

Tune In And Drop Out

by Pam Logan

Ever wanted to jump out of a plane at 3000 feet? Well so did several Techers this summer, and we found the place to do it. Perris Valley Parachute Center has a first jump course for complete beginners, and Yoram Meroz, John Avery, I, and a host of X-Techers went to find out what it was like.

Caltech To Offer Flying Scholarship

By Marvin Goldberger

I am pleased to announce that Caltech will continue the program started last year and award eight scholarships of \$750.00 each during the academic year 1980-81 to undergraduate students at the Sophomore level of higher to help defray the cost of obtaining a private pilot license.

The costs of instruction and aircraft required for a private license will be approximately \$1,450 or greater, depending on the instructor, aircraft and length of training time. Accordingly, the awardee will be required to contribute approximately \$700.00 or more of his own money, \$500.00 of which must be deposited with the Institute before flying instruction begins. Any costs above the \$1,450 will have to be borne by the student. Final award of the scholarship will be made after the student has soloed.

Students interested in this program should carefully consider the time required to pursue flight training (including ground school). For example, it will probably take a minimum of three hours for each hour in the air, considering ground transportation and pre-flight planning. Ground school instruction may take up an additional three to five hours per week.

A description of the Caltech Student Flying Scholarship Program as well as a scholarship application may be obtained from the Office of the Dean of Undergraduate Students. The deadline for receiving applications is Monday, October 6, 1980. Selection of awardees will be made and announced during the week of October 6, 1980.

A meeting has been scheduled for Wednesday, October 1, 1980 in Club Room I of the Winnett Student Center at 5:00PM for those undergraduates interested in participating in the program and desiring additional information.

The first thing we did was get up early in the morning and drive out to the place, which is about an hour and a half from Pasadena. We got there to find a tiny, dingy, dusty, out-of-the-way airport with a few small planes and a lot of seasoned jumpers already suited up and ready to go for the first jump of the day. We, however, had to get through the First Jump Course before we would be ready.

The first part of the day was spent in a small, hot classroom with our Jumpmaster and Instructor Bill Hallam. He told us about all of the equipment we would be using, and showed us video tapes of the previous day's first jump class making their exits from the plane. We learned that there is more to it than yelling "GERONIMO!", and jumping out of the door. We were shown the right way and the wrong way to do it. Although it is very difficult to completely disable both your main and reserve parachutes, proper technique makes the jump safer and makes it less likely that you will have to use your reserve chute.

He went over various malfunctions that can occur and what to do about them. He told us about the safety record of the place, which was something like one fatality in twenty years of operation.

Next came the harness tests. This meant we were strapped into parachute harnesses suspended from above, sort of like those swingsets for very small children with little chairs that have seatbelts. We were drilled again on emergency procedures until our instructor was sure we knew what to do in case of a malfunction, and could do it quickly without fumbling.

Then we practiced our exits on a mock-up of a DC-3 door. Next, we jumped off a shoulder-high platform until we knew how to land without mishap.

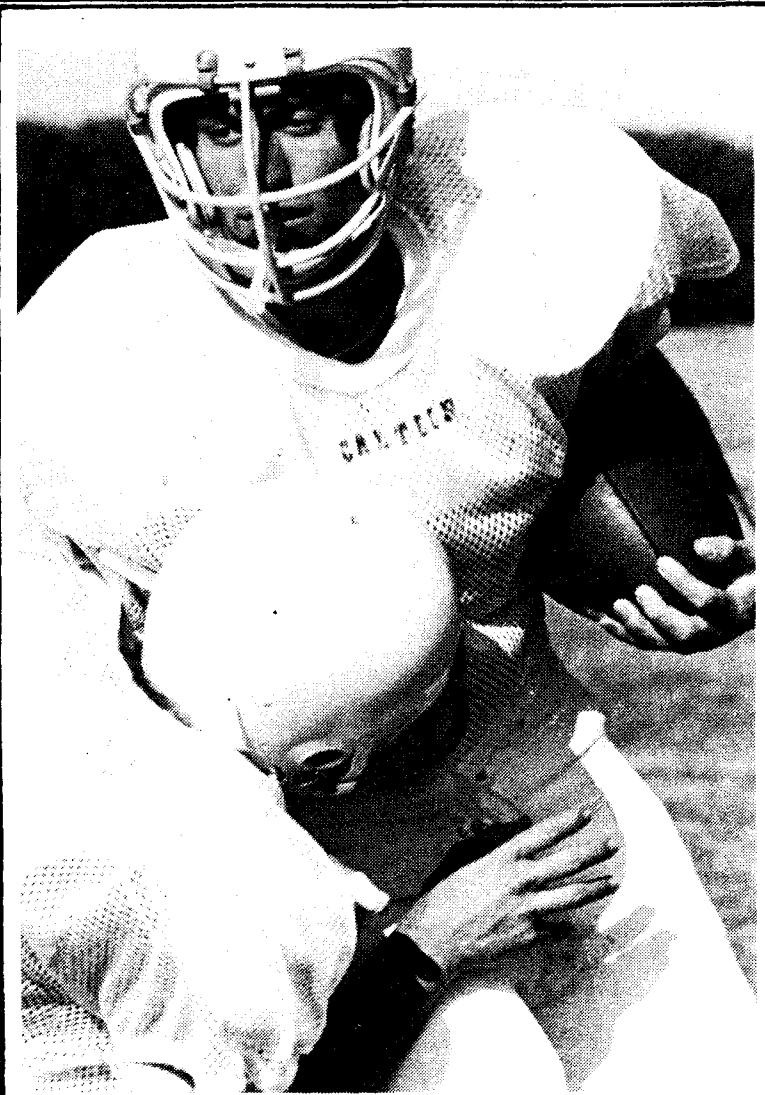
Then came the long wait for the winds to die down so it would be safe for the class to jump. It was sunset by the time we were suited up, loaded on the plane, and ready to go. Everyone was excited, nervous, but nobody had a last minute change of mind. After climbing to 3000 feet, we were called to the rear of the plane, six at a time, to make our jumps. This was no time for balking, since when the time comes to jump, everything must go like clockwork. The jumpmaster shouted "Ready" when it was my turn to get in position in front of the door, and then a split second later, "GOOOOO!" when it was my turn to jump. The experience after I left the door was both exhilarating and confusing. A huge rush of wind blasted me, totally obliterating my sense of direction. The next thing I knew I was suspended, apparently motionless in the sky (my parachute had automatically deployed). There

was an unearthly quiet surrounding me. It was a positively delightful sensation to be totally free of any walls, floors, or ceilings. After a while I could detect some downward motion, and I began looking around for the landing area. Luckily I was headed right for it, since my usual skills at judging distances and trajectories were quite useless in this strange environment. I steered the parachute just enough to avoid landing on top of the girl that had preceded me, then came the jolt of the landing.

I stood and watched the remainder of the class descend to earth. Then I gathered up my parachute in the way we had been taught, and walked back to the compound.

Later, we watched videotapes of our exits from the plane, and were duly criticized for instances of sloppy technique. We were issued out First Jump Certificates, and told about opportunities for more involvement in parachuting as a hobby.

All this, by the way, cost \$85, and a day's worth of time. I think it was worth it



Why is this man smiling? Because the Fall sports season has begun. See page three for information and this week's sports schedule.

G Ollie G

Students Are Spaced Out

The Student Space Organization is a group of students creating a Getaway Special payload for the Space Shuttle. The result is ten proposals for student experiments. The following criteria, listed in order of precedence, were used to choose the proposals:

1. *experiment is within the scope of undergraduate capability*
2. *useful scientific results not obtained repeatedly in the past*
3. *pertinent literature, and interested scientists we can contact*
4. *experiment cannot be done on earth*
5. *experiment can be done within the payload constraints*
6. *cost and time factors*

By the end of the fall term, the expanded student group will have chosen no more than four of the experiments to carry out, after considering each of the ten in depth.

Seventy eight undergrads (11 Sr, 13 Jr, 9 So, 45 Fr) have indicated interest in joining the organization this fall.

The first meeting of the SSO will be Thursday Oct 2nd at 5:00pm in Baxter.

The SSO also has proposed positions for managers, directors, and leaders:

- PROJECT MANAGER:**
- 1) represent SSO to administration, faculty, outside organizations, etc.
 - 2) handle all financial matters

and proposals for project funding

- 3) run meetings of project Board of Directors and carry out their decisions
- 4) obtain necessary supplies and equipment
- 5) coordinate team leaders

TECHNICAL ASSISTANT TO PROJECT MANAGER:

- 1) remain current on all experiments by interactions with team leaders
- 2) maintain fluency in all parameters of flight environment to be dealt with
- 3) be aware of latest data

storage, control, and power systems

PRESS DIRECTOR:

- 1) write newsletters, press releases, etc. & distribute them; review content with Project Manager for approval
- 2) survey and maintain awareness of activities of other universities, industry, NASA, Caltech students, etc
- 3) maintain records of the project

TEAM LEADERS:

- 1) spearhead investigation of

continued on page 3

Experiment Titles:

- 1) Threshold of acceleration perception by higher plants as evidenced by seedling geotropism
- 2) Avoidance response of PHYCOMYCES BLAKESLEEANUS in the absence of gravity induced air convection,
- 3) Threshold of acceleration perception by an appropriate fungus as evidenced by geotropism and geomorphism,
- 4) Effects of thermal gradients on the stability of levitated single and multiple concentric drops,
- 5) Surface tension phenomena under low and microgravity conditions,
- 6) Stability curve characteristics of Couette flows and Benard cells in concentric rotating cylinders with a radial temperature gradient,
- 7) Crystal dissolution in microgravity,
- 8) Manufacturing controlled density metals,
- 9) Development of high coercive strength and high energy product permanent magnets by component selection and microgravity processing,
- 10) Synthesis of diamond in the low pressure, metastable region.



Due to acute lack of space, this year's Little T was unable to print the student guide to local restaurants. As a service to the incoming freshmen and our more befuddled upperclassmen (and as a cheap, easy way to fill space) we have selected descriptions of a few of the more popular eateries to print:

WALKING DISTANCE RESTAURANTS

\$ = 2-4 dollars \$\$ = 4-8 dollars \$\$\$ = 8-16 dollars

BURGER CONTINENTAL \$\$-\$\$ Armenian sidewalk cafe and patio dining; Techers' longtime favorite for quality, inexpensive meals and weekly specials on beer; ask about discount card for Techers that entitles you to \$10 worth of food for \$8. 535 S. Lake Ave.; 449-5050.

CALTECH COFFEE HOUSE \$ Open 9 pm to 2 am every night; features fast food, comic books, loud music and obnoxious coin-operated noisemakers. Located just north of campus at 300 So. Holliston.

CASA COLONIAL \$\$-\$\$ Mexican dinners; reasonable prices. 968 E. Colorado Blvd.; 578-9431.

CASBAHS CAFE \$ Moroccan cuisine served in cozy converted house; tasty inexpensive meals, relaxed divan seating. Open M-F 11:30-2:00 pm, 6-9 pm. 1108 E. Green St. (just east of Wilson); 577-7075.

THE CHRONICLE \$\$\$ Gourmet awards from *Holiday* and *Sunset* magazines. Uniformly superb dining and dining. Expensive, but worth it; lunch costs half as much as dinner but is equally good. Decorated with early (turn-of-the-century) Pasadena memorabilia. Reservations advised; valet parking only. Try strawberries dipped in champagne for dessert! 897 Granite Dr. (off Lake Ave., just south of San Pasqual); 792-1179.

CONRAD'S RESTAURANT \$\$-\$\$ Family style coffee shop; open 24 hours on Friday and Saturday, and till 10 pm on Sunday. 861 E. Walnut (At Lake, 2 blocks north of Colorado); 681-4431.

FAIRWAY HOUSE \$ Typical American coffee shop. 905 San Pasqual (1 block east of Lake); 792-1512.

PIE AND BURGER \$ Delicious homemade pies, but service is usually poor, sometimes even rude. 913 E. Calif. Blvd. (1 1/2 blocks west of Wilson); 795-1123.

PRIMO GOURMET \$\$-\$\$ Genuine Italian delicatessen/sidewalk cafe featuring everything from pizza to stuffed bell peppers. 350 S. Lake Ave. (enter from Shopper's Lane, just south of Del Mar); 795-4749.

PURE FOOD AND DRINK ACT \$ Featuring "frogurt" (frozen yogurt) with 25 different toppings, a salad bar and make-your-own sandwiches, Belgian waffles, and much much more. 246 S. Lake Ave. (north of Del Mar); 792-8276.

ROMA GARDENS \$\$ Moderately priced Italian restaurant with plush interior. Good selection of pizzas. 1076 E. Colorado Blvd. (at Wilson); 449-1948.

SAMURAI \$\$ Offers *teriyaki*, *sukiyaki*, *sashimi*, *tempura* and lobster; tempting combination dinners. Medium prices; casual. Closed Mondays. 815 E. Colorado Blvd. (1 1/2 blocks west of Lake); 795-0351.

THE SAWMILL \$\$ Steaks, lobster and prime rib in cozy atmosphere. Bar features live entertainment and free popcorn Friday and Saturday nights; no minimum, no cover charge. Excellent salad bar, not expensive for lunch. No reservations; usually a wait. 340 S. Lake Ave. (just south of Del Mar); 796-8388.

STOTTELMYERS \$ Wonderful selection of over 120 great sandwiches, from the Liz Taylor (turkey breast, tongue & cranberry sauce on an onion roll) to the Golda Meir (egg salad, sweet peppers, olives & Munster cheese on Armenian bread). European wines, meats, cheeses, pastries and chocolates; delightful Greek and Armenian treats. 712 E. Colorado Blvd. (2 1/2 blocks west of Colorado Blvd; parking lot entrance on Oak Knoll); 792-5351.

THE SIDE DOOR \$\$ for lunch, \$\$\$ for dinner. Chef Mickey Palma formerly of Scandia, *The Saloon*, in Beverly Hills and *The Palm* is now creating a whole new eating experience for Pasadena. Fine continental menu, elegant & gracious atmosphere, superb service. *Jacket required at dinner*. Cocktail hour entertainment M-F at 5:30 pm. Piano bar. Lunch: 11:30-3 pm. Dinner from 6 pm. 695 E. Green St. (in Arcade Lane); 449-2311.

VINCENZO'S \$\$\$ American and Continental dining served M-Th, 5:30-10 pm, Fri. till 11 pm; bar features disco dancing Mon-Sat, 9 pm-2 am and Sun 8:30 pm-2 am, no cover charge. 901 E. Del Mar Ave. (just east of Lake); 795-8823.

HAMBURGER HAMLET \$\$ Plush specialty restaurant serving the fanciest (and most expensive) hamburgers you've ever seen. 214 S. Lake Ave. (just south of Cordova Ave.); 449-8520.

OTHER LOCAL RESTAURANTS:

PEPPER MILL \$\$-\$\$\$ Excellent Continental and American cuisine, best salad bar in town, outstanding service, elegantly appointed dining rooms and bar. Moderately expensive to expensive, but well worth the money. 11:30 am to 1:30 am. 795 E. Walnut (1/2 block west of Lake); 449-1214.

LA PALAPA \$\$ Mexican cuisine. Buffet Luncheon; Sunday Champagne Brunch. Dinner nitely. 3768 E. Colorado Blvd; 449-0195.

LOAF AND LADLE \$\$ Fine health oriented restaurant; some of the best soups and salads in town at moderately expensive prices. 82 N. Fair Oaks Ave; 449-2838 or 356-9381.

MASA RESTAURANT \$\$-\$\$ Very good Japanese food at reasonable prices. 1772 E. Colorado Blvd.; 796-9604.

SALT SHAKER \$\$-\$\$ Best coffee shop in town. Open 6 am to 4:30 am, and busiest after midnight; but don't worry, even with 15 people waiting to be seated ahead of you, it won't take long to get a table! Best service in town. Strawberry pie served 365 1/4 days a year; good food at very reasonable prices. Be sure to sample their luscious carrot cake from their very own bakery! 240 S. Arroyo Parkway (at Cordova); 449-4499. **SALT SHAKER WEST**: 395 N. Rosemead Blvd.; 351-8885. South Pasadena location: 601 Fair Oaks Ave; 799-9168.

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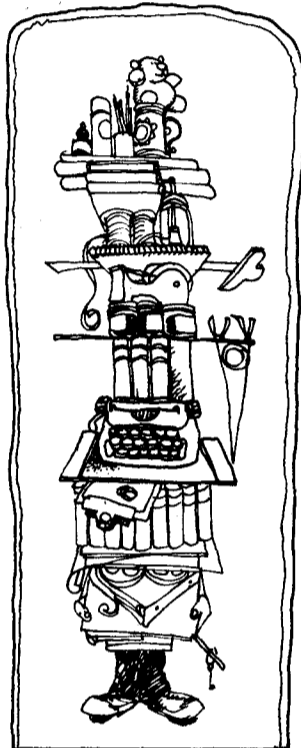
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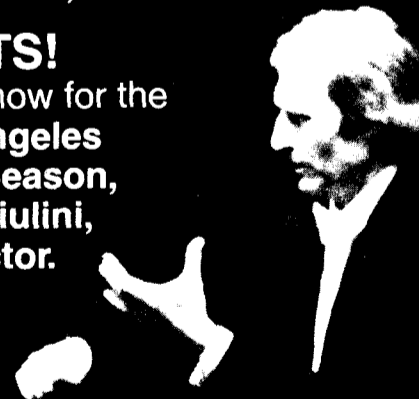
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The California Tech

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Space

from one SSO final summer experiment to the point of flight experiment selection

BOARD OF DIRECTORS:
 1) shall consist of Project Manager, Technical Assistant, Press Director, and the ten Team Leaders
 2) each member shall have one vote except for the Project Manager who shall have two in cases where a vote is tied (one in other cases)
 3) shall make all project policy decisions which must then be carried out by the Project Manager
 4) all meetings to be open to all Caltech related personnel
 5) representatives of outside organizations may attend upon request

Boys Of The Lough, Tuesday, October 7, 8pm A professional touring ensemble will play traditional Irish, Scottish and Shetland folk music on such exotic instruments as the flute and whistle; mandolin, banjo, concertina and cittern; and Shetland fiddle and guitar. Admission: \$9.50, 8.50, 7.50; students 10% off. 213 - 793-7043.

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Scholarships

NATIONAL SCIENCE FOUNDATION GRADUATE FELLOWSHIPS FOR 81-82

The National Research Council will again advise the National Science Foundation in the selection of candidates for the Foundation's program of Graduate Fellowships. Panels of eminent scientists and engineers appointed by the National Research Council will evaluate qualifications of applicants. Final selection of the Fellows will be made by the Foundation, with awards to be announced in March 1981.

Eligibility in the NSF Graduate Fellowship Program is limited to those individuals who, at the time of application, have not completed more than 20 semester hours/30 quarter hours, or equivalent, of study in any of the science fields listed below following completion of their first baccalaureate degree in science. Subject to the availability of funds, new fellowships awarded in the Spring of 1981 will be for periods of three years, the second and third years contingent on certification to the Foundation by the fellowship institution of the student's satisfactory progress toward an advanced degree in science.

These fellowships will be awarded for study or work leading to master's or doctoral degrees in the mathematical, physical, biological, engineering, and social sciences, and in the history and philosophy of science. Awards will not be made in clinical,

law, education, or business fields, in history or social work, for work leading to medical, dental, or public health degrees, or for study in joint science-professional degree programs. Applicants must be citizens of the United States, and will be judged on the basis of ability. The annual stipend for Graduate Fellow will be \$4,800 for a twelve-month tenure with no dependency allowances.

Applicants will be required to take the Graduate Record Examinations designed to test aptitude and scientific achievement. The examinations, administered by the Educational Testing Service, will be given on December 13, 1980 at designated centers throughout the United States and the certain foreign countries.

The deadline date for the submission of application for NSF Graduate Fellowships is November 26, 1980. Further information and application materials may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418.

International Computer Programs has announced the third annual ICP Scholarship competition. The award will be made to a computer science or computer technology student for the 1981-82 collegiate school year. The scholarship will consist of one-year's tuition plus education expenses up to a maximum of \$5,000

SPORTS

Pucksters Perk Up

There is college hockey in Southern California, and Cal Tech is in the thick of it!! In 1978-79 the Cal Tech Hockey Club snatched the Warden Cup symbolizing the league championship from a brutish pack of competitors including teams from both the University of California and the California State systems. After a disappointing fourth place finish last year, we're going to do our damndest this season to bring *The Cup* back to Tech!!

To accomplish this we need some new, better players immediately--students, faculty, or staff. The first team meeting and practice is at 9:30 P.M. on

paid to the U.S. college or university of the winner's choice.

Selection will be based on: the student's accumulative grade point average in his or her field of study; overall grade point average; need for financial aid; participation in data processing-related activities; schoolactivities and leadership roles; and overall accomplishments and awards. An original essay will be the final test.

Applications will be available through the financial aid office,

continued on page 5

Sunday, October 5 at the Pasadena Ice Capades Chalet rink, located on Marengo Ave. Immediately north of the Holiday Inn--approximately one mile west of campus. If you like hockey, and especially if you have hockey experience, call team captain George Yates (x1105) at once!!

(Note: All equipment except *scates* and sticks are available through the Cal Tech Athletics Office.)

GSC Volleyball GSC Football

Today in Clubroom 2 of Winnett there will be two organizational meetings for GSC sports.

Volleyball...7:30PM
 Football....8:30PM
 For further information, contact Phil Hanlon, 247 Sloan, ext. 1346, 253-37.

This Week In Sports

Soccer Club:

Saturday, September 27, 11AM, Here: Caltech vs. Woodbury

Soccer:

Saturday, September 27, 4PM, Here: Caltech vs. Alumni
 Thursday, October 2, 7:30PM, AT LA VERNE: CALTECH vs. La Verne

Football:

Saturday, September 27, 4PM, Here: Caltech vs. Burbank Bandits (scrimmage)

Cross Country:

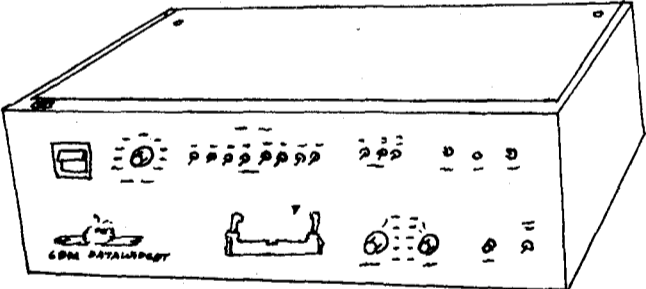
Saturday, September 27, 5PM, at Pomona-Pitzer: Caltech vs. Whittier and Pomona-Pitzer

Water Polo:

Thursday, October 2, 4PM, at Mt. SAC: Caltech vs. Mt. SAC
 * * *

For further information regarding fall sports schedules and practice times contact the following people: Leroy Neal, Cross Country(men and women); Lin Parker, Football(grad. and undergrad.); Don Cameron, Soccer; Mike Templeton, Soccer club(x-1687); Yela Luzar, Women's Volleyball(grad. and undergrad.); Clint Dodd, Water Polo. All fall sports have begun practices, but it is not too late to start.

THE TOOLS OF TOMORROW . . .



The DATAWIDGET™ is a self-contained hardware/software debugging aid, created for designers who take their microprocessors seriously. Its elegantly simple design lets you concentrate on your circuit without complicating your life. A concise, powerful Debug Monitor helps you pinpoint your hardware or software problem quickly, but without adding quirks of its own.

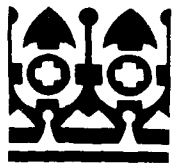
Datawidgets are now available in two models (6502 and 6800/6802), and more are being developed.

The MX CROSS-ASSEMBLERS, introduced in 1976, offer a level of convenience and power seldom found in the microcomputer world. Through extensive usage and simulation, these assemblers have been optimized for quick execution, yielding short turn-around times. They are now available for ten different microprocessor families (1802, 6502, 6800, 6805, 8048, 8080, Z-80, F8, PIC1650, COP444), in versions that run under RT-11 or TOPS-10 operating systems.

. . . . Are The Tools of Today

You can learn about microprocessors, and these "tools of tomorrow," in Caltech's three-term Microprocessor series: CS 112, CS 114, CS 121. First class is Wednesday, October 1. See the Registrar today!

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ROTATION LIST



The rotation plan provides a means for distributing new students among the seven undergraduate houses. Each new student is given a voice in selecting which house he will join, and each house has some say in choosing its members. The motivation behind these rules is simply the Honor System. Specifically, *the spirit of these rules is that no house or new student shall take unfair advantage of any*

other house or new student. The following is the list of houses each freshman visit during Rotation Week.

If there are any questions, please see G. Gaudet in Rm. 48 Fleming Hou. Special thanks to Chris Kingsley for his invaluable assistance in preparing the schedules.

S	M	T	W	T	F	S		S	M	T	W	T	F	S	
Da	Ri	Pa	Bl	Ru	Ll	Fl	Abeln, Mark S.	Fl	Ri	Da	Ll	Bl	Ru	Pa	Haemmerle, Vance R.
Ru	Bl	Ri	Da	Pa	Ll	Fl	Allweiss, Michael B.	Ll	Pa	Fl	Ri	Bl	Ru	Da	Haghi, Mehrdad
Ri	Ru	Da	Bl	Fl	Ll	Pa	Anco, Stephen C.	Ll	Pa	Ru	Ri	Bl	Da	Fl	Haj Hariri, Hossein
Ll	Fl	Da	Ru	Ri	Bl	Pa	Arce, Amaury	Pa	Da	Bl	Fl	Ll	Ri	Ru	Haselton, Kirk R.
Pa	Ll	Da	Ru	Bl	Fl	Ri	Ashcroft, Peter D.	Ll	Bl	Pa	Ri	Da	Fl	Ru	Hashimoto, Roy T.
Fl	Da	Ll	Ru	Bl	Pa	Ri	Bagnall, David J.	Ri	Ll	Da	Fl	Bl	Ru	Pa	Havstad, Steven A.
Bl	Pa	Ri	Fl	Ru	Da	Ll	Bala, Gregory P.	Ri	Ru	Da	Bl	Ll	Pa	Fl	Hawley, David W.
Fl	Ri	Ll	Pa	Bl	Ru	Da	Balcer, Sonia C.	Pa	Fl	Ru	Ll	Da	Bl	Ri	Heer, Thomas E.
Ru	Fl	Ri	Pa	Ll	Bl	Da	Balke, Joseph C.	Ll	Pa	Da	Ru	Fl	Bl	Ri	Hendrix, Donald E.
Bl	Pa	Fl	Ll	Da	Ri	Ru	Ballard, Clinton L.	Fl	Ri	Ru	Da	Ll	Pa	Bl	Hohri, Elliot B.
Ri	Ru	Bl	Fl	Da	Ll	Pa	Banerjee, Kaushik	Ri	Da	Fl	Ru	Ll	Bl	Pa	Holst, Mark R.
Ru	Ll	Da	Fl	Bl	Pa	Ri	Barnes, Russell H.	Ri	Bl	Ru	Da	Pa	Fl	Ll	Holt, Keith A.
Ri	Ll	Pa	Bl	Fl	Ru	Da	Barr, Terence D.	Bl	Ll	Ru	Pa	Ri	Fl	Da	Honrath, Richard E.
Ru	Ri	Da	Bl	Pa	Ll	Fl	Baur, Steven L.	Pa	Da	Bl	Ll	Ri	Fl	Ru	Hood, Nathan D.
Da	Pa	Ru	Bl	Ll	Fl	Ri	Baxter, Steven M.	Da	Bl	Ru	Fl	Ri	Ll	Pa	Horn, Robert L.
Ll	Ru	Ri	Bl	Fl	Da	Pa	Bell, James H.	Fl	Bl	Ll	Da	Ri	Ru	Pa	Houde, John F.
Da	Ru	Ri	Bl	Ll	Fl	Pa	Belongie, Mignon L.	Pa	Ll	Ri	Ru	Fl	Bl	Da	Hu, Eugene F.
Ri	Ru	Ll	Pa	Da	Bl	Fl	Bennit, Connie S.	Ri	Pa	Ll	Ru	Bl	Da	Fl	Hughes, Keith M.
Fl	Bl	Pa	Da	Ri	Ll	Ru	Berglund, Paul G.	Da	Fl	Pa	Ri	Ll	Bl	Ru	Hui, Kenneth
Bl	Pa	Ru	Fl	Ri	Ll	Da	Berman, Marc J.	Ll	Ru	Da	Fl	Pa	Bl	Ri	Humm, Lawrence A.
Da	Pa	Ri	Ru	Fl	Bl	Ll	Birdseye, Theresa R.	Ri	Fl	Pa	Ru	Da	Ll	Bl	Hung, Merit Yi
Ri	Fl	Ru	Bl	Ll	Pa	Da	Bolduc, Johanne	Fl	Ll	Ru	Da	Pa	Ri	Bl	Hwang, Nak-hui
Ru	Ll	Pa	Bl	Fl	Da	Ri	Bonafede, Daniela M.	Ri	Ru	Bl	Pa	Fl	Ll	Da	Jones, Stephen E.
Ru	Pa	Ri	Da	Bl	Fl	Ll	Brock, Bradley W.	Pa	Ll	Fl	Bl	Ri	Ru	Da	Karas, George N.
Ri	Da	Ru	Bl	Fl	Pa	Ll	Buffet, Marc	Ll	Da	Ru	Ri	Fl	Pa	Bl	Katz, Morris J.
Ri	Bl	Ll	Pa	Ru	Da	Fl	Bulgerin, Thomas C.	Bl	Fl	Pa	Ru	Da	Ri	Ll	Kegel, Daniel R.
Bl	Ru	Pa	Fl	Da	Ll	Ri	Burak, Chris J.	Bl	Pa	Da	Ru	Ri	Ll	Fl	Kelly, Robert E.
Pa	Fl	Ri	Ll	Ru	Bl	Da	Burch, Jerry R.	Fl	Ri	Bl	Ll	Ru	Da	Pa	Khan, Asad
Da	Pa	Ri	Ru	Bl	Ll	Fl	Burfoot, Joseph K.	Pa	Da	Ll	Fl	Bl	Ru	Ri	Kieu, Nam C.
Da	Fl	Ru	Pa	Ll	Bl	Ri	Burkhart, Reed M.	Da	Ll	Ru	Pa	Fl	Ri	Bl	Kim, Young Shil
Da	Fl	Pa	Ll	Ri	Ru	Bl	Byrne, John L.	Bl	Fl	Pa	Ri	Ll	Ru	Da	Kimura, Takashi
Ll	Bl	Ru	Pa	Da	Fl	Ri	Cao, Bao Quoc	Fl	Ll	Bl	Pa	Ri	Ru	Da	King, Tsu-jae
Ri	Ll	Ru	Bl	Pa	Fl	Da	Campbell, Glen E.	Ru	Pa	Ll	Bl	Ri	Da	Fl	Krehbiel, John E.
Pa	Bl	Ri	Ru	Da	Ll	Fl	Cantwell, Kent J.	Da	Pa	Fl	Ri	Ru	Bl	Ll	Ku, Siuling L.
Bl	Pa	Ll	Ru	Fl	Da	Ri	Caravias, George D.	Pa	Ll	Ri	Da	Ru	Bl	Fl	Kubota, Glenn S.
Bl	Pa	Ri	Da	Fl	Ru	Ll	Carr, Kimberly D.	Da	Ru	Pa	Ri	Fl	Bl	Ll	Kupiszewski, Thomas
Ri	Ll	Da	Fl	Ru	Pa	Bl	Casey, Daren J.	Fl	Ll	Ri	Bl	Da	Pa	Ru	Kwok, Tak Leuk David
Ri	Ll	Ru	Fl	Bl	Pa	Da	Castleberry, Ronald	Pa	Da	Ru	Bl	Fl	Ll	Ri	Lau, Brian K.
Da	Ll	Fl	Ru	Ri	Bl	Pa	Cavallaro, Jeffery A.	Ru	Fl	Ll	Ri	Da	Pa	Bl	Lee, Cheng Jeffery
Da	Ru	Fl	Bl	Pa	Ri	Ll	Chang, Joey C.	Da	Fl	Bl	Ru	Pa	Ri	Ll	Lee, Joseph K.
Fl	Da	Ru	Pa	Ll	Ri	Bl	Chang, John H.	Bl	Fl	Ri	Ru	Pa	Da	Ll	Leech, Jonathan P.
Bl	Ll	Fl	Pa	Ri	Da	Ru	Chavez, David A.	Ru	Ri	Ll	Fl	Bl	Pa	Da	Liao, Wuwell W.
Pa	Ru	Ri	Da	Fl	Bl	Ll	Chen, Pang-chieh	Ri	Ru	Fl	Bl	Ll	Da	Pa	Lim, Yung Chan
Ri	Da	Bl	Ll	Pa	Ru	Fl	Cheng, Yang-tse	Pa	Bl	Ri	Da	Ll	Ru	Fl	Lindblom, Joakim
Pa	Ri	Fl	Ll	Bl	Ru	Da	Cherrey, Kelly D.	Bl	Fl	Ll	Pa	Da	Ri	Ru	Lindsay, Mark D.
Pa	Fl	Bl	Da	Ri	Ll	Ru	Chiang, Howard T.	Fl	Da	Pa	Ll	Ri	Bl	Ru	Maa, Gino
Ru	Da	Fl	Ri	Bl	Ll	Pa	Childs, David W.	Pa	Fl	Bl	Da	Ru	Ri	Ll	Magee, Timothy M.
Da	Bl	Ru	Fl	Ll	Pa	Ri	Chu, Ming Chung	Fl	Da	Ll	Ri	Ru	Pa	Bl	Mahony, John M.
Ll	Da	Ru	Bl	Ri	Pa	Fl	Clayhold, Jeffery A.	Ru	Bl	Fl	Da	Ll	Pa	Ri	Major, Derrick S.
Pa	Fl	Da	Ll	Ru	Ri	Bl	Cohen, Howard S.	Da	Ri	Ll	Ru	Pa	Fl	Bl	Manning, Evan M.
Pa	Bl	Da	Ru	Ri	Fl	Ll	Conneally, Thaddeus J.	Ri	Bl	Pa	Fl	Da	Ll	Ru	Manning, Gail A.
Da	Bl	Ll	Ri	Fl	Ru	Pa	Corral, Suzanna L.	Da	Pa	Ll	Bl	Ru	Ri	Fl	Mares, Moises
Fl	Da	Bl	Ll	Pa	Ri	Ru	Costa, Joannes M.	Bl	Ri	Pa	Ru	Fl	Da	Ll	Marley, Mark S.
Pa	Ru	Ri	Da	Ll	Fl	Bl	Cromwell, Evan F.	Ru	Da	Ri	Bl	Fl	Ll	Pa	Marston, John B.
Bl	Pa	Fl	Ll	Ri	Ru	Da	Cuny, Charles J.	Da	Ru	Bl	Fl	Pa	Ll	Ri	Martin, Stephen P.
Ru	Fl	Ll	Da	Pa	Ri	Bl	Dairika, Geoffrey T.	Da	Pa	Bl	Ri	Ll	Fl	Ru	Martinez, Robert E.
Da	Bl	Ll	Fl	Ru	Ri	Pa	Decker, Joseph E.	Fl	Bl	Pa	Ri	Da	Ru	Ll	Marvit, David L.
Ll	Pa	Fl	Da	Bl	Ri	Ru	Determan, James T.	Ll	Fl	Ri	Ru	Bl	Da	Pa	Mathews, Debbie L.
Da	Pa	Bl	Ll	Ri	Ru	Fl	Dewitt, James L.	Ru	Bl	Fl	Pa	Ll	Ri	Da	Matijasevic, Vladimir
Da	Fl	Ru	Ll	Bl	Pa	Ri	Disini, Jose E.	Bl	Ri	Ll	Pa	Fl	Da	Ru	Matus, Jeffery W.
Ll	Ru	Fl	Da	Pa	Ri	Bl	Draper, Denise L.	Ll	Da	Bl	Pa	Ri	Ru	Fl	Mayer, Kate M.
Ri	Ru	Ll	Pa	Fl	Da	Bl	Dwyer, David K.	Fl	Ri	Ll	Pa	Da	Bl	Ru	Mayhew, James R.
Ll	Bl	Fl	Ri	Ru	Pa	Da	Elliott, Jonathan C.	Ll	Bl	Pa	Ri	Ru	Da	Fl	Mccoy, Candice
Pa	Ll	Fl	Da	Bl	Ru	Ri	Ellis, Robert W.	Ru	Da	Bl	Ri	Ll	Fl	Pa	Mcdowell, Michael J.
Fl	Ll	Da	Bl	Ri	Ru	Pa	Erving, Richard H.	Ru	Ll	Ri	Fl	Pa	Bl	Da	Meixner, D. Laurence
Ri	Da	Fl	Pa	Ru	Bl	Ll	Fernandez, Erik J.	Fl	Bl	Ru	Ri	Pa	Da	Ll	Meng, Wen-jin
Bl	Fl	Pa	Ll	Ru	Ri	Da	Fletcher, Kathleen	Ll	Fl	Da	Pa	Ru	Bl	Ri	Michelsen, Niels E.
Bl	Da	Ll	Fl	Ru	Pa	Ri	Foley, Thomas G.	Ru	Da	Ri	Fl	Pa	Ll	Bl	Miller, Anthony W.
Bl	Pa	Ll	Fl	Ri	Da	Ru	Fong, John K.	Ru	Ri	Ll	Bl	Pa	Fl	Da	Mnatzakanian, Sergay
Bl	Ll	Da	Ru	Pa	Ri	Fl	Fong, Roger B.	Bl	Ru	Da	Pa	Ll	Ri	Fl	Moore, Scott L.
Bl	Ru	Ri	Da	Fl	Ll	Pa	Fossgreen, Donald J.	Ru	Ll	Fl	Da	Pa	Bl	Ri	Movshovich, Roman
Pa	Fl	Bl	Ru	Ri	Da	Ll	France, Lucinda J.	Ll	Ri	Bl	Pa	Fl	Ru	Da	Murdock, Robert L.
Ri	Da	Bl	Ll	Ru	Fl	Pa	Francis, Joseph D.	Ru	Ll	Ri	Da	Pa	Fl	Bl	Murphy, Robert
Ru	Ri	Bl	Fl	Ll	Da	Pa	Frisch, Josef C.	Ll	Fl	Da	Pa	Ri	Ru	Bl	Murray, Alan G.
Bl	Pa	Da	Ll	Ri	Fl	Ru	Fun, David R.	Ll	Pa	Ri	Bl	Fl	Ru	Da	Myshrall, Arthur W.
Ri	Pa	Ru	Da	Fl	Bl	Ll	Furutani, Tracey T.	Ru	Pa	Da	Fl	Ri	Ll	Bl	Natter, Russel L.
Da	Ru	Bl	Ri	Ll	Pa	Fl	Gant, Kenneth R.	Pa	Ll	Da	Ri	Ru	Fl	Bl	Newman, Elizabeth A.
Pa	Ru	Bl	Fl	Ll	Da	Ri	Gaver, Donald P.	Ru	Pa	Bl	Ri	Ll	Da	Fl	Ng, Roger K.
Bl	Fl	Ru	Ll	Da	Ri	Pa	Gillespie, Paul G.	Bl	Ll	Da	Pa	Ru	Fl	Ri	Nguyen, Phu Thien
Ri	Ll	Pa	Bl	Da	Fl	Ru	Godbout, Louis D.	Ri	Fl	Ru	Ll	Da	Pa	Bl	Nikodym, Lisa A.
Fl	Ri	Da	Ru	Bl	Pa	Ll	Gorder, Micheal	Ll	Ru	Ri	Pa	Bl	Da	Fl	Oliver, Michael R.
Ll	Ru	Bl	Fl	Da	Pa	Ri	Gordon, Scott	Fl	Ri	Pa	Bl	Da	Ll	Ru	Paine, Scott N.
Da	Ru	Pa	Bl	Ll	Ri	Fl	Grannan, Eric R.	Bl	Da	Pa	Ri	Ru	Ll	Fl	Pan, Eric T.
Da	Fl	Ru	Ll	Pa	Ri	Bl	Granneman, Russell D.	Fl	Da	Bl	Ri	Ru	Ll	Pa	Paulsen, Carlotta M.
Bl	Ll	Da	Ri	Pa	Fl	Ru	Grate, Leslie R.	Fl	Da	Ll	Pa	Bl	Ri	Ru	Peebles, Stewart A.
Ru	Pa	Da	Bl	Fl	Ll	Ri	Grenier, Lisa C.	Fl	Pa	Da	Bl	Ll	Ru	Ri	Periwal, Vipul

S	M	T	W	T	F	S		S	M	T	W	T	F	S
B1	Da	Ri	Ru	L1	F1	Pa	Petroff, Catherine M.	L1	F1	Da	Ri	B1	Ru	Pa
L1	Ru	Ri	Pa	Da	F1	B1	Phillips, Cornelius J.	L1	B1	Pa	F1	Ri	Da	Ru
F1	Ru	Da	Ri	L1	Pa	B1	Pitt, George H.	Da	Ru	B1	Ri	F1	L1	Pa
F1	Da	Pa	L1	Ru	Ri	B1	Princen, Norman	Pa	F1	Ri	Ru	Da	B1	L1
Pa	Ri	F1	L1	Da	B1	Ru	Pruitt, Jo Ellen	L1	Ri	Ru	Pa	Da	B1	F1
Ri	Ru	Pa	Da	B1	F1	L1	Purtill, Mark R.	B1	Pa	Ru	L1	Ri	Da	F1
Pa	B1	L1	Ri	Ru	F1	Da	Raffaelli, Paulo	L1	F1	B1	Ru	Da	Ri	Pa
Pa	Ri	F1	Da	Ru	B1	L1	Reichstein, Zinovy	Pa	F1	Da	Ri	Ru	B1	L1
B1	Ri	Ru	Pa	L1	Da	F1	Remmers, Thomas W.	Ru	B1	L1	Pa	Da	Ri	F1
Da	L1	Ru	F1	Ri	Pa	B1	Richman, Bruce	Pa	B1	F1	L1	Ru	Ri	Da
L1	F1	Pa	Ri	Ru	B1	Da	Riley, Steven P.	F1	B1	L1	Da	Ru	Pa	Ri
F1	Pa	B1	Da	L1	Ri	Ru	Roberts, Terence J.	Pa	Da	F1	L1	Ri	Ru	B1
Ri	L1	F1	Da	B1	Pa	Ru	Rodriguez, Katrin M.	L1	Pa	Ri	Ru	B1	F1	Da
Ru	Ri	F1	L1	B1	Da	Pa	Rodriguez, Pedro P.	Ri	B1	L1	F1	Da	Ru	Pa
Ru	Da	Ri	B1	Pa	F1	L1	Rogers, Stephen B.	L1	B1	Ri	Da	F1	Ru	Pa
B1	Ri	Pa	Ru	Da	L1	F1	Ruden, Douglas M.	Ru	Da	Ri	Pa	B1	L1	F1
Da	Ri	Ru	Pa	F1	B1	L1	Sahnaw, David J.	B1	Ri	L1	Ru	F1	Pa	Da
F1	B1	Pa	Da	Ru	Ri	L1	Sahr, John D.	Da	Ri	B1	L1	F1	Ru	Pa
Da	Ru	F1	L1	Ri	Pa	B1	Sakuta, Michael W.	Ri	Pa	B1	L1	Da	F1	Ru
Ru	B1	F1	L1	Pa	Da	Ri	Saylor, Janet M.	F1	Ri	Da	L1	Pa	B1	Ru
F1	Ri	B1	Ru	Da	L1	Pa	Schaeck, John J.	Pa	Ru	Da	F1	L1	Ri	B1
Ru	L1	F1	B1	Da	Pa	Ri	Schlom, Darrell G.	L1	Da	Pa	F1	Ri	Ru	B1
F1	B1	Ru	Da	L1	Ri	Pa	Scott, Kelley A.	Ru	Pa	Da	B1	Ri	F1	L1
Ru	Ri	Pa	F1	B1	Da	L1	Scott, Phillip C.	Ri	Ru	L1	Da	F1	B1	Pa
Ru	L1	Ri	F1	Da	Pa	B1	Seals, Regan W.	Ru	F1	L1	B1	Pa	Da	Ri
Ri	F1	Da	L1	B1	Pa	Ru	Seidman, Glenn R.	Pa	Ru	Da	F1	B1	L1	Ri
Ri	L1	B1	Ru	Da	F1	Pa	Shapiro, Jonathan S.	F1	Ri	Pa	L1	Ru	B1	Da
Da	Ri	Ru	B1	Pa	F1	L1	Sheedy, Kathleen R.	Ru	Ri	F1	Da	Pa	L1	B1
Da	Ri	B1	Ru	F1	Pa	L1	Shors, Douglas J.	L1	Ri	F1	B1	Pa	Ru	Da
Ru	Da	B1	F1	L1	Pa	Ri	Shu, Jen	L1	B1	Da	Pa	Ru	Ri	F1
B1	L1	Pa	F1	Ri	Ru	Da	Sigler, Glenn R.	F1	Ru	Ri	B1	Pa	Da	L1
Da	B1	F1	Ri	L1	Pa	Ru	Siracusa, Peter C.	B1	Ru	Pa	Ri	F1	L1	Da
L1	Da	F1	Ru	B1	Ri	Pa	Skjellum, Anthony	F1	Ru	L1	Pa	B1	Da	Ri
L1	Da	Ri	Pa	B1	F1	Ru	Spalter, Clara	F1	Ri	L1	Da	Pa	Ru	B1
Ri	B1	Pa	L1	F1	Da	Ru	Srinivasan, Aditya	L1	Ri	Ru	Da	Pa	F1	B1
Pa	L1	F1	Ri	B1	Da	Ru	Stahl, Steven M.							

Scholarships

from three
208 Dabney. The deadline for
filing scholarship applications
is November 15, 1980.

Mail Applications to:

Sheila Cunningham
Editor
International Computer Pro-
grams, Inc.
9000 Keystone Crossing
Indianapolis, Indiana 4620
(317)844-7461 or(800)428-6179

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and \$200 Third Award.
Honorable Mention plaques
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runners-up.

A brochure describing the
contest requirements, and
including a preliminary entry
form, is available from the
Dean's Office or by writing to:
*The Society of the Plastics
Industry*, 3150 Des Plaines
Avenue, Des Plaines, IL
60018.

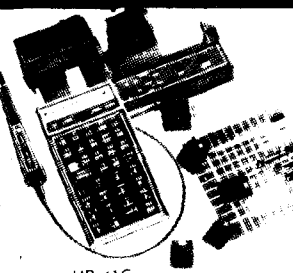
The competition will be
judged during the Expanded
Polystyrene Division Annual
Conference March 5, 1981.

YOUTHGRANTS NOW AVAILABLE

The Youthgrants program
of the National Endowment
for the Humanities will offer
over 100 cash awards across
the nation this fall to young
people in their teens and early
twenties, including many
college and university students,
to pursue non-credit, out-of-
classroom projects in the
humanities. The deadline for
submission of completed
applications is November 15,
1980.

The grants, which offer up
to \$2,500 to individuals and up
to \$10,000 for groups (\$15,000
for certain high-cost media
projects) are intended
primarily for those between the
ages of 15 to 25 who have a
ways to go before completing
academic or professional
training.

If you are interested in the
program, a copy of the
guidelines should be on file at
the campus Placement Office
or the Office of Contracts and
Grants.



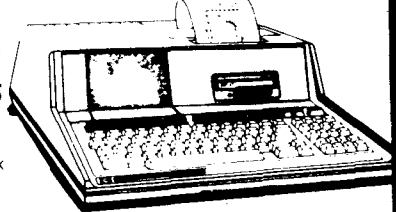
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THE WAND 41C	\$125	\$125.00
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HP 97	\$750	\$637.50
HP 34C	\$150	\$135.00
HP 38C	\$150	\$135.00
HP 33C	\$110	\$99.00
HP 38E	\$120	\$102.00
HP 37E	\$75	\$63.75
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THIS CAN CHANGE YOUR LIFE

When I was a freshman on pass/fail grading, I had a whole lot of free time that I spent biting my fingernails and studying the various protuberances on my face. Did you know that if you angled your teeth across the nail, you can avoid those messy blood stains associated with avid nail biters? But that's all behind me because something wonderful came into my life: *The California Tech*. This fine paper has historically jettisoned all those associated with it to the top of the financial and social ladder, and it will do the same for you if you come investigate its rich resources. *The Tech* needs writers willing to expose the malignant corruption festering in every dank corner of Caltech life, and soon it will need editors whose rich verbiage will transform articles into chryselephantine verse. If money is your game, *The Tech* also needs a business manager to refill our now dwindling coffers with advertising gold. So there you have it - *The California Tech* is an opportunity you dare not miss. Drop by the first Lit 15 meeting in 125 Baxter, next Friday, at 12:15PM and start your life on the road to power.



ENTERTAINMENT

MOVIES plays SPECIAL EVENTS

Strung Out

GUARNERI STRING QUARTET TO APPEAR AT CALTECH On October 19 the Guarneri String Quartet will open the 1980-81 77th Season of Coleman Chamber Concerts on campus in Beckman Auditorium at 3:30pm.

Celebrating its 15th season in 1980, the Guarneri String Quartet continues to inspire admiration from chamber music enthusiasts the world over. Their mutual love of great quartet literature has created an ensemble whose depth of astuteness and unity of style and purpose ensure music-making in the finest tradition.

Their performance will include Beethoven Quartets E Flat, Opus 127 and F Major, Opus 59.

Ensuing concerts will be: November 23, Sequoia String Quartet; January 25, LaSalle Quartet; March 1, Juilliard String Quartet; April 5, Stuttgart Piano Trio, and May 3, the London Early Music Group.

Season tickets: \$54.00, 48.00, 42.00, 30.00; students \$15 off. Single tickets: \$10.00, 9.00, 8.00, 6.00; students \$2.50 off. Juilliard and Guarneri only: \$12.50, 11.00, 9.50, 7.50.

For further information phone 213 - 793-7043.

Caltech's season of performing arts will open with flamenco guitarist Carlos Montoya at Beckman Auditorium on Friday and Saturday, October 3 and 4, at 8pm. Montoya, who is celebrating his 76th birthday, made his stage debut at age 15 and was the first flamenco guitarist to perform a solo concert in this country 30 years ago. At that time, a full recital of flamenco guitar music was an unheard-of step, but it met with instant success. Carlos Montoya was born in Madrid, the son of a well know flamenco guitar playing family. He is what the Spaniards literally describe as "Gypsy on all four sides," which he claims directly affects his music and style, because flamenco must come "from the heart." His concerts are innovative. As he goes along he creates all his own arrangements and original compositions based on the Spanish gypsy tradition. That he can take a short melodic scheme and improvise upon it and create a wholly new self-contained musical entity is what gives Montoya's art its uniqueness. Unlike classical guitarists, he cannot rely on printed music by another composer because he doesn't read a note.

Admission: \$11.00, 10.00, 9.00; students 10% off. 213 - 793-7043.

ARCHITECTURAL SCULPTURE
A collaborative exhibition with installations and an historical documentation.
1 October through 30 November
By Ollie Graves
Did you notice that "Horizontal Pillar" on the Court of Man? Well, it's not the biggest rod in the world. It's one of the four architectural exhibits on campus.

During the month of October, campuses all over the L.A. Basin will be participating in **Architectural Sculpture A Collaborative Exhibition**. Some campuses in the area have been given models of architectural works,

others photographs. Caltech, however will display life-size architectural sculptures.

Last year's big debate over Richard Tuttle's work may be eclipsed by this year's controversy over the "Horizontal Pillar", but don't let that stop you from visiting the other exhibits around campus.

.....
Baxter:

30 September Noon Preview docent tour of "Architectural Sculpture" by Director, Michael Smith. Baxter Art Gallery. 6 to 9pm *Preview artist' reception*. Baxter Art Gallery and selected campus locations.

7 October Noon Informal talk

Cow Mucus
1 Box Vanilla Pudding (instant)
2 Cups Milk
4tbs. Chocolate Sprinkles
2tbs. Strawberry juice
1 Cup crushed Pears

Mix pudding and milk according to directions on box and stick in freezer for 10 min. Add crushed pears and sprinkles, mix in well. Add juice and stir. Freeze for an additional 10 min. before serving.

Beer Float
1 Bottle of beer
3 Ice cubes
3 Scoopes Ice Cream
Tall glass and straw

Half fill glass with beer, add ice cubes, top off with ice cream. It tastes great! The ice will keep the ice cream cold and the beer will take on a sweeter-fuller taste. (Note: don't use an ice cream with nuts).



Get-a-Way Special

Friday and Saturday, October 10 and 11 at 8pm, will be carnival time at Caltech's Beckman Auditorium. In a rich and colorful extravaganza rarely experience outside the island of Trinidad, 41 Caribbean musicians, dancers and singers will celebrate their folk traditions of music, song, and dance in a manner similar to the famous annual Carnival in Port-of-Spain.

Steelband music, an art form in existence less than 50 years, will be played by the Trinidad-Tesoro Starlift Steel Orchestra, which will introduce a new part calypso, part soul music beat called "soca." The band's 50 steel drums of varying sizes are tuned to achieve tonal ranges approaching those of a symphony orchestra.

The Ujamaa Dancers and Drummers will dance on hot coals, broken glass and fire. Their complicated athletic feats will culminate in the traditional Trinidadian "limbo" dance.

Calypso music, with its immediately recognizable rhythm, combines improvisation with the ancient art of storytelling. Colorfully and elaborately costumed calypson singers will outdo each other in musical delivery and inventiveness.

This will be the first United States tour of a Caribbean Carnival.



- 1 Beckman Auditorium
 - 2 Beckman Laboratories
 - 3 Baxter Hall
 - 4 Dabney Garden
- Marsia Alexander
■ Michael Davis
| Jud Fine
▲ Bruce Nauman

Michael Davis' "Time Line for Forgotten Ancestors," shown above in Dabney Gardens is part of the Architectural Sculpture Exhibit, hosted by the Baxter Art Gallery at various points on the Caltech campus. The map to the above left shows the location of the other three works in this presentation.

Watson Lectures

quakes to quasars

"All You Ever Wanted to Ask About Genes and Chromosomes and Were Afraid We Didn't Know," a lecture by Caltech Professor of Biology Dr. James Bonner, on Wednesday, October 8, will be the first in the Institute's fall/winter 1980-81 Earnest C. Watson Lecture Series. All five lectures in the series begin at 8pm in Beckman Auditorium on campus and are open to the public without charge.

In his illustrated lecture, Dr. Bonner will describe the structure, arrangement, and expression of genes and the ways in which they are packaged into chromosomes. Since 1943, when it became known that DNA was the stuff of heredity, scientists have been learning about how DNA codes genetic information. Bonner will share with his audience some of the surprises scientists have had about the nature of genes, and he will touch on the relatively new subject of genetic engineering - that is, the modification of

plants and animals via their genetic structure.

Other Watson lectures in the 1980-81 series are:

--October 22, Dr. Morris P. Fiorina, Caltech professor of political science, "The Decline of Collective Responsibility in American Politics."

--November 19, Dr. Anthony C.S. Readhead, Caltech research associate in radio astronomy, "Quasars and Continental Drift."

--December 10, Dr. Norman Davidson, Caltech professor of chemistry, "The Recombinant DNA Revolution."

--January 7, Dr. Kerry Sieh, Caltech assistant professor of geology, "Is California 'Overdue' for a Great Earthquake?"

On October 22 Dr. Fiorina will trace the almost total disappearance of collective responsibility from the American political system -- partly as a result of the weakening of political parties. He will also discuss other

associated problems, such as policy immobilism, single-issue politics, and public disenchantment with the political system.

Dr. Readhead's November 19 lecture will deal with recent developments in radio astronomy, particularly the synthesis of telescopes of global dimensions and the use of VLBI (Very Long Baseline Interferometry) telescopes that measure intercontinental distances to within a few centimeters, monitor movements of the earth's surfaces, probe the centers of quasars and radio galaxies, and provide evidence for the existence of super-massive black holes.

In his December 10 appearance, Dr. Davidson will report on the powerful new methods developed in the last decade for selecting, purifying, amplifying, and characterizing in minute detail genes from living creatures. He will also talk about the valuable medicinal products that will eventually be available from the process of

introducing the appropriate genes from higher organisms, or their viruses, into bacteria. Dr. Davidson will discuss the mystery of the processes involved in the performance of the several tens of thousands of the genes that each human being has as he or she develops from a single cell to a complex organism.

In the final lecture of the Watson series on January 7, Kerry Sieh will talk about the reliability or records of earthquakes in the historic and prehistoric past that seismologists are examining in order to try to crudely forecast the size, location, and time of the next great earthquake in California.

Caltech's lecture series is named for the late Earnest Watson, who was, for more than 40 years, a faculty member at the Institute, chairman of the physics division, dean of the faculty, and administrative director of research and development.



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Colorado River Raft Trip

The Y is again running a raft trip down part of the Grand Canyon, on Oct. 22-26. There will be 25 places, with students getting first preference. If necessary, there will be a lottery. The cost—\$95—includes all food and transportation. Sign-up begins in the Y office, Winnett Oct. 6. See next week's *Tech* for more details.

Rationality USA

Caltech and Art Center College of Design will offer a unique class this fall. The course title is *The Irrational in Modern Culture*, and it will be taught by Professor Robert A. Rosenstone of Caltech and Professor Richard A. Hertz, Dean of Humanities at the Art Center. (At Caltech the course is listed as H161, Topics in History.)

The course will include an exposure to and analysis of the irrational in many aspects of modern life (since the late nineteenth century), including psychology, philosophy, literature, visual arts, film, politics, and -- yes, science and technology. There will be readings in such diverse topics as existentialism, zen, psychoanalysis, Dada, and surrealism, and in such authors as Tolstoy, William James, Jean-Paul Sartre, Tristan Tzara, Heisenberg, Freud, Jung, Thomas Pynchon, Camus, Theodore Roszak, Samuel Beckett and Andre Breton. Films by Jean-Luc Godard and Leni Riefenstahl will also be shown.

The unique format of this course makes it a kind of experiment which, if successful, could be repeated, thus potentially broadening the Caltech educational experience. The class will meet on Thursday nights and will alternate between the two campuses (Art Center is located in the hills west of the Rose Bowl). The first meeting will be on Thursday, October 2 at 7:30pm in Baxter 127. Afterward, the class will go to Baxter lecture hall, where Jean-Luc Godard's film "Weekend" will be shown.

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Just a reminder about Placement Services:

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Information bulletins and application forms for a the GRE, MCAT, GMAT, and LSAT are also available.

On campus recruiting by industrial organizations and government agencies for PHD's will begin October 13 thru December. Interviewing for ALL DEGREE CANDIDATES will start in mid-January.

Guitar Classes At Tech

Cal Tech offers Classical and Flamenco Guitar Classes with guitarist Darryl Denning on Tuesdays beginning October 7 in Fleming Music Room. The Classes are free of charge to Cal Tech students. Other members of the CalTech community will be admitted if space permits. The Beginning Class meets at 4:30pm and the Intermediate-Advanced Class meets at 5:30pm. Private instruction can also be arranged with Mr. Denning. Classical and Flamenco repertoires will be explored but the techniques gained can be used in other forms of guitar as well. Students should bring their guitars to the first meeting. For further information please call Mr. Denning at 465-0881.

Can You Handel It?

The Chamber Music Class will be holding a meeting on September 30, at 7:30pm, in Winnett Center. William and Delores Bing, Caltech's Artists-in-Residence, will be on hand to coach the proceedings.

Swedish Club Scholarship

Swedish Club of Los Angeles, Inc. is sponsoring scholarships for the academic year, 1980-81, for full-time students of Swedish ancestry. The deadline is November 1, 1980, and further information may be obtained in the Office of Financial Aid, 208 Dabney.

Refugees: A World-wide Problem

Given the influx of refugees from Cuba, Haiti, and El Salvador to the United States in recent months, and with the continued uncertainty in the Middle East and South-East Asia, it is fitting that Dale de Haan, the United Nations Deputy High Commissioner for Refugees will be speaking at Caltech early in first term.

Mr. de Haan is a native of Michigan. He had served as a lecturer and consultant to the United States government before being appointed to a post on the Geneva based UN Commission on Refugees. He will be speaking on "Refugees, a World-wide Problem" in Ramo Auditorium, October 2, 1980 at 8:00p.m.

Watson Fellowships

Seniors: the deadline for Watson Fellowship essays is October 24. Seniors wishing to apply for these travelling fellowships should come to the Deans Office and talk to David Wales or Chris Wood about their plans.

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NATIONAL HISPANIC SCHOLARSHIP FUND

Scholarships are available graduate and undergraduate students of Hispanic American background from the National Hispanic Scholarship Fund. Applicants must have completed at least two quarters or one semester of college work prior to the submission of their applications. In addition, applicants must be U.S. citizens and presently enrolled as full-time students. Applications may be submitted between August 15 and October 15. Awards will range from \$200 to \$600. Applications are available at the Financial Aid Office, 208 Dabney Hall.

BLOW IT

The Caltech Wind Ensemble and Jazz Band will have its first rehearsal Thursday October 2nd in the Beckman basement. The Wind Ensemble will rehearse from 7 to 9pm and the Jazz band will rehearse from 9 to 11pm.

Marshall Scholarship

applications are now available for 1981. Marshall Scholarships are open to all U.S. citizens, and are used for up to two years of study at any British university. Selection is based on academic achievement, strength in major field course-work, other activities and achievements, and letters of academic and personal reference. The deadline for application for the 1981-1982 scholarships is October 22, 1980. Further information may be obtained from the Office of Financial Aid, 208 Dabney Hall.

W6UE In Pasadena

The Caltech Amateur Radio Club, is looking for new members. If you are interested in the exciting world of Ham Radio, contact Sam Sjogren in Ricketts House (1-59). Meetings will be in Winnett, Tuesdays at 10pm., upstairs.

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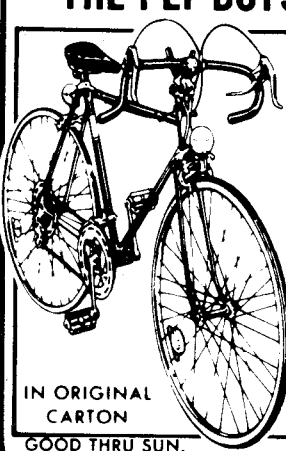
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