditions, there is no need to sterilize the spacecraft.

Sagan took the opposite viewpoint. He believes that both the likelihood of earth organisms surviving (admittedly low) and the possibility of damage being done to native organisms (if any) by terrestrial life should be taken into account. In this matter he considers any chance of contamination is too much.

They also clashed on ways of trying to detect life. Murray felt that life detection experiments on the Mariner probes would be a waste of space and money since there is every indication that life on Mars doesn't exist. The only reasonable way to look for life would be to pick up soil samples and bring them back to earth for examination.

Again Sagan disagreed. He said, "There is no more reason for us to conclude that Mars is lifeless than there is to say that it has life." And he pointed out that life on Mars might take an unusual form "We don't have very good statistics on how many kinds of life there are—we know only one."

Finally, the discussion closed on a more uplifting note as Ray Bradbury recited a part of one of his poems that described man's eternal struggle to break the bonds of earth.

THE  
SPORTS  
BEAT

T

by Gavin Claypool

Thursday's think tank:  
Interhouse swimming practice begins on Monday and will continue for two weeks, until December 7. Favored to win again this year is Page House (so what else is new?).  
Interhouse trophy points are computed as follows: Each place is awarded a point value—1st place - 7, 2nd place - 6, and so on. These values are multiplied by a factor determined by the sport, to give the number of points each House receives. Softball and football are given a factor of 9, basketball, swimming, track and field, and volleyball a factor of 8, and tennis a factor of 7.  
More on the Azusa-Pacific game: The final play of the game was a bit more complex than described in last week's *Tech*. Rather than playing right half as reported, Stormo was the left end. Morris faded back to pass, and handed off to Stormo in the "Statue of Liberty" routine. Stormo scrambled in to score, and the rest is history.  
Basketball season will have started by the time the next issue of this paper comes out. The *Tech* staff will receive a well-earned vacation next week, so save an extra copy of this issue for your Thanksgiving fishing trip.

Soccer Team Ends  
Disappointing Year

The Caltech soccer team ended their conference play last week, falling to Oxy, 3-2, to finish last in the S.C.I.A.C. with a 1-10-1 record.  
Graduation was rough on Tech, as last year's 6-4 record and third place finish shows.  
Dave Evans and John Rogers each scored a Beaver goal, but the best timing of the season has to go to Coach Geoffrey Morgan. With the Beavers trailing 3-1 in the final period, Morgan responded to a random comment from the bench with: "It's never hopeless." Ten seconds later, Evans scored his goal.

SCHEDULE

- Basketball**—Dec. 1, (JV) Rio Hondo Academy--Home, 6:30 p.m.  
(Varsity) LIFE College--Home, 8:30 p.m.
- Water Polo**—Nov. 20, Oxy--Home, 10 a.m. Nov. 26-27, NAIA Tournament at Claremont-Harvey Mudd.
- Wrestling**—Dec. 1, at L.A. City College, 4:00 p.m.

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Water Polo in Fourth

by Bob Kieckhefer  
First of all, a public retraction: the toad who wrote the water polo article last week reported that Tech lost to Claremont-Harvey Mudd by 11-4. Things really weren't that bad, as CHM only won by 11-5.  
A week ago Wednesday the Techers beat Pomona for the second time this season, in a game poorly played by both squads. Because many of the shots missed the goal, the score was only 3-1 in Tech's favor at halftime. The defensive struggle continued during the second half, as Virgil Shields blocked Pomona's only penalty shot. The final score was Caltech 4, Pomona 2, clinching at least a fourth-place finish for Tech in the SCIAC standings. Stressing teamwork on offense, Steve Sheffield, Tim Hight, Steve Bitondo, and Russ Desiderio scored one goal apiece in the victory.  
Tech again had problems hitting the goal in their game with UC San Diego on Saturday, but their tight defense kept the opponents in check. UCSD led 1-0 at halftime, but Tech bounced back with a goal by Steve Sheffield in the third quarter. A score by Tech's swimming wounded (by Jim Jakway, with an assist from Tim

BOD Meeting

Continued from Page One  
pointed out that one of the functions is to act on or support large scale social activities for the students, and outside of Interhouse and the Friday Night Movies nothing has been done.  
John Kessides suggested that the BOD work on getting more power for the students. He cited the example of the BOD under Joe Rhodes a few years ago that got student representation on faculty committees and recommended that ASCIT work to "make more, exciting things" for the students.  
However, besides the two motions perviously mentioned, no other action was voted on.  
Earlier in the meeting, a protest of last week's election was heard from Peter Davis. Davis is currently chairman of the ASCIT ExComm, but appeared before the BOD as an

individual. He contested the results that were posted in Winnett Center and the student houses on two points: that all four bylaws changes required a 2/3 vote to pass, not just the first one; and that the vote on the changes was illegal anyway, since their text was not published seven days previous to the election. After discussion, the BOD granted the points and set a new election for November 30.  
The class election results were not affected by the protest, and were approved as follows: Junior president, Craig Broschow-30, Lorne Schachter 12, Dave Wellman-7, write-ins-3, no-1. Sophomore Vice President, Marion Movius-28, Gerry Hanggi-14, David Larwood-12, Tom Herman-8, no-1. Both Craig Broschow and Marion Movius received the necessary 40% of the total vote necessary for election.

Best Season in Decade!

Grid Team Drops Finale

Three ejections marred the finale of a successful season for the Caltech Beavers, who were trampled by the Cal Poly Pomona jayvees, 27-8.  
The loss left the Beavers with a 2-5 record, their best in 14 years. Since 1957, when they won four games and lost three, the Beavers have won only 11 games while losing 87. Three games—two last year and one in 1958—resulted in ties.  
The first quarter found Caltech in control, although the team was unable to score. The first six minutes were spent inside the Pomona 20, and the entire first quarter was played on the Pomona half of the field. On their first series the visitors fumbled the ball, which was corralled by Greg Hoit of Tech on the 20. The Beavers drove to the 5, where John Rogers attempted a field goal on fourth down from the 13. The ball was long enough, but just missed to the right by a few feet. Rogers tried two more field goals in fourth-down situations later in the quarter—from the Pomona 45 and 30—but both fell short.  
Two of the ejections came at the end of the first quarter. John

Morton the ball carrier, was hit after the whistle — apparently accidentally by a Pomona defender, who then grabbed him to keep him from falling. According to the referee, Morton swung back at the man, and he immediately ejected both of them.  
The Beavers scored in the final period after Gary Stormo returned a punt to the Pomona 45. Quarterback Bob Bales threw a short pass to the right end, John Steubs, who paused, and then raced past the startled Pomona defender. Steubs made it to the 10 before being stopped.  
Bales connected with Hoit, who was tackled a yard short of the goal. On second down, Steve Bisset carried a handoff to within six inches of the goal. A measurement was taken at that point, but the Beavers were three inches shy of a first down. Bales dove into the pile on the next play, and reappeared seconds later back on the 3. A Pomona lineman raised his arms above his head in triumph—only to drop them as he stared unbelievably at the referee, who also had his arms raised.  
The two-point conversion came on a faked placekick. In the best tradition of Charlie Brown and Lucy, the holder, Stormo, yanked the ball away from Rogers' foot, and calmly tossed to Bales who was all alone in the right corner.  
The other player ejected was Russ Pinnizzotto, who was playing his last game for Tech. Deep in CIT territory, a Pomona lineman kept pushing at Pinnizzotto following the whistle. Russ finally punched him, and was promptly kicked out.  
The Beavers have now scored in their last eight games, the seven played this year plus the game against Claremont-Harvey Mudd in 1970. With only four seniors being lost from this year's squad—Bruce Johnson, Lee Morris, Pinnizzotto and Stormo—next year's team should have a good shot at extending it.

How They Scored

CP	CIT	Time Elapsed
First Quarter		
0	0	no scoring
Second Quarter		
6	0	Kroh 11 pass from Rothblum 5:33
7	0	Hillif kick
13	0	Tatum 11 pass from Rothblum 11:43
14	0	Hillif kick
Third Quarter		
20	0	Lolville 81 pass from Rothblum 5:13
21	0	Hillif kick
27	0	Rothblum 11 run (kick failed) 11:47
Fourth Quarter		
27	6	Bales 1 run 4:57
27	8	Bales pass from Stormo
Cal Poly	0	14 13 0 -- 27
Caltech	0	0 0 8 -- 8


Interhouse

Continued from Page One  
were performed, featuring such talents as Sheldon and the Schmucks, and the Lt. Calley Volunteer Police & Fire Department All-American Jug Band. The presentation was highly symbolic; the recurring theme was the flushing of an on-stage toilet.  
The Page House White Horse & Railroad Co., Inc. did indeed build a railroad this year. Hundreds of techers and their dates threw caution to the winds and rode the railway into the Cavern, which boasted a fluorescent waterfall and an infinite (echo) shaft. The Boston Pizza provided music for dancing, which was a surprise for those who were expecting ASCIT to provide a band for all the houses.  
All in all, Interhouse was a huge success. The little rain that fell did little to dampen enthusiasm. Indeed most students will remember this year's interhouse with fondness as they ponder Interhouse's one last challenge: "How long can we leave that junk in the courtyard before B&G charges us?"

Spectrum

Continued from Page One  
November 22, from 8:00 to 11:00 a.m.  
Letters are being sent to drama departments of many colleges in the local area, in hopes of obtaining a community-type organization, as well as making a larger talent source available.  
No specific titles have yet been chosen for production, but some possibilities are *Alcestis* of Euripides, Goethe's *Egmont*, Ibsen's *John Gabriel Borkman*, plays by Ruzzante, Marivaux, Shvartz, Schnitzler, Ionesco, and Cocteau. The intent of the troupe is to produce a professional-quality play with a minimum of technical gimmickry: "we (Spectrum) will not forget that a play, even when tragic, is play."  
Dr. Mandel, in response to questions about the prospects of his company remarked, "I hope to have a fruitful interaction with the students at Caltech."


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# What Happened To KPPC? Pollution, Pollution

by Ross Miller

Once again the eyes of the nation focused on JPL as Mariner 9 became the first spacecraft to achieve Mars orbit last Saturday. The unmanned vehicle came within 750 miles of the Martian surface, allowing it to photograph the terrain of Mars in far more detail than the previous Mariners 6 and 7 probes.

The first pictures from Mariner 9 came in Sunday morning from Madrid. They showed the surface of Mars obscured by a dust storm which had begun only a month ago. Unfortunately the Madrid station has the capacity of only 2025 bits per second data reception, meaning that each picture takes 45 minutes to play back. However, Sunday afternoon, pictures were received at the Goldstone station at a rate of

## y sponsors trip

by Claude Anderson

"There's nothing to do around here with everybody gone. Why do I have to live to far away to go home for Thanksgiving?" Alas, this despairing cry will go out from the hearts of many Techers next weekend. The Caltech Y has the answer to this problem.

The Y has found three refuges for Techers, away from the L.A. smog and in the midst of the beauty of nature. As soon as enough people sign up, they will get together to make final plans for the trip. Transportation can be provided in the form of twelve-passenger vans. These are the three places to which expeditions will travel:

1. Joshua Tree National Monument-120 miles east. A desert park with developed campsites, good facilities, and beautiful scenery, including the giant tree-like lillies for which the park is named.
2. Death Valley National Monument-300 miles northeast. A totally arid environment, easily accessible by car. A great place to grasp the beauty of the desert.
3. Big Sur-300 miles northwest. Camp in the mountains by the ocean. Hiking permits will be needed for this trip.

Be sure to sign up soon so that you may get together with others to make final plans. It will be a long weekend here at Tech.

footsteps . . .

hand and hand we walk

down the dusty pathway

towards the ocean . . .

a Monarch butterfly dries his wings

in the morning drow of Bolinas as we walk by . . .

down to the sand and the rocks . . .

We pass a tidepool, where an anemone

withdraws to protect its catch

from a scavenging hermit crab and come

to sit in a rock and listen to the ocean.

"Do you suppose, my friend," I say to her,

"that there is a God that made this? . . .

(A wave cascades on itself and floods over the rocks

towards shore . . .)

"that there is One who brought forth into Creation

you and I?"

Her eyes turn towards mine . . .

She smiles.

-Kim Mitchell

16,200 bits per second, reducing the playback time to 6 minutes.

Mariner 9 will continue to take pictures of Mars for the next three months. In that time it will provide JPL scientists with a map of seventy percent of Mars. The landing site for the 1976 Viking probe will be determined from this map.

The weather conditions on Mars are of prime importance to JPL. The mission was scheduled so that Mariner would arrive in time to witness the end of a dust storm. Although the storm prevents detailed pictures of the terrain from being taken, it will give clues as to how the terrain is altered by storms. This will help answer the question of whether Mars is a dying planet which is eroding slowly or just developing major topographical features.

In addition to the pictures a detailed analysis of the Martian atmosphere will be taken to determine the possibility of the existence of organic compounds or even primitive life on Mars.

Among those present at JPL to see the proceedings first-hand were Arthur C. Clarke and Ray Bradbury.

Guess what happened to our headline equipment?

by Philip Massey

The results of the preliminary investigations of the Apollo 15 rock samples was the subject of Professor Leon Silver's talk in Arms November 8. The Apollo 15 landing site in "the backwaters of the stinking swamp of Mare Imbrium" differed from the sites of 11, 12, and 14 in the increased complexity of geological features. Further, the more thorough sampling adds to the problem of understanding the geology of the area.

Dr. Silver showed many of the really neat slides the astronauts took of the landing site, located at the base of the highest lunar

by Cliff Drowley

Are you concerned about the steady dwindling of the earth's natural resources? Are you worried about the ever-increasing amount of air and water pollution?

If you are, then you're invited to the meeting of the Caltech Environmental Action Council (CEAC) on Monday, Nov. 22, at 8 p.m. in the Winnett Center Lounge. The meeting will discuss progress on the Caltech recycling center, relations with the Environmental Quality Lab, and the filming of a documentary on pollution in the Pasadena area. Any new ideas are welcomed.

CEAC, now in its third year of existence, was originally set up in 1970 by Jerry Yudelson and Paul Wegner to help support the first Earth Day. A recycling center, built near the Campbell plant lab building, provided a source of income for CEAC. The recycling center was torn down when work started on the new biology building. Presently CEAC is trying to raise money and find a suitable site for a new recycling center. The target is now January 1.

CEAC is headed by a board of directors, who include: Dwight Carey, Chairman, Jim Cook, projects coordinator, Paul Morand, office manager, Bob Rohwer, recycling center director, Roger Greenburg, director of Caltech relations, and Cliff Drowley, director of community relations.

Anyone with questions about CEAC or the meeting is asked to contact the CEAC office at 357 Spalding or Dwight Carey at Ricketts House.

mountain range at the edge of Mare Imbrium. There were lots of craters formed by secondary impacts, the good sized crater St. George, and of course Hadley Rill. It is thought that there was a large impact, followed quite some time later by lava flooding to produce the Mare. All these tended to make the area very interesting from a geologist's point of view, the interpretation of data from the rocks is difficult.

One of the more impressive findings was the discovery of very definite linear patterns in the rill area, extending up to the mountainous areas. There has been some argument that these patterns, described by the astronauts in their first view out the hatch, and subsequently photographed, are a visual phenomena caused by the sun-angle. However, Dr. Silver maintains that these linear patterns are quite real, and are probably evidence of either fracturing or layering. He referred to photographs taken in lunar orbit during the first passes prior to landing that show the same orientation of the lines with respect to surrounding craters. This would probably not be the case if the lines were illusionary.

The type of rocks found differed with the area. Near the actual landing point the rocks are mainly basalt. However, breccias were common further away near the rill and St. George, and there is a general top-soil mixture of basalt and breccia. One of the difficult questions this raises which increases the

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## FREE AIR

by Paul Levin

On Tuesday the Ford Motor Company assembly plant in Pico Rivera hosted representatives of several southern California student newspapers in order to show and tell them what the company is doing about air pollution.

Before showing the students the emissions testing facilities the Assistant Plant Manager, Ben Dickinson, explained that Ford is trying to clean up emissions from its plants as well as those from its products. To this end it has installed water treatment facilities and afterburners on fume hoods for spray paint operations. Ford has even switched to paints with solvents which are not photochemically active in the air, hence less smog.

Mr. Dickinson also emphasized that progress is being made toward cleaner air. "It is estimated," he said, "that if every car in Los Angeles were a 1971 model, smog-forming hydrocarbons in this city would be on a 1940 level. As it is, that level would be reached by 1980 if we did nothing more about emission controls than has been done already."

**Cost of Cleaner Air**

One of the critical problems that will face the lawmakers and the auto industry in the near future is the value of still cleaner air. Mr. Henry Ford II, the Chairman of the Board of Ford, said recently that the 1975 safety and emissions

standards may add as much as \$1000 to the price of a car. Will the public be willing to pay the price?

Finally students were shown the emissions testing facilities. California State law requires that each auto company test ¼ of the cars it sells in the state. The Pico Rivera plant, which manufactures primarily Thunderbirds, has the responsibility for testing not only its own production but ¼ of the Ford cars shipped from elsewhere for sale in this state.

**Wild Ride**

The test is deceptively simple. Each car is placed on a dynamometer and is driven for just over two minutes following a rigidly-described pattern. The hitch is that manual transmission cars must follow the same course as cars with automatic transmissions. It's a real gear-grinding operation to do it with a manual transmission. Exhaust from the car under test is drawn into five Beckman gas analyzers, each of which returns a go-no go signal on the car.

In addition testing is continuously carried out to assure that the cars meet Federal standards. This test takes nearly ten times as long, but operates on the same principles.

There was no way of determining whether Ford is more zealous than the other manufacturers in its emissions reduction program, but one thing is certain: Ford is at least doing something.

difficulty of data interpretation is where do the breccias come from. Are they native to the Mare? Or are they exotic, coming perhaps from the rill—or elsewhere. Furthermore, these breccias are first generation: an important difference from those of other missions' sampling.

Some of the rocks are themselves complex. One rock is half light colored and then darkened. Some of the rocks seem to have been completely immersed in glass. The chemistry of the glass has not yet been compared to the chemistry of the corresponding rocks.

**Deliberately (un)Buried?**

The samples from Apollo 15 were gathered in different ways. The drill allowed Commander Scott to get very deep core samples, extending down a couple of meters. Once they came across a rock sitting on top of a pedestal formation. It seemed too nicely placed to leave, so they picked it up and sampled the base. The rock is not thought to be native to the area.

The radioactivity level in the area was higher than at other sites, there being about 3 parts per million of Uranium and 11 parts per million of Thorium. This is not a surface feature as one might expect the

radioactivity is about the same at the bottom of the deepest cores taken.

With only two or three Apollo missions planned it is generally felt that samples from as many different areas as possible should be obtained, although repeat visits to old areas would be very beneficial. There are other problems facing the geologists than the small number of missions, instrumentation for one. Geologists wanted samples of material off the slope of Hadley Rill. The only way of doing it anyone could think of was lowering a rope-tied bucket over the edge. It can only be hoped what with the samples Apollo 16 and subsequent flights will provide some of the questions about the samples will be cleared up.

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