ISN'T IT ABOUT TIME FOR A CHANGE?

Pasadena, California, Thursday, May 13, 1971

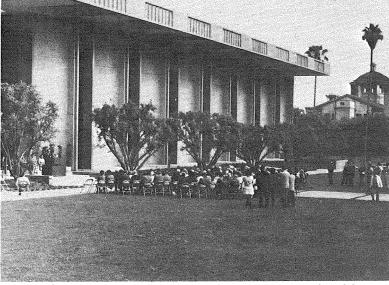
Volume LXXII

Techers Go To See Skylab

by Terry O'Neil

Just what is the status of Project Skylab? How is the project doing under the direction of McDonnel-Douglas Corporation? On Tuesday, the fourth of May, a group of Caltech students went to the Huntington Beach facilities of McDonnel-Douglas Corporation to ask these and other questions. What they found was a blend of hardware and wishful thinking that characterizes the U.S. space program today.

Skylab A, consisting of a specially-outfitted Saturn IVB upper stage, is being readied to fly in 1973. Compared to anything else the U.S. has flown so far, this is a monster. Its inner diameter is about 30 feet, its length about 60 feet. There are two decks, one for instrumentation and living and the other reserved for lifesupport equipment and storage. The major concession to a scientific mission is the solar telescope mounted on the top of the airlock module. (The airlock itself is a husky 15 feet long.) Earlier plans to fly the SIVB up full of fuel, then vent it to open space before fitting it for human habitation, have been dropped. The stage flies up dry in its present configuration and the crew follows in modified Gemini capsules. The first mission is scheduled for thirty days, then a sixty-day mission, and later missions of up to 120 days length. The biomedical data from the thirty-day mission alone should keep doctors busy for months, and the solar telescope is expected to yield at least some new observations. However, Skylab A is really only an engineering flight which will precede longer and more scientifically-oriented Continued on Page Four



Dr. Hallett Smith, speaking to cheering throngs from the poop deck of the S.S. Baxter, Caltech's new flattop, wished the monolith a bon voyage before falling overboard into the piranha-infested waters.

Photo by O'Neil

Oh, you poor fools...

Freshmen Choose Options

by Philip Massey

Physics is still number one at Tech, but biology is a close second. Or so the figures on Frosh option choices, released today from the Registrar's office would indicate.

It seems that only forty freshmen still plan to be physics majors. The rest are planning to study science instead, with six humanities exceptions. The second most popular option is biology — 32 signed up. Chemistry is the third most desired option, with 30. Engineering and Applied Science claimed 28, while math received 26 eager young frosh. Twelve have chosen applied physics, the first time freshmen have had this option available to them. Astronomy got its customary 10.

Chemical Engineering and Economics each claimed five frosh. Three chose geology, and English and Independent Studies each got one. No one chose History.

Comparing these figures with those available for frosh decisions in the springs of 1968 and 1966 show a few obvious trends. In 1968 there were only 13 people who wanted to be biologists while 62 chose physics. (Numbers for 1966 are about the same.) Engineering was the second most popular option in 1966 with 33, followed by math with 31. (For 1966 the figures are 31 and 38 respectively.)

New Offerings in Languages

by John Tristano

Tristano in Translation

The Language Department has come up with a new system to complement their recent move to Baxter. Changes include giving humanities credit for first year language courses (provided a second year is also taken), a foreign literature course (taught in English), a new Russian professor, and a Chinese class (if there is sufficient student

interest).

Literature in Transition, one of the new courses, will be doubly listed as Language 150 and English 150. The course will be a full year in length, with different literary periods being covered each term. The course will be altered every year so students will be able to take the course more than once.

The course will be taught by Jim Greenlee first as semester. Iim is currently in France, and it is suspected that his experiences there will be part of his subject. "Post World War II French Literature".

Annette Smith will teach the second semester. The course will Continued on Page Four

Come Rain Or Shine

OH, SHUT UP.

Baxter Dedicated

Every society has its rituals, In twentieth century America, one of those rituals is the dedication of a new building. These modern rites were practiced Monday on the Baxter Hall of the Humanities, with appropriate pomp and circumstance.

The role of high priest and master of ceremonies fell the way of Dr. David Smith, Master of Student Houses as well as Associate Professor of English. After thanking members of the Caltech band for providing prefatory music, including the premiere of a modal work. he introduced the members of the Baxter Family.

Doctor's Daughters

Dr. Donald Baxter. M.D., for whom the building is named, is survived by three married daughters, who, replete with husbands and children, were duely introduced to the audience of approximately one hundred. The funds for Baxter Hall were the gift of the Baxter family in memory of their father.

After the last of the Baxter grandchildren had had his turn at squirming for the crowd. Dr. (Hallet D.), who spoke glowingly Baxter's beauty functionality.

Number 28

Ecclesiastical

Hallet concluded his presentation with two quotations from the Bible ("one of the books I teach"): "By much slothfulness the building decayeth: and through idleness of the hands the house droppeth through." (Ecclesiastes X:xviii) With these words, he urged diligence upon the Division of Humanities. And finally, both as a comment on the proceedings and as a gesture of appreciation to the Baxters: "A feast is made for laughter and wine maketh merry: but money answereth all things." (Ecclesiastes X:xix)

Dr. Dave Smith then introduced Dr. Sinsheimer, the token scientist of the day. Dr. Sinsheimer addressed the problem of the complementarity of and interaction between the humanities and the sciences in the present age of flux.

Choice Is Ours

Man's technology has advanced him to the point where he now faces a crucial decision. according to Dr. Sinsheimer. He can either chose to live with the environment essentially as he found it at the "great psychic cost" of immense self-restraint. or chose to remake his environment to his specifications, again at great psychic cost. We must recognize our fallibility, and shoulder the responsibility.

Dr. Sinsheimer's remarks, and indeed the rest of the program. were threatened by an unexpectéd turn in the weather as raindrops punctuated the speaker's profundity. However, the dedication program concluded with an outline of the immediate future plans of the Humanities Division from Dr. Huttenback (Acting Chairman) before any serious damage occurred.

The dignitaries then adjourned for "feast" and "wine" at the Athenaeum.

News Briefs

ASCIT Says: Go Fly a Kite!

ASCIT will sponsor kite flying interviewed by Rochus Vogt on this Sunday at 2:00 p.m. outside the gym. Kites will be provided or bring your own, if you materials, bring them. Prizes random accomplishments (what else?). More information is available from Rik Krueger (115 Page, ex. 2225).

General Daniel James To Speak Practically Everywhere

Brigadier General Daniel James, the highest ranking black officer in the United States Air Force, will participate in the Y's "Leaders of America" program May 17 and 18. On Monday, at 5:30 p.m., a reception and buffet will be held for General James in the Athenaeum. Later. at 7:30 p.m., he will lecture in Baxter and then carry an informal discussion in Fleming House.

On Tuesday, at 12:30 p.m., General James will be

the Olive Walk and will then head a discussion in Winett Lounge. The "Y" feels that his prefer. If you have any tail visit provides Caltech with a unique opporunity to discuss the will be randomly awarded for tough questions facing the military today.

Another One? Totem Comes Again

The second issue of *Totem* is currently being somewhat put together. Any persons wishing to submit creative items (photos, short stories, poetry, free verse, drawings, and whatever else) are urged to do so as soon as possible. i.e., before the weekend. Stuff should be directed to Phil Massey at Ruddock House, or brought by the Tech office in Winnett.

Feynman to Give Two Lectures

As expected, tickets are no longer available for the Monday Beckman lecture by Feynman on Mayan hieroglyphics. However. due to the great demand he will present the lecture again on Wednesday night, 8:30, in Beckman. There is no ticketing for the second lecture.

Student Shop **Elections Saturday**

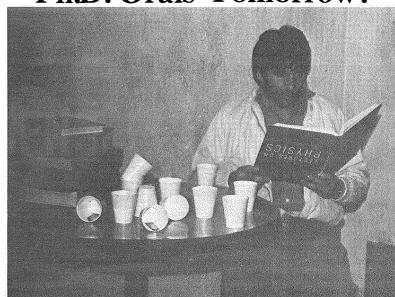
There will be Student Shop electivns on Saturday, May 15, at 12:30 p.m. (That's what I like. short, concise, and to the point.)

Glee Club Concert Friday and Saturday

The Caltech Glee Club will hold its Annual Home Concert this Friday and Saturday at 8:30 p.m. in Beckman Auditorium, A variety of songs varying from Gregorian chants to selections from Porgy and Bess will be performed. Color slides of the Glee Club's recent tour of the Bay area will also be shown.

Tickets to each performance are \$2.50, general admission: \$2.00, to the Caltech staff; \$1.00, to students: and admission is free to ASCIT members.

Ph.D. Orals Tomorrow?



Physicists (and Phrosh Physicists to be) take heart! Richard Price, Bf.D., sustained himself while writing his thesis by dropping into the Caltech Coffeehouse each evening for a cup of our "world's finest coffee." The Coffeehouse builds strong minds and bodies.

The Third Wing

Tech Arrives on Time

A couple of months ago I complained to the editors of the California Tech because my complimentary copy tended to reach me several days after publication, by which time it was mostly of historical interest. The situation is now vastly improved: my copy arrives on Thursday. My congratulations to your circulation manager, who may be happy to know that somebody out there does care.

D. Coles Professor of Aeronautics

Dear Sir: .. This may come as a shock to the Computing Center staff, but we would like to take issue with Messrs. Nicolaides and McKay. We have certainly had our differences with some of the Computing Center operators, but in the vast majority of cases all members of the Computing Center staff do their jobs quite adequately. Moreover, they are forced to suffer a continual barrage of groundless complaints for imagined injuries. Mr. Nicolaides' letter in particular shows not only a woeful ignorance of how to use the

computer but also a pitiful lack of understanding of how to deal with people who are not blessed with the degree of perfection he claims. If he had gone through the proper channels, someone would have gladly explained the impracticality of his request, but instead he wrote an open letter condemning the operators en masse. Exercising his obvious penchant for rhetoric must have given him more satisfaction than finding out how to run the job.

We think it is time the Caltech community recognizes that the Computing Center, though not perfect, is a very good research installation. An organization like the Computing Center must be run in an orderly fashion, so the people responsible for its operation must have the authority to fix procedures. If one finds certain procedures not to his liking, he should make suggestions or even complaints to the staff, but he must accept the staff's decision. We can't think of an operational procedure the alteration of which is worth a pitched battle. Certainly the writing of an open letter is no way to effect a

Robert Charles Ladner David L. Huestis

What Will They Blow-up Next?

There was a time when bombs and bomb threats were limited to planes carrying heavily insured passengers. Before that, bombs were common primarily to jokes about anarchists and Bolsheviks. Now it seems that one is not safe anywhere.

For several years, during the Fifties and Sixties, there was an occasional political or racial bombing, particularly of churches and liberal organization offices. Somewhere along the line, someone decided that bombing got the attention of the deaf majority.

More recently, banks, ROTC facilities, and similar buildings have been targets of bombings and bomb threats. The stated purpose of those bombings was supposed to be to end violence and economic exploitation.

Now the bombings have a trifle more difficult to fathom. Now the bombs and threats include random facilities at universities. including dormitories and bookstores. Labs have been threatened, and some blown up, with some loss of life. The odds are that sooner or later a major disaster will occur, with an inhabited dormitory involved.

At this point, one might ask which one does more harm, a bomber or someone who phones in lots of insubstantial bomb threats. The former occasionally injures or kills somebody, as well as destroying a lot of property. The latter is crying wolf with someone else's life involved. Both are sick, at best.

People who phone in bomb threats are probably doing it for one of two reasons: either to disrupt things in the threatened area, or just for kicks. The problem is, once in a while (almost half of the time, according to some figures) there really is a bomb involved, which is either exposed by the bomb threat, or goes off due to the distraction of the bomb threat, or is totally coincidental. People who get their kicks in that manner rank right alongside people who poison animals for fun, or charge at pedestrians in their cars to watch the people

Look at it this way: if a building is threatened every so often, eventually people will stop running outside while the building is searched. In some cases, police and security people may even give up searching after the first few false alarms. Eventually, though, one of those bomb threats may be for real, and a lot of people will get hurt or killed. I do not feel that there are any political motives or thrills worth murdering innocent people for, and that is just what bomb threateners are doing. Real bombers are no better, except they are honest enough to admit that they don't mind if people get a little bit killed.

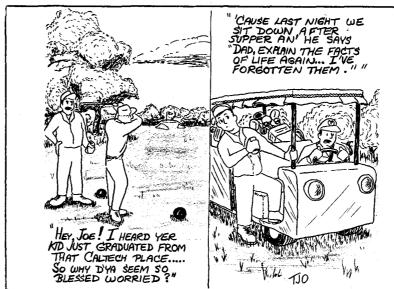
Have you ever wondered what it is like to be in a building when someone threatens to blow it up? I was in that unenviable position a few weeks ago. The first indication was when building security officers started searching in

nooks and crannies. They freely admitted that a bomb threat had been received, and said that people in the building could stay or leave, at their own discretion, but no panic should be started at any cost. I stayed for a while, and then left. Evidently, no bomb was found.

Later, I started thinking what would have happened had a bomb gone off. There were well over a hundred people in the building at the time, and any sizeable bomb would have killed someone. In addition, the difficulty of searching a building for explosives was forced home to me. There are literally thousands of places a bomb could be hidden in most buildings, and only a significant amount of time and many searchers could be reasonably sure of finding a hidden bomb. Even then, there is no guarantee of finding it before it goes off.

Granted, there are a lot of people who think that they are working for what they hope will be a better future, and are using bombs and bomb threats as social weapons. In my opinion, however, they are at least as bad as the worst of what they oppose. Bombing for the sake of proving a point is no more to be condoned than bombing a church to kill children. Bomb threateners deserve whatever can be done to them, for they are sadistic killers from whom life must be protected. Bombers kill quickly, threateners play cat-andmouse. Both are dangerous and should be stopped.

-Nick Smith



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Thursday, May 13, 1971 olume LXXII Number 2

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Subscriptions......\$1.50 per term \$4.00 per year Life subscription\$100.00 Systems Engineering

RAND Is Rational?

by Paul Levin

Dr. Henry S. Rowen, President of the Rand Corporation, spoke on the Planning-Programming-Budgeting System (PPBS) at this week's systems engineering seminar. He explained that he felt a bit on the defensive because he was "speaking on a rational method of decision-making in a period when rationality isn't in vogue."

What a Mouthful!

What exactly is PPBS? Dr. Rowen described it in this manner: "A careful specification and a systematic analysis of objectives: a search for the relevant alternatives, the different ways of achieving the objectives: an estimate of the total costs of each alternativeboth direct and indirect costs. both initial costs and those to which the alternative commits us for future years, both dollar costs and those costs that cannot be measured in dollar terms: an estimate of the effectiveness of each alternative, of how close it comes to satisfying the objective: and a comparison and analysis of the alternatives, seeking that combination of alternatives that promises the greatest effectiveness, for given resources. in achieving the objectives.

On paper this sounds just great, but on the whole it has not worked very well. The Federal Government, at least, is sufficiently unimpressed so that it will probably discontinue use of the system or alter it in some

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What a Headache!

One serious problem has concerned the definition of goals. Government officials (or businessmen, for that matter) "may know about their activities but not about their purposes." Congress does not attempt to legislate happiness; it merely attempts to create a good feeling through some measure. Government budgets contain very little discressionary money, and politicians who place little value on future expenses worsen this situation with large, multiyear spending programs. Government agencies are reluctant to issue firm plans, even if they have a dollar constraint.

In addition, some agencies do not want to use analysis techniques even if they are available, for fear that analysis might reach the wrong, or at least different, conclusions. Dr. Rowen referred to an "inadvertant conspiracy" between Federal agencies and local governments in an effort not to analyse Federally-sponsored projects. Each side feels that the other should do the work because it's his business.

What Possibilities

There is obviously room for improvement. In spite of its difficulties and past failures. Dr. Rowen hoped that more analysis of public issues would be undertaken. Outside groups. such as those that delved into the SST. could perform valuable

services. "Even Congress has recognized that it needs to improve its own analytic capabilities... no matter how it is done, it will be an improvement."

The scope of analysis, too. must be widened. Dr. Rowan repeated Dr. Murray Gell-Mann's suggestion that factors such as beauty and effect on the environment should be considered. While it is hard to put a value on such things, pols or other means can be used to rank objectives. He felt strongly that the objective should not be expressed in single-valued terms since few problems have only one objective. "You won't have the simplicity, but that's tough.' Lastly he urged everyone to regard PPBS as "invention, that is a design problem.'

The Rand Corporation has established an Institute in New

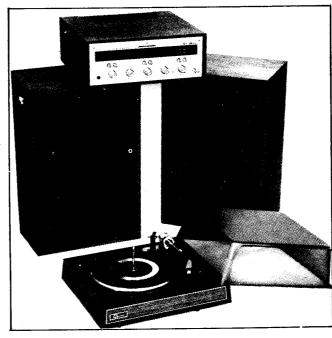
York City to help analyse that city's problems. While its work on housing "nearly got us thrown out of the city, and may still do so," the first new housing measures in nearly a quarter of a century were enacted by the New York City Council last year. An analysis of fire protection also produced fruitful results. There are some projects he would like to forget about, though.

How good is PPBS? Does it have a future? "How you regard it depends on your bias. Those who are enthralled with systems engineering will abhor this exhortation. If you favor flower power, look out, the analysts may be closing in on you."

Next Tuesday at 7:30 p.m. Dr. George E. Mueller, Senior Vice President of General Dynamics Corporation, will speak at Ramo Auditorium on "Aerospace Systems Engineering."

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Humanities Education

Using acting as a tool, Lee Browne depicted two different classroom settings in which he first portraved an "ahuman," and then, a "human" teacher. In both cases, Browne drew upon his teaching experience in high school chemistry and his familiarity with various kinds of teachers to show the actions of an "ahuman" and a "human" chemistry teacher.

In the first instance, Browne's performance as the "ahuman" teacher showed how this type of teacher ignored students' questions, always referring them to be answered at an indefinite time. The "ahuman" sought to conceal information from students, always expecting them to know what was being taught. "If you don't understand," said Browne in his caricature of an "ahuman" teacher, "study this subject further at home."

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Emotionlessly, the "ahuman' teacher snowed his students with facts and unfamiliar terms, creating a boring atmosphere in the process. To add insult to injury, the "ahuman" talked to his students in an impersonal manner; one student was the same as another, to be treated in the same stifled manner.

The "human" teacher, on the other hand, talked to his students with feeling, showing his joy at their quest for knowledge. This type of teacher asked each student to talk about themselves and what they wanted to learn from the course. In saying that "these concepts and terminology were not beyond the understanding of students," and "come to me for help for whatever reason,' Browne demonstrated the "human" teacher's concern for students as human beings. The "human" teacher showed how the subject matter being taught had real importance in the world: iron sulfate to alleviate anemia, sulfuric acid as an aid in producing fertilizers and dyes.

After Browne had complete his dramatic interpretation of

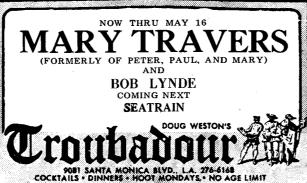
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Robert Wallace

the two kinds of teachers, it was pointed out that, while the 'human'' teacher was certainly more ideal to have, his performance took much longer time. Browne responded by saying that while the "human" teacher may use more time, his students will learn more and will be excited by the course in greater numbers than the 'ahuman'' teacher's students. That, in the long run, is what one should expect from the educational system.

McDonnel-Douglas

Continued from Page One missions to come.

This is where the wishful thinking begins. The McDonnel-Douglas representative briefing the group indicated much concern that the company get the contract for the upcoming 'space shuttle" craft, a reuseable booster-glider combination expected to be able to make around one hundred round-trips to earth orbit. What followed were a set of artists. conceptions of multiple-module stations centered around the SIVB module, serviced and emplaced by space shuttles working semi-regular schedules from Earth. The time for such an operational capability was very hazy . . . "some time, in the 1990's". In spite of the vagueness of the dates, the Caltech group left the briefing reassured that at least some plans existed beyond the next (and probably last) moon missions.

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But, alas. The McDonnell Douglas equivalent of B&G was busily putting in fire-extinguishing plumbing, and the planned tour of the Skylab mockup and training facilities had to be cancelled. "We're terribly sorry, but those guys have been working for about a month on that plumbing, now. And everything is disassembled. Anyway, there's no telling what they might drop on us if we went explained the chagrinned br<u>iefer.</u>

Language

Continued from Page One

be on "The French Writer and the Establishment" and will be a study of the situation of writers in their time from Moliere to Lean Genet.

The third semester will see Mary Zirin take the helm and do a study of Russian realism from 1840 to 1900. Writers to be studied include Dostoevsky. Tolstov and Chekhov (no, not of Star Trek fame).

The Russians are Coming

There will be a new Russian professor, Galina Moller, here next year. She is a graduate of the University of Moscow and has been teaching at UCSD for the past three years.

Finally, a Chinese course will be offered here next year if Tech apathy doesn't kill it first. The course will be taught by Mr. Taing who is currently a grad student at UCLA. Mr. Taing was born in mainland China, but his family moved to Taiwan in 1949. He graduated from Taiwan University prior to coming to the

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