

## New DNA Virus Clue

Unusual forms of DNA, produced by two viruses, have been discovered by a team of scientists here at Caltech. One of these forms, that produced by the virus polyoma, is especially interesting, since polyoma has been found to produce cancer in animals. Those working with these new DNA forms hope that their findings will increase the presently inadequate knowledge of the reproduction and tumor-producing processes.

### New DNA Structure

The DNA produced by these two small viruses, polyoma and Phi X 174, differ from the normal forms of DNA, which are double-stranded, open-ended spirals, by occurring in closed rings. Their structure is similar to that of two strands of wire, both of the same length, which have been twisted around one another approximately 500 times. The twisted wire is then looped into a circle and the ends of the wire are welded together.

One of the consequences of this strange configuration is that the strands of DNA cannot come apart as those in the open-end spiral DNA forms can. Replication of these rings involves a process totally different from those of ordinary DNA, according to Dr. Robert Sinsheimer, professor of biophysics. He has suggested that the ring must be severed before replication can occur. Furthermore, although connections between the ring

(Continued on page 2)

## Notices

### BIG T SENIOR PICTURES

The deadline for turning in an informal photograph for the Senior section, (negative or transparency) together with commentary, is next Wednesday, Nov. 27. Please turn them in at either the Big T Office or C box, Lloyd.

### PHYSICS CLUB

Dr. John Bahcall will speak on Solar Neutrinos to the Physics Club, 7:45 p.m. Thursday, at Don Barne's house, 1546 Rose Villa. Everybody welcome.

### MUSICALE RECORDINGS

The Musicale has been relocated in lower Fleming, and is presently being re-organized. Please return any recordings removed from the old room to Dr. D. E. Hudson in Thomas so they may be filed.

### MUSICALE EQUIPMENT

Within the last two weeks, someone has borrowed the equipment of the Musicale, a Sherwood monophonic amplifier and Audio Empire Troubadour turntable. It would be appreciated if they would be returned as soon as possible, since the Musicale will soon re-open in its new location.

### CHRISTMAS FLIGHT HOME

Everyone who is interested in flying to the New York or Chicago areas for the Christmas vacation should contact Doug Gage or Stu Davey in Ruddock. The fare is \$140-\$150 round trip to New York, \$100-\$120 to Chicago.

### FALL SPORTS BANQUET

The annual Fall Sports Banquet will be held Monday night, December 2, at 6:30 p.m. at Gwinn's Restaurant. Tickets will be on sale from representatives in each of the Student Houses, at the Gym, or from Grant Blackington, 240 Ruddock for \$1.50 for athletes and \$3.50 for others.



—photo by John Williams

The Mudeo horse and rider contest bogs down for a moment in the mud. Sophomores won here, but lost Mudeo 4-3.

## Sophs Manhandled In Mudeo; Juniors Celebrate Frosh Victory

BY TIM HENDRICKSON

"Quick, a snorkle!" screamed a distraught sophomore from somewhere within the depths of the slimy Mudeo pit. "Help!" bellowed five others mired in the quicksand; "Somebody bring a toilet plunger!"

But it was already too late. Before the expectant cameras of KTLA-TV, the spirited Freshman Class swept the crucial "tire-collecting spree" to inundate the sophomores 4-3 and reign victorious in the 1963 Mudeo last Tuesday afternoon.

Their victory, however, came as no surprise to the impartial, supervising Junior Class officers, who had previously been convinced of the many advantages of greater maturity in convincing tactics, i.e., bribes. The Junior Class, in a magnanimous good-will gesture, held an all-expenses paid party Tuesday evening to celebrate the frosh class victory.

In the opening event of the Mudeo, the tug-of-war, the freshmen overpowered the sophomores, who, exemplifying their abominable "debauchery and lowliness," attempted to tie their end of the rope to a conveniently located car, which was quickly rendered inoperable by several

ignition-plucking freshmen. Result: Frosh 1, Sophs 0.

### Ah, Immorality

The next event saw the sophomores even the score by demonstrating their tremendous ability at "sacking out". Following this the healthy freshmen showed their suitability by wheelbarrowing to make the score 2-1.

"Horsing around" proved to be the sophomores' specialty as they countered by putting down the freshmen in the horse-and-rider contest. Once down in the sticky muck, it was not quite so easy for the horse to get up with his rider still intact; thus for long periods of time all that represented the struggle was a desperate squirming and splashing around in the mud, until finally two sophomore teams

(Continued on page 6)

## Athenaeum Site Of Coffee Hour

The Faculty-Student Coffee Hour will be held at 3:00 p.m. today in the basement lounge of the Athenaeum. This "return" Coffee Hour is the second to be sponsored by the faculty in the Athenaeum, and it is hoped that plentiful attendance by interested students will insure the continuation of this fruitful exchange.

Coats and ties for students will not be required, and thus this provides a rare opportunity for the Tech student to be in the Athenaeum on an informal basis and to engage the Tech faculty member in discussion on his home ground. In this manner, an extension of the increasing interest generated by these successful Coffee Hours is anticipated.

The Coffee Hour returns to Winnett Lounge on December 5th. There will be no Coffee Hour on Thanksgiving.

### Date Back Far

The lectures seem to have all the makings of a firmly entrenched tradition, mainly because no one now at the Institute can give an opinion on how they got started that concurs with someone else's opinion. Everyone knows that they have "always" been going on, that the topics include all the Divisions, that a faculty member can usually depend on being called upon to deliver one once every few years — and that's about all.

The most probable account of the lectures' history is gleaned from many sources, including Dr. Earnest C. Watson, past Dean of the Faculty and originator of the lectures. Back in the 1920's, before the construction of Bridge was completed, an improvised lecture room on the second floor of Throop was used to give weekly demonstration lectures to the physics students at Tech.

## Ralph Helstein Begins YMCA Leaders Series

Ralph Helstein, International President of the United Packinghouse Workers of America, AFL-CIO, will be on campus December 4-6 as the first YMCA Leader of America for 1963-1964.

Mr. Helstein has had a distinguished public career since receiving his LL.B. from the University of Minnesota in 1934. He is a pioneer in the labor movement, a lawyer, civic leader, and an acknowledged and sought after speaker on the subject of automation and its impact on the labor force and the national economy.

### NRA Experience

Mr. Helstein became a Labor Compliance Officer for the National Recovery Administration in 1934, and negotiated what has since become the classic example of the Guaranteed Annual Wage, the first agreement of its kind in the meat packing industry. After turning to private law practice for several years, Mr. Helstein again became active in the labor movement, this time as General Counsel for the Minnesota State CIO. In 1942 he became General Counsel for the United Packinghouse Workers of America, and retained this position until he was elected UPWA President in 1946, the office he has held since then.

### UPWA President

Under Mr. Helstein's leadership the UPWA became a pioneer in the field of human relations. As early as 1949 a comprehensive study made by Fisk University concluded that segregated meetings were non-existent in the UPWA, that there had been extensive election of Negroes to positions of leadership in the South as well as in the North, and that segregated

locker rooms and similar indignities had been successfully eliminated. As Mr. Helstein explained to this year's convention of the NAACP in July, "I believe that the goals, both long range and short, of the labor movement and the civil rights movement are inextricably interwoven and tied together." Since 1947 the UPWA has not signed any contract unless the employer explicitly agreed not to discriminate against any employee or applicant. In addition, the historical wage differential between northern and southern plants was eliminated by 1957.

(Continued on page 6)

## Weird Growth Tops Beckman

BY ALAN CAMPBELL

Rumors that Beckman auditorium sprouted spuds on Wednesday, November 6, are unfounded, according to John F. Adams, Physical Plant project architect. The polyhedron which appeared on the Great Mushroom was only a mock-up for a decoration planned for the building by its designer, Edward D. Stone.

The decoration, when completed, was to be an arrangement of gold and ivory balls and brass rods about eight feet in diameter. It was to represent nothing in particular but to have a "molecular form" to it, according to Adams.

Construction workers at Beckman were as mystified as Tech residents at the pile of two-by-fours. Commented the on-site foreman, "I don't know what the

(Continued on page 6)

## Demonstration Lectures Caltech Tradition

BY STU GALLEY

Of the diverse weekend activities at Caltech, perhaps the least known among undergraduates is the series of Friday Evening Demonstration Lectures. The thought of going to 201 Bridge for a lecture on Friday night may be perfectly repulsive, but there are enough people who do not think so to fill the hall to overflowing.

### Science is Cool

The original purpose of the lectures, besides giving the student contact with the many members of the physics faculty who took part, was to supplement the analytic and sometimes ethereal course work with a practical, descriptive element. Every effort was made to make an interesting and even inspirational presentation for the students, who otherwise would have only problems and lab work to acquaint them with the course material.

Soon after the Bridge lecture hall started to be used, the clamoring of a group of high-school science teachers for ways to keep up with new developments in physics led to the lectures intended for students being repeated on Friday night each week and opened to the public.

### The Old Guard

As a result, teachers, laymen, and students flocked enthusiastically to the lectures in such numbers that the presentation sometimes had to be given twice or even thrice successively, in order for everyone who came to see it. And the response was understandable, when men like Millikan offered the public a chance to see what was happening at Caltech, and what physics was all about. Particularly popular were "High Voltage," given by Dr. Royal Sorensen, wherein million-volt

artificial lightning was flung about within the walls of what is now Sloan; and "Liquid Air," given by Dr. Watson himself (who incidentally gave the major share of the early lectures), with highly frozen hot dogs smashing against the walls of the hall and fragile roses shattering like glass.

### Popular Demand

The public lectures, originally intended to be presented for only a year, continued by popular demand every school year until the present, except for a short period during World War II. And the original scope (physics only) was expanded to include all fields of study in progress on campus.

Another interesting side effect of the popularity of the lectures was that a few were developed into packages that Dr. Watson took out as one-man shows to high schools in the area (as far north as Oregon), in the hope of attracting prospective undergrads with the idea that science is fun. And some people point to examples of present faculty members who were hooked in just this way.

### Bridge Packed

This writer went to one of the descendants of the original lectures two weeks ago: the subject was "Lunar Seismology," given by Dr. Robert L. Kovach. A rare sight was available at 7:30, the

(Continued on page 4)

## Editorials

## Protection

Because of a lack of clarity in the ASCIT by-laws regarding publications, we believe Tech's long cherished editorial freedom is not quite as secure as is believed. The problems are in the amount of control exercised over the **Tech** by its business manager and by the Board of Directors.

The by-laws now state that the editor and the business manager are jointly responsible to the Board for the financial success of the paper. The present interpretation, however, seems to be that, despite the editor's responsibility, he should not have control over business affairs. The by-laws also state that only the business manager can conduct business on behalf of the **Tech**.

These restrictions are unnecessary and can be a serious hindrance to the editorial efficiency of the paper. A good solution would be to make the editor solely responsible for the success of the paper, thus requiring the business manager only to obtain ads and to keep the **Tech** books.

The second problem is a lack of safeguards of the **Tech's** income and independence in the by-laws. Since ASCIT is the publisher of the **Tech**, it can theoretically change the frequency of publication, withhold its funds, or even stop it entirely by a vote of the BOD. The by-laws even give it the right to pass on expenditures for supplies, etc. Thus ASCIT is able to exercise near total control over the **Tech** without ever censoring the editor.

There is certainly no semblance of any such problem now, but this says nothing for the editors or Boards of the future. Two other college papers, who were probably very sure of their own independence, were struck down by just such student government rulings last year. The only guarantee of editorial freedom in a paper is to place ultimate responsibility solely in the editor. For this reason action should be taken this year to include specific guarantees of editorial freedom, right of publication, and assured income in the ASCIT by-laws.

—J. C. Simpson  
Don Green

## Letters

## Editors:

With its fine, sweeping generalizations, and observations founded upon careful, unpublished, but obvious studies of the situation, your editorial of October 3 on the new physics course presented to students, faculty, and others an acutely perceptive picture of the problem. In fact, you have convinced me that Ph 1 was a horrible experience.

All last year I seemed to be enjoying the many new, "modern" facets of physics presented in place of dull carry-over from high school; often I found the very approach to the physics involved fascinating. Some of the T.A.'s were poor, but I thought that there were some instructors, including mine, who were spending a great deal of time preparing for their classes and who succeeded in furthering greatly their students' understanding of physics. But I was clearly deluded. You say I ought to complain about the "manner of presentation, (and) the attitude of the physics department," and I'm snowed out of my mind by such fine rhetoric.

When I failed to understand the material presented I used to blame myself first; it was my responsibility to learn; but now I know that it is the physics department's fault. And you scare me to death with the vague, horrid thoughts of possible (or real!) "changes in grading" that might require me to meet a minimal level of achievement in order to pass.

Finally, thank you for making me aware that I should be among the multitude experiencing a "large and obvious feeling of dissatisfaction" with the course. Your editorial is clearly on a par with all the other fine defenses you have made in the past; I hope you will continue to serve so accurately and gallantly the interests of Cal Tech (sic) students.

Philip Coleman, '66

## New DNA Structure

(Continued from page 1)

structure of the polyoma virus and cancer are not known, Dr. Jerome Vinograd, research associate in chemistry, declares that "the ring structure of polyoma must have something to do with its behavior."

## Current Research

New techniques in electron photomicrography made it possible to confirm the indirect evidences of the DNA structures caused by the two viruses. These photomicrographs show that the DNA's are about one sixteen-thousandths of an inch in length and have a diameter of about one thirteen-millionth of an inch. However, although the DNA's of polyoma and Phi X are similar, polyoma DNA is found only in double-stranded forms while Phi X can be both double and single-stranded. This verified the findings of Dr. Vinograd and Dr. Weil, his assistant, and another Caltech group, Dr. Renato Dulbecco and Dr. Margaret Vogt. They had found that the polyoma DNA was a double-

## Y Finance Drive Nears Completion

The YMCA Finance Drive, which started last Monday, is now nearing completion. Today and tomorrow are being used to round up outstanding pledge cards. All undergraduate cards must be handed in to the House chairman by 4:00 Friday afternoon in order to be counted toward the House average. The House with the highest average will enjoy a Saga dinner served by Scripps or UCLA girls.

## By Steve Schwarz

— which is what I've been leading up to — is neither a hum-dinger of an entertainment film or an execrable serious one. It is certain, however, that if you are out for entertainment you will not be disappointed. As an "escape" movie (criterion two) one can hardly ask for better than an Arabian shoot-em-up. I won't trouble with the story line except in a general fashion. Lawrence is a first-world-war British army officer; he finds he loves the desert and its people, the Arabs; he joins with them in their primitive, half-hearted, and faction-ridden fight for independence, leads them through three — count 'em, three — victorious battles, and finally abandons them, disillusioned. There is no clue to the success of **Lawrence** in such an ordinary adventure plotline; we must look into the elements that an ordinary entertainment film would not have.

## A Personality Portrait

In violation of criterion (1), the film makes an attempt to study the central character. Lawrence is no mere wooden soldier; he is a complex personality, graced with courage and idealism, cursed in a tendency to perversion; his struggle against the latter is a central theme of the film. The tortured white Arab is played by Peter O'Toole, heretofore a serious British stage actor, whose portrayal (contrary to criterion 3) is as fine as can be imagined. In his courageous moments his voice is breathy — a bit like Peter Lorre's ("sexy," I'm inclined to say) — but overwhelming in its intensity; his blue eyes flash and his sweaty, filthy face is an explanation of what it is that men find glorious in war. When his sadism overcomes him those same blue eyes are deep pools of madness.

## Color Loses

Yet in competition with  
(Continued on page 4)



## LAWRENCE OF ARABIA

By now it will have become evident to readers that in this column films are not evaluated against fixed standards, but on a sliding scale. If fixed standards were to be applied in all cases, almost every movie would be a failure, since even at this time, which is a veritable renaissance, only two or three really good films appear each year. Most films, of course, are never intended to be judged by any artistic standards, and so a more appropriate procedure is to judge them according to their aspirations. The simplest categorization is into the classes "serious" and "entertainment."

## Film Criteria

Usually it is not at all difficult to distinguish between the two classes. Films made with the sole intention of entertaining commonly have the following qualities: (1) they do not make mental demands on the audience or require much attention; (2) they present only pleasant, exciting, or sensational subjects and situations, and have uplift endings; (3) they do not rely for their effectiveness on excellence in acting or photography, but rather on plot (or pejoratively, "situations"); (4) a sense of "illusion" — whereby members of the audience are made to feel that what they are seeing is real — is not attempted.

Serious films have the opposite characteristics. Sometimes movies intended as entertainment (for instance **West Side Story**) incidentally turn out to be art; on the other hand, if a serious film succeeds it will be entertaining. The criterion is not the end result; we form our judgment of success according to what the maker was trying to accomplish.

## Goatherd Schwarz

Separating the sheep from the goats is fine until a woolly goat shows up. **Lawrence of Arabia**



## BY STEVE GORMAN

My God what a night! The Ash Grove ought to be called the Ash Heap for putting that one on. I had made the big plans; my girl friend was coming down from Chico for Interhouse and I was going to really snow her with a date at the cool folk song spa. Ooooh, wipe out!

We got there just in time for the big act — super recording artist Carolyn Hester was on stage in all her glory ready to move in on a song. — I must now digress to describe this fair creature. Her general appearance was that of a fairly average female who had gone to extraordinary lengths to make herself perfectly hideous. She had employed all the standard quasi-Joan Baez female beatnik techniques: no make up, long stringy hair, etc., but the net effect, rather than being ethnic, was that of a female longshoreman out of work. All in all she wasn't that bad until she opened her mouth, but then I swear she looked like Shaka, the dreamer of chariots, etc.

## A Real Hoot

But on to the act; when she talked, if you closed your eyes, she sounded really nice, had a sort of throaty female (yeah, yeah) voice. But then she started singing. I was snowed briefly, but then my Caltech insight enabled me to figure it out. She had mastered the technique of tying a double bowline in her vocal cords. So on she sang, interrupting herself now and then, to tell various selected members of the audience to stop laughing. She finished up with a song about flying away somewhere and I perked up, thinking she was going to make

it out on her broom, but alas, I did not receive even this small reward.

The second singer on the bill was a clean cut ex-hill-billy named Tom Paxton. I'll say this for him, he had a nice smile — unfortunately, little else. But compared to tiger Carolyn he was a dream come true. If you've ever heard Cowboy Copas or Ernest Tribb you'll have an idea of what he sounded like. And some of the songs were kind of funny — the one about screwing the I.R.T. I found rather appealing.

## A Sad End

The next trooper was a clod named Peter Lane who was supposed to be a mimic. One of the best jobs of mimicking a troll I've ever seen. His highlights were a little ditty he romped out on the piano, and one little act where he really rose above himself and did an imitation of a poached egg. But other than that it wasn't too interesting, and on the whole I can't recommend it to anybody for much of anything.

## Debate Team Takes Second

The Caltech sophomore team of Dave Close and Sean Solomon placed second in the U. C. S. B. Invitational Debate Tournament held last Friday and Saturday at Santa Barbara. Their record of five wins against one loss was good enough for Tech's first trophy of the year. The team defeated Cerritos College, U.C.S.B., Orange State College, L. A. State College, and in the final round defeated the same UCLA team they lost to earlier in the tournament.

Juniors Roger Davisson and Gary Scott compiled a 3-3 record, adding the University of Utah, UCLA, and UCSB to the list of Caltech victories. Freshmen Dan Metlay and Mike Robel added Pierce, Compton, El Camino and San Bernardino in posting their 4-2 slate.

Every Caltech team this year has won more than they have lost while debating the national resolution of Federal guarantees for higher educational opportunities. The squad as a whole has a season record of 23 wins against 15 losses.

## California Tech

Published weekly during the school year by the Associated Students of the California Institute of Technology, Incorporated.

## Editors-in-Chief

J. C. Simpson, Don Green

## Managing Editor

Bob Berry

## News Staff

Andy Beveridge, Mike Ehrick, Stuart Galley, Bob Gillon, Tim Hendrickson, Ray Keel, Wally Oliver, Phil Liapis, Ken Brown, John Williams, photographers

## Feature Staff

Rodger Whitlock, Editor

Ed Bauer, Alan Campbell, Phil Liapis, Steve Schwarz, Hank Suzukawa

## Sports Staff

Rashid Choudhry, Editor

Steve Blumsack, John Diebel, J. K. Evans, Richard Landy, Tom Latham, Bob Liebermann (Honorary), Dave Seib

## Business Staff

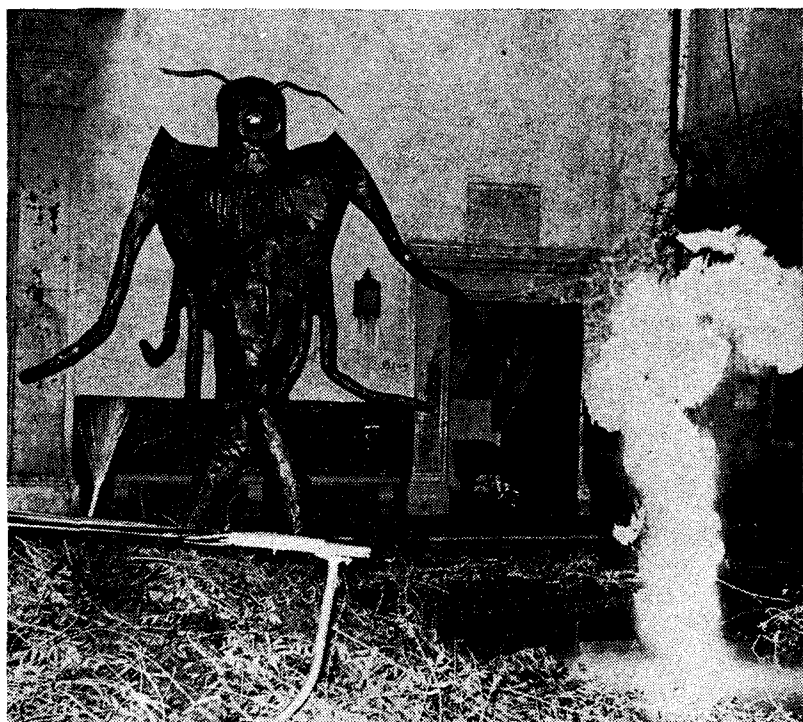
Dick Karp, Manager

Circulation: Guy Jackson

California Tech, 1201 East California Blvd., Pasadena, California.  
Member of The Associated Collegiate Press  
Second Class postage paid at Pasadena, California  
Printed by Bickley Printing Co.  
Represented nationally by National Advertising Service, Inc.  
Subscriptions: \$1.50 per term, \$4.00 per year. Write: Circulation Manager.

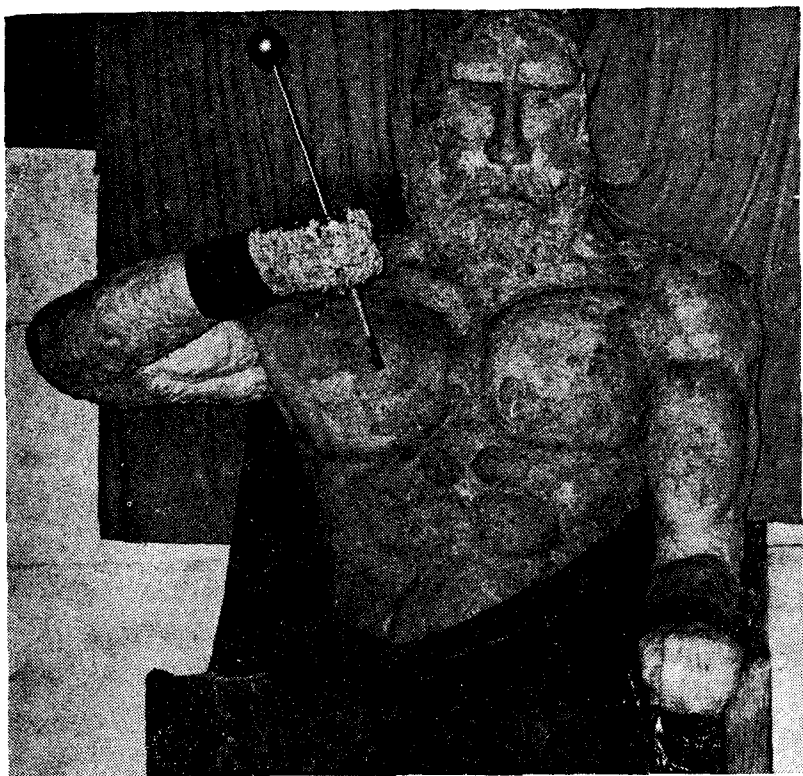


# INTERHOUSE '63



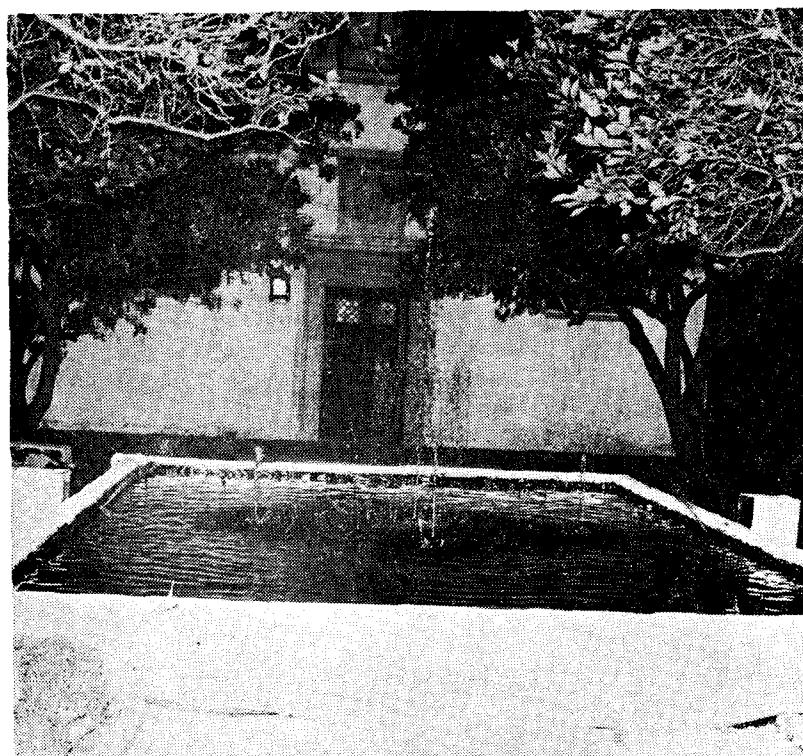
—photo by Phil Liapis

Blacker's space monster sears a fiery swath through the jungle swamp which also contained a crashed spaceship and an exploration tractor that was supposed to do everything but sit up and beg.



—photo by John Williams

Dabney's great god Zeus watches benignly over dancing couples amidst the 30-foot lighted columns in the courtyard. Zeus's sceptre, unfortunately, did not spout thunderbolts as had been originally planned.



—photo by John Williams

Fleming's Roman fountain begins its series of intricate water displays during the evening. Inside featured a "Roman Show" while spectators reclined on luxurious couches in traditional orgy style.

BY J. C. SIMPSON

Though beset an inordinate number of mishaps, Interhouse managed to fly again, as it inevitably does. The biggest catastrophe during the construction was a Thursday night and Friday morning downpour which almost ruined some Houses and delayed all of them. In addition almost all the Houses had their share of mechanical difficulties of one kind or another.

Ruddock's castle featured an operating drawbridge leading into a courtyard dominated by twin 45-foot towers and containing a chapel (complete with stained glass windows) and various machines of war.

Ruddock's interior decorations were the most extensive on campus and consisted of a 10 foot wine cask, a dungeon (with operating rack), and a Holy Grail suspended magically in mid-air that poured punch all night. The walls and ceilings were covered with shields, flags and weapons.

Due to the damage and delay caused by the rain, however, all the mechanized devices were completed too late to be debugged, and the "galligator", drawbridge, and rack motors all failed before the evening was done.

## Monsters Invade PCC!

Blacker's great green and red monster seared paths of fire through their outer space swamp, and a multicolored caterpillar crawled up a tree every few seconds. Like most Houses, however, Blacker had its share of mechanical failures and its small "exploration tractor" (that was supposed to do everything



—photo by Phil Liapis

"Old Blowhard", Page's geyser goes off right on schedule. Courtyard also featured paint pots and hot springs. The lounge was transformed into Carlsbad Caverns, complete with punch stalactite and crystal pool.

but sit up and beg) did little all evening.

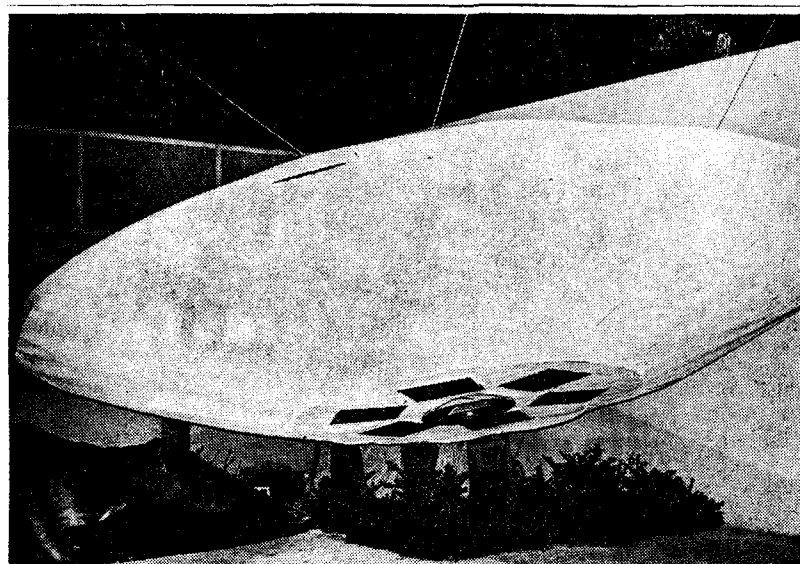
After Interhouse Blacker was kind enough to share its ingenuity with PCC and generously deposited its monster in the PCC reflecting pool very early Monday morning.

Lloyd's courtyard featured a giant flying saucer (whose bottom was constructed from a dining room ventilator cover and six light shades) which flashed red and green lights in time to appropriately weird music. The lounge featured a modernistic bar which pumped punch from a complex of chem lab equip-



—photo by John Williams

Ruddock's "galligator" looks hungrily from moat at couples crossing drawbridge from the castle courtyard. The courtyard featured scale models of war machines, a chapel with stained glass windows, and was dominated by twin 45-foot towers, one of which held Lola, the House inter-alley trophy.



—photo by Phil Liapis

Lloyd's flying saucer hovers menacingly over the courtyard, accompanied by flashing lights and strange noises. The remainder of the courtyard was occupied by a tribe of small green Martians and a chartreuse landscape.



—photo by Phil Liapis

Ricketts' ski lodge sits comfortably amidst the eight tons of "snow" that was trucked in for the evening. Not shown in the picture are a running mountain stream and puffs of smoke from the chimney.

ment and a friendly computer, also full of blinking lights.

## Oog! Snow!

Ricketts trucked in eight tons of shaved ice as planned for its snow scene. The courtyard also featured a running mountain brook, ski lodge, and several scaled-down pines, strangely untouched by the snowfall. Rickett's lounge was transformed into a ski lodge and featured a hot chocolate bar which ran dry early in the evening.

Dabney erected a 15-foot statue of Zeus, reigning over the courtyard amidst six 30-foot cloth columns that were lit by varicolored interior lighting. Mechanical trouble struck here, too, and Zeus's mighty sceptre, which was supposed to spout periodic thunderbolts supplied by a gigantic electrostatic generator, was quiet all night.

## Blurp!

Fleming, as is traditional,

stuck to simplicity in the form of a sole fountain in the courtyard. However the Flems' efforts paid off as their fountain worked all night, supplying a wide range of colorfully lighted water displays. Audiences inside watched the also traditional show from Roman couches in authentic orgy style.

Page, by starting three weeks early, managed to complete almost all its construction by Thursday evening. The courtyard featured "Old Blowhard" a steam geyser that was Page's answer to Old Faithful and spouted about once every five minutes. Other features were bubbling paint pots and hot springs. Inside the theme changed from Yellowstone Park to Carlsbad Caverns and featured a punch pumping stalactite and a ultra-violet lit crystal pool.



# Demonstration Lectures

(Continued from page 1)  
scheduled time of the lecture's beginning, for 201 Bridge was about 80% full. Even more astounding was that when the late-comers stopped latecoming at about 8:00 the hall was about 95% full, and additional people peeking in the back door could not readily see empty seats: truly an amazing sight.

## Sweet Young Things

The audience is made up of diverse elements. About one half are students at Los Angeles High, who get credit in their physics and chemistry classes for turning in notes from the lectures. Most of them come only for this reason (candid quote: "I've never been so bored in all my life"), but a few do seem truly to be interested. And about half of these students, as we tend to forget, are girls; some of them are cooler than we ever remember high-school girls being. The other half of the audience is adults, more elder than younger, and some children, obviously belonging to some of the adults. They apparently are interested in current scientific developments, or in widening their background, or in getting free entertainment.

## Subjects Most Varied

The entertainment aspect is emphasized much more than in course lectures (a bad thing or no?). The lecture under study

included a description of the earth's structure (crust/mantle/core), which is known through travel times of waves from earthquakes and artificial explosions; possible origins and structures of the moon; examples of seismometers to measure moonquakes and meteoric impacts; slides and a film on JPL's Ranger project; and a description of possible impassive experiments on the moon, with manmade explosions to be measured.

## Alas!

But for some reason, the old zip and vitality that one hears were in the lectures in the old days seems no longer to be there. Perhaps dynamic personalities like Millikan and Sorensen and Watson are either not around any more or have too much pressure on them to get worked up and give an exciting presentation. Perhaps the public has more channels through which they can get popularized science and hence are not so dependent on Tech. At any rate, a purely selfish observation would be that it might be nice to have the demonstration lectures for students re-initiated. Science is always more fun when it's not all dels and integrals.

## Audience

(Continued from page 2)  
O'Toole for center-stage is another attraction; the desert scenery itself. Normally color photography means a potboiler movie. There is no sense of illusion with color, no sense of intimacy, no mystery, no transmittal of mood from the screen to the viewer. But once again **Lawrence** is the exception; for in this case what is lost by the use of color is more than compensated by the sheer beauty of the photography. Here nature has provided what Cecil B. DeMille so often tries to provide and cannot: a visual background which by itself is an adequate justification for the picture.

Unfortunately the above considerations, taken with the qualifications of the writer, Robert Bolt (the respectable playwright who produced **A Man for All Seasons**), may force us to assess **Lawrence of Arabia** as an attempt at art; which, in turn, forces us to point out its considerable shortcomings. The worst of these is that except as a backdrop for the exposition of Lawrence's personality, respectable Mr. Bolt's screenplay might as well not be there. Sitting through three long battles is really quite tedious, and their effect of chopping up the film into three segments, each with its own climax, is an unhappy vestige of grade B movies, where the audience is assumed not to have a span of attention long enough to cover the entire running time.

## No Why

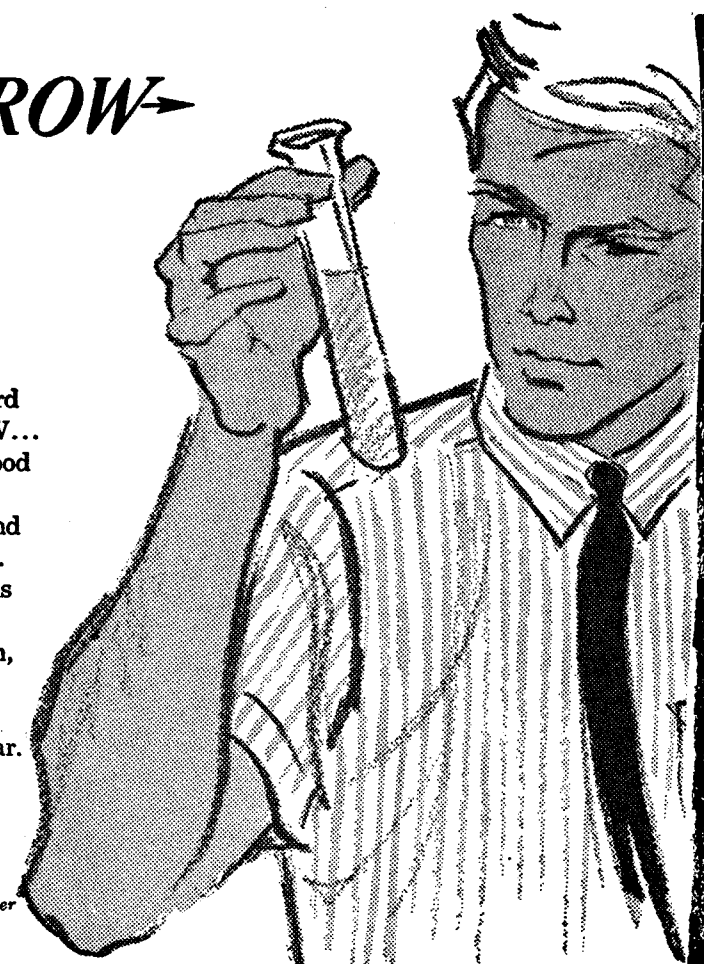
Another objection to **Lawrence** as a "thinking-man's movie" is that it explores the man only superficially; it would be nice to have a life story, telling why he is this way. As a military history the effect is negligible, on the level of "head-'em-off-at-the-pass." The background music has one excellent camel-riding theme which is perfect for the first striking desert scene — and which is then worked into every other scene as well, **ad nauseum**. Three hours long, this thing is; three hours is fine for good entertainment, but it's mighty long for bad art. The best thing is probably to go and enjoy it. And then cut it to pieces afterwards.

There will be no TECH next week because of Thanksgiving vacation

This **→ARROW→** is the shirt you should ...and can ...snap up!

It's the new Decton oxford Tabber Snap by ARROW... the shirt with the trim good looks of a traditional tab collar without the fuss and fumble of a collar button. ARROW Decton oxford is a blend of 65% Dacron\* polyester and 35% cotton, it's a new oxford that has graduated Cum Laude in the class of wash-and-wear. In short sleeves as illustrated \$5.95

\*DuPont T.M. for its polyester fiber



# 'THE BELL TELEPHONE COMPANIES SALUTE: CHUCK SCHNORENBURG

Chuck Schnorenberg (B.S., 1957) is plant manager for Pacific Northwest Bell at the communications center in Roseburg, Oregon. He is responsible for the economical and efficient operation of all communications in the area.

This is quite an assignment for a man less than 3 years with the company. But Chuck's career has been based on increased knowledge of the company and its operations, which has been followed logically with the increased responsibility and authority he has proven he can handle.

As a supplies foreman and in subsequent positions in the accounting, engineering and plant departments, he has never reached the limit of his managerial capacities. No doubt he has a long way to go and grow with the company.

Chuck Schnorenberg, like many young engineers, is impatient to make things happen for his company and himself. There are few places where such restlessness is more welcomed or rewarded than in the fast-growing telephone business.



BELL TELEPHONE COMPANIES

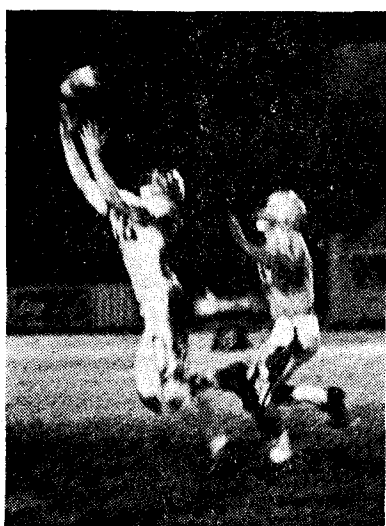


# SPORTS

## Beavers Fail To Stop Tigers; Lose 32-8

BY J. K. EVANS

The best team won, that's the simplest thing to say about Caltech's 32-8 loss to Occidental's Tigers Friday night at Oxy. The Beavers played a perfectly good game but were outmanned and outclassed, and inevitably lost. For the first half, however, it was not intuitively obvious that Oxy was the best team. In fact, it was never so clear that one could say "Caltech is getting stomped."



—photo by John Williams

A Liebermann aerial falls off the fingers of Leon Thompson in last Friday's game with Oxy. Beavers close out the '63 season at the Rose Bowl against CHM Friday night.

### Tigers Score Early

After a 35-yard touchdown jaunt by Oxy's fullback in the first series of plays, the score stayed 6-0 for the rest of the half, until a good break gave Oxy a second TD in the last minute of the second quarter when Evans fell flat on his face in the mud, allowing completion of a six-point pass that was to all intents intercepted till the mud got in the way.

The mud was not a serious hindrance to anybody; the rain stopped before the game and, while plenty of mud accrued to the players and footing was hazardous, the ball was plenty dry and passing was normal. Tech was as usual out-gunned in the air as Oxy completed 13

of 26 for 194 yards to Tech's 1 of 6 for 1 yard. On the ground, however, CIT rolled up 125 to Oxy's 142, most of which came on the 35-yard TD jaunt in the first quarter.

### Defensive Line Good

Tech defense was in general good — Kampe, DeKlyen, Jackson, Christie, and Rosbash stacked them up with their standard alacrity. Josephson, Dinius, and Gordie Myers added a few tackles, and, except for the one long run, ground defense was pretty competent. Air cover was again quite porous, as the statistics show.

In actuality, the game was much closer than the score implies. Oxy got the breaks in a slip in the mud, a questionable pass interference call on CIT's 3, a fumble recovery on Tech's 28, and an interception on Tech's 42, all of which led to TD's.

### Fourth Quarter Drive

Tech's offense could not really get into gear in the first half but finally got going in a 65-yard drive in the fourth quarter, culminating in a TD as Evans dived over from the one and Liebermann passed to Dinius for the two-point conversion. Tech had no big gainers—Liebermann had a 15-yard gain and Dinius two 10's — but all the backs shared in grinding out the short gains.

Again, Tech got done in by the passing game and the breaks. Well, one more to go. Come out and watch LaBrucherie's La-Bruisers battle CHM Friday in the Rose Bowl.

## Webmen To Meet Oxy For Title

Thirteen turned out to be an unlucky number for Caltech's varsity water polo team in two encounters last week. Last Friday the poloists met UCLA in Westwood and lost the contest 13-1. Saturday the team traveled to Long Beach to meet Long Beach State College and suffered a 13-3 setback.

At UCLA Tech ran into a frustrating sagging defense and a fast breaking offense which produced the large margin of victory for UCLA. John Walter scored the lone goal for Tech. A depleted squad, missing five senior members, found the going rough in Long Beach; Dave Seib

scored all three goals. The frosh also lost to UCLA, by a 20-0 score.

Last Tuesday, Tech met Redlands in the home pool, and earned a 6-5 victory. Tom Crocker displayed an array of back hand shots to score 5 of the 6 goals. "Terrible" Ted Jenkins scored the final and winning goal in the third quarter. The Tech frosh finally recorded a victory when the Redlands frosh did not show up and forfeited.

The three games concluded the

non-conference contests for the Tech poloists. The final game of the year will be tomorrow at 4:00 p.m. in Alumni Pool, when Caltech and Occidental battle for the Conference Championship. A Tech victory will produce a tie for first place, an Occidental victory will clinch the undisputed possession of first place for the Tigers. So Tech will be going all out to earn a part of the Conference Championship and to avenge an earlier 7-3 loss to Oxy.

## CIT Legmen Beaten By Sagehens

The Caltech cross-country team lost to Pomona 10-34. The winner, John Cameron of Pomona, missed breaking the course record of 15:56.6 by two tenths of a second. The record has been held by Pat Early since 1960. Cameron lost his chance at the record when he ran the second mile seven seconds.

The frosh team fared a little better, losing only 24-31. The race saw the frosh record fall to Don Hoyt of Pomona with a winning time of 10:03.2. The Caltech team was paced by Miller and Cross who finished third and fourth respectively. This Saturday the team will travel to Mount San Antonio to race in the Conference finals.

Chem E's  
are the  
Backbone  
of the  
Nation

## PIE 'N BURGER

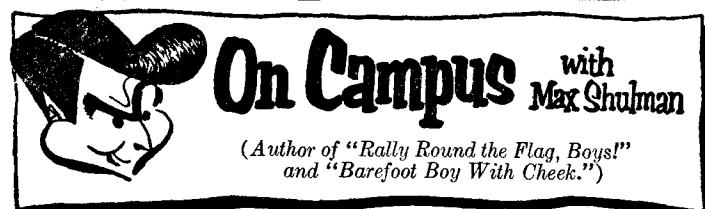
913 E. California

Home-Made Pies — Hamburgers

Food to Go

Open 11 a.m.  
Close 12 midnight  
Closed Sunday

Phone  
795-1123



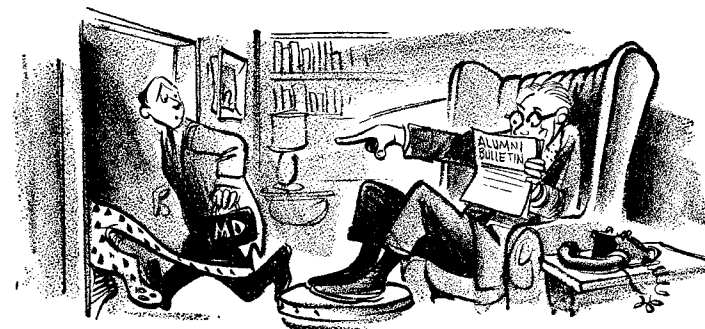
### SHOULD AULD ACQUAINTANCE AND JAZZ LIKE THAT

I am now an elderly gentleman, full of years and aches, but my thoughts keep ever turning to my undergraduate days. This is called "arrested development."

But I cannot stop the healing tide of nostalgia that washes over me as I recall those golden campus days, those ivy-covered buildings (actually, at my college, there was only ivy: no bricks), those pulse-tingling lectures on John Dryden and Cotton Mather, the many friends I made, the many deans I bit.

I know some of you are already dreading the day when you graduate and lose touch with all your merry classmates. It is my pleasant task today to assure you that it need not be so; all you have to do is join the Alumni Association and every year you will receive a bright, newsy, chatty bulletin, chock-full of tidings about your old buddies.

Oh, what a red-letter day it is at my house, the day the Alumni Bulletin arrives! I cancel all my engagements, take the phone off the hook, dismiss my resident osteopath, put the cheetah outside, and settle down for an evening of pure pleasure with the Bulletin and (need I add?) a good supply of Marlboro Cigarettes.



Whenever I am having fun, a Marlboro makes the fun even more fun. That filter, that flavor, that yielding soft pack, that firm Flip Top box, never fails to heighten my pleasure whether I am playing Double Canfield or watching the radio or knitting an afghan or enjoying any other diverting pursuit you might name—except, of course, spear fishing. But then, how much spear fishing does one do in Clovis, New Mexico, where I live?

But I digress. Let us return to my Alumni Bulletin and the fascinating news about my old friends and classmates. I quote from the current issue:

"Well, fellow alums, it certainly has been a wing-dinger of a year for us old grads! Remember Mildred Cheddar and Harry Camembert, those crazy kids who always held hands in Econ II? Well, they're married now and living in Clovis, New Mexico, where Harry rents spear-fishing equipment, and Mildred has just given birth to a lovely 28-pound daughter, her second in four months. Nice going, Mildred and Harry!

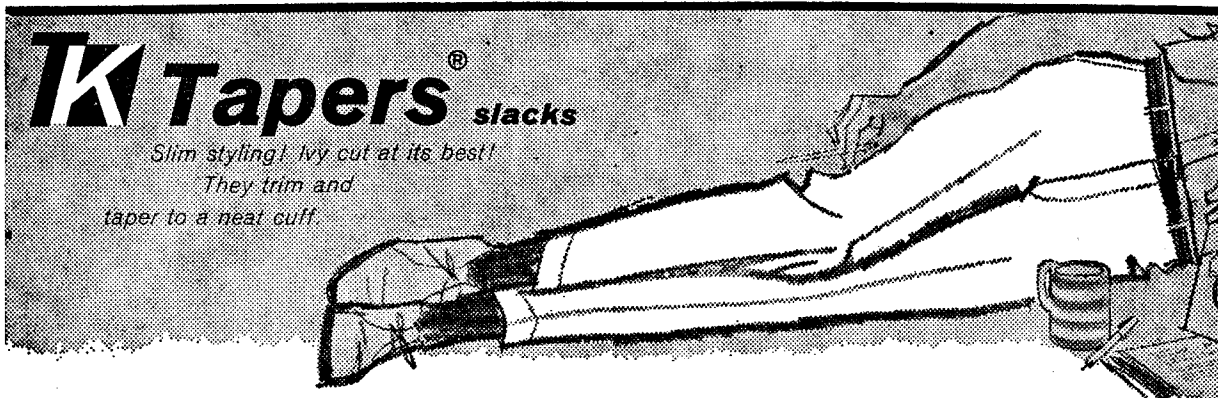
"Remember Jethro Brie, the man we voted most likely to succeed? Well, old Jethro is still gathering laurels! Last week he was voted 'Motorman of the Year' by his fellow workers in the Duluth streetcar system. 'I owe it all to my brakeman,' said Jethro in a characteristically modest acceptance speech. Same old Jethro!

"Probably the most glamorous time had by any of us old alums was had by Francis Macomber last year. He went on a big game hunting safari all the way to Africa! We received many interesting post cards from Francis until he was, alas, accidentally shot and killed by his wife and white hunter. Tough luck, Francis!

"Wilametta 'Deadeye' Macomber, widow of the late beloved Francis Macomber, was married yesterday to Fred 'Sureshot' Sigafos, white hunter, in a simple double-ring ceremony in Nairobi. Many happy returns, Wilametta and Fred!

"Well, alums, that just about wraps it up for this year. Buy bonds!"

© 1963 Max Shulman



AT YOUR FAVORITE  
SOFT GOODS EMPORIUM

HARD FINISH FLANNEL—worsted  
type with Super Silicone finish of  
55% Acrilan, 38% Rayon, 7% Acetate,  
Automatic wash and wear, \$7.98

Old grads, new grads, undergrads, and non-grads all agree: that good Richmond tobacco recipe, that clean Selectrate filter, have turned all fifty states of the Union into Marlboro Country. Won't you join the throng?



## Meatpackers

(Continued from page 1)  
as was the traditional sex wage differential.  
**Wages Increase**  
During the period in which Mr. Helstein has been associated with the UPWA, basic wages have risen from 62c per hour in 1942 to \$2.37 at present, and fringe benefits in the meat packing industry are conservatively estimated to be in excess of one dollar per hour. Mr. Helstein's most significant leadership, however, has been in relation to the problem of automation. As a recognized authority on this subject he is called upon to speak at leading academic institutions, at governmental and trade union conferences, and on national television documentaries.  
Helstein contributed to the development of Technological Adjustment Pay, a milestone in meeting the challenge of automation, which appeared in the meat packing industry in 1961. While it is officially estimated that new job seekers are entering the labor market at the rate of 1,250,000 per year, Senator Wayne Morse of Oregon and others estimate that automation is eliminating jobs at a rate of almost 2,000,000 per year. On this crucial subject of automation, Mr. Helstein has remarked:

"If Bellman (Richard Bellman of the RAND Corporation) is right, and only 2% of the population — or if he is wrong, and only 10% or 20% of the population — will be able to produce all the foods, goods, and run our society, then millions more will have to be provided with decent income, even without work in its traditional sense. In this situation, of course, in time, we will redefine the meaning of work."  
Mr. Helstein is also Vice President of the Industrial Department, AFL-CIO, a member of the Governor's Commission on Unemployment of the State of Illinois, a member of the University of Pennsylvania Pension Research Council, and a member of the Citizen's Board of the University of Chicago.

## Weird Growth

(Continued from page 1)  
hell it is or what it's for, but there it is." Officers at Throop were similarly puzzled.  
The model was put up for the benefit of Mr. Stone and Mr. Beckman, who arrived Saturday, November 9, to see what effect the decoration would have on the auditorium. Apparently the model was unsatisfactory, since the model came down five days later and since Stone is now designing a new decoration.

today is  
don green's  
birthday.

Drugs Sundries Cosmetics Tobaccos  
**CALIFORNIA REXALL  
PHARMACY**  
555 S. Lake SY 2-3156  
Breakfast Lunch Dinner

welcome to the  
**Campus  
Barber Shop**  
in Winnett Center  
all haircuts \$1.75  
**Three Barbers to Serve You**  
8 to 5:30 Monday - Friday  
Paul A. Harmon

## More Mud

(Continued from page 1)  
emerged to flatten the remaining up-and-coming freshman team. The score: 3-2, sophs.  
**Whee!**  
The final and decisive event—the tire-collecting spree—proved to be an easy win for the versatile freshmen. Under cover of a great decoying action, as they constantly threatened to drag out the last tire remaining in the mudpit, several freshmen

very stealthily carted the one tire the sophomores had amassed back to their own goal. This combination of freshman ingenuity and brawn easily proved fatal to the crestfallen sophomores, with the result that the freshmen took the contest and thereby the Mudeo, 4-3.  
The last freshman class to win the Mudeo was the class of '63. They also won it the following year, for two in a row, but next year's Mudeo should be very interesting with this year's vengeful sophs judging the events.

**FREE DELIVERY**  
**Pizza Spaghetti Lasagna**  
**ROMA GARDENS**  
1120 E. Green St., Pasadena  
Open daily from 5 p.m. to 2 a.m.  
**CALL 449-1948**  
Tuesday Night Special: Spaghetti \$1.00

**Yang's**  
Hongkong-Shanghai Tailor  
**ANNIVERSARY SALE**  
Fine Handtailored Suits — World's Finest Fabrics  
One Free Custom Tailored **SHIRT** with each suit purchased  
**SPECIAL APPOINTMENT IN HOME or OFFICE**  
10 a.m. - 7 p.m. Tues., Wed., Thurs. and Sat. 10 a.m. - 9 p.m. Mon. and Fri. Bankamerica  
522 South Lake Pasadena, Calif. MU 4-0233  
**\$70<sup>00</sup> up**

**FRENCH SPANISH GERMAN  
RUSSIAN ITALIAN JAPANESE**  
**THE BERLITZ SCHOOL OF LANGUAGES**  
PASADENA, 170 SOUTH LAKE AVE., SYcamore 5-5888  
PRIVATE INSTRUCTION  
SMALL CLASSES STARTING NOW  
Native Teachers Day or Evening Free Trial Lessons



WISH I HAD A SMOKE

YOU WON'T WHEN YOU TRY THIS

SAY—THIS COPENHAGEN TASTES GREAT


IT'S A MAN'S WAY TO GET REAL TOBACCO FLAVOR


**DATED FOR FRESHNESS**

**TRY A PINCH OF REAL TOBACCO TASTE**

Did you know that Jet Propulsion Laboratory is operated by Caltech and is responsible for America's unmanned exploration of space? Are you aware of the fact that JPL conceived the Mariner that went to Venus last year? Do you know that JPL has 150-acres of the finest space facilities with 1300 scientists and engineers and almost three support people for every one of them? Did I tell you that I've signed up for an interview with the man from JPL?

**Yes.**

**JET PROPULSION LABORATORY**  
4800 Oak Grove Drive  
Pasadena, California  
"An equal opportunity employer."  
Jet Propulsion Laboratory is operated by the California Institute of Technology for the National Aeronautics and Space Administration.



**On Campus Interviews:** November 22. Contact University Placement Office For Appointment.