Drop Day is Wednesday. NO-O-O!!!

So when is Ditch Day? Tomorrow? Today!

THE CALIFORNIA TECH

Prank topples after staff blunder

BY TECH STAFF

David Baltimore, Nobel Laureate and former biology professor at MIT, was introduced on Tuesday as Caltech's new president.

Dabney Hovse members mourned the loss of one of their palm trees last Friday, when miscommunication led B&G to topple the tree which had been relocated to the Court of Man as prank. The palm tree broke at the base and fell in Dabney Courtyard Thursday night. A large group of Darbs then moved the tree to the south side of the Court of Man and erected scaffolding to hold the tree upright. The base of the tree was set in a drainage hole for further support and stability. Caltech security observed the industrous Darbs raising the tree and attempted to establish who was in charge. Dabney Hovse president Geoffery Matters stepped forward to discuss matters with the officers at hand. The security officers present came under the false impression that "permission" had been granted by a Caltech Administrator. In actually, Geoffery had acted in his presidental power, santioning the prank under the name of Dabney Hovse. At roughly 1:30 a.m., Security called Director of Residence Life Kim West about the palm tree. Security was told by Kim West that "If it doesn't look dangerous, leave it up. If it looks dangerous, either get the students to take it down o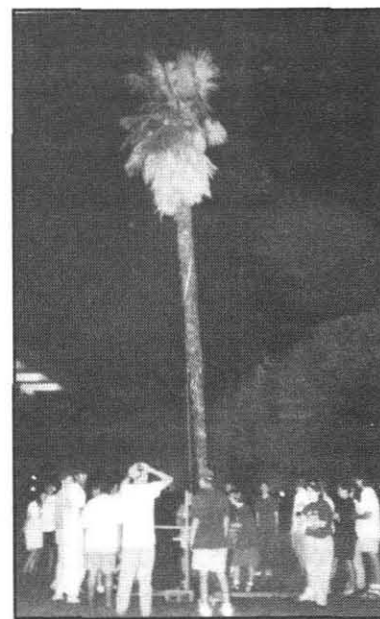r call the Deans to get their permission to take it down." According to the security report obtained by *The California Tech*, no further action was taken that night by Security.

Around 5:30 a.m., Dule Misevic, a Darb, talked with a Caltech security officer who appeared to be "guarding" the now roped-off the palm tree. He was told by this officer that the tree was to be taken down by the grounds crew at around 6 a.m. When Dule asked why the tree couldn't stay up for a while longer he was told that it wasn't authorized and had to be removed. Later in an interview with the Tech, Gregg Henderson, Chief of Security Operations, stated that authorization is not necessary for pranks. Robert Fort, Director of Physical Plant, and William Irwin, Deputy Director of Physical Plant, confimed this later. Dean of Undergraduate Students Jean Paul Revel noticed the tree as he came to work at around 6:45 a.m. When asked to comment on the tree, Revel said that it was "cute." By the time Dean's Assistant, Suzette Cummings, arrived at 8 a.m. the tree had been removed, presumably by Caltech Buildings and Grounds (B&G).

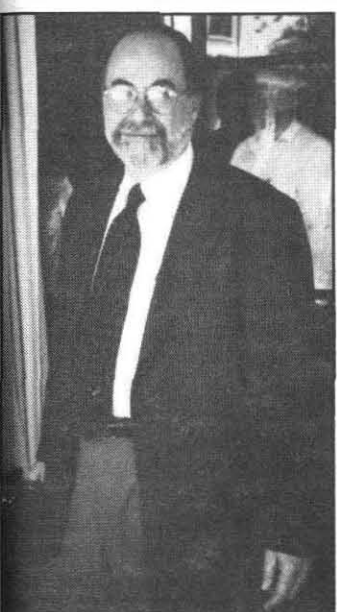Cy Carlberg, the head of B&G is currently on vacation and was not avaible for comments. Both Vice President of Student Affairs Gary Lorden and Caltech President Thomas Everhart were very disappointed that the prank had been removed before most people got to see it, including themselves.

Also interviewed Wednesday by a crack team of Tech investigational reporters was Vice President of Student Affairs Gary Lorden. He acknowledged that the removal of the tree was not authorized by the administration. He further defined adminstration as being people whose offices are in Parsons-Gates. "I'm embarrassed that this happened," said Vice President for Student Affairs Gary Lorden.

In order to avoid future miscommunications concerning student pranks, The Director of Physical Plant recommended that students contact him directly. His extension is x4707. Outside of working hours security should be able to reach him.

An embarrassed Gary Lorden says "It won't happen again"

Dabney's palm tree, before it was prematurely removed from the Court of Man

Profs run maze for students and food

BY CHRIS BISBEE

On Wednesday, May 14, a study was conducted to determine the effects of various factors on maze running ability. While most studies of this type involve animals such as rats, the researchers in this experiment chose to study humans. Therefore, early Wednesday morning they constructed a maze on the Olive Walk and observed their subjects between 8AM and 12:30PM. The subjects were divided into two groups: the younger, sleep-deprived group (also known as "students") and the more mature, hungry group (also known as "professors"). The number and location of the mistakes made by the subjects were noted as they passed through in the proper direction. For all cases, interaction with other subjects was limited and
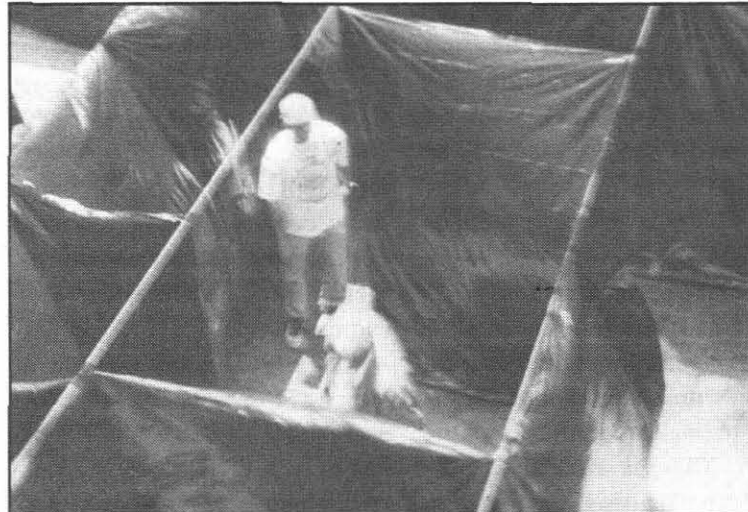
Many students and faculty accepted the challenge gracefully, and followed the spirit of the prank.

subjects who were led through the maze by the mistakes of others were ignored.

While the reaction of most of the subjects was favorable, there was a notable exception. The researchers were startled by the violent reaction of one of the "professors", who, instead of navigating the maze, tore through two of the walls. Repairs were quickly made, and the study was continued.

In addition, many subjects inquired as to whether or not it was Ditch Day. In fact, one of the 'professors' went so far as to ask the researchers whether or not he should teach his class that day. The researchers assured the 'professor' that indeed it was not Ditch Day, and that he should probably instruct his class.

Ultimately, the research resulted in no conclusions. Similar statistics were achieved by both groups. The researchers believe that more work in this area is necessary, and urge others to seek grants from ASCIT such as the one they received to pursue experiments like this one.

Olive Walk Maze Results

	Students	Professors
Perfect trip	8	4
Caught in traps		
1	68	60
2	18	18
3	14	7
1 + 2	33	10
1 + 3	2	4*
2 + 3	2	0
All 3	2	2
Exited from the entrance	5	3
Became violent	0	1
Total	155	114
*Thought it was Ditch Day	1	5

Glee clubs sing again. Concert this Friday

LETTER TO THE EDITORS

Pranks

Last Thursday night, a palm tree fell in a house courtyard. We decided that a cool prank would be to put it standing up in the middle of the Court of Man.

A little before midnight, we agreed and spent some effort moving the heavy dead tree out to the grassy future site of senior graduation in a few weeks. After much deliberation on how to set up the tree, we finally agreed on a plan which would not do any damage to the grass since it seemed like the ground crew had put a lot of work into keeping it nice. So we carefully set up an apparatus to hold the tree in the water drain.

At around 1 a.m. Security finally realized what was going on. They asked who had approved the project and why we had a car on the sidewalk (to move some bricks). After the house president took responsibility for the project and gave his name and number, they asked to see his ID, just to make sure it was him I guess. They repeatedly asked who authorized the prank even after we explained that the house president had given "approval."

After the tree was placed upright and securely supported, warning signs were placed around the tree to make sure that ignorant people didn't get hurt by it.

To everyone's dismay, the tree was gone by 6 a.m. the next morning so that no one could appreciate the prank. Apparently Security took it down since it had not received correct "approval."

Who were we supposed to get approval from at 1 in the morning? The DRL or the MOSH? Is there a "policy" on how to go about doing pranks? Not to my knowledge; that is why it is a prank!

The prank was perfectly innocent: it did not cause any serious safety hazards or cause any type of damage. People had agreed to take it down and the drain still functioned fine. Is this the kind of encouragement we are getting from the administration, or was Security "following orders?"

Overall I think the outcome of this prank sucked not only because no one enjoyed the prank but also because it left everyone discouraged about doing more pranks in the future, especially since one so simple and safe as this was terminated.

In the future, Security should at least inform us if they are going to take down a prank and for what reasons so the prank may accomodate their needs and proceed as planned, especially if it is as reasonable as the one above.

I just hope that the premature termination of this prank was a mistake and that future pranks may be allowed, as they have for years in the great Caltech tradition of ours.

**ANONYMOUS
UNDERGRADUATE**

Please send submissions for letters to the editor to

The California Tech
Caltech 40-58
Pasadena, CA 91125

or by electronic mail to

editors@tech.caltech.edu.

Deadline for submissions is Monday at 5 p.m. on the week of publication.

The editors reserve the right to edit or refuse to print any letter for any reason.

A.S.C.I.T. Minutes

Minutes of the ASCIT BoD Meeting, 9 May 1997

This was a special closed meeting of the BoD assembled to interview and selected ASCIT appointed officers. The BoD (minus Lori) was present.

Closed meeting called to order at 7:05

BoD votes 6-0-1 to approve $35 for Geoff Matters's request for post-prank beer money.

BoD votes 6-0-1 to appoint Andrew Strauss and Ben Wu as Big T Editors and Amy Zheng Big T Business Manager.

BoD votes 7-0-0 to appoint Joe Carroll as ASCIT Movies Chairman.

BoD votes 7-0-0 to appoint Rory Sayres and Ryan Cox as little t editors with their crack smoking 4-person commando squad backing them up.

"The IHC bites in ways I can't describe without flowcharts."

Minutes of the ASCIT BoD Meeting, 12 May 1997

Present (at some point): BoD, Kevin Bradley, Nicholas Breen, Jim Krehl, Al Fansome, and the Spirit of Christmas Yet to Come (This week Vladimir = Mike W. and Estragon = Mike A.)

Meeting called to order at 10:37

Dealing with guests

Jim - The Athletic Department is rearranging the fencing team's practice schedule in order to make better use of the gym. There is some discussion of transforming (more than meets the eye!) the Tech fencing squad into a club team. Dan Bridges (athletic director) has promised that Tech will stay in NCAA competition as long as there is participation.

Meeting closes at 10:47 to discuss Kevin's prank proposal.

BoD votes 5-3-0 to allocate $200 for this prank. BoD votes 5-2-1 to approve Stephen Shepherd, Andrew Strauss, Mason Porter, and Sid Padnamubha as the new Totem editors. BoD votes 8-0-0 to appoint Nicholas Breen as new ASCIT Election Chair.

Meeting opens at 11:25

Officer Reports Baldeep - The administrators of the Sherman Fairchild Library have been very receptive to expanding their hours. 24 hour access will not be available because the cleaning staff needs time to get up and kill.

Kiran - A window on the van was broken and motor pool is fixing it for free. It was determined by the mechanics that the van needs $2700 in non-essential body work as well as a $300 tune-up to make it road worthy after its extended hiatus. It is decided to go for the tune-up by to hold out on the larger expenditure. The van registration also needs to be renewed soon.

Adrienne - Prospective attendees need to cough up the cash for the formal. Make checks payable to ASCIT and put em in the mail by Wednesday the 21st. ASCIT Social Team has arranged a 20% discount on tuxedo rentals from the Tux Center on Lake. Now you have no excuse not to go to the formal cheesehead.

Vladimir - ARC reps at large will be chosen soon. Soon to be dealing with issues concerning the Career Development Center (e.g. new interview rooms, etc.).

Lori - The IHC (what a bunch of losers) is preparing for a crushing defeat at the hands of the ASCIT BoD. They finished their review of DAPAC and put a few back to celebrate.

John - From now on, please refer to John as "The IHC's Worst Nightmare". John will be stopping by the next IHC meeting to discuss Tech 1a and to beat Marty "like a red-headed stepchild." Developing a new sign-out procedure for dispersing club checks.

Estragon - Nominations for ASCIT Election chair close Tuesday at 17:00. The 96-97 Budget is now available on the web.

Maria - There will be a BoC open business meeting later this term. BoC talks will probably be finished this week. Maria should get cracking and supply John with a list of the BoC's property (e.g. Iron Maiden, the Rack, Robert Saliba, etc.).

Kohl - The APE is becoming the STAR! Holy crap! It will begin reviewing computer and administrative systems dealing with Student Affairs. Kohl is still talking to political/religious groups on campus in order to make a decision about club funding. BoD lunch the 21st with Ms. Hassenfeld of the Ombuds Office. BoD dinner in Ricketts on Tuesday. President Everhart is forming a committee (which will have undergrads) to investigate the findings of the Bookstore committee (which was composed of all faculty). Vladimir, Maria, and Tom Lloyd are working on revamping the T.A. training manual.

Meeting adjourned at 11:54. Respectfully submitted,

Michael D. Astle

Michael D. Astle
ASCIT Secretary

Theater Arts at the California Institute of Technology
presents

Don Juan in Hell

by George Bernard Shaw

Produced by special arrangement with Samuel French, Inc.

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Saturdays • May 24 & 31 • 8 p.m.
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Dabney Lounge

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Caltech Ticket Office: x4652 tickets@caltech.edu

ADAM VILLANI, THE SAVAGE
MEDIA GUY
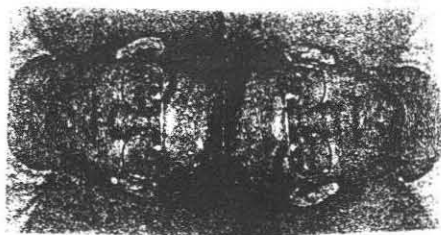
The Fifth Element

First, an obvious Caltech Joel Siegel-ism: "The fifth element may be boron, but this movie is anything but!" That oughtta get the folks at Columbia to stick a blurb of mine on a print ad.

Anyway, French director Luc Besson's futuristic space fantasy is a stunning spectacle, delivering the kind of sheer entertainment one can only get from the movies.

Critics of the film have good points when they note its generally ridiculous plot and confusing first act, but they're way off base when they say there's nothing more to it than a bunch of special effects. Comparisons to the likes of *Twister* and *Independence Day* neglect the fact that *The Fifth Element* is a picture of tremendous imagination and considerable charm.

Besson's future may be frantic and decidedly non-utopian, but instead of *Blade Runner's* bleak gloom, we get a bright world of reds and yellows costumed by the outrageous Jean-Paul Gaulthier and with design work by visionary French comic book artist Jean "Moebius" Giraud (*The Airtight Garage, Silver Surfer*).

Even the acting is good: Bruce Willis is his usual self, the chameleon-like Gary Oldman plays an effete Southern megalomaniac (!), ex-model Milla Jovovich makes a role than could have easily been a cipher surprisingly human,

Ian Holm provides some comic relief, and *Friday's* Chris Tucker provides a *lot* of comic relief as an ultra-flamboyant radio host.

You must see this movie on a big screen; if you don't, you'll kick yourself in a year when you catch it on video.

Romy and Michele's High School Reunion

For about the first half hour of this movie, I thought it had several very funny lines, but that the tone of the film seemed misplaced. Then I realized that the movie was much more an absurd fantasy than the '80s-style high-school comedy I had expected — I had suddenly caught the movie's groove and the beginning of the film was retroactively much funnier.

Mira Sorvino is good (and using an odd accent) as always, and Janeane Garofalo is fantastic in a supporting role, but the real standout in this movie is Lisa Kudrow, showcasing a real gift for creating a comic persona here that doesn't really come through on her more poorly written TV show "Friends." It's well worth it to adjust your frame of mind for this movie.

This flick would be a rather obvious double-feature with *Grosse Pointe Blank*. Both are good movies, and it would be interesting to compare them. *Romy and Michele's* humor lies in taking ordinary character types and exaggerating them, while *GPB* finds its absurdity in the rather ordinary behavior of its extraordinary characters.

The Outside World

by Myfanwy Callahan

CAPETOWN, SOUTH AFRICA— About 8000 South Africans including Deputy President Thabo Mbeki sought amnesty for their actions during the apartheid era. The applications arrived prior to a deadline on Saturday after which South Africa's Truth and Reconciliation Committee will hear cases.

HABUR, TURKEY— Turkish troops crossed into Northern Iraq to attack the hide-outs of Kurdish guerrillas seeking autonomy from Turkey. Jets bombed at least five rebel bases.
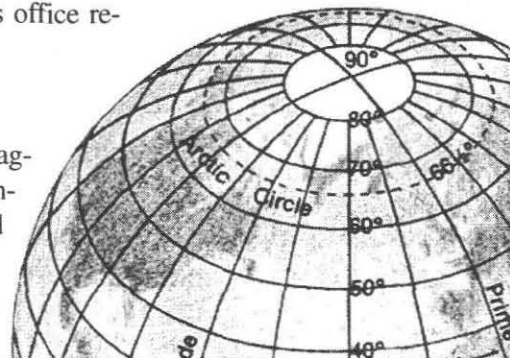
KINSHASA, ZAIRE— Peace talks between President Mobutu Sese Seko and Laurent Kabila were canceled after Mr. Kabila objected to the security arrangements. When asked what he expected would happen next in Kinshasa, a member of the Prime Minister's office replied, "War."

MESHED, IRAN— An earthquake of magnitude 7.1 on the Richter scale destroyed 200 villages in North Eastern Iran, killing 2400 and in-

juring at least 6000. This was the second major earthquake to hit Iran within 10 weeks.

MOSCOW, RUSSIA— Russia reluctantly agreed to NATO's eastward expansion encompassing Poland, the Czech Republic, Hungary and possibly other former Communist Block nations. Officials are still pushing for a ceiling for the number of troops allowed in the area.

NEW YORK— The computer Deep Blue beat chess champion Garry Kasparov after the sixth and final game, resulting in a score of 3 1/2 to 2 1/2. After just nineteen moves Kasparov resigned the game saying, "I lost my fighting spirit." This is the first time a computer has ever beaten a human opponent in a multi-game match.

Deep Blue 3.5 — Kasparov 2.5

BY SANJOY MAHAJAN

"I probably know more about opening theory than any other chess player, but I don't want to compete with something that is far, far superior to me in this contest... I have to be afraid because I can outcalculate any player in the world easily but I cannot outcalculate the machine."

In these two sentences, made in the press conference after Game 5, World Champion Garry Kasparov showed us some of the misconceptions that lost him the match.

Deep Blue, IBM's chess-playing computer, has an opening library consisting of most published opening books knowledge. But Kasparov is the innovator; for his world-championship matches, he invented new opening lines, created ideas that weren't yet in the books. Had he used that approach for this match, he would have obtained better positions out of the opening, perhaps even winning positions.

But the computer's capabilities spooked him; he played quiet, passive, cowardly openings that did not give him enough advantage to win, and sometimes gave him a disadvantage, which he had to play brilliantly to overcome.

Creating opening innovations involves deep analysis, similar to what players must do for postal chess games (where you make one move every three days). Computers perform badly at such slow rates. Of course they play better with more time, but humans improve even more: brute-force search does not use the extra time effectively.

(In contrast, at speed chess, with roughly five seconds per move, even personal computers can beat all human players. Tournament chess lies in the middle, with an average of three minutes per move.)

Kasparov probably was not instructed in these more subtle matters of anti-computer play, and only got the standard advice, to avoid tactical lines and wait for the computer to make a positional howler. Unfortunately for him, the computer made far fewer positional blunders than it did last year, and Kasparov had to struggle every game.

Kasparov can search perhaps one variation per second. Deep Blue can search 200 million variations per second. But 99.999999% of those are garbage; they include, for example, variations where White's queen roams around the board gobbling up protected black pieces, while Black, instead of capturing the queen, sends his own queen on a capturing tour of the white pieces. No strong human player would even see such variations.

Deep Blue decides on a move by making a tree of all the variations up to 15 half-moves long in the middlegame (a half-move is also known as a *ply*), with greater depth in the endgame. It scores the final (leaf) positions based on the positional knowledge programmed into its software and special hardware.

The most important term in the scoring function is material advantage, for which a scale like "rook = 5, bishop = 3, pawn = 1," etc. is used; other terms include center control (which color controls more squares near the center of the board), control of open files (vertical lines with no pawns on them), pawn structure, king safety, and so on.

After scoring all the leaf positions (those at depth 15), it then works backwards to score the rest of the tree, using the *alpha-beta* algorithm (an efficient variant of the *minimax* algorithm); it then picks the top-level move with the best score.

Fortunately, the entire, multi-billion-node tree doesn't need to live in memory; only the variation currently under consideration needs to be there. Also, the tree doesn't have uniform depth. In forcing variations — those with tactical threats, exchanges, captures, or checks — Deep Blue will extend the search, sometimes to 20, 30, or more plies.

The large initial depth of 15 plies, combined with search extensions, make Deep Blue a tactical monster. Using alpha-beta and search extensions, each additional ply costs a factor of 5 in time in the middlegame. So the 40 billion positions Deep Blue examines per move corresponds to a depth of log 40 billion over

log 5, or about 15 plies.

In spite of Deep Blue's tactical skill, Kasparov can, and often did, outcalculate the computer by using his superior scoring function, which tells him how good positions are, and also which lines are worth extending.

In Game 4, Kasparov got a mediocre position out of the opening, because of the passive, and therefore obscure, opening he played, the Pribyl Defense. (Grandmaster Gabriel Schwartzman said, "Don't ask me what to call that opening. I don't know.")

Kasparov spent a half hour on his 15th move, analyzing the pawn sacrifice that he played five moves later (20 ..., e5). It bore fruit in this position, 18 plies later:
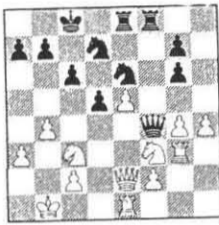

Game 4. After 24 ... Nd7.

Kasparov has tied down every white piece. The knight on f3 can't move without hanging the f2 pawn and allowing Black to invade on the seventh rank. The rook on g3 can only move to h3, since it must remain on the third rank to guard the useless knight (which can't move). The queen must also remain in contact with the knight, for the same reason. The rook on e1 must guard the pawn on e5. And the black pawns on c6 and d5 prevent the knight on c3 from having any useful moves.

Kasparov judged that his pawn was a good price for this winning bind. (In time trouble later, he eventually missed a few wins, and Deep Blue managed to draw.) If Kasparov had combined his superior positional evaluation with good opening play, he probably would have won the match by a solid margin like 4-2.

Unfortunately for Kasparov, Deep Blue learned more posi-

tional play since last year. Consider this position from Game 2:
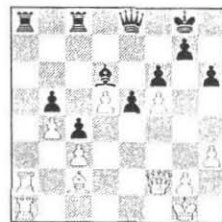
Game 2. After 36 ... axb5.

Here, instead of the greedy 37 Qb6, which attacks the bishop at d6 and the pawn at b5, Deep Blue played the positional 37 Be4. The move Be4 guards the passed d-pawn, and prevents Black from playing 37 ..., e4, which would advance a passed pawn, and would open a line for the bishop on d6 to attack the white king. The move stops all of Black's counterplay.

Grandmaster Yasser Seirawan, one of the three regular commentators on the match, liked the greedy move; but Kasparov expressed admiration for Be4, saying the best players in the world would have played that move, instead of Qb6.

The end of this game was a disaster, and the source of most of the controversy in the match. Deep Blue (White) had this totally winning position:

Game 2. After 43 ... Qb6.

Then it blundered with 44 Kf1, which allows Kasparov to draw by perpetual check with 45 ..., Qe3 (after 44 ..., Rb8 45 Ra6). Deep Blue should have played 44 Kh1 instead, which shelters the king from the check for one more move (which is all that the computer needs to force the win).

Kasparov considered 45 ..., Qe3, but thought, "The perpetual must not work because, if it did, this brilliant computer, which played 37 Be4 earlier, would have prevented it with 44 Kh1. So there's no perpetual — I resign." When he later found out that there was a draw, and that the computer had missed it, he accused the Deep

Blue team of cheating; Deep Blue *must have had human help in making* 37 Be4, since on its own it makes stupid moves like 44 Kf1.

Kasparov's argument has no merit; instead it further illustrates his ignorance of how computers play chess. The two situations are different; where Deep Blue played Qe4, its positional knowledge plus large search depth gave it a good understanding of the position. Missing the perpetual check in the endgame has nothing to do with the positional knowledge; likely there is a bug in the code that detects position repetitions, and Deep Blue missed seeing the draw, or perhaps the perpetual check is too deep. Resigning in a drawn position unsettled Kasparov for the rest of the match.

Game 2 shows how much stronger Deep Blue plays now compared to last year. The factor of two speedup (from 100 million to 200 million positions per second) that IBM kept hyping buys very little: hardly half a play (which would require a factor of root 5, or about 2.2). Most of the improvement came in Deep Blue's positional knowledge.

In Game 6 last year, Kasparov made a monkey out of Deep Blue, trapping its bishop and rook in a corner. To close the knowledge gap, IBM hired several grandmasters for the project, primarily Joal Benjamin. Benjamin would try to quantify his own knowledge of chess, in a way that the programmers and hardware designers could add it to Deep Blue. Or he would play games against it, and if it made a move he knew was wrong, he would try to figure out which term in the scoring function was responsible, and adjust the weight or computation of that term slightly.

This long, drawn-out process eventually added enough knowledge to enable Deep Blue to play a move like 37 Qe4. Deep Blue's knowledge is probably equivalent to that of an 1800 player, average for a tournament. (Chess ratings range from roughly 1000 (beginner) to 2800 (Kasparov); grandmasters usually have ratings of 2500 or above.)

Research in computer chess originally had the aim of understanding our thought processes. How do we develop judgment, a feel for something? How do we learn patterns and apply them? In
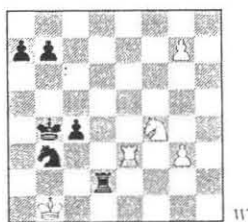
what form is chess knowledge stored?

The Deep Blue team made no claims to model human thinking style; instead, they based their hope of beating Kasparov on a small amount of positional knowledge together with deep searches (15 or 16 plies with lots of extensions), obtained using custom hardware designed for searching and evaluating chess positions.

After Kasparov pounded on Deep Blue in Games 5 and 6 last year, they realized that Deep Blue needed more positional knowledge, and we saw the good results in the match. But even so, Deep Blue and Kasparov use almost opposite hardware and software to play chess.

I am a bit sad that chess has yielded some of its secrets mostly to calculation. I had hoped that computer chess research would uncover some of the secrets of human expertise. But, done well, brute-force search produces a different kind of chess, and sometimes it finds new ideas that humans may learn from.

For example, the computer defends difficult positions better, but with counterintuitive methods. In such positions, you have to find just the right moves to hold the position, even though your pieces have little freedom.

In the endgame, sometimes the proper defense requires precisely calculating which side queens first; positional knowledge won't cover such situations. Consider this position from Game 5:

Game 5. After 40. Ng7

The computer (Black) found a bizarre defense against Kasparov's threat to queen his g-pawn. A human would try to block the g-pawn using the rook and maybe the knight or king. Instead, Deep Blue gobbles up White's a- and b-pawns, and advances its own pawn and king on that side! This allows White to queen, but saves the game with a perpetual check:

Game 5. After 49 . . . Kb4
(final position)

If 50 g8=Q, then Black continually checks with the rook on d1 or d2, and White's king finds no shelter. If instead 50 Rxb3, Kxb3 51 g8=Q, then 51 . . ., Rd1 and White is checkmated. Note in this variation how the black pawn on c4 prevents White from queening with check, which would ruin Black.

No human players would allow themselves to get into this dangerous situation, where they must calculate in many variations each pawn position and queening time so exactly. The computer, on the other hand, knows no such fear. Hence, it finds a superior defense: in such situations, it plays better chess.

What are the consequences of the match? Kasparov may suffer for a while; his chess game may suffer as well. His ego got a pounding, especially after the way he blundered into a book trap in Game 6. He tried, in an understandable way, to salvage his pride by challenging Deep Blue to a rematch, in which he would prepare properly and would "personally guarantee that [he would] tear it to pieces."

Perhaps the match will happen. Kasparov wants to see Deep Blue enter into a world-championship cycle, playing the best few players in the world. Then it would play on a more even footing with the humans; its style wouldn't be a total mystery before every match.

Kasparov definitely had a disadvantage in this area. He has played thousands of tournament games, and his style is well known. Deep Blue, on the other hand, had played no public games; Kasparov said that it was "more closely guarded than any computer in the Pentagon." In a world-championship cycle, Deep Blue would have to face opponents with different styles than Kasparov. Karpov, for instance — with his preference for, and ability at, positional chess — would do very well against Deep Blue.

The Deep Blue team, on the other hand, is not eager for a rematch. Kasparov's accusation of cheating strained relations badly. And IBM wants to switch the group's focus to data mining (finding patterns in large databases).

That was the plan before the match ("win or lose," said Feng Hsu, Deep Blue's hardware designer), but the plan may have changed with all the free publicity IBM got from the match, perhaps as much as $500 million worth. IBM is trying to sell its data-mining technology using the line it has built with "IBM Deep Blue technology." The only similarity to Deep Blue is the supercomputer, an IBM RS/6000 SP; perhaps the data-mining software will use special hardware accelerator chips, as the chess software does. But the chips will have little relation to each other. (Should the credit-card fraud detector know about king safety?)

I got the feeling that among the higher-ups at IBM, public relations considerations outweighed science. The actual researchers are scientists, interested in finding out what brute-force search can do. On top of that, the media managers staged a huge show and presented a carefully scripted story about the spin-offs to data mining and drug design. IBM's stock rose on the Monday morning after the match, by 3 points (roughly 2%) to a record high, so the board of directors must be happy.

This version of Deep Blue would probably get beaten by the best few humans, such as Anand, Kasparov, Kramnik and Karpov, if they played sensibly and prepared good opening lines. If the Deep Blue project continues, and the team encodes more chess knowledge into Deep Blue — perhaps about piece cooperation — and fixes the problems they found with the current knowledge, it's possible that in two years the machine will be unbeatable.

If that happens, research in computer chess will probably suffer; perhaps computer games researchers will work on a game where search doesn't help, such as *go* or the chess variant known as *bughouse*. (If you don't know what bughouse is, consider yourself lucky.) Then they will have to figure out something of the human method.

The worst result, which I hope does not happen, would be for human chess to lose its high profile. People may think, "Why should I watch Kasparov and Karpov play — they are no longer the best. Let's see what the computers are playing."
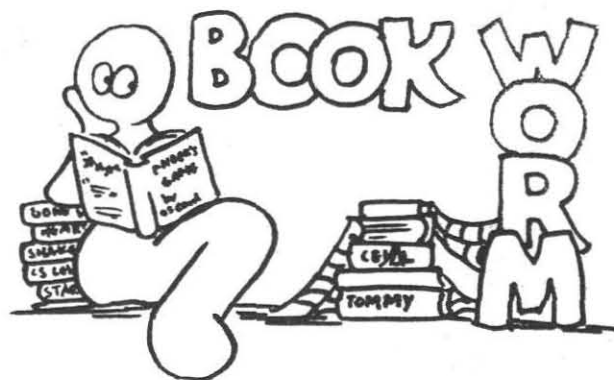
For some reason my reviews last week were each lacking two stars. *Danny the Champion of the World* should have had six and *A Puzzle for Fools* should have had four.

Pearls of Lutra
by Brian Jacques
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The latest in the Redwall series, Pearls of Lutra is only available in hardback. And I'm not really sure that it's worth it to pay the extra. It's a good book, lots of fun to read, but nothing that you're going to cherish forever and not so special that you need to get it now. The title refers to six pink pearls called the "Tears of all Oceans". These are stolen, with much bloodshed, from the otters of Holt Lutra by rat pirates. Some of the plot devices used to drive the story are decidedly thin, and the proportions of the animal characters relative to each other and the natural world (trees waves, etc.) are very confusing and difficult to visualize. Regular readers of this column (yes, both of you) will recognize these as being my complaints about previous books in this series, but if the author isn't going to change, then neither will I. For high points I would choose the poem-clues that drive the treasure hunt of the story-within-the-story, and the ever-present descriptions of food that sounds too wonderful to exist. Lest someone think that I have been too harsh in this review, let me close by admitting that I read the entire thing in one night, so I probably shouldn't complain too much.
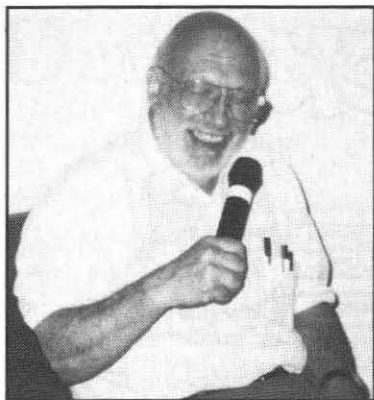
The Null Set
by Anonymous
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I've been kind of busy lately, so I haven't read anything to review here. Sorry.

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Dean's Corner

Hale and Be Bopp: The Question of Cults

by Jean-Paul Revel and Jon-Patrik Pedersen

The comet has now disappeared from view, at least from the foggy-smoggy-light contaminated bottom of the Los Angeles Basin. It was Hale'd with fanfare and is now being Bopp'ed out of our minds. But on its way it has reminded us of an important issue.

We are all children lost in the vastness of space, and even though many among us strive to understand our place in the universe through science, there are some who search for understanding in other ways as well. Jon Pedersen in the accompanying article tells us what to watch for should a spaceship seem to come to our rescue . . .

A bientôt,

JP Revel

In the wake of the recent Heaven's Gate deaths, most of us are prompted to wonder how such a thing could happen: Why do people get involved with a group that seems bizarre to the majority of people? What makes us vulnerable? How do these groups get their members and keep them? Many people as well want to know how to recognize cults and avoid them.

The intent of this article is to provide some answers to these questions, in a straightforward and helpful way. Because one person's religion or philosophy can be another person's cult, the emphasis here will be on behavior versus content, categories versus names. As always, it is up to the individual to make the judgments of what group is or is not a cult, and what you do or do not believe to be true.

What gives cults their powerful allure?

Essentially, cult leaders take advantage of the "human condition." At some level, we are all afraid and yearn for comfort and certainty. Thus, cults offer emotional, physical, financial, and spiritual/existential security. Usually offered unconditionally, friends and family can be ours forever. We can rest assured that either spiritual forces and principles of our new family will supply the money, shelter, and safety we desire. And if we take the roles given us, we can know that we are valuable and that our lives have meaning and purpose.

The problem is not in wanting these things, but in believing any one person can provide them. Tragically, some of us have been so hurt, frightened, and confused that we will grasp at any apparent love, safety, and certainty that comes our way. And we may not alone have the self-esteem, strength, or resources to escape when the mirage becomes real. Additionally, cults and their leaders can play to our grandiose wishes to be more than average, to be special in a public way (which, sadly, often arises from having not felt valued at all by those we love).

It is truly no mystery that cults can find willing members from all strata of life. The less we are loved and treated with respect, the more needy and vulnerable we become. And intellectual intelligence is no safeguard, for our needs and feelings are stronger forces. Some of the most brilliant humans in history have led and joined cults.

What kinds of cults are there?

Although their methods are generally the same, cults can be organized around different purposes and expressed goals (unexpressed goals of control and self-aggrandizement remain common denominators). We are probably most familiar with groups professing "religious" or "spiritual" values (such as becoming like God, becoming God, realizing our Godhood) or goals (purifying humanity or avoiding the day of judgment). These cults can range from mutations of traditional religions, in any culture, to occult fellowships, to "new" blends of spiritual practices and beliefs.

Other cults may purport to make you a better and happier person (psychological/philosophical), save the world according to a particular political doctrine, or increase your income and earthly "abundance" (commercial). Of course, some or all of these goals may exist in any one group.

How do I tell if a group is a cult?

As is true with so many important questions, there is often no clear or general answer. Below are indicators that are found, to varied degrees and numbers, in all groups that are considered cults. To the basic question of What is a cult?, maybe the best answer is simply: a group in which there are many of these indicators:

• **Extreme Promises** — Unconditional, eternal love; financial security; complete certainty about life; answers to all questions; superhuman abilities; radical personality change; profound and constant peace of mind; perfect health; eternal life — all are promises commonly made by cults.

• **Restricted Freedoms** — Because these groups want control, they need to limit their members' basic freedoms. This includes restricting physical mobility, forbidding doubts or questions; removing the right to choose whom to spend time with, and when; prohibiting the exploration of other ways of thinking and living.

• **Assumptions Of Power** — Often restrictions of freedom can also become active abuses of power. The group leader, or others designated to have power, may require members to perform tasks, acquire money, perform rituals, and to provide sexual services. And rather than use outright authority, cult leaders will present these demands or requirements as "opportunities" offered to those in special favor.

• **A Central Leader** — Virtually all cults are headed by a single person (sometimes a couple or triad) who either claims special knowledge and status or who claims special access to it (contact with superhuman intelligence). A particular indicator of a cult is being told that this person knows what is best for you, regardless of your opinion or that of others you trust. To defy him or her is dangerous and can result in anything from disapproval to ostracism to physical punishment. Although a cult may claim to follow an absent leader (dead spiritual master, a non-corporeal intelligence, a being from another planet or physical plane), there will always be a present leader who benefits from the groups' existence.

• **Deception** and **Totalitarian Views** are other components of cults. We may notice that what is told to "recruits" and "outsiders" is different than what is professed within the group. This sort of lie can be as basic as soliciting money for the group under false pretenses. Also, "black or white" or "we and they" thinking is common. "They" are bad, or ignorant, or deceived, or unevolved, or dangerous. "We" are good, enlightened, special recipients, evolved, or under siege. However, in some groups, pervasive ambiguity can be used as camouflage from the cult's actual beliefs and intents.

How do cults recruit and retain members?

Given our human desires and needs for belonging, meaning, security, and understanding, cults will consciously seek to exploit these yearnings, often in sophisticated ways. To recruit, these groups will infiltrate internet forums, (e.g., alt.depression, chat rooms, recovery groups), schools, parks — anywhere they believe they will find vulnerable and naive prey. Rarely will they be aggressive; their more subtle mode is to use seductive empathy and understanding to provide the tenderness a wounded person is craving — only later introducing the costs of this kindness. Once they have drawn someone in they will increase their hold with more severe and direct tactics.

Psychological manipulation involves convincing a person that his or her worth and safety are contingent on the group and its leader. While they may state that members are always free to leave, they are being duplicitous, knowing psychological and physical freedom are not the same.

To reduce a person's sense of individuality and confidence even further, physical measures will be employed. Sleep and food deprivation; use of "consciousness enhancers" (chemical substances); exhausting work, study and exercise regimens; sensory overload; isolation — all can be used to render a person confused and weak, and thus malleable.

On a cruder level, direct coercion is used: threats of banishment, rejection by God or guru, hellfire, and physical harm are common. Actual physical and sexual abuse also occurs, and these are usually the "sensational" events we hear about. It is important to remember, however, that a person can be quietly controlled and destroyed without the use of force.

So how do I protect myself from these groups?

Being informed is the first step. Remember the indicators noted above, and realize that all of the practices mentioned actually do occur. Denial and ignorance only make us more vulnerable.

The best prevention, however, is probably to follow a few basic principles of living:

• Avoid groups or individuals who claim to know what's best for you.

• Give your trust only to the degree it has been earned.

• Over time, develop open and ongoing relationships that are mutual and nurturing.

• Develop your assertiveness: learn to say no; value your doubts and feelings.

• Develop your critical thinking.

• Avoid black and white thinking.

• Turn to more standard and proven methods of healing and help first.

• Know that your value does not depend on any one source of judgment.

Most of us will not knowingly be solicited by a cult, largely because we will turn away from their insincere tactics and unrealistic beliefs at first exposure. However, the challenges of life can make us all vulnerable. If you have questions about your involvement with a group, if you want to increase your self-confidence and assertiveness, or if you want to help in developing friendships, please use the many resources available to you here: the Deans, the RA's, and the Counseling Center, among others — all of which are subject to public accountability.

Jon-Patrik Pedersen, Ph.D.
Counseling Center Staff Psychologist

As if you hadn't been following men's tennis!

BY KANWAR KAHLON

This year's Caltech Men's tennis team set out to show the rest of the teams in the conference that it was not to be dealt with lightly. Spirits and morale were high with the return of co-captains of Ronak Bhatt and Jason Jenkins, a group of eager and talented freshmen, and a new coach, Wade Gillam.

This year's team consisted of juniors Jason Jenkins, Ronak Bhatt, Dazhi Chen, and Eric Dennis, sophomores Gabe Miller and Jeff Custer, and freshmen Matt Musick, Kanwar Kahlon, Stefan Kazachki, Ian Swett, Kevin Richberg, Albert Hsiao, and Felix Ng. Practice begin promptly at the beginning of second term, as the team prepared for its first matches, shaking off cobwebs and sharpening skills for the coming contests.

The first match was against Whittier, and the Beavers went in with confidence and a 'nothing to lose' attitude, and were victorious. The confidence of the team, unaware of any shortcomings and giving everything on each and very point, increased with a victory against Biola. Things were looking up, especially with the addition of Matt Musick after the end of the basketball season.

However, the Beavers ran up against some really good teams, and a string of losses was the tale of the times. Yet, coming up was a match against Whittier, a school that the team had beaten before and was sure it could beat again; perhaps it was overconfidence, a referee who didn't seem to call anything in the Beavers' favor, or a blatant, unnerving lack of sportsmanship on the part of the Whittier players, in any case, the team lost, and fingers were pointed every which way.

After losing shortly after that to Biola, another team that the Beavers had beaten earlier in the season, it was obvious that something was amiss. The coach decided that it was time to refocus, to forget about winning and losing, and give everything, in practice and in the matches, playing hearts out on each and every point, and vehemently encouraging team mates. Everyone rededicated themselves to the team, and the results showed.

The Caltech tennis team gave superior opponents a run for their money, playing some close matches, never getting down on itself, and earning the respect of their foes. Now, the season was winding down, and all eyes were riveted upon the year-end tournament, which decided where each team stood in the conference.

The Beavers's first opponent was Claremont, a team which had a thirty-player roster to its credit and was ranked second in the conference during the regular season. Though the players were looking ahead to a matchup with Whittier, they nevertheless made the Stags work for their victory.
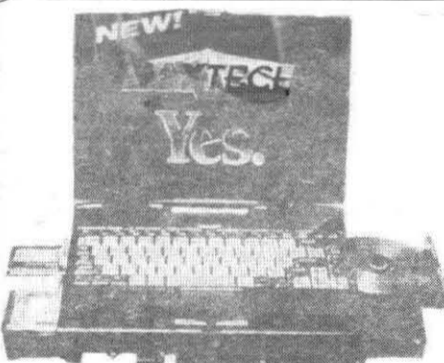
Before the team was a match against Whittier; in the afternoon of the same day, the two teams clashed; this match was the difference between a sixth, possibly fifth, and a seventh place finish in the conference.

In the number one singles match, Ronak was pitted against Mark Hoogs, from whom Ronak had not taken a set this year. Ronak won the first set, and had the momentum going into the second set, before losing the second and third sets in a tight match. Number 2 for Caltech, Jason Jenkins, also won the first set against Jerry Chou, but was outlasted in three sets by the number 2 from Whittier. However, the streak was not to continue, as number three Matt Musick easily won in straight sets, number four Jeff Custer awoke from his slumber and rolled to victory in three, number five Gabe Miller had the whole team biting its nails before he won in three sets, and number six Dazhi Chen won easily in straight sets.

The Beavers swept the doubles to a decisive 7-2 victory, and were assured of at least a sixth place finish in the conference, its best finish in years. Next up was Occidental; the possibility of a fifth place finish was on the minds of all the players, yet fatigue and a strong Oxy team proved to be the undoing of the Beavers's aspirations.

Yet, there was no reason for shame; the team had given its all, and given the other teams something to think about for next year; the Beavers had an excellent new coach, whom they respected and appreciated very much, and in the end won the conference Team Sportsmanship Award for its class and integrity on the court. The MVP's for the Beavers this year were co-captains Ronak Bhatt and Jason Jenkins; the Coach's award went to freshman Matt Musick, and the Most Improved Player was freshman Stefan Kazachki. With all players returning next season, it shall surely be one, like this one, of which we at Caltech can be proud.

Events

✛ This week's ASCIT movie is **Trainspotting**. Showing at Baxter Lecture Hall at 7:30am and 10:00pm. Student admissions is $2.00 and $2.50 for all others.

✛ The **Senior class** is presenting Ditch Day '97. It will be held in the **Seven Hovses** just before 8:00am Today.

The **Student Chamber Music Concert** will be held on Saturday, May 17th, at 8:00pm in Dabney Lounge. Admission is free.

CLASSIFIED ADS

Services

PREGNANT? - We are a professional, married couple, a pilot and a nurse hoping to start a family through adoption. We have a lovely home and will teach good values and provide all emotional, physical, spiritual and material wants in life to your healthy baby. We are willing to pay all medical expenses allowed by law. Please help us by calling toll free: 1-888-921-BABY.

AUTO REPAIR - Complete Service. Smog Checks, Tune-Ups, Oil Change, Brakes, Electrical, Engine Repairs, etc. Hrant Auto Service, 1477 E. Washington Blvd., Pasadena, (818) 798-4064 (818) 791-1993. Call for Appointment. Discount for students and staff.

Jobs

SECRETARY WANTED - Part-time. University and TEX experience a plus. Fax resume to Boris (213) 740-2424.

Housing

FOR LEASE - 327 North Story Place, Alhambra. Character home, 2 bedrooms. $1500 a month. Agent: Mary Fox 818-979-4220.

Medical

BACK PAIN • Headaches • Sciatica • Arthritis • Neck Stiffness • Hand/Feet Numbness • Call toll free 1-800-214-2110 for recorded information. Positive results in 4 weeks or $ back.

Mints

Caltech's **Men's and Women's Glee Clubs** will be featured in concert on Friday, May 16th, at 8:00pm and Sunday, May 18th, at 3:00pm in the annual **Spring Concert** in Dabney Lounge. The groups will each perform a separate section, then combine to sing "Zum Fest der heilgen Cecilia" (for the Festival of St. Cecilia) by Fanny Mendelssohn Hensel (sister of the famous composer Felix Mendelssohn) and excerpts from Liebeslieder Waltzer by Johannes Brahms, in honor of the centennial of the composer's death in 1897.

TACIT will be presenting **Don Juan in Hell** by George Bernard Shaw. Showing in Dabney Hall, on May 23rd, 24th, 30th, and 31st at 8:00pm, and May 25th, 26th, and June 1st at 2:00pm. General Admission is $8 and student admission is $5. For more information call x4652 or email *tickets@caltech.edu*.

✛ The **Division of the Humanities and Social Sciences** will be presenting a seminar on Science, Ethics, and Public Policy. The seminar will be given by Dr. James A. Secord, lecturer in History of Science, Department of History and Philosophy of Science, University of Cambridge. The seminar **"Evolutionary Science as Public Culture since the Enlightenment,"** on Thursday, May 29th, at 4:00pm, in Judy Library. Refreshments will be served. Seminars are open to the community. For more information contact Christine Silva at x4087 or *silva@hss.caltech.edu*.

Notices

The **Student Services Process Engineering Group** (STAR) is soliciting participation in Focus Group sessions to share your experiences with student services and ideas for ways that we may better serve you in the future. Student Services, for the purpose of this project, encompasses the following Offices: Admissions, Registration, Financial Aid, Student and Employee Accounts, Housing, Fellowships, Career Development, Alumni Association, Residence Life, Counseling Center, Health Center, Graduate Office, Undergraduate Dean and athletics. We will be meeting with faculty, students, staff and alumni from May 19th, 1997, through June 6th, 1997. If you are interested in participating in a Focus Group, please contact Ellen Harris via e-mail at *ellen@finaid.caltech.edu*.

✛ The **H&SS Division** announces two new courses to be taught Fall, 1997 (subject to approval by Faculty Board). They are: H 115a, "British History." This

✛ denotes a new announcement.

course provides an opportunity to explore the political and cultural development of Great Britain from the early modern period to the present day. It covers the Reformation, the English Revolution, and the making of a Protestant state (1500-1700). Instructor: Johns. Lit 148, "Postwar Fiction and Film." This is a study of postwar American culture through novels, short stories, and Hollywood films that will concentrate on the topics of social and economic reconversion, the rise of the "organization," suburbanization, and the Cold War. Authors covered may include J.D. Salinger, Phillip K. Dick, Laura Hobson, Jack Kerouac, and Norman Mailer. Film screenings may include *Mildred Pierce, Rebel Without a Cause, The Man in the Gray Flannel Suit, Invasion of the Body Snatchers, and The Manchurian Candidate.* Instructor: Jurca. Both courses will be offered for Advanced Humanities credit. The H&SS Division announces the following Selected Topic Courses to be taught Fall, 1997. They are: Hum 119, "Introduction to the Tanakh." This is an introduction to the Old Testament, also called the Hebrew Bible or, in Hebrew, the Tanakh. The course will proceed on two tracks—one literary, the other historical. The historical track will survey the process by which the collection that became the sacred scripture of Judaism took shape. The literary track will consider the end product of this process as an epic in which God is the principal character. Students will be expected to write a 20-page paper with a first draft due at mid-term. Instructor: Jack Miles, Melon Visiting Professor of Humanities for 1997-98. He was trained at Harvard University to be a professor of Hebrew specializing at the Old Testament. After just four years as a college professor, however, he left academe and spent twenty years in book publishing and journalism, eventually as a member of the editorial board of the Los Angeles Times. In 1995, he returned to the Bible, publishing a work entitled God: A Biography that won the Pulitzer Prize for biography, was on the best seller list for four months, and has been translated into twelve languages, including Japanese, Korean, and Hebrew. He is currently professor of humanities at the Claremont Graduate University. SES/H159, "Science and Society." The purpose of this course is two-fold: to acquaint students with the long and controversial history of genetics in American life; and to examine the evolving debate about the role of genetics and biotechnology in a democratic society. Starting with Mendelism, the course will examine the relations among genetics, biotechnology, and American society to the present day. It will cover the different ways that genetic theories have been applied to solving social problems; the rise of genetics as an

institutionalized discipline; and finally, using excerpts from fiction, news stories, and films and videos, the roles and responsibilities of biological scientists and genetic engineers. Instructor: Rader. Both courses will be offered for Advanced Humanities credit. NOTE: The following courses, being taught Fall term, WILL be offered for Advanced Humanities credit: Lit 125, H 143, SES/H 163, H 143, L/Lit 160, L/Lit 165.

From the Counseling Center

Looking for a safe and supportive place to discuss issues such as coming out, being out, dealing with family, coping with a homophobic culture, and being GLB at Caltech? Want somewhere just to make new friends? You are invited to the **Gay/Lesbian/Bisexual Discussion Group**, which meets on the first and third Tuesdays of each month from 7:30pm till 10:00pm in the Health Center lounge.

This is a confidential meeting and attending does not imply anything about a person's sexual orientation—only that he or she is willing to be supportive in this setting. The group usually discusses a particular relevant topic and then moves on to the general discussion. Refreshments are served. If you would like more information, please call x8331.

Fellowships and Scholarships

From the Fellowships Advising and Resources Office, x2150, e-mail lauren_stolper@starbase1.caltech.edu.

The **American Association of University Women** offers a number of fellowships to women who are U.S. citizens or permanent residents, including one year postdoctoral fellowships and special dissertation fellowships. The international fellowship is awarded to women who are not citizens of the U.S. or permanent residents who are engaged in full-time grade or post-graduate study in the U.S. A poster with a tear-off card that allows you to send for an application is posted on our main bulletin board.

from Sam & Bradey

Calvin & Hobbes: Your next clue can be found in the sub-ground Mudd parking lot.

Happy Ditch Day !!!