

Touchstone Supercomputer

by Jo Ignatowicz

The fastest and most powerful computer in the world will be unveiled on Friday, May 31, 1991 at Caltech. The computer, called the Intel Touchstone Delta system, operates at a peak speed of about 32 gigaFLOPS, which means it can perform 32 billion floating-point operations per second. 570 nodes make up the Touchstone, each one containing an i 860 processor and 16 megabytes of RAM. It also has thirty two 1.4 gigabyte disks and an additional sixteen 2.3 gigabyte 8mm tape back-up devices are to be added soon. Its operating system is based on UNIX and uses X windows, and a compiler is being developed at Green Hills Software.

Significant contributions to the

development of the Touchstone were made here at Caltech. Professor Charles L. Seitz designed the networking chip that allows the nodes of the Delta to communicate effectively. The Touchstone Delta will be housed at Caltech, but operated by the Concurrent Supercomputing Consortium, which is an organization made up of very prominent research institutions and government agencies. It will be used to compute solutions to challenging problems in all scientific areas. Some of its applications are: modeling and simulation of global climate change, calculation of the rates of chemical reactions, sorting through data from radio-telescopes and the Magellan and Galileo spacecraft and simulations of realistic models of brain circuits.



Loc Nguyen (Intel), Chip Chapman, Jr. (Caltech), and Jerrie Coffman (Intel) next to the Touchstone Supercomputer.

Tech Editor Election

The new tech Editors are: Andy Crews, Delwyn Gilmore, and Jon Liljebld

Numerical results:

1st election votes	number
Jason Lee, Aaron Matzner, and Emily Wen	118
Andy Crews, Delwyn Gilmore, and Jon Liljebld	110
Jay Bromley and Ari Pine	95
Scott Kister and Mark Lyttle (write in)	36
NO	20
Other random write ins	7

2nd election votes	circle	cross	net
Lee, Matzner, and Wen	128	93	35
Crews, Gilmore, and Liljebld	122	32	90
Jay Bromley and Ari Pine	89	81	8

Brief explanation: In the first election, no team received a majority of votes. This caused a run-off including at least the first and second place teams. The third place team was included since it received more than 80% of the second place team's vote. Teams finishing with fewer votes were not included. In the second election, no team received a majority of circle votes. Therefore, the team with the greatest difference of circle and cross off votes wins.

Comments to Lanny Boswell, ASCIT Election Chairman

The Boffo- Bonecrusher Broomball Schedule

Tentative Broomball Schedule

11:00	Damn Scurves vs. Flyguys
11:25	Empaffes vs. Physical Plant
11:50	The Smurfs vs. Jamaican National Team
12:15	Page Waiting Staff vs. Flyguys
12:40	Trash Club vs. Freshman Committee of Fluids
1:05	Physical Plant vs. Not Improved II Team
1:30	Jamaican National vs. Not Improved I Team
1:55	Damn Scurves vs. Page Waiting

Editorial
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Jim's Journal
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SPORTSDAY Extravaganza

Sports Day is Sunday from noon to five. All sports are informal and you can come and go during the scheduled periods. A buffet lunch will be served during the day beginning at noon. Please feel free to come for this social event even if you don't plan to participate in the sports!



The dedication and unveiling of the Touchstone will be at 3:00 p.m. on the thirty first in Dabney Gardens. The master of ceremonies will be the Honorable George Brown, Jr., Member of the U.S. House of Representatives (D-Riverside, CA) and Chairman of the House Committee on Science, Space and Technology.

Mathematics Awards

Several Caltech undergraduates were honored on Tuesday night, May 14, at the annual Caltech Mathematics Awards Banquet, held at the Athenaeum. Allen Knutson, a senior mathematics major, received the E.T. Bell Undergraduate Mathematics Research Prize for a paper entitled "Bounds on Representing Naturals as Sums from Slowly Increasing Sequences." Sophomore Nitya Kitchloo received a Morgan Ward Prize for a paper in group theory and Freshman Edray Goins received a Morgan Ward Prize for a paper on quadratic forms. Each prize consists of a cash award and a certificate.

Jonathan Pakianathan and Nitya Kitchloo received H.J. Ryser

Scholarships for next year. These grants are supported by an endowment from the estate of the late Herbert J. Ryser, who was a professor of mathematics at Caltech from 1967 until his death in 1985. These awards are given for excellence in course work and strong endorsement from faculty. Michael Maxwell and Chris Raymond will share the Frederick J. Zeigler Memorial Award.

Jun Teng and Robert Southworth were honored for placing in the top 45 in the William Lowell Putnam Competition. They will receive Certificates of Superior Performance. The Caltech team placed sixth among the top 45 in the competition held on Dec. 1st, an impressive performance.

features

CRIME AND INCIDENT BEAT

5/9	Security observed three persons who appeared to be students donning climbing gear and preparing to scale the east side of Baxter Hall. The three were escorted back to their houses where they could not produce Caltech ID.
5/10	Security received a call that a suspicious person was wandering in the hallway of the first floor of Kerckhoff Lab. The suspect claimed he was told he could use the phone in the building. The suspect was escorted off campus and advised not to return.
5/10	The Dabney computer room was entered and a Macintosh II hard drive and four hard disks were removed. The door to the lab was apparently left open.
5/10	Marks House computer room is missing a Macintosh keyboard and a mouse. The computer room has both a key and a combination lock.
5/13	A student's room in Mosh/Jorgensen was entered by way of the window and several items were taken including a tape recorder and jacket.
5/14	A 1980 Mazda RX7 was stolen from the Business Service parking lot while the owner was in the Caltech Credit Union. The suspect arrived in a second silver Mazda RX7 and left both of them.
Total value stolen or missing: \$8,570	

2:20	Staff The Meat Council vs. Empaffes	Located at the Pasadena Ice Rink. Food and drink has been provided in the past.
2:45	Not Improved II vs. The Smurfs	This event brought to you in part by the letter "Y" and the numbers <i>e</i> and <i>pi</i> .
3:10	Not Improved I vs. Trash Club	Show up with your brooms taped and ready to draw blood!
3:35	Freshman Committee vs. The Meat Council of Fluids	

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Letters

To the Editors:

The other day, towards the end of the part of the recent Student-Faculty Conference that was devoted to Freshman Humanities, my good friend and colleague Morgan Kousser said some things that were both fierce (not his true nature) and idiotic (with him remarkably rare).

He said that Freshmen can't have been taught Humanities properly in high school because their teachers aren't research scholars, and that all of them *without exception* need to be taught Humanities for a spell, when they get here, by the likes of him and me. The first is nonsense. The reasons why it is desirable that college faculty do research as well as teach are several in number, do not exclude the possibility of excellent college teaching by non-researchers (only reduce sharply the probability), and have no relevance at the high school level. If they did, Steve Frautschi or Jerry Pine would announce that no incoming Frosh may be admitted to Physics 2 because (of course) the high school physics they cheerfully supposed had prepared them to skip Physics 1 was taught them by mere teachers.

As for supposing that no Freshmen are ready for upperclass Humanities—that none are sufficiently sophisticated in writing skills and critical ability to go directly to them—that is what my father used to call bushwa. I get some of these marvelous sophisticated Freshmen every year. I wish to hell they had been excused before I got them (for their sake, not of course for mine). I wish to hell I had the power, which until about ten years ago we *did* have, to at least excuse them from the necessity of taking a second Frosh Hum. Why don't I? Not because my colleagues are generic idiots. Of course they aren't. But because some of them, admirable in all other respects, have for reasons I cannot fathom dug their feet in on this lunacy. Sample: my ferocious neighbor here on Baxter's 2nd floor, Morgan Kousser.

Having said this, let me add that I am as convinced as Morgan is that *most* Frosh need Frosh Humanities work before they go on to upper-class humanities. There are probably lots of things wrong or lacking in the Frosh humanities program. The remedy lies in fixing them or supplying them—not in scrapping the works.

Sincerely,
Peter Fay

IHC Minutes Digest

Reader's Digest of the IHC minutes of 9 May 1991

Aimee Smith and Kevin Austin tell of a workshop that was piloted in Lloyd. The workshop deals with relationships, such as with roommates and people in the house, but not romantic ones. Aimee and Kevin asked if any of the other Houses wanted such a workshop before the end of the year. Call Kevin at the counseling center if interested.

Rod Kiewiet talks about the search for a new MOSH. Suggestions are made by the IHC, and Rod kicks around some other names that have been brought up.

Notes from Kim West: People in the off-campus lottery can NOT use people in the clean-up lottery as roommates. There will be a waiting list for rooms. The people on this list will be guaranteed rooms in the fall, but Kim does not know how long this list will be.

Estimated figures for next year's newcomers are 230 frosh, 15 transfers, and 33 3-2 transfers for a total of 278.

The following spaces will be reserved next year: Blacker:31 Dabney:28 Fleming:47 Lloyd:45 Page:48 Ricketts:32 Ruddock:47.

These numbers were attained with respect to the size of the House and the number of people the House would force off.

Walker Aumann will act as IHC Secretary for the remainder of this term. Benjamin Smith will return in the fall.

Human Relations

You may be wondering where on this campus you can go if you have a Caltech-related problem and need to know what can be done about it. Well, the Human Relations Advisor, Jacqui Curran, is the person to see. She is available to confidentially discuss your problem and your options for responding to or resolving it.

She can even help out by providing mediation or talking to the appropriate people for you if you don't want to. The human relations advising office is independent of all campus structures and can provide a neutral, objective, and informal avenue for problem resolution and complaint processing.

Jacqui has been handling problems such as academic disputes, difficulty getting along with your advisor, race and sexual harassment, unfair treatment, as well as random problems that other offices haven't been able to resolve.

She is also soliciting information on general campus problems such as the environment for women, the problems with housing, or other complaints or concerns you may have. She may then take this general anonymous information to the appropriate people as a proposal to see if any changes are possible to make things better.

The human relations advising office will also be sponsoring workshops and discussion groups on topics such as getting along with difficult advisors; preparing for life after Caltech; dealing with sensitive issues such as suspected cheating or academic fraud; or any other areas you can suggest.

Jacqui is also available to work with any groups that are seeking to initiate positive changes on campus or just groups that provide support and networking to the members.

Jacqui's background is in Industrial/Organizational Psychology and she is still a graduate student struggling to complete her dissertation sometime in the near future. You can reach her at x6990 or mail code 4-40, or drop by the office in the basement of Dabney, room 4, OR you can even e-mail her at JCURRAN@romeo.caltech.edu.

Recycling Information

How to be a recycler at Caltech: Caltech has a new recycling center! The refurbished recycling center, still located next to the public events office, just North of Beckman Auditorium, features new containers for cardboard, colored paper, and some plastics, as well as the traditional aluminum, glass, newspaper and white paper.

Paper recycling at Caltech:
White paper recycling: Set up a white paper container where you work. We want the paper to be as high grade as possible, so please only put in white office paper, and computer paper. Please do not mix in: envelopes, colored paper, cellophane tape, gummed labels or newspapers. Staples are OK.

White paper can be emptied into the yellow bins or the blue dumpsters around campus. If your yellow bin is getting full, please empty it into the nearest blue dumpster. The combination is 314. If you have questions or would like maps or signs for paper recycling, contact Gert, gert@ccoroad, X3983, 128-95.

Don't forget: Please use recycled paper — Quality recycled paper for photocopiers and laserwriters is available from Graphic Arts.

Mixed paper: Colored paper, envelopes, glossy paper and telephone directories can be put in the mixed paper dumpsters, which are also blue. These dumpsters are located around the campus near the white paper dumpsters. Please don't put in any plastic, e.g. those little plastic envelope windows.

Newspaper: Newspaper can be taken to the Caltech recycling center as usual. Please stack your newspapers as far back as possible; don't just dump them in the doorway.

Cardboard: Please crush cardboard boxes, and throw away any styrofoam.

Brown paper bags: Please recycle these with the cardboard.

Plastics: There are several different sorts of plastics, and we can only accept two at Caltech recycling center:

CA Redemption value plastic (PET) includes most soda bottles and green Arrowhead water bottles only. Please crush bottles.

High density plastic bottles (HDPE) include only milk bottles and water bottles made of heavy white plastic. Please crush bottles.

Sorry, we do not accept light plastics like Crystal Geysers and Evian water bottles. (We suggest that you reuse bottles, obtaining your drinking water at the cheap dispensers outside supermarkets.)

We do not accept plastic bags, styrofoam, cooking oil bottles, motor oil bottles, yogurt or margarine containers, or shampoo bottles.

Plastic grocery bags, styrofoam and polystyrene can be recycled at Ralphs.

Other materials accepted at Caltech recycling center:

Aluminum cans should be crushed. Please do not mix in tin cans or aluminum foil.

Glass bottles should be sorted into clear, green and brown. Please only deposit empty bottles.

What we do not take:
Sorry, We do not recycle tin cans. Tin cans can be taken to South Pasadena recycling center, at the west end of Mission street.

Please do not dump at our recycling center. We do not accept gasoline, televisions, sofas, coat hangers, sheet metal, windscreens, batteries, engine oil or diapers. For such materials, try calling Pasadena City at 405 4449.

We think that recycling should be more part of 'the system' at Caltech. If you agree, please let the administration know — write to the VP for Business & Finance.

Caltech recycling center is maintained by Caltech Environmental Task Force, 140-58, Recycling Chair: Sakae Suzuki, sakaeromeo, X2946, 127-72;

Chair, David MacKay, mackayhope, X2805, 139-74.

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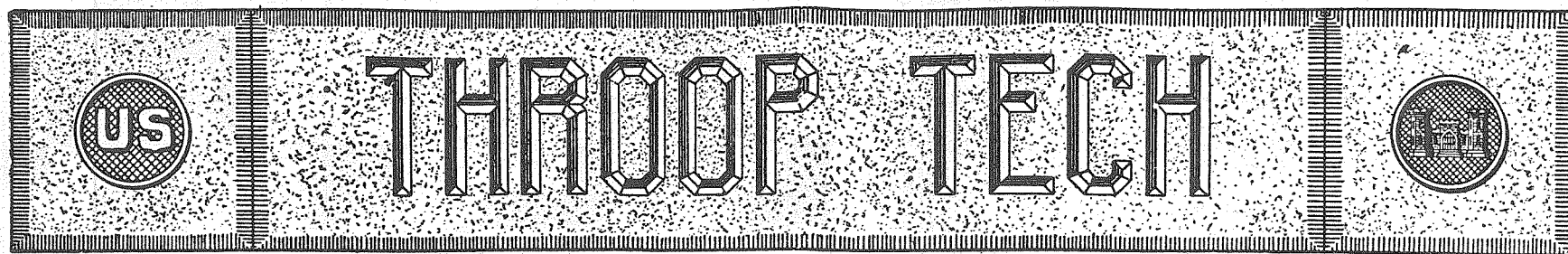
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Welcome Back, Alumni



Glee Clubs and Symphony Combine for Performance

A choral-orchestral concert in honor of the Caltech centennial celebration, with music by Mozart, Saint Saens, and Britten, will be presented by the combined Caltech Glee Clubs and the Occidental-Caltech Symphony at 8 p.m. this evening in Beckman Auditorium. The concert is without charge.

Conductor Allen Robert Gross has chosen Mozart's Overture to *The Magic Flute* and Saint Saens's Symphony #3 (*The Organ Symphony*) for the orchestra, with Thomas Neenan organist.

Britten's celebratory *Cantata Academica*, written in 1960 for the 500th anniversary of the University of Basel and recently heard in the U.S. at the Harvard 300th, will be performed by the Glee Clubs under the direction of Dr. Donald Caldwell.

The Mozart needs little introduction and will of course honor the 200th year commemoration taking place worldwide in 1991. Saint Saens's third and final symphony is a work on the grand scale, in the words of music historian Ronald Crichton, "where it belongs to the larger world, and takes its place with panache, and in the

finale at least, with plenty of noise." First performed in 1886 with a dedication to Franz Liszt, the musician to whom Saint Saens owed so much for practical help and encouragement, the work is highly colorful, sensuous, and full of wonderful sonorities. Crichton continues, "the finale is not for the squeamish, for those troubled by the sound of full organ letting rip in a reverberant French Gothic cathedral, or by any show of public enthusiasm of which they do not feel a part."

Britten's cantata is a splendid work, seldom performed because of the specialized nature of its text. Employing an orchestration of wonderful diversity, the score calls for four percussion players, harp, and piano, in addition to the usual complement of strings, winds, and brass. Vocal forces include a quartet of soloists and large chorus. The work abounds in clever and sophisticated musical devices aimed to impress the original audience from 'academia,' clothed in wonderful melody with stirring rhythm. It even quotes an old student song.

Alumni Gather for Seminars, Reunion

Nearly 2000 alumni and their family and guests will be returning to campus this weekend for the Caltech Centennial Seminar Day and Alumni Reunion Weekend.

Highlighting Friday will be the student/alumni barbecue held in Dabney Garden at 5:30 p.m. Lab and campus tours will take place during the afternoon, and the combined Caltech Glee Clubs and the Caltech/Occidental Symphony will perform a centennial concert that evening.

Saturday features the annual Seminar Day and the All-Classes Centennial Reunion Dinner at the rebuilt Ritz-Carlton Huntington Hotel.

Frank Press, president of the National Academy of Sciences, will be the featured speaker at the Seminar Day general session. Dr. Press will discuss "Global Warming: What to Do About It" in Beckman Auditorium at 2:15 p.m.

A leader in major national and international projects including the International Geophysical Year,

Dr. Press became professor of geophysics at Caltech in 1955. He directed the Seismo Lab from 1957-65, when he left to become head of the then Department of Geology and Geophysics at MIT.

Seminar Day will include six seminar sessions, featuring 16 lectures by Caltech professors and JPL scientists (for complete listings and schedule, see page 5).

Three undergraduate students, Joseph Bach, Jeannie Barrett, and Rajeev Ram, will discuss their summer research projects.

Many items or research areas will be on exhibit, including the Seismo Lab Real-Time Picker, the GALCIT Shock Tunnel, the Beckman Room, and the Mineral and Gem Collection in Arms.

Special video displays feature four episodes of the MATHEMATICS! series and the *Nova* program on Richard Feynman, "The Last Journey of a Genius."

Alumnus Robert Lang will provide a display of the fantastic art of origami, which demonstrate innovations he has brought himself.

The Caltech Bookstore will be open on a Saturday for the only time until the next Seminar Day.

Registration for Seminar Day is open to the public at 8:15 a.m. Saturday in Dabney Lounge. The fee for the day of seminars, speeches, videos, tours, and exhibits is \$32.

Activities for Sunday include the annual Sports Day, which displays the athletic prowess or spectator ability of faculty, students, staff, and alumni, and the Sunday evening Chamber Music concert.

FUTURE CENTENNIAL YEAR EVENTS

- | | |
|---------|--|
| June 14 | Commencement |
| Aug 2-3 | "Caltech and the Universe" Symposium |
| Sept 27 | Stephen Hawking lecture: "Origin of the Universe" |
| Oct 9 | Judith Goodstein: Watson lecture on the history of Caltech |
| Oct 26 | Pasadena Symphony concert |
| Nov 1 | All-campus party |
| Nov 2 | 100th anniversary of founding of Throop University |

Chamber Music Recital

A Centennial chamber music lecture recital, "Music Composed by Scientists," will be presented Sunday, May 19, at 7:30 p.m. in Dabney Lounge. Caltech students will discuss scientific and musical accomplishments of astronomer William Herschel, chemist Alexander Borodin, and engineer Henk Badings. After introductory remarks about the scientist/composer, the students will perform their works. Admission to the performance is free.

Alexander Borodin was an eminent Russian chemist and composer. His work *Prince Igor* and its "Polovetzian Dances" were later reworked into the music of *Kismet*. Musicians have bestowed the title, "Father of the Russian Symphony" upon Borodin. The May 19 concert

will include Borodin's *Piano Quintet*.

The 20th-century Dutch composer Henk Badings was trained as a mining engineer and graduated with distinction from the Delft Polytechnic Institute where he worked for several years. He later became a distinguished professor of composition and the dean of late 20th-century Dutch composers. Caltech students will perform a Badings trio for soprano and alto recorders.

While the music of Borodin and Badings is readily available, Herschel's compositions remain largely unpublished. Discoverer of the planet Uranus, Herschel was a thoroughly trained musician who held the post of organist at the Octagon Chapel in Bath. He taught

music, performed expertly on the violin, oboe, and harpsichord, and composed numerous symphonies, concerti, and chamber works. During his lifetime, however, Herschel saw the publication of but a single collection of sonatas, and he never realized his dream of becoming a recognized composer. The May 19 concert will include the performance of Herschel's *Chamber Symphony in D Major of 1760*.

Two Caltech composers will be represented at the May 19 concert. Cardiologist Richard Bing, visiting associate in chemistry, and Les Deutsch, Caltech alumnus and manager of TDA technology development at JPL, will discuss their musical and scientific lives as an introduction to the performance of their work.



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Centennial Crossword #1 by Steve Bard

ANSWERS ON PAGE 5

ACROSS

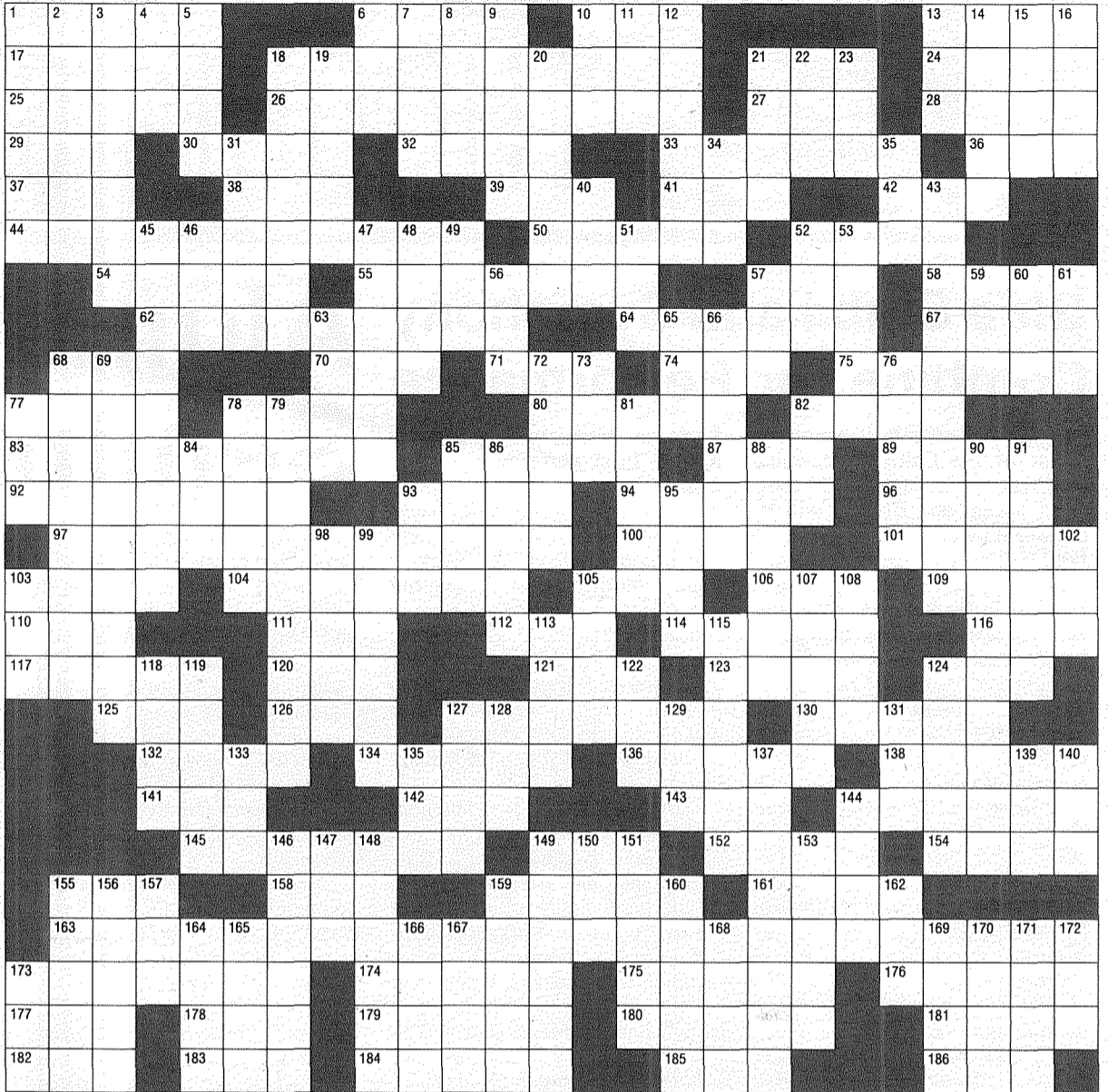
- 1 Often found under Bridge
- 6 Blood, to Bismarck
- 10 Unit of resistance
- 13 Grovel and plead jury
- 17 Weird, uncanny
- 18 With 45 Down and 97 Across, a fine school of higher learning
- 21 Honor System org.
- 24 Greek portico
- 25 Crab's claw
- 26 Greenstein, for one
- 27 Nigerian tribe
- 28 Nobleman
- 29 Possesses
- 30 What Shane wants in Ma 2c?
- 32 Regarding
- 33 Founding father
- 36 Dr. Hood
- 37 Wintertime in NYC?
- 38 "His Master's Voice" co.
- 39 "Zirin's Place" in space? (abbr.)
- 41 Bigger than the BOD?
- 42 B-F connection
- 44 Character in Wagner's *Der Ring des Niebelungen*
- 50 Tendency
- 52 Ravine carved by intermittent stream
- 54 Hair net
- 55 Not delicious
- 57 ASCII "nothing" character
- 58 Daze, stupefy
- 62 Longest English word with only one vowel
- 64 Come out
- 67 Swiss particle lab.
- 68 Astern
- 70 Age of 18 Across, etc.
- 71 T-shirt sizes
- 74 Motorists' org.
- 75 Sister of Philomela
- 77 Ear, comb. form
- 78 Aleutian island
- 80 Desert watering hole
- 82 Melville captain
- 83 Having most pulchritude
- 85 Formerly Lee Browne's charges
- 87 La Brea _____ Pits
- 89 Black, to Bernard
- 92 Comes back from leave
- 93 Toward shelter
- 94 Margaret Mitchell's Butler
- 96 Funny bone?
- 97 See 18 Across
- 100 GALCIT's dept.
- 101 Strokes on the green
- 103 New TQFR
- 104 Streptaster's opposite
- 105 Salt's affirmative
- 106 Doctor's org.
- 109 McDonough's passion
- 110 18 Across, for short
- 111 Ignited
- 112 River island
- 114 Despised person (teen slang)
- 116 *Treasure Island* auth.
- 117 One of the first to enter in 1970
- 120 Decurion's greeting

DOWN

- 121 Masters of the WhisperChipper™ wake-up call, for short
- 123 Irish expletive
- 124 That girl
- 125 Sweet potato
- 126 "When men were _____"
- 127 Discordant noise
- 130 Bogo root
- 132 "_____ horse!"
- 134 Grief, distress
- 136 Procrastinate academically
- 138 Sporty car
- 141 United
- 142 Fine Structure Constant, inverted?
- 143 Literary collection
- 144 Aromatic mint
- 145 Ubiquitous Caltech cryptogram and its Dabney equivalent
- 149 Nabisco parent co.
- 152 "Harry the Horse"
- 154 Gon or decimal preceder
- 155 Universal code for help
- 158 Gangster's weapon
- 159 What opposites don't do
- 161 Catch sight of
- 163 Biblical quotation
- 173 Windpipe
- 174 "_____ with the world."
- 175 Nitrogen-containing compound
- 176 "Remember the _____!"
- 177 Corn unit
- 178 Public house
- 179 Waterwheel
- 180 Doctrine
- 181 False god
- 182 Mimic
- 183 Salty body of water
- 184 African antelope
- 185 German article
- 186 Tape rec. button

DOWN


- 1 Local denizen
- 2 Go over again
- 3 Son of Agamemnon
- 4 Abner's adjective
- 5 Kind of year
- 6 Popular sandw.
- 7 Italian money
- 8 Strange lts. in the sky
- 9 Lone Ranger's sidekick
- 10 Navy's supply off.
- 11 Make haste
- 12 Bird of the swallow family
- 13 Application
- 14 _____ *Of Two Cities*
- 15 Achy
- 16 Mount Palomar telescope man
- 18 Short, steep waterfall
- 19 Very, in music
- 20 Birdcage items
- 21 Small boat (var.)
- 22 Spanish gold
- 23 Dovecote sound
- 31 Knight's apparel
- 34 63 gals.
- 35 When Scurves go singin' in the rain?
- 40 Scrap of food




- 43 Round-robin competition
- 45 See 18 Across
- 46 $A \cap A = \emptyset$
- 47 Canoe
- 48 Within (pref.)
- 49 One in a series
- 51 _____ of a needle
- 52 Exclamation urging a horse to move forward
- 53 _____-null (∞)
- 56 With 173 Down, a yearly Blacker social event
- 57 Gun freedom org.
- 59 Private eye, for short
- 60 Clay vessel
- 61 Monolith-Wedding Cake dir.
- 63 Small parasites
- 65 A month, to Marcel
- 66 Egg-hunting day
- 68 Halos (var.)
- 69 In a worried manner
- 72 Walk lazily
- 73 _____ Vegas
- 76 _____ a bill (became indebted)
- 77 Mo.
- 78 Once, once
- 79 Tibetan priest ranking second
- 81 Sprinkler product

- 82 No longer in Baxter
- 84 Three, in Turin
- 85 _____ gin fizz
- 86 Flat gourd
- 88 One who makes amends
- 90 Former high point of first term
- 91 Shake
- 93 CTRL relative
- 95 Pay attention to
- 98 Unworldly
- 99 Belgian seaport
- 102 Fam. member
- 103 70 Across in 2191, to Cato
- 105 Telecommunications conglomer.
- 107 Star in Ursa Major
- 108 Song form
- 113 APL construct
- 115 Appliance manufacturer
- 118 Othello's nemesis
- 119 Alter
- 122 _____ chromium (nutr. supp.)
- 124 Splash about
- 127 Character on the staff
- 128 Maneuver to achieve orbit in Harrison Schmidt's Apollo miss.
- 129 High-flown, extravagant
- 131 Gelid
- 133 Golf necessity

- 135 Phant or prance preceder
- 137 One who drives wildly
- 139 "A _____ on thee!"
- 140 Env. watchdog
- 144 Nurse's sticker, for short
- 146 Tropical American lizard
- 147 Lipid molecule
- 148 Short hydrocarbon
- 149 Play the same suit again
- 150 Ed Stone's lab.
- 151 Regarding the *other* inst.?!
- 153 Until now
- 155 Securing device
- 156 Chicago airport
- 157 Dry, as wine
- 159 Arrested
- 160 Caused to limp
- 162 When doubled, G&S heroine
- 164 The one here
- 165 Painter Magritte
- 166 Good plane in a tight situation?
- 167 Hour, to Horatius
- 168 Cattle
- 169 Unbiased
- 170 Finals Week reveille
- 171 Enough, poetically
- 172 Slippery creature
- 173 See 56 Down



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Seminar Abstracts

Dr. James Bower: Caltech and Elementary School Science

For the last four years, a group of Caltech faculty, postdocs, graduate, and undergraduate students has been involved in introducing exemplary science teaching in the Pasadena Unified School District. This program, called Project SEED (Science for Early Educational Development), is based on children actually doing science in the classroom, and can serve as a model for revitalizing science teaching in public schools.

Dr. Joel Burdick: Robotics: The Lunatic Fringe

Over the past 25 years, most robotics research has focused on the development of technology for industrial automation. This talk will focus on robotic research, which is not directed at industrial automation, but is aimed at developing machines that walk, run, and crawl for unusual applications such as space exploration.

Dr. Peter Dervan: A Chemical Approach to Reading the Genetic Blueprint

A major international effort is currently under way in biology to map the location of the estimated 100,000 genes in the genetic blueprint of man (three billion base pairs or units of information). To assist in that effort, the Dervan group at Caltech is developing chemical methods capable of finding and cutting each of the three billion unique sequences in the human genome.

Dr. Charles Elachi: In Search of Lost Civilizations

Spaceborne imaging systems, specifically radars, are opening new vistas in looking at earthy paleoenvironmental indicators in arid regions which could shed some light on lost civilizations. The speaker will discuss results of expeditions made in southern Egypt looking for old tributaries of the Nile, and in Oman in the search for the city of Ubar.

Dr. Doug Flamming: Measuring Worker Satisfaction

In the decades following World War II, Caltech's Industrial Relations Center (IRC) pioneered what has now become a fundamental tool of modern management: the employee opinion poll. Findings from these polls demonstrate that American workers in all fields were highly satisfied with their jobs in the late 1940s, but became increasingly dissatisfied during the 1950s and 1960s.

Dr. Leroy Hood: The Genome Initiative, Biology, and Medicine of the 21st Century

The Human Genome Initiative is concerned with deciphering the molecules of heredity, the 23 pairs of human chromosomes contained in each cell. The new technologies and the information acquired will profoundly alter our future approaches to biology and medicine in the 21st century.

Dr. Steven Koonin: Supercomputers—A Microscope for the Subatomic World

Advances in supercomputing have allowed new descriptions and striking visualizations of subatomic phenomena. Dr. Koonin will describe the physics and computational methods behind several recent supercomputer simulations.

Dr. Julia Kornfield: A Short Talk About Long Molecules

What do compact discs and shoe soles, polyester fibers and rubber bands have in common? Why do the materials of which these are made have the properties that they do? Because the macroscopic mechanical properties of polymers arise from the molecular-level rearrangement that occur when they are deformed, it is essential to understand how molecular and microstructural dynamics determine viscoelastic properties.

Dr. Elliot Meyerowitz: Molecular and Genetic Models for Flower Development

Flowers are usually very regular structures, with fixed numbers and types of organs (such as petals) in fixed positions. How does an individual cell in a developing flower know where it is, so that it can differentiate to become the appropriate cell type for its position?

Seminar Day Session Schedule

	BECKMAN AUDITORIUM	RAMO AUDITORIUM	BAXTER LECTURE HALL	BECKMAN INSTITUTE AUD.	201 E. BRIDGE	153 NOYES	119 KERCKHOFF
Session I 9:00 a.m.	Caltech from the Inside R. Sharp	Robotics: The Lunatic Fringe J. Burdick	The Geologic Exploration of Venus S. Saunders	Supercomputers — A Microscope for the Subatomic World S. Koonin	Caltech and Elementary School Science J. Bower	Molecular and Genetic Models for Flower Development E. Meyerowitz	A Chemical Approach to Reading the Genetic Blueprint P. Dervan
Session II 10:15 a.m.	Progress on the Keck Telescope W. Sargent	The Genome Initiative, Biology, and Medicine of the 21st Century L. Hood	The Discovery of "Chaos" and Its Present and Future Impact on Science and Technology S. Wiggins	Measuring Worker Satisfaction: Caltech's Industrial Relations Center and Its Employee Opinion Polls 1945-1970 D. Flamming	Flash Photography of Mars from Earth D. Muhleman	A Short Talk about Long Molecules J. Kornfield	Lasers, Mirrors, and Gravitational Waves F. Raab
Session III 11:15 a.m.	PRESIDENT'S WELCOME AND DISTINGUISHED ALUMNI AWARDS — Beckman Auditorium DR. THOMAS E. EVERHART						
Session IV 12:00 p.m.	In Search of Lost Civilizations C. Elachi	The Discovery of "Chaos" and Its Present and Future Impact on Science and Technology S. Wiggins	What It Means To Be Dammed T. Scudder	Supercomputers — A Microscope for the Subatomic World S. Koonin	Caltech and Elementary School Science J. Bower	SURF Student Speakers J. Bach J. Barrett R. Ram	
12:45 – 2:00 p.m.	LUNCH — To be served in Dabney Garden						
Session V 2:05 p.m.	GENERAL SESSION — "GLOBAL WARMING: WHAT TO DO ABOUT IT?" — Beckman Auditorium DR. FRANK PRESS						
Session VI 3:15 p.m.	Caltech from the Inside R. Sharp	Lasers, Mirrors, and Gravitational Waves F. Raab	Flash Photography of Mars from Earth D. Muhleman	A Chemical Approach to Reading the Genetic Blueprint P. Dervan	Molecular and Genetic Models for Flower Development E. Meyerowitz	SURF Student Speakers J. Bach J. Barrett R. Ram	Measuring Worker Satisfaction: Caltech's Industrial Relations Center and Its Employee Opinion Polls 1945-1970 D. Flamming
Session VII 4:15 p.m.	Progress on the Keck Telescope W. Sargent	In Search of Lost Civilizations C. Elachi	The Geologic Exploration of Venus S. Saunders	The Genome Initiative, Biology, and Medicine of the 21st Century L. Hood	What It Means To Be Dammed T. Scudder	A Short Talk about Long Molecules J. Kornfield	Robotics: The Lunatic Fringe J. Burdick

Dr. Duane Muhleman: Flash Photography of Mars from Earth

Radar images of Mars have been made by transmitting from the giant JPL/NASA 70-meter telescope at Goldstone, California, and imaging the echo energy with the Very Large Array in New Mexico. Images revealed unique subsurface structures on Mars, including a unit on the equator which returned no energy.

Dr. Frederick Raab: Lasers, Mirrors, and Gravitational Waves

The planned Laser Interferometer Gravitational-Wave Observatory (LIGO) should allow us to view spectacular cosmic events by observing the ripples in space-time, called gravitational waves, which such events generate. Although sources such as supernova explosions and black hole coalescences emit very energetic waves, these waves interact weakly with matter, and their direct detection presents a technical challenge.

Dr. Wallace Sargent: Progress on the Keck Telescope

The Keck Telescope Project, construction of a 10-meter-aperture optical telescope of revolutionary design on Mauna Kea, Hawaii, began in January 1985. The lecture will illustrate the construction of the telescope and describe some of the difficulties encountered on the way, and give an update on the current state of the telescope.

Dr. R. Stephen Saunders: The Geologic Exploration of Venus

The Magellan spacecraft has provided a treasure-trove of spectacular information about the surface of Venus, a planet which could have evolved much like our own. Venus is nearly the same size as

Earth and shares much of Earth's history; yet Venus has a fiery hot atmosphere with surface pressure nearly 100 times that on Earth.

Dr. Thayer Scudder: What It Means to Be Dammed

For 35 years Thayer has been researching the impacts on downstream residents, and on those whose homes and lands are flooded out, of some of the world's largest dams. Dr. Scudder will comment on knowledge gained from recent visits to Africa's Kariba and Volta dams, and to China's Yangtze, India's Narmada, and Sri Lanka's Mahaweli river basins.

Dr. Robert Sharp: Caltech from the Inside

Based on his 60-year affiliation with Caltech, Bob Sharp offers a look backward and forward in time, providing a unique historical perspective of the Institute. He will also comment on future trends, including teaching, research, an older student body and a younger faculty, the possibility of endowed chairs for assistant professors, academic freedom without tenure, recruitment of more female students, the need for Caltech to be non-conformist, increased alumni participation, and, above all, the need to remain young at heart.

Dr. Stephen Wiggins: The Discovery of "Chaos" and Its Present and Future Impact

Many of the natural phenomena that we encounter on a day-to-day basis are governed by the deterministic laws of classical physics, e.g., Newton's laws of mechanics and Maxwell's equations for electromagnetism. The recent discovery that seemingly simple deterministic systems can display random or chaotic behavior is having a profound impact on how we view and model systems arising in science and technology.

Joseph Bach: Feasibility Testing of the Martian Snake

The Soviet/French Mars '94 mission includes a balloon that carries instruments and drags a guide-rope, affectionately called "the snake." "Snake" dynamics were investigated by instrumenting a prototype and towing it on various terrains while changing the tether angle and mass fraction on the ground.

Jeannie Barrett: Turning a Synthetic Polymer into a Catalyst

A synthetic polymer was made and purified through dialysis. The polymer was then templated to a transition state analog of carbonate hydrolysis. The result was tested for its ability as a catalyst using ultraviolet spectroscopy.

Rajeev Ram: Strained V-Groove Quantum Well Lasers

This research is of a new class of v-groove quantum well lasers. Utilizing unique properties of gallium arsenide, this laser will have active region thicknesses of only several atoms, and widths of only several microns. Theoretical work in materials and some experimental work has been completed. The next step is laser fabrication and testing.

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sports

Name	100 hurdles	High J.	Shot Put	200 m	Long Jump	Javelin	800m	Total
Tony	14.73	878 5'7"	855 13.88m	786 23.76	1004 5.46m	688 39.15m	651 2:16	881 5743
G. Dudey	14.65	888 4'7"	512 11.82m	650 24.23	959 5.47m	691 34.86m	569 2:07	1012 5281
Eastvedt	16.75	625 5'11"	978 10.33m	551 23.95	986 5.82m	795 16.07m	364 2:26	743 5042
Andy Zug	18.38	450 5'2"	712 11.15m	605 26.71	736 4.88m	527 27.72m	434 2:09	981 4445
S. Kister	18.00	488 5'2"	712 10.24m	545 27.31	686 4.64m	464 28.55m	449 2:10	961 4305
W. Glenn	17.81	508 5'1"	678 15.36m	885 27.44	676 4.52m	433 41.39m	694 3:00	363 4237
Bowden	21.16	162 4'9"	566 10.60m	569 25.92	804 4.54m	438 23.52m	355 2:04	1053 3947
D. Lande	16.25	684 4'7"	512 11.45m	625 25.33	857 5.17m	606 34.02m	553 2:59	378 3915
M. Lyttle	19.20	368 4'1"	350 8.62m	440 27.10	704 4.53m	436 24.04m	364 2:31	678 3340
E. Stout	18.05	483 4'5"	460 9.07m	469 27.30	687 4.30m	379 17.52m	240 2:36	619 3337
C. Campo	21.33	159 3'7"	222 8.40m	425 28.27	610 4.01m	309 17.25m	235 2:17	867 2823
Emmeline	17.61	529 4'1"	350 6.53m	302 28.51	591 4.11m	334 20.34m	293 2:57	395 2794

Heptathlon Highlights

The Caltech Heptathlon proved to be an exciting event for the 12 competitors. After their raw scores in each of the seven events were converted, Tony, the assistant track coach, came out on top. Greg Dudey, trailing Gary Eastvedt most of the day, made up the difference and then some in the 800m to finish first among the undergrads.

Suicide Run Saturday

Once again, KELROF will be appearing at a track near you. This Saturday, starting at 9 am, 4 teams will begin the annual race of endurance which 13 years of Caltech runners have come to know and love so well. If you are interested in joining a team at the last minute, contact Delwyn Gilmore at 578-9079. Otherwise, just come on down and cheer your friends on. Volunteers for timing and pacing would also be appreciated.

editorial - delwyn gilmore

Well, here we are, three new faces in the Caltech Publications Empire. Are we going to change the world? No, we can't even change Caltech by ourselves. However, I think we can make the *Tech* into a tool for you, the students, faculty, and staff, to more effectively share the ideas which will carry this school forward. This may sound idealistic, as it should. The cynics will continue to lock themselves away, bemoaning their fate but refusing to do anything about it. It is the idealists who still have the energy and vision to make this a better place to work, learn, and live. Keeping this in mind, I would like to start the ball rolling by putting forth a few questions to the community for thought and discussion:

Where does undergraduate teaching place on Caltech's list of priorities? Above or below groundskeeping?

Does inadequate and substandard housing scare away qualified students? Why does a school with such a large endowment seem so cheap in some areas?

Are there any guiding principles for expansion, or will the Caltech of tomorrow be determined by the day-to-day decisions of a hundred offices?

Write letters. Stop and argue with me on the Olive Walk. I'd like to see a little controversy and debate in the pages of the *Tech* on subjects other than ride pool surveys. To everyone out there who has an opinion, don't sit on your hands - make some noise.

"I believe in politically-correct thinking." - Joseph McCarthy

CLASSIFIED ADS

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Hi everybody! Welcome to another exciting and fun-filled issue of the DHIW! Rather than drone on about the atrocious housing situation, of which I'm sure most of you have heard quite enough, I'll just say this . . . style points to the residents of Shantytown - a fine idea. (They're all fine id . . . no).

So . . . what's going on around the house? Hmm. . . Laurent hasn't blown anything up lately. Graham's hair is not on fire. I haven't felt any earthquakes. Mothra Dular is still in business. Gary is still Gary. Karen hasn't caught any life-threatening diseases. L. Ron Hubbard is still dead. Brad still doesn't understand. The lighthouse blinks on. Sounds like a pretty quiet week to me.

Oh, by the way, to those few felms who keep lobbing raw eggs into our courtyard . . . c'mon guys, have some respect for your neighbors. A stylish prank is one thing. This is just crude vandalism.

A bunch of us went up to Mt. Wilson to take some pictures. Campus is surprisingly easy to see, especially Millikan, BBB, and Baxter. Check the glass case in the lounge. There wasn't any snow but we did manage to run into a bear. Fortunately it was a little downhill from us. Talk Dirk into driving you up there some time.

So Steve, you should ask Steve about his 1260-watt light bulb. Just imagine that thing at the focus of the Mirror. Oh boy, could we guard some rocky shores. (and keep them shipwreck-free) When Steve comes back from Minnesota, he can help Steve stack some magnetic tape reels and we'll be all set.

A bunch of people are starting up a juggling club. If anyone is interested, just find Gaby.

How well do you know your Frosh? Well here's your chance to test your skills at . . . MATCH-A-FROSH! Just look at the list of Frosh on the left and try to find the word or phrase on the right that would most likely be associated with them.

- | | |
|--------------|--|
| A. Graham | 1. Randomness is bliss |
| B. Shreyas | 2. A future Tien |
| C. Alex | 3. Was seen driving around town with Shelley |
| D. Adalberto | 4. A bicycle helmet |
| E. Cat | 5. see Lawrence |
| F. Miguel | 6. The power of the Dark Side |
| G. Aaron | 7. That soooo coool! |
| H. Linda | 8. Honorary Flame Frosh |
| I. Karen | 9. Natural floor is flammable |
| J. Andrew | 10. Last is best |
| K. Ahmed | 11. Not gonna do it! |
| L. Jeff | 12. escaped from Page |
| M. Laurent | 13. Don't worry, it's only a 36" blade |
| N. Len | 14. Bff |
| O. Kim | 15. Screwedness, sir |
| P. Denise | 16. see Denise |
| Q. Antonio | 17. escaped from Lloyd |
| R. Jim | 18. Soccer anyone? |
| S. Cindy | 19. Not Susan |
| T. John | 20. Lighthouse Keeper |
| U. Steve | 21. First in line |
| V. Michael | 22. Flame Frosh |
| W. Jose | 23. Miaow |
| X. Jamie | 24. Do you mean the frosh or the pre-frosh? |
| Y. Lawrence | 25. Hi! My name is...! |
| Z. Paul | 26. But why? |

The Inside World

Ge 277. Quaternary Tectonics Seminar. 6 units (1-3-2) second term. Detailed analysis of one or more active tectonic regions, including discussion of published literature, and field examination. Participation in a one-week field excursion during spring break may be required. Instructors: Seih, staff.

So how did you do? If you had no clue, get to know them soon before they all move off campus! Here are the answers:

A13 B6 C26 D8 E23 F11 G22 H9 I25 J10 K21 L14 M7 N3 O17 P5 Q12 R19 S4 T24 U20 V1 W18 X2 Y16 Z15

Go ahead and finish your donut and see the ASCIT movie tonight. (And say GET THE ASCIT COPIER FIXED!)...see y'all next week.

Dabney (Above)—Ruddock (Below)

I am alone. I suppose it's not unnatural. Everyone is really alone when you look at it. Even though crowds surround us, we are always alone. But tonight I feel it in my marrow. It's that type of night when you go searching for meaning in the universe and come up empty. The type of night that causes even CCF'ers to question the basic foundation of their lives. Usually these nights can be chalked up to insomnia and forgotten. Usually it's best to do just that. But this is the dangerous time. The time of any night when we are most vulnerable. The time when anything can happen, depending on where the cards fall in the ceaseless game of solitaire that fate plays with our destinies, and when metaphors drop off the tongue like blood from a suicide's wrists.

Life becomes either an abstract construction in a philosophical bullshit argument, or an all too real set of experiences set under the probing microscope of self-inspection. Infinity transforms into a concept which can actually be grasped in its full-blown entirety, its cold edge cutting to the core of our frailties.

I sit inside, thinking about the stars. Not even watching them, just... considering them. The age-old hopes and fears of society flicker through my mind. SETI... Invasion... Cooperation... Fate... Astrology... Signs and omens... and the one thought that remains sinks into my psyche. I am alone. WE are alone.

Then, slipping up from the collective unconscious, mortality slips its slender coils around my brain. Slender as they are, they are as inescapable as a siren's song. They slowly permeate my mind, chilling my body and stilling my thoughts. I will die.

Just the thought. I will die. Then, on its heels, its children come screaming thought the silence of its passage. They quickly depart, leaving one of their number behind.

Humanity will die. It quickly matures and feeds from the mood and the night. The Earth will die. The universe will die.

And I sit, inside, contemplating universes and realities, possibilities and certainties. I wonder about the nature of nature, and the truth of truth. And most of all, I consider.

I am alone. I rise from my contemplative pose. I seek out companionship, to stay the night's dark influence, to ease the sting of self-inspection. I find a group, but in their gay banter I fail to find comfort. Instead, it is as if I were listening to an old music box, it's tired tones sounding as they have for meaningless periods of time.

Statement. Double entendre. Laughter. Helpless sputtering protest. Connected line of thought. Earnest discussion. Serious point. Irreverent response. Laughter. Beginning of oft-told story. Knowing groans. Pleading protestations. Grudging assent. Continuation of tale.

I retreat from the scene, any comfort possibly gained irrevocably lost. The veils of "what if" and "might have been" close in around me as I try in vain not to think of the emotional pain of self-discovery. I shuffle off to bed. Tomorrow will be a day like any other, the meaning of the night lost. But for now, the full impact remains.

I am alone.

The Blacker Inside Worlds were not printed this week due to lack of space. They will appear in next week's issue.

This week's Inside World was written by:

Blacker1: Hoyt Hudson
Blacker2: Noam Bernstein, Walker Aumann

Dabney: Richard Zitola

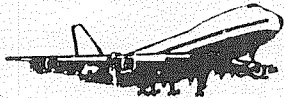
Ruddock: Hans Hornstein

Blacker	12 4 0 0 0 1 1 0 3 5
Dabney	11 2 0 0 0 2 0 0 2 4
Fleming	13 1 0 0 0 0 0 0 0 0
Lloyd	26 15 2 1 0 3 0 2 0 8
Page	21 3 1 3 0 0 0 0 0 4
Ruddock	25 18 3 2 0 4 2 1 1 13
Ricketts	15 9 0 4 0 0 0 0 0 0



-The Doctor

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what goes on

Caltech Ultimate

LAY OUT!!! The Caltech Ultimate Machine is at long last forming with hopes of participating in Ultimate tournaments throughout the Southwest. We encourage all disc-hucking undergrads to come practice with us on the north athletic fields Tuesdays and Thursdays from 4-6 PM. See ya there!!

Scholarship Listings

The Financial Aid Office has applications and/or information on the following scholarships. All qualified students are encouraged to apply. Our office is located at 515 S. Wilson, second floor.

The Society of Women Engineers is offering six scholarships for the 1991-92 Freshman Program and one scholarship for the Reentry Scholarship Program. Applications, including supportive material, must be postmarked by May 15, 1991.

The Desk and Derrick Club of Bakersfield scholarship is granted annually to a resident of Kern County. The application should be submitted in letter form which must include the applicant's major, name of university, outside activities, etc. Special attention will be given to scholastic ability, the level of school and non-school activities and financial need. References from teachers and/or counselors should also be included. Application deadline is August 1, 1991. Applications should be mailed to Jan Walker, Chairman, Desk & Derrick Club Scholarship Committee, P.O. Box 11164, Bakersfield, CA 93389.

If you have any questions, please come by the office or call x6280.

Japan Film Series

A series of classic Japanese feature films will be presented by the Caltech Film Program as part of its spring 1991 series. These works will be screened on Monday nights at 7:30 PM in Baxter Lecture Hall. All the films will be introduced by Professor Robert A. Rosenstone, who will also lead post-film discussions. Shown as part of H 161: The U.S. and Japan, the films - like all CFP programs - are free and open to all members of the campus community.

May 20: *Tampopo* (1986). Director: Juzo Itami. A hilarious sendup of a host of Japanese traditions in the form of a "noodle western," the touching tale of a young widow trying to make a success of a ramen (noodle) shop in Tokyo. By the most Western of Japan's current directors.

Women's Group

The Women's Support Group meets Sundays at 7:30 PM in the MOSH's office. All undergraduate and graduate women, as well as faculty are welcome to discuss the concerns and stresses of daily life in an informal and personal setting. Discussion is moderated by Dr. Lynda Morck, a clinical psychologist. For more information call Jennifer Jungkuntz at 564-8545 or Yu-Chien Kuo at 578-9504.

Gay, Lesbian Discussion Group

The Gay, Lesbian, and Bisexual Discussion Group meets the first and third Tuesdays of each month from 7:30 to 9:30 pm in the Health Center. This confidential meeting is open to all members of the Caltech community. The first hour is devoted to discussion of a specific topic, and the remaining hour is open for general conversation and socializing. Refreshments are served. For information please call 356-8331. On May 21 there will be a short presentation on some psycho-social models of gender development. Discussion will follow.

Online Schedule of Classes

The Caltech schedule of classes, as published by the Registrar's office, has been added to the online INFO system, accessible via CITnet. A write-up on using the INFO system is available from the CCO Consulting Office, 162 Jorgensen.

Submit announcements for *What Goes On* on forms available outside the Tech office (SAC room 40A) and in the copy/mail room (SAC room 37), or use a plain piece of paper. Send announcements to 40-58, or put them in the IN box outside the Tech office. Indicate the date(s) the announcement must run. Announcements for the current issue must be received by 5 pm Tuesday and should be shorter than 75 words. Announcements will be published as space becomes available and will be chosen according to size and interest to the Caltech community. Announcements for commercial events unrelated to Caltech will not be published.

International Day

Come celebrate Caltech's International Day, 4-8 PM Friday, May 24 at the Winnett Quad. Enjoy live entertainment featuring hula and Afro Brasil as well as various art exhibits. Also, a variety of student groups will provide food samples and dinner will be served buffet style (Indian and Chinese) for a cost of \$4.00.

Rosarita/Ensenada bike race

Riding in the Rosarita to September? Need a place to stay in Mexico? Call Michael Maldonado at 356-6752. House can hold 3-5 persons.

Geology Symposium

The Division of Geological and Planetary Sciences will host an international scientific symposium on mantle plumes on Thursday, Friday, and Saturday, May 2, 3, and 4. The symposium is free and open to the public. The Mantle Plume Symposium will be held in three different locations. The morning and afternoon sessions on Thursday, May 2, and the morning session on Friday, May 3, will take place in Baxter Lecture Hall. The afternoon session on Friday, May 3, at which results from Magellan will be presented, will take place in Ramo Auditorium. The final session on Saturday morning, May 4, will take place in room 201 East Bridge.

Junk Mail

If you saved all your junk mail this year, you'd have the equivalent of 1.5 trees. You can keep your name off junk mail lists by writing to Mail Preference Service, Direct Marketing Association, 6 East 43rd Street, New York, NY 10017.

Foreign Film Series

Peppermint Frieden (1983) will be shown in Baxter Lecture Hall on Thursday, May 23 at 7:30 PM. Description: at the end of the war, Marianne, 6 years old, moves with her mother and grandmother from Bohemia to the American Zone where her father has found work as a teacher. Marianne tries to find rational answers in this post-war atmosphere, tinted by fear of yet another war and other enemies. Instead, she finds only irrational attitudes among the grown-ups. Although she only wants to dream of "Mr. Frieden" (Mr. Peace), she has a dream about the nuclear bomb. Now she is sure that there will be a new war. Director: Marianne S.W. Rosenbaum. Starring: Saskia Tyroller, Gesine Stempel, Hans Peter Korff, Elisabeth Neuman-Viertel, Cleo Kretschmer, Peter Fonda, u.a.

Ping Pong with the Lloydies

There is a ping-pong tournament co-sponsored by the Caltech Chinese Students Assn. and the Caltech Y on Sat. May 18th (that's tomorrow!) The tournament is free and is open to all members of the Caltech community. There will be refreshments and top players will be awarded prizes. The tournament will be held in Lloyd House dining room and will start at 10 AM. For more information or registration, call Kevin Wang at 578-9971 or Hanna Hsu at 578-9696. On site registration is also welcome.

Summer Contracts

Come by the Master's Office to pick up your summer contract. Deadline to turn it in for summer is May 31st.

Harry S Truman Scholarship

The Harry S Truman Scholarship Foundation awards scholarships to juniors who have outstanding leadership potential and intend to pursue careers in public service. If interested please stop by the Dean of Students Office, 102 Parsons-Gates for more information. Deadline is December 2, 1991.

Summer College Work-Study

Information and applications for 1991 summer college work-study are available in the Financial Aid Office. If you are interested, please submit the required application as soon as possible, but no later than May 31, 1991. Your entire financial aid application must be complete by May 31 to be considered. The award determinations will be announced as completed applications are reviewed. If awarded, the work-study funding will begin with the July 8th payroll period.

Ebell of Los Angeles Scholarships

The Ebell of Los Angeles is offering undergraduate scholarships for the 1991-92 school year. The amount of the scholarship is \$3000 per year paid in monthly checks, September through June. In order to apply, students must be U.S. Citizens, L.A. County residents, have at least a 3.25 GPA, and be attending an approved college in Los Angeles County. L.A. County residence may be proven by in-school attendance. For more specific information on requirements and application materials contact the Financial Aid Office. All applications and materials are due in the Financial Aid Office by 5:00 PM May 17, 1991.

International Folkdancing

The International Folkdancers meet in Dabney Hall Lounge every Tuesday evening all year round. Folkdance classes start at 7:30 pm each Tuesday. Open dancing starts at 9:00 pm. On Tuesday, February 26th, Greek dance instructor Joe Graziosi will be teaching, so put that on your calendar now! No experience is necessary. All are invited to attend.

Let The Games Begin

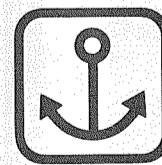
Every Friday night, the Caltech Gamers meet to enjoy role-playing and board games. Friday meetings are in Winnett Clubroom 1 or in Rm. 33 of the SAC at 8:00 pm. Meet others who share your interests. All welcome! Most common Friday games are fantasy role-playing, but it's a good time to find players to share whatever games you like.

Folk Dancing on Campus

The Caltech Folk Dancers invite you to come and join us for folk dancing on Tuesday nights in Dabney Hall Lounge. Dances are taught from 7:30 pm to 9:00 pm, with dancing from 9:00 until 11:30 or midnight.

SEDS EVENTS!

SEDS is holding its last general meeting of the academic year on Tuesday, May 21 at 7:30 in SAC 25. We are holding a sale of space and science fiction merchandise (t-shirts, posters, bumper stickers, etc.) on Saturday May 18 in front of Winnett. On Friday May 24 we are touring Rocketdyne's manufacturing facility, which produces liquid fuel engines for the Atlas and Delta rockets. Anyone interested in this tour must call Phil at 577-4664 immediately, due to security requirements. Finally, SEDS is touring the Big Bear Solar Observatory on Sunday, May 26. For more information about any SEDS event, call Phil at the above number.



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Bridge Editorial

by Sam Dinkin

- ♠ QJ3
- ♥ JT852
- ♦ 953
- ♣ 94
- ♠ AK9854
- ♥ K4
- ♦ QJ6
- ♣ 86
- ♠ 762
- ♥ 97
- ♦ K82
- ♣ K752

Dealer: ♠ AT74 Vul: South
 ♣ AT3 Both

South	West	North	East
1 NT	Pass	2 ♦*	Pass
2 ♥	2 ♠	Pass	Pass
4 ♥	Pass	Pass	Pass

*Transfer to Heart

Opening lead: SK

Tonight only, the Caltech Bridge Club and the Alumni Association present the Alumni Bridge Tournament tonight in Dabney Hall. The festivities start at 8:00 p.m. and all faculty, staff, students, and of course, alumni are invited. See you there.

An extraordinary thing happened this month—for two full weeks, Dan Quayle made no misstatements. Let me be fair to Quayle, the press has given him a bad rep these last few years. Just

think what Mr. Canals has done for the space program.

With George Bush tired and losing weight, it is time ask ourselves who we want a heartbeat away from the presidency for the next four years. Newsweek claims George nearly made a rude gesture at reporters who suggested he boot Quayle. The get-tough President is very protective of his Vice.

I am still confident that without a grave disease the President will speak at commencement. I think the event of George Bush missing Caltech commencement is as unlikely as a 1 NT opener ruffing an opening lead.

A 'balanced no trump' is usually thought of as a pleonasm (opposite of an oxymoron,) but when John Morris, playing south at the Caltech bridge club, heard the two-spade overcall, he double-checked his spade stop. In fact, he discovered he had first-round control in spades so he jumped to four hearts.

West led the king of spades and it was ruffed by south. John cashed the ace of clubs and led a low club trying to get to the dummy to finesse the hearts. East won and shifted to a diamond. John led the ten of clubs which west ruffed with the king and the dummy pitched a diamond. West cashed a diamond, but south claimed the rest of the tricks.

Jim's Journal

Today I worked at the copy store all day.	I came home and was so tired I just fell right onto my bed and fell asleep.	I woke up at 2 am and was wide awake.	There was nothing else to do, so I played with Mr. Peterson 'til dawn.
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Jim's Journal

When I woke up today I was lying on the floor with Mr. Peterson snuggled into my neck.	I looked at the clock and saw that it was noon.	I was supposed to be at work at 9 am, so I hurried to the copy store.	When I got there Hal said, "Jim—we all thought you were dead."
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Jim's Journal

Today I was walking down the sidewalk.	An ambulance drove by and its siren was so loud it hurt my ears.	Then I started thinking how strange the cracks in the sidewalk would be if you were really small.	They'd be like giant trenches with rocks and other residue collected in there.
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