

Lacey and Sage announce discoveries in oil production

Conservation of oil resources by better use of underground gas is purpose of API project 37

The savings of millions of barrels of oil that might otherwise be completely lost, is one of the exciting discoveries which has accompanied an American Petroleum Institute project which has been operating as a basic study program since 1927. The project, under the title API Research Project 37, has as its principal investigators Drs. William N. Lacey and Bruce H. Sage, both now professors of chemical engineering. Dozens of collaborators have aided them over the years.

They first studied the effect of dissolved natural gas on the physical properties of oil under the conditions met in natural reservoirs known at that time. They found that, at pressures around 2,000 pounds per square inch and at temperatures about that of boiling water, dissolving natural gas in the oil cut the viscosity of the liquid down to as little as 10 per cent of that of the oil alone. This effect is important in increasing the mobility of the liquid in the reservoir.

With confirmation of the vital role played by gas in the extraction of oil from sands, many producers no longer wasted gas at the top of their wells or let pressure drop too rapidly at the bottom. If this were to happen, (a) the oil would become too viscous to flow properly and (b) gas bubbles would impede flow toward the well through the capillary-like channels in the oil sand.

Unexpected behavior

The Caltech scientists found peculiar events occurring when they stepped their laboratory pressures on gas-oil samples up to four or five thousand pounds per square inch. What they found may be visualized by picturing a mixture, say, of decane (a liquid) and a large amount of methane (a gas) in a transparent cylinder.

As pressure is increased, with temperature held constant, the gas is compressed and slowly dissolves in the liquid, increasing the liquid volume, as would be expected. At higher pressures, however, the volume of the liquid begins to decrease. This will continue with further increase of pressure until the liquid completely disappears.

Measurements show that an increase in pressure from 1,000 pounds per square inch to about 3,000 pounds results in increasing tenfold the quantity of decane present in the gas phase—from about 2 to 20 per cent. Upon lowering the pressure, liquid will reappear. This phenomenon is known as retrograde

(Continued on Page 3)



Drs. William N. Lacey (left) and Bruce H. Sage, professors of chemical engineering at the California Institute of Technology, Pasadena, shown before temperature control equipment used in petroleum studies at Caltech.

Sails Ho this term in 8 boats

This term is going to be one of the best of the year for those interested in doing some good sailing. The Midwinter Regatta is coming February 21-22, with races for boats from ocean yachts to dinghies. Even sooner, on January 31, will be the USC-UCLA regatta, with Caltech challenging the third and fourth best teams in the nation.

But even for the novice there will be ample chance to indulge his desire to sail. The Caltech Sailing Club has six thirteen-foot Glasscat dinghies and two seventeen-foot Falcons. To make the best use of these boats, the club has available the entire facilities of the Los Angeles Yacht Club, located on the club mole on Terminal Island. This location is the closest possible to Tech, being closer than Newport.

Absolutely no experience is required to belong to the club, and to sail the boats under supervision Graduates as well as undergraduates are invited to join for the modest dues of only \$4.00 per term. As soon as the beginner has shown ability to handle boats and memorize the club's rules, he can be made a skipper and can take boats out on his own.

As added inducements, the club is a member of both the Pacific Coast and the National Collegiate Yacht Racing Associations. And what's more, one hour P. E. credit per week is given for sailing.

For those interested in joining the present fifty members of the club, there will be a meeting in 206 Dabney at 7:30 p.m. on Monday, January 19. New members will be signed up, and sailboat handling and racing rules and tactics will be discussed. If anyone should want to join and sail sooner, see Don Roberts, R27, or Hans Mohl, OC.

Million and a half dollar lab donated for bio-chemistry

Philanthropist Norman W. Church's will leaves money to begin construction

The \$1,500,000 Norman W. Church Laboratory for chemical biology will rise out of the "jungle" in back of Kerchoff within the next two years. Completion of the lab will fulfill hopes and plans initiated more than five years ago for a bio-chemistry program.

Research work in bio-chemistry has developed rapidly here at Tech under the combined leadership of Drs. Linus Pauling and George Beadle. The program was given assurance of support by the Rockefeller Foundation five years ago when it set up \$700,000 to be used over a seven year period.

\$750,000 gift

Last summer Mr. Church gave \$750,000 to start construction but asked that his name be withheld until actual building started. He wished to see the building completed in his lifetime, but unfortunately he died of cancer last week. The major portion of his estate has been willed to Caltech to complete the new structure and to create a Norman W. Church Fund for research in chemical biology.

The edifice will have two basements, and three stories above ground. Connected to Crellin, it will run 305 feet west to Wilson and will be 52 feet wide. The north side of the structure will be about forty feet from the sidewalk. The main portion will provide 70,000 square feet of floor area which will probably cost \$1,500,000. If funds permit an additional 25,000 square feet will be added in a wing connecting the new lab to the western third of Kerchoff.

Architecture similar

The architecture is simple, but conforms in general to the surrounding buildings. The outside will look somewhat like the present Engineering building, but will have a little more decoration around the main entrances.

Tech's benefactor, Norman Church, was quite a personality himself. His is an American success story. He earned his way through high school by selling bicycles in Toledo, Ohio. Rise to fortune started when he went into business manufacturing clocks for automobiles which lead him into a highly profitable association with one of the early auto accessory companies.

California personality

For three decades he was California's biggest breeder of thoroughbred racing horses. This eventually put him into the public spotlight when the racing commission charged that one of his own inbred horses had been doped to make him frisky. Carrying out his own investigation he proved that certain types of alfalfa produced the doped effect, but it took a change in governors before the name of his stables and trainers were cleared.

Juniors still low in 2nd term registration lists

Second term registration figures show Caltech to have lost 26 students since September. Of these, 18 were graduates. The total number of students now enrolled at Caltech is approximately 1,006, as compared to 1,032 last term.

The sophomore class had the highest undergraduate mortality rate, dropping from 179 last term to 171 this term. As a result, the freshman class of 173 members overtook the sophomores and now claims numerical superiority. The juniors broke precedent this term, losing only one man. The registration figures are as follows:

Freshman	173
Sophomores	171
Juniors	122
Seniors	132
	598
Graduates	408
Total	1,006

Student Shop

The Student Shop Committee decided at their last meeting that the deadline for application for shop membership this term is Thursday noon, January 23. In addition, Big T pictures for all shop members will be taken Monday, January 19, at 11 am in the shop. All members are urged to attend.

Anyone who wishes to become a member of the shop should obtain an application blank from Bill Gardner (Ricketts 73), fill it in and return it to any shop officer before the deadline.

'From books to beer mugs' --25 years progress

We learned that Mrs. Esther Green, the white haired lady who manages the campus bookstore, has been at Tech almost 25 years, so we went over to see her to talk over old times. After introducing ourselves, she ushered us behind the counter and around her desk. A shortage of chairs developed, but a pretty assistant quickly provided drafting stools.

Phone booth

Atop this precarious perch we learned that years ago the bookstore was a hole in the wall managed between phone calls by the telephone operator up in the present mail room. After some time it moved to a portion of Dean Jones' office. But space was so limited then that when the Navy hit Tech during the last war, they had to pile books up on bridge tables to get them out of the aisles during the registration week trade.

Caltech to enter bridge tournament

In the annual National Intercollegiate Bridge Tournament, which is to be held Feb. 19-21, Caltech has entered along with hundreds of other colleges throughout the country. All play is by mail and takes place on the campus of the particular school on one of the dates mentioned.

Unlike past years the emphasis will be placed on school and regional winners as well as national champions. Each college will receive a plaque on which the campus winners will have their names engraved. In addition the four winners on each campus receive a certificate.

In order to participate in this tournament each school must have at least eight pairs (16 players). If you are interested in playing find yourself a partner and see either Paul Concus, Dabney, or Don Turcotte, Fleming, for further information. The date of a meeting for all persons wishing to participate will be announced in next week's paper. Several practice tournaments will be held before the deadline of Feb. 19.

Pendulum

All manuscripts for the Winter issue of Pendulum, which will be issued at the end of this term, must be turned in to the editors by this Monday.

Blacker—Walt Lee

Dabney—Leon Vickman

Fleming—Mike Boughton and Bill Barlow.

'From books to beer mugs' --25 years progress

Finally, in 1945, space was provided for the present attractive bookstore. The two southern show windows were added a couple of years later along with a large stockroom.

The subject naturally got around to the attractive women who pleasantly take customers' orders and push supplies across the counter. We agreed that in the time we had been around, the selection had been very pleasing.

Always obliging, Mrs. Green smilingly told us that "if the majority of the students feel too sad about not having pretty girls, we'll try and do something about that, too." Right now Mrs. Green has three full time assistants: Mrs. Beatrice Cross, who has been here ten years, Mrs. Shirley French, and Miss Nan McLaran. (Note to all H-5 snakes: Nan has an MA in his- (Continued on Page 2)

Campus Calendar

THURSDAY, JAN. 15
10:00 Frosh Class Meeting in 22 Gates
12:00 YMCA Graduate-Faculty Luncheon Forum, Athenaeum

FRIDAY, JAN. 16
6:45 Frosh Basketball vs. Pomona at Pomona
7:30 Friday Evening Demonstration Lecture, 201 Bridge
8:15 Varsity Basketball vs. Pomona at Pomona

SATURDAY, JAN. 17
6:45 Frosh Basketball vs. La Verne at La Verne
8:15 Varsity Basketball vs. La Verne at La Verne

Secretary's report . . .

Second Year Minor Sport Awards

Until this time, the second year award in minor sports has been a sweater identical to that given as a first year award. A resolution to the by-laws passed last Thursday evening changes this. The new award will be a blue wool jacket with leather sleeves, almost identical to that given as a second year award in varsity sports. The only difference is that the minor sport jacket has set-in sleeves (that is, sleeves which join the body of the jacket in a vertical line at the edge of the shoulder.) The varsity jackets have raglan sleeves (these are sleeves which come over the shoulder and taper up to the collar).

Major Sport Award Certificates

The awarding of certificates to winners of varsity major sport awards has been discontinued. It was felt by the Board of Directors that the satisfaction these certificates give to their winners was not commensurate with the rather great expense involved.

Election Committee Chairmanship

Paul Concus has been named chairman of the Election Committee. The position he takes up was vacated at the end of last term by Dave Tilles, who left school.

Respectfully submitted,

George Johnston
Secretary, ASCIT

BOOKS TO BEER MUGS

(Continued from Page 1)

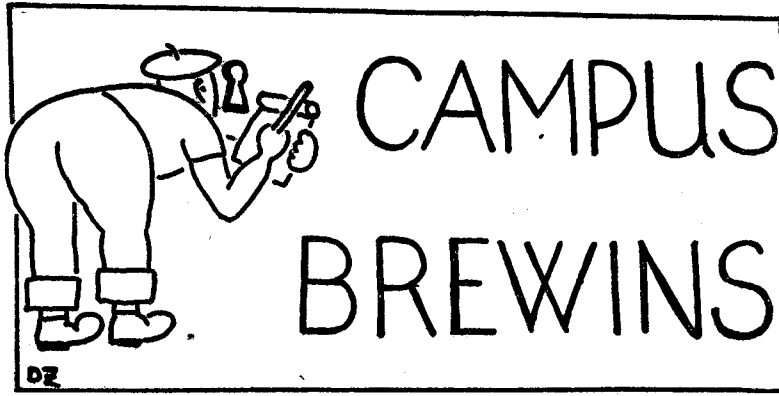
In regard to those "books that every bookstore ought to have," we learned that some are out of print, some are not asked for often enough to keep on inventory, and again some just take time to order for the store has an enormous amount of bookwork—"we could work all day and not sell a thing," claimed our host. "We try to get everything that is asked for, but I just can't print 'em myself—

that's just more than I can do."

At times the bookstore comes under fire from undergrads when books are lacking for their courses. Usually the fault lies with the professor that didn't hand in a book estimate when he was supposed to.

Much of the bookwork comes from special no cost services to the students. "These have come in in the last couple of days" she said, picking up a pile of 50 personal cash checks on her desk, "and every one of them has to

(Continued on Page 3)



It is by endless subdivisions based on the most inconsequential differences that some branches of natural science become so repellingly intricate.

—Herman Melville

Blacker whiz

Last Monday night we witnessed something which leaves us wondering about a certain boy named Morgan Ogilvie. Morgan was seen to be making a telephone call; when the woman on the other end answered, he asked her "Do you do washing?" Her reply was "No." Morgan came back with a brisk "Then you must be awfully dirty."

This same Morgan was taken with the charms of an actress at the Penthouse Theater last Saturday. Since then he has called the theater manager, the producer, and many other people in an attempt to get the telephone number of his actress-love. Good luck, Ogie.

Darb exploits

We observed Dabney expanding its frontiers last Friday

night, when they imported the lovelies from exclusive Kenyan Hall, Pomona, for one of their typically hi-powered exchanges. All importees were photographed for the record of Dabney Lotharios. Intermission entertainment was furnished by the Dabney Duet, with Johnson and Jaffe at the 176.

Notable among the operators were Johnson, who spent a large part of the evening discussing the nature of the universe with his girl on Dabney's front porch, and the Dabney regulars Bryan, Bryant, Ellmore, King, and Paalman, who escorted their regulars to the ball and operated in their respective customary polished manners.

Bryan and Howell were entertained this past Saturday evening by blind dates at a USC party.

Goodbye

It is our sad duty to report the passing of Dale Only-fools-join-the-AFROTC-Burger, who earlier this week joined the ranks of the living dead at the behest of his draft board. He hopes to flunk his physical, but we know of one yardbird, an ex-Rowdy, who has flat feet, a punctured ear drum, and epilepsy. We feel Mr. Burger is perhaps relying too heavily on his incipient

California Tech

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hangnail.

Das kapital

While participating in the activities of the Ricketts Sieve Manufacturing Society, otherwise known as the Fencing Academy, Tucker was informed of the shortage of handsome eligible males at the Fleming Benevolent and Protective Association for Lost or Strayed Nurses. After attracting one of the more straying from the clutches of the FBPALSN, he suddenly realized that his entire capital was insufficient to cover the Lower Slobbovian War Debt, and hence was forced to take her straight home. This proves once again, that great aphorism, "Whether you're poor, or whether you're rich, it's nice to have money."*

Bates and Knapp came dangerously close to mayhem. They brought this peril upon themselves, by thoughtlessly recommending a cinematic abortion (ridiculously misnamed "The

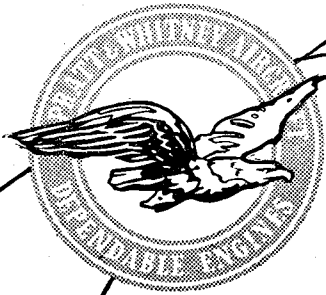
(Continued on Page 3)

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Interviews

January 15 and 16

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visiting Engineers

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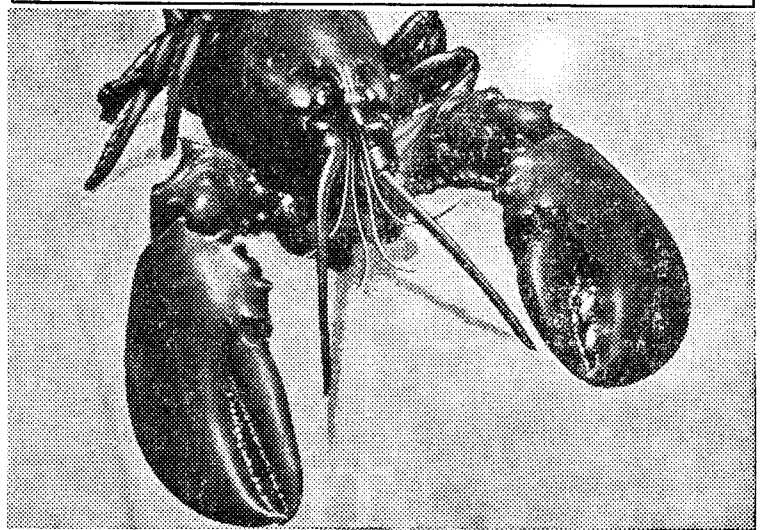
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* of 131 So. Harris Hill Rd., Williamsville, N. Y.

Wildroot Company, Inc., Buffalo 11, N. Y.



SEC'S AT TECH

by Bernie Schweitzer and Tom Taussig

Lady Luck was with us this week, for we chanced upon today's lovely during one of her infrequent visits to the campus proper.

Her name is Judith Golub, and she works at the Kerkhoff Marine Laboratory at Corona del Mar. Officially, she is secretary to Mr. Smith, the general supervisor; with her duties ranging from the usual stenographic jobs to semi-technical work. She is especially proud of her ability to perform ionic content determinations on seawater, using, as far as I can make out, a refined version of frosh Chem lab procedure.

Judy was born back east, in New York City. It was there that she learned to play "at tennis," and also where she developed her fondness for hiking. Miss Golub claims that her proficiency at typing is derived from the fact that her handwriting is so unintelligible that nobody can decipher it.

Being located at the beach



where she is, Judy has had little contact with Techmen. She did remark however, that those she did meet, "left quite an impression."

Judy also said that despite the fact that she was being interviewed at the moment, it would still be a shock to see her picture in the Caltech paper.

CAMPUS BREWINS

(Continued from Page 2)

Quiet Man") to some of the more discriminating moviegoers of the house.

*Little Fannie Goony, Capp, Al, 1953, 68, P2 Random House.

Witnesses in Fleming court

Sa-urday night report seeing a rare sight, Bob Profet being lapped in a foot race with a young loss with a tight skirt. We guess Bob is trying to live up to his reputation as slowest starter on the football team.

(Continued on Page 5)

LACEY AND SAGE

(Continued from Page 1)

condensation—a condensation of the heavier component (decane) from the gas phase during the lowering of pressure.

An explanation

This behavior explained a puzzling thing happening in areas where oil companies were just beginning to drill into the first of what they called high pressure gas-condensate fields. These fields produced a great deal of gas plus smaller quantities of a light-colored liquid consisting of gasoline, kerosene and a small

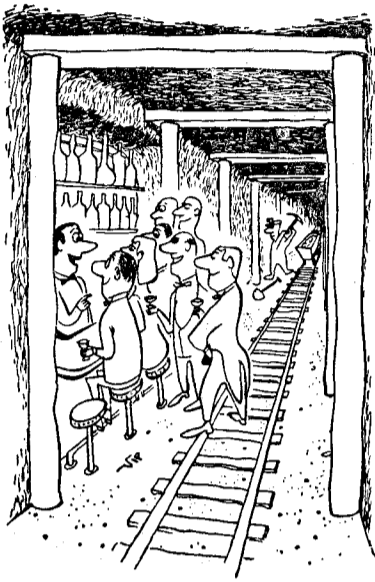
amount of heavier materials. A puzzling thing about these fields was the fact that the relative amounts of gas and liquid recovered remained constant with change in production rate, whereas this is not the case in ordinary fields.

A solution

The solution to the problem was the establishment of so-called cycling plants to maintain pressures underground while the producers still recovered condensate. In these plants, liquid is taken from the gas at reduced pressures above ground. The remaining "dry" gas is recompressed and returned to the underground reservoir in a steady flow through input wells.

This process is continued until virtually all the recoverable liquids are removed and the gas itself is then recovered for sale for heating and power purposes.

(Continued on Page 6)



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Interview Schedule

MON., JAN. 19—Westinghouse Electric Corporation Group meeting 4:15 p.m., 109 Mudd.

MON., TUES., JAN. 19, 20—BS, MS, PhD/Ae, ME, CE, EE; MS, PhD/Ph, Ma Chance Vought Aircraft (Division of United Aircraft Corporation) Dallas, Texas.

WED., JAN. 21—BS, MS/Ph, ME, ChE The Fluor Corporation, Ltd. Opportunities for men in both the Physical and Chemical Engineering Sections of the Research and Development Division.

THURS., FRI., JAN. 22, 23—BS, MS, PhD/ME, EE, ChE, Ph Westinghouse Electric Corporation, Interviews.

MON., JAN. 26—BS/MS/ME; BS/EE, CE; MEs for Design, Research and Development; EEs and CEs for Sales Engineering, Ingersoll Rand Company, New York City.

MON., JAN. 26—PhD/ME, ChE, Ch (organic and physical). Rohm and Haas Company, Philadelphia, Pennsylvania and Redstone Arsenal, Huntsville, Alabama.

TUES., JAN. 27—North American Aviation, Inc. Downey, California. Group meeting 4:15 p.m., 109 Mudd.

WED., THURS., JAN. 28, 29—BS, MS, PhD/Ph, Ae, CE, EE, ME North American Aviation, Downey, Calif.

THURS., FRI., JAN. 29, 30—International Business Machines. Interviews will be for all Divisions—Research and Development Engineering, Sales, Manufacturing Engineering, Customer Engineering and Applied Science.

FRI., JAN. 30—MS, PhD/Ph, Ch (organic and physical) The B. F. Goodrich Company, Research Center, Brecksville, Ohio.

BOOKS TO BEER MUGS

(Continued from Page 2)

be entered on a deposit slip." Besides the store sells stamps at cost, does a tremendous mail order business in Mt. Wilson and Palomar photos, handles magazine subscriptions, sells tickets, Pendulum and distributes the Big T.



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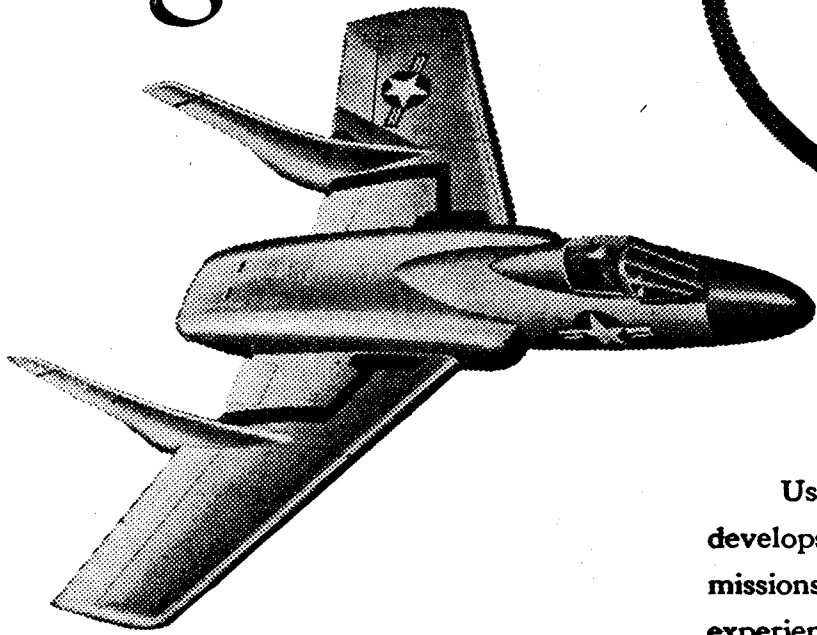
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Please!

though, at last report Mother Bulman had demoted Bert from Captain of Ordnance to Captain-of-the-head.

Girls, notice!

Dick Manley and Jerry Van
(Continued on Page 6)

Tech solid favorites over Sagehens

Whittier takes SCIC opener 59-40

Favored to bounce back with with a vengeance, Caltech takes on the Pomona Sagehens in the Associated Colleges gym Friday. Pomona has already succumbed to Tech once, the defeat coming in the "R" tourney last term. The next night the cagers will move to LaVerne for another expected victory.

Accuracy and defense

Well, Tech's conference opener was quite a disappointment after the four previous wins. The point margin was even more disappointing, the score being 59-40. Whittier displayed uncanny accuracy plus a very tight defense while Tech was colder than Throop Club on a Wednesday night.

Second half

The Poets opened up the first quarter with a bang while hitting almost 75% of their field goals. At the end of the half the score was 35-19 and Whittier looked as though they would run away with the game. However Tech came out of the dressing room and promptly cut the 16 point lead to 7. Several Poets fouled out and hopes went up. But a couple of quick field goals by Jerry Hartman put the third quarter score at 44-33 and after that Whittier had the game sewed up.

Anson held

A big factor in the Tech was the ability of the Poets to bottle up Fred "Needle" Anson while also preventing the Tech forward wall from scoring. Anson and Tyler both had ten points and Chambers was right behind with eight. Rol Moody, who looked great when he potted two in a row from way out in the second quarter, was hurt during halftime warmup on the eye. Chambers was the most impressive on the floor especially during the second half.

Frosh

The frosh lost their first game last Friday to Whittier Frosh. The score was 82-71. Whittier, who has seven athletic scholarships on the frosh team, was outplayed until the last quarter. Phil Conally hit for 29 for high point honors. They will take on Pomona and LaVerne as first games of twin bills with the varsity.

Winter Football!

Here ye, hear ye! Now is the time for all stout hearts to drop their slide rules and grab their head gear for head knocking is about to start—in the form of winter football!

Football class

If a sufficient number of men submit their names to coach La-Brucherie now (athletic office any morning), a class in football will be organized (PE credit only). It will be with fall equipment and with varsity lettermen as coaches. The object will be to teach the fundamentals to the strictly amateurs who would like to improve their game, for inter-house, future varsity, or just exercise.

Size, speed, and experience are not necessary. You may surprise yourself in what you can do with a little coaching. And besides, just think how manly you'll look with those shoulder pads on. Turn in your names now so you can start next week.

Tidbits by Turcotte

Editor's Note: Words of wisdom by Moose on the minor sports situation.

by Henderson

A major change was made in the Minor sports awards program last Thursday night at the BOD meeting. For years it has been the practice to give a sweater to Circle "T" award winners both in their first and second years whereas a block "T" jacket has been awarded to second year major sport men. This practice resulted more from financial difficulty than from desire to show strong discrimination against the minor sports award winners.

By eliminating the Block "T" certificate and by making a few other minor shifts in the budget the BOD has found it possible to award minor sport jackets with a small resulting increase in the budget. I sincerely feel that this new jacket erases the past sin, and I apologize that the act wasn't committed earlier.

Major and minor division

There is little cause for superior feeling on either the major or minor sports side. The break between major and minor is basically between those sports which are the most strongly supported by the other schools, those which are the most popular, and those which require the most time and muscular effort. If you agree that these should be the factors considered for division, you will conclude that the system is about as fair as any that can be devised.

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CAMPUS BREWINS (Continued from Page 3)

Fleming geniuses

Sunday and Monday the scene changed, now the attention-gatherer in this selfsame court was Bert Norvell and his staff of experts displaying their new secret weapon. It is truly amazing how a few bits of scrap lumber and rubber can succeed in permeating Blacker with that citric acid odor, even though the Fleming gunners never leave their home fort. A sad note

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FUTURE: Unlimited! The Bell System continually progresses and expands and its personnel grows with it. In the past 25 years, the number of telephones has almost tripled. In the past 5 years, telephone companies have introduced such things as network television transmission, radiotelephone service and dialing of Long Distance calls. And the best is yet to come.

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Over the wall

By John Wall

"But Anson and Tyler were cold," is the excuse we hear for the nineteen point dubbing the Tech basketballers took at the hands of Whittier. Unfortunately this combined with the Poets' fine team is probably an accurate explanation of the race of last Saturday. I say unfortunately because I think it too bad that a team as talent loaded as the Beavers should collapse merely because two men are chilly. (They only got twenty points).

As an ignorant critic I suppose it is not in my place to offer solutions, but a great many Tech rooters are wondering why when they're cold from the field, doesn't the team run plays? Usually plays don't depend on an individual star to come through. Even K.U. ran plays to win the national Championship, even when colossal Clyde Lovellette was hot. Are we above plays, or do we have any? (Perhaps they ran some plays, but only our team was aware of it).

From my seat the compliments of the evening should go to two subs: Howard Shanks whose agile play looks every bit as promising as his infinite mass looks to a football coach, and Madman Moody whose aggressive defense was only shadowed by his beautiful long shots. Perhaps most deserving of all of compliments is the fine Whittier team with its fast break, well balanced attack, and well coached defense. They look like easy conference champions (if we discount the potentially great Beavers).

A cute trick from St. Paul
Wore a newspaper dress to a ball
The dress caught on fire
And burned her entire
Front page, sports page, and all

CAMPUS BREWINS

(Continued from Page 5)

Hoven were noted hastening to their car at 11 pm Saturday, claiming they had blind dates with a couple of their high-school telephone pals. Girls, if you read this, remember you are contributing to the delinquency of minors.

What a square

George Moore violated one of his basic tenets Sunday, he entered a dance hall (the square dance in Culbertson) for purposes of photography, he says. We're not too sure. We didn't see him come home that night and he was so tired the next day that he went to sleep in EC 48 class and fell off the chair.

LACEY AND SAGE

(Continued from Page 3)

Project 37 findings not only suggested the solution but also provided information on the quantitative requirements for pressure maintenance operations.

Duties of ASCIT officers

Editor of The California Tech

The editor of the California Tech has a responsibility different from other officers of the ASCIT. Minimally he must make sure that the paper carries notices and announcements of interest to the student. However aside from this, which any bulletin board could do, the paper tries to tell Tech men and others who read the paper (but especially undergraduates) what other Tech men are doing and publishes articles and columns which would especially interest undergraduates.

The editor is responsible to everybody else, including the faculty for whatever goes into the paper. He must determine the advisability of printing or not printing a particular piece, and if a slip is made, it is he who gets it in the neck (or the ear).

There are less abstract things though, that the editor does. Each week, the business man-

ger presents him with a dummy which must be filled with copy. The editor, with the help of the managing editor takes the stories that are ready and places them on the pages so that all available space is filled up. Before the type is actually printed, he must proof read the stuff (preferably with an assistant) and make sure that all the copy has been laid out correctly.

All this work is not without its rewards; the editor is one of the officers who gets paid a salary: \$200 per year.

Since the editor of the paper should be familiar, if not experienced with the workings of the paper, he should see me before being nominated.

Ronald Ratney

Caltech Basketball Schedule

Fri., Jan. 16—8:15 p.m.	Caltech at Pomona
Sat., Jan. 17—8:15 p.m.	Caltech at LaVerne
Tue., Jan. 20—4:30 p.m.	Cal Poly (S.D.) at Caltech
Sat., Jan. 24—8:15 p.m.	Caltech at Redlands
Sat., Jan. 31—8:15 p.m.	Occidental at Caltech
Fri., Feb. 6—8:15 p.m.	Caltech at Whittier
Sat., Feb. 7—8:00 p.m.	Caltech at Long Beach State
Tue., Feb. 10—4:30 p.m.	Nazarenes at Caltech
Sat., Feb. 14—8:45 p.m.	Pomona at Caltech
Tue., Feb. 17—4:30 p.m.	Chapman at Caltech
Sat., Feb. 21—7:00 p.m.	Caltech at L.A. State
Tue., Feb. 24—8:15 p.m.	Occidental at Caltech
Sat., Feb. 28—7:15 p.m.	Redlands at Caltech

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Be Happy—GO LUCKY!

Some hieroglyphics stumped a prof
Of archaeology;
But when he worked them out, they said
That L.S./M.F.T.

Bernard F. Pierce
University of California



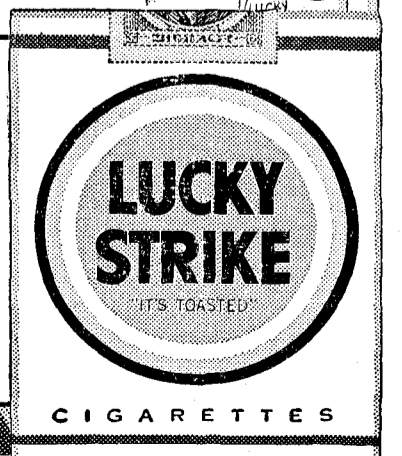
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Buffalo State Teachers College



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