

# Techmen Await Bonfire, Pajamarino Tonight

## Tigers Favored In 36th Annual Grid Classic

Tonight's the night! At 6:30 the chow line will open up in Tournament park and the 1949 Pajamarino will be underway.

After a delicious meal, all the Techmen present should be ready for the rally which will begin at about 7:15. The feature attraction of the rally, of course, will be the bonfire. Songs and yells will be led by the yell leaders, the band providing suitable music as accompaniment. Coach Bert LaBrucherie will also be

on hand to help the rally along. The rally is expected to last until everyone is completely hoarse, at which time the parade will form.

### Parade Route

As usual, the paraders will be on foot, in pajamas. Only six selected cars will be included, to be used for basket cases only. The course of the parade will be the traditional one, terminating at Legion Hall after a good stroll down California, Lake, and Colorado streets.

The parade will be lead by the band truck and the yell leaders.

### M.C. Mike

J. Mike Sellen has been volunteered to M.C. at the Legion Hall beginning at 8:30 (or whenever the parade happens to arrive at the hall).

### Quartet to Sing

Last year's most popular performers, the Crown City Four, are being brought back tonight to form the top act of a superlative program which has been arranged for the occasion. Se-

lected song and dance acts have been signed to complete the show which will be built around the singing quartet.

### Loud PJ's

Naturally we can't get through the night without a beauty contest of some sort, so, a pajama contest will be held. No pajamas are liable to qualify unless visible for at least five miles through the smog.

### Prizes

Fowler and Schrader, the

men's wear store up on Colorado near Lake, are offering prizes to the men with the winning garbs. Originality of design will, of course, be highly regarded.

A final note of caution: no cars can be included in the parade unless approved ahead of time, since our parade permit calls for six and ONLY SIX cars. Also, no alcohol should be brought to or consumed during the Pajamarino.

## Beavers Gun For Upset

Caltech's Eager Beavers and Oxy's Tigers clash tomorrow night at the Rose Bowl in the 36th renewal of their gridiron series. Both teams will be at top strength when the starting whistle blows at 8:00 p.m.

The Beavers will miss the support they had in last year's Oxy game from men like Bob Funk, Bill Sylvis, Don Hibbard, and Chucker Norman. But this doesn't mean that this year's team isn't capable of downing Occidental. Twenty-five to thirteen was the best the conference champs could go against us last year, and they're certainly not the champs this season.

### Comparing

Last week's 546 shellacking at the hands of Whittier would tend to push the Tigers on the same level as Caltech, who was beaten by a similar score. The Poets' pass defense worked better against Oxy than against us. Tiger flinger Joe Johnson completed only two passes all evening.

This will be the first time since the start of the season that the Engineers will be at full strength. Some new plays are being lined up to fool the Tigers. The wrinkles in last week's offense have also had a little ironing out so that we don't give away more points than we make.

### Bevo Defense

Coach LaBrucherie's new defense worked out very well last week against the Sagehens, holding them to 50 yards less than our own offense made. With an additional week's polish we hope it will be as effective against Oxy as Whittier was.

### Past Notes

The Tigers have the edge on us, 23 games to 10, with 2 ties, in a 35-game series. History has never been a sure guide to the future though. Whether Oxy is out for revenge for last week's defeat, dispirited because of it, or overconfident of victory, they will have an extremely tough row to hoe Friday night against the battling Beavers.

And don't forget the Frosh game at 5:45. These boys have been defeated twice, but now with a full month of practice under their belts, they are about due for a victory.

### All Out

Anything can happen tomorrow night at the Rose Bowl when the Beavers will try to mow the Tiger down to size. After whooping it up at the Pajamarino tonight, both the student body and the team are in top spirits for the Big Game.

### Starting lineups:

OCCIDENTAL	CALTECH
Levin L.E.	Carson
Lomen L.T.	Berner
Goof L.G.	N. Reed
Armstrong C.	Hanna
G. Ingersoll R.G.	Peck
Schlossman R.T.	Bowen
Schwek R.E.	R. Moore
Johnson Q.	Marshall
Calderone L.H.	Tyson
Pasey R.H.	D. Schroed'r
B. Ingersoll F.	Lewis

## Christian Science Group Meeting

The Christian Science Organization on campus will hold its next meeting on Tuesday evening, November 1, at 7:30 p.m. in Room 202 Dabney. All students, faculty, and C.I.T. personnel are cordially invited to attend this and every meeting of this active group.

## AIEE Slates Film, Speaker Monday

Monday, October 31, the AIEE is sponsoring a speaker and 45-minute color film, "Armoring 220 KV Lines," in 119 K at 11:00 a.m. The speaker and movie for this meeting are from the Southern California Edison Company.

# CALIFORNIA TECH

California Institute of Technology

Thursday, October 27, 1949

No. 4

Volume LI.

## Y Firesides Series Open

Heralding the start of this year's Caltech Y Fireside Program, Dr. Ian Campbell, assistant chairman of the Geology Division, will entertain a group of students at his home this coming Sunday evening.

Dr. Campbell has been at the Institute since 1931 and during that time has always shown a great interest in the students. This is reflected in the Geology Department's "esprit de corps" for which he is largely responsible.

### Students Meet Faculty

The Y's Fireside program is designed to enable the students to meet the faculty on an informal basis in their own homes.

The gatherings are held each Sunday throughout the year and last from 7:30 to 9:30 p.m. There is no planned program, the idea being that a discussion following spontaneous paths permits a pleasant informality.

### Sign Up!

Any undergrad is invited to join these gatherings. Each week sign-up lists are posted in Throop Club and in each of the four houses. If you wish to go, all you have to do is add your name to the list. The number of students is usually limited to about 12.

### See Stone

For further information about the program please see Ralph Stone in Ricketts or Dave MacKenzie in Dabney.

## Institutors' Drive Success

The Institutors take pride in announcing that, as a result of their membership drive, 186 students have been added to the organization.

### Chairmen

The house chairmen are to be commended for their work during the drive: Joe Cain, who signed up 70 Dabney men; Dick Knipe, who got 63 from Ricketts; Pete Howell, who signed up 36 in Blacker, and John Morrison, who got 17 from Fleming.

### Men in Charge

Institutors Dick Tracy and Dud Wagner from Ricketts, and John McCool, Leonard Schultz, Phil Orville, and Mike Lourie from Blacker are also to be commended, for painting and posting the signs for our open house last Saturday.

## Campus Calendar

THURSDAY, OCTOBER 27  
12:00 Throop Club Meeting  
12:00 Y Upperclass Lunch Club  
6:30 Pajamarino in Tournament Park

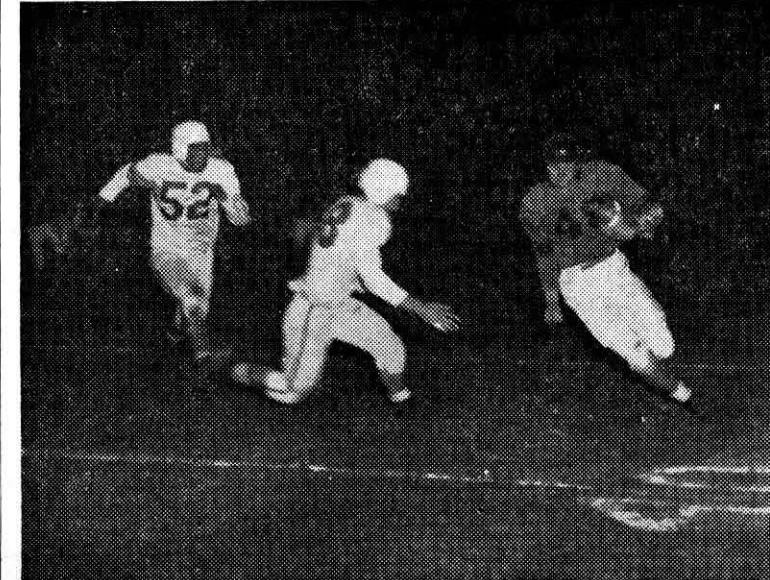
FRIDAY, OCTOBER 28  
4:00 Varsity Water Polo vs. Compton  
at Compton  
5:45 Football Frosh vs. Oxy at Rose  
Bowl  
8:00 Varsity vs. Oxy at Rose Bowl

SATURDAY, OCTOBER 29  
10:00 Varsity Cross Country vs. Santa  
Barbara at Tournament Park

SUNDAY, OCTOBER 30  
7:30 Caltech Musicals in Dabney  
Lounge

TUESDAY, NOVEMBER 1  
12:00 Y Frosh Lunch Club

WEDNESDAY, NOVEMBER 2  
7:30 Orchestra Rehearsal in Culbertson  
9:00 Glee Club in Throop Club



Bob Levin, outstanding Occidental end, is rambling along on his way to a 60-yard touchdown. Levin has caught 5 touchdown passes from Joe Johnson for a total of 355 yards against three opponents.



Babe Karasawa speeds across the Sagehen goal-line to score the second Beaver touchdown in last week's game at the Rose Bowl. The Engineers will be gunning for the Tiger skin tomorrow night.

## 200" Mirror Finally Ready To Search Space Depths

With the supplementary polishing completed, the 200-inch mirror for the Hale telescope will be ready for use when the final aluminum coating has been applied, it was announced last week by Dr. Ira S. Bowen, Director of the project.

Dr. Bowen pointed out that the original aluminum coat was an experimental one applied for the testing period. No scheduled date was issued for completion of this last stage.

### Corrections

The polishing work just finished was to remove high spots near the edge of the reflector. These corrections amounted to about 20/millionths of an inch.

"Although we believe we have now obtained as nearly a perfect surface as possible, we cannot be absolutely certain until the telescope has been tested further under actual operating conditions," Dr. Bowen stated.

### Polishing

Of the five months required to complete the work, only about seven hours was actually spent polishing; the remainder was consumed by testing and handling of the huge glass.

The polishing job was done by Don O. Hendrix, Mt. Wilson Observatory optician. Dr. John A. Anderson, who supervised figuring and polishing of the mirror from 1936 until its completion in 1947, retired before it was decided to attempt to improve it further. Hendrix began cautiously removing more glass from the mirror last June.

### Smallest Tools

The smallest tools, which were made of cork, were used by hand to remove as little as 5 or 6 millionths of an inch of glass in small localized areas. For larger areas where as much as 20 millions of an inch of glass had to be taken off, work was done by machine.

### Extreme Care

Extreme care had to be taken to avoid removing too much glass. When polishing was in progress no one except those working on the mirror had access to the observatory floor. Before each polishing run the mirror had to be thoroughly cleaned to avoid the possibility

of foreign matter getting on it and scratching its surface.

Final tests were completed late in September and the mirror pronounced ready for coating. The latter will be done at the observatory in a large vacuum tank especially designed and built for this purpose.

### First Work

The first work to be done with the Hale telescope will deal entirely with taking direct photographs of nebulae and similar objects, both nearby and at the extreme range of the instrument which is of the order of a billion light years from the earth. This is twice as far as the next largest instrument, the 100-inch telescope at Mt. Wilson, can reach.

The Palomar astronomers, who first obtained pictures of other stellar systems like our own at that distance last January, believe that the repolishing of the mirror will make it possible to photograph stars 20 percent fainter than those recorded on the first test plates. There is good reason to believe that the Hale telescope will now be able to record objects more than four million times fainter than the faintest stars you can see with the naked eye.

### Depths of Space

Photographs made last January revealed many more nebulae than stars at the limit of the telescope—giving evidence that the Hale breaks entirely away from our own stellar system and to the very depths of space.

The faintest of these showed on the photographic plate as dim spots only a little larger than star images. Most of them, the Palomar astronomers believe, are average stellar systems at a distance of about one thousand million light years, although a few may dwarf systems nearer than that and some giant ones even further away.

Not until a great many more plates are taken will it be possible to draw any more definite conclusions as to the size of these systems and their distance. It is with such nebulae, both far and near, that early work with the Hale will be concerned, Dr. Bowen said.

No wine, but women and song highlighted the ASCIT-Scripps exchange held last Friday night within the white wall's confines.

Over 100 Caltech men journeyed the 27 miles out on Highway 66 to attend the social function held at Claremont.

The eager "Beavers" were hosted by the Scripps Demi-soldiers at each of the four halls: Browning, Dorsey, Toll and Clark.

Browning men began the evening at Toll, Lemmings at Browning, Blackerites at Clark, and Throop at Toll and Browning.

Dancing was held at both Browning and Toll, with plenty of patio pirouetting space for those brave enough to dare the chilly atmosphere (outside, that is).

## Charities Drive Slated by ASCIT

The ASCIT is conducting a Consolidated Charities Drive on campus during the week of November 7 to November 11. The charities for which money is being raised are the World Student Service Fund, the Community Chest and the Infantile Paralysis Foundation.

### Only Charities Drive

Apart from the Y Drive in February, this is the only time the students will be personally solicited this year. The goal for undergrads and grads combined is \$2500.

Each person will have a pledge card made out in his name and on which is listed the three charities. You may place on the card the amount you wish to contribute to each. It will, therefore, be a system of direct contribution.

The various chairmen conducting the drive are the following: Dave MacKenzie, drive chairman; Kent Stratton, publicity chairman; Bill Cox, student houses chairman; Tom Stockbrand, John Noble, Bob Cobb, and Dick Buck, chairmen of their respective classes in the off-campus division. In addition there are several solicitors in each department of the graduate school.

## Scripps Mixer Given Friday

## Civil Service Alumni Topic

"The Employment of Scientists and Engineers in State Civil Service" will be the topic of the fifth discussion in the Alumni Placement Series, which will be presented next Tuesday evening at 7:15 in Fleming House Lounge. Mr. L. A. Norman, Jr., the District Mining Engineer of the California Division of Mines, will deliver this worthwhile talk.

After receiving his B. A. degree from Stanford University, Mr. Norman held various positions as mining engineer and explorations expert. He was formerly Supervisor of Field Engineering at the Colonial Mica Corporation of Asheville, N.C., an office preceded by positions of General Manager, Central Eureka Mining Co., Sutter Creek, Cal., and Plant Superintendent, Hershaw Chemical Co., El Segundo, Cal.

Such subjects as the need for engineers and scientists in the state government, where such men are employed, the type of work involved, and the relative opportunities and advantages of state civil service versus industrial employment will be included.

All interested students are urged to attend this lecture, since this talk concludes the discussions of state, federal and industrial employment.

## Christian Science Group Meeting

The Christian Science Organization on campus will hold its next meeting on Tuesday evening, November 1, at 7:30 p.m. in Room 202 Dabney. All students, faculty, and C.I.T. personnel are cordially invited to attend this and every meeting of this active group.

## Radio Club Aids Bonfire Defense

With their first project of the year, the handling of communications for campus defense completed, the Caltech Radio Club has started the season's ham activities.

Of particular interest to out-of-state students is a new service offered by the Radio Club. They have offered to help anyone

## Caltech Football

Should Caltech continue to play intercollegiate football? This question has been reiterated many times during the short history of this institution, and today it reappears as our football squad is well into another season.

**It seems that the common argument** why Caltech should not engage in football on an intercollegiate basis is that "We're tired of losing," or "What future is there if we never win?"

Caltech football teams rarely see a championship year, as one may easily discern from a look at the records. There have been few years in which the majority of our games were victories. Consequently, each time the Orange and White enter a contest, they stand a good chance of taking it on the chin.

The grandstand quarterbacks are aware of this; that is why this editorial is being written; the entire team from Coach to water boy is aware of these odds, and yet it is the wish of these forty men to meet the challenge despite whatever adverse odds may exist.

The squad knows the injuries which might be incurred, the disappointments that may follow, and yet the players devote many hours a week to developing and improving their game so as to be prepared for whatever happens on game night. The football player must find an equilibrium between time for football and time for studies. It is no easy task to turn out five nights a week for three months for a rugged sport such as football.

How can we, who are content to stand on the sidelines, ask the men who have given so much of their effort, time, and courage to cease playing football when it is their wish to continue this sport? Let the men who must sustain the defeats and glory in the victories be the ones to judge whether or not Caltech should drop intercollegiate football.

## Who Dealt This Mess

BY CARL FOX

Classically a minimum of 1½ honor count is required to respond to partner's opening bid. But modern bidding tends toward replying, holding ins or 1+, if the hand appears to fit at all well. It will be found that this practice, carefully used, will permit the bidding of many contracts which could not otherwise be reached. As an example, partner opens with One Heart and you hold

S KQJxx  
H Jxx  
D x  
C xxx

bid One Spade.

But holding

S QJxx  
H xx  
D Jxx  
C Kxxx

you pass as quickly as possible. One of the most useful and least understood of modern bidding techniques is the one-over-one force. When partner opens and you respond in a suit, not the suit he bid, this is forcing for one round. If he rebids and you again respond in a previous unbid suit, this is again forcing for one round. But this does not apply to his rebids. In other

## The Evening Concert

KFAC 8-10 p.m.

Presented by the Southern California and Southern Counties Gas Companies

THURSDAY, OCTOBER 27

II Signor Bruschno—Overture, by Rossini. Pittsburgh Symphony Orchestra conducted by Fritz Reiner (5). Symphony No. 9 in D Minor (Choral), by Beethoven. Soloists, Chorus and Orchestra of Berkshire Music Festival and Boston Symphony Orchestra conducted by Serge Kououssevitzky (68).

Moura Lympany, Pianist.

Concerto in A Minor for Piano and Orchestra, by Grieg. National Symphony Orchestra of England conducted by Sir Sidney Beech (26).

The Fountains of Rome, by Respighi. Symphony Orchestra of the Augusteo, Rome, conducted by Victor de Sabata (14).

FRIDAY, OCTOBER 28

Weekly Feature Concert

Voces of the Golden Age of Opera Sextette from Lucia di Lammermoor, by Donizetti.

Quintet from the Masked Ball, by Verdi. Titta Ruffo, Baritone.

Drinking Song from Hamlet, by Thomas. Enemy of His Country from Andrea Chenier, by Giordano.

Admetor, Rule of the Ocean from L'Africana, by Meyerbeer.

Quartet from Rigoletto, by Verdi.

Geraldine Farrar, Soprano.

One Fine Day from Madame Butterfly, by Puccini.

Quartet from La Boheme, by Puccini.

Charles Dalmores, Tenor.

Flower Song from Carmen, by Bizet.

Quartet from Martha, by Flotow.

Luisa Tetrazzini, Soprano.

Dearest Name from Rigoletto, by Verdi.

A Little Voice I Hear from the Barber of Seville, by Rossini.

Trio from Lombardi, by Verdi.

Antonio Scotti, Baritone.

Scarpia's Aria from Tosca, by Puccini.

Trio from Faust, by Gounod.

Johanna Gadski, Soprano.

Oh! Noble Carlos from Tannhauser, by Wagner.

Feodor Chaliapin, Basso.

The Calf of Gold and Mephistopheles Serenade from Faust, by Gounod.

Nellie Melba, Soprano.

Mad Scene from Lucia di Lammermoor, by Donizetti.

Pol Plancon, Basso.

Drum Major's Air from Le Caid, by Thomas.

Trio from Samson and Delilah, by Saint-Saens.

Emilia Calve, Soprano.

Habanera from Carmen, by Bizet.

Enrico Caruso, Tenor.

On With the Play from Pagliacci, by Leoncavallo.

Like a Dream from Martha, by Flotow.

Oh! Paradise from L'Africana, by Meyerbeer.

Heavenly Aida from Aida, by Verdi.

Oh! Noble Carlos from Ernani, by Verdi.

SATURDAY, OCTOBER 29

Faust, by Gounod. Soloists, Chorus and Chorus and Royal Philharmonic Orchestra conducted by Sir Thomas Beecham.

MONDAY, OCTOBER 31

The Corsair—Overture, by Berlioz. Royal Philharmonic Orchestra conducted by Sir Thomas Beecham (9).

Symphony in D Minor, by Franck. Concertgebouw Orchestra of Amsterdam conducted by Willem Mengelberg (40).

Sergei Rachmaninov, Pianist.

Concerto No. 2 in C Minor for Piano and Orchestra, by Rachmaninov. Philadelphia Orchestra conducted by Leopold Stokowski (32).

Palestrina—Three Preludes, by Pfitzner. German Philharmonic Orchestra of Prague conducted by Joseph Keilberth (24).

Emperor Waltz, by Johann Strauss. Vienna Philharmonic Orchestra conducted by Herbert von Karajan (8).

## Potpourri

By Bob Crichton

The following quotation comes from no less authority than Karl Compton, president emeritus of M.I.T.: "Increasing concern is being expressed over the fact that a major portion of the fundamental scientific discoveries and theories have been coming from Europe, in spite of the far greater number of students and generally superior laboratory facilities in this country."

"Why has the U.S. not been relatively prominent in the production of fundamentally new ideas?

"We are wondering whether, even in the relatively free institutions like M.I.T., the pressure of numbers and the tradition of daily class assignments and emphasis on graduates may not be acting to inhibit the discovery and development of real genius . . . Some way to fire the most gifted students with a burning curiosity and a driving enthusiasm for their subject, as against the passing of successive lessons with high grades, is still to be achieved on a satisfactory scale."

### Got Any Ideas?

Naturally, we are bound to draw comparisons, and I invite comment from students and faculty on this question.

The workings of the student mind are very interesting. A few days ago, one Techman, struggling to solve a differential equation on the board, finally told the class he was going to try a "reverse exponential shift."

Caltech now grants a larger number of advance degrees in engineering and science than any other college in the state.

### Octopus Activities

Occasionally you will hold a hand with 1+ to 1½ honor count, no biddable suit, but four or three small cards or three to an honor in partner's suit. Then the correct move is to raise partner's suit. Always remember that a one level raise of partner's suit is the weakest bid available except the pass. A good Two Heart bid over partner's One Heart would be,

S xx  
H Qxx  
D QJxx  
C Kxx

### Musical Masterpieces

KFAC 4-5 p.m. daily  
2-5 p.m. Sunday

Presented by the Slavick Jewelry Company

THURSDAY, OCTOBER 27 Academic Festival Overture—Brahms. John Barbirolli and Philharmonic Symphony Orchestra of New York.

Symphony No. 2 "Antar"—Rimsky-Korsakov. Erich Leinsdorf and The Cleveland Orchestra.

Hungarian Fantasia—Liszt. Edward Kilenyi, Pianist. Selmar Meyrowitz and Grand Philharmonic Orchestra of Paris

FRIDAY, OCTOBER 28 "Euryanthe"—Overture—Weber. Frederick Stock and Chicago Symphony Orchestra.

"A Midsummer Night's Dream" "Incidental Music"—Mendelssohn. Artur Rodzinski and the Cleveland Orchestra.

Sebastian "Ballet Suite"—Menotti. Dimitri Mitropoulos and Minneapolis Symphony Orchestra.

Kikimora—Ljadov. Fabien Sevitzky and Indianapolis Symphony Orchestra.

SUNDAY, OCTOBER 30 Czech Rhapsody—Weinberger. Hans Kindler and National Symphony Orchestra.

"Selections from Boris Godounov"—Mousorgsky. Ezio Pinza, Basso. Emil Cooper and Metropolitan Opera Chorus Orchestra.

Ballet Suite from Operas—Gluck. Arthur Fiedler and Boston "Pops" Orchestra.

MONDAY, OCTOBER 31 Masquerade—Overture—Nielsen. Nicolai Malko and Danish State Broadcasting Orchestra.

"Symphony No. 5 in B Flat Major—Schubert." Serge Koussevitzky and Boston Symphony Orchestra.

"Das Rheingold" "Excerpts"—Wagner. Leopold Stokowski and The Philadelphia Orchestra.

TUESDAY, NOVEMBER 1 "The Flying Dutchman"—Overture—Wagner. Sergei Koussevitzky and Boston Symphony Orchestra.

Symphony No. 2 in C Minor—Kabalevsky. Jacques Rachmilovich and Symphony Orchestra of St. Cecilia Academy, Rome.

Gothic Chaconne—Dopper. Willem Mengelberg and Concertgebouw Orchestra of Amsterdam.

WEDNESDAY, NOVEMBER 2 "Two Blind Men of Toledo" Overture—Mehul. Sir Thomas Beecham and Royal Philharmonic Orchestra.

"Concerto No. 3 in D Minor"—Rachmaninoff. Vladimir Horowitz, Pianist. Albert Coates and London Symphony Orchestra.

Russian Rhapsody No. 9 in E Flat Major—Liszt. Arthur Fiedler and Boston "Pops" Orchestra.

TUESDAY, NOVEMBER 1 Abu Hassan—Overture—Weber. Concertgebouw Orchestra of Amsterdam conducted by Willem Mengelberg (4).

Symphony No. 3 in E Flat Major (Eroica), by Beethoven. Vienna Philharmonic Orchestra conducted by Wilhelm Furtwangler (50).

Jascha Heifetz, Violinist.

Concerto in B Minor for Violin and Orchestra, by Sibelius. London Philharmonic Orchestra conducted by Sir Thomas Beecham (28).

Concerto for Orchestra, by von Einem. Saxonian State Orchestra conducted by Karl Elmendorff (24).

Russkaya-Popol'shchina, by Dvorak. National Theatre Orchestra of Prague conducted by Rudolf Vasata (4).

Caltech Football

## CAMPUS BREWINS

### Sweetness and Light

With a sigh of resignation, the Beak and his brethren took themselves to Schimpf's last Friday to observe what new and scintillating stimulæ (feminine form of the word "stimuli") was to be offered us. After reading an article in the holy "Schimpfure" about the ways and means of docilizing Beavers for use as husbands, we had assumed that perhaps a revolutionary technique was being evolved in the Ivory Tower, but were greeted by the familiar tea-cup conversation and etiquette supreme routine that has kept us frothing for years.

One of the most unanimous opinions of all time was written on the glum faces of frustrated Techmen at Saturday breakfast. Not all was sad, it is true, so we refrained from issuing with "I told you so"; Blackerfrost BTO Ogilvie was succeeding happily in the thin guise of being a host and serving coffee with the giggling assistance of half-a-dozen fluffy things (all female).

On the way home in the car J. Morgan was treated to the sullen complaints of Dapper Drury, but he smiled tolerantly. Also observed to be having big successes were Picciotto,

who was thrilling to an evening of Canasta in Toll, Shepard and Bradley apparently starry-eyed over old flames, and Carel Ottie. Frosh Larry Starr was so impressed with one Schimpf's that he made a date for the coming weekend only to find no one who is going out there to bum rides from.

### Wrexchange

J. Arthur Cuse made his usual striking appearance in a very loud checkered vest, Ivy League, vintage 1925; he had received reports about a certain torrid blonde and asked her on arriving, only to find she had retired to bed out of boredom—she was dragged downstairs anyway, and spent the evening curled up in one of the date rooms with Cuse and the vest listening to the former describe with great fervor the workings of Millikan's oil drop; he had nothing to say about a pair of binoculars. We were amazed to Lemming Pope Big Don, in civilized dress!, and Fairall at the Schmizer, as well as Eschner and Scantlin who ought to know better. Matzner, Slodowski, Wong, and Keswick have been muttering about being corralled by a very tall amazon for clean-

## The California Tech

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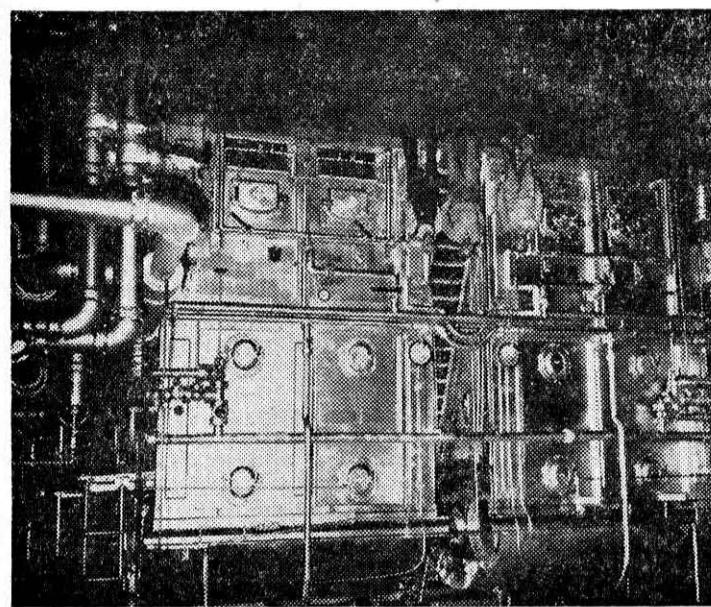
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## THE FINAL CONNECTION



On the left: Orville House—Foreman Plumber, J. M. Gibbons—Chief Engineer, and Dean Gilbert—Operating Engineer, standing in front of the twin sterling type boilers. Right: Mr. Haskin of the Maintenance Dept. making the final connection in the Campus Hot Water mains.



## Steam Plant Story Told

By John Whittlesey

The heat is on again in the houses. Yes, the 8 inch pipes torn up to make room for the basement and sub-basement of the new Engineering Labs have temporarily been reinstalled. They lie in what eventually will be a \$5000 steam tunnel detour to the boilers in Chem. Engineering . . . the building just northeast of the bookstore. These pipes were originally scheduled to be in place by October first, but due to rock and sand shortages work on them was not begun until after October 10th.

## Steam

However, the constantly circulating 140 to 200 degree F. water in these pipes does not flow to the faucets and showers but to the radiators, where its use prevents the usual noises characteristic of steam. Steam itself does enter the tunnels in a 23-year-old six-inch pipe under 150 pounds pressure. It is reduced at branch points to 50 pounds and ultimately to from 5 to 25 pounds as it enters the buildings. Here it feeds the heat exchange units which furnish the domestic hot water, and in addition supplies the steam for cooking units for various laboratory processes, and tempered air for the ventilating system.

## Water Vapor

The steam comes from two

boilers which together can produce 40,000 pounds of steam per hour. This is considerably more than generally needed. During the cold spell last winter, for instance, a peak of 500,000 pounds in 24 hours was used. . . . This is estimated as about 75 per cent of the peak needs of the fully completed campus . . . apparently adequate.

Although many thousands of pounds of water is hourly converted into steam, much of this returns in condensed form so that only about 16,000 pounds of additional water need be added daily. This water, like all water on campus, comes from the ordinary Pasadena mains but is softened by the Zeolite process before entering the boilers.

## Water Gases

The fuel for these boilers is primarily natural gas, available at special rates except during short periods of peak demands . . . then oil is used. Fuel costs are approximately \$25,000 per year.

## Steam

The steam time schedule . . . 6 a.m. to 9 p.m. in summer, 4 a.m. to 11 p.m. or even all night in winter . . . and the water temperature as a function of air temperature are controlled from the boiler plant itself. Distribution to various buildings however is controlled by valves within the steam tunnels. It is largely because of these valves and the danger inherent in the 150 pound pressure super-heated steam flowing through them, that the tunnels have been closed to student use.

## ON THE RECORD

By Bill Whitney

Page 3  
A two-week series of operas by the San Francisco Opera Company was initiated Tuesday evening with a performance of Puccini's *Manon Lescaut*, followed on Wednesday by *Rigoletto*. Tomorrow night at 7:45, Kirsten Flagstad, great Wagnerian soprano, will be heard in *Tristan and Isolde*. For the remainder of this week and next an opera will be presented every day, affording Los Angeles audiences excellent and varied, though hurried, operatic listening.

Filling up tonight's space in the opera schedule will be the first performance of the L. A. Philharmonic under Alfred Wallenstein; an indication that the winter concert series is now well under way.

There should be many students at Tech who would be interested in another forthcoming musical event. Over November 4, 5, and 6, The First Congregational Church of Los Angeles will present its 16th annual Bach Festival. Anyone who has attended the series during previous years knows that it is well worth the trouble of the trips to L. A.

The Festival usually presents a well balanced program of the orchestral, organ, and choral works of J. S. Bach, concluding on Sunday with the presentation by the First Congregational Church Chorus of the *B Minor Mass*. The performers have in the past been groups and individuals from the Los Angeles vicinity; they have included, for instance, Harry Kaufman, pianist; Louis Kaufman, violinist; Ruth Haroldson's Los Angeles Women's Sinfonietta; and the Santa Monica Little Symphony under Jacques Rachmilovich. There is no admission charge.

## MUSICAL SCHEDULE

Next Sunday, October 30th, the Caltech Musicals are going to start its Sunday Musicals concerts. This year we shall have bi-weekly programs.

For the first concert, we shall have:

Piano Concerto in D Minor  
Bach, Johann Sebastian  
Beethoven, Ludwig van  
Quartet op. 132  
Vaughan Williams  
Ode to Music  
Fantasia on a theme by  
Thomas Tallis  
The program starts at 7:30 p.m. Everybody welcome.

Records Worth Hearing  
Symphony No. 3 in E Flat  
(Eroica) Beethoven  
Capitol-Telefunken L. P.  
Amsterdam Concertgebouw Orchestra, Mengelberg

Anyone shopping for an individually satisfying performance of the *Eroica* should give this one a hearing. Recorded in 1941 by Telefunken, the Mengelberg version has been reissued by Capitol on L. P. The interpretation is a virile one, characterized by rapid changes of tempo, viciously punctuated accents, full and effective use of dynamic modulation.

The orchestra is weaker in spots than the Boston or the N. B.C. The French horns, however, are particularly strong.

The recording was made in a satisfactorily resonant hall, but this advantage is somewhat counteracted by surface noise and upper register distortion.

## Concert Schedules

October 27, 28  
L. A. Philharmonic Orchestra,  
Alfred Wallenstein, Conductor.  
Fantasia, G. Major, for Strings—Bach  
Symphony, "Fantastique"—Berlioz  
Introduc and Lied der Waldtaube—  
Schoenberg  
Nell Tanigman, mezzo-soprano  
Suite from *Der Rosenkavalier*—  
Richard Strauss  
Philharmonic Auditorium  
Thursday evening 8:30  
Friday matinee 2:15  
(Continued on page 6)

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**LIFE'S LITTLE VICISSITUDES**

Three monkeys sat in a cocoanut tree,  
Discussing things as they're said to be . . .  
Said one to the others, "Now, listen, you two,  
There's a certain rumor that can't be true—  
That man descended from our noble race—  
The very idea is a disgrace!  
No monkey ever deserted his wife,  
Starved her babies and ruined her life.  
And you've never known a mother monk  
To leave her babies with others to bunk.  
Or to pass them on from one to another  
Till they scarcely know who is their mother.  
And another thing you'll never see—  
A monk build a fence around a cocoanut tree,  
And let the coconuts go to waste,  
Forbidding all other monks a taste.  
Why—if I'd put a fence 'round a cocoanut tree—  
Starvation would force you to steal from me.  
Here is another thing a monk won't do—  
Go out at night and get on a stew,  
Or use a gun or club or knife  
To take another monkey's life.  
Yes, man descended—the ornery cuss—  
But, Brother, he didn't descend from us!"

—Stolen

**CAMPUS BREWINS**

(Continued from Page 2)

Ka-nopfier, who, soon after the opening gun, hied themselves (and some of the incipits from behind the wall) off in a vehicle, ostensibly cinematobound. Evidence seems to indicate that they never got to the show. Many of us, not so lucky, were forced to endure the ignominy of, among other things, witnessing a CMC raid on the dancing session that caught the Techmen flatfooted (where better to be caught flatfooted than on a dance floor?) — sans stirrup pumps, sans waste baskets, sans interest.

From a saddened Ricketts Saturday breakfast table came the word that that old grand-daddy of Schimpis habitués (euphemism for "bored" or "sucker"), Reha Mesara declared he will carry his extra-curricular activities elsewhere. Jack Dyer engineered a coupe-de-grace by dashingly up to a gal he has been seen out with frequently, as she was sitting in the living room, and greeting her with many fond and joyous exclamations. He later found out that the gent on her left was her date for the evening. Amen.

**The Home Front**

Wiser Blackerites Friday night, despite the gnashing of teeth issuing from Arcand's direction, stayed home in an elegantly blackened lounge, even though Boppert, Howard, Pilkington, Hendrickson, and Jolly Boy Jacobs were forced to roll up the rug themselves. In the dim light Boppert's date was reportedly intrigued by the operations of Blacker's Pope; for reasons unknown she vehemently refuses to go out with him. The intimate alley party of Middlebrook, Bartlett, and Pilkington in Upper Prexy, Blacker, dutifully returned to the lounge at 10:30 and wish the fact brought to Carel Otte's attention—as, no doubt, it caused them considerable social sacrifice!

Fred Baily was the holder of the punched-until-shredded card this week. He called out East for a date for Saturday night, and was informed that she had to be campused one night on the weekend and that she was of course taking the night Saturday (she preferred the Friday night opera to Baily on Saturday). At the exchange, a go-between told him that the lady had discovered that the opera was next Friday thus voiding

**On Laundry Day****LOOK FOR ONE OF THESE MEN**

Ricketts—John Moss • Dabney—Ed Worrell  
Fleming—Ken Hammond • Blacker—Pete Howell

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**Western Dancing Invades Ricketts**

This weekend promises to be another active one in the social lives of Ricketts men. A record dance with refreshments—the last post-game hop of the term—is scheduled to follow the big contest with Oxy Friday night. A big turnout is expected, judging from the great success of these affairs so far.

Something really unique is slated for Saturday night. Following the popular trend elsewhere, the Rowdies have arranged a genuine rough-and-tumble Square Dance, which is to be ultra-informal with the wearing of Levis and sweaters encouraged. To eliminate confusion the Social Committee has provided for expert instruction from Ol' Doc Al Marshall to precede the affair. More tasty refreshments have been added to complete a very enjoyable weekend.

**Unusual Weekend Set For Blacker**

A dry land skating party Saturday night at the Moonlight Rollerway will provide thrills and spills for Blacker men and their dates. Less strenuous activity will round out the evening as all return to Blacker lounge for dancing and refreshments.

In keeping with the House's tradition of hospitality, Blacker will throw open its lounge for post-game dancing and refreshments Friday evening.

**DaVinci Lecture Slated Tonight**

Students interested in all phases of science, and architecture and engineering are urged to attend the illustrated lecture on Leonardo da Vinci in Wilshire Boulevard Temple, 636 S. Hobart Blvd., at 8 p.m., Oct. 27.

Speaker will be Dr. Elmer Belt, possessor of the internationally famous library of Vinciiana, who recently visited da Vinci's home and the places where he lived and developed his versatile and inquisitive genius.

Slides of da Vinci's scientific drawing and inventions will introduce the audience to the worlds of mathematics and optics, mechanics, hydraulics, canal engineering, shipbuilding, aeronautics, industrial and military machinery and city planning.

The talk is sponsored by the Los Angeles Chapter of the American Technion Society, an organization devoted to the industrialization of Israel.

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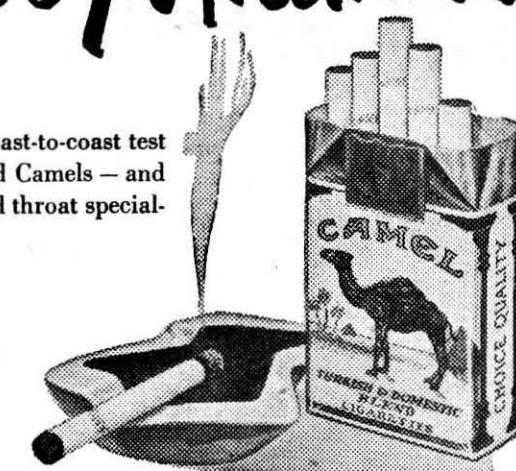


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## Watermen Drop UCLA Freshmen

The Caltech varsity water polo squad opened its season in fine style by humbling the UCLA Frosh 5-2 last Friday at the PCC pool. From the starting whistle there was little doubt as to which was the stronger team, the Bruins being unable to do anything with the ball when they had it in their possession.

### Impressive Play

The Uclan offense was completely bottled up during the first half, the Freshmen being unable to break away from the Caltech guards or get into scoring position. The Beavers, however had little trouble bringing the ball down to the UCLA goal, but displayed some ineptitude in shooting. Although they made some 25 attempts from far positions, the engineers tallied only five times.

### Second Half

In the second half the story was somewhat different. The UCLA team having acquired some more vigor during the intermission began playing more aggressive ball, while Beaver Coach Palmer made a number of substitutions. Dick Libbey, who sparked both the offense and defense, was out most of the half due to minor injury. The Bruins were able to score twice in this period while the tiring Engineers were able to make only one more point.

The contest was the first to be played under the new set of rules which went into effect this year. These make for a faster game, and it seemed that the

(Continued on page 6)

## SPEAKIN' SPORTS

with Mike

People sometimes go to extremes to find excuses for a football team's loss by a margin of 20 points. Those of us that saw the Sagehens-Tech game of last Saturday need very little exercise of prejudice to pin the loss on a pair of fumbles and an equal number of pass interceptions. It was by far the best game the Beavers have played this season, barring the foursome of mishaps. And, too, we might muster up a smile in the direction of our little friends to the west in honor of their slightly decisive 54-6 slaughter at the hands of Whittier. As unwise as the practice of comparing scores may be, we can still utter, "Watch out Oxy!"

### Netmen

Prospects of the official formation of a Caltech volleyball team became reality at coach Vogel's meeting last Monday. Plans are being made for tournaments with the local YMCA, athletic clubs and schools to get the team in shape for league play that begins about the first of March. Spots are still open for qualifying volleymen with practice starting immediately after mid-term week.

Our first wave of goose-pimplies remind us that we have another promising basketball season close at hand. A galaxy of stars are returning this year to insure Tech of a better than average hoop squad. Let this serve as a reminder to ye loyalists to start sharpening your basketball eyes and developing a tireless lung.

## Soccermen Bow To Uclans, 3-2

Last Saturday saw a smooth moving Caltech eleven bow to a U.C.L.A. team by the close score of 3-2. The two teams were fairly evenly matched, but U.C.L.A. managed to fire across their single winning tally. Our first tally was scored by Inglis in the second period and Chuang bulldozed our other score through the uprights in the last quarter.

A couple of the regular starters were unable to play due to various ailments, but the team nevertheless put up a good fight. The forward line showed a great deal more polish than in previous games, and the teamwork between Wood, Banjheo, Miller, Price, and Schlenger was directly responsible for the two goals. Fullbacks Noble and Welch held up their end of the team quite aptly and goalie Asquith saved a good many Uclan boots from counting.

Despite the score, the team showed a great deal of improvement over their victory of the previous week. If we can keep improving at the rate we are at present, we can look forward to a very successful season.

## Throop, Dabney Top IH Baseball

With things pretty well undetermined all the way, interhouse baseball came to a terminal tie-up in Monday's games. John Winslow of Throop cracked the the OC men to a 6-3 win over Ricketts on the 19th and continued their victory march with a 5 to 1 defeat of Blacker, only to place the Throopers in a tie for first with Dabney. Martin Walt, Darb twirler, sparked the green shirts to their one to one tie with Fleming Monday with an impressive home run smash. Final positions show Dabney and Throop tied for first, Blacker and Fleming tied for third and Ricketts fifth.

### Ricketts Runs

Interhouse cross country turned out to be a closie. Ricketts edged out Fleming by a single point, the Rowdies placed a 3rd, 4th, and 7th while Red Shirts brought in a 2nd, 5th and an 8th. D. Marshall of Blacker led the pack most of the way as he turned in a 12:12.2 time for the 2 mile jaunt.

### Discobolus

Dabney House became the new

(Continued in next column)

## Sagehens Drop Tech Grids 32-12 at Bowl

### Scoreboard Favors Pomonans As Statistics Honor Engineers

Although the Beavers outplayed Pomona statistics-wise, the Sagehens came out on top on the scoreboard with the help of several Caltech bobbles, 32-12, in a SCIC game last Saturday. The extra yardage gained wasn't forthcoming at the right times to put over touchdowns.

### Turnabout

Tech fans noted a reversal in the usual Beaver playing form. This time a satisfactory defense was put forth, while the offense made the many mistakes that enabled Pomona to run up her large score.

One fumble and two intercept passes were turned directly into fourteen points by the Sagehens, while another fumble on our 13 was quickly put over for a third touchdown.

The Tech offense, when it got rolling was able to earn two touchdowns. Don Schmid blocked a Sagehen punt on their 33 to set up the Engineers' first drive. Dwight Schroeder caught Karasawa's pass for the first Beaver score.

### Beaver Drive

In the last quarter the Beavers twice took the ball to within a few yards of the end zone before they were able to score. A pass interception halted the first drive on the nine, but the Techmen again got the ball and Karasawa shot over the goal-line seconds later to score for the Engineers.

Among the more notable plays of the game were Tyson's quick kick in the final period and McColl's long pass to Reinke who went over for the score. The Pomona crew also made some spectator-thrilling plays.

(Continued on page 6)

## Countrymen Upset As PCC Runs Wild

In a practice meet with PCC last Thursday at Tournament Park, the Caltech cross country team learned that it takes more than a good record to run a good meet. PCC, displaying an unusually good, evenly matched team, took the Techsters to camp 22-33. Corey of PCC took first with Mason in second. Pilkington was the next Caltech man in sixth place closely followed by Houser and Cobb in seventh and eighth. Sellen and Dickinson followed fairly closely in time taking twelfth and thirteenth places respectively. The time was a comparatively slow 11:14 for the two mile distance.

This Saturday a meet is scheduled at Tournament Park to be run at 10 a.m. against Santa Barbara. Little is known of this team's strength.

Next scheduled competition is to be a three-way meet with Whittier and Occidental to be run here Friday, November 4.

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## Major Ed Wall, Harvard '40

## - Flying Executive, U.S. Air Force!



Born in Newark, N. J., he moved to Boston at an early age, graduated from the public Latin high school in 1936, entered Harvard the same year, where he majored in economics and government.



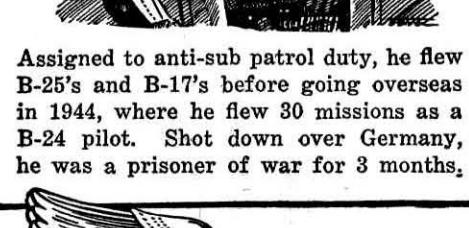
"Active on the campus" — he played football, earned his letter on the boxing team. He worked part-time in a variety of jobs from bouncer to baby sitter, received his AB degree in 1940.



He enrolled in Harvard Law School, left at the beginning of the war to become an Aviation Cadet. In December, 1942, he won his pilot's wings, received a Reserve commission as Second Lieutenant.



Now, he is confident about his future and security. As a pilot and legal officer of Bolling Air Force Base, D. C., Major Ed Wall is a typical U. S. Air Force flying executive . . . with a challenging career.



Assigned to anti-sub patrol duty, he flew B-25's and B-17's before going overseas in 1944, where he flew 30 missions as a B-24 pilot. Shot down over Germany, he was a prisoner of war for 3 months.



Back in the States with his English wife, he earned his Regular commission. Then he returned to Harvard under the Air Force college training program, receiving his LLB degree in 1949.

If you are single, between the ages of 20 and 26½, with at least two years of college, consider a flying career as an officer in the U. S. Air Force. You may be able to meet the high physical and moral requirements and be selected for training as an Aviation Cadet. If you do not complete Aviation Cadet training, you may return to civilian life or have opportunity to train at Officer Candidate School for an important officer assignment in non-flying fields.

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**SAGEHENNS**

(Continued from page 5)  
Noteworthy performances were turned in by Jim Blom and Don Schmid on defense. Carson helped account for CIT's 25 yard passing superiority with his glue-fingered receiving. Bain Dayman surprised observers by appearing in the offense and running right through the Sagehen line. Pomona's McColl got off some good passes.

Sports observers at Tech feel that if the Beavers' defense can be kept at its present peak and the offense returned to its old high standard, the Techmen should give Occidental a good fight tomorrow night.

**Statistics:**

	Pomona
169 yds. rushing	145
30 yds. lost rush	33
37 pass attempt	14
13 pass complete	7
6 pass intercepted	1
171 yds. passing	134
1 yds. intercept	175
8 1st downs rush	8
7 1st downs pass	3
16 total 1st downs	3
37 average punts	28
7 fumbles	5
2 lost ball	1
310 total net yards	246

**WATERMEN**

(Continued from page 5)  
Beavers were not yet fully accustomed to the new situations.

**On Deck**

This Friday the Engineers face a more rugged contest as they take on the Compton J. C. varsity at Compton. On the same afternoon the Frosh team will meet John Muir Frosh at the PCC pool.

On Thursday of next week Caltech meets its traditional rival, Occidental, at PCC pool. The Tech mermen will be out for revenge for their two heartbreaker defeats administered by Oxy last year. Caltech lost the two close games by scores of 2-3 and 7-9.

**Throopmen First  
In IH Bowling**

Throop Club replaced Ricketts as league leaders in Interhouse bowling Monday at the Pasadena Courts, while Fleming moved past Blacker to capture third spot. Throop gained top ranking by winning seven of its eight games, four from Blacker by forfeit, and three from Ricketts. Dabney and Fleming captured five games apiece, Ricketts won three, and Blacker forfeited all of its eight games. Standings at the end of the third week:

House	Won	Lost	Pct.	Ave.
Throop	17	7	.708	142
Ricketts	15	9	.625	142
Fleming	12	12	.500	130
Blacker	8½	15½	.354	128
Dabney	7½	16½	.312	120

Ricketts team Two exploded all over the alleys for a terrific 2190 series, highest this season and fifth-best in the history of Tech bowling. Despite this enormous pinfall, the Rowdies could manage no better than a two-two split with a fighting Fleming team.

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**POTPOURRI**

(Continued from page 2)  
of indigestion, looked repentant for a couple of days, and was seen no more. Few mourned his passing. Others followed, took a turn for the worse, and promptly fell victims of euthanasia.

One morning a small puddle of water was found beside the tank, and it was discovered that the sea water had eaten away the stainless steel of the ill-fated aquarium, thus bringing the experiment in marine biology temporarily to an end.

**New Secretary**

We are indeed fortunate to have on the campus Miss Mildred Langer as the new Y secretary. She is from Chicago and Phoenix, just arrived in California. She actually believes that California is nice! Mildred, who is 21 years old, likes classical music and played in the orchestra at high school. Furthermore, this versatile young lady sings. She has been a guest soloist at churches and conventions all around the country. Besides all these talents, Mildred is endowed with a fine sense of humor, which will be a great asset in her job.

**Goofologists Clean Up**

The grad and undergrad geologists made a clean sweep of this year's AIME-sponsored Student Papers Contest. Congratulations to Chuck Allen, Bill Muehlberger, Tom Fahy and Don Hibbard.

**ON THE RECORD**

(Continued from page 3)

October 29  
Pasadena Civic Symphony,  
Richard Left, Director.  
Symphony No. 3—Brahms  
Dance of Nymphs and Satyrs—  
Georg Schumann  
Nocturne from Midsummer Night's  
Dream—Mendelssohn  
Concerto in B Minor for Viola—  
Handel-Casadesus  
Jasha Heifetz, violinist  
Pasadena Civic Auditorium 8:15  
No admission charge

November 4

L. A. Philharmonic Orchestra,  
Alfred Wallenstein, Conductor.  
Pasadena Civic Auditorium  
16th Annual Bach Festival  
Melvin L. Gallagher, Director  
First Congregational Church of  
Los Angeles  
535 South Hoover

**Opera Schedules**

TRISTAN UND ISOLDE—Wagner  
Friday Evening, October 28, 7:45  
Flagstad, Heidt; Svanholm, Szekely,  
Herbert, Cahanovsky, Ford, Chabay

TOSCA—Puccini

Saturday Evening, October 29, 8:00  
Barbaro, Pearce, Tibbett, Baccaloni,  
Ligeti, De Paolis, Cahanovsky

SAMSON ET DALILA—Saint-Saëns

Sunday Matinee, October 30, 2:00  
Theobom, Vinay, Weede, Ford, Ligeti,  
Chabay

DON GIOVANNI—Mozart

Monday Evening, October 31, 8:00  
Novotna, Tassimari, Graf; Tajo, Baccaloni,  
Pearce, Herbert, Ligeti

LA BOHEME—Puccini

Tuesday Evening, November 1, 8:00  
Albanese, Hartzell; Tagliavini, Valentino,  
Cahanovsky, Mascona, Baccaloni

DIE WALKURE—Wagner

Wednesday Evening, November 2, 7:45  
Flagstad, Bampton, Turner; Svanholm,  
Sharrette, Szekely

LUCIA DI LAMMERMOOR—Donizetti

Thursday Evening, November 3, 8:00  
Pons; Tagliavini, Valentino, Ligeti,  
Chabay

CARMEN—Bizet

Friday Evening, November 4, 8:00  
Heidt, Hartzell, Turner, Warenkjold;  
Vinay, Herbert, Legiti, Cahanovsky,  
De Paolis

AIDA—Verdi

Saturday Evening, November 5, 8:00  
Barbato, Theobom; Svanholm, Weede,  
Mascona, Ligeti, Chabay

TALES OF HOFFMANN—Offenbach

Sunday Matinee, November 6, 2:00  
Glaz, Theobom, Novotna, Graf, Turner;  
Jobin, Herbert, Cahanovsky, De Paolis,  
Ligeti, Chabay



Tournament Park will once again be the scene of the giant pre-Oxy game bonfire tonight. Shown above is a view from last year's inferno which was successfully guarded from arsonous Oxy students.

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LIKE CHESTERFIELDS...  
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*Janis Carter*  
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