

The California Tech

Associated Students of the California Institute of Technology

Volume LXI

Pasadena, California, Thursday, February 18, 1960

Number 18



ASCIT Elections Next Tuesday

Winter Dance Set For Beverly Hilton

The ASCIT Winter Dance will be held this Saturday night in the Codoro Room of the Beverly Hilton. Festivities will start at 9 p.m.

Music will be provided by and Ken Casey hopes for some half-time entertainment to top off his final effort as ASCIT Social Chairman.

Dress for the dance will be semi-formal and the cost per couple will be \$0.00.

BOD Awards Honor Keys, Certificates

The ASCIT Board of Directors voted honor awards to 36 people Tuesday in recognition of outstanding contributions to campus extra-curricular activity during the past year.

Honor keys will go to Bill Bauer, Pedro Bolsaitis, Brad Efron, Carl Gottschall, Lee Hood, Tom Jovin, Hugh Kieffer, Bob Koh, Doug McLane, Cleve Moler, Carl Morris, Roger Noll, Ken Scholtz, Tom Teben, and Clyde Zaidens.

Honor certificates, signifying somewhat less participation than that required for the honor key, have been earned by Larry Brown, Ken Casey, Dave Cassell, Doug Dunham, Frank Greenman, Carl Hamilton, Richard Harris, Stan Klein, John Lohman, Pete Mayer, Bob Nason, Dick Norman, Mel Neville, Dave Pritchard, Carl Rovainen, Art Rubin, Stan Sajdera, Larry Sloss, Lance Taylor, Tom Tisch, and John Todoroff.

Sajdera To Edit 1960 Little t

Stan Sajdera was appointed editor of next fall's Little t by the ASCIT Board of Directors on Tuesday. Sajdera, who was a co-editor two years ago, promises that the book will have several significant changes from the pattern of the last few years.

Africa Expert Munger To Be AUFS Visitor

Dr. Edwin S. Munger, the last member of the American Universities Field Staff to visit Tech this year, will arrive on campus next Monday, February 22. Munger will report to the Caltech community on developments in sub-Saharan Africa.

Munger has studied and lived in Africa for the greater part of the past 12 years. In his travels he has visited all of the territories and major off-lying islands of Africa south of the Sahara.

This is the fourth time Munger has participated in the AUFS program of visits to member campuses. He returned from his latest African trip in the fall of 1959. During 1958-59 Munger observed national elections in Southern Rhodesia and South Africa, the French referendum in the Ivory Coast, the first Pan-African Student Conference in Uganda, and the All-African People's Conference in Ghana.

Munger's visit will last from next Monday, February 22, until Wednesday, March 2. His tentative schedule, through Friday, February 26, follows:

Monday, afternoon, Munger will be interviewed by student reporters. Monday evening he will attend a YMCA-sponsored dinner and discussion with graduate students.

Tuesday morning Munger will
(Continued on page 10)



Edwin Munger



Dr. DuBridge greets Lady Barbara Ward Jackson before economist's opening speech in Dabney Hall Monday night.

Lady Jackson Speaks On Indian Economics

By CARNOY

Barbara Ward Jackson, here for a packed eight days of talks, seminars and dinners, is certainly one of the most charming guests that Caltech has ever seen. She is appearing under the sponsorship of the Haynes Foundation, whose trustees, mink bedecked, filled the front three rows of the Dabney Lounge Monday night for the first of Lady Jackson's four lectures.

At present, the British economist is living in Ghana, where her husband, Commander Sir Robert Jackson, is Chairman of the Development Commission. He is on loan from the British government to the Ghanaian government in the latest phase of a long career as an expert on international development. Lady Jackson, meanwhile, is on a four year Carnegie Fellowship on Economic Assistance. She is working currently on the problems of India, and afterwards plans to use the Indian information to bear on Africa and later, if there is time, "Uncle Carnegie," as she calls the fellowship, would like to take a look at South America.

In speaking to the woman that

Harrison Brown described as "remarkable," one is immediately drawn to the dynamic personality and wonderful informality that marks her conversation. After all, India's economic situation and the tribal agriculture of Africa could easily be the driest subjects on record. Yet, in the hands of Barbara Ward Jackson they become integrated with a sparkling British sense of humor that has audiences laughing several seconds late.

She was educated in England and France and Germany and received an honors degree in philosophy, politics, and economics at Oxford University in 1935. She has written several books which have played a notable part in the development of public policy in the West, and plans, in fact, to include the Caltech lectures as the basis of her next work.

On Monday, Lady Jackson will speak on "Industrialization and the Mixed Economy," and on Tuesday, "Trade, Aid, and Development." Both lectures will be held in Dabney Lounge and start at 8:15.

Bauer, Moler Vie For Pres.

Seven ASCIT offices and the presidency of the IHC will be uncontested at next Tuesday's student body election, as all nominations closed this week.

Candidates will finish speaking in the Student Houses today and the election rally is set for Monday night in Culbertson. Campaign statements appear on page 2.

Uncontested offices are:

IHC President—Stan Sajdera.

Co-editor of the California Tech — Tom Tisch, John Todoroff.

Treasurer—Sid Leibovich.

Social Chairman—Tim Litle.

Activities Manager—Dick Norman.

Athletic Manager—Bob Juola.

Representative - at - Large — Chuck Brooke.

Secretary of the Board of Control: Carl Hamilton.

Vying for President are Cleve Moler, Editor of the California Tech, and Bill Bauer, current ASCIT Secretary.

Competing for Vice-President and Chairman of the Board of Control are Skip Stenbit and Clyde Zaidens.

Four candidates are seeking the Secretary post: Les Ingber, Pete Lippmen, Dave Pritchard and Paul Purdom.

Contesting the Business Manager job are Bob Golden and Art McGarr.

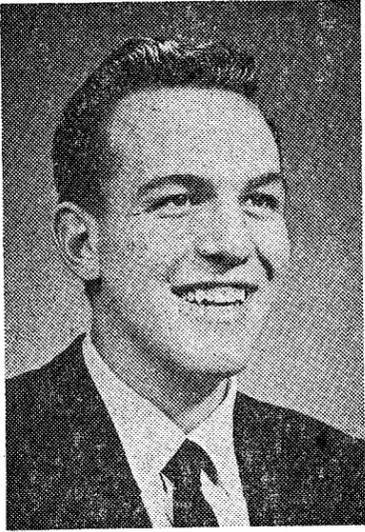
Eight of the 19 candidates will be members of the new Houses next fall.

The February 23 ballot will contain an amendment to the ASCIT by-laws, which would permit members of the Board of Control to serve more than one term, so as to permit experienced people to be re-elected.

Also there will be a resolution to put the Caltech undergraduate body on record opposing the loyalty oath required in the National Defense Education Act and urging the passage of the Kennedy-Clark bill.

Candidates Outline Plans, Discuss Qualifications

• Vice President

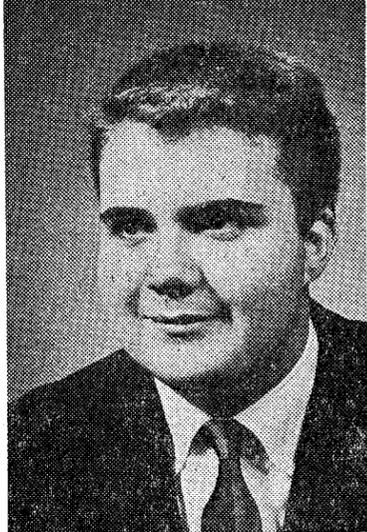


Skip Stenbit

Jr., EE, Dabney; BOC Sec., House & Class Athletic Mgr.

The primary duty of the ASCIT Vice-President is to preserve the Honor System. The responsibility of educating all new students about this system is his. In addition, he must investigate and present to the BOC all suspected violations of the Honor System.

The experience I have gained this year while serving as Secretary of the BOC has enabled me to get a first-hand look at what the duties of Veep are and how best to discharge them. For this reason, I believe that a vote for Stenbit for Veep is a vote for experience.



Clyde Zaidins

Jr., Ph., Blacker; House Vice-President, ExComm

The major consideration of the Veep is our Honor System, of which the BOC is the guardian. There is much that can be done to clear up misunderstandings, introduce the philosophy of the system to ourselves and to the outside world, and examine the "fringe" areas where most of the problems occur.

The developing ExComm is the place where we should look for true leadership in government. My experience on this body, along with a position of IHC and chairman of the House UCC's, has given me the background to carry out the duties of Veep with originality and inspiration.

• ASCIT Secretary

Les Ingber

Soph, Ph., Dabney; New Student House Comm.

While at Caltech, I want to obtain something more than a fine science education. Among other things, I want to creatively participate in school government and achieve the status of a respected representative. I feel I can most comprehensively accomplish these goals from the office of secretary.

The job must consist of an accurate publication of proceedings of various meetings. But it can also consist of creative participation, formulating and representing the policies of the students. I am sure I can do the former, and I am enthusiastic and confident that I want to do the latter.

Pete Lippman

Jr., Ph., House B/OC; BOC, Drama Club

I believe that ASCIT "has a few troll jobs to do," and ought to do these (efficiently) without glorifying itself. Depedestalization is particularly wanting at those infrequent times when ASCIT is faced with controversy. In our small and reasonably literate student body, "government by the governed" can and ought to be invoked under such circumstances; the recent no-rotation decision ignored the polled desires of ASCIT constituency.

If elected I will work conscientiously for accurate and appropriate expression in records and written communications, and I will endeavor to keep ASCIT running smoothly, in its cage.

Dave Pritchard

Soph, Blacker, House Sec., New Student House Comm.

The chief functions of the ASCIT Secretary are to report the actions of the BOD to the students and to fulfill his voting position on the BOD.

In order to do the former effectively, I favor two approaches. One is the continued wide distribution of ASCIT minutes. The other approach is to make more use of the secretary's column in the Tech and more interesting meal-time announcements. This will create student interest in things before they are done — leading the way for more student participation.

As a member of the BOD, I will exert what influence I can toward keeping ASCIT relatively informal and truly representative of the student body.

Paul Purdom

Soph, Ph., Ricketts; New Student House Comm.

If elected secretary I intend to keep good ASCIT records. To increase publication of ASCIT I plan to:

(1) Vote to continue having informal open meeting.

(2) Replace the wide distribution of complete minutes with more extensive coverage by the California Tech.

I will try to keep the Big T at its present size, providing a good editor can be found. By having more advertising we can have a good annual at much lower cost. If, however, a good editor cannot be found, then I will vote for reduction to a more modest size.

Also, the California Tech should give candidates more space!

• Tech Editor

Todoroff-Tisch

John Todoroff—Jr., Ph., House C/Ricketts; Tech Editorial Board

Tom Tisch — Jr., EE, House B/Ricketts; ASCIT Rep., Tech Staff

We believe that the primary responsibility of the California Tech is to keep the undergraduates accurately informed of the intellectual, social, athletic, and recreational activities and opportunities on and around campus. The most space and the largest headlines should be given to the news of greatest interest to the majority of students.

Second, the Tech should be entertaining with some humorous news and fiction.

Finally, we should lead a discussion of as many phases of Caltech life—from parking problems to the philosophy of a Student House—as room on our editorial page permits.

• Treasurer

Sid Leibovich

Jr., House B/Ricketts, AE BOC, EPC, Frosh Pres., Tech staff, House social chrmn.

One of the most important considerations of next year's ASCIT treasurer will be the much talked about "Big T Problem." The 1959 Big T fiasco will cause more trouble than what appears on the surface. A significant number of important advertisers are understandably disturbed. As a result, the Big T business manager will have a more difficult job next year.

The treasurer and the ASCIT business manager should work closely with the Big T staff. They should make sure that the T is put out on time and with a minimum of cost to the student body.

• Social Chrmn.

Tim Litle

Soph, EE, House A/Ricketts

The principal difficulty with the ASCIT social program lies in the lack of interest and participation rather than in the events themselves. Last year, for example, less than 65 couples took advantage of the \$1500 winter formal. I think that this number would have been greater had there been more publicity to bring about a tendency for people to plan for ASCIT events rather than simply acknowledging their existence.

With the majority of the student body living on campus next fall, a concentrated publicity campaign, plus more House emphasis on campus social events, can bring about renewed interest. That will be my goal.

• Athletic Mgr.

Bob Juola

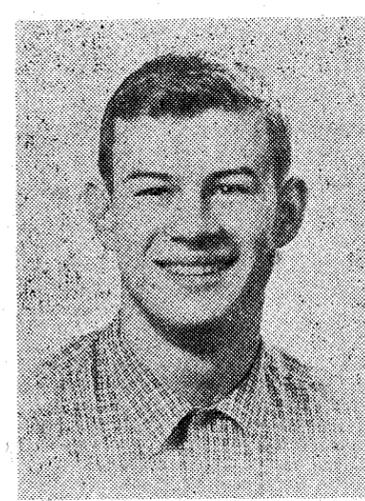
Soph, Chem E, House A/Ricketts; Track and Cross-Country (Ed. note: Bob Juola has been

spending the last few days in the Archibald B. Young Memorial Health Center and, as a result, could not contribute a blurb.

Juola is an active member of the frosh and varsity cross-country and track squads and one of the most gung-ho jocks this campus has.)

More candidates' statements on page 3.

• ASCIT President



William Bauer

Jr., Biochem, Dabney; ASCIT Sec., BOC Sec., EPC

Many criticisms of ASCIT have been offered during the past year; but no matter what the particular complaint, one remedy has been persistently advanced for all discomforts: "Let's change the system."

This was the case with ExComm; the elimination of the Committee was proposed before even a summary analysis.

It happened to the Big T, which was recommended to the chopping block because of high costs, before anyone had any firm idea of how to economize within existing structure. In my opinion, this approach is fundamentally wrong. What ASCIT needs is a clarification of present procedures.

We need a stronger ExComm, one which can deal with future questions similar to the loyalty oath.

We need a more efficiently planned Big T with a revised salary distribution and other improvements.

It has been charged that the BOD has assumed too much responsibility. I say that it has assumed too little. The Board should not — and has not — concerned itself with minor details of operation. But it should and here it has failed, to insure that its general objectives are achieved at all times. It has delegated responsibility, then lost interest in the project.

This is the basic problem of ASCIT. Herein lies our chance to improve.

• Business Manager

John Golden

Soph, EE, Dabney; EPC, Radio Club

The responsibilities of ASCIT Business Manager are two-fold: business management and BOD membership. Efficient and dependable management of publication, offices and corporation property is essential. Also important is keeping the News Bureau aware of ASCIT activities. As a Board member, the business manager reflects student opinion as much as possible, but he should use imagination in voicing opinion and in voting to shape ASCIT policy.

I believe the BOD should concern itself with general student welfare — as well as routine duties — through appropriate channels such as ExComm and EPC.

CUTLINE, PAGE ONE: According to Rovainen (who drew the thing) the candidates depicted from left to right on page one are Hamilton, Pritchard, To-



Cleve Moler

Jr., Math, House B/Ricketts; California Tech Editor, BOC

Under ASCIT's corporate structure, the President serves in two capacities: president of the corporation and chairman of its board of directors. These are two different jobs and should be dealt with as such.

"President of the corporation" is another way of saying "representative of the members." The ASCIT President represents the student body on the Executive Committee, the Board of Control and the Student Faculty Relations Committee. He also is a representative to the faculty and administration, to other colleges and to the general public. It is in this capacity as representative that the President's greatest challenges and opportunities for significant accomplishment lie. It is in this area that I, if elected, would devote the greater part of my efforts.

The President's second responsibility — chairman of the BOD — has, in recent years, been over-emphasized. The Board of Directors should only function as a body to coordinate the activities of its individual members; it should have little importance in and of itself.

I am not advocating abolishment of the BOD, or any other drastic revision of basic ASCIT structure. I am simply calling for a shift of emphasis that will make student government a little more enjoyable for all concerned.

Art McGarr

Soph, Ph., Ricketts; Class Sec., ASCIT Play

The primary duty of the business manager is the appointment of candidates for various offices. I will emphasize a more thorough investigation of candidates for positions of appointment. I feel that these appointees should be checked on more frequently so that past yearbook history will not be repeated.

Regarding campus publications, I will try to keep California Tech circulation running smoothly. I am also interested in organizing Totem circulation so that it is delivered to the doors of all on-campus students.

doroff, Purdom, Lippman, Tisch, Ingber, Juola, Brooke, Bauer, Moler, Stenbit Litle, Zaidins, Golden, Leibovich, McGarr and Norman.

Editorial

BOC and Loyalty

Next Tuesday's ballot will include a proposed by-law amendment and a policy resolution. Both these measures are deserving of student body support.

The by-law amendment deals with membership on the Board of Control. At present men who are elected to these positions (during class elections third term) may not succeed themselves in office. The amendment would eliminate this restriction.

Although we rarely see or hear of its activities, the Board of Control is ASCIT's most important single organization. Perpetuation and application of the Honor System should be our student body government's primary responsibility. Consequently, the men elected to the BOC should be our most capable. The present restriction eliminates several good candidates each year.

Experience in any activity is valuable. A year and a half on the Board convinced us that experience is especially valuable when dealing with the type of problems the BOC faces. A man should not be eliminated from consideration as a Board of Control member simply because he is experienced.

The second proposal on Tuesday's ballot, if passed, would put the Caltech student body on record as opposing the loyalty affidavit required in the National Defense Education Act.

The loyalty affidavit requirement is, at best, useless. At worst, it is a nasty slap at the educational community, a curtailment of individual rights and a bad precedent for future federal legislation.

The California Tech was one of the first groups on this campus to speak out against the loyalty provision and is in favor of the resolution.

—cm

Glee Club

For the past couple of years, one of the hardest working student groups has been the Caltech Glee Club. At last some of the glory which should rightfully be theirs has come in the form of an invitation to sing for the closing ceremonies of the Winter Olympics.

This acknowledgement of their ability is not chance. Dr. Hirt, who tendered the invitation, has long been a fan of the Glee Club.

Caltech, administration and students alike, can be proud that it is represented so well and so often in the outside world.

—tt

• Activities Manager

Dick Norman

Jr., Math, Blacker; ASCIT Business Mgr., House Treasurer

The largest single job of the Activities Chairman is the Jazz Concert. I believe that I can continue the success of the previous concerts. I would also like to put on some smaller concerts or other shows throughout the

year.

I have had experience working on the Board and I am interested in campus activities. With this experience in ASCIT and House offices, and my general interest in Caltech life, I feel that I can further that vague but all pervading concept known as closer contact between ASCIT and the student body.

• Representative

Chuck Brooke

Frosh, Ricketts; BOC

I can't pretend that there are any truly controversial issues involved in running for ASCIT representative, so I won't bore you with meaningless statements on what I am for, or against.

The job itself is not totally glamorous. It involves routine tasks such as arranging the bul-

letin board. But at the same time it is exciting, for it entails working on worthy projects such as charity drives and meeting with people of diverse opinions and character.

If an exciting job generates interest, then an interested person equally generates competence. I am very much interested in working as ASCIT representative and competence I leave up to your own choice.

• IHC President Opinion

Stan Sadjera

Junior, Bio, House A/Ricketts; Class Pres., New House Comm.

The duties of IHC President have been purposely left vague, because the present IHC feels that the person who received this office should be able to face the new situation of seven Student Houses without any constraints. Following are two ways by which I would face the problem of defining the responsibilities of this office.

(1) I would work at making the new IHC an effective partner to the ASCIT organization. Because of the nature of its representation, the IHC could be helpful to ASCIT as far as ASCIT social events, relations with other schools in the area, and other activities.

(2) I would attempt to make myself as aware as possible of the opinions of both faculty and students in order to act as an effective agent in Student-Faculty relations. For example, I would like to take my meals randomly in the seven Student Houses next year.

I will be happy to speak with anyone concerning what I have said here, or to answer questions.

• BOC Sec.

Carl Hamilton

Soph, Math, Dabney; BOC, Class President

As secretary of the Board of Control, one has the official responsibilities of accurately recording conversations of meetings and concisely explaining the Board's decisions to the Deans. Equally important is his active, mature, and perceptive participation in meetings. I believe that my interest in the Board's work, stimulated by a year's previous experience thereon and coupled with a knowledge of personalities would lend well toward efficient performance of these duties. In view of this, I would appreciate your vote next Tuesday.

ASCIT Dichotomy, Hypocriticism Hit

BY DOUG SHAKEL

The purpose of this article is to review the recent operations of ASCIT and to provide some basis for future thinking. As Tom Jovin pointed out last week, "we are faced with the necessity of carefully defining what might be termed a 'philosophy of student activity.'" Such a philosophy has long been needed in general at Caltech and Mr. Jovin seems to be especially interested in the future of "his" organization.

The past couple of years of the ASCIT operation have seen numerous examples of what is practical and worth-while in student government as well as what is so much nonsense. Let's consider last year.

Jovin listed three objectives that he felt necessary to make a better ASCIT. First of these was to streamline the "ASCIT machine," increasing efficiency and individual effort. Now anyone that has dealt with the Caltech undergraduate should realize that personal efficiency and degree of individual effort are more often than not unrelated. There are times when they seem mutually exclusive. But apparently this seems to have been overlooked in putting this objective into practice. An efficiency increase for its own sake would have been difficult since the recent reorganization of ASCIT had not yet allowed clear cut lines of responsibility to become established. Personal efficiency could not be promoted until personal incentive had been created and, as usual, this does not occur to the people concerned with efficiency increase.

Jovin's second idea was to "reduce formality of meetings and in general make ASCIT more approachable." If anything, the ridiculous appearance of recent BOD meetings has confirmed the previous notions of a number of

students that student body government is only a show, and a poor one at that.

HIGH SCHOOL KIDS

When the BOD looked like a board of directors, responsible for the management of a corporation, and not like a bunch of high school kids playing democracy in action, at least it was approached with some idea of what to expect. The fact (only one year ago) did not mean that the Board was unapproachable by the masses. What the new method has shown is that a lack of formality has removed the inhibitions of people that ordinarily would bring only those problems to the BOD that seemed important enough. Now that the ASCIT is more approachable, it is more often approached by anyone with anything on his mind.

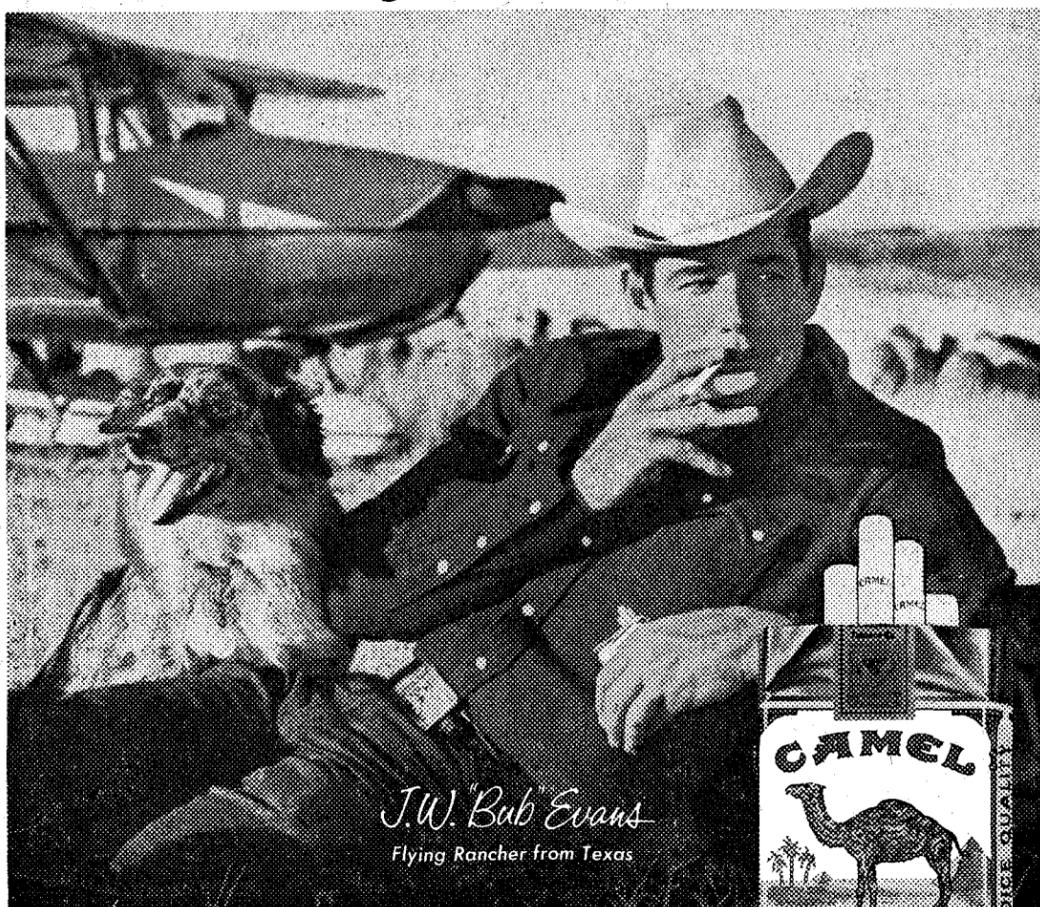
It should also be noted that the direct proportionality between group efficiency and formality is as operative at Caltech as anywhere else. This Jovin idea No. 2 finishes off Jovin idea No. 1. As a control, notice that the single area that ASCIT has undergone an increase in efficiency, minutes and bookwork, is also the only area of ASCIT to have first seen an increase in formality.

YEAR LATE

Jovin's third objective is "to enlarge the scope of student concern and action." This is where the "defining of philosophy" is most needed. Unfortunately, Tom is a year late in this realization. I would agree that the lines of enlargement he suggested are quite worth-while. But if ASCIT wished to enlarge its scope on a sound basis, wouldn't it make more sense to find out what the students' prime interests are? And not by telling them first and then stirring up response.

(Continued on page 7)

Have a real cigarette—have a CAMEL



J.W. Bub Evans
Flying Rancher from Texas

The best tobacco makes the best smoke!

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

The California Tech

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BRIGHT LIGHTS... COFFEE... ... AND SHOES

by griffen



Poor old Arturo Rubino lay in the ever widening pool of his own blood... it wasn't until an hour after the big car that held Alan Tobias and his rowdy friends had pulled out of the parking lot that some of the merrymaking dancers found the swarthy body between two motorcycles. From all outward appearances, Rubino was dead—his heart wasn't beating and his face had been mutilated beyond recognition. Yet, there was a certain serenity in the whole scene that made the normally boisterous teenagers look up to the heavens... and then they knew... this was no ordinary mortal that lay at their feet... someone was speaking to them... the booming voice of immortality, goodness and virtue called to them across the abyss that Rubino had already crossed... They knew... they knew... and they dropped to their knees... and before their eyes the spirit of Rubino appeared to them and he beckoned to them and the blood flowed from the stigmata... and they followed... life meant nothing now that they knew... and they felt cleansed and pure.

(He had to die, you see, because a member of Fleming whose name accidentally almost coincides with Rubino's couldn't take the publicity; in fact, he tended to be rather a sorehead about the whole thing.)

Tobias hadn't meant to kill "our hero" of course; he just wanted to lean on him a little bit. Tobias didn't learn what had happened until he read the California Tech the next Thurs-

day. It didn't affect him too much—after all, those things happen; the whole affair just went to show that poor immigrant's sons, especially of the Rubino type, didn't have a chance against the big wide world. Tobias wasn't used to having people mess around with his stuff anyway... So he kept reading the news and he was actually in a good mood and spring-time was coming to the Huntington and then, and then, in one of those horrible moments that can never be described, Alan Tobias' little world crumbled... and all was gone. The headline read: "Marjorie Cheney Engages Neil Pings, Fleming R.A." Tobias couldn't believe this outrage; he foamed at the mouth and stalked around the room like a trapped animal... How could she do this to him? She never told him anything. Oh, sure, he knew she went out with others, but he always thought that they meant nothing to her, that only he existed. The great Tobias: man about town, bon vivant, giving his heart to none of his many admirers; the great Tobias, secretly in love with a simple dietician. And now, it was all over. Now the great Tobias had fallen; his whole life ruined by a mid-western farm girl. Who would have thought that this this would be the ignoble end to such a great chapter in Pasadena's history?

There was only one thing to do: a weary, betrayed Alan Tobias dragged his broken heart to the airport. He would be on the next plane to Paris to join the Foreign Legion.

Letter To The Editor

Social Life Lacks Luster

Editor, The California Tech

ExComm, in its new capacity as a thinking group, last week discussed the serious decline in the social life on the campus. This is certainly characterized by the difficulty with which both ASCIT and the Houses are finding candidates for the social chairman office and the tremendous decline over the last year of House social programs. With three new Houses next year and only a finite amount of sex sources, there will be an even greater problem in satisfying the obvious need of the underclassman with feminine company.

It is my shaky conclusion that the type of functions that the Houses are now sponsoring, as well as ASCIT, are either very boring because of their constant repetition, or just do not appeal to the group of people that attend social functions. In many ways, the Houses have tried to organize affairs that will appeal to a more reserved type of person, but even these functions fail to draw. When the whole mess is boiled down, and it is a mess, the fault seems to lie mostly with the past social chairmen. There is no sincere effort on this campus to "fix" Caltech men up with reasonable dates to take to functions where they will enjoy themselves.

The rest of the fault is, of course, on the shoulder of the underclassman himself. In many cases, the Techman is a lot more particular in his choice of womanhood than the average

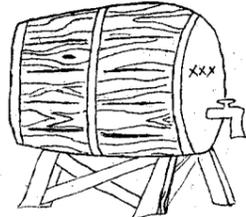
male, even if it is his first contact with girls since his playground days. Instead of looking for a decent time with each individual date, most students here expect some sort of great traumatic experience that will profoundly affect the rest of their lives. I think it is unnecessary to go into the security pitch. Anyway, once the social chairman has made the effort, if he has made such an effort, the beneficiary of his work doesn't pick up the thread of connections with other girls; if at first he doesn't score, he just writes the whole thing off as a bad idea.

What the Caltech student has to learn, quite basically, is that getting along with girls takes an awful lot of study and homework. The fact that this campus is so far behind socially man for man simply accentuates the need for work. Unfortunately, society has dictated the skills that men must have, besides his natural attributes, in order to attract women. If the Techman would do as much about women as they talk about them, there would be no reason for having social functions — they would organize themselves.

Secondly, I think we must get a slightly more realistic picture of the social tastes of the outside world. It might be nice to know these things in order to unlimit the very limited group of girls that enjoy our concept of a ripping time.

MARTY CARNOY

BrEw/Ly



THE COMPLEAT BREWER (Part II)

PREPARATION PROCEDURE:

Heat the open can of malt in boiling water long enough to improve markedly the viscosity of the malt fluid. Fill a clean crock one-third full of hot water. Add all but a half cup of corn sugar. Then add malt. Stir until the ingredients are well in solution. Meanwhile put one-half or less of a package of yeast into a pint of luke-warm water and allow it to become active before use. Fill the crock almost to the top and then add the active yeast. Attempt to have the final mixture at about 70 deg. to 80 deg. F.

FERMENTATION:

Sit back, relax, light up a cheroot and wait. The bear should build up a big head after the first 12 hours. Attempt to maintain the 70 deg. F. optimal brewing temperature, as this provides the most satisfactory brewing rate as well as keeping the conditions more favorable for yeast action, as opposed to bacterial action. Placement of the crock in relation to a heat source is about the only method available. You may use an electric light bulb under a stand. The

stand is very necessary if the floor tends to be cold. Skimming the head is the favorite indoor sport of nervous brewers, but is not necessary for the less energetic and more relaxed. In any case don't stir it up a lot, as this promotes bacterial action and can sour your beer.

BOTTLING:

All good things must come to an end, and I'm afraid you will have to go to work shortly. Place the hydrometer in the solution the third day and follow its progress toward the "B" or "bottling mark." When it arrives (usually at the most inconvenient moment conceivable, sort of like babies), plus or minus two to three hours you must bottle.

Last week I was informed that at this stage you may reap a benefit by chilling the crock in ice, after it hits the "B" mark, for four to six hours immedi-

ately before bottling. This settles out a sediment layer that otherwise will settle in the bottle. But it will definitely settle in the bottle if you do not chill the brew at this stage, so, perhaps, the only benefit is esthetic.

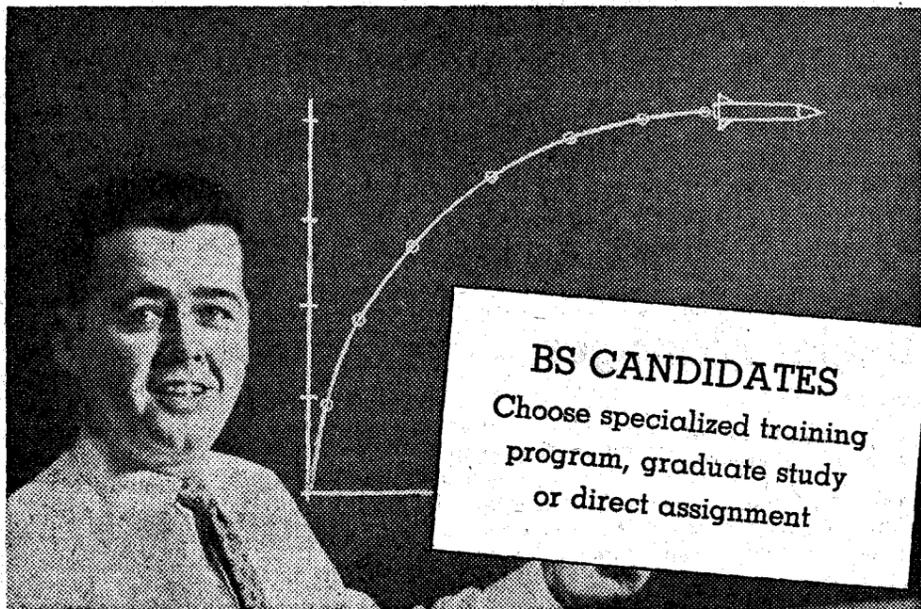
Prepare clean bottles by placing a level one-quarter teaspoon per stubby, or a heaping one-half teaspoonfull per quart, of corn sugar. Siphon the beer into each bottle with a siphon hose, using your fingers to regulate the flow. Clamps don't work so well. However, you can use the beer filler (optional), a real help. Allow a fairly fast flow to each bottle and stop as foam fills to the top. Don't delay capping too long.

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February 23

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Mr. Robert Haklisch, Manager
College Relations, Dept. CR-2
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Tomorrow is here today at RCA



RADIO CORPORATION of AMERICA

Swingin Thru

by benisek

Merlin Record No. 3056A; "Jimmy Blows a Bash."

Jimmy Whaling, alto sax; Chuck Current, tenor sax; Buddy Mis- sen, piano; Sonny Millett, drums; Jack Trend, bass.

Most of the Jazz Beats which have spread in this publication have reviewed records or live performances by rather famous jazz musicians, such as Miles Davis or Dizzy "Birks" Gillespie; however, I have chosen this week to review a record by some lesser lights in the jazz scene who, although they are young fledglings in the business, are in my opinion among those destined to be the modern jazz greats of tomorrow.

The first number in the set is a little blowing session in a blues vein up-tempo. Whaling takes some real fine solos and his second chorus is bound to become a collector's item in future years. His attack is definite and leaves the listener in no doubt that this boy blows what he means. Whaling is definitely not a delicate instrumentalist; instead, he is a hard-driving, hard-swinging alto man in the undiluted tradition of the East Coast (he was born in Manhattan) and this type of jazz is certainly his forte. Chuck Current on the other hand is significantly removed in his style from Whaling. First of all, he appears to be a more versatile musician, as most tenor men are, being able to negotiate equally well the delicate passages of a "Round Midnight" and the strident statements of "Buddy's Holiday," the latter of which appears on this album. On this album he adequately fills the gaps in Whaling's style, especially when he backs up Whaling with a riff in the third number on the side, "Blue Tuesday."

BLUE TUESDAY

"Blue Tuesday" is probably the best number on the record. Written by the drummer, Sonny Millett, who used to play baritone sax in the old Boody Band, it is one of the grooviest blues that this writer has heard in the past six months and that includes any and all compositions by Silver. But this number does a lot more than just sit there and groove all over your turntable; due to the truly inspired interpretation of the artists, it is capable of instilling in the mind of the listener a vivid picture of an old Negro bum sitting in a cheap ribs joint at 2:00 a.m. Christmas morning trying to forget that he's flat broke and has got a wife and three kids to buy presents for. Buddy Mis- sen does a remarkable job on piano. His technique is nearly flawless and he possesses that remarkable capability of transmitting to the listener his

thoughts as they evolve during the performance of the track.

The only failure on this album is the last number on the second side, which goes by the tag of "So Nice." Since we all want to blame failures on someone or general inferiority of this bit something, I choose to trace the to the drummer, Jack Trend, who, although he does a fairly credible job on the other numbers, seems to contract a severe case of I'm - going - to - play - louder - than - anybody - else - itis. Trend seems to succeed very nicely in this endeavor much to the annoyance of anybody trying to hear what the rest of the men are doing, which, as far as I could tell, is up to par.

REAL RARITY

This album is the first for the two horns and as such ranks as a real rarity among jazz albums which, when they are the first albums for the lead men, generally turn out to be lacking professional polish. Thankfully this album is an exception to this trend and should greatly further the musical careers of the artists concerned. Significantly, Whaling used to do some of the writing for the now defunct Billy Eckstein band of the late Forties, and one can detect small but definite influences of this previous experience on Whaling's sound and technique. His approach is slightly orchestrated in its conception but even though this is a little contrary to the spirit of modern jazz of small groups such as this, it detracts very little from the over-all worth of Whaling as a fast-rising jazz star.

It may be a little difficult to obtain this album if anyone is interested in purchasing it, but one of the larger record dealers will either have it in stock or he will be able to order it from the manufacturer if one so desires. **W. F. B.**

Interview Sked

Thur. 18—Jet Propulsion Lab, Telemeter Magnetics, B.J. Electronics, Los Alamos Scientific Lab, Naval Ordnance Test Station.

Fri. 19—Naval Ordnance Test Station, Bendix-Pacific, Bendix Computer, General Mills.

Mon. 22—Jefferson Chemical, Litton, Norden, Systems Development, United Research.

Tues. 23—RCA, Electronic Engineering of Cal, Rayonier, Link Aviation, Philco.

Wed. 24—Philco, Chicago Bridge & Iron, Bell Labs, Pacific Tel & Tel, Sandia, Western Electric.

Thur. 25—Bell Labs, Pacific Tel & Tel, Sandia, Western Electric, Solar Aircraft, Pillsbury.

Society

Marjorie Cheney, Neil Pings Announce Betrothal At Afternoon Valentine's Party

With the words "Marge and Neil" gayly lettered in white oleanders on the background of a red heart, the engagement of Miss Marjorie A. Cheney to Dr. Cornelius J. Pings was announced on Valentines Day at a party at the home of Miss Cheney in Ferndale. The wedding is set for June 25 in St. Paul, Minnesota.

Although coming as a surprise to institute officials (little do they really know of the Student Houses), the joyous event had been the subject of much speculation among Student House members, since Miss Cheney and Pings were first seen together in public at last fall's Interhouse Dance.

One hundred and thirty people attended the party, which began at two in the afternoon and lasted until six in the evening.

Miss Cheney looked ravishing in a blue silk dress embellished by a magnificent white orchid, and was certainly the center at-

traction at the party.

Also seen at the party were Dr. and Mrs. William Corcoran, Dr. and Mrs. William Lacey, and Dr. and Mrs. Manning, all affiliated with the Caltech Chemical Engineering Department.

Also present were the Messrs. H. Dearborn, J. Andelin, R. Foss, and the remaining Resident Associates.

Mr. George Green, Vice-President for Business Affairs, was also present.

CALIFORNIA INSTITUTE OF TECHNOLOGY

INTER-OFFICE MEMO

TO: House Presidents FROM: M. A. Cheney DATE: Feb. 11, 1960
SUBJECT: For Announcement

The office of the Manager of the Student Houses

announces the engagement

of

Miss Marjorie A. Cheney

to

Dr. Cornelius J. Pings

Resident Associate of Fleming House

A Campus-to-Career Case History

"Telephone company engineering has it for real interest and variety"

Ronald F. Radke got his B.S. degree in Mechanical Engineering from Oregon State College in June, 1956. In July, he went to work for The Pacific Telephone and Telegraph Company in Portland.

"I wanted *variety* in my engineering career," says Ron, "and this looked like the place to find it."

It was. Ron has handled a great variety of interesting, productive assignments.

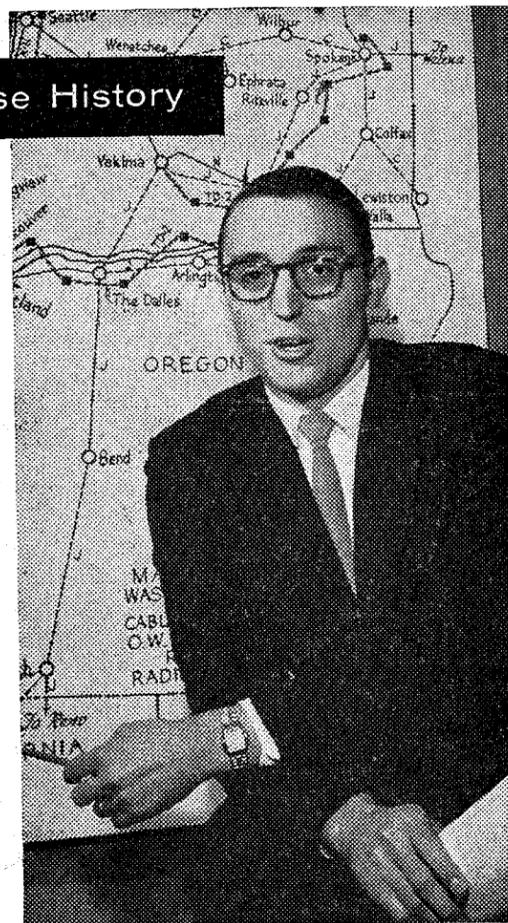
He worked on new-building construction projects—sometimes doing designing himself, sometimes working with outside architects. He programmed additions to central office buildings. Then, as a staff assistant and chief frameman in the Plant Department, he supervised eight people responsible for maintaining switching equipment. In this capacity he visited and became familiar with most of the 60 telephone buildings in the state.

Since April, 1958, Ron has worked on SAGE defense systems, and has made special studies of carrier and cable routes for long distance telephone circuits. Recently, he finished special training in IBM equipment and methods—and is currently introducing new, mechanized procedures to many company engineering operations.

"There are always new challenges and opportunities," says Ron. "For real interest and variety, telephone company engineering *has it!*"

* * *

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Ron Radke is shown above in front of an Oregon toll-route map. Below, he is discussing mechanized work procedures with an Equipment Costs Engineer.



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CITY OF LOS ANGELES
Bureau of Engineering



BELL TELEPHONE COMPANIES

The Chaostron: An Important Advance In Learning Machines

BY J. B. CADWALLADER-COHEN, W. W. ZYSICZK, AND R. R. DONNELLY

Chaostron is a learning machine which incorporates several radically new design features. Although Chaostron has not been completely built, its operation has been simulated and some rather surprising results obtained. This paper, which is to appear in the *Journal of Psychoprosthetics*, describes the work to date.

The concept of the Chaostron developed from reported observations of animal learning behavior in stress-inducing situations. Two examples are especially worth citing.

Boosie(1) in 1948 studied the behavior of cats in an aqueous environment. Typically, a cat, which is confined to a cage totally immersed in water, exhibits an initial period of disorganized, apparently random action, involving great muscular activity. This pattern of behavior ceases, often quite abruptly, when the animal discovers that a state of reduced energy expenditure permits cessation of respiratory activity. That learning, in fact, takes place is unquestionable, since presentation of further stimuli does not cause the animal to return to its initial active (and ill-adapted) condition.

J. C. Gottesohn has reported strikingly similar findings in his monumental work(2) on the religious beliefs of chimpanzees. We differ from Gottesohn in the interpretation of some of his results, but the main points are clear; in a stressful situation, a period of random trial and error precedes the solution of the problem, and the solution is usually found quite suddenly, in its complete and final form.

This, then, provides the basis for Chaostron. The authors feel strongly that the key to successful automation of learning tasks lies in randomization of the response pattern of the machine. The failure of various previous attempts in this direction, we feel, has been due to two problems: first, the difficulty of getting a sufficient degree of randomness built into the structure of the machine and second, the expense of creating a device large enough to exhibit behaviour not significantly influenced by the operation of any one of its components. We are deeply indebted to Dr. R. Morgan for a suggestion which showed us the way out of these difficulties; design for the Chaostron was done by taking 14,000 Western Electric wiring charts, cutting them into two-inch squares, and having them thoroughly shaken up in a large sack, then glued into sheets of appropriate size by a bindfolded worker. Careful checks were made during this process, and statistical tests were made on its output to insure against the propagation of unsuspected regularities.

Unfortunately, we have not, as yet, been able to complete the wiring of Chaostron. We felt,

however, that it should be possible to estimate the effectiveness of Chaostron even before its completion by simulating it on a high-speed digital computer. This procedure had the further advantage of attracting the interest of representatives of the Bureau of Supplies and Accounts of the United States Navy, who found in Chaostron an excellent aid to control of the Navy's spare parts inventory. The Navy, as a result, was generous enough to offer time on a BuShips computer for the simulation of Chaostron.

The computer of choice for the simulation runs was the IBM STRETCH machine, which not only operates at very high speed, but is also able to accept input programs coded in YAWN language, which closely resembles colloquial English. We felt it very important to use a source language for the simulation programs, which would contain as much ambiguity as ordinary speech, since undue preciseness in specification of the simulation programs might accidentally "tip off" the machine to the nature of the desired solutions.

In the event, it was not possible to obtain a STRETCH computer for the project, and so the simulation was done by simulating STRETCH simulating Chaostron on an IBM 704. All simulation runs were conducted in essentially similar universes of environments; the computer was presented with a sequence of circles, squares and crosses represented by punched cards, and was required to print, after examining each stimulus, one of the words "circle," "square" or "cross." No reinforcement from the experimenter was provided, since it was feared that such reinforcement would bias the learning process, and thus vitiate the validity of any conclusions we might wish to draw from the results.

The first trials were run with the input stimuli represented on the punched cards as geometric patterns of punching in the appropriate shapes. As a control, one run was made with no stored program initially in the machine, to check that the learning rate of the untutored machine was not so great as to interfere with further studies. For this run, the machine memory was cleared, the cards containing patterns were placed in the card reader, and the load cards button was pressed. After three hours the machine had not printed its response to the first input

pattern; evidently the rate of learning under these conditions is very low (we judge it to be on the order of a millionth of a concept per megayear).

Therefore, we proceeded with the main series of experiments, in which a random program was loaded into the computer ahead of each batch of data cards. A total of 133 random programs were tried in random sequence. Even in this series of experiments the machine took a surprisingly long time to respond to the stimuli; in most cases the run had to be terminated before the first response occurred. However, on run number 73, the computer responded

***/ \$ AX\$,)U ,,,,
to the first stimulus card (which was a square); on run 114, (the computer responded

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to every stimulus; and on run 131 the computer ejected the printer paper twice.

Unfortunately, budget difficulties forced us to abandon this approach after 133 trials, in spite

of the promising appearance of the early results. Thus, our conclusions are perforce based on a smaller data sample than we would like. Nonetheless, certain points are clear.

(1) The correlative reinforcement model of learning advanced by Dewap, et al., (3) is untenable in view of our results. No triphasic system could function without a degree of organization exceeding that which we have used in the simulation studies. Even this degree of structure, however, resulted in extremely slow response to comparatively simple stimuli.

(2) It seems evident that further understanding of machine learning requires resynthesis in operational terms of the conceptual framework provided by the Liebwald - Schurstein - Higgins suggestion that memory traces are renewed by associative stochastic increments to ideometric pathways shared by stimulus-coupled functional elements.

(3) Not only is machine

learning possible, but in fact it occurs under conditions of considerable difficulty. Indeed, it appears that even the simplest machines have a great amount of innate "curiosity" (where by "curiosity," of course, we do not mean to imply that anthropomorphic categories or judgments should be applied to machines, but merely that the machines have a desire to learn).

Our acknowledgments and thanks are due to Mr. J. B. Puffadder, for his assistance in the detailed design of Chaostron, and to Mr. V. A. Vyossotsky for manually simulating the 704 simulating STRETCH simulating Chaostron, to complete run 133 after the budget funds ran out. Thanks are also due to the Navy Department, which provided partial support for this project under contract NsRD-BuS&A-111-259.34a-GRQ1-77.C32.

(Reprinted from a paper released at last week's symposium on cerebral processes and computers.)



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Opinion

(Continued from page 3)

Jovin has discovered that delegation of responsibility with regard to administrative duties is an extremely difficult matter at Caltech. It turns out that it is extremely difficult anywhere, and increasingly so where officials are elected on a basis of something other than administrative duties. This is one of the underlying principles of the need for by laws and constitutions, parliamentary procedure, and official tradition. This is also a fact too frequently not understood by Caltech students.

ADMINISTRATIVE DUTIES

Each member of the BOD has administrative duties attached to his office, either by written word in the by-laws or by custom of precedent. It set down annually (and with finality) and then viewed as the basis principle, the BOD member would have a clear path to do with his office as he intended. But good intentions are more easily formed than acted upon. And in the effort to save face, it is only natural that the ASCIT officer should rapidly evolve, in harmony with the BOD as a whole, to the substitution of administrative bickering and foolishness rather than achieve progress in new fields.

It is frequently pointed out that a lack of incentive is produced by the electorate's great desire to catch a candidate doing a bad job and its corresponding disinterest in a job well done. This allows mediocrity to become the normal mode. I submit that mediocrity is so entrenched at Caltech because, in addition to preferring to hear of a bad job rather than a good job, no one is willing to go into detail on a job poorly done. And I find it difficult to understand how those persons that do a mediocre job can blame the system for their failure to achieve their ends. This year has seen the habit carried to extremes. The student House system is the cause of the Caltech undergraduate's lack of well roundedness; the rotation system caused the imbalances in House quality; the setup that created the ExComm is why they don't do anything; the yearbook doesn't come out; obviously we should do away with yearbooks. Always the system is at fault.

LOOK

Look again. Maybe the Student House system allowed those bad aspects to develop. Yet if the people in power had alone a good or even sufficient job, maybe we shouldn't have reached today's situation. Rotation, if handled properly and with discretion, could have allowed the reverse of present trends of people were interested along those lines. The ExComm, the Big T, cheerleading, Farrago, the IHC, ASCIT, you name it, can all use improvement — none has been perfected. But each has a system that can and has worked. It is the sense of responsibility of those elected and electing that make of break the system. Therein lies ASCIT's future.

I would like to see Caltech's number one crime, the act of being genuinely interested in something, no matter what, become once again an honest virtue.

New House Memberships Announced

Official membership lists for next year's three new Student Houses were released last week by the Student House office.

HOUSE A

Seniors: C. Larsen, R. Nason, S. Sajdera (3).

Juniors: A. Abu Shumays, J. Armstrong, E. Cline, G. Clough, M. Couch, T. Davey, J. Deneys, J. Dudley, B. Emerson, J. Geddis, B. Hearn, C. House, J. Johnson, B. Joula, B. Koh, H. Kurtz, S. Linn, T. Little, P. Metcalf, F. Mullin, R. Noll, R. Ross, P. Rux, F. Schultz, J. Skull, N. Svegel, L. Taylor, R. Weingarten, G. Younce, F. Wilson. (30)

Sophs: S. Allen, D. Aney, D. Bartotn, B. Chesebro, F. Curtis, J. Dash, J. Davis, T. Falconer, T. Gibbs, J. Ito, A. King, P. Manning, F. Matthews, C. Molloy, M. Perlman, S. Prata, L. Rabinowitz, J. Rayner, D. Siegel, D. Stoutemyer, J. Williams. (21)

HOUSE B

Seniors: D. Bowman, E. Janzen, P. Kastan, S. Leibovich, P. Lippman, D. Lortz, C. Moler, R. Poe, J. Sasser, D. Thompson, T. Tisch, P. Vogt. (12)

Juniors: B. Abell, L. Bell, A. Berman, R. Brandt, G. Chamness, D. Chang, R. Clemens, R. Dawson, P. Ford, L. Hardy, R.

Harris, J. Heller, R. Hess, W. Hogan, W. Howard, L. Kugler, M. Lampton, S. Langley, M. Malley, J. Moorhead, J. Newmeyer, B. Ruddick, T. Sallee, L. Seeley, R. Zacher. (25)

Sophs: D. Alderson, W. Anderson, R. Blish, D. Chandler, D. Davis, T. Ernest, C. Fuzak, J. Goodwin, W. Huber, L. Molho, W. Schrader, G. Scott, I. Tomback, C. Trimble, F. Vlach, J. Wilson, D. Windsor, Y. Woo, S. Yellin. (19)

HOUSE C

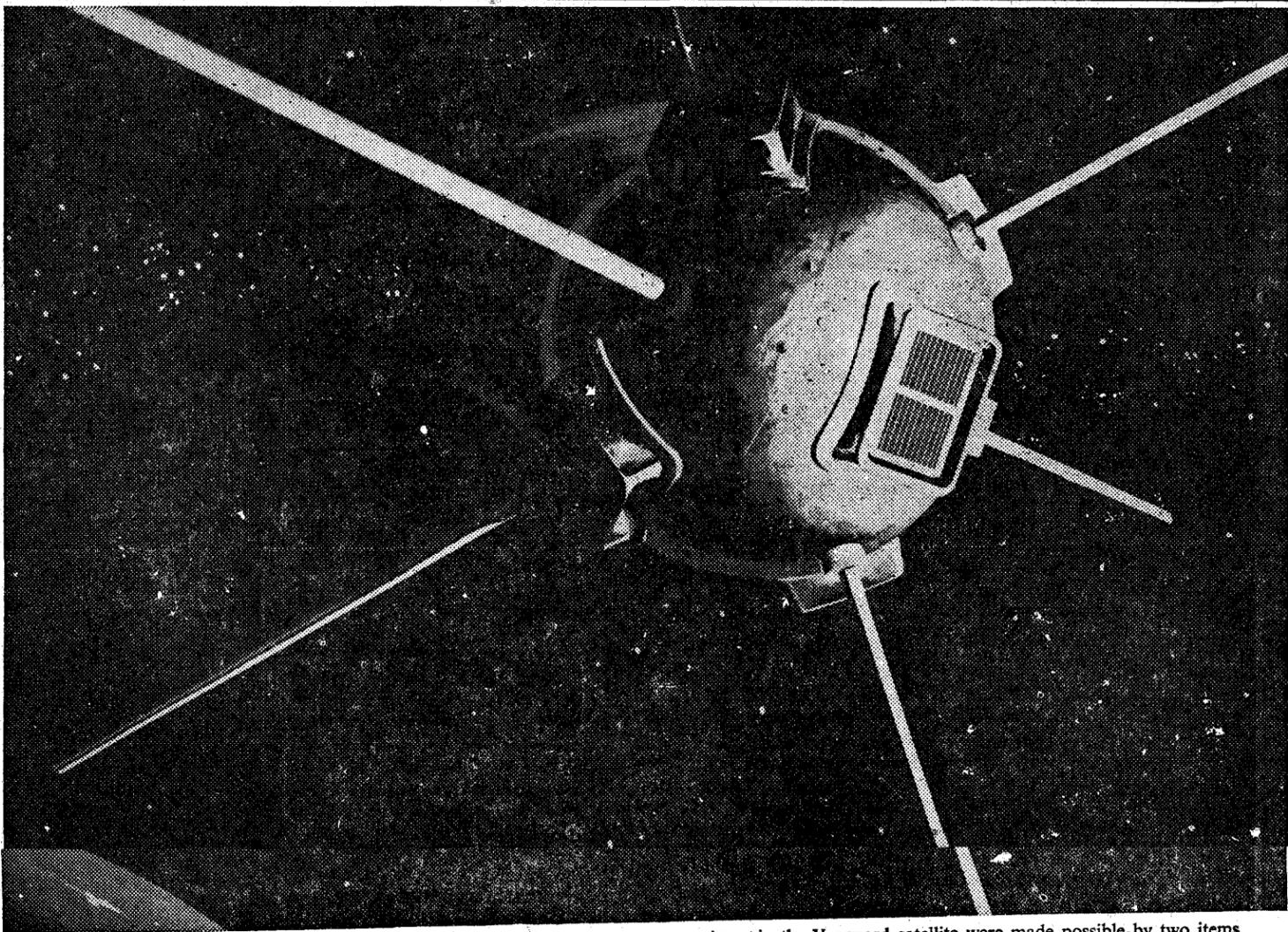
Seniors: S. Brumalle, E. Cherno, K. Dawson, J. Donnelly, D. Fenwick, R. Gatterdam, T. Gor-

don, W. Ripka, O. Seely, J. Todoroff, C. Velline. (11)

Juniors: M. Buck, W. Farrell, S. Flatte, J. Glaser, W. Hassen-Sahl, W. King, P. Laszlo, D. Low, R. Russell, A. Saffir, G. St-Cyr, W. Straka, R. Tait, D. Thompson. (14)

Sophs: H. Abarbanel, M. Adamowicz, T. Atkinson, R. Bregen, R. Counsell, S. Curtis, L. Daubek, P. Earley, L. Gershwin, W. Giague, B. Gilman, R. Griffith, R. Koretz, S. Leppla, K. Manly, W. Mendell, R. O'Connell, G. Osterberg, N. Reitz, E. Riggs, P. Rosenthal, K. Rudolph, R. Schmullian, A. Wright. (24)

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The California Tech SPORTS

Basketballers Beat Claremont, Lose Contests To Oxy, Cal Poly

The Caltech basketball team, while losing lopsided games to Cal Poly and Occidental, managed to cinch fourth place in the SCIAC by beating Claremont-Harvey Mudd last week.

The next Beaver encounter, and the last game of the season, will be played tomorrow night in Scott Brown gymnasium against the Poets from Whittier.

Occidental smashed the Beaver hopes for a third place tie with the Tigers by soundly trouncing the local varsity, 105-74 in a game played at the compact Oxy gym. The Beavers fell far behind at the outset, trailing by a 55-32 count at the half. Oxy had tanked eight points before the Beavers' Bill Ripka managed to score the first Caltech point.

While Fred Newman was scoring 24 points to lead the Tech efforts, Oxy guard Mel Murphy gunned for 41, a new school record.

Other than Newman's fine scoring, the only bright spot for Caltech was Mel Holland, who played an excellent floor game and scored 14 points. Ripka also did a good job on defense, holding hot-shooting Billy Oates, who had been averaging 16 points a game, to but five tallies.

There were two important factors in the game—Murphy's shooting and the ability of Oxy to fast break nearly every time they got the ball. The Beaver defense just could not run with the Tigers. Nearly every time Oxy had at least a three-on-two break.

A cool, collected Caltech basketball machine rolled past Claremont-Harvey Mudd Friday, 54-45. Paced by Fred Newman's 29 points, the Beavers played deliberate, control ball to win the

game going away, and cinch fourth place in the SCIAC.

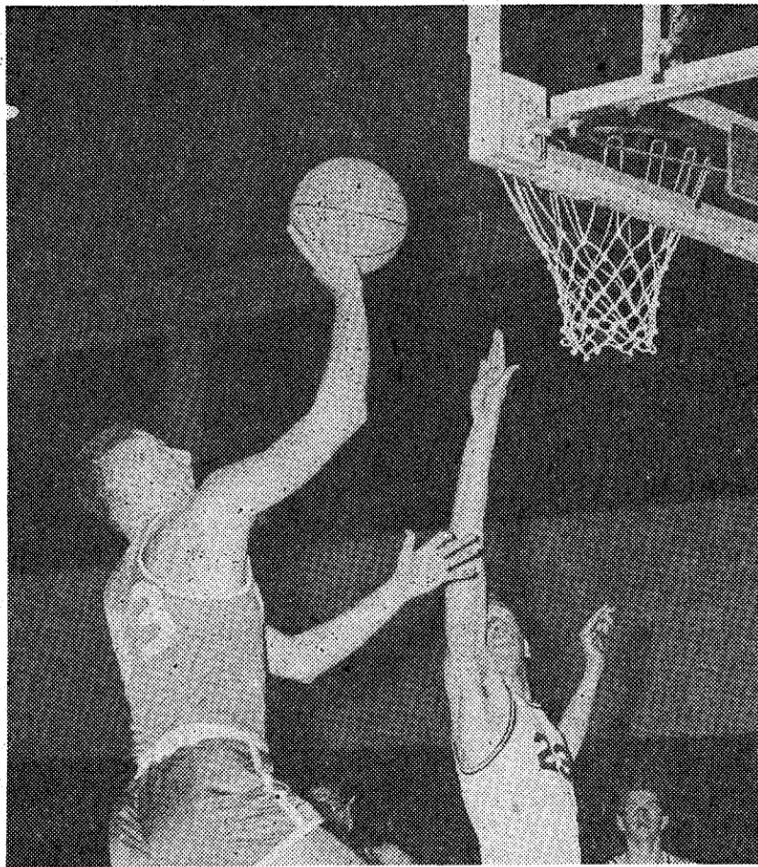
The first half was a seesaw affair, with the local crew grabbing an early lead, then falling way behind, and finally pulling ahead at the intermission. At the beginning of the game, Bill Ripka, Len Maley and Newman each hit field goals while the team contributed a few foul shots, to gain the lead at 8-3. But then the Beavers hit their only cold streak of the game, and fell behind by a 20-12 count.

A tremendous scoring effort by Newman in the last five minutes of the half, however, helped pull the Beavers even, and then past the Stags, leaving the halftime score at 26-20.

In the second half, the Beavers maintained their lead at from five to eight points until, with about thirteen minutes left, Claremont caught up at 33-33, and then sank a free throw to go ahead. But the Beavers then caught fire and pulled ahead to stay, gradually increasing their lead until the end.

Cal Poly ran roughshod over the Beavers last Saturday, winning 83-52. No Tech player could muster more than twelve points as Cal Poly grabbed an early ten point lead, and then ran away and hid for the win.

One bright spot for the Beavers was the apparent return to form of sophomore Gerry Clough. Clough, who was expected to add a lot to the team during his varsity years, has had a rough time this season, both offensively and defensively; however, he came through in fine form Saturday, tanking eight points in the few minutes he played, and displaying a good floor game.



Frosh Pete Fischer drives in for a layup over the outstretched arms of a defender. Fischer has displayed a deadly outside jump shot in this year's frosh games.

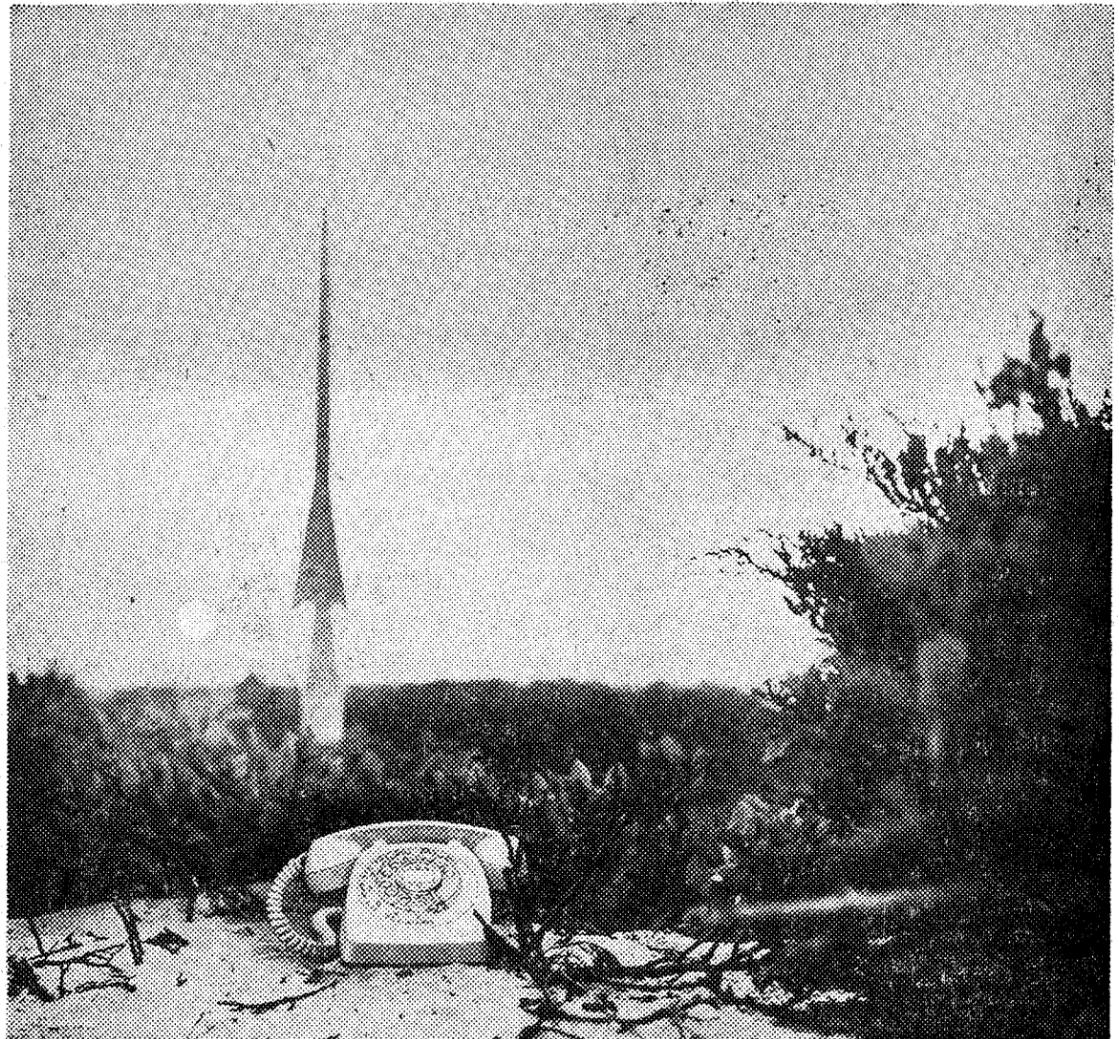
Frosh Cinch Second Place

The Caltech freshmen basketball squad cinched second place in the SCIAC last week by winning important games from Occidental and Claremont-Harvey Mudd. The little Beavers go after the big one tomorrow night—first place Whittier, who is thus far unbeaten in league play. The Poetbabes beat the Beavers last time out by nine points at the Whittier gym.

Occidental finally fell to the Caltech crew, 71-70, last Tuesday, after erasing the Beavers' eight point halftime bulge at 42-34. Tom Bopp led the charge with 28 points for the victors.

The frosh played an excellent game during the first half, with Bopp, Mike Perleman and Tom Anderson all looking sharp offensively and defensively. But during the second half the Beavers hit a cold streak, and blew a big lead, allowing Oxy to catch and pass them. With eight min-

(Continued on page 9)



Next move... "upstairs"

In the science of modern communications, the sky is no longer the limit.

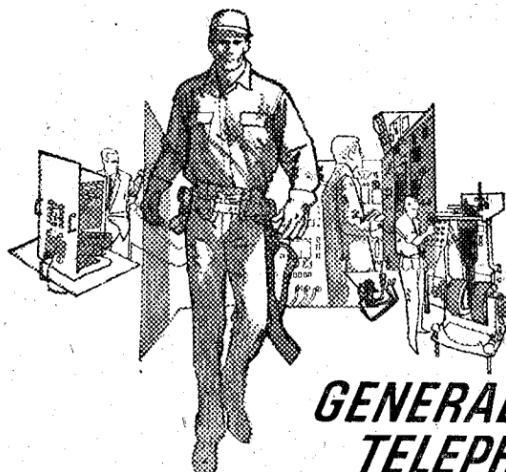
No one is more aware of that than a major communications system. That's why we are constantly exploring and developing new areas of research far beyond our celestial canopy.

Take "MASER," for instance. This is a wondrous new device that can noiselessly amplify extremely weak signals from outer space.

In working to improve and simplify MASER, we are bringing closer the day of intercontinental communications via man-made satellites.

MASER devices have many possibilities, including the tracking of missiles, and increasing the range of radar and radio telescopes.

This is a typical example of how we use research—not only to meet today's communications needs, but to answer tomorrow's.



GENERAL TELEPHONE & ELECTRONICS



Beaver Chips

By Noll

Athletic Test Set For Game Room

Possibly the favorite hangout of Techmen on weekday nights is our own little game room below Fleming. Every night a whole crew of pool and ping pong players descends upon the area to engage in Caltech's most universal athletic program outside of PE.

It has come to our attention, however, that while we have our Interhouse football, basketball, softball, et. al., along with the Scott Tennis Tournament and Intercollegiate sports, Caltech does not have an official ping pong or pool tournament.

With this in mind, the California Tech sports department proudly announces its First Annual Beaver Ping Pong and Pool Championship Tournament, to be played the week of March 1 through March 5. Anyone is eligible to enter—just cut out the entry blank below and put it in the "Z" box of any student house or lower Throop. Anyone is eligible, including the Alan Zame's who spend more time playing ping pong than sleeping.

Entry blanks will also be included in next week's Tech; deadline for entering is Friday, February 26.

No PE credit will be given! (Sorry, Al.)

OFFICIAL ENTRY BLANK, PING PONG & POOL TOURNAMENT

Name

Campus address

I wish to enter the ping pong pool division.
(circle one or both)

Swimmers Face UCLA, Santa Monica This Week

The Caltech swimming team launches its new season this week end by meeting Santa Monica Junior College in the alumni pool on Friday, and then journeying to UCLA on Saturday to engage the Bruins.

The ULCA game will be both frosh and varsity, while the SaMo JC meet is just varsity.

This year the Beavers have

Frosh

(Continued from page 8) utes remaining, the little Tigers had amassed a 63-57 lead.

But then the Beavers got hot again, finishing the game in a blaze of glory. The last thirty seconds was loosely played on both sides, however, as first Oxy blew two free throws which would have given them the lead, and then Caltech blew two free throws which would have iced the game.

The Caltech freshmen squad dumped Claremont-Harvey Mudd last Friday, 62-58, to reverse an earlier decision to the Stags.

The little Beavers played a rather loose game, but managed to show sparks of excellent shooting at intervals to grab the win.

The game was close all the way, but the Beavers managed to hang on to about a five-point lead through the last 10 minutes to insure the win.

Guards Tom Anderson and Dave Barker, plus sub forward Les Tomley, all played excellent games. Barker and Anderson played good floor games combined with timely shooting, while Les Tomey did an excellent job on defense after forwards Pete Fischer and Bruce Cheseboro fouled out early in the second half.

The Beavers lost their first non-league game last Saturday when Cal Poly of Pomona dumped them, 62-57. The Beavers suffered from extreme coldness from the field, even though they played one of their best defensive games this year. Cal Poly, who also was cold, won the game at the free-throw line, sinking 90 per cent from the charity stripe.

FIFTH CANDIDATE SEEKS SECRETARY POST

This past year has witnessed a continuing decline of student body interest in campus-wide activities: The Tennis Court Parking Lot, formerly a popular undergraduate gathering spot, has been closed due to lack of participation. Also, one of the Athenaeum garages has been converted into a Philippino shelter. It will take prompt action to save the old Health Center.

This is going to be a crucial year for ASCIT government; it is either perish or die. I believe I possess the capabilities and experience to pull us through the brown envelope shortage.

I'm ready, Mr. ASCIT.

Mordeci Starkweather

plenty of talent, and should make an able defense of their conference crown. Led by Gary Tibbetts, Turner and Mitchell in the 440 yard freestyle, 220 and 100 yard sprints, and the backstroke, respectively, and Roger Bland in the individual medley, the team has a good chance for top showings in several events.

In this weekend's matches, the Beavers should be able to handle Santa Monica with ease, but UCLA will be tough. Although the Bruins were completely outclassed by Stanford last week, this belies their real strength, since Stanford is loaded this year. UCLA is very good in the sprints, but if the Beavers have a good day, they might pile up enough points in the toher events to grab a victory.

Caltech will probably have a tougher time in winning the conference crown this year since Occidental and Claremont-Mudd both have excellent teams. Claremont beat the Beavers in duel meet last year, but was not a member of the SCIAC at that time.

Tennis Squad Looks Sharp In Redlands Loss, PCC Win

Starting off the season with a better than expected showing against awesome Redlands, the Caltech tennis team faces Pomona next Tuesday on home courts in the next league test.

Redlands, ranked high in the national top ten rankings and defending conference champ, took a 7-2 win from the visiting Techmen. Sporting an all-veteran squad with the frosh SCIAC champ and runner-up from last season for extra strength, Redlands lost only the sixth singles and third doubles in split sets.

Sophomore Dick Hess, who wrested the number one berth from returning captain Carl Morris, lost 2-6, 2-6 to league titlist Smith. Dave Butterfield, senior co-captain, dropped a 2-6, 2-6 match in second singles. Morris, sophomore Cedron Jones and Steve Hechler also lost in straight sets in singles competition.

Only win was posted by soph southpaw Bob Hearn in a 2½ hour marathon, 13-11, 5-7 and 6-3 in the final match of the day.

Morris-Jones and Butterfield-Zimmerman, the top two doubles combinations, were both decisively whipped. Hess and Francis

Track Season Begins With Tough Cal Poly

Caltech's track team flexes its muscles for the first time this season when it hosts Cal Poly on Saturday. The Beavers look strong in many events, but Cal Poly will have more depth. It should prove to be an interesting meet.

The Beavers will have Dick Klett — winner of the hundred in last year's frosh league meet — in the sprints. He has done a 10.0 100 yard dash. Tom Kyle has shown great improvement over last year and has done 50.0 in the quarter, one of the events he will probably enter.

Dick Tuft and Ben Burke will vie for honors in the half. Tuft looks especially good in this event, having set the frosh school record last year at 1:57.5. Sophs Bob Juola and Dick Harris will lead the distance men.

Mike Ruecker looks like Caltech's best entry in the high jump with a 5' 9" effort. Sid Liebovitch and Doug Stewart will hold down the discus at about 125 feet. Stewart also leads the shot putters with 40' 7" effort.

If Lannes Purnell can regain the form he had as a freshman,

he will be one of the best javelin throwers in the league. Purnell holds the Caltech frosh record with 189'.

The pole vault should be one of Caltech's strongest events with three good men. John Weaver, who has been shooting at 13' for years, will do a great job if he can get into shape and back on the team. Pete Rux and Ed Cline, while less experienced, showed great improvement last year as frosh, and should provide a great deal of depth.

Geary Younce, while a newcomer to Caltech track, has looked good in the broad jump, low hurdles, and pole vault. He should certainly strengthen the team.

While it is too early to tell much about the frosh team, certain events look good. Pfeffer and Saam have had good times in the sprints, and Jan Dash has looked good in the middle distances. Pat Early was outstanding in frosh cross-country, and should provide real class in the two-mile. Bill Francis and Carlos Johnson look strong in the weight events as do Aram Mekjian and Dennis Couzin in the javelin. Letcher shows promise in the high jump and Bill Saam won the broad jump in the inter-house meet.

All in all, it looks like the lack of depth will hurt Caltech's chances in track this year, but if the team comes through in enough places, they very well might have a successful year.

ADVICE TO FISH

- When Kastan draws three to the bike, fold.
- When Lin bets, fold.
- When Sugahara calls or raises, fold.
- When Walsh checks, fold.
- When your hand is so good that you will have to raise every chance you get, fold now, because some other fish will suck along and beat you.
- If none of the above conditions hold, bet — you might win.

Wilson salvaged a triumph with a 4-6, 6-4, 6-4 comeback effort in the third doubles.

Coach John Lamb was happy over the Tech showing against the highly-regarded Redlands team, undefeated in more than six conference seasons. The Tech team is sprinkled liberally with three sophomores, and a junior in the singles lineup and a junior and a sophomore playing doubles.

The Beaver courtmen have split a pair of pre-season exhibition matches, winning 9-0 over PCC and losing to the Valley Hunt Club in an abbreviated match.

AFTER THE ELECTION RALLY, TRY ROMA GARDENS — 1120 E. Green
 For Quick Service Call SY 2-9748
 Open Daily 5-12 P.M.; Fri. & Sat. 5 P.M.-2 A.M.; Sun. 5-9 P.M.
Will Deliver Orders for More Than 3 Pizza

Hopes Bright For Baseball This Season

Bolstered by a stout hitting attack and a veteran infield, Caltech's baseball squad moves into action with an exhibition opener against San Fernando State Saturday.

John Walsh, two-time first team all-conference pick and winner of the Alumni Baseball Trophy for the second consecutive year, will lead the Beaver offensive. Walsh, conference batting champ, and left-fielder Buzz Merrill, second to Walsh in the hitting race last campaign, are the bright lights in the offensive punch.

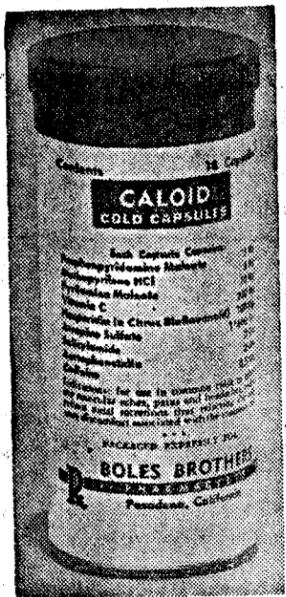
Other regulars returning include Dave Blakemore at third, Skip Stenbit at first, Herm Hartung at second and Fred Newman at short-stop. Marty Kaplan is the only returning pitcher and therein lies the chief weakness of the team.

Up from last year's frosh squad, which also recorded a losing season, are hurlers Bill Palke and Steve Heineman, catchers Joe Bocklage and Hal Kurtz, infielders Frank Ridolphi, John Arndt and John Russ and right-fielder Bob Williams.

The co-current basketball campaign is hurting practice sessions with many players on the varsity cage squad and Coach Ed Preisler doubling as coach of the frosh basketball quintet.

Replacing Jack Peterson as frosh coach is Tom Hunt, now a Caltech grad student, and formerly captain and second baseman of the Pomona team last year.

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ALL HAIRCUTS \$1.50
 Two Barbers to Serve You



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ARROW

Wherever you go . . . you look better in an Arrow shirt

Radio Club On Air, Sends Messages Free

Tech's Amateur Radio Club is back in action and is offering a free-message service to everyone. The club station is now on the air regularly from its new location in a room near the Student Shop.

Through nationwide amateur networks, the Amateur Club can send private radiograms delivered anywhere in California within a day or anywhere in the United States within two to three days. Notes can also be sent to any Army or Navy base in the world.

Messages should be of telegram length (less than 25 words), with the complete name and address of the person to receive the message and, if possible, his phone number. The full name and address of the person sending the message should be included. Items may be sent to the Amateur Club by putting them in the X-box in either Blacker or Lower Throop, or simply by sliding them under the station's door. There is no cost for this message service.

Recently the club equipment was installed into the old guard's room, which is next to the Stu-

dent Shop and opposite the new Sloan Laboratory. Two antennas were erected atop Sloan last week end, and the station has been operating nightly since that time. The regular station call is K6FCS, but until renewal of the station's license has been completed, it is operating under the call K7DEP/6.

Within a month the club plans to put its new transmitter on the air. This will boost the station's power from its present 120 watts to the legal limit of a kilowatt.

Interested Techmen can contact John Golden (Dabney) for membership information; grad students should buttonhole Jim Kessell or Milt Levenberg (Chemistry).

Techmen Await Scripps Confab

"Ethics and Modern Man" will be the theme of the Caltech-Scripps conference, to be held February 26-28. Openings for the conference officially closed this week, but interested Techmen may still have a chance to fill in for students who cancel out.

The theme of the conference will be carried out in speeches and discussion groups. Speaking will be R. J. Fogelin, philosophy instructor at Pomona; A. Scaff, sociology professor at Pomona, and William Kirtner, staff psychologist at Caltech.

Announcements

PRE-REGISTRATION

Pre-registration for third term is next week, February 22 to 26.

"Y" FILM

"Ivan the Terrible" will be presented night at 7:30 in 206 Dabney as part of the YMCA film series. Cost is 50 cents.

DANCE AND SING

The YMCA Folk Dancing Class meets Sunday night in Culbertson at 7:30. The Folk Singing Groups meet Thursday evening in the Y Lounge, 7:0 p.m. Bring vocal cords.

SAILING CLUB

The Sailing Club will show movies of the trans-Pacific yacht race at a meeting tonight, 8:30, 206 Engineering.

The Place to Go
NATIONAL THEATERS

ACADEMY

1003 E. Colorado, Pasadena
SY 6-3191

"SOLOMON AND SHEBA"

Yul Brynner
Gina Lollobrigida

STATE

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SY 2-7139

"ROOM AT THE TOP"

Simone Signoret
Laurance Harvey

"THE LAST ANGRY MAN"

Paul Muni

Munger . . .

(Continued from page 1)

attend the 11 a.m. H 5 class in 206 Dabney to discuss, "Political Evolution and Revolution in Africa." He will lunch informally with the H 5 staff at the Athenaeum. At 7:30 p.m. he will visit the H 124 session in 208 Dabney.

At noon on Wednesday, Munger will speak to a "Y" Luncheon forum at the Athenaeum. He will discuss, "Progress and Prospects of Multiracialism in Africa." Wednesday evening he will have dinner with Dr. and Mrs. Beadle.

Thursday Munger will attend the 8 and 11 a.m. Econ 100 classes to speak on the topic, "The American Metals Case in Northern Rhodesia." At noon he will attend a "Y" graduate sack lunch. At 2:45 p.m. he will visit a Westridge School current events class to speak on "Recent Developments in Africa." He will dine at the home of Dr. and Mrs. Horace Gilbert.

On Friday Munger will visit the 8 and 11 a.m. Econ 100 classes to continue his discussion of "The American Metals Case in Northern Rhodesia." He will speak to the "Y" undergrad lunch at noon on "Inside African Nationalism." He will have dinner with Dr. and Mrs. L. A. DuBridge.

The rest of Munger's schedule will appear in the next issue of The California Tech.

ROTC Riflemen Open Competition

The Air Force ROTC rifle team is opening second-term competition tonight by entering the Secretary of the Air Force national meet against 150 other college ROTC teams. Later this week, the Tech riflemen will fire against the University of Arizona and Virginia Military Institute.

In first term Caltech broke even, losing to UCLA by three points and defeating USC by 40 points out of 2000.

Engineers!

Scientists!

WE'RE LOOKING
FORWARD TO
MEETING
YOU



Last year we had the pleasure of meeting many engineering and science seniors during our visit to the campus. As a result of our discussions, a gratifying number chose to join our company.

We'll be back on the dates below, and this notice is your invitation to come in and see us.

If you're interested in joining a company that's a leader in fields-with-a-future, you'll be interested in the advantages Boeing can offer you. Boeing is in volume production of Bomarc, the nation's longest range defense missile, and is a prime contractor on Minuteman, an advanced solid-propellant intercontinental ballistic missile system.

Boeing is also the nation's foremost designer and builder of multi-jet aircraft. Production includes eight-jet B-52G missile bombers, KC-135 jet transport-tankers and the famous Boeing 707 jet airliner.

Research projects at Boeing include celestial mechanics, solid state physics, nuclear and plasma physics, advanced propulsion systems, and space flight.

Expanding programs offer exceptional career opportunities to holders of B.S., M.S. and Ph.D. degrees in aeronautical, mechanical, civil (structures), electrical-electronic and welding engineering, and in engineering mechanics, engineering physics as well as in mathematics and physics. At Boeing you'll work in a small group where individual ability and initiative get plenty of visibility. You'll enjoy many other advantages, including an opportunity to take graduate studies at company expense to help you get ahead faster.

We hope you'll arrange an interview through your Placement Office. We're looking forward to meeting you.

FRIDAY, FEBRUARY 26

MONDAY, FEBRUARY 29

TUESDAY, MARCH 1

BOEING

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