

Pasadena, California

Juhe 1, 1990

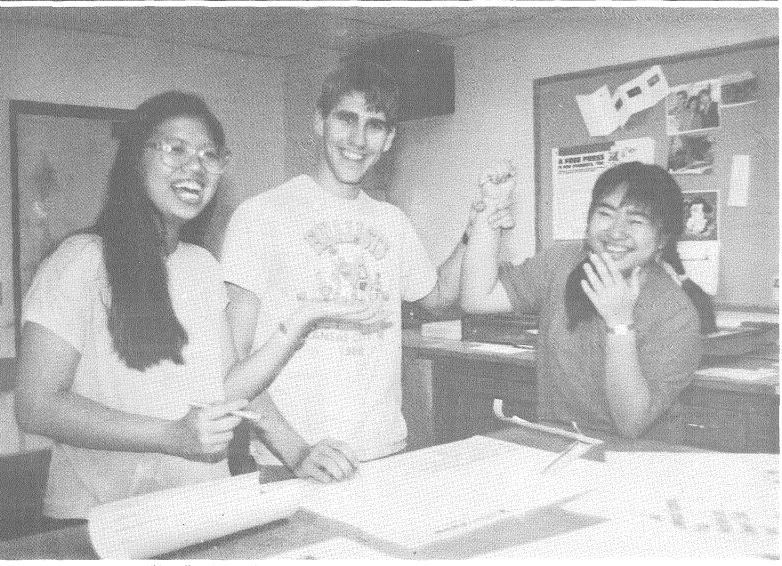
International Day

by Ali Mortazavi International Day is back again this year. The annual event is designed to celebrate and display Caltech's diverse ethnic background. To this effect, stalls representing different cultures, ranging from Brazilian to Chinese to Greek will be installed to show-

case the different cultures. In addition to the students, the People To People, the United Nations (Association), and Sister Cities' stalls, plenty of entertainment will be present in the form of ethnic music and bands.

There will be six separate "events" scheduled between 5:30 and 9 PM. To cite a few, there will be a Chinese Dragon Dance for Caltech Students, a Korean Fan Dance, an "Armenian show", a Bulgarian group and an Indian Tabla/Dholak/Sitar group. There will also be games, shirts, stamps, etc... available for everyone to enjoy.

Last but not least, exotic "food samples" (for many, the highlight of the event) will be found on the stalls. Indeed, this will be an opportunity to get a break from the monotony of board meals and try Indian, Israeli, and Vietnamese food. All taken together, International Day should turn out to be one of the most exciting outdoor fairs held during this year.



The picture you have been waiting all year for is here. Its the new editors hard at work on the front page.

Biologists Computer Literate



By Chris Dunn Biologists opting for rides on

the Human Genome billion dollar bandwagon may face the hazards of perfunctory research, unrewarded labor, and computer-literacy requirements.

These—and far graver issues were addressed by Charles Cantor in his fatidic "mental exercise" at the Human Genome seminar last Wednesday in Baxter Lecture Hall.

Cantor suggested robotics in biology as one spin-off of the Genome Initiative, but his description of an inescapably slow and operose process evoked images of timeworn would-be researchers. He allayed that concern by admitting that short-term involvement by individual scientists is both likely and desirable. He hopes that six months to a year of genome work would provide useful experience to aid independent endeavors.

The prevailing system of reward through publishing, asserted Cantor, must be supplanted by something suitable to the humdrum results of genome mapping. Beyond being scientifically unexciting, the results are valueless unless complete. The last ten percent of the work on any particular section might require ninety percent of the time, leaving a researcher with nearly complete but unpublishable information most of the time.

gain. Companies like IBM and Cray watch expectantly for solutions to what Cantor calls "generic" problems of large-scale storage and access.

The Human Genome Project, which Cantor believes to be mistermed as much of the work will involve other species with humanrelated genes, will be a gold mine for biology. Half of the funds will be spent on "technique development." Aside from the purely technological innovations there will be extensive cross-training in biology and instrumentation, hence the emphasis at Caltech on interdisciplinary research, especially at the Beckman Institute.

This was the last of the Human Genome seminars. Lee Hood and Dan Kevles are preparing transcripts to be published by Harvard University Press early next year.

CRIME AND INCIDENT BEAT

- CRIME TIP: Computers are expensive and their theft is common. Protect the investment: acquire cables to secure all major components; other security devices are also available. As added protection, always lock rooms that contain unattended computers.
- 5/24 A student parked his bike on the south side of Kerckhoff with a chain and lock. When he returned, the bike had been stolen and the chain left behind. Value: \$150
- 5/24 A student left his bike parked outside of 348 S. Catalina. When he returned, the seat had been stolen. Value: \$35
- 5/25 An IBM computer was stolen from the West Bridge basement some time after 5/21. The room that it was in had been left unlocked so that a chemical spill could be ventilat-

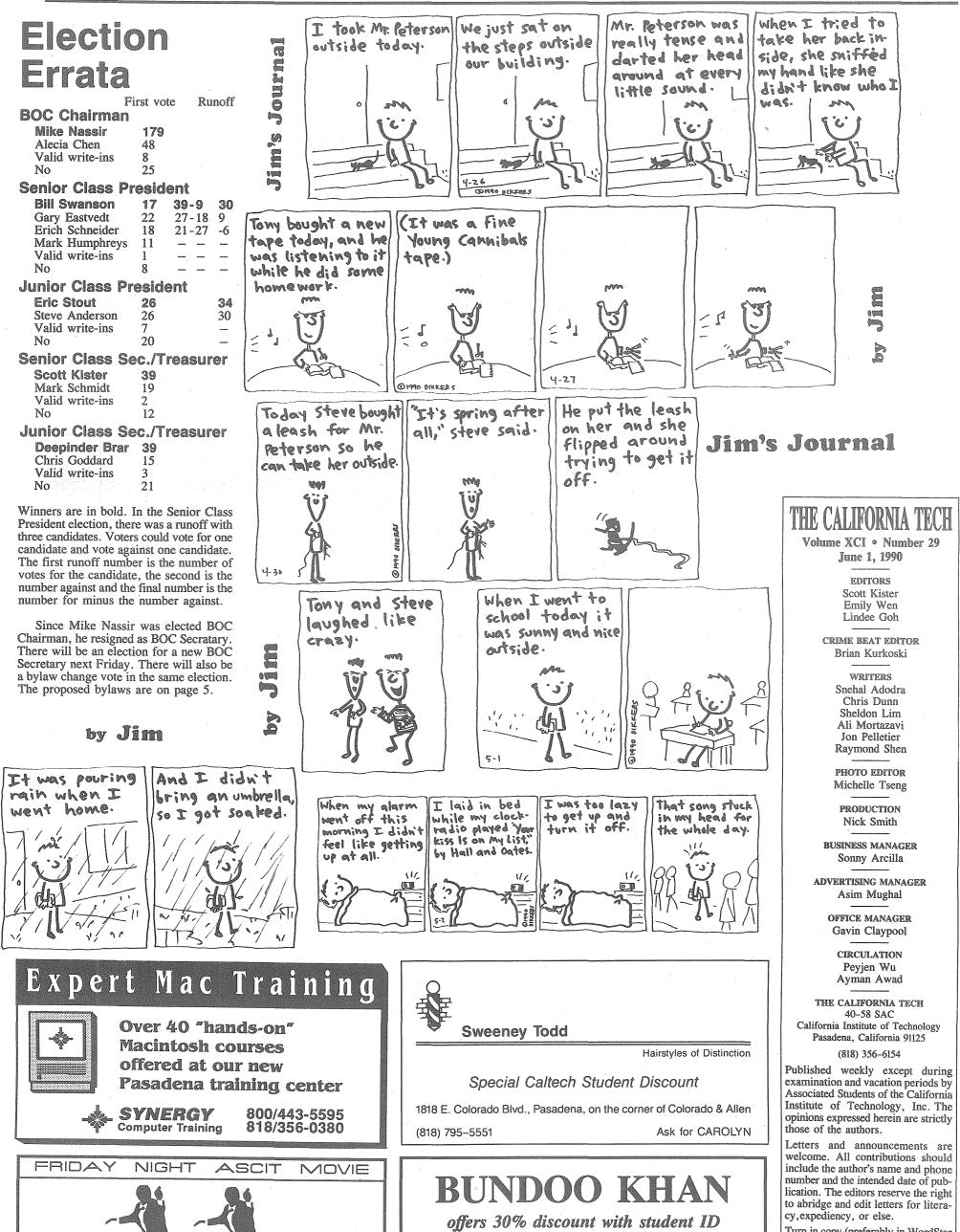
One of the performances at today's International Day.

Regarding computer-literacy Cantor stated resolutely, "Biologists will become more than computer literate; they will be dependent on computers." The computer industry has much to ed. Value: \$5205
5/25 A white Toyota pick up truck belonging to a student was stolen on 5/24 or 5/25 from the West Wilson parking lot. The Pasadena police were notified. Value: \$3000
5/25 A student parked his bike outside of Milikian for two hours. When he returned, the bicycle's seat and carrying bag had been stolen. Value: \$30
5/27 At 7:11 p.m. a Caltech officer observed a 67-year-old man at the track. His pants and underwear were dropped to his ankles and was observed wrestling with a bench, attempting to upright himself, the bench or both. The officer informed the man of the Institute's stadard policy regrading tresspassers in front of a Pasadena police officer.

5/29 Fifteen cigarettes had been placed in a row near a window in Parsons-Gates. The cigarettes had been ignited and burned, causing charring.

Total dollar value stolen this week: \$8420

INSIDI **Election Results and** Just Vote Yes for the Crew **Upcoming Elections Bylaw Changes** Today page 2 page 5 page 12



GOLDFINGER with What's Opera Doc **Baxter Lecture Hall** Next Week: Showtimes at: Reighbors 7:30 & 10:00 p.m. \$1 for ASCIT members \$1.50 for others

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Jim's Journal

Jim's Journal



*ATTENTION RESTAURANT ENTHUSIASTS...

being completely redone this year. *Pasadena will be covered comprehensively, but the entire LA area is beyond our scoope and there are several good guides available on LA area restaurants.

ragon Dance

The Caltech Chinese Students Association will be performing the Chinese Dragon Dance in today's International Day festivities. The dragon, an animal of Chinese mythology, represents power, catches the pearl. In the actual dragon dance, a drum and a variety of



makes the place special, different, *memorable and worth revisiting. *Any sort of eatery is welcome on *these pages, from cafés to elegant restaurants.

Quantum Mech. Flapdoodle

By Jon Pelletier On Tuesday, May 15, a packed Beckman Auditorium audience listened intently to the ideas of one of the institute's premiere scholars. In a lecture entitled "Quantum Mechanics and Flap Doodle," Dr. Murray Gell-Mann, the Robert A. Millikan Professor of Theoretical Physics, took the stage to discuss quantum mechanics and its relation to some of the attempts that both scientists and non-scientists have proposed to explain "paranormal" phenomena such as psychokinesis and telepathy. Dr. Gell-Mann has made significant contributions to elementary particle physics in the last fifty years. Most notable among them are the theory of quantum chromodynamics, the theory describing gluon interactions between quarks, and the Eightfold Way, a classification of elementary particles.

June 1, 1990

Dr. Gell-Mann began the lecture by explaining that it is inappropriate as a general method of approach to refute all phenomena which seems to contradict the accepted laws of physics. He expressed the importance of remaining open to new phenomena which seems implausible, yet do not contradict any well- established physical laws.

The main focus of Dr. Gell-Mann's lecture was to address the specific explanantions that scientists have proposed to explain su-

I found a dime

on the sidewalk

Today at the

bookstore, Jean asked me if I'd

be staying there this summer.

today.

perluminal (faster than the speed of light) communication by way of quantum mechanics. Dr. Gell-Mann attempted a clear explanation of the EPRB paradox, an idea which some writers have used to explain the possibility of superluminal communication. The EPRB paradox is a thought experiment proposed by Einstein and his colleagues in 1935 regarding the compatibility of relativity and quantum mechanics. The problem involves a light source emitting single photons in opposite directions whose spins are correlated at emission. By correlation, we mean that determining the spin of one particle uniquely determines the spin of the other. The assumption is made that the photons travel away from each other with the spin correlation intact. The paradox states that once the spin of one particle is measured, the spin of the other particle is uniquely determined instantaneously regardless of the distance between the two photons, thus demonstrating an instantaneous transfer of information. Dr. Gell-Mann explained that there was no information transferred over space since the information about the unmeasured spin is furnished by the assumption that the spins remain correlated. Dr. Gell-Mann went on to say that the experimental results

e from a series of famous experiments similar to this was in fact a brilliant verification of the quantum

> Rick said. "You're not going home for the summer? That's crazy-there's

nothing to do in

this town all summer

After walking a

Jean said, "Oh,

we'll find plenty

for Jim to do.

ways further, I

almost thought

I saw another

dime.

Even though a

dime isn't worth

good about finding it.

5-8

I said I would.

much. I felt pretty

theory over proposed "hidden variable" theories proposed to enable classical physics to reproduce many of the results of quantum mechanics.

The questions raised by the audience after the lecture emphasized an earlier point by Dr. Gell-Mann that the language of quantum mechanics was insufficient to prevent great confusion in the subject. Dr. Gell-Mann stated that he was currently working with a colleague trying to improve the language of quantum mechanics both for the scientist and the layman. When asked to reccommend a good book on quantum mechanics for the layman, Dr. Gell-Mann confessed that he did not know of any.

Dr. Gell-Mann spoke briefly about some of the connections that some writers have tried to establish between modern physics and eastern mysticism. Dr. Gell-Mann agreed that many of the similies drawn by these writers are very poetic, but to make the statement that there was a real connection between the conclusions of these diverse philosophies was incorrect.

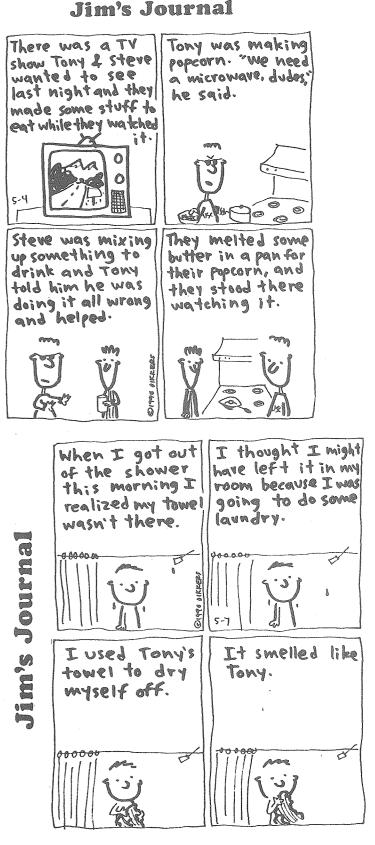
The lecture by Dr. Gell-Mann was the last in an annual series of lectures sponsored by the Graduate Student Council and the Southern California Society of Skeptics. If this year's schedule of brilliant lectures was any indication, next year's lectures will prove enlightening and entertaining.

But it was just

by Jim

a little round

metal thing.



A Watson Lecture By Dr. James Watson



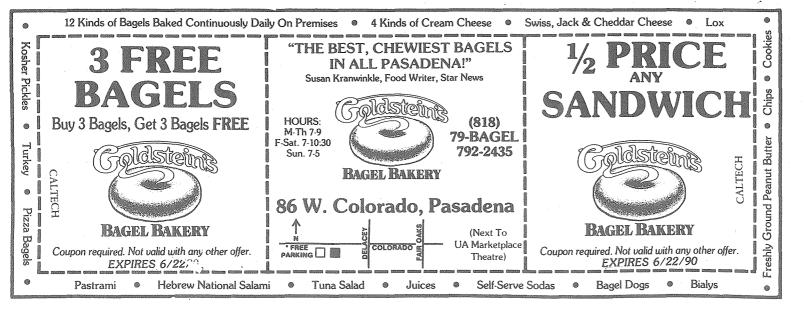
By Ali Mortazavi

A packed Baxter Lecture Hall listened avidly to the words of wisdom of world-famous biologist James D. Watson on the Human Genome Project. As the person in charge of the Natioanl Institute of Health's efforts on the initiative, he has been one of it's most ardent supporters in face of the growing number of critical and violently some of the resulting moral fare. He noted that congress is more willing than ever to fund

After going over the scientific merit of studying our own origin, Dr. Watson tried to justify the initiative on the basis of its future benefits to society. To do so, he had to define what separates good from bad science (i.e. their fruitfare. He noted that congress is more willing than ever to fund projects such as this one, in which politicians see concrete hope for results.

Following a discussion of the objectives planned for the first five years, Dr. Watson addressed the moral dilemmas posed by the initiative. He disliked the idea of

	Smog Checks · Tune-Ups	Batteries • Transmissions	number of critical and violently	numess). He also discussed at	manvo, no usinou me nuca i
and the second	Oil Change • Brakes	Radiators	hostile number of biologists. He	length the structural inequalities of	patenting or otherwise restricting
Too Too Too	.	Ŭ,	therefore tried to provide the moral		
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1000	(east of Hill Ave.)	(818) 798-4064			
	Pasadena		lars project. He also discussed	belefitible to produce will into int	would be willing to shoulder som
833			Ly - Jeest were and an	provenients of the Society's wei-	



patenting or otherwise restricting the distribution of the data, but he could think of any alternatives in the case where no other country would be willing to shoulder some of the cost of this endeavor. He also advised the setup of privacy laws regarding the use of a person's genetic information. He remarked that "the only thing that could stop the project will be people's fears. The discussion that concluded

The discussion that concluded the seminar was a lively one, for many a biologist strongly reacted to the Doctor's views and other cynical remarks on the importance of other biological fields. Dr. Watson was forced to clarify some of his earlier remarks in order to pacify his critics.

A recipient of a Nobel prize in biology for his joint discovery of the structure of DNA, Dr. Watson has also been the director of Cold Spring Harbor. His lecture was part of the Genome seminar given regularly in Baxter hall.

The Inside World

Inside Worlds have been rated U: For undergraduate audiences only. They may be offensive to some people.

This Week's Inside World	was written by:
Fleming: Kent Nordstrom	and Ted Rogers
Ricketts: Joe D)adek

Blacker	25	18	T	0	5	0	2	0	0	0	0	8	
Dabney	38												
Fleming	20	18	0	0	0	3	0	0	0	0	2	5	
Lloyd	27	13	0	0	3	5	0	0	0	1	0	9	
Page	15	18	0	1	4	0	0	0	0	0	0	5	
Ruddock	33												
Ricketts	23	25	3	2	2	2	3	2	2	0	1	17	

Fleming

There hasn't been a Fleming Inside World for several weeks. Why is this, you may ask? It is because everyone else in the house is worthless and weak. Everyone else in the house is lame. Everyone else in the house is a bozo. Everyone else in the house has zero house spirit. So, while everyone else in the house was at the Outdoor Olympiad, we sat down and wrote this Inside World.

Well, now that Randy's finally gotten his act together, it looks like Alley 6 has become fully suburbanized (You can thank "Ask Al" for his sage advice later, Randy. Congratulations on getting a live one, uh, life that is-Y.F.). However, I'm thinking of circulating a petition to make them move to her place in Alley 3. She's just too #\$%&*¢ cheerful in the morning, Randy. If you don't move, someday I'm gonna kill 'er. Just so's you've been warned. Emily Rose was back again, so Mom was on her verrry best behavior. Hmmm,

I wonder what's in that Diet Coke can that makes Mom giggle so much? Maybe it's been carbonated with nitrous instead of CO_L. I guess that's one way to increase sales of coke at 328 next year...Helpful hint to visiting younger siblings: never, never, never, never ask "What's a Nelson? Really? What's it feel like to be in one? Arrrghh...WHOOOSSSH!" Speaking of WHOOOSSSH, it looks like Maddux finally came out of hid-

ing. What was your problem, Tim? Koehler's not so scary, even when he does have steam coming out of his ears, fire coming out of his nostrils, and small, furry mammals trying to crawl out of his mouth.

Howza! Does this sound like something that would be said by the human tomato-face (I mean, we'r talking RED here-as red as Koehler after he took a sip of that industrial varnish remover that came in the Mason Jar)? "You can't laugh at me tomorrow! Sssshhh! Don't laugh at me! Quiet [hic] Shut up Mike! [pass out for several minutes] I mean it! [belch] Ssssshh! [guzzle, guzzle] Don't laugh at me!" Look, maybe I wasn't there. Maybe I don't understand the circumstances. Maybe it's not as pathetic as it seems to sound to me. At any rate: "НАНАНАНАНАНАНАНА!"

Don't worry, I'm laughing with you.

Ben! Where do you find those bimboes? Tough luck not being able to pawn off the short one. I'd have thought for sure that Duchovnay would have been desperate enough to take a recently-deceased goat, much less an actual living, brainless high school bimbo. It was a two-way battle for the tall one, I guess. Bill from above, Ben from below-sounds like something from a Disney movie, doesn't it? Too bad the three of you disappeared before Janine showed up. It could've been a ménage a quatre.

At any rate, our on-the-spot reporter is back from Outdoor, with a report of the behavior of our dickly Ath One. Seems Duchovnay wanted to have at least one sport that the frosh wouldn't beat his class in, so he changed things around. Why? Because in "Outdoor" Olympiad, we shouldn't be playing an "indoor" sport like volleyball. No, we should replace it with an "outdoor" sport like basketball (so the lowly sophomores won't be crushed by the even-lowlier but still quite bone-crunching volleyball might of the frosh). Our observer on the scene had this to say about our hypocritical Ath One:

"He didn't really even have to do anything that was specifically dickly. He had this sort of aura of dickliness about him that permeated everything he did, no matter how mundane."

Congrats to our own Mark Humphreys, who is finally a man. Good job, Mark. I understand your prosthesis is working out nicely. *This special bulletin just in:*

Anyone with an Indian-sounding name, please contact Rob Williamson as soon as possible! He's been trying to reach you all night, not realiz-ing that it was midday in India when he was calling, meaning that you were all on the phone home.

Which brings us back to current political news: REPLACEMENT POSITION FOR AMOSH CREATED! I don't care, though, because I'm not going to be here. NEW, INCREDIBLY HARSH DRUG & AL-COHOL POLICY IN THE WORKS! I don't care, though, because I'm not going to be here. Hell, I'm 21 anyway. INTERHOUSE TO BECOME A THING OF THE PAST? I don't care, though, because I'm not going to be here. BARRY FINALLY GOT A HAIRCUT! Or did he? It's so hard to tell. BARRY NEEDS ANOTHER HAIRCUT! Whatever.

Well, I don't know. This all seems so pointless. -Young Fansome and Cinnamon Toast

The Inside World

Ricketts

Hi there! I'm back. Not that I was gone, just lazy. So, what happened around here this week? Durn little from what I can tell. So it's time to start making things up

An unnamed source reports that if you view Julian's profile, you discover his true race: gelfling. (Our tribute to Jim Henson this week.)

A malfunctioning explosive charge in the Pot, which attracted the attention of a malevolent god, opened a rift in the space-time continuum, allowing hordes of flying black manta rays to pour into the courtyard. They subsequently hid in the SAC and steam tunnels where a group of people have been spotted battling them on weekends. Reports are that you're safe if you stay in the sun. Vampire manta rays?!?

"Do you want to come to my place, bouncy bouncy?" The heads of Scurves can be seen over L.D. roof these days as the trampoline returns to use after a two-year exile. Moon jumps and butt wars abound, but when you get off again, remember that the ground is hard.

Rude/Slander Air Conditioner: Joanna and Kirsten's stamp collection has been looking a little neglected in recent weeks. They seem to have taken up math instead. At least mathematicians. Despite rumors to the contrary, Bernie is still a member of Ricketts and has even been spotted within the last year. Our Frame House correspondent says Lynell's palms are as red as her hair. Bizarre sounds of tortured animals have been heard coming out of Shroom's room late at night. Parent rating of the men of Ricketts: strange and horrible, a poor selection of men to choose from (or something like this). I can't include the name of the Froosh female whose mother allegedly said this, as I understand that she reads this and I don't wish to cause her head to explode. Beer and Kit Kats. OFH correspontdent also says we may need to BOC Lindsey since he was seen to substitute a roll of toilet paper for his brain during a midterm. With all of that extra scratch paper, he clearly had an advantage over the others.

Joe Bob Scurve: 0 breasts, 2 pints of blood, arms roll, 2 dead bodies, 1 star.

Senior Profile: The Wookie. Though for several years his true house affiliations seemed in doubt, in the end (with a little help from Louie) he came back to his origins and spent this year in Ricketts (mostly). This Immoral Influence occasionally receives mail for Michael, though it turns up in the "T" box instead of MecklOR's box as expected. He is an avid role-player, clearly an attempt to escape from his true persona, which has entirely too much hair. Also, he has been known to spend 99.9% of second term doing TACIT. Whether you can hear it or not, Duane is dead!

-The Physics Messiah

We will not be printing Inside Worlds next week. If an Inside World writer would like to write a story for next week, please talk to an editor.

BYLAW CHANGES Italicized sections indicate change

Article VII Sec. 3

WAS: (a) When a suspected violation of the Honor System is reported to the Board, the Chairman and Secretary will conduct a preliminary investigation . . . CHANGE TO: (a) When a suspected violation of the Honor System is reported to the Board, the Chairman or Secretary, and one other Board member will conduct a preliminary investigation...

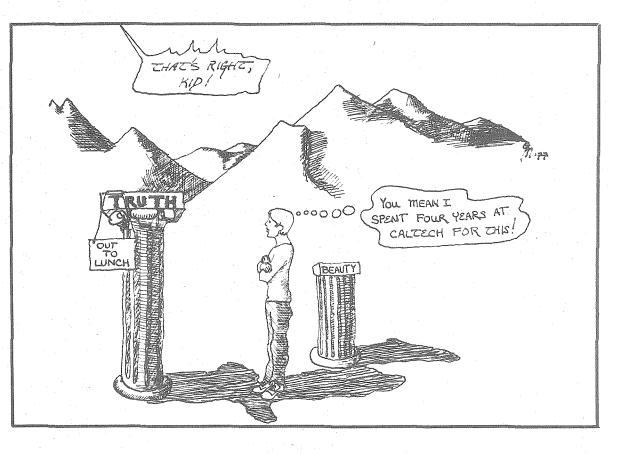
WAS: (e) The Chairman and Secretary of the Board shall not have a vote on the Board. CHANGE TO: (e) The preliminary investigators shall not have a vote on the Board.

WAS: (m) A three-fourths (34) vote of those members of the Board present shall be necessary for a decision of the Board.

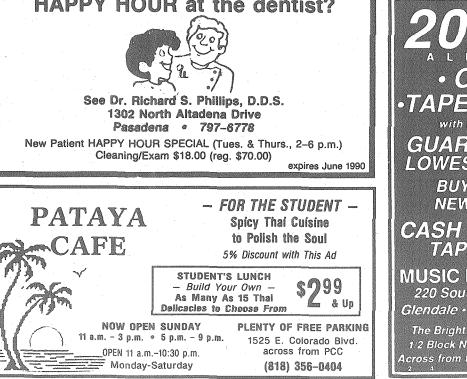
CHANGE TO: (m) A three-fourths (¾) vote of the voting members of the Board present shall be necessary for a decision of the Board.

Article V Sec. 4

ADD: VACATION. Members of the Board of Directors may take one all expense paid vacation to a tropical island of their choice during their term of office. The vacation should not last more than one week. ASCIT will pay for airfare, hotel accomodations and meal expenses







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3 DENON	AVC-700	VIDEO CNTRL INTG AMP	600	449 ND	- Lensannan	TARGET	AIB	AMP ISOLATION BASE	79	59 D
1 KLYNE	SK-2A	MOVING COIL HEAD AMP	800	449 ND 499 U	1	MITSUBISHI		26" TV SWIVEL STAND	179	59 D 88 D
1 MITSUBISHI		A/V RECEIVER 80W/CH	1000	499 U 599 ND		CWD		DOORS > MONITOR CART	140	91 D
1 ATHENA	MC-10	POLYPHASOR	1000	649 D	1	TARGET	TT-2	EQUIPMENT STAND	140	
1 ATHENA	ML-10	POLYPHASOR	1000	649 D	A	PANDOM		OAK STEREO RACK	-229	120 ND 148 Đ
		MITED TO STOCK ON HAND				RANDOM	RACK	WADJUSTABLE SHELVES	-299	148 Đ
	in in the feature in the instant of	RICES GOOD ONLY WHILE SUPP		STIII	1999	CWD	VC-3053	VIDEO CUBE	330	199 D
·		SPECIALS SUBJECT TO PRIOR SA		w * * * *		CWD	MC-2153			199 D
		VE 5 YR PTS/LBR WARRANTY	1 Door Toos			TARGET	TT-3RR	TTBLE STND/RECRD RACK	249	199 D
[L===1,11,11,1,1,1,1,1,1,1,1,1,1,1,1,1,1,		DED WARRANTIES ARE AVAILABL	E-VCK	HOW		CWD	KD-3003	30" OAK STEREO RACK	340	204 D
		A A A A A A A A A A A A A A A A A A A						HIGH TECH PACK	279	
		ED EOLIIDMENT LIAC A 20 DAV W	ADDANT	Y	1	- minimum and a state of the st				and the second sec
PETOOK		ED EQUIPMENT HAS A 30 DAY W	ARRANT	Y. ·	1.000	-TARGET	TT-5			
B'STOCK >	FULL MFR	ED EQUIPMENT HAS A 30 DAY W S PARTS & LABOR WARRANTY NK YOU FOR CON			1.000		LB-3073	LOWBOY W/4SHELVES	465	

GNP's 10th ANNUAL DITCH DAY SALE

ALL WEEKEND FROM 11:00 AM FRIDAY TO 5:00 PM SUNDAY

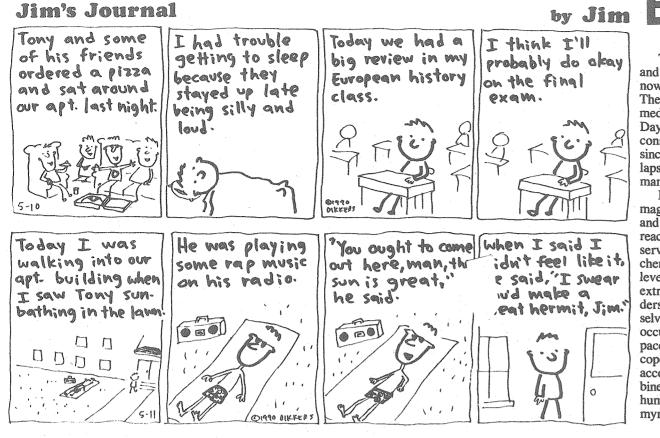
HELD OVER FOR THOSE WHO WENT AWAY LAST WEEKEND & ALMOST MISSED IT BELOW IS A LIST OF ITEMS LEFT OVER. SOME QUANTITIES HAVE CHANGED OR BEEN ELIMINATED SOME LAST MINUTE SPECIALS HAVE BEEN ADDED!

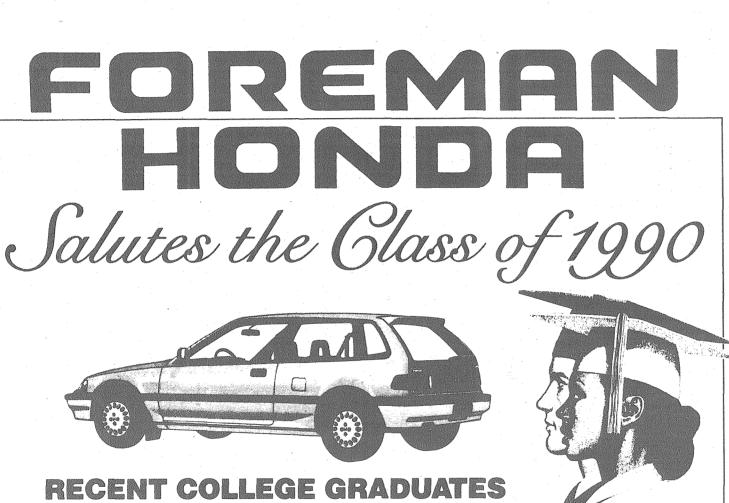
NOTE: THE LUXMAN D-113D & D-105U WENT DOWN. IF YOU PAID MORE, COME IN FOR A REBATE! NOTE: THE NAKAMICHI OMS-1A ALSO WENT DOWN. IF YOU PAID MORE, COME IN FOR A REBATE!

SPEAKERS

COMPACT DISK PLAYERS

# BRAND	MODEL	COMMENT	REG\$	SALE\$	#	BRAND	MODEL	COMMENT	REG\$	SALE\$
-1-GNP	-SM-5	5"-2WAY	-229	-1-39-Ð	1	DENON	DCD-520	PROGRAMMABLE W/ REMO	250	199 ND
-1-GNP	MODEL	PROTOTYPES 10" (MDF BLACH	4 450	-199-Ð	4	DENON	- DCD-81 0	PROGMBLE/PANDOM ACC	400	+99-6
1 GNP	SM-P1	SOUND MIRRORS	400	199 U	1	NAKAMICHI	OMS-1A	PROG/REM	350	258 D
1 GNP	SUB-1(ea.)	10" SUBWOOFER (OAK STAIN)	369	199 ND	2	NAKAMICHI	OMS-1A	PROG/REM	350	279 N
1 ENERGY	ESM 3	2 WAY BOOKSHELF	350	209 D	8	LUXMAN	D-113D	16 BIT SGL D/A DIG OUT	550	289 ND
1 GNP	MODEL 28	8" PROTOTYPE (UNF WALNUT) 650	219 D	4	LUXMAN	ÐZ-111	PROG/REM 5 YR WARRANT	359	299 ND
1 GNP	SM-62	6" 2 WAY	400	219 N	-1	MITSUBISHI	M-C4100	5 DISC CHANGER	-600	-299 Đ
4 GNP	MODEL-10	SCRATCH N DENT (WHITE)	-399	-239-Đ	1	LUXMAN	D-112	16 BIT SGL D/A	550	338 B
1 GNP	MODEL 1	8" WOOFERS (WALNUT)	450	249 D	2	MITSUBISHI	DP-311	DUAL D/A DUAL DAC	700	347 ND
1 GNP	MODEL 1	8" WOOFERS (MDF BLACK)	450	249 D	3	MITSUBISHI	M-C5010	PROGRAMMABLE W/ REMO	500	399 ND
1 GNP	MODEL 10	WHITE DEMO'S	450	249 D	-4	LUXMAN	- DZ-11 2	PROGRAMMABLE W/ REMO	-500	424 NO
1 GNP	MODEL 2	SCRATCH-N-DENT WALNUT	600	299 D	1	LUXMAN	DC-113	6+1 CHAMGER	680	438 B
-1-GNP	-\$-6	6° 2 WAY PROTOTYPE	680	299 ND	· 1	NAKAMICHI	CDP-2A	NO DESCRIPTION HERE	595	439 ND
1 ROCUSTICS	ROCKY JR	HARD ROCK SPEAKERS	350	299 ND	2	MITSUBISHI	M-64030	CHANGER	-669	-449 N
-1 - MIRAGE	-369	2 WAY BOOKSHELF	-400	-314 ND	1	DENON	DCM-777	6 DISC CHANGER	700	499 D
4 MITSUBISHI	S-8040	AMPLIFIED SUBWOOFER	600	439 ND	1	CAL AUDIO	ICON	NEW MODEL!	695	591 D
1 GNP	MODEL 2		600		j.	NAKAMICHI		CD CHANGER	895	644 D
-1 - GNP		NOT IN GLOSS BLACK	-699		1	DENON		20 BIT LAMBDA CIRCUIT	-750	649 ND
-1 MIRAGE	-460	2 WAY BOOKSHELF	-600	004000000000000000000000000000000000000			-3015A	INGREDIBLE	2,000	-699-U
2 GNP		GLOSS BLACK	900	vaaraanaa daaraanaa daaraa	hannes	LUXMAN	D-105U	TOP OF THE LINE BRID	1,200	699 B
ENERGY	PRO-22	CANADA'S BEST W/ STANDS	900	000000000000000000000000000000000000000	-	CAL AUDIO	TERCET	TOP/LINE SOLID STATE	-1,295	-999 Đ
1 INFINITY	REF 2.5	REFERENCE LOUDSPEAKER	2,000							
-1 - MIRAGE	760	ROCK AND ROLL!	+,000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				PHONO CARTRIDGES		
1 MITSUBISHI	M-S5100	HOME THEATRE TOWER	1,500	adaaxaa aaaaa aa aa ahaa ahaa ahaa ahaa	Ļ					
2 GNP	VALKYRIE	JR-PROTOTYPE	- 1,995		-	BRAND	MODEL		REG\$	
-1 GNP	VALKYRIE	SERIES IV (MDF BLACK)		1,178 -Ð	*******	GRADO	XF3E+	MOVING MAGNET	-66	- 2 9 N
1 GNP	VALKYRIE	SERIES IV PROTOTYPE (MDF)	2,495	1,499 D	1	GRADO	PZF3E+	MOVING MAGNET	69	49 N
						GARNEGIE		LOW OUTPUT MOV. COIL	700	79-U
		TURNTABLES	neusen		100	AUDIOQUST		H/O MOVING COIL	150	88 ND
					-	DENON	DL-301	MOVING COIL	169	
# BRAND	MODEL	COMMENT	n eine seine auf die State State auf der Australie der Australie	SALE\$	4	GRACE	F9E	GREAT!	250	189 ND
-1 TECHNICS	-SL-D2	D DRIVE	480		11	TALISMAN	'B' or 'S'	MOVING COIL	~399	289 ND
1 PANASONIC		W/RABCO SP-8E		000 11	¥ .	ن سیم باشیم				2
2 DENON	DP-23		570		P	GRACE		GREATER!	395	289 ND
1 DENON	have been to make here	D DRV/ QUARTZ LOC/AUTO	300	234 ND	P	GRACE KISEK I	F9 RUBY	GREATER! MOVING COIL		2
1 ALANTAR TARSFIL	DP-47F	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO	300 475	234 ND 371 ND	P			MOVING COIL	395	289 ND
-1-SYSTEMDEK	# #X	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES	300 475 66 9	234 ND 371 ND 399 D	P				395	289 ND
1 VPI	HX JUNIOR	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM	300 475 669 625	234 ND 371 ND 39 9 D 499 ND		KISEKI	PHS	MOVING COIL	395 976	289 ND 777 Đ
1 VPI 1 ORACLE	HX JUNIOR PARIS	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM, TERM BLK, TIPTOES NO TONEARM W/BETA TONEARM	300 475 669 625 895	234 ND 371 ND 399 D 499 ND 627 D	#	KISEKI BRAND	PHS MODEL	MOVING COIL TONEARMS COMMENT	395 976 REG\$	289 ND 777 Đ SALE\$
1 VPI 1 ORACLE 1 VPI	HX JUNIOR PARIS HW-19 III	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM, TERM BLK, TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM	300 475 669 625 895 1,145	234 ND 371 ND 399 D 499 ND 627 D 788 D	#	KISEKI BRAND PREMIER	PHS MODEL MMT	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL	395 976 8EG\$ 290	289 ND 777 Đ SALE\$ 232 ND
1 VPI 1 ORACLE	HX JUNIOR PARIS	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM, TERM BLK, TIPTOES NO TONEARM W/BETA TONEARM	300 475 669 625 895	234 ND 371 ND 399 D 499 ND 627 D 788 D	#	KISEKI BRAND	PHS MODEL	MOVING COIL TONEARMS COMMENT	395 976 REG\$	289 ND 777 Đ SALE\$
1 VPI 1 ORACLE 1 VPI	HX JUNIOR PARIS HW-19 III	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/APM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM	300 475 669 625 895 1,145	234 ND 371 ND 399 D 499 ND 627 D 788 D	#	KISEKI BRAND PREMIER	PHS MODEL MMT	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING	395 976 8EG\$ 290	289 ND 777 Đ SALE\$ 232 ND
1 VPI 1 ORACLE 1 VPI	HX JUNIOR PARIS HW-19 III	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM, TERM BLK, TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM	300 475 669 625 895 1,145	234 ND 371 ND 399 D 499 ND 627 D 788 D	#	KISEKI BRAND PREMIER	PHS MODEL MMT	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL	395 976 8EG\$ 290	289 ND 777 Đ SALE\$ 232 ND
1 VPI 1 ORACLE 1 VPI 1 ORACLE	HX JUNIOR PARIS HW-19 III DELPHI	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/APM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY	300 475 669 625 895 1,145 2,245	234 ND 371 ND 399 D 499 ND 627 D 788 D 999 U	# 1 1	KISEKI BRAND PREMIER GRACE	MODEL MMT 704	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS	395 976 REG\$ 290 300	289 ND 777 Đ SALE\$ 232 ND 49 U
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND	HX JUNIOR PARIS HW-19 III DELPHI MODEL	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY COMMENT	300 475 669 625 895 1,145 2,245	234 ND 371 ND 399 D 499 ND 627 D 788 D 999 U SALE\$	# 1 1 #	KISEKI BRAND PREMIER GRACE BRAND	PHS MODEL MMT 704 MODEL	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT	395 976 8EG\$ 290 300 REG\$	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-20	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/APM. TEPM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY COMMENT SPEAKER STANDS	300 475 669 625 895 1,145 2,245] 	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U SALE\$ 37 ⊎	# 1 1 1 #	KISEKI BRAND PREMIER GRACE BRAND DENON	MODEL MMT 704 MODEL DRM-500	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI	395 976 8EG\$ 290 300 REG\$ 300	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 1 ENERGY 1 CHGO SPKR	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-29 STANDS	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM, TERM BLK, TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20: SPKR STANDS	300 475 669 625 895 1,145 2,245 2,245 REG\$ 60 60	234 ND 371 ND 3 99 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 ⊎ 39 Đ	# 1 1	KISEKI BRAND PREMIER GRACE BRAND DENON LUXMAN	PHS MODEL MMT 704 MODEL DRM 500 K-111	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C	395 976 290 300 REG\$ 900 380	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ 249 DB
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 BRAND 4 ENERGY 1 ENERGY	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-20 ST-1	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS SPEAKER STANDS	300 475 669 625 895 1,145 2,245	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 ⊎ 39 Đ 55 U	# 1 1 # 1	HISEKI BRAND PREMIER GRACE BRAND DENON LUXMAN MITSUBISHI	PHS MODEL MMT 704 MODEL DRM-500 K-111 M-T5100	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE	395 976 976 290 300 300 8EG\$ 990 380 400	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ 249 DB 279 D
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY 1 ENERGY 1 SPECTRAL	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-20 ST-1 MI-500	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20-SPKR STANDS SPEAKER STANDS 1.5M INTERCONNECT	300 475 669 625 895 1,145 2,245 2,245 REG\$ 60 60 80 185	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 ⊎ 39 Đ 55 U 75 U	# 1 1 1 1 1	KISEKI BRAND PREMIER GRACE BRAND DENON LUXMAN MITSUBISHI DENON	PHS MODEL MMT 704 MODEL DRM-500 K-111 M-T5100 DRM-700	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE 3 HEAD SYSTEM REMOTE	395 976 290 300 8EG\$ 380 380 400 400	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ 249 DB 279 D 299 D
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY 4 CHGO SPKR 1 ENERGY 1 SPECTRAL 2 PROTON	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-20 ST-1 MI-500 320	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20-SPKR STANDS SPEAKER STANDS 1.5M INTERCONNECT CLOCK RADIO	300 475 669 625 895 1,145 2,245 2,245 80 60 60 80 185 129	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 U 39 Đ 55 U 75 U 89 ND	# # 1 1 1 1 2	HISEKI BRAND PREMIER GRACE BRAND DENON LUXMAN MITSUBISHI DENON LUXMAN	PHS MODEL MMT 704 MODEL DRM-500 K-111 M-T5100 DRM-700 K-110	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE 3 HEAD SYSTEM REMOTE AUTO REVERSE	395 976 976 290 300 300 300 380 400 400 400	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ 249 DB 279 D 299 D 299 B
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY 4 CHGO SPKR 1 ENERGY 1 SPECTRAL 2 PROTON 6 NAKAMICHI	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-20 ST-1 MI-500 320 TM-1	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM_TERM_BLK_TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20-SPKR-STANDS SPEAKER STANDS 1.5M INTERCONNECT CLOCK RADIO STEREO CLOCK RADIO	300 475 669 625 895 1,145 2,245 3 80 60 60 60 80 185 129 139	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 ⊎ 39 Đ 55 U 75 U 89 ND 119 N	# 1 1 1 1 2 3	HISEKI BRAND PREMIER GRACE BRAND DENON LUXMAN MITSUBISHI DENON LUXMAN MITSUBISHI DENON	PHS MODEL MMT 704 MODEL DRM 500 K-111 M-T5100 DRM-700 K-110 GR-1A	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE 3 HEAD SYSTEM REMOTE AUTO REVERSE BASIC ENTRY MODEL	395 976 976 290 300 300 80 380 400 400 400 489 349	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ 249 DB 279 D 299 B 299 HĐ
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY 4 CHGO SPKR 1 ENERGY 1 SPECTRAL 2 PROTON 6 NAKAMICHI 1 AUDIOQUES	HX JUNIOR PARIS HW-19 III DELPHI DELPHI MODEL ST-20 ST-1 MI-500 320 TM-1 CLEAR	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20-SPKR STANDS SPEAKER STANDS 1.5M INTERCONNECT CLOCK RADIO STEREO CLOCK RADIO 12' SPEAKER CABLES	300 475 669 625 895 1,145 2,245 2,245 30 80 60 80 185 129 139 1,299	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 ↓ 39 Đ 55 U 75 U 89 ND 119 N 649 D	# # 1 1 1 1 2 3 2	HISEKI BRAND PREMIER GRACE BRAND BRAND UXMAN MITSUBISHI DENON UXMAN MITSUBISHI DENON	PHS MODEL MMT 704 MODEL DRM-500 K-111 M-T5100 DRM-700 K-110 GR-1A DRR-680	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE 3 HEAD SYSTEM REMOTE AUTO REVERSE BASIG ENTRY MODEL AUTO REVERSE	395 976 976 290 300 300 300 300 300 300 300 400 400 40	289 ND 777 Đ SALE\$ 232 ND 49 U 39 U SALE\$ 229 Đ 249 DB 279 D 299 D 299 D 299 B 299 HĐ 329 ND
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY 4 CHGO SPKR 1 ENERGY 1 SPECTRAL 2 PROTON 6 NAKAMICHI 1 AUDIOQUES 1 MIT	HX JUNIOR PARIS HW-19 III DELPHI MODEL ST-20 STANDS ST-1 MI-500 320 TM-1 CLEAR 330SG	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20: SPKR STANDS BV-20: SPKR STANDS SPEAKER STANDS 1.5M INTERCONNECT CLOCK RADIO STEREO CLOCK RADIO 12' SPEAKER CABLES 15' SHOTGUN INTERCONNECT	300 475 669 625 895 1,145 2,245 3 80 60 60 80 185 129 139 1,299 T 1585	234 ND 371 ND 399 € 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 € 39 € 55 U 75 U 89 ND 119 N 649 D 899 U	# 1 1 1 1 2 7 2 1	HISEKI BRAND PREMIER GRACE BRAND DENON LUXMAN MITSUBISHI DENON LUXMAN NAKAMICHI DENON LUXMAN	PHS MODEL MMT 704 MODEL DRM-500 K-111 M-T5100 DRM-700 K-110 GR-14 DRR-680 K-112	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE 3 HEAD SYSTEM REMOTE AUTO REVERSE BASIC ENTRY MODEL AUTO REVERSE	395 976 976 290 300 300 880 380 400 400 400 400 600	289 ND 777 Đ SALE\$ 232 ND 49 U SALE\$ 229 Đ 249 DB 279 D 299 D 299 D 299 HĐ 329 ND 399 DB
1 VPI 1 ORACLE 1 VPI 1 ORACLE # BRAND 4 ENERGY 4 CHGO SPKR 1 ENERGY 1 SPECTRAL 2 PROTON 6 NAKAMICHI 1 AUDIOQUES	HX JUNIOR PARIS HW-19 III DELPHI DELPHI MODEL ST-20 ST-1 MI-500 320 TM-1 CLEAR 330SG PC-18	D DRV/ QUARTZ LOC/AUTO D DRIVE/DYN SERVO/AUTO W/ARM. TERM BLK. TIPTOES NO TONEARM W/BETA TONEARM W/O TONEARM WITH ZETA TONEARM MISC AUDIO ACCSY MISC AUDIO ACCSY COMMENT SPEAKER STANDS BV-20-SPKR STANDS SPEAKER STANDS 1.5M INTERCONNECT CLOCK RADIO STEREO CLOCK RADIO 12' SPEAKER CABLES	300 475 669 625 895 1,145 2,245 3 REG\$ 60 60 80 185 129 139 1,299 1,299 T 1585 35	234 ND 371 ND 399 Đ 499 ND 627 D 788 D 999 U 999 U SALE\$ 37 ↓ 39 Đ 55 U 75 U 89 ND 119 N 649 D	# 1 1 1 2 3 2 1 1	HISEKI BRAND PREMIER GRACE BRAND BRAND UXMAN MITSUBISHI DENON UXMAN MITSUBISHI DENON	PHS MODEL MMT 704 MODEL DRM-500 K-111 M-T5100 DRM-700 K-110 GR-1A DRR-680	MOVING COIL TONEARMS COMMENT 'S' SHAPED W/REM HSHELL TANGENTIAL AIR BEARING TAPE DECKS COMMENT NO DESCRIPTION HEREI DOLBY B/C DUAL AUTO REVERSE 3 HEAD SYSTEM REMOTE AUTO REVERSE BASIG ENTRY MODEL AUTO REVERSE	395 976 976 290 300 300 300 300 300 300 300 400 400 40	289 ND 777 Đ SALE\$ 232 ND 49 U 39 U SALE\$ 229 Đ 249 DB 279 D 299 D 299 D 299 B 299 HĐ 329 ND





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WHAT YOU NEED...

WHAT YOU DON'T NEED...

Env: Caltech

by Santosh Kamath

The need for self-examination and self-education is more critical now than at any time in the past. The pit of the seventies, hyped by media attention of the first Earth Day, has widened and deepened considerably in the two decades since, and is frighteningly near collapse for a large portion of the human population.

Industrialization has produced magnificent and clever structures and tools. It has enabled some to reach for the stars and others to observe and even "participate" in chemical reactions at the atomic level, and has allowed us to make extraordinary progress in our understanding of our world and ourselves. But the rates of change have occurred at suchan accelerated pace that we have been unable to cope with the problems that have accompanied the advances. Combined with the age-old and uniquely human craving for power in its myriad forms, compassion is being

dednitrium

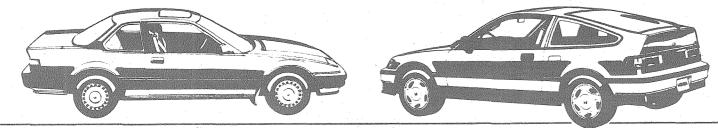
stripped from our hearts and souls. Money, the mechanism for portable power, and compound interest, by which money makes money, has made possible the amassing of incredible amounts of wealth by a relative few, while increasingly large numbers of laborers receive increasingly smaller dividends for their effort. In "underdeveloped" countries, massive strip-mining has become a vehicle for short-term payoffs of huge and ever-mounting debts to industrial consumer machines, contributing to unprecedented habitat destruction and surface contamination. Speculation rights granted primarily to those already wielding considerable power have given rise to deforestation and irrecoverable loss of topsoil and biodiversity. On the home court, creation and maintenance of meat factores has had the same effect; coupled with large-scale diversion of water and irrigation, grossly mismanaged by short-term profiteers, the result is desertification, due to soil dehydration and topsoil loss to the elements on the one hand and surface salt accumulation on the other. Also at home, the growing number and sizes of landfills and poisoned groundwater sources are museums of the indiscriminate consumer mentality



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The California Tech

Environmental Task Force Column

(to wit, plastic packaging materials, and assorted gadgets having lost their "value" due to planned obsolescence and/or design-limited short mechanical lifetimes). Most recently, protracted and unusually severe "El Nino" conditions and consequences (ENSOs) pose an immediate threat to entire ecosystems globally, quite conceivably because of the sharp increase in greenhouse gases in the atmosphere. The longterm effects are felt today in the form of powerful storms, flooding, drought, and greatly reduced coastal fish catches for local populations, placing self-sustaining communities at immediate risk. Our own grain belt, for so long a surplus producer, has had yields in the late eighties that have forced us to dip into our reserves; the viability of grain production may be at stake.

The above list of physical effects related to industrialization goes on and on. But that's only part of the story. On the social front, an equally distressing picture

emerges. Huge numbers of peasants are displaced daily from agricultural land to cities lacking infrastructures to support the influx (frequently, city-dwelling landowners have forced the expulsion in the name of cash-crop profits), contributing more and more to ghetto-cities. Health care in most of the world has become in effect a commodity, sold to the highest bidder. The eviction of the poor, elderly and mentally ill to the streets in this country is at an alltime high. Crimes of poverty, identity, addiction, stress, and now even boredom are dehumanizing urban environments. Anorexia, bulimia, and obesity, diseases of the First World, are epidemic in the U.S., a country in which six percent of the world's population consumes fifty percent of the world's supply of meat, milk, eggs, fish, fruit and vegetables. And so on.

The irony is that by buying into the "more, newer, bigger and faster is better" mentality, we no longer enjoy the privileges of comfort, convenience and time that technology has made possible (when did you last have any significant amounts of "free time"?). We all suffer to some extent from media mind control, which has added a new dimension to the concept of peer pressure. Leaders today are often nothing more than front-line followers, running ever faster and getting farther behind. It should come as no surprose, then, that compassion for those outside our tiny circles has been relegated to the back seat. The fear of losing what we have, of having less than some others in our circles, has blurred the line between what is necessary for "survival" and what is a luxury.

So what's to be done? Naturally, it's a very personal matter as to how to run our individual lives. But I suspect that serious reflections will give rise to some common elements. My own thoughts...

1) We must reduce our overall quantities and habits of consumption, becoming aware of responsible alternatives to existing practices, and even question the very necessity of many of our actions. Most of us contribute in small but significant ways directly to the current state of the world. All of us do, by example, whether we like it or not. Our choices and preferences affect most of the rest of the world socially, economically, and ecologically.

2) We have to demand of ourselves and our political representatives' sensitivity to the needs of the planet as well as the needs of our fellow humans. The power of sanctions has proven over and over again that a determined minority can have a considerable impact on their world. Consider South Africa at a global level and the tuna boycott at the national and local levels. Results may not be immediate, but they are felt.

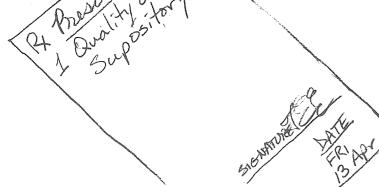
3) In our scientific and technological pursuits, we must place a heavily weighted value on ecology as a variable in economic feasibility. Too often these days, the "cost" of advances in environmental terms is not attached to the producers of the goods and the side-effects. Technoethics, if you will.

June 1, 1990

4) Education of today's youth must be elevated considerably as a priority. With information flowing at such an incredible rate, the earlier we are able to grasp the methods of processing and coping, the easier it will be to anticipate and react to trends and conditions.

5) And lastly, perhaps most importantly, it is essential that we find ways to return to others that which we have received, whether in the form of knowledge and wisdom, service, material wealth, love, or whatever else. Only then can we hope to be able to leave the world a better place than it was when we arrived. With Caltech's centennial arrival in 1991, I wonder if we could make individual commitments in anticipation of the next centennial, of which our children's children and theirs will be beneficiaries.

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10 June 1, 1990

Lack of Communication at Tech

On Friday, May 18th, the Caltech FOCUS Group had its fourth discussion session, this time on communication. It addressed three issues: informal communication in the Caltech community, *the California Tech*, and conflict resolution between campus members.

On the issue of communication between community members, Dr. Sonney Chen stated that while there is trust between faculty and students, there are difficulties which exist to hinder communication. Dr. Chen pointed out that it is easier for the faculty to communicate with undergraduates in a one to one basis rather than to address, say, a whole house. Dave Geraghty, on the other hand, expressed that there was a lack of communication between the undergrads and the faculty, and that many undergrads feel uncomfortable approaching the professor outside of the classroom. He suggested that more undergraduate involvement with research would help establish ties.

Later in the discussion, the issue of communication with and among houses was raised. An undergraduate student specifically cited the Dabney incident as an example of breakdowns in communication. Following this, there was much exchange among some undergraduates, panelists, the MOSH, and Dean Brennen. For a while, the discussion degenerated into an argument over the handling of the incident. The argument did illuminate some important facts: much of the communication over the incident was based on rumors, and not everyone knew the whole story, or in some cases had the story wrong, and the Tech contained nothing regarding the incident (except for the letters protesting the handling of the incident).

Another problem pointed out in the discussion was the inadequate dissemination of information to the students by the administration. One complaint was that some information relied on word of mouth to be spread, and that system was faulty and prone to picking up "noise" as news traveled.

In the second segment of the

discussion, the "fate of the California Tech" was discussed. Various opinions were presented on expanding or limiting the scope of the paper to cover the whole campus, or to cover only the undergraduates, and various comments were made over the lack of editorial control and uniformity in the paper. The Inside World was, in one person's words, "hurtful and juvenile" and failed to cover important issues. A suggestion to make the Tech a formal medium to disseminate information was also suggested.

The last segment discussed conflict resolution. According to the panelists, there are various ways to resolve conflicts arising between members of the community. A formal grievance procedure exists if informal attempts fail to address the problem. Students should bring their grievances to the attention of the campus ombudsman, whereas staff and faculty should speak to their supervisors. If necessary, a formal grievance committee should be formed to resolve the problem.



New??? Associate Dean

Dr. Barbara Green, the current acting Associate Dean of Students, has accepted the offer to become the new Associate Dean (real, nonacting).

Prior to coming to Caltech last fall, Barbara had been Dean of Students at Whittier College since 1977. She has a Ph.D. in counseling and personnel services from Purdue as well as a Master's degree from Columbia.

The Deans' office is delighted to welcome Barbara on a more permanent basis. They ask that you join in expressing our appreciation to her.

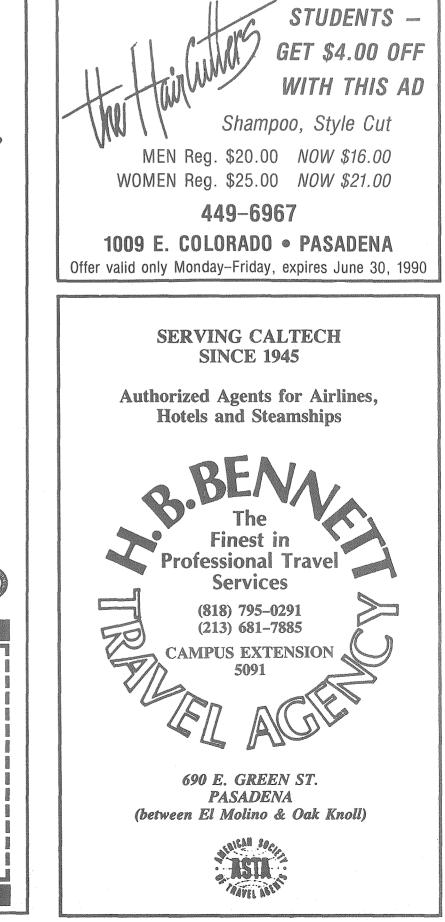
Math Honors

Several undergraduates were honored at an awards banquet in the Athenaeum in May. Jun Teng and Rhaghav Chari each received an H. J. Ryser Scholarship 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. Jun and Rhagav received the awards for excellence in course work and because of the strong endorsement from faculty.

Bill Cross received a check and certificate for his outstanding performance in the Putnam Competition in May. Bill ranked in the top six. Caltech's team of Bill Cross, Robert Southworth, and Glenn Tesler placed sixth nationally. Russell Manning received a certificate for placing in the top fifty.

A team consisting of Steve Bard, Bill Cross, and Robert Southworth entered the Mathematical Contest in Modeling sponsored by the Consortium for Mathematics and its Applications (Comap). Teams are expected to do one of two problems. They entered both and received honorable mention for both.





what goes on

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 commerical events unrelated to Caltech will not be published.

Scottish Texan In Winnett

The Caltech Folk Music Society presents its season finale on Saturday, June 2 at 8:00 pm in Winnett Lounge. Ed Miller, originally from Edinburgh and transplanted to Austin. Texas, will be performing a mixture of new and traditional music from both his backgrounds. Tickets are \$8.00, but only \$4.00 for Caltech students. For reservations or information, call (818) 356-4652.

Chamber Ensembles

The Caltech Chamber Music Ensembles will present their final concert of the year on Sunday, June 3 at 3:30 pm in Dabney Lounge. The program will begin with Beethoven's "Quintet for Woodwinds and Piano, Op. 16", followed by Aaron Copland's "Quartet for Piano and Strings." Concluding the program will be Glinka's "Trio Pathéthique" for clarinet, bassoon and piano, and Dvorak's "Piano Quartet, Op. 87 Admission is free adn refreshments will be served. The performers are Caltech undergrads and graduate students, and the concert is sponsored by Student Affairs.

NeXT Campus Consultant

You've seen my announcements, and you're probably wondering who I am...Well, I'm Carlos Salinas, a CS major, and the NeXT Campus Consultant for Caltech and JPL. That means that if you have any NeXT-related needs, contact me. Also, if you or your department are interested in seeing what the NeXT can do for you, contact me and I'll give you a private demonstration. Internet (NeXT-mail) address: carlosleeyore.caltech.edu . DEC net/HEPnet/Span address: romeo::carlos . Or call campus x6830, but EMail preferred and most effective. By the way, if you own a cube, contact me ASAP. Thanks!

Decompression

Volunteer for Decompression this year (June 9 & 10, 7:00 pm to Midnight) and receive a free T-shirt (minimum two hours required). Stop by the Y today and sign up!

Saints And Other Sinners

Kind Crone Productions, in cooperation with Caltech Public Events, will present storyteller Milbre Burch in "Saints and Other Sinners" on Friday, June 1st at 8:00 pm in Ramo Auditorium. The performance is free

and open to the public. "Saints and Other Sinners" is an even ing of storytelling theatre for adults. The show is comprised of six dramatic monologues and three narrative saint stories taken from world literature, a powerful evening of theatre. [One of the Tech staff had a chance to see this show in January-it was great!]

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Barbershop Singing If you enjoy singing harmony, you will love singing with the Barbershoppers. The San Gabriel Chapter of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, Inc. meets each Monday at 7:30 pm in the Adult Recre-ation Center, 324 S. Mission Drive, San Gabriel. For additional information, please call Bob Newton at (818) 446-3424.

Renaissance Pleasure Faire

Tickets are \$10.50 (reg. \$14.50) at the Caltech Y. The Y also has maps for directions. The Faire goes on weekends until June 10, 1990.

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.

Ride Board

Need a ride home after exams? Want to go to San Francisco for the weekend? Feel bad about driving alone? Want to save gas and help others as well? Now you can, with Caltech's new ride board, set up by the Caltech Environmental Task Force and the Caltech Y. Come by the Board, just outside the Y Office on the second floor of Winnett, and use the provided cards to offer a ride or look for a ride. Save money, hassle, time and gas! Reduce smog-use the ride

Ongoing Relaxation Hour

For those students who have attended the Relaxation Workshop, or have learned basic techniques elsewhere, an ongoing group has been started where you can continue to use these methods – and simply have a place to relax at least once a week. Each session will involve some basic relaxation technique, supplemented by audio and video tapes and basic meditation techniques.

The sessions occur on Mondays from 5:00 to 6:00 pm. If interested, please con-tact the Counseling Services at 356-8331.

Logo Contest

Ten Years to 2000: The Campaign for Women and Science" is the slogan. Have you got an idea for a matching logo? Send your ideas to the OWC, 218-51 by 15 June 1990. The winner will receive two tickets to the Pasadena Playhouse and honorary membership in the OWC.

And The Winner Is...

Linda N. Maepa, undergraduate in Ge-ology. Oh, you want to know what she was competing in, eh? The Caltech Staff Social Team held their first Bake-Off and Craft Fair recently in Winnett Student Center and Linda Maepa won first place in the Bread category for her Sweet Dough Braid. Besides a blue ribbon, she received a spice set, courtesy of Lawry's California Center in Glendale. After the judging, all entries were cut into samples for tasting by the Caltech community. The following were the winners in all categories:

Breads-1st place, Linda Maepa; 2nd place Anne Snyder; 3rd place Randi Sumner.

Cakes – 1st place, Randy Mindoro; 2nd place, Annagreta Bolsey; 3rd place, Anne Snyder.

Pies-1st place, Mary Frater; 2nd place, Linda Taylor; 3rd place, Gretchen Smart.

Confections-1st place, Maria Pearson; 2nd place, Martha Anson; 3rd place, Kathleen Dutton-Laraway. Congratulations to all the winners

Classical South Indian Music

In Professor Amy Catlin's Music of India class (MU 53) there will be a recital/lecture/demonstration of South Indian (Karnatak) classical music in Baxter 25 on Monday, June 4th from 1-2:30 pm. Performers will be Geetha Ramanathan Bennett, vina and voice, and Dr. Frank Bennett, mrdangam and Kanjira. The Caltech community is cordially invited to attend. Free. For more information call Professor Catlin at x3614.

BUSAC Set

The BUSAC (Biology Undergraduate Student Advisory Committee) members elected for the 1990-91 school year are: Seniors, Ajay Chheda, Ngocdiep Le, and Eugene Lit; Juniors, Karin Johnson and Jerri Martin; and Sophomores, Ingrid Choong and Yu-Chien Kuo. Congratulations.

Gay/Lesbian Discussion Group

On the 1st and 3rd Tuesdays of each month, all students, staff and faculty are invited to an ongoing discussion of Lesbian/Gay topics, from 7:30 to 9:00 pm After the talk, time is devoted to informal talking, with refreshments provided. This confidential meeting is held in the Health Center Conference Room; call x8331 for further information.

Kids' Arts-n-Science Fair

Saturday, June 9, 11 am to 2 pm, Tournament Park. Featuring arts and crafts to make and take, science projects and experiments, superconductors, liquid nitrogen demonstrations, astronomy experiments, frog-jumping contests, clowns, balloons, and lots more. Special activities for toddlers. Lunch available. \$3.00 suggested donation for kids over 2 (parents free). For kids 11/2-12 years old. Sponsored by the CWC.

Learn Karate This Summer

Learn to develop physical and mental strength, concentration, discipline, and confidence through the study of karate-do this summer.

The Caltech Karate Club, the oldest university karate club outside of Asia, is offering to all members of the Caltech Community (students, faculty, staff, spouses, JPL, alumni) introductory and intermediate classes this summer. Classes will meet at the football field MWF 5:30-6:30 pm for introductory, 6:30-7:30 pm for intermedi-ate, starting Monday, June 18. The membership fee is \$20 for this summer. For more information please contact Sy Shimabukuro, x4165, Dave Gabai, x4382, Ed Lee, 405-0668, or Phil Tokumaru, x4461.

Fishing For Ideas The Fishline, a newsletter serving all Christians of the Caltech community, needs material! If you have any ideas, upcoming events, or articles that you would like to share, please submit them (Mac format, if possible) to *The Fishline*, 126-58. Also velcome are announcement by neighborhood churches, Christian groups and clubs, as well as mailing list additions. Contact Mike Nassir (578-9833) for more information.

Badminton, Anyone?

Badminton is played on Mondays and Fridays in the gym, from 9 am until 11 am. Intermediate players (faculty, staff and students welcome). For information, please call Cherrie Leighton, x4915, Division of Biology.

Online Schedule of Classes

The Caltech schedule of classes, as pub-lished 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.

Off-Campus Folkdancing

Join the Pasadena Folkdance Co-op every Friday evening at 7:30 pm at Throop Unitarian Church in Pasadena at the corner of Del Mar and Los Robles. The club offers beginning instruction at 7:45 pm and intermediate at 8:30 pm. Each month the community is invited to participate in line, set and couple dances from all over the world. A \$2.00 contribution is requested of nonmembers.

Let's Do Lunch!

Redin at the Caltech Y.

International Day

tional Desk, and the GSC.

The Caltech Y along with the Caltech. Service League have allocated monies (lots of) to encourage student/faculty interaction. Specifically, students can receive \$25 to

defray the cost of a lunch, dinner or some

cultural event with a faculty member. All

events must be pre-approved through Brian

Are you ready for free food, great en-

tertainment and an evening to celebrate Caltech's cultural diversity? Stop by the

Winnett Courtyard between 4:30 pm and

9:00 for 1990's International Day. Spon-

sored by Student Affairs, the President's Office, Caltech Y, ASCIT, Caltech Serv-

ice League, Alumni Association, Interna-

Submit To The Totem

An effort is now underway to produce another issue of *the Totem*, the Caltech literary magazine. In the past, the main barrier to publication has been profound apathy (i.e., submissions have been about a tenth that required). This is a plea for all interested students to submit their art, poetry, and short fiction or, at least, to offer suggestions. Please include your name, campus address, and phone number. Submissions to Ben Schaeffer, 1-59, x6173.

Interested in Sailing?

You too can use the Caltech sailboats. Find out how by joining the Caltech Sailing Club. Contact Axel or Martin at (818) 568-9168. Open to students, faculty and staff.

Summer Job Frodo-ing Iris Professors Bjorkman (Biology) and Rees

(Chemistry) are looking for a biology or chemistry major with computer experience to install a molecular graphics program (FRODO) on a personal Iris. The student will be expected to learn how to display proteins and nucleic acids using FRODO, and then write a manual for students taking a protein structure course this fall. (A manual for FRODO already exists, but is not written for inexperienced users.) The applicant should have some computer experience and knowledge of protein and nucleic acid struc-ture. A possibility also exists for the student to study aspects of protein structure currently being worked on in our laboratories. If interested, please contact Pamela Bjorkman (x8350) or Doug Rees (x8393).

Spring Glee Club Concert

Tickets for the annual Spring Concert of the Men's and Women's Glee Clubs are now on sale. The June 2 performance in Beckman Auditorium will feature both Glee Clubs as well as the men's Barbershop Quartet and the women's ensemble, Clef Hangers, in a musically diverse program ranging from renaissance madrigals to American spirituals. The glee clubs will be joined in their final medley of Andrew Lloyd Weber's hits by a group of Caltech dancers-Anna George, Amanda Heaton, Samantha Seaward, Joe Andriu, Clif Kiser and Joe Beckenbach. General admission to Spring Concert is \$7; students, \$5. There will be a reception (free food) after the concert. Come on out and support your friends in the Glee Clubs on Saturday, June 2.

Health Advocate Program

Interested in being a Health Advocate for next year? Application and course information are now available at the Student Health Center. All students interested must fill out an application and be interviewed in September, before fall term begins. This course is not open to freshmen. The Health Advocate program is PA 50, a three-term commitment and is open to students living on campus. Please contact Lori Mulvany at the Health Center, x6393, if you have any questions.

Student Organization Funding

Student organizations applying for Alumni Association funding for 1990-1991 must do so before June 22, 1990. Applications are available at the Alumni House, 345 S. Hill Ave. Funding is approved by the Stu-dent/Faculty/Alumni Relations Committee of the Association Board of Directors. The awards will be made in the fall of 1990. For more information, please contact Karen at x6593.

Play Bridge

Play bridge at the Caltech Bridge Club this Monday. We meet every Monday at 7:15 pm at the Red Door Cafe in Chandler Dining Hall. No card fee, no membership fee, no partner needed. Undergrads, grads, faculty, etc. welcome.

money

Scholarship Listings

The Financial Aid Office has applications and/or information on the following scholarships. All qualified students are encouraged to apply. The office is located at 515 S. Wilson, 2nd floor, phone x6280. The Desk and Derrick Club is offering

scholarships to residents of Kern County (but may be attending outside Kern County) pursuing higher education in a petroleum or allied industry-related field. Deadline for submitting an application is August 1, 1990.

Orville Redenbacher's Second Start Scholarship Program is for students 30 years old or older at the time of application, be enrolled in either an associate, bachelor or graduate degree program at an accredited college or university and can be either full-time or part-time students. Deadline for application is September 1, 1990.

Jewish Family and Children's Services is offering financial support for Jewish in-dividuals and their families. Applicants must be permanent residents of San Francisco, the Peninsula, Marin, and Sonoma Counties.

Software Scholarship

The Green Hills Software Corporation has announced the availability of one-year \$5,000 Computer Science Scholarships. These three scholarships are to be awarded to juniors and seniors with an interest or ex-perience in computer science. For more information and/or a Green Hills Scholarship application, please contact the Financial Aid Office at 515 S. Wilson. The deadline for submitting the application is TODAY, June 1, 1990.

Career Development News

JPL has a summer job available for a sophomore or junior in ME or CE with a strong background in applied mechanics to do programming in Fortran. Some experience in finite element analysis of structures is preferred. Contact C.P. Kuo at 354-4246.

JPL has two more summer jobs available in the Image Processing Laboratory. Math, physics or computer science back-Must have some programmer ground. VAX/VMS background. Contact Michael Girard at 794-2386 or 354-3237.

The U.S. Department of State announces the annual Foreign Service Written Examination to be held on October 27, 1990. The written exam is the initial step in competing for a career in the Foreign Service of the United States. Deadline for receipt of application is September 21, 1990. Call 1-800-JOB OVER(SEAS) to obtain an application.

AT&T is trying to fill several hundred Member of Technical Staff positions, mostly located in New Jersey and Illinois. Candidates should have a BS, MS or PhD in EE, Systems Engineering, Computer Engineering/Science, Industrial Engineering, or Operations Research and have a strong academic performance record.

Hughes Ground Systems Group is in the process of expanding its Operations Research and System Analysis capabilities. As part of this effort they are looking for recent and prospective graduates in Opera-tions Research, Applied Mathematics, Physics, or Engineering Science.

Arts & Science Fair

Lanae Bach needs Caltech students to help volunteer for the Kids Arts & Science Fair on Saturday, June 9 from 11:00 am to 2:00 pm at Tournament Park. If interested, call her at 792-1513.

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Twin Peaks Marathon

On Saturday, June 2, 1990 at 6 pm in Rm. 35 of the SAC, there will be a presentation of all 7 episodes of the dark soap opera parody *Twin Peaks*, plus the original premiere movie. This TV show has already won both critical acclaim and cult status among its fans. Donuts, cherry pie and hot, black coffee will be served free of charge. For more information, call Dave at 440-0459 or Eric at 564-8949.



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Beginner's Windsurfing Clinic "Sailblazers", Caltech's Windsurfing Club, will teach you how to sail a sailing board in just one day! Open to all members of the Caltech community, the lessons are held in Long Beach on Saturdays throughout the spring and summer. Everybody can do it, so sign up at the Y for the next ses-sion available. For more information contact x6237 (Jakov) or x4264 (Branislav).

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