Dinner Forum Will Consider Tech Grades

Next Wednesday's YMCA dinner forum will feature a panel discussion on one of the most controversial subjects on campus, Caltech's grading system. The panel will be headed by Henry Abarbanel, and will include Larry Rabinowitz, Arch McEliece and Jay Russo, with Registrar Weitzel, and Drs. Kent Clark and Henri Bohnenblust.

One of the primary topics to be discussed will be the psychological uses of grading systems, and whether they provide positive or negative encouragement both in grades and in actual learning.

In addition to the desirability of grades, the committee will consider the possible alternatives to grades and the problem of how to change the present system, especially at Caltech. Also debated will be the perennial question of how well grades reflect the amount of learning an individual actually acquires, and whether they really indicate

(Contined on page 4)

Term Results For Debators Show Awards

During the first term this year, the Caltech Debate Squad took part in 53 intercollegiate debates, winning 29 for a record of 55%. Schools with which Caltech has debated come from Washington, Oregon, California, Idaho, Utah, Nevada, and Arizona. The California schools include Redlands, UCLA, L.A. State, Pepperdine, Long Beach State, USC, UC-Santa Barbara, Oxy, San Diego State, Cal Western, and others.

Individually, Caltech's best debater is Steve Morse, with a record of one excellent certificate in debate, a superior in extemp-(Contined on page 4)

Eells Believes Our Counseling Service Unique

Dr. Kenneth Eells, the Institute Psychologist, spoke to the Frosh Diner's Club on "Opportunities for Counseling at Caltech" on Monday night. Eells stated that the counseling service, which is new to Caltech, was suggested by a petition of the students. This student initiation of such a service is unique among colleges, Eells believes.

A variety of problems affect Caltech students, Eells explained. Emotional disturbances ranging from lost girl friends to grades and exams to psychosomatic problems are dealt with by the counseling service. Some students have been advised of the service by the Deans or an advisor, but must come through their own initiative. Eells remarked that some people think it is not healthy to see a psychologist and that people should work out their own problems. He explained that he helps persons to solve their problems through their own effort. He said, "I don't do too much probing around." Eells believes that

(Continued on page 6)



R. B. Gilmore, left, has been chosen as vice-president for business affairs of the Institute. Gilmore replace past vice-president George Green, who died last Ju ne. H. G. Nash, right, was recently honored on the occasion of his fortieth year of service to the Institute. Nash is secretary of the Board of Trustess.

Gilmore Named V.P.; Nash Honored by Board

BY KEN KIMBALL

In the past month several administrative decisions have occurred at Caltech. They involve Robert B. Gilmore, Herbert H. G. Nash, J. G. Boswell and John S. Griffith.

Gilmore has been appointed Vice President for Business Affairs at Caltech, succeeding the late George W. Green, who held the position from 1956 until his death last July. In a letter to the Caltech faculty and employees, President DuBridge stated that the administration is "convinced that there is no on in the country better qualified for this important post than Mr. Gilmore."

A native of Mason City, Iowa, Gilmore was graduated from UCLA in 1937 with a B.S. in Business Administration. He came to Caltech in 1948 as manager of the accounting offices, and has been Comptroller since

Nash Honored

The Board of Trustees has expressed "deep appreciation" to "Bert" Nash for forty years of what was described as "devoted and single-minded service" to the Institute. A watch was presented to Nash, who came to Caltech on December 4, 1922, as head accountant. Now 67, he has served Caltech longer than any other administrative, non-aca demic employee.

Nash is Secretary of the Board of Trustees and Assistant Secretary and Assistant Treasurer of the California Institute Associates, an organization of industrial and professional leaders dedicated to advancing Caltech's welfare. The various duties of his office include administering the multi-million dollar insurance program for the Institute and JPL, purchasing insurance, handling claims, making up the agenda for meetings of the Board of Trustees, and keeping books for the Institute Associates. He personally takes the minutes of the Board of Trustees and its top committees.

A third development is the election of Boswell and Griffith to the Board of Trustees. The former is president of the J. G. Boswell Co., producer and processer of agricultural products. He is also director of the Safeway Stores, Inc., and the Security First National Bank. A graduate of Stanford University, he lives in Pasadena. Griffith is president of the Far West Financial Corporation and has been engaged in real estate projects in Southern California for 44 years. He has been a member of the California Institute Associates since 1955 and was a director of the organization from 1957 until 1962

Graphic Arts Presents 'Showcase' Exhibition

Graphic Arts Showcase — '63, an exhibit of photographs of landscapes, activities, models, stars, people, and campus activity is on display in Winnett Lounge until Friday. The Caltech Graphic Arts Facilities is presenting the exhibit, which is open Thursday 11 a.m. to 9 p.m. and Friday 11 a.m. to 3 p.m. The display opened last Monday.

"The display will feature examples of the variety of work produced by the department," explained Lowell E. Peterson, manager of the Graphic Arts Facilities. The display includes abstract, news, scientific, and pictorial photography. Photo

copying and printing devices are processes shown. In a lighter vein a series of photographs of Goldwater, Nixon and Brown are displayed to invite the viewers to write their own captions. A series of slides portray the layout of the campus and buildings and a group of artistic subjects.

Examples of the work of James W. McClanahan, the photo laboratory supervisor, and Robert M. Jeffrey and J. Douglas Stewart are shown. They use the solarization and reticulation processes to form abstract subjects of lights and shadows. The show is designed to appeal to a wide variety of tastes from the real to the abstract.

AUFS Specialist Speaks on China

Albert Ravenholt, an American Universities Field Staff specialist in the Far East, spoke to H5 Tuesday on the "Crises in Red China." Ravenholt, who initiates the AUFS program at Tech this year, will be here until January 16, will address several history and economics classes, and participate in numerous discussions on China and the Philippines.

Ravenholt's talk Tuesday centered around present crisis in Red China which he observed was brought out graphically at the 1962 meeting of the National People's Congress in Peking. Because of the present "planned economy" in China the budget is especially important there, and the fact that it was not discussed in Peking, according to Ravenholt, indicates statistics in China are "awry to the point of meaninglessness," The great pressures on production quotas caused by the "Great Leap Forward" led to falsification of reports and in about 1960 the central planners realized that their data was completely incorrect. In the past two years the planners haven't straightened out

Grad Finds Wakes at Bow

The existence of a wake that sometimes moves ahead of an object in a fluid, instead of trailing behind it, has been confirmed by experiments here at Caltech.

This forward wake, which creates vorticity in a fluid similar to that of the normal afterwake, appears only under certain conditions: when the fluid involved is electrically conducting and a magnetic field is present. Theoretically this "magic wake" effect should exist in the ionosphere and in the ocean, since both environments fulfill the requirements.

The experiments on the "magnetic wake" were carried through by Harlow G. Ahlstrom, graduate student in aeronautics, who worked on the problem for his Ph.D. thesis. The research was supported by the Office of Naval Research as part of a general investigation in the field of magneto-fluid dynamics.

The magnetic wake is produced by the propagation of what are known as Alfven waves which move along the lines of magnetic fields. Such waves are named after Swedish astrophysicist Hannes Alfven, who about 20 years ago predicted their existence.

Alfven waves are somewhat analogous to sound waves that move ahead of objects traveling at subsonic speeds. In addition to moving ahead of their source, Alfven waves also produce vorticity and currents in the conducting fluid through which they propagate.

The magnetic wake stays in front when the object is traveling at a speed less than the speed of propagation of the Alfven

(Continued on page 3)

the situation enough to get a third 5-year plan under way.

Described by Ravenholt as "a great coming-unstuck of the industrial complex," completely detsroyed quality control and maintenance in China, and replaced factory managers with party committees. Three-fourths of Shanghai's textile industry is now idle, and locomotvies are being cannibalized for parts.

The agricultural failure, Ravenholt felt, was not a problem of distribution but was universal in China. He stated that the soybean crop had been destroyed, robbing China of her major protein source, and that extreme malnutrition symptoms had been reported by doctors in China. The only thing feeding the cities and army, he said, was the eimportation of wheat from Australia and Canada.

China is having other serious internal problems, too. Fifteen to eighteen thousand refugees pour into Hong Kong every month. When Hong Kong complained and China closed the border, riots erupted in Canton (near Hong Kong).

Ravenholt also stated that the ideological split with Russia was very serious and Chinese leaders had recognized the crisis. The Chinese economy is being redirected so that "industry will have to manage on its own," and all priority is being given to agriculture.

This new emphasis on agriculture, Ravenholt stated, caused the great question in China today. The Chinese, he stated, must abolish the communes and give the land back to the people if they hop to boost agricultural production. The question is whether or not they can afford to do this.

Notices

SAILING CLUB MEETS

Caltech Sailing Club will hold its first meeting of the term tonight, at 7:30 in clubroom 2 Winnett. All persons interested in getting on the racing team should attend. Sailing this weekend will be discussed.

SABIN VACCINE TO BE GIVEN

The Oral Sabin Vaccine Type II will be available to all students, faculty, employees and dependents, who have not formerly received it, at the Health Center on Jan. 15 between 10 and noon and also between 1 and 5 in the afternoon.

PLANE CHARTER TO BE ORGANIZED

Students who are interested in attempting to organize a group fare plane trip to Europe and return this summer should contact either Richard Karp or Dimitri Papanastassiou in Ruddock House as soon as possible. Group fares are about 25% reduced from regular trans-Atlantic fares.

CONCERT RE-SCHEDULED

The Marie Gibson concert scheduled for yesterday was canceled because of her illness. The Concert will be held instead next Wednesday at 11 a.m. in Dabney Lounge.

Editorials

Sports at Tech Exciting?

supposed that not many people come to Caltech for athletic

This is not to say that all of Caltech's athletic achievements have been nil. Caltech has produced good — even league winning - teams in such sports as water polo, swimming, tenis, and soccer in just the past few years.

Caltech has even had exciting moments in its sports hisotry. One of these was the Caltech-Cal Lutheran basketball game just last term in which Caltech won 71-70 in the last two seconds of the second overtime period. exciting we have seen in some time.

Student attendance at the game — and faculty attendance as well - left much to be desired. We hate to sound as if we are making the old school spirit pitch, so we will try another angle. Basketball this year has all the prospects of being exciting and we feel that Caltech basketball games will be no exception. The team can be and probably will be both exciting and enjoyable to watch.

And not just for students, either. We are sure that Coach Preisler would agree with us when we cordially invite the faculty too. It may be corny, but the faculty can set an example.

> -Richard Karp J. C. Simpson

Rotate!

When the new Houses were opened, three years ago, rotoation was "temporarily" discontinued because there were no immediate solutions to the problems presented by the addition of three new Houses. At the same time, however, it was decided to review rotation in the next year or two and to reestablish it, if desired, when the problems were solved.

A majority of the faculty at the time was, and seems to be still, opposed to rotation. Each year when the subject is raised, they have skillfully managed to postpone the discussion until the following year, despite considerable evidence from the student body in favor of rotation. The IHC has been, at best, apathetic, and has offered only token (if any) real resistance.

Since the suspension several plans have been proposed to solve the problem created by the new Houses, and polls have indicated that a majority of the students seem to be in favor of rotation. It is time now for the faculty committee on Student Houses to make good on past intentions, and to conduct a serious investigation of the rotation question. This investigation should include a unified poll of the Student House residents, and, if they are in favor, rotation should be reinstituted next year, without further delay. Each time the rotation issue is allowed to ride another year, the chances that it will ever be reinstituted are greatly diminished, and soon it will be a lost cause. We need action now.

J. C. Simpson Richard Karp

CaliforniaTech

Editors-in-Chief Richard Karp, J. C. Simpson

Managing Editor Alan Hindmarsh

News Staff

Buzz Bernstein, Clem Chase, Walt Deal, Don Green, Ken Kimball, Walty Oliver, Dave Price

Feature Staff

Gene Fellner, editor Craig Murphy, Fletch Murphy, Rodger Whitlock

Make-up Staff

Grant Blackinton, Don Burtis, Jim Hole, Gerry Steiner

Sports Staff

Thor Hanson, Editor Steve Blumsack, Dennis Holt, Dave Ollis, Hal Petrie, Paul Rushin, Jim Sagawa

Business Staff

Lee Molho, Manager Circulation: Howard Monell

California Tech, 1201 East California Blvd., Pasadena, California.
Member of The Associated Collegiate Press
Second Class postage paid at Pasadena, California
Printed by Bickley Printing Co.
Represented nationally by National Advertising Service, Inc.
Subscriptions: \$1.00 per term, \$3.00 per year. Write: Circulation Manager.

FRENCH RUSSIAN

SPANISH ITALIAN

GERMAN **JAPANESE**

THE BERLITZ SCHOOL OF LANGUAGES

PASADENA, 170 SOUTH LAKE AVE., SYcamore 5-5888 PRIVATE INSTRUCTION

SMALL CLASSES STARTING NOW

Day or Evening Native Teachers

Free Trial Lessons

Szilard Cancels, Junior Travel Prize **New Groups Set**

Dr. Leo Szilard has notified the Y that he will be unable to participate in this year's Leaders of Amereica program. Szilard was scheduled to be on campus January 15 through 17, Dr. David Riesman (The Lonely Crowd) is now the next slated Leader, due here May 7.

The Y is presently planning a program to aid bright Negroes in sixth grade science projects. Plans are also being made for a series of six discussion meetings with some of the L.A. area's outstanding Negro leaders,

On March 28 the Yale Russian Chorus will sing at Caltech. Two days before this, Yale's Chaplain, William Sloan Coffin, will speak here. Coffin was one of the group of clergymen that went on a freedom ride into the South last

L. A. Philharmonic Offers Discounts

The Southern California Symphony Association, sponsors of the L. A. Philharmonic Orchestra, is offering courtesy tickets to Techmen for several concerts. Tickets are available at the Book Store. These can be presented with \$1.00 at the Philharmonic box office, in return for standard admission tickets. Concerts are given at Philharmonic Auditorium, 427 West 5th Street, in downtown Los Angeles.

Plaut Visits Europe; Studies School Buildings

Editor's Note: Each year Caltech awards Travel Prizes to two or three juniors. These prizes, paid for by DuPont, enable the recipients to spend a summer of tavel abroad with all expenses paid. Approximately the top 25 juniors, scholastically, are eligible each year, and those desiring to compete for the money must submit a project dealing with a specific interest of theirs which will give a purpose to their travel. One of last year's winners was Ray Plaut. His project was "Modern School Architecture in Europe", and he relates here some of the interesting experiences that he had last summer and some of his findings.

Two days after leaving Los Angeles I found myself in Rotterdam, being kept awake at 1 a.m. by the landlady's teenage daughter's radio blaring "It's Now or Never" by Elvis Presley. The third day I discovered a 80-foot-high steel structure in a Rotterdam park embossed with a second-order non-linear differ-

 $m(\cos t) - g Z (\sin t) - T (t')$ - f (t) - c w t(t't') =0 followed by the expression "To will is to do." The fourth day I found windmills with their vanes torn off, power being provided by diesel engines hidden inside. The fifth day I found myself in the Amsterdam Modern Art Museum trying to derive some significance from a stuffed yak with an automobile tire around its stomach. The sixth day I wandered around Amsterdam dodging some of the seven million bicycles owned and madly driven by the seven million inhabitants of Holland. The seventh day I discovered tetrahedral milk cartons. The eighth day I found myself in northern Holland at the home of my uncle, who happens to be the identical twin of my father. Despite having not seen each other for 25 years, they look exactly alike, except that they could easily make an ad for Vic Tanny with my father the "Before" and my uncle the "After". This is because the American drives a car while the Dutchman rides a bicycle.

Speeding in Sweden

After losing a Scrabble game (in English) to my 15-year-old Dutch cousin, I trudged north through Denmark to Sweden, where the people drive on the left side of the road. Considering the wage scales, a Swede must pay the equivalent of \$1.60-pergallon for gasoline. Also, when he gets a ticket for speeding he must pay one day's salary for each kilometer-per-hour that he was going in excess of the speed limit! From this driver's paradise I travelled south into Germany and to my most interesting adventure — a day in East Berlin.

Behind The Wall

The train ride through East Germany to Berlin took about five hours. East German soldiers (Continued on page 3)

OFFICE MOVES

Following is a list of office re-locations and telephone extension change that have recently occurred:

Office	From	To Presen	t Ext.
Addressograph	5 Throop	25 Throop	212
Alumni & Placemts.	114-16 Throop	22-24 Throop	256-59
Development	T-4	10 Throop	362
IBM	218 Throop	302 Throop	284
Industrial Relations	Culbertson	383 S. Hill Ave.	741
Mail Room	109 Throop	23 Throop	337
News Bureau	14 Throop	4 Throop	213-16
YMCA	Central Receiv'g Bldg.	Winnett Centr.	555
ASCIT	Lower Fleming	Winnett Centr.	553
Big T	Lower Fleming	Winnett Centr.	554
Tech	Lower Fleming	Winnett Centr.	554
Barber Shop	T-4	Winnett Centr.	548
Bookstore	Throop	Winnett Centr.	545

ENGINEERING OPPORTUNITIES

for Seniors and Graduates in MECHANICAL,

AERONAUTICAL, CHEMICAL, ELECTRICAL, NUCLEAR, and METALLURGICAL **ENGINEERING**

ENGINEERING MECHANICS **APPLIED MATHEMATICS** PHYSICS and **ENGINEERING PHYSICS**

CAMPUS INTERVIEWS

WED. & THURS., JAN. 16, 17

Appointments should be made in advance through your College Placement Office

Pratt & Whitney Aircraft

An Equal Opportunity Employer

SPECIALISTS IN <u>POWER</u>... POWER FOR PROPULSION—POWER FOR AUXILIARY SYSTEMS.
CURRENT UTILIZATIONS INCLUDE AIRCRAFT, MISSILES, SPACE VEHICLES, MARINE AND INDUSTRIAL APPLICATIONS.

Travel In Europe

(Continued from page 1)

with machine guns watched the train at each station along the way. Also noticeable was the fact that signs were printed in German and Russian. At the West Berlin youth hostel I met three other students (a Norwegian, a German, and an Ohioan), and we decided to take a walk into East Berlin and see what it was like. After 45 minutes of red tape at Checkpoint Charlie we were allowed past The Wall (which Walter Ulbricht says was built to keep imperialist spies out of East Berlin). We spent six hours walking through nearly-deserted streets, seeing many buildings still not rebuilt after being bombed in World War II, observing armed soldiers all along The Wall waiting for any escape attempt. Watching The Wall being repaired where a truck with refugees had crashed through the day before, learning of "The Downfall of American Imperialism" from an exhibition of Russian cartoons, and visiting East Berlin's Museum of German History with its version of the past - how Russia has been a great friend of Germany since 1917, how Hitler was an enemy of the German people, and how America is now the enemy of all good Germans and Russians. The display included an article from a New York newspaper of June 23, 1941 (the day after Germany invaded Russia), which read: "Senator Truman today said that the United States should support whichever side was losing. In this way, he said, the greatest numbr of these people would be killed."

Leaving East Berlin

After having seen enough, we started back toward the crossing point. As we were approaching The Wall from the East Berlin side, the clouds let forth a driving rain. We found ourselves in quite a predicament, for the nearest shelter was The Wall and we couldn't run to it for fear the guard would think we were East Berliners attempting an escape. So we were forced to walk slowly, thereby getting ourselves drenched.

The major problem for the people of East Berlin and East Germany is the shortage of available food. Many families have plenty of money with which to buy food, but they cannot obtain as much as they want. I was told that the government exports much of its crops and food supply (including the best portion of it) in return for military equipment and other goods. Each family is then only allowed to

Waves Found

(Continued from page 1)

waves. As the speed of the object increases, it eventually catches and passes its magnetic wake. The wave velocity depends on the magnetic field strength and the density of the fluid. In Ahlstrom's experiments, the wave velocity was about 20 feet per second. In a plasma like the ionosphere the velocity can reach much higher values,

Propagation of these waves in an intricate apparatus called a magneto fluid dynamic tow tank is part of a program in the comparatively new field of magnetofluid dynamics being conducted by Dr. Hans W. Liepmann, professor of aeronautics.

"Greater understanding of this field may result in its application in producing electricity, in the control of nuclear fusion and plasmas," Liepmann explained. "It also may be useful in propelling and controlling missile flights, as well as in controlling re-entry-type heating."

buy a limited amount of food.

German Beer and Austria

After visiting some beer halls, with over 1,000 Germans sitting in a single room drinking liters of beer and smoking cigars, and after viewing an American western on TV with the Texas Rangers speaking German, I decided to go to Linz, Austria. I found out that after the war Linz was a divided city, similar to Berlin but with semi-free access between zones. A special pass was needed to get into the Russian zone, while the Americans required everyone entering their side of the city to be sprayed with dichloro-diphenyl-trichloroethane (DDT). I reached Vienna after a lovely boat ride down the dirty Danube. Wandering into a record shop, I found a stack of records under the title "New Hits from the U.S.A." Included were "There's a Ghost at your Wedding" by Roberta Sherwood, and Sheb Wooley's "Santa and the Purple People-Eater." Anyway, from Austria I traveled to Monaco, France, Spain (where a streetcar ride costs 1.7 cents), and Great Britain, before returning (after 98 days, \$1,430, and 250 photographs) to the hallowed halls of the noble C.I.T.

School Architecture?

As far as my project was concerened, I visited 28 schools, and (Continued on page 5)

Reason Women Lack, Told To Curious Tech

A question which appears periodically about Tech is why there are no women in the undergraduate student body and why the school has no plan or provisions to admit them in the future.

What most students do not realize is that the Institute actually considered admitting women undergraduates several years ago and at that time did a considerable amount of research on the subject. The major sources for this study were the MIT records, which MIT opened completely to Tech for the research they were conducting. MIT was chosen because it is probably the most comparable school to Caltech in the United States.

An Mrs. Degree?

The study revealed that a large percentage of women who received their undergraduate degrees got married soon afterwards and did not pursue a career related to their degrees. (Contined on page 4)

back

BY JON KING

It is, of course, New Years Eve, or more precisely, New Year's morning. Or mourning. Not a pun, but a premonition, for the number, the pure number one nine six three, hints of veiled misfortune. Or so it seems to me. For the next twelve months I am destined to be vaguely uncomfortable. An entire year of diffuse, ill-defined, discomfort.

Lost But Good

The main problem: I am searching for an in-group. In New York they said: Get into the in-group. But I cannot find an in-group. There is no ingroup. Neither the sailing club, nor the 2:00 a.m. ping pong players, nor the jocks in Marks house form an in-group. Come unto me all ye outcasts and seekers after the inner being . . . and we will form an outgroup.

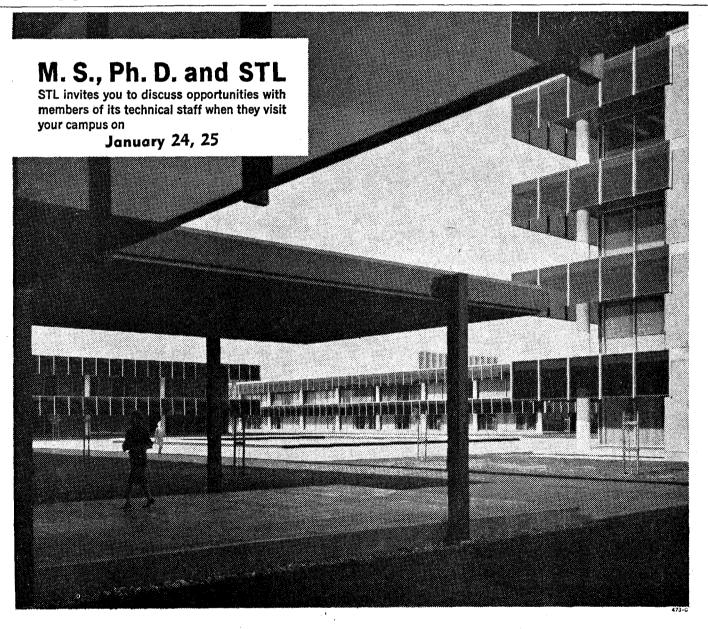
Paul Purdom, after reading the above two paragraphs, has just strongly suggested that I rid myself of any literary illusions and stick to the trivial,

row-minded subject matter that, he says, Caltech students are intrigued by. Aux armes, cito-

The guy next to me says Sartre doesn't believe in insanity. But Sartre will be dead soon. And so will we. Sartre was at Bob Hickling's Ph.D. party (in spirit). Great Party. Swinging Scotsman. he (Bob). Scincillating. Delightful Accent. Once told me where Lochinvar swam the Esk river, Colorful guy, colorful party.

Back To Reality

INA party, Friday night. Right across the street, Winnett Center. 50c. Forget ties, forget jackets. Just bring body. And some spirit. And try to leave behind as much inhibition as you can shake off. I know its tough but try. A little wildness is good for the soul. By the way, there won't be any liquor so try to get loaded beforehand. Large numbers of pulchritudinous young females have been lured from the surrounding countryside. Gentlemundane, miniscule, and nar-men, live up to the challenge.



M.S. and Ph.D. graduates will find room to expand at STL's new ultra-modern Space Technology Center, Redondo Beach, California, near Los Angeles International Airport.

Here, in an environment conducive to expanding your special interests, you will find thought provoking problems requiring the optimum of your talents. And, while associating with recognized authorities in your field, you will have the opportunity to see developed products of your endeavors in such vital space programs as OGO (NASA's Orbiting Geophysical Observatory), and in Titan and Minuteman ballistic missile programs.

If you are searching for space to expand your ideas, theories and thoughts, in a campus-like atmosphere, we invite you to investigate the technical specialties listed below: There is creative space for you at STL. Theoretical Physics • Systems Engineering • Radar Systems • Experimental Physics • Applied Mathematics • Space Communications • Antennas and Microwaves • Inertial Guidance • Analog Computers • Solid State Physics • Computer Design • Telecommunications • Space Physics • Digital Computers • Guidance & Navigation • Electro-mechanical Devices • Engineering Mechanics • Applied Aerodynamics • Propulsion Systems.

Please make arrangements with your Placement Office for interview appointment. Or you may write to: College Relations, Space Technology Laboratories, Inc., One Space Park, Redondo Beach, California. STL is an equal opportunity employer.



More Women

(Continued from page 3)

In view of the fact that a large majority of technical ducation is subsidized by outside sources, such as endowments, gifts, government contracts, etc., it was felt that this money was wasted in the case of a person who did not pursue a technical career after receiving this education. Because of the large proportion of women who did "waste" their education and these resources, it was felt that it would be wiser to restrict enrollment to Caltech to men, who almost invariably pursue their technical careers.

Two other points were also cosidered in the decision. One of these is related to the economic reason given above and considers that a woman who gets a degree and doesn't use it is depriving a man, who would use it, of the opportunity to have this education. The other reason took into account the ratio of women to men at MIT, and found that if women were admitted there would be only about ten or so in the undergraduate student body. This would mean new housing requirements, and considerable changes in school policies, facilities, and expenses which would not be worthwhile for the small

Y Dinner Forum

(Continued from page 1) future career potential.

Besides the panel discussion there will be ample opportunity for questions, comments and discussion from the audience, and everyone will have a chance to air his own distinct gripes about the evil inherent in Tech's grades. The forum will begin with dinner in Chandler at 6:30 p.m., next Wednesday, and the discussion will follow.

Debating Results

(Continued from page 1) oraneous speaking, and an excellent in interpretation. Close behind are David Close and Sean Solomon. Other members of the team include Roger Davisson, Gary Scott, and Bill Tyler.

The schedule for second term includes tournaments at Pomona, San Francisco State; Long Beach State; San Fernando Valley State; Claremont; and the National Pi Kappa Delta Tournament at Carbondale, Illinois, in March.

number of women.

The same study showed that women in graduate work generally used their education in pursuit of careers, and it was decided to continue admitting them into the graduate school.



—photo by Robert Jeffry Caltech graphic arts

Above photograph, chosen as symbolic of the "Graphic Arts Showcase- '63" display in Winnett Center until tomorrow proves wrong anyone who claims that photography is not an art.



How to make your mark in the world

It's not easy in college. And it's not easy outside where what you know is getting more important all the time. But lots of people who have made it will tell you it's a lot easier when you start out with The New York Times Western Edition.

This outstanding newspaper is filled with news and ideas you can use all day long. Profit from clearly written stories of government and politics, science and industry. Enjoy colorfully told stories of sports, books, music, theater, all the arts. Pep up your talk with much more information (and much more insight) on every conceivable timely topic.

Whatever your goals, make the journey easier and more fun. Make your daily paper The New York Times Western Edition. It's now available to you on campus the day it's published—for only 10¢ a copy. See your representative today to arrange a convenient campus subscription.

> Available at Bookstore See Mrs. Green for Semester Rates.



As recipient of the award for the TFX, General Dynamics/ Fort Worth continues to pioneer technological development in the Southwest. The TFX is a bi-service (Air Force and Navy) aircraft with many unique engineering characteristics. Its development will afford excellent engineering opportunities to qualified engineers and scientists. To take advantage of these opportunities, contact your Placement Director to determine when a GD/FW representative will be on campus, or write Mr. J. B. Ellis, Industrial Relations Administrator-Engineering, General Dynamics/Fort Worth, P. O. Box 748, Fort Worth, Texas. An equal opportunity employer.



From Other Campuses by Richard Karp

Student Association (known as NSA) is a national organization formed by the Student Bodies of many colleges throughout the country. There has been much controversy at schools all over the nation about one simple question: Shall we join the NSA?

Politically, NSA is a more-orless liberal organization. It appears to share its liberal (as opposed to conservative, I mean) viewpoint with COSEC, the free world's overseas student organization. The organization of NSA is very interesting, and has been the cause of many anti-NSA arguments. NSA has a national convention each year, and opinions expressed by delegates become the stand of NSA. However. throughout the remainder of the year a committee made up of only a few schools may make policy decisions that are as binding on NSA as decisions made by the convention. Thus, in reality, only a small group of schools retains effectual control of NSA.

NSA at Tufts

Tufts University in Massachusetts is one of the schools that has been considering NSA. On December 7, 1962, the Tufts Weekly wrote a pro-NSA editorial challenged the students "Are we willing to meet the challenge that has been made to us, that boldly tells us we must fight or succumb, or are we going to avoid our responsibilities to action in a democracy?" The editorial faces three letters on the NSA question: two against and one for. The December 12 Weekly includes a letter from a junior: "According to your editorial last week, it costs 20 cents per student to join the National Student Association.

"It also costs, I note, \$2.50 a year to subscribe to the Tufts Weekly.

"Could it be that the Weekly is a bigger gyp than NSA?"

The count on letters about NSA is three against, one for.

The final result of the NSA issue appears in the December 14 Weekly. The National Student Association was rejected at Tufts by a vote of 863-329, over two to one against.

SAGA at Rice

The Rice Thresher for December 12, 1962, has a brief editorial which we print in its entirety below. Any similarity to existing campus organizations is, ahem!, coincidental.

"Mystery Meat Again".

"The Food Service. Ah, yes, the Food Service.

"We who are about to die salute you.'

Broken Heads

Nuclear testing may all be very well, but the MIT Tech for December 12, 1962, reports on another kind of testing.

"A bomb completely demolished a toilet bowl in a Burton House lavatory last Saturday night . . .

"The explosion, which occured at 10:30 p.m., reduced one toilet bowl, located in the third wing of Burton's first floor, to shrapnel-like chunks of porcelain . . .'

Two members of the House Judcom (judicial committee) discovered the bomb and called the campus police. Soon afterwards a witness appeared and noted that the bomb smelled like a carbon dioxide bomb. The bomb was analyzed to be a carbon dioxide type bomb, and the Judcom members recalled the comment of the witness who had by now left.

"Acting on a hunch, one of the members of the judicial com-

The United States National mittee went over to the Delta Kappa Epsilon fraternity house next door and noticed the same witness, apparently drunk, who now gave a different name (his true identity is still unknownhe is not a Deke, however). The witness and several others were drinking beer from waxed paper

> More witnesses appeared, and eventually one individual confessed to the incident. All that was left by Sunday morning was a toilet stall with some plumbing and a wastebasket in it.

Integration at Tulane

cups."

Federal District Judge Frank B. Ellis has ruled that Tulane University in New Orleans is a private institution "... and that, as such, it cannot be compelled under the Fourteenth Amendment to admit Negro students.

"Judge Ellis declared that 'state action or involvement in the affairs of the Tulane Board is not so significant that . . . the actions of the Tulane Board are

(Continued on page 6)

View School Bldg.

(Continued from page 3)

half as many architects, throughout Europe. Most of the modern schools I saw were of excellent design (which was logical, since they had been picked as the bestdeisgned schools in Europe). I especially liked the bright colors and imagination used in the lower-grade schools. The design of each school was largely dependent upon the climate, the available materials, the site, and the country in which the school was located. In Sweden, for example, the architects are hampered by a large number of restrictions. They are told the exact number of square centimeters to be given each room.

getting good school design was that of Austria, where a competition is held to select the architect for each proposed school. About 50-60 architects submit preliminary plans with the contract going to the best one. Although the selection committee is often somewhat conservative in its decision, it is very rare that a new Austrian school will have a poor design. Each school has its individuality, since the

The best system I found for architect designs all the details, such as furniture and lighting fixtures. The English system is quite different, being based on standardization. Most English schools are designed by city or county architectural departments. This method saves money for the British taxpayers. Despite all the uniformity, though, there are a great number of excellent schools, architecturally, in England. In the other coun-

(Continued on page 6)

UNITARIAN PUBLIC FORUM The Distinguished English Writer Jessica Mitford

Speaks On "POLITICAL CENSORSHIP IN AMERICAN MASS MEDIA"
Friday, January 11 - 8 p.m.
First Unitarian Church, 2936 West 8th Street, Los Angeles Donation \$1.00

Fine Liquors Keg Beer on Ice Party Supplies Delicatessen Gift Shop Pharmacy Toys Stationery Cosmetics Children's Wear



Diners' Club American Express S&H Green Stamps

Bankamericard personal credit cards on application 2450 North Lake Ave. Altadena

SY. 7-1163, MU. 1-9542

8:30 a.m.-9 p.m. daily 10 a.m.-6 p.m. Sunday

Free Delivery Always

THE BELL TELEPHONE COMPANIES **SALUTE: BOB DICIOCCIO**

Bob DiCioccio (B.S.M.E., 1956) handles microwave transmission projects for Pacific Telephone in San Diego. Bob's job is to select and test sites, prepare plans and specs, obtain cost estimates, let bids, and supervise construction and installation of equipment. An important responsibility for a man with the company less than a year.

Bob proved his engineering ability early when he solved

a tough problem concerning spring relay stress tension. A report of his findings won praise for its thoroughness and sound recommendations.

Bob DiCioccio and other young engineers like him in Bell Telephone Companies throughout the country help bring the finest communications service in the world to the homes and businesses of a growing America.



BELL TELEPHONE COMPANIES



Hoopsters Lose Three Road Tilts

BY THOR HANSON

After winning the first three games of the season Caltech turned around and lost their last three contests. Last Saturday night the Beavers were dumped by the University of California at Riverside 71-52, on the winner's court. Following the end of last term the basketballers traveled to San Diego and dropped a pair to the Naval Training Center and Cal Western by the scores of 83-65 and 70-43, respectively.

The hoopsters had only a week of practice following vacation and the effects were clearly noticed in the UC Riverside game as Tech was well off its usual form. In the free throw department, the Beavers could connect for only fourteen of thirty seven for a very poor .378 percentage. Although the locals worked thee ball well, they missed a number of easy shots. At the half the Techmen were down, 37-17, but fought back to play even ball during the second

Eells Reveals

(Continued from page 1) people tend to come too late for counseling.

In answer to an inquiry on the peculiarities of Caltech students, Eells said that science and engineering students generally are less emotional. He said, "basically Caltech students are human beings." He finds that the students that see him are a general cross section of the student body with equal representation of all the undergraduate and graduate classes as well as a proportional distribution of GPA's. However the kind of problems vary. Freshmen worry mainly about flunking out, while in the sophomore year some people begin to wonder whether science is for them. Eells stated that in the junior and senior year some have troubles with grades because of an apprehension of entering the world. He commented that students who feel they have problems should see him.

Sorry Road Trip

Coach Ed Priesler's men played well against the Naval Training Center, but the sailors with a forward line averaging 6' 51/2" were able to completely dominate the offensive and defensive boards. Dick Burgess played outstanding ball for the losers in scoring twenty seven points.

Cal Western was tight on defense as they allowed only 43 points while their offense sparked to give the victors 70 points. In the second half Tech closed the gap to seven points but a last quarter surge by the Cal Western gave them an easy victory.

The team rooster was reduced to only nine members last week as Mike Perlman severely sprained his ankle during vacation and sophomore Roger Korus was forced to drop from the

Burgess is the leading scorer on the team with 99 points in six games for a fine 161/2 points a game average. This weekend the Beavers travel to Cal Lutheran on Friday night and Biola on Saturday night for two nonconference tilts.

IHC Sponsors Coffee Hours

Every Wednesday this term, the IHC will sponsor a coffee hour from three to four p.m. in the Winnett Center Lounge. The hours, an extension of the program started last term, are intended to build non-academic bonds between the faculty and the student body over coffee and doughnuts.

Thus far the response has been numerically adequate, but since the same people have been making up the attendance each time, the IHC recommends that students invite personally any favorite faculty members they wish. The IHC also suggests that faculty members come to the coffee hour rather than going to Chandler for their afternoon

The Critical Ear

rickerman

BY RICKERMAN

A recent arrival on the record company scene is a small company in Chicago called Philips Records, Inc. Folk records being the best sellers that they are, it is not surprising that one of their first releases is The World of Frank and Valucha (PHM-200-058 monaural-PHS 600-058 stereo). The record is obviously for folk music buffs and will probably disappoint the more casual listener. Frank (Frank Hamilton; friend to Guy Carawan) and Valucha sing fourteen songs on the record, only two of which are in English. The accent is heavy on Brazilian music (Valucha is Brazilian) and although the singing is good, I am sorry that I cannot understand just what they are singing about. This is why I would suggest that one try to hear this record before he buys, it.

One of my own feelings of long standing is that foreign worded songs would be more

meaningful if they were accompanied with a "libretto" in English, something like they do for the opera recordings.

Bach Concertos

Another recording of the Brandenburg Concertos (Bach) is out, a two disk set by Otto Klemperer and the Philharmonia Orchestra (Angel 3627 B monaural-S 3627 B stereo). Klemper has done a truly magnificent job in his recording and the fully sounding, rich performance is very beautiful throughout. The Philharmonia plays well together, the sound being very well integrated.

In past reviews I have neglected to make mention of the (Continued on Page 7)

Charmack the Magician P. O. Box 118 New York 9, New York

tiffs are not entitled to relief'".

the actions of the State of Lousiana. To this extent, the plain-

(Continued from Page 5)

Other Campuses

Thus noted the Tulane Hullabaloo in a special edition. The next edition of the Hullabaloo announced that now that Tulane was not forced to integrate, it would integrate voluntarily.

View School Bldg.

(Continued from page 5) tries I visited, as in the United States, contracts are assigned to private architectural firms. The schools which impressed me most were those I saw in Denmark and Switzerland. In general, the level of school design in Europe is quite high, providing a good physical environment for the education of future generations.

welcome to the Campus Barber Shop

in Winnett Center

all haircuts \$1.75

Three Barbers to Serve You

8 to 5:30 Monday - Friday Paul A. Harmon



Graduating Ph.D's, MS's, BSEE's

Exceptional opportunities with

YLVANIA

near

SAN FRANCISCO

Sylvania Mountain View, 40 minutes south of San Francisco. offers you challenging scientific work on defense systems, plus ideal living conditions.

The work involves systems studies, design and development in frequency ranges from DC to daylight; it offers growth into scientific or management positions of responsibility.

Immediate openings exist in the following fields:

Operations Research Systems Analysis, Design Design and Development of: Antennas, Receivers, Transmitters. Transceivers, Servos **Analog Computers** Mechanical Design Field Engineering

Sophisticated San Francisco's theatres, restaurants and major league sports are minutes away. The Pacific Ocean is near; hunting, fishing and skiing 3 hours' drive.

Furthering your education? Sylvania encourages, sponsors graduate study at Stanford and other nearby institutions.

See your Placement Officer now to talk with Sylvania's representative

ON CAMPUS, JANUARY 21



Write in confidence to J.C. Richards SYLVANIA ELECTRONIC SYSTEMS • WEST Box #188 • Mountain View, California An Equal Opportunity Employer



MACHINERY, CHEMICALS, DEFENSE OPERATIONS. RESEARCH AND DEVELOPMENT

Senior and graduate students in chemical, mechanical, or electrical engineering will want to talk over career opportunities at FMC Corporation*. Appointments should be made today with the college placement office for individual interviews with company representatives who will be on campus January 16, 1963.

FMC Corporation's dynamic growth and diversification offers challenging and rewarding careers in a wide range of engineering specialties. The important first step is to make arrangements now for a FMC career facts interview.

*Formerly Food Machinery and Chemical Corporation









Putting Ideas to Work in Machinery, Chemicals, Defense

Palatable Fantasy Collection

BY RODGER WHITLOCK

Although most Techmen are somewhat partial to science fiction, relatively few of them pay any amount of attention to SF's close relative, fantasy.

Recently, the paperback publishers have been reprinting many of the early classics in both fields, thus making available to our generation works which have been out of print since our parents read them. One of the best reprints I have read, although not exactly one our parents read, is Jack Vance's Dying Earth. (Lancer, #74-807, 75c.) Masquerading as a novel on the cover, this little volume is actually a collection of six short fantasy stories originally published in 1950.

Theme of the Stories

The underlying theme of all six is life on Earth so far in the future that magic has supplanted science, even mathematics has been forgotten, and one of the greatest endeavors being pursued is its reconstruction. The first three stories are linked by common characters — Turjan, a sorcerer of great skill who is seeking the successful creation of human life in his "vats"; Pandelume, an even greater sorcerer, attempting the reconstruction of mathematics, and successful in the creation of life; T'sais, Pandelume's flawed, but beautiful vat-created woman. and T'sain, her flawless twin. oreated by Turjan under the guidance of Pandelume. The first story is that of Turjan seeking

SUCCESSFUL STUDENTS

LINCOLN LABORATORY

has openings for a limited number of engineers, physicists and mathematicians in original research and development activities.

LINCOLN LABORATORY

is an electronics research and development center established by M.I.T. in 1951.

OUR REPRESENTATIVE WILL BE ON CAMPUS January 18 CONTACT YOUR PLACEMENT OFFICE NOW

Research and Development

LINCOLN LABORATORY

Massachusetts Institute of Technology



BOX 21 · LEXINGTON 73 MASSACHUSETTS

out Pandelume, and his creation of T'sain; the second is the account of an incident in the life of Turjan, resulting in his eventual rescue from a rival magician by T'sain. In the third, attention is focused on the flawed T'sais, who sees only ugliness in beauty, only evil in good, and on her struggle for and eventual attainment of the ability to

see and understand that which is good and beautiful. Later Stories

The fourth story, "Liane the Wayfarer," is a classic short story about homesickness of the deepest type, the climax coming only on the last page. Of the $\ensuremath{\text{six}}$ in the collection, this and the preceding story are probably the highlights. In the last two tales, the atmosphere changes to one more like modern science fiction; in fact, they are based on the rediscovery of a past which could well be based on today's prophetic fiction. For those readers inclined more to SF than to fantasy, these are probably the two

(Continued on page 8)

'Dying Earth' Shown To Be Students Strike Back At Discriminatory Fraternities

BY J. C. SIMPSON

Restrictive membership clauses in fraternity by-laws have recently become a point of national controversy. Papers received in the last few weeks by the Tech alone contained descriptions of battles raging in at least six schools involving seven national fraternities and twelve of their local chapters.

The biggest fraternity offender seems to be Sigma Nu which has encountered trouble in at least four universities. The Stanford chapter, Beta Chi, and the chapter at Connecticut Wesleyan have withdrawn after an attempt at the summer convention (sponsored by the Stanford and Brown University chapters) to abolish the discriminatory clauses failed to pass. The chapter at Tufts University in Massachusetts will probably be thrown out of the Tufts Inter-Fraternity Council because of its failure to take action before the IFC-set deadline. The chapter at Colgate University, faced

with concerted university pressure, has obtained a probable waiver of clause on a local basis from the national fraternity.

The reactions against Sigma Nu are typical of actions being taken throughout the country by concerned student bodies, IFC's, and administrations. Faced with this concerted pressure, many national fraternities are giving local chapters the right to abolish discriminatory clauses at their universities, Fraternity locals in many universities which are not able to obtain this privilege from their national by some pre-set deadline are now faced with withdrawal of recognition by either the school administration or their IFC, and the absence of such an enforced deadline is the most common grounds for refusal of a national to grant autonomy or a waiver to one of its locals. Many of the locals, however, which have not received waivers have chosen or are presently considring withdrawing from the national and

The Critical Ear

(Continued from page 6) channel separation on the stereo versions. The Angel recording by Mr. Klemperer is well separated and the orchestra does not sound "doctored" for stereo. This is traditionally true of Angel, London, Westminster, Mercury (although they are always recorded too heavily), and Columbia (mostly). Some of the Victor and a lot of the smaller companies are going into a doctoring fit to try and sell records to victims of "bargain stereo" sets. The Philips recording has not been heard in stereo, so I have no

Next week I will have a longer review on a classical work and possibly a musical comedy.

incorporating as independent local Fraternities. In most cases they are given full support in such action by their school universities.

Other Withdrawals

word on that one.

Besides the recent withdrawal of the Sigma Nu chapter at Stanford, the school's chapter of Alpha Tau Omega had its charter revoked by the national in 1960 for pledging four Jews, and the

(Continued on page 8)



SCIENTISTS, ENGINEERS—GIVE YOUR FUTURE A FINAL EXAM

answer to your future. AC Spark Plug, the Electronics Division of General Motors, is one of the leaders in the field of design, development and production of Inertial Guidance and Navigation Systems. Current projects include the APOLLO Navigation-Guidance System, TITAN II and THOR Inertial Guidance Systems, B-52 (C&D) Bombing Navigational System, POLARIS gyros and accelerometers.

Challenging projects are available in Milwaukee, Los Angeles and Boston for MS and PhD candidates with interests and academic backgrounds in the inertial guidance-navigation field.

Milwaukee-Recent technical graduates joining AC are offered a 32-week Career Acceleration Program which moves them rapidly into an actively productive position. The two-phase program consists of:

PHASE I... Eight weeks of formal engineering classes in the areas of: Servo-Mechanisms • Semi-Conductor Technology • Theory of Inertial Guidance • Related Inertial Navigation Topics.

PHASE II . . . Actual work in the organization's three main technical areas: Engineering . Reliability . Operations. Following this training period you will be reassigned to

AC SPARK PLUG 🚓 THE ELECTRONICS DIVISION OF GENERAL MOTORS MILWAUKEE . LOS ANGELES . BOSTON . FLINT . An Equal Opportunity Employer

Put AC to the test, and you'll come up with the right your original department in Design, Development, Manufacturing or Reliability.

Boston-Advanced Concepts Research and Development On-the-Job Training Program—AC's Boston Laboratory is engaged in development of navigational systems for manned aircraft, ballistic missiles, and space vehicles.

Los Angeles-Advanced Concepts Research and Development On-the-Job Training Program—AC's Los Angeles Laboratory is occupied with advanced guidance research for space vehicles and ballistic missiles, plus research in special purpose digital computers.

CONTACT your College Placement Officer regarding a General Motors-AC campus interview, and send for the informative brochure, "At AC, Navigation is Our

For your Free copy of "AT AC, NAVIGATION IS OUR BUSINESS" fill out coupon and send to: Mr. G. F. Raasch Dept. 5753, AC Spark Plug Division Milwaukee 1, Wisconsin NAME STREET CITY AND STATE SCHOOL DEGREE AVAILABILITY DATE	
--	--

ON CAMPUS INTERVIEWS-TUESDAY & WEDNESDAY-JANUARY 15 & 16, 1963

Frats Watched

(Continued from page 7)

local chapter of Kappa Alpha is now considering what action it should take.

Tufts' IFC has set a deadline for removal of restrictive clauses which will probably result in the exclusion of local chapters of Sigma Nu and ATO from the IFC. Two fraternities at Colgate, Lambda Chi Alpha and Sigma Nu, have been given waivers, but two others, Phi Gamma Delta and Phi Delta Theta have had their petitions denied.

Perhaps the most notorious incident, however, occurred at Swarthmore College in Pennsylvania, where the local chapter of Kappa Alpha fraternity had its chapter suspended for "attempting to defy basic principles of the fraternity and poor scholarship." This action came after the local's attempt to arrange a change in the national's present "gentlemen's agreement" policy of excluding non-whites and Jews. The local at present has three Jewish members and was planning to go local in the near future anyway. The scholarship reason is rather dubious as the Swarthmore chapter's average is above that of many locals at other colleges and the fact that if received a letter from the national last year congratulating it on achieving an average below the one it now has. The chapter has made no definite plans, but will probably go local as soon as possible. It is extremely unlikely that it will rejoin Kappa Alpha.

PKD Honorary Elects Officers

Gary Scott (Blacker), sophomore, was elected president for the current school year of the Caltech chapter of Pi Kappa Delta, national honorary forensic organization. Named vice president was Roger Davisson (Dabney), sophomore, with David Close (Page) and Sean Solomon (Dabney) both freshmen, taking over the duties of secretary and treasurer respectively.

The Gamma chapter of California was chartered at Caltech in 1921. Former advisers of the chapter include Ray Untereiner, Les McCreary, and Dwight Thomas. Herb Booth is the current adviser.

Representatives of the Caltech chapter will attend the National convention of Pi Kappa Delta and participate in national competition at Southern Illinois University, Carbondale, Illnois, in March.

Fantasy Collection

(Continued from Page 7) stories of the six they will most enjoy

I found all six to be very skill-fully written; the imagery is quite vivid; characterization is good, but not so strong as to overpower the theme. Vance uses imagery as Jackson Pollock uses a can of red paint; boldly, but with great skill and good results.

As regards purchasing paperbacks, I get mine at the Bungalow News generally, but it might not be a bad idea to check Vroman's since they expanded their paperback department to quite an extensive array. Archway Books, in the next block past Vroman's, is also good for paperback books, although I haven't patronized them myself.

Drugs Sundries Cosmetics Tobaccos
CALIFORNIA REXALL
PHARMACY

555 S. Lake SY 2-3156
Breakfast Lunch Dinner

Budget Problems?

If you pay over \$20.25 for VG1A/2 Ionization Gauge Tubes

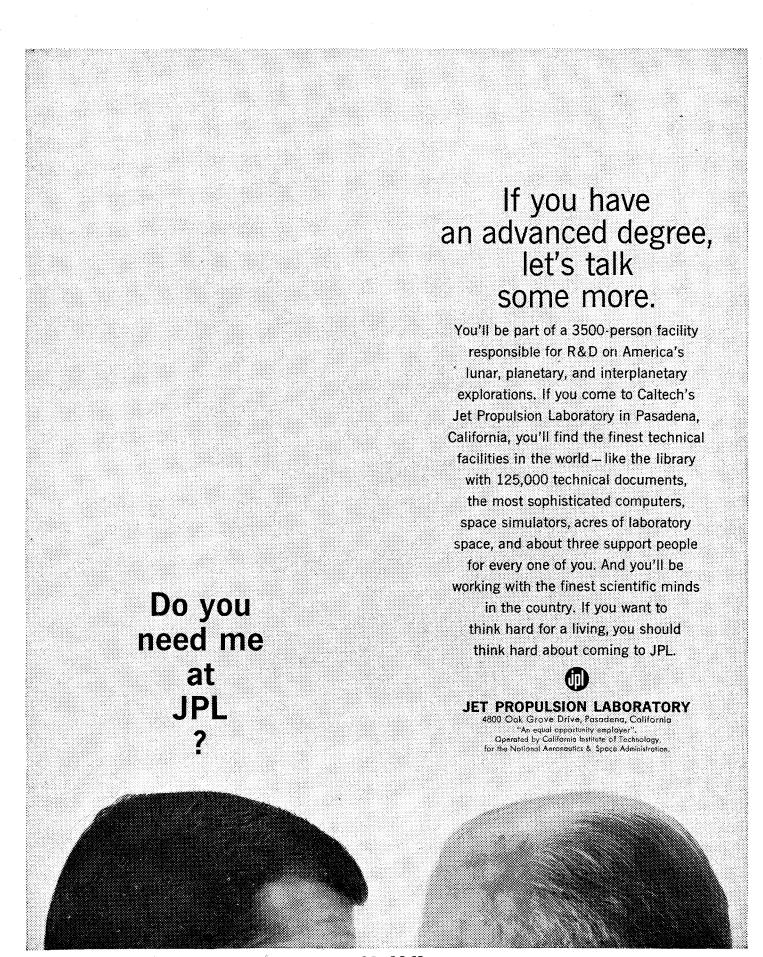
contact

R.W.THOMPSON ASSOCIATES

Telephone 849-6228

Also Representing

R.I.D.L. Pulse Height Analyzers CRYOGENICS INC., Instrumentation



On Campus Interviews:

January 31, 1963 Contact University Placement Office for Appointment