

ASCIT Program Tomorrow To Reveal Inner Workings

Worcester, Board of Directors, to Appear At Public Meeting in Culbertson

The annual public meeting of the ASCIT will be held tomorrow. It is imperative that all Techmen be present. If you wonder how your money is being spent, how the ASCIT affairs are being handled, how you are being represented and how to register your gripes most effectively you will find out tomorrow at 11:00. President Bruce Worcester will preside, and the Board of Directors will be there.

Considering the funds that the ASCIT handles, and the direct influence of the ASCIT activities on every member of the student body, it is necessary that the turnout for this meeting be enthusiastic.

Important Issues Will Be Aired

Several important issues before the Board at present will be aired. The ASCIT needs your support and the attendance tomorrow will give some idea of how much the Tech student body is willing to back his organization. It is essential that everyone take an active part in the affairs of the student body so be at Culbertson tomorrow at 11.

200-INCH MIRROR

More pictures of the 200-inch mirror will be found on Page 4. Also John Whittlesey gives a running description of all the events in his column "Your Campus."

LACC Scene Of Next Tech Debate

Caltech's debaters travel to Los Angeles City College for their next encounter, November 21 and 22. The question for the debate will be: Resolved, that a Federal World Government Should Be Established.

The entrants from Tech will be captained by Irving Sulmeyer and Thomas Vrebalovich.

Today at 3 o'clock in Room 206 Dabney there will be an informal speaking contest with two teams from Pasadena City College.

Last week, competing against 150 entrants from 25 schools, Irving Sulmeyer and Thomas Vrebalovich reached the semifinals in extemporaneous speaking.

Vrebalovich also reached the semifinals in impromptu debate.

Improbious Frosh Meet Just Nemesis

The Court of Traditions went into action last Thursday as it cracked down on Frosh offenders. These men were arraigned on the charge of not appearing at a Friday assembly, attendance at which is a requirement for all Freshmen during first term.

About half of the men brought before the court were convicted, and for punishment they shined shoes during lunch hour on Monday and Tuesday. The sentence was enforced as usual by the hardy members of the Varsity Club.

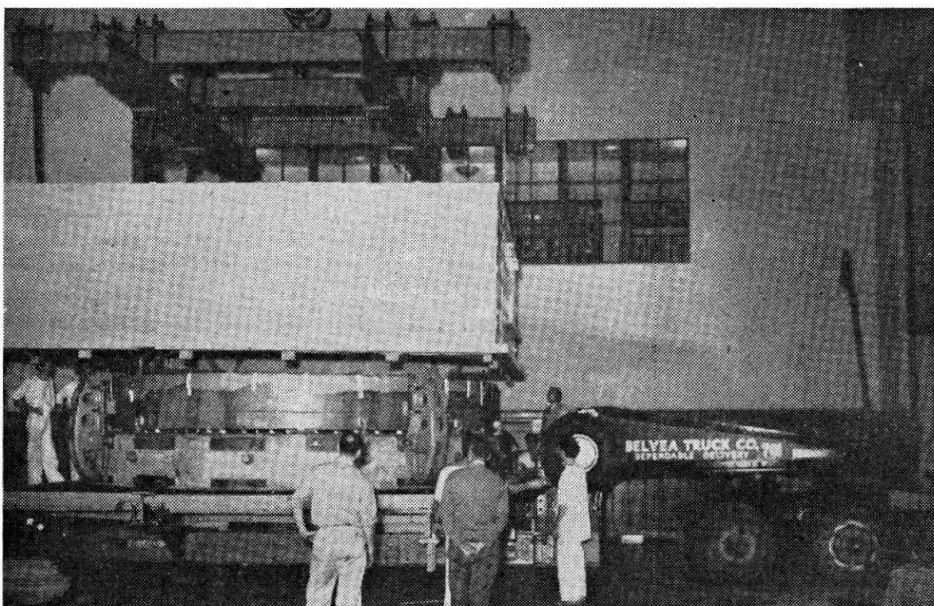
Campus Calendar

THURSDAY, NOVEMBER 20—
Upper Class Luncheon Club at the Training Table, 12:00.
Throop Club Meeting, 12:20.
Orchestra Practice in Culbertson Hall, 7:30 p.m.
Glee Club Rehearsal in Throop Club, 8:30 p.m.
FRIDAY, NOVEMBER 21—
Blacker Formal Dinner-Dance, 7:30 p.m.
Water Polo game. Caltech at Compton, 4:30 p.m.
Throop Club Radio Party.
Fleming Bowling Party.
Dabney Semi-Formal Dinner-Dance at the Pasadena Athletic Club, 7:15 p.m.
Ricketts Theater Party.
SATURDAY, NOVEMBER 22—
Cross Country Meet. Pomona at Caltech, 10:00 a.m.
TUESDAY, NOVEMBER 25—
Band Rehearsal in Culbertson Hall, 7:30 p.m.
WEDNESDAY, NOVEMBER 26—
Frosh Luncheon Club at the Training Table, 12:00.
Dancing Class in Culbertson Hall, 7:30 p.m.
Fencing Club, 15 Dabney, 7:30 p.m.
THURSDAY, NOVEMBER 27—
Thanksgiving Day.
Beginning of 4-day Holiday.
SATURDAY, NOVEMBER 29—
Throop Club Hayride.

Giant Mirror Reaches Palomar

MIRROR MOVED

Upper shot shows the final packaging of the giant mirror Sunday in preparation for the long journey to Palomar Mountain. Lower shot shows the truck and mirror pulling out onto California Street. Mirror took two days to make trip.



Eleven Years Work Climaxed As Motorcade Creeps Thru Southland

by Len Herzog

That priceless chunk of glass, the giant 200-inch reflector, reached its new home atop Palomar Mountain yesterday noon as the fascinating saga of the world's largest optical instrument entered its final chapter.

If the public viewed this latest episode with interest, and Techmen, who have watched the mirror slowly take form on their campus, seemed nervous as they started "Big Eye" off on his tortuous 160-mile journey to the Palomar Observatory in the pre-dawn hours Tuesday morning, what thoughts must have surged through the minds of the men who had patiently worked with and coddled the awesome disk for the past eleven years of work here at the Institute and the years of planning and hoping even before, so that, because they knew familiarly the mirror's mannerisms and individual peculiarities, the ice-blue glass seemed to them almost to be an animate thing.

Monument to Hale

These men—Dr. Max Mason, Dr. John A. Anderson, Marcus Brown, Russell W. Porter—and Dr. George Ellery Hale, first chairman of the Observatory Council and "father" of the 200-inch project (who died nine years ago, too early to see his cherished project be completed)—had brought a dream into reality. Now the culmination of the dream was at hand.

Six million dollars; the work of scores of men, hung in the balance last Sunday as the twenty-ton mirror and its fifteen-ton "cell" were slowly raised by five huge I-beams from the grinding table and carried down the 40-yard optical lab and gently lowered onto their multi-wheeled trailer, which has been edged into the dustless, air-conditioned, glass-and-steel building by sheer manpower.

Prepare for Journey

Except for the huge "packing crate" which was next lowered over the mirror, the perfect, supereminently accurate surface of the reflector was protected only by thin wrapping paper and plywood. After many hours the suspension of the mirror for its journey was adjudged correct; supersensitive vibration gauges and checking instruments had been installed and the mirror was ready to go.

Monday the mirror-trailer was edged out of the optical shop by powerful winches, the huge, hulking Belyea Diesel truck which was to pull the precious cargo was attached and scientists, truckers, officers and newsmen settled down to await the coming of the night.

At exactly 3:30 a.m. Tuesday as a Pasadena motorcycle officer glanced at his watch and gave a signal, driver Lloyd Green let off the air brakes with a "whoosh" and swung the ponderous truck-trailer eastward onto California street. Bedlam broke loose. Four magnesium flares bathed the area in an icy light as they billowed clouds of white smoke into the air; flashbulbs popped, shutters clicked; newsreel cameras whirred. Photographers, newsmen, scientists and police scurried about; motors started up; siren lights blinked and the cavalcade was off.

Vibration Control

With Palomar Engineers Bruce Rule and Byron Hill playing mother hen to their battleship-gray, big-as-a-postwar-house "chick," the procession—sometimes including upward of 75 cars—crawled forward at a vibration-controlled speed of five to 15 miles per hour. Driver Earl Winston relieved Green at intervals. Ahead of the cavalcade, as dawn came, word of its contents spread and parade-like crowds gathered in the major towns. Amateur cameramen were fighting for telephone poles with "Life" photos and having a field day.

(Continued on Page 3)

Current Economics To Be Subject Of Monday Night Forum

The Forum Committee of the "Y" will present next Monday evening the Fall Panel on Current Economics, Dr. Ray E. Untereiner, Dr. John Shutz, and Dr. Cecil Dunn. Drs. Untereiner and Shutz are well-known from the Tech campus, and Dr. Dunn from the Occidental campus. 119 K is the place, and 7:30 is the time.

The critical problem of inflation, threatening the nation, and under discussion in Congress, will be developed by the panel. This is the last of the current events forums. It is expected that a record audience will be present to hear this famous trio.

There will be one more Forum this Fall, and it is reported that the "Y" has a special idea up its sleeve. An exposition long alien to the Tech campus will be presented.

FROSH FOOTBALLERS:

Go into the athletic office as soon as possible and place your vote for Frosh football captain.

All votes should be tendered to Miss McGee by Saturday.

WSSF Campaign Draws To Close Goal Set at \$1500 for Drive

A drive to raise \$1500 for the World Student Service Fund, an organization devoted to the relief and rehabilitation of stricken foreign students, is being conducted this week.

Frank Wolf and Burt Housman, chairmen of the drive, which is under the auspices of the Caltech Y.M.C.A., will seek to raise contributions from the 1700 persons comprising undergraduates, graduate students, faculty, and employees.

To further interest in the fund-raising campaign, there will be a contest between the four student houses and Throop Club with a prize of \$10.00 worth of ashtrays, playing cards, and magazines to be awarded the organization with the largest per capita contribution. A prize of \$5.00 will also be awarded to the canvasser bringing in the greatest monetary amount of contributions.

The WSSF seeks to help students in China, Europe, and Southeastern Asia by gifts of food, clothing, scholarships, medical care, books and housing. The relief organization hopes that by these rehabilitation measures the students of foreign lands can develop into leaders who will help rebuild their war-devastated lands.

The drive is backed by the Y.M.C.A., Y.W.C.A., Protestant, Catholic, and Jewish groups, and includes such eminent sponsors as Dr. Lee DuBridge.

Peterson To Probe Placement Puzzlers

Seniors and Grad Students will have an opportunity to obtain advice on securing a job soon.

The Alumni Placement Service has arranged to have Mr. Fred Peterson, manager of the Surveying and Drafting Departments of the Shell Oil Co. in L.A. come here. He will lead a discussion on placement opportunities and applying for a job, which will be held Wednesday, December 10; at 7:30 p.m., in Room 206 Dabney Hall. Mr. Peterson has had a great deal of experience in hiring engineers and is well qualified any questions.

Interview Schedule

NOVEMBER 19 and 20
Atlantic Refining Co. (Dallas, Texas) Restricted—Chemists, Chemical Engineers, Electrical, Mechanical and Civil Engineers, Physicists, Geologists, Paleontologists.
NOVEMBER 26
Fairchild Engine & Airplane Corp. (Oak Ridge, Tenn.) Open—Chemists, Applied Chemists, Chemical Engineers.
DECEMBER 3
Carter Oil Company (Tulsa, Okla.) Open—Chemists, Applied Chemists, Chemical Engineers.
DECEMBER 10, 11 and 12
Standard Oil Co. of Calif., Restricted—Geologists, Paleontologists, Physicists, Chemists, Chemical Engineers, Mechanical, Electrical and Civil Engineers.
DECEMBER 10
Discussion on Interviewing Technique by H. F. Peterson—206 Dabney Hall, 7:30 P.M.
JANUARY 19
Minnesota Mining & Manufacturing Co. (St. Paul, Minn.) Open—Chemists, Chemical Engineers, Physicists.
MARCH 22-26
Standard Oil Co. of Calif., Restricted—Geologists, Paleontologists, Physicists, Chemists, Chemical Engineers, Mechanical, Electrical and Civil Engineers.

Pickering, Neher Hold Firesides Last Sunday Evening

Firesides were held for two groups of Caltech students last Sunday night at the homes of Professor Pickering of the E.E. department, and Dr. Neher, who has been pursuing a cosmic ray for two or three years.

Dr. Pickering conducted a general discussion on various subjects, including a trip he had taken, animal husbandry, and vivisection. Dr. Neher showed slides and moving pictures of his trip to India looking for cosmic rays. The groups left their respective hosts after being bribed by refreshments.

The hosts at next week's Fireside Chats will be ex-Dean Jones, and Dr. Morgan Ward.

Gutenberg Tells Geologists Of Many Opportunities

"There are plenty of unsolved problems in geophysics," Dr. Beno Gutenberg told the Geology Club in its meeting October 12.

Entitled "Geophysics in War and Peace," Dr. Gutenberg's talk covered many fields wide open for research, ranging from the activities of homing pigeons to the effects of earthquakes.

Oceanography, the structure of the upper atmosphere, seismology, magnetism, oil and ore prospecting, the effects of the earth's fields on living creatures, and many other fields even more remote are included in the science of geophysics, he explained.

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Distributor of Collegiate Digest

Len Herzog, Editor

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• YOUR CAMPUS

BY JOHN WHITTLESEY

AN EYEWITNESS ACCOUNT OF THE LOADING AND MOVING OF 200' MIRROR Sunday Afternoon, Nov. 16:

Already by 12:30 this afternoon the optical Lab is taking on the atmosphere of an important world event. Crowding the observation gallery are reporters, cameramen, radiomen with their wire recorders or portable transcription equipment, technicians with earphones; about a dozen cameras line the window.

In the midst of all this is Mr. George Hall, Tech's publicity manager answering such anxious questions as "Who is that man with a camera you let down on the main floor?" with comments such as "No we can't let you have a girl powdering her nose in front of the mirror."

The Belyea Trailer that was pushed into the Optical Lab some time ago, stands directly beneath the observation window. Over to one side is the large gray wooden lid. About half way down from us is the frame work of bright orange I-beams, crossed one above the other, to be used as a cradle from which to suspend the mirror. At the far end the mirror itself still rests on the polishing table.

The Operation Begins

The giant hoist has lifted the bright orange cradle. Now the huge mass of machinery is moving down the room from us with the slow methodical care of a fine lathe.

The cradle is directly over the mirror now and a crew of mechanics are swarming about fastening it with bolts to the wooden support on which the mirror rests. On the balcony radio reporters are speaking softly into their microphones almost unnoticed. Others are waiting tensely or sitting by the side. Suddenly we see that the mirror has been lifted off its platform, conversation stops, newsmen who have been seated step to the window, cameramen stand ready.

Slowly the assembly commences down the long 120 feet

of the Lab. Now it has begun to swing from side to side with slow surges of momentum. Like some monstrous 35-ton pendulum bob, it hangs on the 12 steel cables of the crane. The mechanism stops. Hall asks if the photographers want it closer. They do, and on it comes again. (A newspaperman asks if they could drop it down a bit for a better shot. Someone counters, "Sure, how about dropping it on the floor and giving us a real picture?")

Now it has come to rest over the Belyea trailer and is descending. Workmen are grabbing it and swing it into position. Hall cautions: "No flash bulbs."

Dr. DuBridge and his daughter have just arrived. He looks like some campaigning senator as he stands before the array of network microphones, being interviewed by the various announcers.

The mirror is again being lifted now. Something doesn't quite fit. A grinding tool is applied to one of the sockets on the trailer, there is a large spray of sparks.

Now all that remains to be done is the bolting on of side brackets (Edge Arcs) which rest against the side of the mirror with sponge rubber. After supper, the gray lid is to be lifted over onto the mirror.

Monday

The trailer was dragged from the Optical Lab by means of winches and planks, and the truck and secondary trailer were attached.

Tuesday Morning

It is about 3:15. An air of mystery and excitement characterizes the occasion. The roar of the truck motor and the darkness enhance the air of tension and strangeness which prevail. At present only the motorcycle spotlights and the powerful headlights of the Belyea truck illuminate the scene.

Things are beginning to happen and newsreel cameras are

(Continued on Page 6)

whether

• PIGS HAVE WINGS

By the Walrus and the Carpenter

IN ONE OF OUR RECENT investigations of the inner nature of things, we were looking around for someone who might be in a position to enlighten us on some of those little-known happenings which we know are bubbling around beneath the surface of this seething campus.

When we had nearly exhausted our list of possibles, by sheer chance we turned around and there he was! Indeed, there he had been all the while—one of our dear fellow-students—a chap we had before distinguished only by his uncanny affinity for black coffee and pat hands of draw poker. It seems that he had managed (with the same ability, no doubt, that enabled him to fill three-card flushes) to snatch up the most fascinating little morsel of employment to be had in the while Institute: i.e., the job of counting light fixtures! Don't scoff—there actually exists such a job!

WE ARE NOT SURE HOW it came to be—this deplorable lack of information concerning the exact nature of light propagation within our walls—but, at any rate, the Gods of Building & Grounds appointed our friend as their earthly emissary for the Purpose of Securing Accurate Data on the Light-Fixture Situation. His specific directions detailed him to go into all offices, labs, halls, rooms, closets, etc., to ferret out all light sources, and to make due record of said sources. A genuine inside-man if we have ever seen one!

Well, our friend started out upon his portentous mission, equipped with a clip-board full of plans and maps, light in heart and sure of foot, wonderfully oblivious of the wierd sights and macabre situations that he was to behold in the eerie sub-basements and secluded retreats that honeycomb the Tecampus.

Judging by his stories (with only a part of the total job completed to date), we cannot help but feel that a lesser man would have fallen by the way, that without his gambling-sharpened acumen and perpetual craving for coffee, our friend might already have met an ill end. But we digress . . .

HE SAID THAT AT FIRST he would simply knock on a door, walk in, and proceed to scan the ceiling with rapt disregard of what happened to be going on within, taking notes

all the while. However, after being met with a few suspicious stares and belligerent epithets he was forced to change tack a bit; now he grunts a few words of explanation: e.g., ". . . checking lights . . . (mumble) . . . Building & Grounds . . . (mumble) . . ." which seem to be more than sufficient for everyone. The problem of doing a thorough check on the Ladies' Rooms (without unduly upsetting some of the more Victorian attitudes one occasionally meets) was simply solved by, as he puts it, "getting some nearby female to run interference."

In speaking of his occupation our friend seemed to us to exhibit a more than common interest in figures. Upon continued interrogation he revealed that he requires two sets of notes to cope with these figures: one for figures on the light fixtures, and one for figures on the other fixtures—other figures, if you see what we mean . . . and if you don't, we mean those that fit into the general category of "secretaries". He is impressed with the facts (a) that there are so few classrooms, and (b) that there are so many pert "secretaries"—both observations coming under the classification of figures.

WE WONDERED which buildings particularly interested him. "Figuratively speaking," he said, "Throop is the most appealing . . . but Kerckhoff and Crellin are absolutely unequalled." He went on to explain how once he entered a door in Kerckhoff and came upon two persons calmly dissecting a rabbit, one remarking, "Gad, this one sure is a mess inside." Our friend quickly checked the fixtures and left, for it was apparent that they weren't going to bother restoring this rabbit to its original, intact condition—and our friend had just finished making many new friends downstairs in the rabbit pens.

"What about Crellin?" we inquired. "Well, I was checking the fixtures in an empty room . . ." He went on to relate how a young lady popped in and told him not to forget—coffee at 3:30! When she realized that he was the wrong person, it was too late—he was much too entranced by the thought of coffee to let her go. The upshot: he managed to get an invitation to coffee with the usual 3:30 crowd. He finished his narrative ". . . but, still I didn't have the feeling

• THE BOUDOIR BEAVER

Amantes amentes!

—Terrence.

Scene: the Skip-Inn.

This was our rendezvous with Vector this week. She had pointed out that so many fools would be getting in the way at Palomar after Tuesday that we couldn't possibly hold an intelligent conversation.

She had also told us that the task of adapting Tech men to a heterosexual environment was simply too much for n dimensions. Vector had asked for outside help, and on this evening not one, but three Hyperwomen were to be our guests.

And so it happened that, as we were sipping brew, we gazed into the foam and spied beside the familiar spectacle of Vector, two strange species. Vector spoke first: "Tensor and Variable, I want you to meet some very close friends of mine: Tom, Bill, Big Bob, Carl, Pat and Dean. Gentlemen, this is Tensor of the Park Avenue Tensors, and this is Variable, a seldom-mentioned inadvertency of Vera Vague."

Since we all read the BOUDOIR BEAVER, we smiled and enunciated a unanimous "pleestameechna!"

Big Bob announced, "We've got troubles." The Hyperwomen arranged themselves around several tables, and we expanded our woes. "We have this 'first date' routine down fairly well now; we make the good appearance, shave carefully, keep hair cut neat, make with the small talk, smell reasonably nice, and try not to lose ourselves in alcoholic glee. But Something's lacking."

Tensor looked puzzled, so Tom supplied, "Something within us urges us forward . . ."

Tensor raised a finely arched brow: "Romance . . .?"

We nodded. "Well, it's quite simple; just do what the girls want you to do!"

With a sigh, Carl asked, "Which is—?"

Tensor observed icily, "If you

that I was really welcome." And from our own knowledge of the little 3:30 gatherings around the campus, we would opine that he probably wasn't.

If anyone would care to meet our friend, he need only drop around after dinner some night and we will arrange the introduction. Our chap may not be willing to let you see his "figures," but we know that he'd be glad to talk the whole thing over . . . over a cup of coffee,

don't know now, I won't tell you."

Variable challenged Tensor: "No, no, these boys need a little sympathy and help!"

Tensor scoffed, "Hopeless!"

Variable appealed to Vector . . . but strangely enough, our universal friend had disappeared. Tensor looked under the table: a shapeless blob of undifferentiated protoplasm arose.

Dean observed, "I heard a hiccup!"

Tensor hissed, "Vector, you're out of focus!"

"Oh—oh, excuse me?" The familiar form coalesced before us.

Variable cautioned: "Vector, you should be ashamed. You will give these Techmen bad habits."

In reply, a silly grin spread over Vector's visage, as she and the other two Hyperwomen disappeared from view.

We waited nervously for their decision. Would they tell all? How many futures depended upon the knowledge which Vector, Tensor, and Variable could provide!

Bill flicked his cigarette nervously. "I haven't been so excited since Comrade Unternoff sponsored my entrance into the party."

At last the Hyperwomen materialized. Vector spoke:

"Boys, we're going to give you the Word. You have a responsibility to use it with discretion."

Variable leaned forward, and whispered, "Your'e out with a girl. It's been a convivial evening, and you are both in good spirits. You put your arms around her."

It almost seemed real.

Variable reflected a moment. "I assume," she breathed hopefully, "that you held her hand during the evening. A firm, friendly pressure is an excellent telegraph system."

"Well, from now on it depends entirely on the individuals, but in general follow this: We like you firm, confident, leisurely—in a word, suave. If we resist, it may not mean we dislike you, but that we want more time. A man should be resilient; but we don't enjoy fighting you off all evening . . . that's puerile. If we're worthwhile, well make you work for a kiss, and if you're resourceful, you should enjoy the task. Above all, don't simply seize us in those irresistible arms of yours and think you're sweeping us off our feet. And don't 'kiss and run.' Love is an epicurean art: it takes concentration, discernment, and time. Best of luck, boys!"

Next Week: Operational Methods.

The CALTECH MUSICAL
 PROGRAM FOR SUNDAY, NOVEMBER 23, 1947
 MONTEVERDE—Lagime dell' amante al sepolcro dell' amata
 (A cycle of madrigals in 5 voices)
 BEETHOVEN—Quartet No. 14
 — Intermission —
 BRAHMS—Duets, contralto and baritone, Opus 28
 Die Nonne und der Ritter
 Es Rauschet das Wasser
 Vor der Tur
 Der Jager und sein Liebchen
 FRANCK—Chorale No. 1, E major, for organ

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Ricketts, Dabney In Crew-Race, Flamers At Mountain Oaks

Practically everybody who is anybody in both Ricketts and Dabney could be found at the combined barn dance held at the famous retreat, Mountain Oaks, on last Saturday night.

Music was provided by Al and his excellent little band; and the hall rocked 'til midnight with polkas which, from all reports, appeared more like a Lil' Abner stomping contest.

Highlights of the evening for the crowd were the Crew Race and Flamer Contests. The Dabney team won the race with a time of 1 minute, 26 seconds, but the Darbs were held to a tie in the Flamer.

Additional entertainment was offered by the Raymond Hill Trio—Bruce Hedrick, Dave Warren and Jim "Piston" McQuiston and his ukulele. They rendered "Over the Rainbow-O"; the Dabney House Quartet gave out with "Persian Kitty"; impromptu group singing developed, and Hedrick and Warren gave the band a rest with a bit of jazz.

During the evening, Blackie Stone and his understudy, John Holmes, "saved" several wayward couples. Credit Larry Dahm with bringing the girl judged by the crowd to be the prettiest of the six contestants entered by admiring escorts in the "beauty contest."

Contest judges included R.A.'s Auerbach and Mettler, and Bill Adams, grad student from U.C. Chuck Forrester M.C.'d with help from Auerbach and Dick Alexander.

Throop Pledging Ends With Dinner, Eaten Squarely

Throop Club Frosh were subjected to their final torture at an informal initiation held at the Club on November 20. In preparation, the condemned Frosh ate a hearty square meal while sitting on the first three inches of their chairs. All but the more unfortunate managed to get their salad, turkey, dressing, cranberry sauce, peas, mashed spuds with gravy, rolls, coffee or milk, and raspberry sundae either into their own mouths or into their neighbors'.

Money-Bags Mooring, fearing that the prisoners might escape before their trials, made the rounds during dessert.

During chow, Hard-Nose Rypinski made it his personal duty to check on each Frosh. With a spectacular display of logic, Rip reasoned that those who sat on more chair than was decreed permissible evidently lacked appreciation for their chairs and were therefore to be deprived of same with dispatch.

After dinner, Dean Jones delivered a short talk outlining the Club's history. As this had not been done since before the war, it was welcomed. Dean Jones had promised his appearance at another function scheduled on the same night, so was obliged to miss out on the horseplay that followed.

Trials were then held under the able Judicial Council composed of Benton, Benton, and Benton, with Messrs. Pickering and Schutz presiding in an advisory capacity. Charges against

Playhouse To Be Scene Of Throop Theater Party

The indomitable Throop Club spirit will show itself again as 50 members with their dates take over the entire center balcony of the Pasadena Playhouse (at a cut rate, of course) to see "Our Hearts Were Young and Gay." This play, which is currently enjoying so much popularity on Broadway, will be attended by the Throop Club expedition this Friday night, November 21.

These feminine fashions-conscious men will indulge in their annual competition for front-row seats, the object of which is to gather further data on the subject of the horrors of the lowering hemline and the new-found joys of the lowering neckline. It must be admitted that the boys seem to have the right idea on that subject.

After the play, according to long-established tradition, there will be dancing and refreshments for free in Throop Lounge.

each Frosh were read by the Council. All who pleaded not guilty were given a trial by mechanical jury. Without doubt, this was the most biased, prejudiced, narrow-minded, and intolerant jury that ever existed. Besides that, it was "fixed." Judge Benton further exercised his powers by dispensing sentences, which were wholeheartedly enforced by the upper class.

Just as it was hoped that things were getting ready to break up, someone discovered a fire in the patio. With a valiant display of Throop Club spirit, recently acquired, a noble Hands-and-Knees Frosh Fire Brigade was formed which overcame ordinarily insurmountable difficulties to achieve success.

Shavings from the Board

by das Muehl

This column, the latest addition to the California Tech, is being initiated with the purpose of acquainting the general student body with the current decisions and problems of your Board of Directors.

We would like your comments concerning these matters and to help you remember who is on the Board so you'll know who to talk to, I'm including here a list of the members of the aforementioned Board:

- PresidentBruce Worcester
- Vice-PresidentFrank Wolf
- SecretaryBill Muehlberger
- TreasurerBob Poindexter
- Athletic Manager Stan Barnes
- Publicity Manager.....Bill Karzas
- 1st RepBud Mittenthal
- 2nd RepMike Sellen
- Rally Comm. ChairmanJack Ottestad

Activities

Now that the introductions are over, I can get to the main part of this splinter. A note about the new California Tech: it is bigger (obviously) and is costing us less, due to the increased advertising.

The SKI CLUB is sponsoring the return of skiing to the ranks of minor sports. Intercollegiate competition is being revived and minor letters will be awarded in skiing.

The COURT OF TRADITIONS just met and sentenced a large number of Frosh to shoe shining for missing assembly. These decisions caused a great amount of complaining from those involved and others, but apparently the complainers do not know that it is the standard penalty that has been meted out since the Year 1 for that heinous crime.

Possibility of Amphitheater

The projected Amphitheater behind the Optics Lab has been the subject of much discussion. The Alumni will underwrite the purchase of the necessary materials for the minimum cost amphitheater we could get along with IF the labor can be done by the students. Estimates of time needed vary, but it would probably run to about five days work by a large number of students. Think it over, it is to our best interests to sacrifice a few Saturdays to get the amphitheater built.

By-Law Revision

Another task we have at the moment is the problem of amending some of the obsolete ASCIT By-Laws. All suggestions will be gratefully accepted as there are many items that need changing. It may be simpler to scrap the present confused set of By-Laws and draft a new streamlined set.

In connection with this don't forget the ASCIT meeting tomorrow at 11 a.m.

Remember, if you want to come to the Board Meetings on Thursday night, you're welcome.

CAMPUS BREWINS

Last Saturday night a casual observer drifting into Blacker lounge would have sworn he was lost down around 5th and Main, but he would have been wrong. The occasion was the Blacker Speakeasy party; the setting, the Roaring '20's. The place was known as Delicate Jerry's but since he couldn't make it, his cousin, Passionate Larry (Nobles) held the fort down.

Simply Ripping

Entertainment was on a rather low plane but seemed to appeal to the throng. John McGrane looked quite seductive dressed as a charming young thing (although a trifle underdeveloped). However, during the course of the skit he was in, at a critical moment while silence reigned, a portion of his clothing was ripped, but "he made it off the floor with the seat of something tore."

Chuz Howard rushed up to the weird-looking still that was gushing forth amber-colored liquid and registered visible disappointment when it turned out to be only cider. By the way, Chuz still denies that there is any hidden meaning in the fact that his woman sent him a book entitled, "Passion Flower."

Loose Women

Judging by the large number

GIANT MIRROR

(Continued from Page 1)

Right on schedule the procession moved along; through San Marino and Temple City; down Rosemead Blvd.; through Monterey Park, Montebello, Pico, Downey, Bellflower, and Santa Ana. Finally it rolled south along U.S. 101. At Carlsbad it came inland on 78 and at precisely 5:00, exactly on schedule, stopped for the night as Escondido.

Wednesday the hazardous part of the journey began, as the massive trailer was nudged up grade by a team of Diesels around twisting, narrow roads, to Rincon and Palomar Junction. But again the schedule was kept—planning prevailed and by 11 a.m., seven hours ahead of the schedule, the mirror had arrived.

Bath After Trip

The enthusiastic scientists planned to have the "naked" mirror in its aluminizing tank in three hours—but it will still be some time next spring before the first mechanical eye—an astronomical camera—peers through the giant reflector out into space. What will the telescope mean to science?

"We should obtain answers to questions earlier proposed by the Mt. Wilson telescope," said Dr. Max Mason. "Is the universe infinite or somehow limited? Is it expanding? Are there galaxies similar to our own at regular intervals throughout space? What is the source of stellar energy? What are the origins of the chemical elements?"

of girls wandering in and around Fleming unattached at their recent exchange, the Fleming men must have either been unsatisfying or unavailable. At any rate, people were running down halls of other houses drumming up recruits while more than one band of militant women was seen out looking for themselves.

Rustic Raucus Rumpus

The Dabney-Ricketts barn dance was considered to be successful by those who can remember. Fred Wood was so eager that while driving there, he made a U-turn and fell half-way out of the car. His party finally made it after only a brief stop at the hospital for an X-ray. He came back on the Dabney truck.

Jack Ottestad ended up driving the truck, and finally got home at 7 a.m. Speaking of the truck, Bruce Hedrick was one of the passengers on the hay-filled back end. We can assure you that he wasn't looking for the proverbial needle.

Statistics

The Flamer contest was a tie with 4 Class A's, 2 B's and a runoff with 2 RA A's. Dabney won the close crew race with a total time of 86 seconds. In addition, there were an undetermined number of incompleting passes, and at least one backfield in motion.

It is rumored around Ricketts that their much-beloved R.A. is going to have physical violence done to his honorable person (possibly D. & S.) if he ever judges a contest in the manner he did the other night when he tapped Dabney's one and two men simultaneously. As I remember, there was a similar muttering about Chuck Auerbach last year after he had refereed a certain contest. Come, Lieutenants, let's get on the ball!

The only other news about the Ricketts rowdies seems to be well covered in other portions of this paper. I did hear a tremendous commotion going on in the court Thursday and went down to investigate, finding a most interesting spectacle in progress. Mrs. B. seemed a little piqued at breakfast Friday. Wonder why?

Exchange

Wasn't able to make the Fleming-Ricketts exchange with U.C. L.A. Friday night and haven't been able to find anybody that was willing to talk about it. The only comment put forth was that it was warm that night. Being a suspicious individual, I called my friend Krick over at the weather station and he said it was 42 degrees F. that night. Why did they say it was warm? A few girls must have found it the same as about eight of them were seen in Blacker lounge about 11 p.m. talking to the boys. Blacker men must have IT.

In Early

Mike Sellen, 2nd Rep, had a date last Saturday at the Redlands game, arranged by an involved postal exchange. The lucky girl was Connie Carpenter, Scripps. But why was Mike in the lounge alone at 8 o'clock that night?

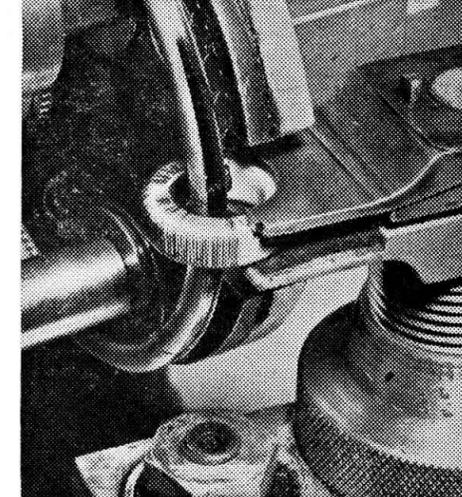
This column really gets around—to Hollywood, for instance. Pat Glover's little English girl (as was reported in this paper previously) introduced him as "LOVER" Glover to a Russian prince who had come around to take her out.

One last item: Fleming men are going to have to get their own dates from now on, since they can no longer get their "pleasure" watching Al and Ginger (that terrific blonde) cavort on the dance floor; as they have broken up.

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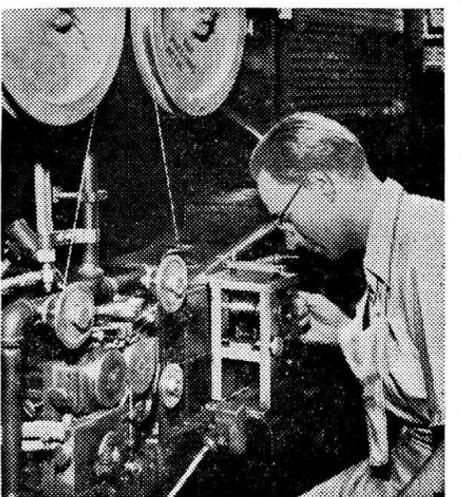


Winding wire on a "wedding ring"

This is the "Sea Breeze," a machine developed by Western Electric engineers. It solves the problem of winding wire half the thickness of a human hair on a toroidal core the size of a wedding ring. Compressed air drives the flyer which maintains the wire under positive tension at all times, winding as many as 40,000 turns of #46 wire on the core. It winds finer wire than any previous machine, lays turns more uniformly, winds a wider range of wire sizes, increases efficiency in utilization of winding space and permits the manufacture of coils half the size of those previously possible.

Metal welding that saves millions

Here, palladium and nickel tape are welded together at the rate of 400 feet an hour. Tiny bars are later snipped from this bi-metal tape and used to replace the precious pinhead-size platinum rivets once used as contacts in Bell System relays. These contacts, which minimize noise in telephone conversation, are used by the billions in relays that perform switching operations. The use of this bi-metal tape... devised by Bell Telephone Laboratories scientists and produced on machines developed by Western Electric engineers... saves millions of dollars a year in the cost of producing telephone equipment.



Engineering problems are many and varied at Western Electric, where manufacturing telephone and radio apparatus for the Bell System is the primary job. Engineers of many kinds—electrical, mechanical, industrial, chemical, metallurgical—are constantly working to devise and improve machines and processes for mass production of highest quality communications equipment.

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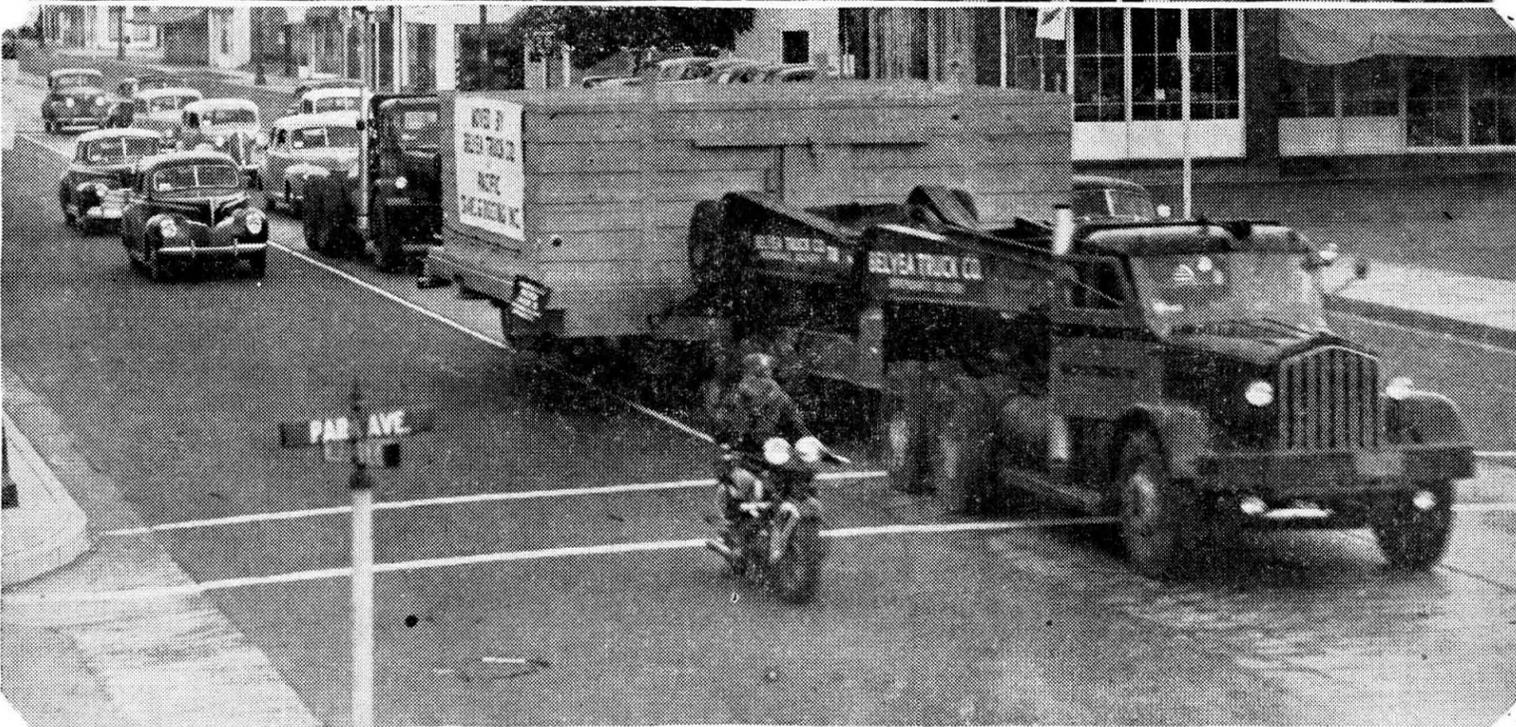
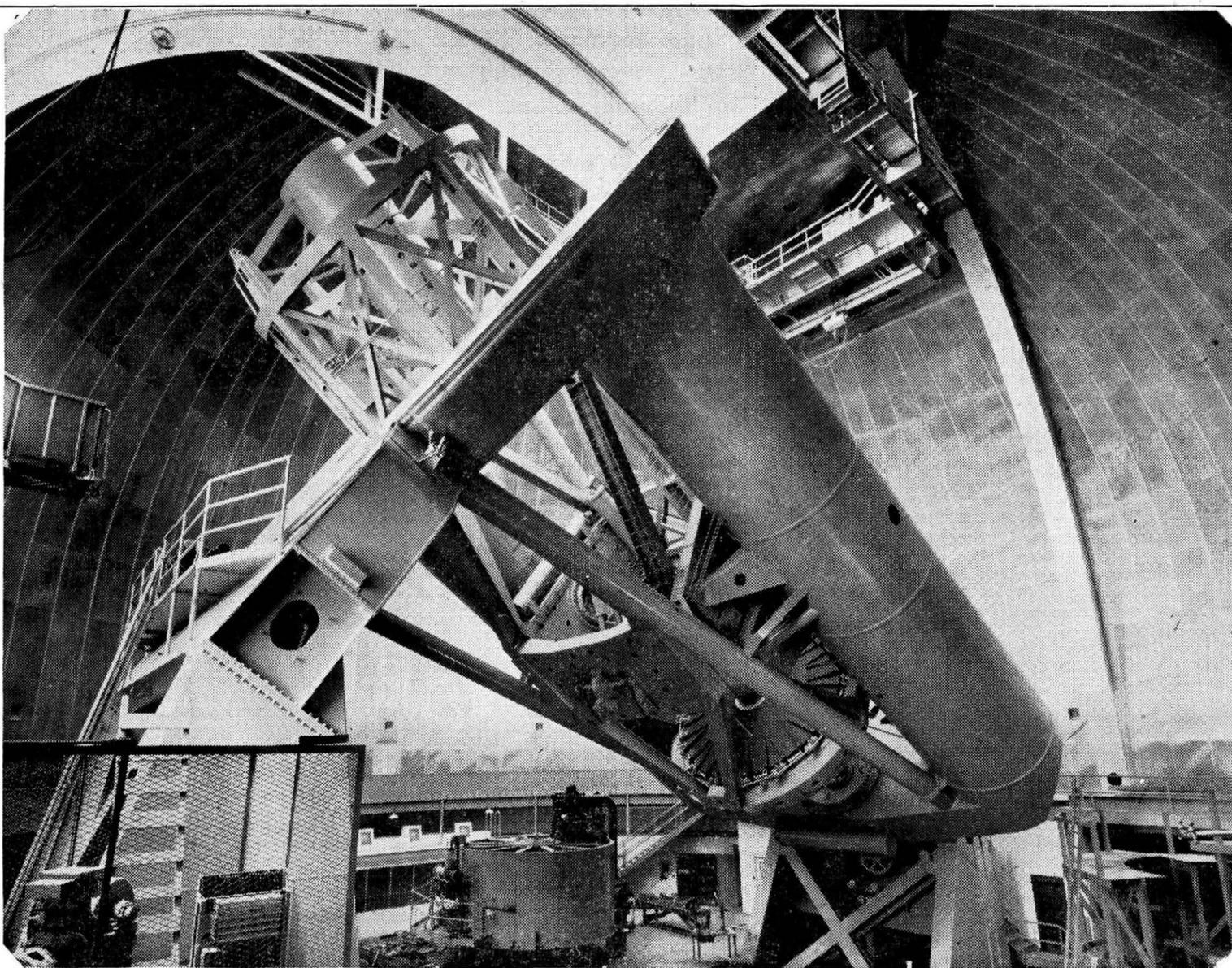
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AWAITING MIRROR—Top picture shows the 200-inch mirror-housing installation at Palomar. Note observers' approach platform at right. EN ROUTE—Lower illustration shows the mirror caravan passing through Artesia at dawn Tuesday morning.

Harriers Gain Double Victory

Statistical coincidences ran riot in Tournament Park Saturday morning as Caltech's up-and-coming crosscountry squad squeezed out victories over both Occidental and Santa Barbara. The score for the three-mile race was Tech, 39; Oxy, 40, and Santa Barbara, 41.

The scorekeepers' fingernails were frayed by the time they emerged from their huddle with the dual meet scores; the figures showed the Beavers were victorious over Oxy by the narrow margin of 27-28; the score was identical in Tech's win over Santa Barbara, while Oxy's victory over the Gauchos was—27-28!

Marshall in Top Spot

Jack Marshall grabbed first position for the Beavers as he turned in the best varsity time for the last two years, 17:36.3. With performances of this type the Michigan Marvel will be providing the opposing teams with plenty to think about for the remainder of the season. Don Peterson, showing a great deal of improvement this year, finished in third spot; while Doug Brown, with only a week of practice, ran

(Continued on Page 6)

Talkin' It Over

with The Goon

Just got back from the big game in Redlands. Got no brittle beak, no complaints, no sour grapes—just a lot of praise to the Varsity for a well-played encounter.

The Goon's Award of the Week goes to Bob Funk. The kid was making about every tackle in the defensive secondary besides calling one of the best offensive set of plays that we've seen so far. Funko is one of the most improved players on the field, and Darling Darwin Horn isn't going to like the atmosphere out Pepperdine way after Bob knocks in to him a few times.

It was the same old story again out in the orange groves. We played a brilliant game up to the last quarter. The line was out-charging the opposition on every play; the backs were making yardage every time they packed the ball. We had the decision if we could have just stayed one more round. The difference could have been Wozniak in the backfield to give Chaffee a hand; it might have been Mac if he wasn't running on one leg and guts. No one can say. However, the team played a hard-charging, heads-up brand of football.

Cross Country

Jack Marshall came through with his best performance of the season on the cross-country trail Saturday. Jack made the deciding point difference by his first place in the grind. Doc is looking forward to seeing this lad cop the ribbons in next year's track meets. Up to this date we are undefeated in Conference Cross-Country, and if the men's lungs hold up there might be another silver cup for Miriam and Miss McGee to put flowers in.

Armored Forces

Not too much news from the Armory. Mr. Musselman (the Hustler) says that there are two

(Continued on Page 6)

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Beaver Sports

Beaver Frosh Beaten By Poets

Spectacular Whittier Scoring Downs Tech

The worst shellacking in Caltech history was administered to the Frosh eleven by their Whittier rivals in an 80-0 runaway last Friday night. In winning the game, the Poets sewed up the Southern California Conference freshman title with three wins and no defeats.

The Beavers were helpless against a team that scored 12 touchdowns, seven from runs and passes of over 25 yards. Sparked by Siciliano and Dominguez, the Poet freshmen tallied at least twice in every quarter.

Spectacular Poets

The game's most spectacular play came early in the second quarter when Poet Fullback Siciliano shot through left tackle from his own 29, going all the way through the Bevo eleven for a touchdown. Later in same stanza, the Poets scored on another long gain, a 63-yard completed pass, which made the half-time score 46-0.

Even placing the third string against the Tech gridders did not halt the scoring spree, and the Whittier subs scored on a double lateral from the Tech seven just as the gun ended the game to make the final score 80-0.

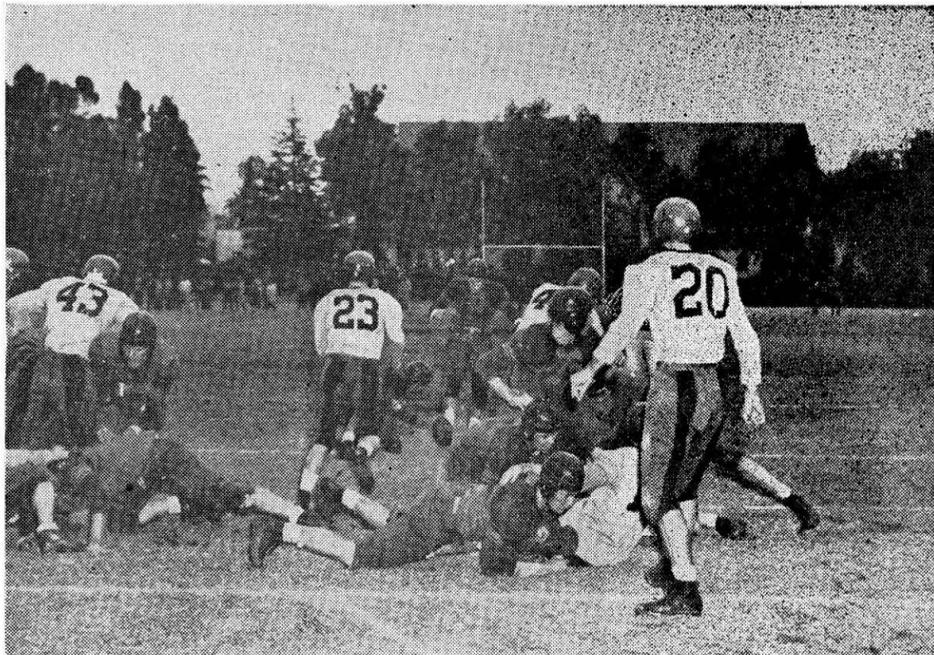
Caltech Wingback Jim Luscombe and Fullback Dean Blanchard gave the weak Frosh about their only offensive spark, making consistent short gains. Blanchard was injured in the second quarter, when he twisted an angle which put him out for the remainder of the game. George Terhune's fine kick-off returns kept the pigskin a way from the Tech goal line more than once, and Roland Berner and Noel Reed were responsible for some rugged line play on the part of the Frosh.

Wave Game Off

The Whittier game served as the finale of an unsuccessful grid season for the green Beaver yearlings. Their record is four losses and no wins. A previously scheduled game with Pepperdine has been cancelled, and the Frosh have now turned their attention to the basketball season.

Practice began last Monday.

BEAVER BACKS DO THEIR STUFF



IT WAS GOOD. It may not look like it but Chuck Norman's right toe again does its duty for the Beavers, this time against Redlands. This point tied the score.

FUNK RAMBLES. Quarterback Bobby Funk gets some exercise as he rolls up some yardage against Bulldogs. Despite fine Tech play, Bevos lost, 20-13.

Redlands Edges Tech, 20-13 As Reserve Lack Tells Again

Beavers To Try To Dam Waves Saturday Night

The Beaver eleven finishes off its '47 schedule against the Pepperdine Waves Saturday evening at the Inglewood High School field (Sentinel Field).

Coach Anderson and his boys aren't planning on knocking the Waves off their lofty, undefeated in fifteen-game perch, but they could give the Sun Bowl aspirants a good battle.

Wave Memory

The Peps probably remember the first half of last year's game, however, when the Beavers knocked Mr. Horn and his friends around for the whole first half before having their morale shattered by an unlucky break, and if the Waves ease up, they're in for another scare. While the Tech record is not good, this is a better offensive team than last year's and might repeat last year's show.

Coach Anderson is letting the wounds heal this week, with no hard scrimmages on tap. The pigskinners are still battered from their last three games, although triple-threatener Jerry "twinkle-

(Continued on Page 6)

The Caltech Engineers ran into their usual nemesis' out in the orange groves at Redlands last Saturday when lack of adequate reserve strength again resulted in a close Beaver loss.

The Beavers stopped the vaunted Redlands running attack stone cold—but unfortunately the Bulldog passing attack was more than adequate and accounted for three TD's, enough to edge the Beavers, 20-13, in the last five minutes.

Ted Runner, Bulldog halfback, turned out to be quite a passer and end Stan Flowers quite an end—together they connected for two scores. This combination, by the way, is leading all colleges in percentage of completions. Mr. Flowers has managed to hold on to nearly 70 per cent of the balls Runner has tossed his way this season, and he's thrown quite a few.

Wozniak Injured

If dependable Jerry Wozniak, stellar Tech half, hadn't been nudged on the second play of the contest (he received a slight concussion and was bench-ridden for the rest of the contest, things might have been different. Chaffee and Wozniak alternating could have meant the ball game.

The Engineers took the lead late in the first canto, driving 39 yards after Tex Bass had mangled a Bulldog punter and Marshall had fallen on the ball. The TD came on a 15-yard play, Chaf-

(Continued on Page 6)

Fleming Beats Challengers In Discobolus Tennis Play

Just seven days ago, those correct cavorters from the Fleming gym snared a win which kept undisturbed the dust on the Discobolus now resting on the Big Red mantel.

Five cogs in the Blacker machine attempted to remove the much-sought-after bronze discus thrower in a tennis clash which was to feature three singles and two doubles events.

Blacker Beaten at Own Racket But the Blacker netters who

had the situation well in hand last year seemed to be ye olde brick wall this fall. For the Fleming netmen firmly took charge of the wool-covered pellet and kept the courts steaming straight through the first three matches.

No Parry Marks Itinerary

After dropping the first set to J. C. Bear, Bill Woods made a smashing come-back to start off the series and take his singles match with 5-7, 6-0, 6-2 tallies.

Big Bob Stokely completely took charge of the net situation in his match with John McGrane. The number of Fleming wins then jumped to two as the Stoker secured a 6-4, 2-6, 6-4 triumph.

The athletes dominated the doubles department, too. The Glover-Shore combo swept a 6-2, 6-3 series from the Bear-Youtz team to place the third marker on the Big Red side of the ledger and thus to ice the defeat of the Blacker Challengers.

Fleming Leads IH Volleyball, 3-0

With wins over Throop, Dabney and Ricketts under their belt, Fleming leads the Inter-house volleyball race.

Showing fine teamwork, the Red aggregation has yet to be put to a real test. Fleming has been playing under a handicap as their entire first string became ineligible with the start of basketball practice.

Blacker is holding down second spot with wins over Throop and Ricketts.

The standings to date are:

	Won	Lost	Pct.
Fleming	3	0	1.000
Blacker	2	0	1.000
Ricketts	1	2	.333
Dabney	0	2	.000
Throop	0	2	.000

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Ricketts, Fleming Combine To Throw "Drunkard" Party

Tomorrow night about 35 couples from both Fleming and Ricketts will attend the old melodrama, "The Drunkard," at the Theatre Mart in Hollywood.

In line with the tradition of the drama, the audience is to hiss and boo at the villain and cheer for the hero. Refreshments (on the house) are served. A convivial evening is anticipated.

HARRIERS GAIN

(Continued from Page 4) a fine race to finish ninth. Other Techmen figuring in the scoring were Mike Sellen, 11th, and Larry Nobles, 15th.

Tech's First Conference Win Frosh in Preliminary Affair

Neither the Tigers or Gauchos had freshman teams, so the Beaverbabes had the field to themselves in a two-mile race preceding the main event.

Bob Cobb turned in another good race to win in the time of 11:41.5. Constantly improving, Rich Smyth finished in second spot, while Ray Bowerman came in third. The remainder of the competition was provided by Walt Edwards, Bob Kurland, Charlie Steese, and Ritchey Newman.

Tangle With Pomona Saturday

The next hurdle on the harrier's schedule will be on Saturday morning at 10 o'clock in Tournament Park, when the Beavers meet the Pomona Sages in another three-mile event.

REDLANDS EDGES TECH

(Continued from Page 5) fee to MacLean. Redlands struck right back, going 51 yards in eight tries. Runner tossed to Flowers from 26 yards out for the score.

The Bulldogs surged ahead in the third quarter on a 42-yard drive after a 38-yard punt return. Lloyd cracked tackle from the two after passes had again set the stage.

But the Bevos weren't through. They took the kickoff and went all the way, with Chaffee hitting Bill Muehlberger on the goal line for the score from 18 yards. The Techmen had rolled 75 yards on five passes and one run to set this one up.

The Bulldogs drove back at once but were halted. When the Bevo offense bogged down, however, and Redlands took the ball the second time, they made good. Some real razzle-dazzle gave the Dogs a first down inside the four; the Beavers stopped two line plunges, but Runner crossed them up with a flat pass to Flowers for the score.

Bob Funk's signal calling and defensive work were something to behold; Bill Muehlberger played his best game this year. When he stopped a play (which happened often), it stayed stopped. The team as a whole did well; if it can get over its collective injuries, Pepperdine will have a contest come Saturday.

BEAVERS VS. WAVES

(Continued from Page 5) toes" Wozniak is okeh again and will be in the line-up. With the return of "Das Mule" Muehlberger to good offensive form, Andy may be able to throw two good offensive backfields at the Waves.

Horn Leads
It needs hardly be added that Darwin Horn is again leading college scorers throughout the nation, but perhaps a few comparative scores are in order. Read 'em and, well, don't weep yet:

Pepperdine	21	Redlands	6
Caltech	13	Redlands	20
Pepperdine	57	Whittier	0
Caltech	6	Whittier	6
Pepperdine	46	Cal Poly	0
Caltech	6	Cal Poly	26

Last week the Waves eased up on Humboldt State, 58-0. The Pep-Redlands game was early season and the score undoubtedly reflects that, as does the Tech-Poly score. It is doubtful whether the Mustangs would stop the Bevos now.

TALKIN' IT OVER

(Continued from Page 4)

good possibilities for dressing rooms the night of games: (1) a hotel of shady reputation a few blocks away, or (2) throwing up a couple of tents in the middle of the floor. The boys on the squad voted unanimously for the former, including the vehement ballot cast by one of the managers who hasn't been doing so well lately.

About 18 men have turned out, not including the pigskinners who will lay aside the pads and helmets after Pepperdine is taken care of. Coach is planning a fast break offense in which a man runs until he drops dead. At that time he will be relieved by a sub. If Rhode Island can do it, why can't Tech?

YOUR CAMPUS

(Continued from Page 2)

pen quickly. Three of the motorcycles have lined up in front of the truck facing out toward California Street from the driveway. Their motors rev up, one of the officers looks at his watch and motions to the truck. Its lights blink as a signal to the photographers. An instant of confusion as orders are shouted between newsreel men and their flare holders; and suddenly the whole area bursts into tremendous brightness. Four flares are pouring dense clouds of white smoke. It seems brighter than day, everywhere is glaring blue white light. The truck moves, newsreel cameras turn feverishly.

The truck has stopped in the middle of California Street and men are dashing for their cars.

There is a wait of a few moments and a few more pictures. Some newspapermen arrive late in consternation.

Air brakes hiss, the truck starts moving east along California Street and the caravan begins to assemble. The time: 3:30 a.m.

The Procession

We caught up with the procession at about Allen Street. A weird scene, moving like some awesome funeral procession. The wide grey box, illuminated by the headlights of the auxiliary truck is nearly as wide as the street. Behind it are 3 rows of cars, about 25 in all. Our speed is about 5 miles per hour.

One Los Angeles paper staff correspondent said it was the weirdest assignment he'd ever been on. The photographers stay in front of the caravan. They

dash ahead a ways, then park in groups and get set for a shot.

The motorcade winds forward. From a railway overpass crossing Rosemead we can see the entire procession. The air is cold—crystal clear, and the glaring headlights seem to penetrate you as they approach. Two cops are in front stopping all cars about a mile ahead, blocking all side street traffic. Then two more about one-eighth mile apart and then the police cars just preceding the truck. Behind the trailer is the auxiliary, a couple of more squad cars and then the caravan, which has grown now to about 35 or 40 cars strung out in more or less of a swarm. But here we leave the procession as daylight begins to spread with the mirror two hours ahead of schedule—well on its way to Palomar Mountain.

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