Offshore Drilling Sea Life Study for C.O.O.P.ers
by John Bennett

Twenty-three students met at the end of last week in a nearly spontaneous response to the disastrous Santa Barbara oil slick. Their meeting was called by the Committee on Offshore Oil Pollution (COOP) and appointed chairmen of five subcommittees. These committees will investigate matters of Zoology, Chemistry, Geology, Engineering, and Political Action. For instance, they would like to know the basis for choosing a particular chemical emulsifier and its effect on the phytoplankton population. They may also review the decision to drill in this area (students are interested) in the effectiveness of political action by Santa Barbara residents and conservationists.

They interviewed local residents, Union Oil, Coast Guard, and wildlife officials. The officials were pleased that Caltech students were interested and offered to meet with them again, when the immediate crisis had cleared.

It was obvious that in moments of crisis, they had realized their insignificance toward student community needs. The COOP assist for ideas. Help, demand—little supply. As long as student interest is maintained, COOP assistance will be offered.

And Navy a Drop

In the next days, COOP will consolidate the several proposals for action, and actively recruit additional members. They plan to work with the ASCIT Research Center, to raise funds from the funds of local residents. Money and laboratory facilities are forthcoming, and several faculty have given their approval and advice.

If you are interested in COOP’s activities, leave a message for John Bennett in the Dabney Hall Hosts Modern Print Exhibit.

If you didn't get it last week . . .

First Buchman Lecturer To be Nobel Biologist

Dr. Har Gobind Khorana, Nobel Prize-winning chemist renowned for his imaginative research in chemical biology, has been named the first Effrin B. Buchman Memorial Lecturer at Caltech.

Khorana, codirector of the Institute for Enzyme Research and the Conrad M. Elvehjem Professor of Science at the University of Wisconsin, is a guest of Caltech through Dec. 12. His visit will culminate with the Buchman Lecture which will be open to the public in Beckman Auditorium starting at 8 p.m. tonight.

In the Wise

In his lecture on “Current Work on the Total Synthesis of Genes for Transfer Ribonucleic Acids,” he will explain his efforts to build by chemical means a segment of DNA that will produce fully active transfer RNA, DNA—for deoxyribonucleic acid—is the basic material of heredity in living cells. Transfer RNA serves as a template for the DNA instructions in building proteins outside the cell’s nucleus.

For his efforts toward solving the genetic code, Khorana was named coripient of the 1968 Nobel Prize for Medicine and Physiology. His contribution was mainly in the synthesis of short, biologically active chains of DNA with known sequences of bases.

Words of a native of Halibur, Indiana, Khorana received his bachelor’s degree in 1943 and his master’s degree in 1946 at Purdue University, Indiana. He received his Ph.D. in 1948 at the University of Liverpool, England.

The Buchman Lectureship—sponsored by the Division of Chemistry and Chemical Engineering—honors the memory of Dr. Edwin S. Buchman, a research associate at the Institute from 1938 until his death a year ago.

The Shah

A native of Valley Falls, N.Y., Buchman was known for his role in the first commercial synthesis of vitamin B12, thiamine, the antipellagra factor. He also added to establishing a strong spirit of cooperation among members of the Division of Chemistry and Chemical Engineering and the Division of Biology.

United States and many other countries, and their work is in important museums and collections. They all live in Southern California which is now considered a major center of the print maker’s art.

Dabney Hall Hosts Modern Print Exhibit

An exhibit of the works of four noted print makers is the first art event of the year presented by the student faculty committee on Programs and the newly formed Institute Committee on the Arts. The show is running from Feb. 7 through 21 in Dabney Lounge and is open to the public. It features prints by Leonard Edmondson, Shiro Ikemura, Yoes Johnston, and Ben Sakoguchi.

Dabney Lounge has been turned into a functional art gallery for the print artists by the extensive use of background panels, lighting which will also be available for future exhibits. Dr. J. Kent Clark, chairman of the art committee, said the transformation was possible because of a recent grant to the Caltech Fund for the Arts by Mrs. Virginia Steele Scott. Mrs. Scott is a member of the Steele family whose foundation endowed Caltech’s Harold C. Steele Laboratory of Electrical Sciences, dedicated in 1960.

Dr. Clark cited the greatly increased interest in the art of print making as a reason for displaying prints at the art committee’s opening show.

Prizes

Leonard Edmondson is considered one of the country’s most versatile artists and leading art teachers. He is chairman of the art department and professor of art at California State College, Los Angeles. Shiro Ikemura is a faculty colleague. Ben Sakoguchi is the art faculty of Pasadena City College and Yoes Johnston is a print maker of international reputation. All four have exhibited widely in the United States and many other countries, and their work is in important museums and collections. They all live in Southern California, which is now considered a major center of the print maker’s art.

Bell To Play Mack In Threepenny Lead

Craig Rydjeski Win 2nd Leads in ASCIT Musical

Bob Lewis, director of the ASCIT Musical, The Threepenny Opera, last week announced the final tryouts for the production. Final tryouts were held on Jan. 29 and 30 in Beckman Auditorium. Nearly 60 girls and boys from Pasadena area schools were interviewed.

The Threepenny Opera is a social satire of beggars, thieves, and procurers in 18th century London. The plot focuses on the experiences of Captain Macheath (Mack) the King’s unsuccessful highwayman, whose weakness for women is nearly his ruin. This leading role of Mack the Knife went to Bob Bell, a freshman in Beckman.

Rydjeski, a baritone soloist for the Glee Club, and has participated in a number of musical productions, including My Fair Lady and Carousel.

Grad Gets 21

Grad students at Caltech have always been encouraged to take part in the ASCIT Musical and this year one has a major role. Dan Rydjeski, an art student in biology, will play the part of Jonathan Jeremiah Peachum, the minor organiser of the London beggars. Rydjeski is also a Resident Assistant at Tiddock House.

Francis Clark, a freshman from Lloyds, will portray Polly Peachum, the chief of the London police. Clark has had numerous parts in high school and community productions. The role of the bailiff in the play, performed by the popular “Mack the Knife,” went to David J. Smith, also a freshman.

He has participated in a number of light musicals including Music Man and Oliver.

The Castle Takes All

The principal female roles in The Threepenny Opera have been filled by girls from Westridge High School and Pasadena City College. The part of Polly, the daughter of J. J. Peachum and one of Macheceth’s “wives” sold out to Sherry Diva this month. Ar now, an art major at Westrdige. Mary George, a PC student, will play Polly’s wife. Both of these girls have had considerable experience in the arts and are dancing at their schools.

Graft, Corruption

Lucy Brown, the daughter of the police chief and Polly Peachum’s chief rival for the affections of Mack the Knife, will be portrayed by Vicky Cortese, a junior at Westridge High. Shari Fried land, who had a leading role in last year’s musical, The Castle, will take the role of Lucy Brown. Jen nie, Macheceth’s favorite prostitute, also has had experience on radio and television es chuting the narration of an NBC special on Mariana del Rey.

The leading roles, over 30 other parts have been cast, primarily of po liemen, beggars, prostitutes, and thieves.

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Towering Eyeful

Dr. Faustus

By David Linke

Of man, and God and Satan; those who, in the guise of two great romantics to satiate his desire but it's a lot less effective. A letter of this sort is better served by other means.

Those years Faustus became initiated by two great Mephistophilis, and becoming Dr. Faustus signs away to restore the extensive kelp beds provide food for the sea urchin... a balance that allows the kelp to function effectively. It's a myth. An illogical American dream.

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Hughes announces new openings on the TECHNICAL STAFF.

Assignments exist for Engineers graduating in 1969 with B.S., M.S. and Ph.D. degrees in ELECTRICAL ENGINEERING.

HUGHES-FULLERTON Engineering laboratories assignments range from research to hardware development and operational support of products and systems in the field. Our current activities involve the advanced technologies of phased-array frequency-scanning radar systems, real-time general purpose computers, displays, data processing, satellite and surface communications systems, surface-to-air missile systems, and tactical command/control systems.

For additional information on the opportunities offered at HUGHES-FULLERTON in Southern California—and to arrange for a personal interview with our Staff representatives, please contact your College Placement Office or write Mr. D. E. Harker, Supervisor, Professional Staffing, HUGHES-FULLERTON, P. O. Box 510, Fullerton, California 92634.

On-campus interviews February 28

HUGHES
HUGHES AIRCRAFT COMPANY

An equal opportunity employer — M & F / U.S. citizenship is required.
Harrison Brown On Poverty...

Research Council

He said the result in Peru was formation of a research council in the government, in Colombia a science policy council was formed, plus formation of a small science foundation in the Ministry of Education.

"In Crooker said, "the workshops approach resulted in a program for strengthening the national research council and for bigger research and development budgets. We are now working out a joint program for development of higher education and research and training in the field of chemistry. Four Caltech professors — Drs. Donald Coakley, Robert Ireland, Harry Grey and William Kipfer—were invited in this program, and if it works for chemistry in Israel, it should work in any discipline."

Not All Classical Solutions

Explaining the need for problem-solving ability based on research, Crooker said that much of America's economic growth can be explained by the normal classical inputs of land, labor and capital—but not all growth can be accounted for this way.

"A large component of the remaining growth can only be accounted for through our research and development."
We want engineers who want to get away from it all.

If you're the kind of engineer who can't stand the thought of sitting at the same desk in the same office day after day, then you're the kind of engineer we want to talk to.

We want to talk to you about a career in technical marketing. To do all that, you have to understand a lot more than engineering. You have to understand people and how to communicate with them. And that can be one of the hardest jobs there is.

If you'd like to know more about a career in technical marketing, plan to talk to our representative when he comes to campus. He can tell you how you can get away from it all and, at the same time, get ahead.
It's Election Time Again At Theoc...

by Jim Cooper

Sigh Edward B. Barreimaker of the Mythological Institute of Theocracy gazed with interest at the lineup of candidates for student body offices.

"Here," he thought to himself, "are my future student leaders, and it is very important that I listen to what they have to say."

The first candidate was speaking: "If I am elected president of ASMIT, I pledge to use all ASMIT funds to buy off all faculty members, so that we will never have to worry about grades again."

Barrel, Barrel

At this point, the candidate was interrupted by laughter and applause.

"Why not?" said the neighbor. "Because when I vote I merely close my eyes and pick out a candidate by feel."

"That's very interesting," said the neighbor. "But you don't understand that a lot of people have disliked the way ASMIT has been run in the past and so some candidates run just to express their disapproval, or sometimes just as a joke."

"So who actually gets elected?" Barreimaker queried.

"Why naturally the one who's able to buy off all the last administration."

"Then you mean that you really don't have a choice? That I can only either vote for someone curtailing on similarity to the last ad­ministration, or I can vote for someone who was running as a joke?"

"Now you're catching on, Barreimaker."

"But how do you know whether someone is running as a joke or not?"

Go to Head

The neighbor looked puzzled. "You know, that's something I've never really quite figured out."

"Boy, Barrel, you sure are dumb," replied his neighbor. "Don't you know that this guy is a non-terrier candidate for office?"

Student Airfare

(Student from page 4)

In education, Olsen cited the air fare as "an important factor in easing the travel burden of thousands of college students. I believe it has been in the spirit of the increased attention the government has given to improve education in the last ten years. On the local level, too, we have seen the parallel example of special prices to encourage young people to attend cultural events."

"Further," Olsen went on, "travel alone is a form of education. Thousands of young Americans—students and non-students—have been enabled by the youth fare to see much more of their country. They have been given the current youth fare arrangement, and it has not been at the expense of full-fare passengers because space available seats are empty seats."

Concluding, Olsen asserted that "strict, impediment applica­tion of the non-discrimination (Continued on page 8)"
Wrestlers: 2 in First Three

The Beaver wrestlers took two of their three matches last week. They downed LA Trade Tech by 96-19 and defeated Azusa-Pacific, 25-16, and lost to Biola, 32-27, in a double dual meet.

Against LA Trade, the Beaver heavyweights came through as Cox (301), Woodhead (197), Devlinney (177), Beagle (heavyweight) and Johnson (Heavyweight) all won their matches by pins. Morris (123) won by decision, while Lewis was lost on points while Barber and Taylor were pinned.

Only three Beavers won against Azusa. Cox (301), Woodhead and Beagle (191) won their matches, the last two by pins. Lewis and Johnson battled to ties. Cox lost his match on points while Langill (128), Hornbuckle, Barber, and Devlinney were pinned. The 152 lb. class was forfeited.

Last week was brightened by the second of the semi-annual clubhsemblies of Pacific Christian 10648 on Tuesday, but things were returned to form as Tech lost to Pomona 87-47 on Wednesday and Claremont-Harvey Mod 96-69 on Friday.

The victory over PC was purely a case of physical superiority and experience as Tech outscored the opposition 78-64 and outshot them 46% to 39% by insistently putting in second shots and penetrating the man-to-man defense for close-in attempts. Not of little help, for a change, was the free throwing. With a nearly equal number of attempts, Tech hit a phenomenal 92% while PC only managed 56%. The dramatic improvement can probably be attributed to the relaxed mood in which the Beavers are able to play this game.

High scorers were Dennis Car- ric (25), Tom Heinz and Ken Hansen (19), and Bruce Ault (10). Hanson hit the boards for 27 rebounds to eclipse his previous season's record of 22 as Heinz contributed 13.

The loss to Pomona was purely a matter of superior offense and some loose refereeing under the boards as Tech got lost two fewer field goals and had one less turnover but received only 12 charity tosses to Pomona's 37 while converting 41% to their 62%. Inability to force the outside shots produced the difference as 86% of Pomona's baskets were made from within five feet; Tech was balanced. There was no case of breaking the apparent 50/50 statistics as were balanced as those of the game, with Tech being outscored by two points in both halfs. High scorers were George Fox (18), and Heins (15) with Ham- son collecting 12 rebounds and Helnz 9, despite fouling out in the second half, to lead the SCIAC in rebounding average.

Trailing by only 9 points at halftime, the Beavers again unaccountably fell apart in the opening minutes of the second half and found themselves behind by 20 at Claremont, with half a game yet to play. Physically match for the Stage, Tech was only slightly outscored but turned the ball over more often the way it hurts. With fault passing and handling and CHM fast broke more than a few times for easy baskets and was out.

(Continued on page 8)

CHM Swimmers Drown Beavers In Dual Meet

Claremont-Harvey M.C. drowned the Beaver swimmers in a dual meet by the score of 85-28. The team was defeated by sen- ior Dick Wright who remained the only undefeated member of the Tech team by winning the 200 backstroke and taking sec- ond, and the 200 IM. Sheffield swam to second place in the 1000 free and in the 200 fly.

Steve Johnson gained seconds in both the 1m and 3m diving events. Kalil won the 50 fly, while Rude was second in the 100 free. Miller took a third in the 50 free, while Rude was second and Rude was third in the 500 free. The Beaver breast- strokers came through as Tyson and Stefanko took second and third in the 200 breast.

Rugby Game Close Fought; First Defeat

by Alan Cope

On Saturday, the Rugby team went down to their first defeat of the year. Unfortunately, the occasion was the team's first league game of the season and against San Fernando Valley State College, last year's league champions.

The game was closely fought for most of the time, but toward the end of the game it was clear that the bigger and stronger Val­ ley State forwards were in control. The Caltech backs showed some imaginative touches, but the ball rarely got back to them and when it did it was under the pressure of the Valley State defense.

Caltech opened the scoring when Peter Dodds dove over for a try following a well judged kick ahead by John Soper. Hard­ dy Hyland added the extra two points with a good kick, but was unlucky later in the first half to narrowly miss with two good penalty goal attempts. When Valley State matched the Caltech score just before half-time, and then in the second half scored two more tries, one of which was converted to make the final score 15-5 in their favor.

Next Saturday at 2 p.m. U.C. Riverside visits the Caltech Field, but this time it is hoped that Caltech will be a little less hospitable.
**Answers To Geller's Bridge Midterm**

(Continued from page 3)

**Solutions**

(A) What's your partner doing? He can't have a long club suit, but he has a low hand for spades. He must have 2-3 spades. (West would possibly have chosen a long hasty club of contracts with a long heart suit.) So clearly North is cue- bidding showing a twound value in the majors. It seems reasonable to support a suit of 4 or 5 spades. Let's turn this over to the panel.

**GUBMAN:** "Four diamonds. You too, but not too many spades." How is North going to know that you have four spades unless you tell him?

**SAVAGE:** "Four spades. If my partner had a long club suit in this level without supporting my suit, I must assume he has a good club suit or else a two-suit holder. My assumption is that East's suit is hearts..."

**DELANEY:** "Four spades. If West had a major suit, he would have bid it rather than three no-trump." My partner's club bid must have been asking me to bid a major.

But BOSWORTH: "Pass... if partner had a good hand he'd be more aggressive." How?

**Can You Pass?**

(B) The panel is evenly split on this question. Either pass or one club could be right. I will content myself with pointing out that at this vulnerability, aggressive action is clearly called for at rubber bridge. Now let's see what excuse the passers have for their premissal choices.

**GUBMAN:** "Without a major, at this vulnerability, I will certainly be cautious. Pass."

Certainly?

**SAVAGE:** "If bidding strong no-trumps I would pass." If partner's bid is strong, he must have at least four spades. Declarer's hand is clearly called for at rubber bridge. Now let's see what excuse the passers have for their premissal choices.

**DELANEY:** "One club. Even opposite such trash as J 8 10 x x H K x D A 10 8 x x there will be an excellent play for three notrump."

How do you plan on bidding it, Bill?

**BOSWORTH:** "One club, at rubber bridge. Take it easy." Weak no-trumps anyone?

**Limit Bid**

(C) For the first time there is relative agreement among the panelists. Only Bowsworth fails to double: "Pass. What else?"

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**Kipnis Mimers Play Friday**

On Friday, February 14, at 8:30 p.m. in Caltech's Beckman Auditorium, Pasadena, Claude Kipnis will present his mime theater of unique. The Kipnis repertoire can be the hobo or the cabinet minister; he kills time with a young woman. His target can be the hobo or the cabinet minister; he kills time with a young woman. His target can be the hobo or the cabinet minister; he kills time with a young woman. His target can be the hobo or the cabinet minister; he kills time with a young woman. His target can be the hobo or the cabinet minister; he kills time with a young woman.

**Tech Basketballers Win**

(Continued from Page 7)

**Cab No-Fare**

(Continued from page 8) ruling would threaten half-four tickets for youngsters between 2 and 12 years of age (reservations can be made for such tickets – for military personnel, and several other special fare categories now widely advertised by the airlines).

**CAB:** "Six clubs. If you can't make six spades, you probably can't set five spades either:"

**BOSWORTH:** "Six clubs. You might make, and five spades might make quite a few."