Tech Adviser System Gets Drab O.K.

BY JOHN TODOROFF

Two campus committees, the MIT Faculty-Student Committee and the Student-Faculty Relations Committee, have expressed concern over the advisery system and sort of concluded that there is a distinct lack of enthusiasm by adviser and advisee there is nothing drastically wrong in this area.

The poll circulated by the FPC late last term showed 68 percent of the students satisfied with their adviser. Only 4 percent claimed their adviser had inadequate information about their education courses, although 33 percent complained that advisers were not very helpful on courses outside of the option.

A little more than half of the students have thoroughly discussed their educational plans with their advisers. Furthermore, 5 percent see their adviser more often than prerequisite week, the average of these being 2.5 times per term.

Two-thirds of the students report dissatisfaction in their academic problems.

Most of the student complaints centered on the same handful of advisers.

The Student-Faculty Committee is responsible for each department responsible for the adviser system. They discover the student's need for advice and then find a student willing to give it. Students are encouraged to talk to their faculty work load. The man to talk to about changing advisers is Dr. Lauren in physics. Mr. Magel in geology, Dr. Fuller in math, Dr. Beadle in biology, Dr. Wiesner in chemistry, and Dr. Clark in engineering.

The physics and math departments are overcrowded with students. Most of the student complaints centered on the same handful of advisers.

Stable Defense Systems To Be Wiesner Topic

Dr. Jerome B. Wiesner, MIT professor of nuclear engineering, will lecture on "The Development of a Stable Defense System," tomorrow afternoon at Dalney Lounge. The 1 o'clock lecture will be the second this term in the Carnegie series on science and government.

Wiesner is director of MIT's Research Laboratory of Electronics. He has been a member of the MIT faculty since 1943. During World War II, he worked on the Cambridge radar development program and the Los Alamos A-bomb project.

His work with weapons and countermeasures led him to a deep interest in arms control. He was a member of the Geneva disarmament conferences, primarily in a semi-technical capacity as a consultant of the President's Science Advisory Committee from 1957 through 1959.

Wiesner arrives on campus today to meet his son Steven, a Caltech freshman. The regular facultry seminar will be held directly following the lecture.

Dupree Characterizes Afghanistan As Economic Korea Of Cold War

BY MATT COUCH

Dr. Louis Dupree, member of the American Universities Field Staff, visiting Tech to report on a year of study in Afghanistan, has characterized this Central Asian country's role in the Cold War as a sort of "Economic Korea.

Both the free world and the Communist bloc have given substantial economic aid to Afghanistan in the past 10 years, but Dupree indicates that Russia aid served a very special purpose.

Since their first grant of aid to Afghanistan in 1953, Dupree feels that Russians have considered that country as an experimental zone to be used to test techniques of economic penetration for application elsewhere in the world. In this respect, the fact that neutral Afghanistan has welcomed U.S. aid has provided an opportunity for American, French and other nations to study our operations and see how far we could go in economic competition with them. If the U.S. and other Western countries had been able to offer the Russians may inevitably fill the vacuum and help establish a pattern for undeveloped areas in Asia, Africa, and South America.

In his discussions with the AUPS Reports Service, Dupree has defined two theses which he states are currently unpopular in the Western and Pakistan press (1) Afghanistan is not a communist country, nor is it controlled by the Soviet Union; (2) Afghanistan will serve as a sort of "Economic Korea." There are many hopeful signs from the Western point of view. Afghanistan has good, realistic aims, and have set out to implement them in a five-year plan, to end in 1961.

The five-year plan calls for a start towards ending the almost complete illiteracy of Afghanistan, improving communications and transportation, establishing an administrative system and civil service, increasing per capita land, and a start toward self-sufficiency in expensive necessities such as oil and cement.

It is important to note that though Afghanistan has accepted the U.S. as a friend, it has also adopted the bridges and roads, and to equip their army, they are accepting the help in the fields of education and administration. They asked twice for U.S. military aid, and were turned down, before they accepted Russian arms.

It is also significant that most of the educated people in Afghanistan went to school in the West.

The Afghans have adopted a very frank policy in the Cold War.

Proposal Sketched For 300 Bev Synchrotron

...Dr. Matthew Sands, Caltech physicist, announced Thursday in a physics research conference that a proposed 300 Bev proton synchrotron is not only useful but is also feasible. The only drawback is the cost, which would be $100-$150 million.

The synchrotron, although not officially being planned yet, would be finished by 1970. Caltech, UC, UCLA, UC, and La Jolla are among the universities that have been discussing the possibilities for building the machine. If it is built, it would be a national project, as the size and cost are too great for any one university.

Because of the great energies developed by the particles, the radius of the circular machine would have to be 1 kilometer. The aperture, which is the area in which particles travel, would be elliptical, with major axis 5 centimeters and minor axis 15 centimeters.

In order to inject particles into the synchrotron a Van De Graaff generator would accelerate the particles to 10 to 10 Bev, and finally this would inject them into the 300 Bev machine.

The machine has several advantages over other synchrotrons. It would produce about 10 trillion particles per second, which is a fairly high value. The Russian 10 Bev produces only 10 million.

At present there are two 30 Bev synchrotrons, one in Cern, Switzerland; the other at Brookhaven Laboratories, New York. The largest accelerator is about 70 Bev.

The machine's advantage lies in the fact that its ability to accelerate particles to 300 Bev represents a 10-fold increase over existing machines, although only 4-fold in energy available for re-action. This would open up a new field of research.

Osgood Says Insecurity Is Chief Cause Of Cold War Tension

BY BARRY GORDON

The first comprehensive approach toward ending the arms race offered in a Carnegie lecture was presented by Charles E. Osgood, professor of psychology at the University of Illinois, last Thursday afternoon in Dalney Lounge.

Osgood maintains that the major problem in the cold war is international tension caused by a mutual feeling of insecurity.

Osgood proposed a deliberate policy of offensive designed to induce reciprocation by the Communist bloc. It is an offensive in deeds rather than words, with each deed designed to reduce international tension. The goal would be to obtain an atmosphere of trust, thereby reducing the danger of cataclysmic war and facilitating East-West negotiations on arms control.

In his conclusion and "safe," says Osgood, the program would first be greeted with cries of "Propaganda!" and "Cold War Tricks!" However, Osgood would continue regardless of response, as it is the most increasingly important act, unfavorable propaganda would appear more and more absurd until the opponent is forced to reciprocate in turn.

Osgood stressed that his program is not one of weakness or concession. He emphasized the necessity of maintaining a firm policy in all areas, including retention of a strong nuclear deterrent force.

He ended the lecture leaving his audience wondering whether any definition of what the program could be proposed. To many people's surprise, he answered that question at the faculty seminar, following with very specific examples. He offered a hypothetical sequence of steps as an illustration of the type of act that would be undertaken. With the announcement of each act, reciprocation is invited. Some of his proposals were:

(1) Make public all medical information concerning man in space.
(2) Lift all discriminatory trade and travel restrictions on Red China.
(3) Move the seating of Red China in the U.N. to improve its seat.
(4) Move the seating of Red China in the U.N. to improve its seat.
(5) Move the seating of Red China in the U.N. to improve its seat.
(6) Move the seating of Red China in the U.N. to improve its seat.
(7) Offer a new, open system of outer space flights to be monitored by U.N. observers.

BOD Vacancies, Frosh Offices Up For Grabs

Students interested in the 1961-62 vacancies and freshman class officers should apply for these offices no later than this Monday, January 16, for the Tuesday, January 17, elections. Nomination forms are available in the Student Services building. The office of Student Services building. The office of Student Services building.

The BOD offices up for grabs are Athletic Manager and Representative at Large. Freshman Committee and a member of the Junior-Senior Committee, and the two BOC members, president, vice-president, secretary, treasurer, and an at-large selector. Both the election for BOD vacancies and Frosh Offices will be held on the same day.
C A L I F O R N I A   T E C H

Thursday, January 12, 1961

BOD Shirks Job

The situation regarding the delay on athletic awards for the fall sports makes an unfortunate precedent in athletic administration. The BOD has bowed the straightening out of the awards delay upon an athletic manager soon to be elected and sacrificed to the gods of the Whiting Awards Co.

When blackened and eyebrowed the previous athletic manager, ordered the awards, everything seemed to be in order, and no BOD member individually—or the group as a whole—has felt the responsibility of office enough to straighten out the mess. The six hundred dollar bill for last term's awards is waiting to be paid, and no BOD member indicated a willingness to find out where the awards are before the bill is to be paid.

The board last Monday collectively decided to slide the whole matter off on the soon-to-be-elected athletic manager (page 1). It is clear to us, though, the athletic manager will take at least two weeks to even feel at home among a strange group of rulers, and thus as far as satisfying the 80 fall term athletes, nothing will be done for some three weeks.

Too many times we've seen executive officers shirking responsibility in the closing days of their offices. We understand their feelings, having worked with and on the BOD, but the elected directors have no right to fall down on the job. As far as we're concerned, there is no reason for the slip-shod handling of the awards program that still continues.

If so you see your friendly, incompetent BOD member, press him a little. He wants to forget you asked him to work for you by voting for him.

Adviser Advice

The recent investigations of the adviser system (see story, page 1) show the faculty have thought of spending a little time to offer students extra-curricular help in moving toward the careers they feel motivated to. For this we should be grateful.

Also, except for isolated cases, students feel they are getting some worthwhile advice.

However, students and faculty alike feel that the possibilities of the system are many times greater than current practice. Students find it difficult to express what kind of professional advice they want and thus the adviser feels he doesn’t know where to start.

Many advisers have emphasized that counseling in personal problems is more properly the job of the deans. There is a faculty reluctance to worry about students who have not found Caltech motivating those who are motivated. However, advisers seem to recognize that personal problems definitely influence academic work.

As a start, we would like to encourage adviser and student alike to worry a little less about who should take what initiative and what areas are fit to discuss with whom and just talk about anything that interests them. Perhaps the best future direction of the adviser system is not something to be decided by the two groups sitting at opposite ends of the campus, trying to outguess each other, but rather by discovering through conversations what the student needs to know and what the adviser has to offer.

Parking Lot Thefts

The letter from Sam Suits and Jim Blackmon regarding the thefts of auto parts from student cars parked in the Chester and T.P. lots deserves more notice than it got at the term’s end.

This letter was one of justified complaint and at the same time a plea for some reasonable action to be taken to protect student property.

An action was requested first, that the lighting in the areas often talked about for the two parking lots be installed quickly, and secondly that additional surveillance for the parking areas be provided by more frequent guard appearances.

We talked with Institute officials at the end of the term and, in the light of the Suits-Blackmon letter, they agreed that such a course of action was probably the best thing to do and that the Institute has taken steps to install lights at crucial points in the area.

However, additional surveillance of the parking areas would result in an annual increase in operating costs, which at present the Institute is unable to bear.

Should the theft problem continue, further steps to halt it will have to be taken. In order that we know the effectiveness of the new lighting in decreasing the crime incidence, it is imperative that all thefts which occur be reported to Mr. Hertenstein of the Physical Plant Department. From this, it will be possible to decide if additional worrying about the situation is warranted and what action might be taken.

Carnegie Series Seminar Meets

Every 2 p.m., following the weekly Carnegie lecture, a select group of about 30 faculty members and students quietly enter 168 Church to discuss and seek answers to the arms race problem. The people entering this soft-chatted room represent a wide variety of backgrounds, including the over-all skepticism of Dr. Feynman, the well-thought-out statements of Dr. Despard and the vast amount of experience in policy formation by other members of our faculty.

Undergraduates are able to attend these seminars by participating in the Carnegie discussion group which sits in the Y Lounge following the seminars. Three undergraduates are selected from the group to attend the seminar and report back.

We at Caltech are extremely lucky to have such prominent men come to campus weekly to discuss one of the most important issues of our time. Any student desiring to join this seminar group should contact Bob Ross in Page.

Osgood On Inseets

(Continued from Page 1)

(8) Turn over Quemoy and Matsu to Red China while emphasizing our commitment to the Taiwan.

Probably the greatest problem with such a "radical" proposal is the political difficulties involved in our government carrying it out. Osgood is rather optimistic about this, pointing out the great flexibility of American public opinion in foreign affairs. As proof he cited his own research showing that during World War II, in the space of a few months we went from the impression of the Russians as much more friendly, fair, and even more Christian.

Osgood's unusual approach seems to be worthy of more response than complacent dismissal or abjured curiosity. If you are interested in studying it further, see his paper entitled "Graduated Reciprocity in "Peninsula, Reduction," available in the Public Affairs room.

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Rotation Agen. Sets Hearing

The House presidents set a general agenda for formulating their rotation recommendation at Monday’s IHC meeting.

Their plans include an invitation to all students who feel strongly enlightened on the procedures of assigning frosh to Houses and the effects of such procedures on Tech and Techmen to present ideas. The student opinions will be sought in an open meeting planned for about February 1.

Faculty and resident associates will be invited to offer advice and opinions at an early meeting. The ASCIT EnCom is expected to publish the results of its rotation study next week.

Finally the presidents will formulate several proposals to report to the students for pull.

IHC hopes to sum up all in a student recommendation to the faculty Student House Committee about February 20.

Congratulations

Best wishes and a spot o congrats to Marita Northrop, just chosen president of the Delta Gamma sorority at the University of California— the first sophomore president in 16 years— and the best president ever!

Poll Checks Advisers

(Continued from page 1)

undergraduates, however, and find it particularly hard to please.

From the committee findings, the faculty looks upon the adviser system as an opportunity for the student to receive professional guidance in his field— to find out what type of work he can do and how to prepare himself for it.

All feel that signing the orange card is of relatively minor significance.

The initiative to do this is expected to lie with the students. Numerous faculty mentioned strong dissatisfaction with the apparent disinterest or shyness on the part of their advisees.

The faculty is not too worried about the adviser’s knowledge of specific Caltech courses. Rather, once the student has found out from the instructor what a course teaches he is to be able to ask the adviser of what value this material would be in his field.

Most see the adviser relationship furnishing at least one source for grad school recommendation letters.

New opportunities for engineers

NEW NAME: CHANCE VOUGHT CORPORATION

The name used to be Chance Vought Aircraft, and it fit the company perfectly. No other name is more closely associated with aviation’s growing years and great hours. But today, Chance Vought has expanded beyond its traditional field into other market areas, both military and industrial. The Aeronautics Division, which supplies the new all-weather Crusader to the Navy and is at work on other aircraft and missile projects, is also headquarters for a company-wide a. submarine effort. The Astronautics Division—deep into studies for the Navy’s Blue Scout Junior, both research rockets, Minnesota Mining & Manufacturing Co.—is at work in the industry pertinent to 3M’s expansion of its passive and active electronics fields. Kaiser Aluminum & Chemical Corp. is also a 3M subsidiary. And when he finishes his career, Rimbaud, the valedictorian of M.LT., will take a position in the Aerospace Division.
The YWCA's winter quarter program starts this Sunday evening with a showing of "The Titfield Thunderbolt," as a first feature, in an evening series of cultural, entertainment and other programs.

Another of the other programs are the YWCA's Diners' Clubs, visiting seminar students, a finance drive, a Carnegie speakers' seminar club, some special speakers, some study faculty firesides and an emphasis on a coeducational conference with the University of Southern California, YWCA.

According to Y President Bob Nason, all of these programs need planning, organization and stamp-licking so volunteers and inquiries will be gladly accepted in the Y office.

The Film Series

The YWCA film series this term will have four movies, each of which will be presented on Sunday evenings in Culbertson. Admission to each film is 65 cents. Season tickets can be had for $1.50.

This Sunday's movie, the aforementioned "Titfield Thunderbolt," is a comedy about the struggle of an old-time single track railroad and some railfans against nationalization. Since it's a British comedy, it's funny.

The "Thunderbolt" will be followed by "The Brothers Karamazov," "Skanderberg," and "Alexander Nevsky" at approximately two-week intervals. The first film is self-evident, the second one is about a revolt of the Albanians against the Turks in the 15th century, and the third is directed by Eisenstein with background music by Prokofiev.

The Diners' Clubs

The YWCA Diners' Clubs operate on the proposition that students like to mix Student House meals and hear good speakers. They try to fill both needs.

This term the upperclass diners' club will feature speakers from AUPF who will talk about various remote but important countries all over the world. In addition, as yet unnamed other speakers will be on hand. This club meets on Monday evenings.

The Yale Diners' club will operate similarly to its upperclass counterpart with meetings on Tuesday evenings. The college food will be confronted with various speakers — mostly from the Caldwell community — who will describe life.

Meals at both clubs are free to members of the Student Houses. Chandler Dining Hall food is better than House food.

Totem Needs

You are cordially invited to attend a private interview with a Special Representative of Lockheed Missiles and Space Division. Objective: to pursue mutual interests by examining the almost limitless fields of endeavor being investigated at Lockheed.

Lockheed Missiles and Space Division in Sunnyvale and Palo Alto, California, on the very beautiful San Francisco Peninsula, is constantly probing all the sciences related to missiles and space projects. These cover the complete spectrum — from human engineering through celestial mechanics — providing a fascinating challenge to those whose interests lay beyond the ordinary day-to-day job.

Lockheed is the system manager for the Navy POLARIS FBM, and the Air Force DISCOVERER, MIDAS and SAMOS satellite programs, involving some of the nation's most important and sophisticated programs. As one of the largest organizations of its kind, Lockheed Missiles and Space Division is able to provide the finest technical equipment available; for example, the Sunnyvale facility houses one of the most modern computing centers in the world. And every opportunity is given members of the technical staff to participate in the initiation of advanced technological developments.

Further, Lockheed strongly encourages continuing education and advanced degree work, maintaining two programs in their support. Lockheed's Tuition Reimbursement Program remits seventy-five percent of the tuition for approved courses taken by professional and technical people who are working full time. The Graduate Study Program permits selected engineers and scientists of outstanding scholarship and professional potential to obtain advanced degrees at company expense while employed on research assignments.

Special Campus Interviews

will be held

JAN. 19 AND 20

See your placement office for details

U.S., Russia Vie In Programs Of Assistance To Afghanistan

(Continued from Page 1)

The Afghan attitude is clearly something of a gamble on their part, but they feel safe, states Dupee, as long as the U.S. remains there and they are not depending on just one power bloc. The Russians have not tried to subvert the Afghan government and probably won't as long as the government remains neutral and provides them with an example of their "peaceful coexistence" policy.

Dupee graduated in 1900 from Harvard University, which also awarded him the M.A. degree in 1903, and the Ph.D. in 1954. Among his published works are four monographs and over 50 articles and reviews.

Dupee will be on campus until next Wednesday, January 18.
Faculty Sadists, Not Bad Eyes, Cause Problems

Most every Caltech bull session is at some point turned to discussing the "typical Techman in all his glory. All of us have pet theories as to what best typifies Joe Tech (as opposed to Joe College and Oliver Cool), but in all fairness and for a truly incluive study of Caltech students to be released to the jaunted public view. With neither undue modesty nor content, we submit that at least last the Caltech man has been successfully and competently cast.

The first major distinguishing feature of Joe Tech is that he is too idealistic and much too simple-minded. He has shown that 97 percent of the Caltech student body uses some sort of optical device. To the untrained observer, this might seem to be a result of the fact that 97 percent of the Caltech student body suffers from impaired sight. Not so. A Caltech man is very sensitive to the whines and fancies of the general public. For example, the general public has harbored the belief that the typical Techman suffers from myopia. But looking to appear atypical or out of place, Caltech students make certain they own at least three pairs of glasses. Actually, over 90 percent of this year's freshmen received scores of under 500 in Advanced Math. What's more, over half had scored an 800 on both the morning and afternoon English tests.

The plot of the Institute becomes diabolically clear. The Admissions Committee cleverly selects those students who have no ability in science but who did well enough in high school to the satisfaction of the Admissions Board, and then admits them to the torture chamber.

They show them with as much advanced science as possible, and then watch them shrivel back when their obvious lack of ability becomes evident. For this group of poorly placed students, they then admit a few students who have them to get one last kick at the people that are clearly superior.

It thus becomes obvious that Caltech was meant for the people who cannot possibly adjust to it, for these are the people that that Institute personnel are out to get.

This closely ties in with the popular conception that Caltech students have a genius for science and rubbish for the rest. To instigate to this image by publishing the College Board scores of each freshman class, emphasizing the excellent scores they supposedly achieve in math, physics and chemistry.

But the truth of the matter is that the scores the Institute publicizes are all phony. Actually, over 90 percent of this year's freshmen received scores of under 500 in Advanced Math. What's more, over half had scored an 800 on both the morning and afternoon English tests.

The announcement was made at a special press conference held at the Allen Veranda. The officers announced that students interested in viewing the debacle should be at the Athenaeum lawn.

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BOD, IHC in Water Fight

Joel Donnelly, IHC president, and Bill Bauer, Bod president, announced simultaneously yesterday that the annual Bod-IHC water-fight will be held a week from Saturday, on January 21, at 11:30 a.m. on the Athenaeum lawn.

The announcement was made at a special press conference held at the Allen Veranda. The officers announced that students interested in viewing the debacle should be at the Athenaeum lawn 11:25 on Saturday morning.

The Bod-IHC water-fight is ideally suited for the typical Techman. He is a skilled athlete, and the Bod-IHC water-fight is a sort of optical device. To the untrained observer, this might mean that the Bod-IHC water-fight is a result of the fact that the Biophysical group is at some point turned to athletics, but this, too, is evidence that the Techman typifies Joe Tech (as opposed to Joe College and Oliver Cool).

We now see a clear picture of the typical Techman. He is a mistreated, tortured, yet basically very admirable young man who really should be studying English Literature at Harvard.

Davis, Class of '35, Named All America

Frank W. Davis, Class of '35, has been named a Sports Illustrated Silver Anniversary All-America winner. Davis was nominated by Caltech and selected on the basis of his record in the 25 years since he played college football.

He lettered in football here for three years; in his junior and senior years he was captain of the team. Twice he won the Wheaton trophy for sportsmanship, moral influence, and scholarship.

His activities were not restricted to athletics. He was president of his freshman class, president of the Bears and Varsity Club, and Board of Control member.

Davis is now vice president of the Fort Worth Division of Convair in his home state of Texas. While with Convair he has been largely responsible for many projects as the first turbo- pump plane, the first delta wing, the first vertical take-off plane, the B-58 supersonic bomber.

Outside of his profession, he has contributed his time to a large number of organizations. He is director of the YMCA Metropolitian branch; director of the Texas Law Enforcement Association, chairman of the Fort Worth Division of the Caltech Development Program, and officer or member of over 17 other groups.

Of the Silver Anniversary winner Sports Illustrated says: "Their lives bear out their opinions. Almost every one of them gives far more of himself to his profession and to a staggering variety of community service than he gets back in money or honors. In an age characterized by Operatives and Status Seekers they are a select group indeed."

UNITARIAN PUBLIC FORUM

"Moscow Journal — Comments on Soviet Culture" by Albert E. Kahn, Author of forthcoming book "DAYS WITH ULANOWA"

Speaks Friday, January 20, 3:30 p.m. First Unitarian Church, 2936 W, 8th Street, L. A. Admission $1.00

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Mossbauer Receives Award For
Discovery Of Radiation Effect

Selection of Dr. Rudolf L. Mossbauer, a gifted young physicist, to receive the 1960 Iao research Corporation award, has been announced by Caltech and the research Corporation, a scientific foundation.

The 31-year-old Caltech research maw in physics was chosen for discoveries not previously made that now bears his name. The "mossbauer effect" is described as offering tremendous possibilities for achieving new insights into the ancient problem of the nature of the world that man inhabits." It is, essentially, a wonderfully accurate yardstick that enables physicists to measure precisely, for the first time, the effects of natural forces such as gravity, electrivity, and magnetism, on very small particles, such as photons and parts of the nuclei of atoms.

What Dr. Mossbauer has done is to find a way to produce and detect gamma rays whose wavelengths are extremely sharply defined. If this radiation could serve as an atomic pendulum, the resulting clock would be accurate to more than one second every 3,000,000 years.

The "mossbauer effect" enables physicists to test phases of Einstein's theory of relativity. Already the effect has confirmed predicted that gravity can change the frequency of a light beam. And it is being used in laboratories in this country, Europe, and Russia to solve mysteries in the exciting fields of solid state physics and nuclear physics. At Caltech, Dr. Mossbauer and his colleagues are using his effect in the study of the helium-3 to little known internal magnetic and electric fields in isotopes of the rare earth elements. They are obtaining information about the complex electrical interactions in the cryogenic structure of these compounds and about the electric and magnetic properties of excited nuclear states. This research is supported by the Atomic Energy Commission.

The Research Corporation Award, first given in 1925, honors men of science who have made outstanding contributions. Eight of the 24 previous recipients later have been honored with Nobel prizes. The award consists of a plaque, a citation and a $5,000 honorarium. Research Corporation is a foundation with headquarters in New York City, created in 1912 by Frederick Gardner Cottrell, a noted inventor, scientist and teacher. Cottrell contributed the

The busy rubber tree, which has been coaxed into increasing its yield five-fold in the past 20 years, soon will be induced to double its current output, a Caltech biologist said.

Dr. James P. Bonner has returned from Kuala Lumpur, Malaysia, where he addressed the first world-wide conference on rubber. He described the steps by which one of nature's most efficient chemical factories, the rubber tree, transforms carbon dioxide and hydrogen into hydrocarbon molecules of liquid latex. In 12 years of research at Caltech, Dr. Bonner and his associates have helped discover how this is done.

Production of the milky white latex has been increased by painting hormones or antibiotics on the tree trunk and by using different methods of tapping the special set of natural "pipes" in the bark of the tree, the biologist said.

It was the consensus of the 300 scientists from all over the world who attended the conference, sponsored by the Rubber Research Institute of Malaysia, that demands for the product are increasing so rapidly that there will be a need for the natural rubber industry for a long time, Dr. Bonner added.

Malaysia is the world's largest producer of natural rubber.

"While in the United States the synthetic product is most widely used—because it is cheaper—here in two-thirds of the world's production is from the natural sources. Synthetic rubber is virtually identical with the natural product, and is made from petroleum hydrocarbons," the biologist said.

The United States developed synthetic rubber when its natural supplies were cut off in World War II. Dr. Bonner helped establish the guayule plant program which served as a stopgap until the artificial synthesis of rubber was achieved.

The guayule rubber plant was grown in California, Arizona and Texas. Its advantage over the rubber tree rubber was that this product could be harvested mechanically. However, its product cannot compete during peace-time production of either the natural or synthetic product.

In his six-week trip, Dr. Bonner visited Tokyo, Japan (where he gave talks at the University of Tokyo and found biochemistry try laboratories there fully to American standards), Hong Kong, Bangkok, Singapore which has a special harbor for hundreds of boats that smuggle rubber out of Indonesia, and Bugor, Indonesia, where he addressed the University of Indonesia (whose courses and textbooks are in English and which is supported by the United States). Dr. Bonner also visited the Indonesian Academy, which he described as the Caltech of Indonesia.

In Australia he inspected a new method of growing rice and predicted it would succeed. It also saw Alice Springs, "the Tucson of Australia," which imported pale verde trees from Arizona. And he saw the first date grove in Australia, which is modeled after similar groves in India, Calif.

Space Technology Laboratories, Inc. of Los Angeles, California, maintains a staff of skilled specialists who are devoted entirely to the research and development of advanced space and missile systems. Recent STL achievements include Explorer VI and Pioneer V, for which STL had complete systems responsibility. In addition, STL provides systems integration and test for the major Air Force Ballistic Missile Weapon Systems.

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Please make arrangements with your placement office for interview appointment. In addition, you may correspond with us directly. Address your resume to: College Relations, Space Technology Laboratories, Inc. P. O. Box 95004, Los Angeles 45, California.
Redlands Trounces Tech 79-65 In Loop Opener

Caltech's varsity basketballers split a pair of games over the week end, and then lost to league powerhouse Redlands Tuesday night. These contests left the Beavers with a 2-4 record in league play, while a conditioned Riv­

breaker to 66-63. 

The victory margin was the greatest on the Caltech rec­

book, while total score

settled by one point.

Caltech lost its first league game, 79-65, to the University of Redlands. Returning center Jack Schroeder led his team to the easy win. Caltech managed to play even throughout the first quarter, but then the Bulldogs' size and speed proved too much for the Beavers. All things consi­

tered, though, Caltech played a very good game. Tom Bopp looked very good at forward, and lead the team with 16 points.

Friday the Beavers travel to Pomona to attempt to pick up their first conference win. Po­

mona lost by 30 points to Clare­

mont, so the Beavers had bet­

ter win this one if they hope to finish high in the conference. The Sagehens don't have much trouble going through their league schedule without a win.

The Beavers lost a heart­

break to UCR Saturday night, 46-63. With 1:27 left, Caltech clung to a three­

point lead, but the long Christmas vacation lay­

off took too much out of the players, while a conditioned Riv­

breakers would prove too much for the Beavers. All things con­
sidered, though, Caltech played a very good game. Tom Bopp looked very good at forward, and led the team with 16 points.

Friday the Beavers travel to Pomona to attempt to pick up their first conference win. Po­

mona lost by 30 points to Clare­

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ter win this one if they hope to finish high in the conference. The Sagehens don't have much this year, and should have no trouble getting through their league schedule without a win. But they could be dangerous on their home court. Tradition­

ally Caltech-Pomona games are close, with the last three being settled by one point.

Tuesday the Beavers lost pow­
erful Orange Coast at 42-1. Al­

though this is their first year in varsity competition, the Orange­

men have managed to best most of the small college powers of the area, such as Cal Western and Whittier. They lost to L.A. State by just a few points. This might be a long afternoon for the Beavers.

Roger Noll shoots free throw during last Tuesday's basketball game with Redlands. Larry Brown (21) looks on.

L.A. Pacifi fell victim to the Beavers hope to make the league powerhouse Redlands this year.

A BRIEF INTRODUCTION TO JET PROPULSION Laboratory

Since the beginning of his intellectual awareness, Man has looked upward to the outer world surrounding his planet Earth. He has watched the twinkling stars and wondered at the never-ending dance of the planets around the Sun. He has dreamed and written of the possibility of exploring outer space and speculated endlessly on what he might find there and explore those distant worlds.

A practical beginning to these century long yearnings has already been accomplished with man-made satellites already gridling the Earth. Now, the next stage is under way—the daring attempt to explore the Moon and the planets of our Solar System and their environments.

The National Aeronautics and Space Administration has assigned Caltech's Jet Propulsion Laboratory (JPL) the responsibility for the Nation's program of unmanned lunar, planetary, and interplanetary exploration. The objectives of this program are to contribute to mankind's fundamental knowledge of space and the space envi­

roment and to the development of the technology of space exploration. For the next ten years, as larger booster vehicles become available, spacecraft with ever-increasing scientific payloads will be developed.

JPL will conduct the missions, utilizing these spacecraft to orbit and land on the Moon, to probe interplanetary space, and to orbit and land on the near and far planets.

Each of these spacecraft will be the "Ranger" series now being designed, developed, and tested at JPL. The mission of this particular series will include first, explo­

ration of the environment and later the landing of instru­

ments capsules on the Moon.

Subsequent steps will continue a constant probing for the knowledge of what is beyond and will require all of the skills, ingenuity, courage, endurance, perception and imagination that men can bring to the task.

Never before has such a wide slate of opportunity, or a greater incentive been open to men trained in all fields of modern science and engineering. Every day at JPL new problems arise, new theories are advanced, new methods tried, new materials used, and new principles discovered. Wouldn't you like to be part of this exciting activity?

Opportunities for Graduate Students in these Fields

- INFRA-RED - OPTICS - MICROWAVE - SERVOMACHINES - COMPUTERS - SWEEP TRACER SYSTEMS - FIELD PROBING SYSTEMS - COMPUTER IRRIGATION - MATHEMATICS - SOLAR SYSTEM PHYSICS - ENGINEERING MECHANICS - TRANSFORMER DESIGN - AIR CONDITIONING

These positions will be among the earliest places in the development of space science.

Illustrated is a "Ranger" model under study by the laboratories of JPL. Here design features are tested and proved, operational procedures developed and handling experiences gained for the actual operation of the initial flight spacecraft.

JET PROPULSION LABORATORY

OPERATED BY THE CALIFORNIA INSTITUTE OF TECHNOLOGY

UNIVERSITY RELATIONSHIP TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PASADENA, CALIFORNIA

ON CAMPUS INTERVIEWS

JANUARY 20
This Is Your Life, BertKloosterman

BY LANCE TAYLOR
Bert Kloosterman is a campus guard, married about 60, and walks 13 miles each night for six nights a week in defense of his sacred interests. Mainly he checks time clocks.

As the course of a year, he wears out exactly one pair of J. C. Penny $15 work shoes.

I talked to Kloosterman on one of his rounds. He was wearing a 42 shoe, plus a stink in his car. In that time we (he) check five time clocks, tried 23 doors and found nary a prowler.

SEVEN REPORTS
We (he) also drank a cup of coffee, and filled out seven reports reading roughly, "I, Bert Kloosterman, did check the doors, cans, and time clocks in Spalding, Thomas, Central Engineering and the Athens Center between the hours of 9 and 10 p.m."

Kloosterman and his compatriots — there are seven of them, including Officer Newton — make their rounds every hour, on the hour, night and day, rain or shine, etc. Kloosterman, during the day, when Newton reigned, there are two guards on campus — one covering the area west of Throop Hall, and the one area east. They are busy, gave Kloosterman, most of the time.

INTERESTING TRIP
In the course of my trip around campus with Kloosterman, I found out many interesting things while I observed him on his duty. I also got tired feet.

I found out, for example, that there is a time clock in practically every fan room on campus, including one below Throop Hall and one in a penthouse on top of Spalding. (You get a real view of campus from the fan room of Spalding — which is why the insurance company had a time clock put there. Insur­ance companies seem to have the big voice in placing time clocks.)

I also found out that the ladies’ restroom on the second floor of Spalding is the most tastefully appointed room on campus. It has two chaise lounges and two very padded overstuffed chairs. It also has a well-stocked magazine rack. It pays to be a secretary in Spalding.

(Before he entered the rest room — weirdly tidy by me — Mr. Kloosterman tastefully called out, "Guard, Lights," in his pleasant tenor voice.

Kloosterman’s rounds are covered by his on-campus time clock. Schools have them to be checked every two hours, others every 15 minutes, others once a night, others once every two, three or four days, etc. Kloosterman covers the rest.

On the particular trip I took, we started by traipsing through the basement of Throop, and then took an exciting and noisy trip through the boiler room and the chemical engineering labs.

EMERGENCY
Kloosterman said there were often floods in the chemical en­gineering labs. This is an emer­gency. When there is a emer­gency, campus cops call either the Pasadena police or Mr. Her­tenstein, the boss of B&G. I got the impression Mr. Hertenstein is the man to call, as befits his exalted position.

Even though he is a special member of the Pasadena police department, and even though emergencies arise (so he says), Kloosterman does not carry a gun. None of the guards carry anything besides time clocks and flashlights, which make formidable weapons.

SPALDING TO GYM TO ...
Anyway, after the chemical engineering lab, we went to Spalding, and visited the afore­mentioned ladies’ lounge and fan room. We then went to the E & M shop (another time clock), Thomas (yet another time clock), and Central Engineering (guess what).

After that, we went over to T.P., and got into Kloosterman’s care to make the long drive to the gym. On the way, we ogled girls playing tennis and went twice around the student park­ing section in Uelson. T.P. Kloosterman assured me that dashboards are no longer being stolen in the parking lots. I was relieved.

He also told me that Oxfort Newton is the sole parking tick­eter. I was even more relieved.

REALLY CHECK
From parking lot we went to the gym, which Kloosterman checked more carefully than all the other buildings put together. After the gym, we checked the ROTC building, the parking lot, again, and the parking lot be­hind Guggenheim (all with time clocks. Then Kloosterman went and clocked), Then Kloosterman went I went home. My feet hurt,

Mossbauer
(Continued From Page 6)
processes from his investigations in the field of electrostatic precipiti­tion to endow a foundation for the further advancement of sci­ence. More than 2,000 research scientists have been aided by foundation grants totaling more than $15,000,000.

Dr. Mossbauer is an emer­itus member of the University of Munich, Germany. A native of Munich, he was educated

Synchrotron
(Continued from page 1)
equipments for nuclear particle phys­i­cists, enabling physicists to learn a great deal more about particle interactions involving new elementary particles.

Dr. Sands said that, if it is built, "we hope it will be within flying distance of Caltech." In that city and worked for 18 months at the Max Planck Institute for Physics at Heidelberg.

Radio Club To Call Home Towns Sunday

BY LEE MOLHO
Your alley phone may ring next Sunday with your home town on the line — via amateur radio. Another of the many ac­tivit­ies of the Caltech Amateur Radio Club, these "phone patches" will be handled by members operating the club station in rotation throughout the week. The Radio Club is contacting "home" all over the United States for phone calls.

Making "phone patches" is not the only Radio Club service for the general Tech student body. Over 50 messages were put on the air for Techmen last term. Free radiograms may still be sent by dropping them in the Q mailbox in Page, Lloyd, or Ruddock, or the X mailbox in Blacker or Lower Throop.

W6UE is the new permanent station call of the Radio Club. This two-letter call marks the club as an "old-timer," which in fact it is, for a Tech radio club, 632R, existed in 1932. Along with the new call has come at least a completely new set of equipment. An HP-170 receiver and Heathkit single sideband equipment (for which ASCIT provided funds), with a home Apache transmitter, have made the club station highly versatile and potent.

Tennis Next I. H. Sport

As the Interhouse sports rally pulls into second term, Ruddock House leads the pack. Actual results are Ruddock, first with 49 points; Bickett, second with 45 points; Dahney, third with 43 points; Lloyd, fourth with 33 points; Page and Pleming tied for fifth with 31 points each; and Blacker, last with 18 points.

The next sport on the Inter­house calendar is tennis. Tennis will consist of three simple matches and one doubles match. The playoffs for tandem, originally scheduled for this and next Sunday, will be held during the week so as not to conflict with week ends (logically enough).

The TOP name in Missile Inertial Guidance — AC SPARK PLUG seeks top talent!

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FIELD SERVICE PROGRAM — formalized two­to four-month classroom training on missile inertial systems and bomb­ing navigation systems. After completion of training program, assignments are to both domestic and foreign sites.

SEE YOUR PLACEMENT OFFICER TO SCHEDULE GENERAL MOTORS INTERVIEW

JANUARY 17 & 18, 1961

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