

New gym formally dedicated; Musselman, DuBridge speak

Four houses turn musical for interhouse song fest

Scott Brown Gymnasium was officially dedicated in a half-time ceremony during the Caltech-Long Beach State basketball game, the first in the new structure, Tuesday afternoon, January 11.

H. Z. Musselman, Director of Athletics, was in charge of the ceremony of dedication and introduced the speakers following a short talk on the physical education plant of which the new gymnasium is a part.

Albert B. Ruddock, Chairman of the Board of Trustees, followed Mr. Musselman as speaker, with a brief talk in which he gave the floor to Dr. Lee DuBridge, President of Caltech. Dr. DuBridge spoke of the history of the gym, its planning, the gathering of sufficient funds, and the construction following, and notes on the life of Scott Brown, whose estate helped in a large part to pay for the gym and for whom the building was named.

Jim Adams, ASCIT President, accepted the gymnasium on behalf of the students at Caltech, present and future, who will use it. After the game everyone was allowed to inspect the gym and swimming pool, except for the locker rooms which were in use by the winning and losing teams.

A further program of dedication for the Alumni Swimming Pool is planned for Saturday, April 16, in connection with the Alumni Seminar held on that date. Plans will be announced in detail later.

Help! Help! Rivet coming

The **Hot Rivet**, a weird hybrid which is rapidly growing from a special issue of the **California Tech** into a full-fledged college humor magazine, is to be published second term this year, and publication date of the first issue is only a scant six weeks away.

Writers are badly needed. There is also an urgent need for men to sell advertising, and for cartoonists and illustrators. See Marty Tangora or Lyman Fretwell this week if you want to help.

Little Caltech gets its name in the papers as coach, lab, and airman get written up

"Well, young man, so you're going to Caltech? And how do you like San Luis Obispo? What kind of agriculture are you going into?"

Techmen who are sick and tired of hearing this kind of foolishness from strangers on trains, buses, planes, yachts, rocket ships, street corners, or bar floors, will now be glad to hear that their alma mater is getting nationwide publicity.

During the past month or two, in fact, more national magazines have carried articles about the California Institute than you could count on the fingers of one hand (if you have small hands). **Colliers'**, **Post**, **Newsweek**, **Fortnight**, and the **Christian Science Monitor** are the only ones which your reporter could grub up on short notice, but the **News Bureau** has others on file.

Probably the most widely read of these articles was the piece

UPA cartoon expert here for talk next Wednesday

UPA is coming to Tech! Next Wednesday, January 19, at 7:30, Pete Burness, director of the famous Mr. Magoo cartoons, will be in 155 Arms to tell us just what makes UPA cartoons different from others. United Productions of America, founded, incidentally, by ex-Caltech instructor Stephen Bosustow, has been producing the most mature and entertaining cartoons on the market. Burness will present the whole story of a Magoo cartoon from the story board and rough layouts, through animation, and down to the finished product which will then be screened for us. Along with the talk, original story board drawings, layout designs, backgrounds, and animation cels will be displayed.

Frosh choose class officers for this term

Freshman class elections will be held today to elect officers to replace those appointed at frosh camp early last fall. Incoming officers will hold office until the middle of third term when elections will again take place.

Those running for office were nominated at a freshman class meeting held last Thursday, January 6.

The offices and candidates are: President—Richard Kirk, Dave Leeson, and Robert Smoak. Vice president—Ed Krehbiel, Herbert Nelson, Andrew Pergo, and Richard Van Kirk. Secretary—Ron Leonard, Zach Martin, and Michael Rusch. Treasurer — Bruce Blackie and Vince Taylor. Athletic manager—Clark Rees and Howard Hilton. Board of Control—Ken Collins, Alan Forsythe, Richard Neville, Galen Sarno, Jon Stedman and Tod Whitmore.

Dancing classes conducted tonight

Dancing classes will be held tonight at Culbertson. The beginning class begins at 7:45 and the advanced class begins at 8:45. There is still room for more students in both of the classes.

done for the **Saturday Evening Post** by Caltech's head football coach, Bert LaBrucherie. This item appeared in the December 25 issue under the title "Big-Time Football is Not for Him." It was ghost-written for Coach LaBrucherie by someone with the inspiring name of Melvin Durslag, whose "casual" style is so "casual" that your reporter wonders if they shouldn't have just let Bert write it himself.

Sports fans who look at Tech's 25-game losing streak generally feel sorry for Mr. LaBrucherie. In this article, however, he points out some advantages of small-time football which are easily overlooked by the rabble. True, an athletic scholarship is something which other schools hand out to guys who flunk out of C.I.T. or to guys who would flunk of C.I.T. if they came here. True, the coaching assistants are fewer here by a factor

Contest to take place in new gym; Interhouse Sing Trophy at stake

The second annual Interhouse Sing will be held in the new gym February 14 at 7:30, according to plans announced last week. Four student houses will compete for possession of the Interhouse Sing Trophy, now shared by Dabney and Ricketts. The Glee Club has selected "Cindy" as the contest number to be sung by the houses for judging.

Y announces second term film series

The Caltech YMCA's film series for second term will feature two academy award winning movies. The films in the series are "All the King's Men," "Lost Horizon," and "A Streetcar Named Desire."

"All the King's Men" starring Broderick Crawford, who won the academy award for his role, will lead off the series on January 23. This is the story of the rise and fall of a political demagogue and is said to be based on the life of the late Huey Long. Also on the program is "Pacific 231," an experimental short on the impressions of a locomotive journey in the French countryside.

"Lost Horizon," taken from the novel by the late James Hilton, will be the feature on February 6. The picture, which was directed by Frank Capra and stars Ronald Coleman, follows the adventures of a group of crashed airmen in a paradise-on-earth — Shangri-La. "Bob Scotch," and abstract film by the

(Continued on Page 8)

Tech debaters place at Oxy

At the recent Occidental College Debate Tournament, two teams from Tech reached the quarter-finals while Gene Barnes received a rating of excellent in impromptu speaking. The tournament, held on December 10 and 11, featured those who were not able to attend the Western Speech Association Tournament at Phoenix where Tech took frosh-soph division sweepstakes.

The teams of Mike Gray and Tom Gunkel, and Duncan McDuffie and Gene Barnes both lost their first round but continued on to win the next three debates. This placed both teams in the quarter-finals where both were eliminated.

The team of Leon Keer and Jerry Freeman also entered but were eliminated from the final rounds by winning two debates of the four in which they participated.

The entire squad, now at its greatest strength in debate history at Tech, is preparing for the upcoming Pepperdine tournament to be held later in this term. Caltech will send the maximum number allowed, eight teams, to this tournament, which until this year has been held here at Tech.

Among the films which will be shown will be "Magoo Goes Skiing," "Pink and Blue Bules," "Fudget's Budget," James Thurber's "Unicorn in the Garden," and Poe's "Tell Tale Heart." Some TV commercials done by UPA and the interscenes from "The Four Poster" will be shown to demonstrate UPA's versatility. Mr. Burness will make impromptu remarks concerning each film before it is shown, giving the audience insight into special problems or features which would not be apparent to the theater-goer.

Arrangements for Mr. Burness' visit, which will be open to the public at no charge, were made by the **Pendulum**.

Members needed by student shop

The Caltech student shop is looking for new members. Anyone interested in joining the shop should contact Foreman John Carney in 52 Blacker before January 17.

The shop has equipment for most important woodworking and metalworking operations. Membership cost is three dollars.

of at least five. Still and all, Mr. LaBrucherie can sincerely list half a dozen real advantages to the type of football which is played in the SCIAC. The coach doesn't have to butter up alumni; he doesn't have to scout around high schools for prospects; he doesn't have to lock the gates to the practice field (what gates?); and besides, he can keep his job, even if he does have a few bad seasons.

When **Collier's** found out about this article they countered two weeks later, on January 7, with a story about Caltech's Earhart Plant Research Laboratory. Not many Techmen have ever gone to the trouble of visiting the Earhart Lab—it is a lot of trouble, because of the strict controls kept on atmospheric conditions, etc.—but those who have, according to **Collier's**, have wit-

(Continued on Page 6)

In addition to "Cindy" each group will be allowed ten minutes for extra entertainment. Contest officials have announced that "anything musical" is suitable for this part of the program.

As an added treat for participants and audience the four houses en masse will sing the oldest known college song, "Gaudemus Igitur." Mr. Olaf Frodsham, director of the Caltech Glee Club, will direct the extravaganza. The Alma Mater will conclude the program.

As was the case last year, fifty percent of the house membership must participate. The contest number must be student-directed.

It is claimed that this year every precaution including the use of an adding machine will be taken to prevent the recurrence of the unfortunate incident of last year, when the trophy was erroneously awarded before re-checking the judges' tallies.

Talks due on India, biology

"India; the Implications of Co-existence." is the topic to be presented by Dr. Floyd Ross at the Y Graduate Luncheon Forum in the Athenaeum next Wednesday noon. Dr. Ross, a frequent guest speaker at Tech, is professor of world religions at U.S.C.

Your Future in Biology

Dr. Arthur Galston comes to the Frosh Lunch Club next Monday to discuss "Your Future in Biology." Three days later a geologist counters this biology proselyting when Prof. Richard Jahns speaks Thursday on "A Career in Geology." The Frosh Lunch Club meets at noon at the training table in the student house basement.

The Y Undergraduate Luncheon Club will meet next Tuesday noon, as usual, at the training table. The speaker at this meeting has not yet been announced.

Atmosphere topic of Friday lecture

"The Earth's Atmosphere" will be the subject of this week's Friday evening demonstration lecture, which will be held tomorrow night at 7:30 p.m. in 201 Bridge.

Dr. Oliver Wulf, Research Associate at Caltech, will discuss the composition and extent of the earth's atmosphere, the movement of the air over the earth's surface, and the effects of ultraviolet sunlight on the upper atmosphere. Experiments will also be performed illustrating several of the points made in the discussion.

Dr. Wulf, a member of the U. S. Weather Bureau, received his Ph.D. at Caltech in 1926.

California Tech

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Victims of the cold war

On the Caltech campus is a Chinese physicist forbidden by the United States Government to return home. Although this man and 34 others, including a Caltech electrical engineering graduate, are not held in prison, by presidential order they cannot leave the United States and are obliged to report their presence in this country every three months. This injustice has transcended domestic courts and recently reached the body of the United Nations itself, when an appeal was made shortly before Christmas.

Ku's Case

Mr. Han Ying Ku left his home in China over six years ago to come to America for study in physics. He is now employed by the Caltech physics department and works in the sub-basement of Engineering.

Like 450 of the 4500 Chinese students then in the United States, at the start of the Korean War, Mr. Ku wanted to return to China. However, under a presidential order declaring a state of emergency which authorizes the government to regulate the departure of aliens, 124 of these Chinese, the technically trained men, were sent orders prohibiting their exit because it was felt their technical training would be a benefit to a hostile power. Since then, 62 of these changed their mind, 27 actually returned, leaving 35 Chinese essentially imprisoned in America.

A Change of State

While these people are technically trained, such as Mr. Ku, and Dr. Hsu, the Caltech graduate, they are not working with classified material, and one, a woman theoretical physicist at Berkeley, is doing no work for fear of losing her chance for exit. Although they came to the United States on student's visas, intending to leave on completion of their education, many have earned their degrees and have been permitted to hold jobs while waiting a chance to return.

No Appeal

The 35 still desiring to leave have made several appeals of their case. Last August a letter signed by the group, including Mr. Ku and Dr. Hsu, petitioned the President directly. No reply has been received by Mr. Ku. In the middle of December, an appeal was sent to the United Nations. No action has been taken, although newspaper men have recognized the basis for a trade with the imprisoned American fliers. The State Department has denied any consideration of such a deal, however.

A Question of Justice

All this leads to a very important question; does the United States have any more right to detain these 35 innocent civilians than China does to keep our much-disputed fliers?

Mr. Ku, like the others, came to the United States as a guest and has become a prisoner. Detaining him is a flagrant violation of individual freedom.

Modern Odyssey

Some of the group left wives and families in China and have therefore already endured a painful separation for many years. All of them share the plight of not being able to use their training to help their people, of being distressed and unsettled, virtually wasting the best years of their lives.

First Friendly Assistance

In keeping with our democratic tradition of dissemination of knowledge, America has been able to assist these Chinese to an education. None have worked with secret military information and it is doubtful that the security of America would be endangered were they to return. Is Chinese technology a major threat to our country's research program?

Then Hostility

Detaining them weakens our assumed high moral position and stimulates even more dangerous Asian bitterness in a world threatened with rampant hostility and war.

Detaining these people is an act of bad faith and contrary to the sacred American ideals of freedom.

Are women eviller than we thought?

Don't look now, but when you turn to page four you will find a full-page advertisement by Chance Vought Aircraft which philosophizes on Important Decisions: Choice of Parents, Choice of Wife, Choice of Job.

"You don't have any choice on the first and very little on the second . . ." the ad proceeds, and then discusses in detail the third.

Very little choice on the second? That's something of a blow to us. All this time we figured that a man had quite a bit to say along this line.

Maybe women do lay traps for us, as the comic strips suggest. Even so, our male egos refuse to accept this fatalistic attitude. We've always wanted the right to pick out our own life companions.

Let's hope that C. V. has overstated the case, and that this one decision is not left up to Chance.



"Amoebas at the start Were not complex. They tore themselves apart And started SEX." —Arthur Guiterman.

Fair amoeba, to you the Beak bows with all due solemnity. We are quite afraid that our previous opinion of you was, to say the least, not very high. Now comes along the startling news that all of our sexual woes can be laid at your door. Bless you sweet thing . . .

Blackerman Chapple, in the full throes of the amoeba-founded urges, got only frustration on the train back to school after

Christmas vacation. Fate was against him in two ways. He and his love were riding together on the chair car and it was the "Daylight Special." After being foiled by the conductor in all attempts to get privacy in the baggage car, he finally compromised with his modesty enough to embrace in the vestibule. It is reported that chance passers-by just smiled and turned their heads.

The Beak notices that boys must eventually lose that dear old tie which binds them to the home tradition. Jon Harford (Blacker Pope, etc.) was kind enough to his dear old parents to go home for Christmas for at least a couple of days. After shaking hands and assuring them that he had been a good boy, he hopped the next plane back to Pasadena. My goodness, Jon, what a fool long blond hair can make of a man.

Sexual Athlete

Dabney Prexy Wagenseller, flexing his muscles, has certainly let the world know that his sporting spirit is not dead. Wag has made several bets with prominent Dabney bookies to the effect that he will average three dates a week this term, and that one week he will rack up eight. The Beak hasn't heard what the odds are but, "See you at S. C. next term, you old sportsfan, you."

Herr Hunter Paalman, all pepped up by first year German, advertised his private lonely hearts club in a German love magazine. The incoming flood of mail has already made two postmen retire at an early age and the passionate answers show no signs of abating. The Beak suggests: try English in Pasadena; there is more challenge.

The Law and the Boys

Darbs Tony Howell and Jim Moule on a Christmas skiing trip found themselves without bunks one night in a lonely field near Reno. Coming across a boarded-up barn, they cuddled up for a "short winter's nap." About one A.M. their slumber was brought to an abrupt and jerking halt by a very large man wearing a very large badge and carrying an even larger shot-gun. The alternatives: jail or leave the county. The cowards had an (Continued on Page 8)

LITTLE MAN ON CAMPUS

by Dick Bibler



"Our boys just aren't hitting tonite, Coach, an' I understand that girl over there bet they wouldn't be."

It's not too early

With this issue the Tech again begins its annual tradition of printing the interview schedule. It is considered to be mainly of interest to seniors, telling them when representatives of different companies will be on campus to interview seniors interested in employment after graduation. Most interviewers are interested in talking only to seniors, and hence those who are not about to join the ranks of the graduated usually skip over this list.

But it's never too early. In one short year juniors will find themselves just where the seniors are now; they must have made the decision between grad school and employment, and if they choose the latter they must have some ideas of what companies to work for. Sophomores and freshmen have a little more time, but the decision is a long, hard one to make; by starting now they have enough time to look into the matter thoroughly.

For the graduate, the choice of an employer means the key to success or failure. Much is up to his own efforts, but if he chooses the wrong company, no amount of effort will move him very far. There is no one company that is "the one" for everybody, and there is not any "sure-fire" method for choosing the organization that is right for you.

But if the undergraduate begins in advance to find out what companies are interested in hiring men in his particular line of work, and what the job opportunities with the various companies are, he will have a double advantage when second term of his senior year rolls around. First, he will have a better idea what he wants and how to get it; second, the company representative is bound to be impressed by the fact that he knows what the score is, and consequently he may get a better offer. Start now to follow the interview schedule and to get seniors' reactions to interviews; it's a priceless opportunity.

AN OPPORTUNITY

A representative of the Warner & Swasey Company, leading manufacturers of machine tools, and other precision machinery, will visit Calif. Institute of Technology on Thursday, January 20th, to interview high caliber men with technical backgrounds or mechanical interests who are interested in an industrial career in sales, manufacturing, engineering, finance, etc.

This medium-sized company offers a fine program of personalized development for a better-than-average career in a challenging and progressive industry.

If you wish an appointment to discuss this opportunity, see your Placement Director, or write to the Training Supervisor,

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Astronomers see red shift but no light reaches Fried

(By Jerry Fried)

No, the commies aren't invading—"red shift" refers to an astronomical theory, the shift of spectra of distant galaxies toward the red end of the spectrum, which means that the galaxies are moving away from us.

After twenty years of the study of almost 800 galaxies, Dr. N. U. Mayall, Lick Observatory, and Drs. Milton Humason and Allan R. Sandage, both of Mount Wilson and Palomar Observatories and Caltech, have come up with some new evidence supporting the theory that we live in an expanding universe.

Dr. Sandage said in a report to the American Association for the Advancement of Science that each galaxy studied seems to be receding from all others and with a speed directly proportional to its distance from earth. (Would this mean that its acceleration is constant? Your guess is as good as mine.)

The reason that the spectrum shifts to the red when the galaxy is moving away is supposedly that as it recedes, its light waves are stretched out and thus appear longer—more toward the red end of the spectrum. (This explanation seems rather peculiar to me, since I seem to remember something in one of my frosh physics lectures about relativity causing the light waves to appear to be the same length no matter where the observer is or how he is moving relative to the light—this was supposed to be due to the shortening or lengthening of the "light yardstick" to compensate for the motion of the light-producing object. If what I was told about relativity is true, then how could the "red shift" theory hold? This is all very confusing to us freshmen. Ah—to be a senior and know it all).

According to Dr. Sandage, the farther away from the earth the galaxies are, the more the light waves from them are shifted toward the red part of the spectrum. This indicates, according to that crazy mixed-up red theory, that the farther away the galaxies are, the faster they are moving. The amount of shift indicates that the speed is directly proportion-

Woodwind group to give concert

The Southern California Woodwind Ensemble will present a program at Caltech next Sunday. The concert will feature compositions by Barth, Haydn-Muth, Ropartz, Houle, Noel-Gallon Bartos and Ibert, and is scheduled for 7:30 p.m. Dabney Hall Lounge.

This concert is one of a series sponsored by the Caltech Humanities Division. The next concert in the series will be on Sunday, January 30, and will feature the Hollywood String Quartet.

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Trapnell voted sailors' prexy

Fritz Trapnell, a Caltech junior, was elected president of the Pacific Coast Intercollegiate Yacht Racing Association at an association meeting held on December 19 at the Newport Harbor Yacht Club.

On the two days preceding the meeting the association held its annual Pacific Coast Championship Regatta. Teams from ten west coast colleges took part in the regatta, which was also held at the Newport Harbor Yacht Club.

Trapnell and Ron Wann skippered the Caltech boats with Chuck Helsley, Gordon Barienbrock, and Dick Lewis as crews. Our team was handicapped by lack of experience in Lehman dinghies, which were used for the regatta, but managed to outsail PCC and the University of Washington.

First place in the regatta was captured by Stanford. San Diego State and Pomona were a close second and third.

The Caltech team's next meet is January 16 at Newport Harbor, where they will be opposed by Orange Coast College.

Tech aero prof predicts big advances in aviation

"Within the next 50 years, any place on the globe can be reached in a day," says Dr. Arthur L. Klein, Professor of Aeronautics at Caltech.

In a recent talk at the Golden Anniversary Meeting of the S.A.E. Dr. Klein made a number of bold predictions on the future of aeronautics. Within the next half-century, we should expect the following things to happen:

Flying speeds of 1000 miles per hour will be common, making any place on earth only a day away.

The helicopter will come into widespread use. Although the helicopter poses a much greater safety problem, its tremendous convenience will make it desirable. Its full utilization awaits only improvement in reliability and safety, and a reduction in cost.

In 50 years aircraft accessories will be as reliable as today's telephone. Our present instrument flying system will be replaced by something less burdensome, and the pilot will be given

a 3-D type of presentation so he will have a natural view of the situation.

We can expect a great deal of progress in metallurgy "since the metallurgists are just beginning to come out of their kitchens and do their thinking at desks." Structural alloys should be twice as strong as those we use.

Dr. Klein also addressed himself to the question of education of tomorrow's engineers. "The engineers of the future will be much better educated, having a solid foundation in the basic sciences, and in addition he will be given a background in economics, industrial management, and psychology. He will know that all devices fail, and will recognize that he himself is prejudiced and will accept suggestions even if they come from disagreeable people."

"Education to prepare the designing engineer for his job will consist of an academic training roughly equivalent to the present day Ph. D., plus an internship under careful supervision."

What young people are doing at General Electric

Young manufacturing expert pioneers in automation at General Electric

In 1964, our greatest shortage may be working people. This country's demand for electrical goods will be 100% greater than it is today. But there will be only 11% more workmen. How can production per man be boosted enough to close the gap?

For one answer, 31-year-old P. H. Alspach, Manager of Manufacturing Development at G.E., is exploring automation.

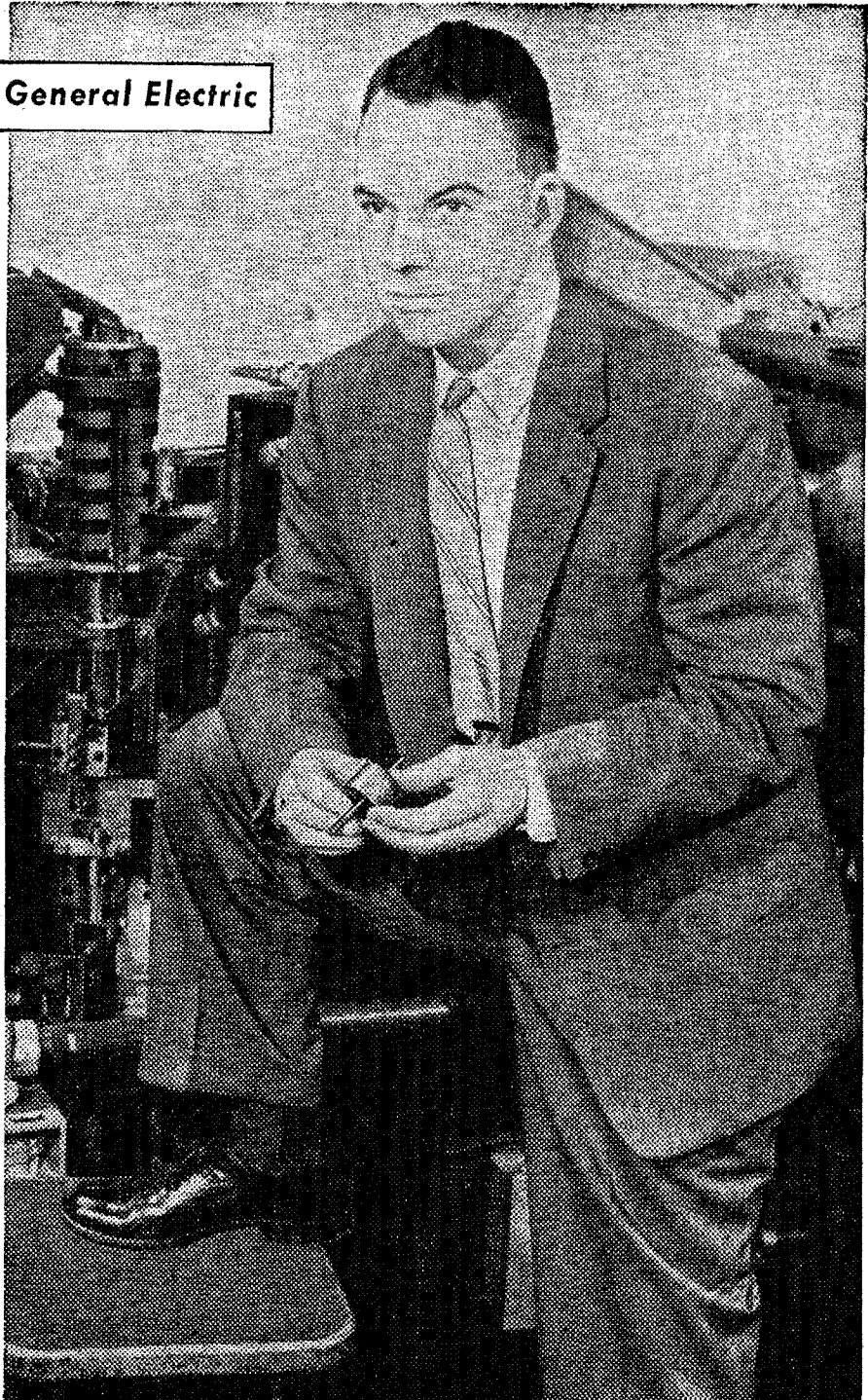
Automation: Continuous Automatic Production

Automation is a way of manufacturing based on the continuous-flow concept. Products will be made, inspected, assembled, tested, and packaged by a series of integrated machines in one uninterrupted flow. As industry evolves toward greater automation, more workmen will become skilled machine specialists or maintenance experts able to control complete systems.

Phil Alspach and the men under him now draft layouts for automatic systems, tackle the engineering problems involved, design automation equipment, and even build some.

23,000 College Graduates at G.E.

This is a big and important job. Alspach was readied for it in a careful, step-by-step program of development. Like Alspach, each of G.E.'s 23,000 college-graduate employees is given his chance to grow, to find the work he does best, and to realize his full potential. For General Electric has long believed this: When fresh young minds are given freedom to make progress, everybody benefits—the individual, the company, and the country.



PHIL ALSPACH joined G.E. shortly after graduation from Tulane (B.S. in M.E., '44), has completed G.E.'s Engineering Program, Class of 1945, and its Creative Engineering Course, 1949.

Progress Is Our Most Important Product

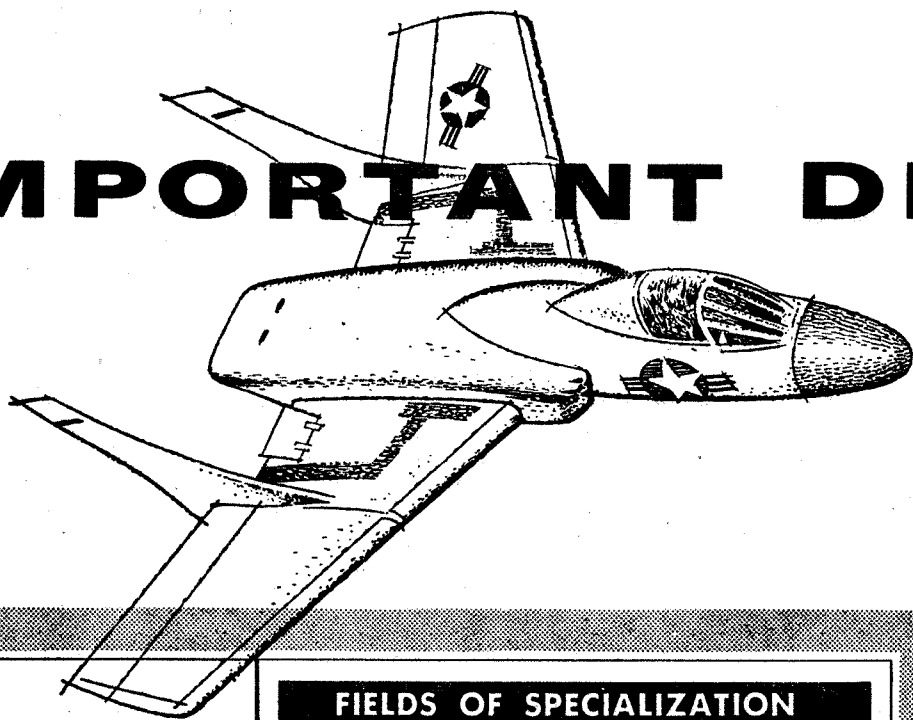
GENERAL  ELECTRIC

Choice of Parents

Choice of Wife

IMPORTANT DECISIONS

Choice of Job



You don't have any choice on the first and very little on the second . . .

On the third however, it's strictly up to you — a poor choice can throw you years behind your classmates and a good choice can put you years ahead.

At Chance Vought, young engineers (Aeronautical, Mechanical, Civil and Electrical) have every opportunity to make a mark for themselves in the industry that places the greatest value on engineering skill and ingenuity. The very nature of the modern aircraft — its immense complexity and its never-ending development — presents technical problems that are unparalleled in any other field of engineering.

The chart illustrates two things; first, the extent to which our work involves the various engineering and scientific specialties and second, the scope of the opportunities that exist for the young engineer.

For more information regarding these employment opportunities please contact your placement office in order to arrange for an interview with our representative when he is on campus, or write for a copy of "Your Career With Chance Vought Aircraft".

Address:

SCOPE OF OPPORTUNITIES	FIELDS OF SPECIALIZATION											
	AERONAUTICAL ENG.	MECHANICAL ENG.	CIVIL ENG.	ELECTRICAL ENG.	ELECTRONICS	ARCHITECTURAL ENG.	HYDRAULICS ENG.	ADMINISTRATIVE ENG.	PHYSICS	MATHEMATICS	CHEMISTRY	METALLURGY
ADMINISTRATION	•	•	•	•				•				
POWER PLANT ANALYSIS	•	•										
AIRCRAFT STANDARDS	•	•	•	•	•	•	•					•
PRODUCTION DESIGN	•	•	•	•								
FLIGHT TEST LIAISON	•	•		•								
AIRFRAME	•	•	•			•						
MECHANICAL COMPONENTS	•	•					•					
INSTALLATIONS	•	•		•			•					
LIAISON	•	•	•	•		•	•					
TECHNICAL PUBLICATIONS	•	•		•	•	•		•				
AERODYNAMICS	•	•										
MISSILE DESIGN	•	•	•	•	•	•	•		•	•		
DYNAMIC ANALYSIS	•	•	•						•	•		
STRUCTURES DESIGN	•	•	•			•						
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SERVO MECHANISMS	•	•		•	•		•					
AEROPHYSICS	•			•	•				•	•		
ELECTRONICS DESIGN				•	•				•			
ELECTRICAL SYSTEMS DESIGN				•	•				•			
GUIDANCE & FIELD OPERATIONS				•	•				•			
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FLIGHT TEST ENGINEERING	•	•										
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FLIGHT TEST INSTRUMENTATION	•	•		•	•				•			
TOOL ENGINEERING	•	•										
INDUSTRIAL ENGINEERING		•		•	•			•			•	•
QUALITY CONTROL	•	•		•	•						•	•

We invite you to discuss your career opportunities in the aviation industry with us. Contact your placement office today for an appointment for your interview with Sam J. Townson, Chief of Propulsion, Chance Vought Aircraft Engineering Personnel Representative, who will visit your campus January 17 and 18.

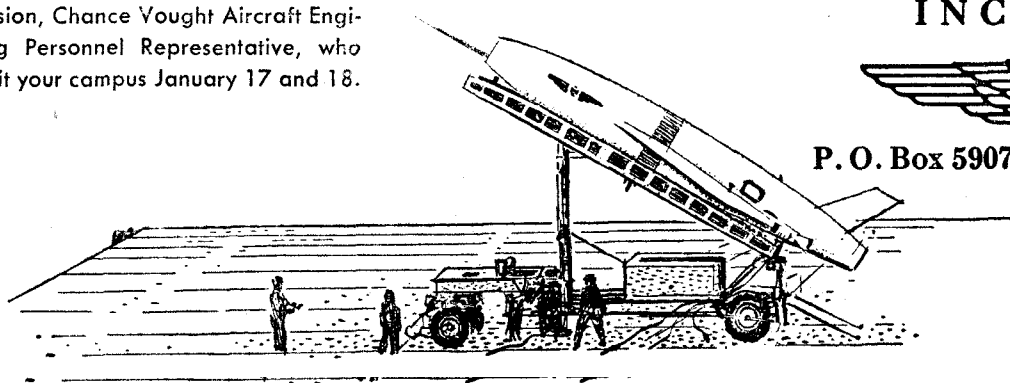
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H-Q 8 2
D-4
C-A K 7 5 3 2

Tom Gunkel
S-A 10
H-A 9 7 5
D-10
C-Q J 10 8 6 4

Blaine Navroth
S-K Q 8 6 5 4 3
H- - - -
D-A J 9 8 7 2
C- - - -

Larry Rhodes
S-J
H-K J 10 6 4 3
D-K Q 6 5 3
C-9

Oh, ye of little faith!

I'll wager that things had almost gotten to the point where ye were afraid that Tangoren had given up Bridge. Cheer up! Ye can smile again, for that tragic time has not yet arrived, and (happy day!) is still in the far distant misty future of time.

Actually I am able to continue the column only through the efforts of my friends, who faithfully report to me the details of the more unusual hands. In such a way was the above travesty delivered unto me, and it was Wm. Davis who raced panting to my little cubicle with all the gory minutiae which I will soon present to ye as soon as I get untangled from all these tautological repetitions of the same thought twice.

The cards (Fleming cards, if that explains anything) were dealt honestly, if we may take M. Davis's word. M. Navroth opened with a spade (artificial forcing bid asking for queens in the minor suits) and his partner decided on a two club reply. M. Rhodes, one of the quieter fellows, meekly interjected a two-heart complex overcall. (Note: this is thus distinguished from a simple overcall.)

Navroth then boldly mentioned his diamonds at the three level; whereupon M. Wiberg, noting his 12 Goren (actually nobody had any less than 12), raised his partner's hearts. Gunkel bid three spades (artificial cue bid showing the ace) and when Rhodes tried four hearts he was drowned out by Navroth's confident Four Spades! which was the final contract.

The heart opening was taken in dummy, and the ten of diamonds led; the king played up and Navroth was content to win this trick in his hand. Attempting to set up the suit, the declarer led the jack of diamonds back; when Wiberg dropped a heart, declarer trumped in dummy and decided to fool with some other suit for a while, like maybe trumps. The ace of trump was led, and when that went around Navroth returned to his hand by trumping the queen of clubs. He then led spades three times—twice to pull the boys and once, apparently, as a vulgar display. By now only one more lead was necessary to set up the diamonds and, losing that trick, declarer had set up his hand and made the rest of the tricks.

Then there was the geologist who had a hobby of collecting stones and putting them in his bathroom.

"He had rocks in his head."

There is something to be said intend to make one. More experienced players than M. Navroth bidding a little slam if you roth would probably have seen early in the hand that 12 tricks would develop and would have found some way to lose two more than he did. In sooth, it is only fair to point out that the partnership that made six had only 21 high-card points as against the defense's 19.

Thought for the week: In general, when playing for money, it is better to have all the Goren than none at all.

Visiting prof to teach astro

Dr. Ludwig Biermann has been appointed visiting professor of astrophysics at Caltech for the current term by the board of trustees.

One of the leading theoretical astrophysicists on the European continent, Professor Biermann comes to Caltech on leave of absence from the Max Planck Institute and the University of Gottingen in Gottingen, Germany. He is in charge of the astrophysics section of the Max Planck Institute. At Caltech he will conduct a graduate course on the astrophysical theory of stellar magnetism and plasma physics.

He is a specialist in problems connected with the interaction of electric and magnetic forces with ionized matter in hot stars, or in interstellar space. He has studied such diverse problems as the method of acceleration of the cosmic rays in space by using magnetic fields and the problems of the production of large magnetic fields in space by the turbulent motions of the interstellar gases.

Tech biologists raid Pacific for specimens

(By Purves and Howell)

A group of Tech biologists, with their usual aplomb, ventured forth on a field trip last weekend which showed that field trips, besides the academic interest derived therefrom, can be a lot of fun. Dr. Davenport, professor of biology at the University of California, Santa Barbara, and last summer's visiting professor of zoology at Caltech's zoology course at Corona del Mar, made arrangements with the Oceanarium at Palos Verdes and with the Scripps Institute of Oceanography at La Jolla to accommodate some of his students and former students on the excursion.

The Oceanarium (a major engineering project in itself), has a fascinating collection of fishes, sting rays, porpoises, spider crabs, et. al., displayed in two gigantic tanks. The tanks, one circular and one oval, may be viewed from four different floors, three underwater and one above. From the "stadium" on the top

floor one can watch the porpoises playing catch with the spectators, using a volleyball and a small rubber ball, or leaping some nine feet out of the water to take food from the feeder's hand. Besides these two tanks there are a number of small tanks containing exotic tropical fish. Very shortly there will also be a large octopus grotto which is to contain a few very big octopi.

From Palos Verdes the group travelled to Corona del Mar so that the Santa Barbara students might see the marine laboratory—summer resort where Caltech biologists while away their summers.

And then on to San Diego. While the spoiled UCSBites roomed at a plush motel in La Jolla, the frugal Techmen slept on the living room floor of Jay Glasel's house in Ocean Beach. Arriving bleary-eyed at the Fort Rosecrans naval base, the eager scientists set sail (fig-

(Continued on Page 8)

L&M's Got Everything!

Janet Blair, Actress: "I have the fullest confidence in L&M's Miracle Tip... and L&M's taste so good, I made them my regular cigarette."

John Robert Powers, Creator of the Powers Girls: "I think L&M's filter is far superior to the others. Great smoke... wonderful flavor."

Patricia Morison, Musical Comedy Star: "I love L&M Filters. Never dreamed a filter cigarette could filter so thoroughly, yet taste so good!"

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STANDS OUT FOR FLAVOR. The pure, white Miracle Tip draws easy, lets you enjoy all the taste.

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Big magazines stoop to publicize Caltech

(Continued from Page 1)

nessed "agricultural miracles" being performed in a lab which "is like none other in the world."

"Push-button Tomatoes"

After pouring it on like that for awhile, the authors of this short item discuss a few of the more spectacular examples of the research being done at the lab in the direction of controlled growing. Though the article is entitled "Push-Button Tomatoes," the tomatoes finish a bad third to coffee and carrots.

On page 80 of the December issue of Newsweek the astute observer may discover a more remote reference to Caltech. The story is about Theodore von Karman, and is headed by the bold title "The Air Age's Genius of Speed." Techmen who do not recognize the name should be interested to hear that, in the words of Newsweek, "from 1930 to 1949 he was the spark plug and director of the ever multiplying Guggenheim Aeronautical Laboratory at the California Institute of Technology."

"Aviation's Einstein"

"No other man," the article states further, "has had a greater influence on the development of high-speed aircraft in the United States." Gushing on in words of no uncertain praise, the item calls von Karman "aviation's closest thing to an Einstein," and identifies him as the founder of Aerojet Corporation and as the man who started the thinking which culminated in the Bell X-1, first plane to crack the sonic barrier.

Fortnight Likes Tech

Fortnight, which calls itself California's own magazine, distinguished itself this month by running a picture of Marilyn Smuin, Rose Tournament queen,

Interview Schedule

Thursday, 13—Representatives of the U. S. NAVAL OFFICER PROCUREMENT will be on campus to discuss Officer Candidate Programs. The representatives will be located in the front hall of Throop.

Thursday, 13; Friday, 14—SHELL OIL CO., BS, MS/ChC, EE, CE, Ge, ACh, Production department. (Oil Field Production)

BS, MS/ME, EE, CE Ch, ACh., Manufacturing Department (Refining).

BS, MS/ChE, ME, Ch Shell Chemical Corp., (Chemical Manufacturing).

BS, MS, PhD/ME, Ph (Engineering) Shell Development Co., (Research — Houston, Texas).

Monday, 17—BS, MS/Ch, ChE, ME, E. I. DUPONT, Wilmington, Del.

Monday, 17, and Tuesday, 18—BS, MS, PhD/Ae, CE, ME, EE, Ma. CHANCEVOUGHT AIRCRAFT, Dallas, Texas.

Monday, 17; and Tuesday, 18—BSup/ME, EE, CE, Ph, ChE, FIRESTONE TIRE & RUBBER CO. Interviews will be for the Akron plant the Los Angeles Tire plant, and Corporal Guided Missile Division in Los Angeles.

Tuesday, 18—BS, MS/ME, ChE. RAYONIER, INC., Jrs./ME, ACh, for summer.

Tuesday, 18—BS, MS/ME, EE, WESTERN UNION, New York City, New York Interviews will be for positions in research, field engineering, management, etc. Location throughout U. S.

Wednesday, 19—BS, MS, PhD/Ae, ChE, ME, AIRESEARCH MANUFACTURING CO., Los Angeles, Calif.

Wednesday, 19—BS/CE, EE, U. S. COAST AND GEODETIC SURVEY.

Thursday, 20—BS, MS, PhD/Ae, ME, Ph. PROPULSION RESEARCH CORPORATION, Santa Monica, Calif.

Thursday, 20—BSup/ME, EE, THE WARNER & SWASEY COMPANY, Cleveland, O.

Friday, 21—BS, MS, PhD/Ph, EE, UNIVERSITY OF CALIFORNIA RADIATION LABORATORY, Livermore, Calif.

Friday, 21—BS/ME; BS, MS/Ae, UNIVERSITY OF SOUTHERN CALIFORNIA ENGINEERING CENTER, Los Angeles and Pt. Magu, California.

Friday, 21—BS, MS, PhD/Ae, EE, ME, STANLEY AVIATION CORPORATION Denver Colorado and Buffalo, N. Y.

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on its cover. Thus it could be easily separated from other California publications, by noting the letters F-o-r-t-n-i-g-h-t in the upper left corner. The latest issue of this Chamber of Commerce newsletter was devoted entirely to the Tournament of Roses and to Pasadena, and quite a little space was left for rave notices about little Caltech, its research, its prize-winning faculty, and its iceplant-laden campus.

All your reporter could find in the Christian Science Monitor was a little blurb about the humanities program at Caltech. Optimistic, it emphasizes H 5 and other popular senior electives.

Pictures of Prof. Hallett Smith and the Pacific Affairs Room illustrated the Monitor's interpretation of the new slant in educating engineers. The outside world was evidently impressed not only that engineers study something besides drafting, but that a humanities program should play as important a part in the curriculum as it does at Tech.

Long-range effects of radiation analyzed by Biologist Sturtevant

One of the touchiest problems in modern science, the possible hazards of high-energy radiation, was discussed by Tech geneticist Dr. A. H. Sturtevant in an address here last Tuesday.

The two general types of radiation pointed out by Dr. Sturtevant as hazardous for human beings were direct radiation burns suffered by individuals in the immediate vicinity of intense radiation, and the long term genetic effects caused by radiation-induced gene damage.

The relation between radiation dosages and genetic damage is extremely difficult to measure. "No scientist interested in exact quantitative results would touch the subject were it not that its social significance leaves us no alternative. We must, like it or not, try to get some idea of how much, of what, is happening to how many people."

The genetic interest in high-energy radiation arists, he said, from the fact that radiation (acting through germ cells) increases the frequency of mutations in the genes. Some of the factors which the geneticist must consider are: There is almost no threshold

value below which radiation is ineffective in inducing mutations, the effects of successive exposures are cumulative.

Esides from natural background radiation which is always present and about which nothing can be done, radiation dosages may come from bomb fall-out and medical X-ray exposure.

The Danger

Discussing the "maximum permissible" radiation exposure set by the International Commission on Radiological Protection, Dr. Sturtevant said that if the entire population were exposed at this maximum rate continuously (say, as the result of atomic war) that the result would be about one-third of a million infants born annually with harmful gene mutations, in the United States alone.

The reckless use of medical X-rays was condemned as being, in much of the world, a far more effective cause of mutation than is radioactive fall-out. He urged caution for anyone who submits to an unusually large number of medical radiation exposures.

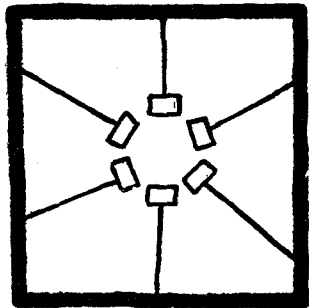
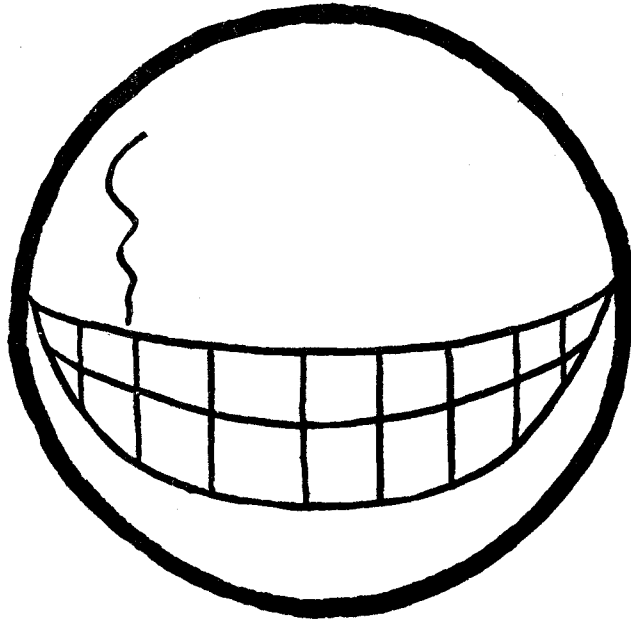
Speaking on more general aspects, he said: "It may seem

that this is a negligible proportion (his figures on genetic damage due to fall-out) and it should be emphasized that—no individual should be practically disturbed about the probability that his immediate descendants will be affected. But, from a humanitarian point of view, any increase at all in the number of individuals that are defective mentally or physically is not to be lightly dismissed."

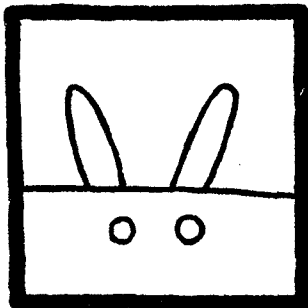
A final note of warning was made as Dr. Sturtevant said: "The medical uses and the fall-out danger are different not only in the amounts of radiation involved, but also in some ethical aspects. An individual does not usually have to submit to an X-ray examination or treatment, and when he does so the irradiation is administered for his own personal advantage. But we are all of us submitted, willy-nilly, to fall-out and while it may be argued that some of this is for our ultimate advantage, it must be recognized that we get fall-out from Russian bombs as well, and that the rest of the world gets it from Russian and American bombs alike."

LUCKY DROODLES! LOADS OF 'EM!

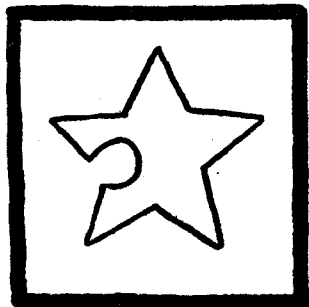
WHAT'S THIS? For solution see paragraph below.



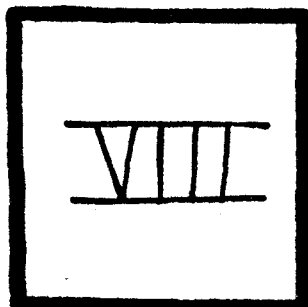
AERIAL VIEW OF MARSHMALLOW ROAST
Jim De Haas
Michigan State College



RABBIT WATCHING BASEBALL GAME THROUGH KNOTHOLES
Ann Antine
C.C.N.Y.



EX-SHERIFF'S BADGE
Norris Edgerton
Virginia Polytechnic Institute

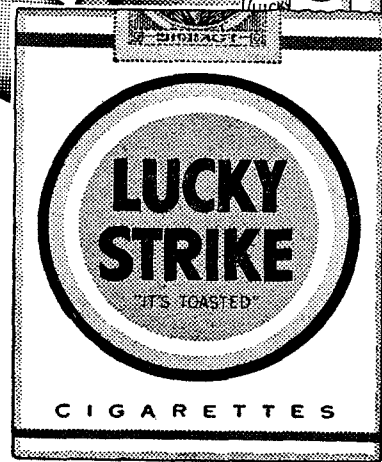


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*DROODLES, Copyright 1953 by Roger Price



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Cagers split pair with non-league opponents

Tech wins in new gym

Coach Carl Shy's Caltech cagers returned to winning ways Tuesday afternoon with a thrilling, 63-60, double overtime victory over Long Beach State College. It was a hard-earned victory for the Beavers who were playing their first game on their own floor, and the numerous spectators who turned out were not disappointed.

Close Contest

The game was tightly contested all the way and at no time did one team hold a substantial lead. Both teams were cold in the first half and at the intermission the score was tied at a low 22-22 figure. The second half was just as close as the first, but when the Beavers grabbed a 57-55 lead in the final minute and regained possession of the ball, it looked like they had the game won. But not yet, for a Tech player drew a foul and Foerster of the visitors calmly sank two free throws to tie the game up.

Moody Saves Tech

In the first overtime period Caltech dropped two points behind at 60-58. Then Roland Moody scored on two gift tosses to send the contest into another overtime. But in the second extra period Tech was not to be denied as Conley and Moody bucketed field goals to give the Beavers a four-point lead and put the game on ice.

Tech Center Phil Conley scored 26 points for high point honors while Kohler had Long Beach's top of 15.

Caltech	fg	fta	ftm	pf	tp
Chambers	4	7	3	3	11
Chilton	0	1	0	0	0
Lindfors	3	0	0	2	6
Bloomberg	0	0	0	1	0
Conley	11	14	4	3	26
Madsen	2	2	2	5	6
Moody	4	7	4	5	12
Koontz	1	2	0	1	2
	25	33	13	26	63

Long Beach	fg	fta	ftm	pf	tp
Seymour	2	8	5	5	9
Foerster	3	6	4	0	10
Miller	3	2	0	2	6
Nadine	2	2	2	4	6
Kohler	5	8	5	3	15
Viculin	4	5	3	0	11
Peek	1	2	1	4	3
	20	33	20	18	60

Frosh tennis team practice

Six freshmen turned out for the first squad meeting of the freshman tennis team. They are Harvey Horiuchi, Phil Reynolds, Norton Starr, Bob Tokheim, Roger Walliham, and Jim Weaver. Practice matches for the team will begin next month following the conclusion of interhouse tennis competition.

Coach Lamb has urged all freshmen with any tennis experience to sign up with him as soon as possible, so he can arrange a schedule for practices. Freshmen who are interested should also be sure to take part in the interhouse tennis matches, because the results can be used in setting up a tentative ladder.

CARL'S CALTECH BARBERS
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Frosh cagers win second straight game

(By Bob Walsh)

Caltech's Frosh cagers spurred to a quick twenty-point lead against Chapman College at Orange Saturday and glided to an easy 87-53 victory.

The win was the second in succession for the undefeated first-year men. Guards Ron Marson and Sonny Nelson scored a total of fifty points, 29 and 21 respectively, and center Glenn Converse sank seventeen. Don Wiberg netted nine points and Dick Van Kirk matched a fine floor game with eight points.

Oxy Next

Smooth floor play and good shooting point to the possibility of a winning season. Next test is tomorrow's game at Occidental. Oxy usually has a good team but they were defeated this year by Pomona by a large margin. They can be expected to put up a tough game, however. Pomona and Whittier are considered to be the top frosh teams in the conference this year.

Wiberg Whacked

Wiberg received a blow on the nose that forced him to leave the game temporarily, but he returned to the game and played most of it despite another whack on the tender protruberance. He did not play basketball in high school and is virtually learning the game, but hard work is paying off and he may be of some help to the varsity in a few more years.

Marson Deadly

Marson sank 11 free throws and most of his other 29 points came on set shots. He has a sharp eye and can handle the ball well. Last year he starred for Beverly Hills High School.

Nelson, a starter on last year's Arizona champion West Phoenix High team, scored his 21 points largely on fast-charging lay-ins and set shots. "Hooks" Converse acquired the nickname in this game as center hooks accounted for most of his 17 points. His play of the boards was very good, as was Van Kirk's. The team rebounds well for its height.

Reserves

Of the reserves Jon Stedman played well, replacing the wounded Wiberg. Don Stocking netted two points and Larry Berry added a free throw to round out the Tech scoring.

PRESS BOX (?) NOTES: I was impressed by the spirit and sportsmanship of the Chapman student body... Kay Sugahara played only about a minute but proved a very colorful figure... The game started half hour late due to difficulties in finding the school but everything went smoothly afterwards.

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Tech edged by Chapman

Caltech's varsity basketball team returned to action last Saturday night after a month's lay-off and suffered a heartbreaking 64-62 defeat at the hands of Chapman College. The visiting Beavers led 62-61 with five seconds to go in the game, but Alvarez of Chapman got the ball at that point and dropped in a lay-up to put the home team in front. He was fouled in the act of shooting and sank his free throw for the final point. Tech had one more shot before the gun went off, but it was short.

Early Leads

Things looked bad for Tech from the very start of the game as Chapman grabbed a quick lead. It was only Roland Moody's accurate shooting that prevented the home team from making the game a runaway and at half-time the score was Chapman 36, Caltech 29.

(Continued on page 8)

Tech cagers face busy week with three games on tap

Coach Carl Shy's cagers will have a busy time of it this week as they play three games in four days, two of them important conference engagements.

Tech meets Oxy tomorrow night at Oxy in the second league game of the season. The Tigers have a well-balanced team led by deadeye Bob Henry and Lyle Swanson, a good rebounder. They also have Dick Sovde, a 6'7" center who has been hitting the hoops pretty consistently of late. Oxy lost to Redlands by one lone point in early season play, and then turned around and beat the Dogs by three, so Tech has a fight on its hands.

Saturday night the Beavers travel to San Dimas to meet the Cal Poly quintet. That is the team that Caltech beat 78-39 in the first game of the season, but it looks like the score is going to be a lot closer this time.

Pomona comes into town Tuesday night for the first conference game in Scott Brown gymnasium. The Sagehens are in the middle of a winning streak, but Tech figures to give them a tough time.

In the new gym, Caltech students will sit in the south bleachers and will find it more convenient to enter the building via the gates at the east end of the building. Students should not use the main entrance.

SCIC Standings

	W	L	Pct.
Occidental	2	0	1.000
Whittier	1	0	1.000
Redlands	1	1	.500
CALTECT	0	1	.000
Pomona	0	2	.000

Games this week:

- Caltech at Oxy.
- Redlands at Pomona
- Pomona at Caltech.
- Redlands at Whittier.

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25c per line

A Campus-to-Career Case History



"Always something new"

"Different types of work appeal to different men," says Donald O'Brian (A.B., Indiana, '50), in the Traffic Department with Indiana Bell Telephone Company. "For me, I'll take a job that keeps me hopping. And that's just the kind of job I have."

"You'd think that after two years I'd have all the variables pinned down. But it doesn't work that way. When you supervise telephone service for thousands of different customers whose

needs are always changing, there's always something new coming up.

"I started with Indiana Bell in 1952, after two years in the Army. My training program exposed me to many different kinds of telephone work—customer contact, personnel, accounting, operations. I saw a lot of jobs which looked as interesting as mine. As much as I like the kind of work I'm doing now, I bet I'll like my next spot even better."

Don's enthusiasm for his job is pretty typical of how most young college men feel about their telephone careers. Perhaps you'd be interested in a similar opportunity with a Bell Telephone operating company, such as Indiana Bell... or with Bell Telephone Laboratories, Western Electric or Sandia Corporation. See your Placement Officer for more information.



BELL TELEPHONE SYSTEM

Biologists go to Scripps

(Continued from page 5)
 uratively, that is) at 8:00 A.M. The Horizon, pride and joy of the Scripps Institute, is a proud 142-footer with two 1150-horsepower engines. After churning some 18 miles through an optimum sea and in ideal weather, a deep-water drag was lowered to the ocean floor, some 1000 fathoms below. During the three hours required for this operation, people lolled and strolled about the fantail, played bridge on the after-deck, and managed to consume several gallons of coffee in the galley.

When finally the drag was raised back into the ship and the contents of the net examined, some of the novices were a little disappointed in not seeing 27 footlong monsters covered with slimy scales and deadly spines. But there was certainly an amazing assortment of specimens collected. Because of the tremendous pressure difference, the eyes of some fish were fairly bursting from their sockets, and the fish's guts were protruding from its mouth. It was amusing to watch some professor grab a fish and say, "Ah! A—!", pronouncing its Latin name like some hybridized Gaelic-Polynesian cuss word.

The Horizon is normally operated by the Scripps Institute, but its expenses are defrayed by the U. S. navy. Most of the time it is used for long distance operations—last summer it was used for a two months trip to the South Pacific, and in a few weeks

Y ANNOUNCES

(Continued from Page 1)
 painter Jordan Belson, will also be on the program with the U.P.A. cartoon, "The Emperor's Clothes."

The final film in the series, to be shown on February 20, will be "A Streetcar Named Desire" starring Marlon Brando and Vivian Leigh, who won the academy award for her performance in this film. The story is concerned with the final mental breakdown of a middle-aged prostitute in the environment of the New Orleans slums. The short on the program is a new Walt Disney cartoon "Pigs is Pigs," done in typical U.P.A. fashion.

There will be no series tickets this term, and individual tickets can be purchased at the door at the reduced price of 35 cents.

TECH EDGED

(Continued from page 7)
 Coach Shy must have shot some adrenalin or something into the troops during the intermission for it was a different team that took the floor for the second half. The men showed a lot more spirit and soon caught up with the Chapman boys. From then on the game was nip and tuck until the final four seconds. In the final analysis, the game was decided at the free throw line. Chapman had 44 free throws and made good on 26 of them. Tech, on the other hand, could connect on only 18 of 34 charity tosses.

Caltech center Phil Conley led all scorers with twenty-four points. Moody and George Madsen each had ten for Tech. Smith led Chapman with seventeen markers and McCarter potted thirteen.

Box score:

Caltech	fg	fta	ftm	pf	tp
Chambers	3	9	3	5	9
Chilton	0	0	0	3	0
Lindfors	2	3	3	3	7
Bloomberg	1	0	0	2	2
Conley	8	12	8	4	24
Moody	5	1	0	5	10
Madsen	3	9	4	4	10
	22	34	18	26	62

it will be taken to Costa Rica. On board are facilities for the examination and preservation of both live and dead specimens.

The entire excursion on Saturday was run solely for the benefit of the visiting students and faculty of Caltech and the University of California at Santa Barbara. This was a nice gesture by Scripps, especially since the cost per day of such an operation is about \$750.

The return trip to San Diego was quite exciting; and and then someone would cry, "Thar she blows!" and thar they'd be—several whales a few thousand yards away, surfacing for air. And churning back into the harbor at its full speed of 12.5 knots, the boat attracted the attention of a school of porpoises, who entertained themselves and the passengers by swimming immediately ahead of the bow doing barrel rolls, peeling off simultaneously in pairs, and occasionally leaping into the air.

The day ended at 5:00 p.m. when the ship docked and everyone disembarked, though the weekend wasn't over until the tedious ride back to Pasadena was done. But all in all, what a ball!

CAMPUS BREWINS

(Continued from Page 2)
 aversion to penal institutions and shyly excused themselves.

Expose
 The Moralist, a journalistic rag which appears mysteriously with a set of opinions which justify its mysterious appearance, is about to be exposed by the Beak. Hal Dale has recognized the type as coming from the CE building and the careful investigators need only a shred more evidence to pin the anonymous editorship on Jerry Royce.

Purity
 Ah! Divine Retribution—Flemingite Jim Ball has felt its sting. In a great plot to ruin all in his alley, he had the audacity to post the alley purity scores. A certain filley from South Pasadena saw the list intended to louse up the reputations of all alley-mates—but the only score still readable was Jim's own. Beware all you potential F.Y.'s—poetic justice will reign.

Department of Phfft
 Father Divine didn't have the lord on his side come New Year's Day. Said father wangled a date with a gal whom he had divined was eager for divine escort. The only thing accomplished was the drowning of divine nectar (Schenley's). Celibacy isn't so bad after all, is it Father Divine? Note to anyone with access

to a supply of dry ice: Bill Davis has a new batch of tropical fish, which, it is rumored find it difficult to survive in temperatures below 60 degrees F. Davis, do you know where you can buy fur-lined fish suits?

Anyway, It Was Paper
 Through the strangely hazy memory of New Year's eve, the Beak is able to recall a fitting end to old 1954 at Throop's New Year's party. The prize of the week goes to Throop social chairmen Kilchenman and Bowdin: after all, who would ever have guessed that the seemingly extravagant abundance of colored paper streamers, that engulfed the ceiling was really five rolls (40 cents) of light green toilet paper cut in half.

As night slowly floated away and the mantle became cluttered with empty "refreshment" cups, the Beak overheard a girl talking to a fellow (not her date): "I'm going to feel awfully silly if I ever see you again . . ."

However, among those stout souls that did make it to the parade early next morning, Nelson was undoubtedly the stoutest. On finding no one awake at his girl's house, Gene stoutly decided against waking up the family and stoutly walked in to wake up his date. Stout guts play, old fellow.

Glasel wins scholarship

Jay Glasel, a Caltech senior has been awarded the Don Shepard Scholarship for the remainder of this year. The award to Glasel became possible because of the departure from Caltech of David Clark, also a senior, who was the original recipient for this year.

Glasel, a resident of Dabney House, came to Caltech as a freshman from San Diego. He is in the chemistry option and plans to do graduate work. While at Caltech he has contributed to the Pendulum and has been a feature writer for the California Tech. He is a cadet officer in the Caltech AFROTC unit.

The Don Shepard Scholarship is awarded in memory of Shepard, a member of the class of 1950, who was killed in an accident. Funds for the scholarship have been provided by his relatives and friends.

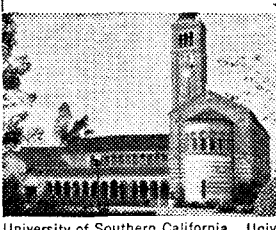
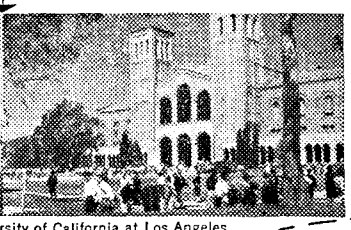
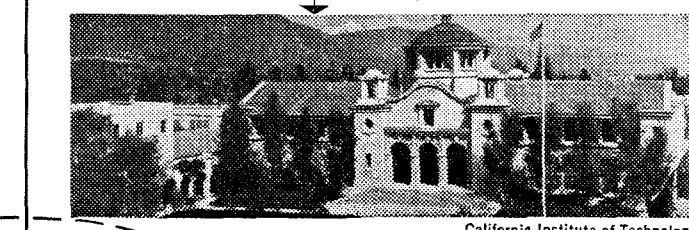
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 In Old Dorm
 Where Everyone Is Welcome
 Paul A. Harmon

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To those interested in advanced academic study while associated with important research and development in industry, Hughes offers two separate practical programs:

<p style="text-align: center;">HUGHES COOPERATIVE FELLOWSHIP PROGRAM</p> <p style="text-align: center;"><i>for Master of Science Degrees</i></p> <p style="text-align: center;">HOW TO APPLY</p>	<p>A program to assist outstanding individuals in studying for the Master of Science Degree while employed in industry and making contributions to important military work. Open to students who will receive the B.S. degree in Electrical Engineering, Physics or Mechanical Engineering during the coming year, and to members of the Armed Services honorably discharged and holding such B.S. degrees. As many as 100 Fellowships will be awarded each year.</p> <p>Candidates must meet entrance requirements for advanced study at the University of California at Los Angeles or the University of Southern California. Participants will work full time during the summer in the Hughes Laboratories and 25 hours per week while pursuing a half-time schedule of graduate study at the university.</p> <p>Salary is commensurate with the individual's ability and experience. Tuition, admission fees and books for university attendance are provided. Provision is made to assist in paying travel and moving expenses from outside Southern California.</p> <p style="text-align: center;"><i>for the Hughes Cooperative Fellowship Program: Address all correspondence to the Committee for Graduate Study</i></p>	<p style="text-align: center;">THE HOWARD HUGHES FELLOWSHIPS</p> <p style="text-align: center;"><i>in Science and Engineering</i></p> <p style="text-align: center;">HOW TO APPLY</p>	<p>Eligible for these Fellowships are those who have completed one year of graduate study in physics or engineering. Successful candidates must qualify for graduate standing at the California Institute of Technology for study toward the degree of Doctor of Philosophy or post-doctoral work. Fellows may pursue graduate research in the fields of physics or engineering. During summers they will work full time in the Hughes Laboratories in association with scientists and engineers in their fields.</p> <p>Each appointment is for twelve months and provides a cash award of not less than \$2,000, a salary of not less than \$2,500, and \$1,500 for tuition and research expenses. A suitable adjustment is made when financial responsibilities of the Fellow might otherwise preclude participation in the program. For those coming from outside the Southern California area provision is made for moving and transportation expenses.</p> <p style="text-align: center;"><i>for the Howard Hughes Fellowships in Science and Engineering: Address all correspondence to the Howard Hughes Fellowship Committee</i></p>
			

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