

D. Kortal/The California Tech

Hong Kong Polytechnic Professor Poon Chung-Kwong lays out his predictions for Hong Kong's future in a "one country, two systems" China. He maintained that "nothing has changed" since 1997.

Kwong Forecasts Auspicious Future For Post-reunification Hong Kong

By SINDY TANG

"Nothing has changed." These words were emphasized by Professor Poon Chung-Kwong, president of the Hong Kong Polytechnic University, as he gave a talk on "Opportunities and challenges facing Hong Kong after the reunification with special reference to The Hong Kong Polytechnic University" last Wednesday in the Beckman Institute Auditorium. Foreign countries have been closely observing the development of Hong Kong after the colony's 1997 handover from British to Chinese rule, explained Dr. Poon. Regarding the sociopolitical environment, he claimed that there have been no changes. One of the biggest controversies in tertiary education last year was the government suggested integration of two major universities: the Chinese University of Hong Kong and the University of Science and Technology. Students and staff members from both universities have strongly protested against the integration. "The inte-

gration is not mandatory. It is only recommended," said Dr. Poon. "Students are still free to demonstrate and protest." There have been challenges facing the economy, however. Dr. Poon admitted that Hong Kong has been adversely affected by the continental Asian economic downturn. Hong Kong's traditional role of a reexport center has lost some of its predominance, especially with a rapidly growing free market economy in China and the burgeoning of other Chinese cities like Shanghai. Dr. Poon, also the founding chairman of the Hong Kong Government's Committee on Science and Technology, said Hong Kong is now in the process of repositioning itself. The current plan is to develop Hong Kong into a center of four main areas: fashion design; garment and clothing; information technology; and innovation and research. To this end, there have been a few initiatives in the last few years, including the startup of the Cyberport

and the Science and Technology Park. The Cyberport and Science and Technology Park are technology-based incubation programs. They serve as nurturing ground for application-driven and market-oriented research and product development projects. They also aim to foster partnership and collaboration between industry, academia and

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ARC, Faculty Measure Loosens Pass/Fail Use

By MATTHEW WALKER

This past Monday, the Faculty Board, headed by Professor Marianne Bronner-Fraser, approved a change in the Course Catalog that would "give students greater flexibility," according to Academic Policy Committee chair Brent Fultz, in choosing courses to take on pass/fail. The decision, which was submitted by the faculty's APC and recommended by the student Academics and Research Committee, makes the following change to the Catalog: "On page 44, line 33; change the words 'one elective course' to 'two elective courses,'" according to the memo from the Academic Policy Committee to the Faculty Board. The change maintains the current limit of 90 units on pass/fail after the first two freshman terms, but

allows students more breadth in how they could be used. The ARC submitted the proposal at the end third term last year to former APC chair Simon Wilkie, after talking the idea over with other students. One of the main reasons for the change, said outgoing ARC Chair Basit Khan '03, "was to let seniors take classes outside their major." The original plan proposed by ARC didn't limit the number of pass/fails that could be used per term, but the APC limited it two to prevent unwise misuse of the policy. The APC also suggested that the flexibility would allow students to try courses in a potential major and give graduate students a chance to take courses outside of their field. Since the proposal was submitted after the deadline for this year's Course Catalog, discussion was

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Reform Mandate Fills BoD With Fresh Faces

By KAYTE FISCHER

Amidst campaigns aimed at reform and at opening up the ASCIT process, elections last Wednesday boiled down a record 37-candidate field to a nine-member ASCIT BoD with no holdovers from the crew elected last year. "There's a freshness," said incoming President Tom Fletcher '04. "Most of [the newly elected representatives] are not wedded to the ideas that have already been tried."

The BoD

The new Board of Directors retains only an interim member of the outgoing BoD, represents five undergraduate houses and has a one-to-two male-to-female ratio. Officials believe that the main strength of this group lies in its diverse background and experience level. "I think the strongest quality of this year's BoD is that it represents a very diverse group of interests," said incoming IHC Chair Jeremy Pitts '04. "There are people from different houses, different activities, different social groups, that should be able to represent the undergraduate population very well." Additionally, newly anointed ARC Chair Kathryn Hsu '04 noted that the BoD seems eager to get student opinions and to communicate its own work. Incoming Freshman Director at Large Corinna Zygourakis '06 added that flexibility and enthusiasm create a highly responsive leadership group. Social Director Kim Hiscox '06 concurred, focusing on the sentiment for change among this year's crew. "The BoD's strengths will lie

in its overwhelming desire to break from tradition and standard procedure." Beyond the feeling of necessary change, new BoD members have varied notions of the highest priorities for ASCIT. Secretary-elect Anna Sczaniecka '04 and Treasurer-elect Joanna Cohen '05 are most concerned with building foundations in the houses and combating the notion that ASCIT does not do enough for its constituents. Hsu, for her part, cited as top priorities getting acquainted with the house representatives, prioritizing specific issues and commencing interviews for representatives at large. To a similar end, Pitts is talking to people and taking some time to become acquainted with the issues of the IHC and the BoD before acting. Reactions to the election itself varied. While pleased with the election, Hsu noted that the election was a "stray vote" race to Chunara-Jo. Continued on Page 2, Column 5

STRAY VOTE TIPS RACE TO CHUNARA-JO

By KAYTE FISCHER and PHIL HARRIS

A last-minute discovery on the part of withdrawn senior co-presidential team Po-Shen Loh '04 and Debbie Lee '04 that they had received an erroneous vote in last Wednesday's broke a supposed tie and threw the election to opponents Rumi Chunara '04 and Greta Jo '04. Just after the election, a non-junior friend of Loh and Lee, mistakenly named on donut.caltech.edu as a member of the class of 2004, told the pair he had cast an online vote in their favor.

Faced with the Loh-Lee team's effort to remove the illegal vote, Election Chair Isaac See '03 said he would deduct one vote from their total only if they promised not to protest the election. They did and that single vote sunk the pair beneath the mandated majority-minus-error figure needed to force a runoff. The controversy raised scrutiny over perceivably ill-defined special rules for the senior class election. Some wondered whether such accidental votes of non-juniors or even legitimate but questionable votes of juniors graduating early would've shifted the electoral balance.

Said opponent Jo of the dubious election, "Talking to people after the elections, it seems that most people are unaware of how our voting system works and how the votes are actually tabulated. We can't help but wonder how the results would have been different, for all the elections, if everyone did know how the process worked." For Loh and Lee, though, means trumped the end. "Some people told us not to act on the basis of the illegal vote because it might not have been the only one," said the pair. "However, we thought it was dishonest not to report it." Under ASCIT election rules, a candidate must win a majority of legitimately cast votes plus the "error"—the number of paper votes cast but unaccounted for. Removing the single Loh-Lee vote tipped this majority to Chunara and Jo.

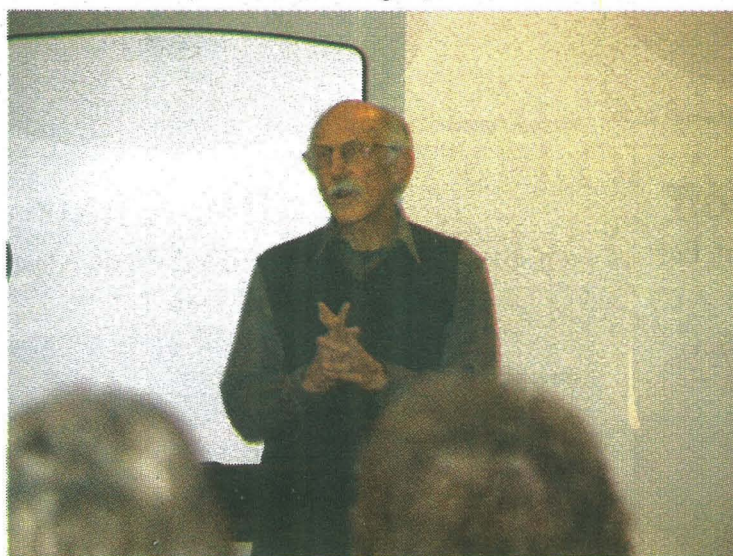
Volute Sculptor Hamrol Pinpoints 'Artistic Origin'

By ROBERT LI

Last Monday, Lloyd Hamrol, creator of the on-campus public sculpture "Moore's Stone Volute," gave a talk on the sculpture's artistic origins and inspiration. Entitled "A Sculpture at Caltech: Moore's Stone Volute and Genealogy of Its Form," the seminar was part of the James Michelin Seminar Series. Moore's Stone Volute is the curved, ramp-like construction between Noyes and BBB. Hamrol is an internationally known sculptor and creator of public art with a career that spans more than 40 years. He has taught at both

University of California and California State University and is the recipient of several grants from the National Endowment of Arts. Current projects of Hamrol include works at Yosemite Park and West Side Medical Center. The talk consisted of Hamrol presenting slides of the works that he did prior to making Moore's Stone Volute and discussing their relationship to the current work. According to Hamrol, his first work in the path that led to Moore's Stone Volute was done in 1969 and also exhibited at Caltech. For that work,

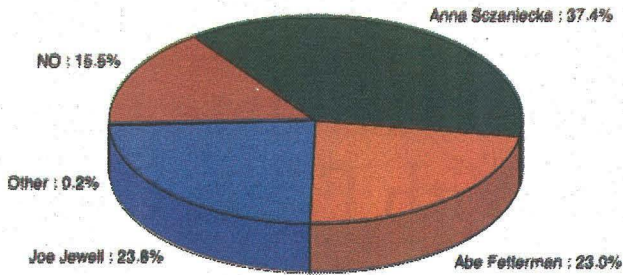
Continued on Page 8, Column 4



D. Kortal/The California Tech
Artist Lloyd Hamrol, who designed "Moore's Stone Volute" outside Noyes, believes he has an "intuitive feel" for conic artwork.

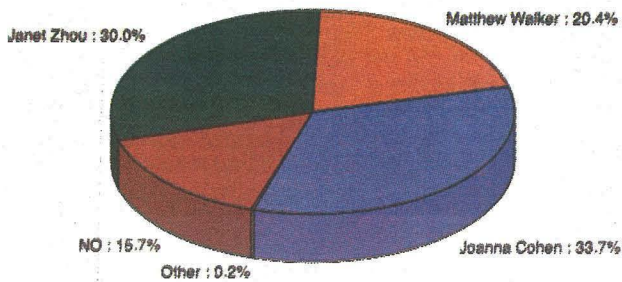
Secretary

Of 470 First-place Votes; Winner: Anna Sczaniecka



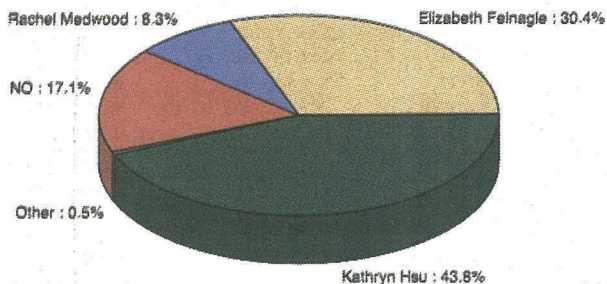
Treasurer

Of 460 First-place Votes; Winner: Joanna Cohen



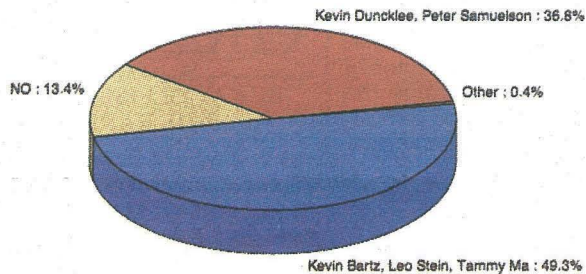
ARC Chair

Of 436 First-place Votes; Winner: Kathryn Hsu



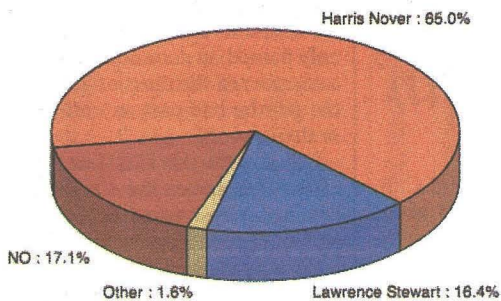
Tech Editors

Of 448 First-place Votes; Winner: Kevin Bartz, Leo Stein, Tammy Ma



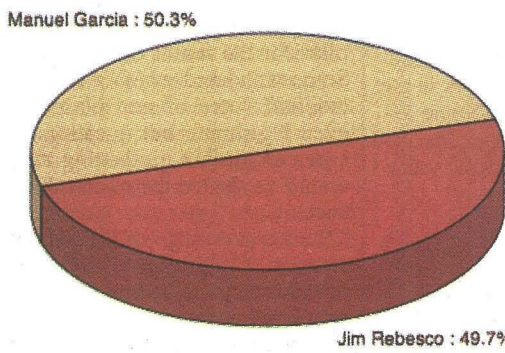
BoC Secretary

Of 434 First-place Votes; Winner: Harris Nover



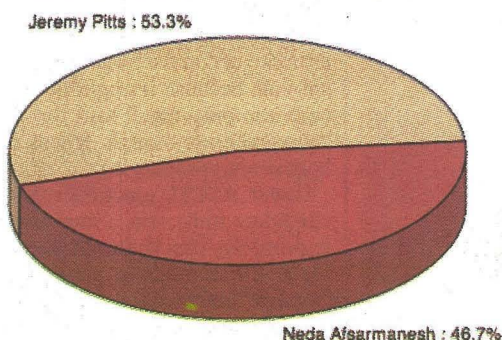
CRC Co-chair Runoff

Of 318 Votes; Winner: Manuel Garcia



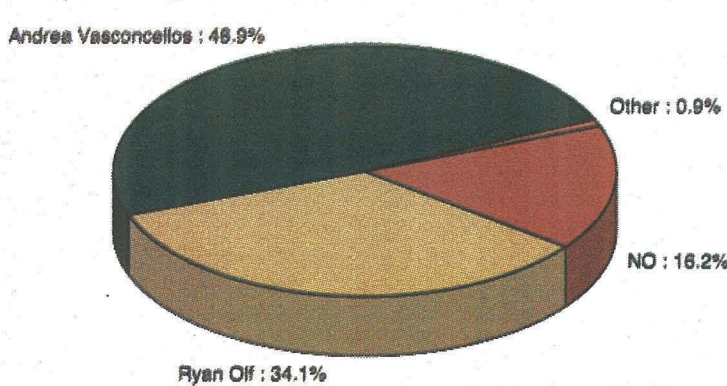
IHC Chair Runoff

Of 345 Votes; Winner: Jeremy Pitts



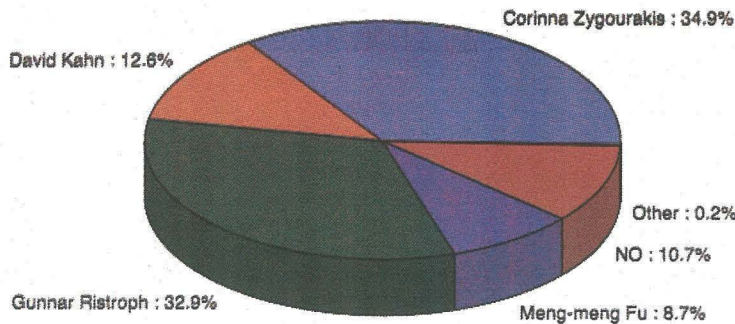
Upperclass Director at Large

Of 458 First-place Votes; Winner: Andrea Vasconcellos



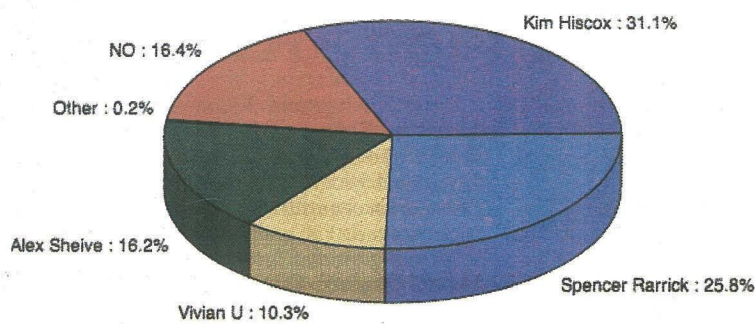
Freshman Director at Large

Of 438 First-place Votes; Winner: Corinna Zygourakis



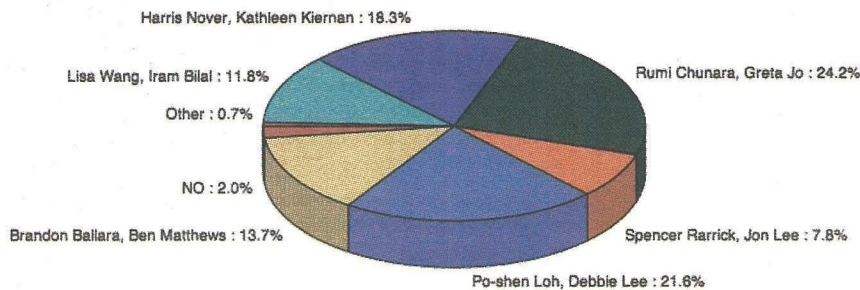
Social Director

Of 457 First-place Votes; Winner: Kim Hiscox



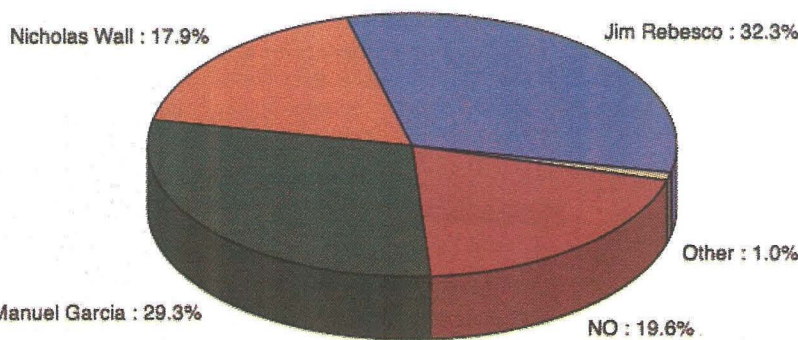
Senior Class Co-presidents

Of 153 First-place Votes; Winner: Rumi Chunara, Greta Jo



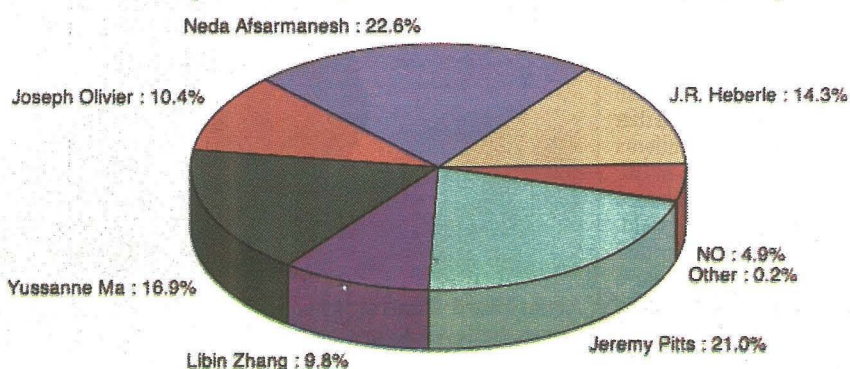
CRC Co-chair

Of 403 First-place Votes; Tied: Jim Rebesco, Manuel Garcia



IHC Chair

Of 491 First-place Votes; Tied: Neda Afsarmanesh, Jeremy Pitts



NEW BOD AIMS TO 'IMPROVE LIFE OF STUDENT BODY'

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tion results, board members now feel a mandate to enact change. "It's clear that most Teachers want to see a change in the status quo of the ASCIT BoD and I hope that [we] can accomplish that," said Pitts.

Hsu is anxious about the new tide of ARC representatives and about the outcome of the student faculty conference even though outgoing ARC Chair Basit Khan '03 will handle the brunt of the job of coordinating the conference. Hsu will play a larger role in next year's conference, although issues raised in this year's will no doubt shape Hsu's.

BoC, Tech and Senior Co-presidents

Incoming BoC Secretary Harris Nover '04 is excited about the election and encouraged to see so many people running for office. His most important priority, other than assisting BoC Chair-to-be Galen Loram '05 with day-to-day business will be to find better anonymous ways of releasing information on cases. Also, Nover is concerned about professors clearly stating their policies.

Elucidating his plan, Nover said, "I hope to start in the next week or two on a general form instructors can fill out to clearly specify course policies in an unambiguous way."

Additionally, this year's Tech editors, Kevin Bartz '05 and Tammy Ma '05, have been re-elected along with Leo Stein '06. They view the vote as an affirmation of the goals they began to pursue last year, including enlarging the content of the Tech and changing its appearance.

"We haven't a Northwestern- or Harvard-like writer pool from which to draw," said Bartz, "but we do have simple dedication to keeping the Tech as alive, as attractive, as content-dense as possible."

The editors know that the publication needs improvement and hope that the new BoD will be influential in effecting steps in the right direction. Bartz felt that the new ASCIT leaders were elected on a proactive platform and that they will be eager to work with the Tech on student issues and increased commentary.

Stein looks to the larger student body as well. "I would be fulfilled learning just what the students feel needs to be improved and finding the talent in the student body to make these improvements."

Eventually, they hope to include a one- or two-page arts or sports section.

Despite a brief election-day controversy that ended in the withdrawal of their chief opponents, incoming Senior Class Co-presidents Greta Jo '04 and Rumi Chunara '04 are making big plans for their term. They plan to survey the juniors during third term to discern opinions about items such as the senior gift, commencement speaker and any ideas proposed by the other candidates.

In a larger sense, their focus on student sentiment mirrored that of this year's full slate of elected officers. All expressed eagerness to hear and respond to the opinions of the entire student body.

"Everyone that got elected seems committed to the idea of working hard to improve the life of the student body," said Fletcher.

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Caltech 40-58, Pasadena, CA 91125
 editorial desk: (626) 395-6153
 advertising desk: (626) 395-6154
 editorial e-mail: tech@ugcs.caltech.edu
 advertising e-mail: business@tech.caltech.edu

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Tammy Yee Wing Ma Managing Editor	Vi Tuong Tran Business Manager
Kevin Carl Bartz News Director	Circulation Chris Crabbe
Leo C Stein Commentary Editor	Tearsheets Tim Tirrell

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MLK on Zionism Flyer 'Inappropriate' Tobias Article 'Out of Touch With Reality on Several Counts'

By DARIO AMODEI

I am writing in response to Alex Tobias' article in the February 3 *Tech*, in which he claims that Martin Luther King's support of Zionism is still relevant today and not out of context. Being of Jewish heritage myself, I can understand his concern for the Jews of the world, but in this context it is badly misplaced. His article, while eloquent, is out of touch with reality on several counts.

The connotations of the word Zionism have changed radically in the last 40 years. Before about 1970, Zionism was indeed "national self-determination of the Jewish people." In particular, to be Zionist was to believe that Israel had a right to exist. To be anti-Zionist meant to agree with the many Arab nations that refused to acknowledge Israel's legitimacy. In comparing anti-Zionism to anti-Semitism, Dr. King was merely criticizing those who questioned Israel's existence.

All of this changed for two reasons. First, virtually all nations came to recognize Israel by the end

of the 1970s, including its most bitter enemies, so that Zionism in the sense Dr. King meant it is no longer a meaningful term. Second and more importantly orthodox Israeli leaders started to view control of the West Bank and Gaza as fulfillment of biblical prophecy. This sort of rhetoric was used to justify violence by extremist settlers in the disputed

"Israel's right to exist is no longer arguable. Its right to... kill people certainly is."

territory. Suddenly Zionism, as expounded by radical settler groups such as the Gush Emunim, meant the divine right of the Jews to control "Greater Israel," the land where the Hebrews had lived in biblical times. Historians recognize this change in policy and often refer to the new ideology as "Revisionist Zionism."

Indeed, a major shift had taken

place: this new brand of Zionism came to entail specific Israeli territorial claims and a fundamental unwillingness to compromise on those claims. Not the right to have a homeland, not the right to live in peace, but the right to control the West Bank because of God-given manifest destiny. Such an attitude is nothing less than imperialist. Although Zionism does not always refer to such messianic delusions, it does now usually refer to support for current Israeli policies. Certainly, those parties that openly proclaim themselves Zionist, such as the Likud, are the hard-liners on the issue of Palestine. At the very least, Zionism is a contentious and emotionally loaded term.

I am not condemning Israelis and I am certainly not criticizing Jews in general. There are many Israelis who are not Zionists and there are some who call themselves Zionists but reject the extremism I have described. For their sake I truly wish that Zionism had not become such an objectionable word, but it has become so nevertheless.

Zionism has acquired a certain stigma, a stigma which I reacted to strongly when I saw the flyer in question. Furthermore, I think that the intention of the flyer warranted this reaction. While it is possible that whoever posted the flyer only wanted to promote general solidarity with Israel, the context makes it unlikely. A flyer is a form of political speech and usually advocates something arguable. Israel's right to exist is no longer arguable. Its right

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Ricketts Fine Unjustly Punishes the Innocent

By LIZ STAMESHKIN

As a senior, I've seen many changes in the way the administration deals with various circumstances. I remember the formation of the CRC, which was meant to give student input on decisions that didn't directly fall under the honor code. I've seen decisions that I found appropriate and behavior I found unacceptable. I've noticed that many offenders of institute policy are not harshly or unfairly punished. However, I was shocked to read the letter sent to Ricketts by the Vice President for Student Affairs. Fining Ricketts five thousand dollars seemed an extraordinary punishment; threatening disbandment made me nearly cry. I've seen our rights to do what are essentially stupid things taken away and that is understandable. But to say that because of the actions of a few, in the name of a house, 73 people should have to burden a fine and potentially find new housing leads to dangerous implications.

Many students in my house were afraid of the disbandment threat, but they were not interested in helping out Ricketts financially. While I understood their arguments, I personally feel that the people in Ricketts not involved in this infraction are no more deserving of this fine than any undergraduate student. No house is free from its often unlawful traditions. No house consists entirely of students who follow every policy diligently. If the administration is willing to do this to Ricketts, there are several other houses who have offenses to their

name. The situation with the firepot is more publicized, certainly, but Ricketts is not the one wrongdoer of the seven houses.

I feel that as undergraduates, we need to look at our traditions and figure out if the administration will be willing to come to a compromise over any that are more controversial. We need to look forward and increase communication across the IHC, ASCIT and the administration. And we need to stand behind our fellow students when innocent people are being blamed or punished for situations they did not cause nor necessarily support. In some ways, I feel that communication with administration has improved, even if it may not seem to be the case. Fighting the administration is not what I support; a discussion towards a positive outcome is the best we can hope for at this point.

Question of the Week

Should ASCIT step in to financially support Ricketts House's \$5000 security guard charge?

Letters: Tech Errata, Racial Slur Debate

Minutes Replace Creativity

Dear editors,

I am very displeased at having the ASCIT minutes in the *Tech*. It is unfortunate that many creative, interesting and informative articles have to be replaced with a list of minor issues coupled with silly commentary that can be just as easily viewed in other forms.

Phil Harris '05

Wolfram Erratum

Dear editors,

"His most famous scientific achievement was the discovery of the cellular automata." I believe Wolfram got his Ph.D. from Caltech around 1980 at the age of 20. That means he was born around 1960. Wolfram's own book (ANKS) dates the appearance of cellular automata at least back to 1951 or 1952. (see p. 876 under History of cellular automata). Yes, he hides these facts in the small print at the back of the book.

André Dehon
Professor of Computer Science

Zhang Article Offensive

Dear Mr. Libin Zhang,

I would like to address your article last week about Shaq's racial slur against Asian-Americans. First off, you do not have a poetic license to use the word "nigger" (and take it from an African-American, the "a" instead of "er" doesn't change a thing) even in the guise of satire. What I think you don't realize, Mr. Zhang, is that although for you it might just be something you hear in a rap song or from a movie, it is a word charged with hundreds of years of racism and violence. It's a word I can't hear or read without a shiver in my spine and a feeling of emotional pain.

Of course I understand what you were trying to accomplish; I'm assuming you were trying to write the most offensive article possible in order to convey the outrage you felt as an Asian-American upon hearing Shaq's remark. However, I re-

ally do believe that, particularly in our firmly yet subtly racist society, there is such a thing as going too far for a laugh.

Call it satire, call it a joke, call it a tasteless attempt at wit, your article was not justification enough for using such a charged word and for referring the way you did to Black-American culture. I'm simply amazed by the *Tech* for publishing such a disgusting piece of writing. Any shred of journalistic integrity that was left vanished the moment that article was approved. That the editors could approve of such a thing just blows my mind.

Shaq messed up and said something offensive, thinking he was making a joke. You are doing exactly the same thing, perpetuating racial stereotypes in the guise of

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J - I miss the sight of your face cupped in my hands, miss the feel of your body between my arms. I miss seeing you, see you biting your lip when looking for the right words or just smiling, your eyes bright with happiness. I even miss the new belly ring. I wish I'd told you so earlier. -R

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Columbia Disaster, Iraq, N. Korea Stressful; Dean Offers Relief Advice

By JEAN-PAUL REVEL

Pity all of you. Things are not as they used to be in the good old days, i.e. peaceful, quiet, bucolic, full of singing larks and rustling winds. With communications and transport moving at sail ship or ox-cart speed or even if at breakneck pony express pace, people led lives that

were so much more insulated and so, at least we imagine, less stressful. Of course they had to worry about bears and lions, mountain or the other kinds and about plagues and locusts, lording squires and who knows what other pressure points we have mostly lost touch with today.

Today we are influenced by things

that happen, thoughts that are born, feelings that arise from as far as on the other side of the world. In the background we have the increasing tensions over the stand off with Iraq (11 time zones away) and the worsening of the already dismal state of our interactions with North Korea (some 16 hours ahead, their day is

Continued on Page 4, Column 1



is focused on the transplantation of microencapsulated insulin-secreting cells (islet of Langerhans) with the objective of alleviating diabetics of their need for supplemental insulin. This proprietary technique of protecting the islets within a membrane or microcapsule has allowed the Company to develop a procedure whereby diabetics may be cured of their need of supplemental insulin by a simple injection of the encapsulated cells into the abdominal cavity without the need for lifelong immunosuppression. This product (BetaRx™) is expected to be the first widely available, effective, long-term therapy for diabetics. We are currently seeking the following candidates:

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Letters: Fiery Freedom of Speech Debate Over Perceived Racial Slur

Continued from Page 3, Column 2

humor. However you did so more thoroughly; at least Shaq didn't premeditate.

Finally, Mr. Zhang, I would like to point out an idea that certain articles presented about Shaq's case; there is a difference between being a racist and making a racial slur. Unless my personal intuition is completely wrong, I don't believe you are a racist. But look around. Look what happened this past week in Ruddock and tell me how far you think this kind of humor can go. I don't care how funny someone might think they are, I will not allow an atmosphere at Tech in which someone thinks that it's OK to call me a nigger.

Lionel Jingles '05

Response: Misinterpreted

The N-word in my article was not used in a derogatory sense. In my article, "Yao Ming" is attempting to stereotype black speech the same way Shaq stereotyped Chinese and unfortunately one of the current black speech stereotypes is using the N-word. However charged with violence and racism the word may be, black-on-black usage of the word has successfully reduced its offensiveness and the word has un-

deniably entered the American lexicon. Within the article, I even outlined that I can't be censored on First Amendment grounds.

I was not particularly outraged at Shaq's actions, merely saddened that even a well-respected figure like him, who once received an award from the NAACP, can occasionally lapse. I was not "trying to write the most offensive article possible," and it is not particularly offensive if diction is ignored. Many "quotes" I used were actual quotes made by Shaq, except with the speaker changed. For reference, most of the "ebonics" was done using an automatic generator online.

"Black-on-black usage of the word has successfully reduced its offensiveness."

While I am slightly flattered that I am the scapegoat for a racially-sensitive incident, I believe the attention is a bit misdirected. The incident in Ruddock House that Lionel was referring to was Abe Fetterman wanting to see the 1992 Danish short film "Gay [N-word] from Outerspace." Abe was genu-

inely interested in seeing this film and even censored the N-word in writing to reduce its offensiveness. Had I not written my article, this 'incident' would still have occurred. Note that the film's creators named it that way to get people's attention; the film has nothing to do with racism.

Furthermore, I am not sure how a film's name has anything to do with derogatory racial slurs. Should I overreact if someone mentioned D.W. Griffith's short film "That Chink at Golden Gulch"? I don't know why I'm being Abe Fetterman's apologist, but he did not wish to offend; he did not call or think it's OK to call anyone a "nigger." If we wish to assign blame, why don't we start at the root of the problem and berate Yao Ming for ever wanting to play American basketball.

It's quite pathetic that I have to say this on record, but I am not a racist and the article was not intended to be hate speech. Many people did not know about the Shaq incident and have become very thankful that I have raised their awareness. My article should have made it fairly obvious that I am not a fan of derogatory speech, against any race.

Libin Zhang '05

King Would Oppose Israeli Foreign Policy

Continued from Page 3, Column 3

to send tanks to the West Bank, impose curfews and kill people certainly is. Tempers have flared over this issue on campus; witness last month's talk by Palestinian activists and the audience shouting match that ensued. It is very likely that the author of the flyers meant to weigh in on the debate.

My point is this: to do so by quoting Dr. King on Zionism is inappropriate. Dr. King was an advocate of nonviolence under all circumstances. Regardless of whether or not Israeli policy is morally right, it is currently violent and therefore Dr. King would have opposed it. To attach Dr. King's name to such policy is at best dubious, at worst smarmy and dishonest.

As for Mr. Tobias' arguments on the moral virtues of Israel, they simply are not relevant to my point about Dr. King. However, in fairness I will address the issues he raises. I am not a partisan for either Israel or Palestine and my aim is not to promote either side. The history of the conflict is convoluted and both sides share moral responsibility. If I seem critical of Israel in the following paragraphs, I do so only as a counterbalance to Mr. Tobias' view.

It is simply not the case that "not much has changed in the Middle East since 1948." Up until 1967, Israel was mainly defending itself against unprovoked Arab attacks. After it won the Sinai Peninsula, West Bank and Gaza strip in the Six Days War, things began to change. David Ben-Gurion, founder of Israel and former prime minister, urged the Israeli leadership to immediately relinquish all of these conquests in exchange for lasting peace. But the Israeli government ignored Ben-Gurion's prudent

warnings and only later agreed, under UN pressure, to give up the disputed territory. However, the offer was apparently duplicitous, as Israel aggressively sent settlers into the occupied territories even as it talked of ceding them. The Arabs refused to negotiate outright and nothing was accomplished.

In the next decade, both sides were to alternate between compromise and hard-line policies. In 1971, Egypt proposed permanent peace in exchange for the Sinai, but Israel would have none of it; in 1975 Israel proposed a deal and Egypt finally accepted. In the late '70s, however, Israel became increasingly aggressive in the remaining occupied territories. It squelched resistance by shutting down newspapers, violently deposing pro-Palestinian leaders and establishing military bases in the area. Indeed, Prime Minister Menachem Begin's West Bank settlement policy was so cruel that several of his high officers, including minister of defense Ezer Weizman, resigned in protest. The PLO, in turn, became increasingly militant and extremist.

Ever since, mistrust and violence have continued and although both sides have sometimes been willing to compromise, this does not excuse the brutality of their more extreme policies. And that is the difference between Israel in 1960 and Israel now: the Israelis have joined their enemies in perpetuating the cycle of violence. And this is why, when Mr. Tobias tells me that Jews ought to be cut some slack, I must reply: Israel deserves our sympathy, but we cannot support it in committing the very oppression that its people sought to escape.

Stress Relief Advice From Dean: Breathing Right, Sleep Can Help

Continued from Page 3, Column 5

pretty much over before ours gets going). We hardly hear any more about Afghanistan (they are only 12 hours ahead) but clearly what happens there and in neighboring countries does contribute immensely to our tensions. And then there was the disastrous loss of the Columbia and her crew.

We don't even need to go that far in time or space, there are plenty of ordinary tension-generating aspects of daily life at Caltech, usually not bears or mountain lions (although they are seen in Pasadena backyards once in a while), but just the homework sets, the classes, the labs, hiccups in the interactions within the Houses or between Houses, problems with friends, even with family at home. And then of course the disagreements between students and the picky policy-wielding obstructionists (deans and such) who want to deprive you of all the fun (don't believe a word of it!).

All of these things and many other stresses, more personal and so usually less visible, amount to a heavy burden. Our minds and bodies rebel at having to carry such loads and show their displeasure in different ways, by knotted muscles and back-neck-, head-, what have you- aches, upset stomachs, insomnia and fatigue, anxiety, irritability, even depression. It can become difficult to concentrate, reducing efficiency further and increasing the level of stress even more. Not a pretty picture, but if these reactions are taken as warnings there are steps that can be taken to mitigate their impact.

But how? In many cases dealing with the events themselves is not possible. There is no magic that will put the shuttle back together and bring back the fallen astronauts, nothing. All we can do is to celebrate the lives of the lost space voyagers. The shared feelings at a memorial service can help to quiet the inner turmoil the accident has brought on. The tributes, notes and

flowers which were left at the foot of the flagpole by Millikan pond are gestures which go some way to partially dispel the impotence we feel. It quiets racing minds and tames wildly jumping thoughts. In this and many other stressful situations, talking about the events helps to impose order and calm ourselves. Following the progress of the investigation into the cause(s) of the catastrophe also can help a great deal by getting one to view the events more rationally than emotionally.

It is more difficult to deal with the

"Instead of panicking take five or six slow and deep breaths. It does wonders."

feelings brought on by threats of war. Here things are pretty much out of the hands of us ordinary folk. Yet whether pro or against invading Iraq, talking about the prospects, participating in discussions, listening to debates, reading opinions of people around the world, all can serve to lessen the dreadful feelings of drifting, faster and faster towards the edge of a Niagara perhaps a Victoria Falls, in a canoe without paddles. And what can you do if the homework due tomorrow puts you into such a sleepless fizzle that you have trouble getting it all done, let alone done in time? Instead of panicking take five or six slow and deep breaths. It does wonders. I have seen other breathing exercises said to help concentration, like holding the right nostril shut while breathing through the left, then holding the left while... I can't vouch for the efficacy of these maneuvers, but if it is posted on the web it must work, no? A brisk walk outside can help to oxygenate your spirits and allow you to continue. I know it takes time, but the 10 min-

utes you spend this way will be repaid with interest once you resume your work. Of course if you have more time, shooting some baskets, batting some tennis balls, a game of tag football or whatever other exercise, maybe even an animated match of football, all can help in attitude correction. There are other things students sometimes undertake to relieve the tensions, but I won't recommend them because they may well endanger you or others and may land you into trouble. I probably don't have to be more specific, but come by the office if you are unsure of what I am talking about. Also useful is a cold drink (nonalcoholic, you need all your brain cells to work on their eight cylinders to finish that quiz) a cold drink of aqua pura does fine, maybe a splash of same on your face (the oldest among you may recollect the ad "I needed that"). If your deadline is not just an hour away, you might even try some sleep. It is essential to take off your socks (assuming you use them). Lie down with a warm blanket; even if sleep does not come, keep your eyes closed and let your mind drift, let all the thoughts and feelings pass over you without grabbing at them; it is almost as good as REM sleep.

Once the crisis is passed, once you have again managed to turn in your work in the nick of time, you might well want to take measures to prevent a recurrence. Here too an important first step is to talk about your problems, with friends or RAs maybe, maybe with the staff at the counseling center (if you are too shy, lots of advice about stress and how to fight it can be found on line at www.counseling.caltech.edu/). Ask for help, make sure you exercise regularly, prioritize the demands on your time organize things, get started early. Maybe keep a diary for yourself, where you write down what gets in your way, what you feel, what you fear and reread it once in a while. It will help to put things in perspective. Re-

The Merits, Drawbacks Of Telling Only Truth

Truth v. Tact: Religious Debates and Integrity

By MARCUS NG

John believes in John-is-God-ism, which teaches that John-is-God-ism is the only true religion and that John should always be ready to defend his faith. Bill believes in Bill-is-God-ism. Bill asks John if he believes that John-is-God-ism is the only true religion. If John answers yes, he may offend Bill, who believes in Bill-is-God-ism as much as John believes in John-is-God-ism. If John tells Bill that he doesn't believe, then he contradicts the teachings of his religion. John is in the middle of a very difficult dilemma: tell the truth and risk offending his friend or lie to avoid offense and deny his faith.

In a serious religious discussion, I answered a question by stating my belief, a belief that was mildly offensive to a person whom, in the interest of tact, I will refer to as

member that chestnuts can be used to make marrons chauds, although you might burn your fingers pulling them out of the fire.

There are few things that are as bad as they seem... anticipation is often worse than the bite. How often I have seen students who feel beaten discover that the apparent defeat gives them the insight to continue and succeed. Don't do anything that could not be done in your Mom's living room, with her, right there. Let there be peace.

A bientot

"Fred." However, Fred assured me repeatedly that he was not at all offended and it was not until a later confrontation (which I initiated) that I learned he was offended and that he had told another person that I offended him with my belief. I was told that it is wrong to voice my beliefs if they could cause offense to others.

Ironically, we had discussed Galileo in our earlier conversation with somewhat reversed roles. I was told that I should, if necessary, lie to avoid offending others. I asked in reply, "if you were asked a question about your faith and you knew the answer would be offensive, would you lie about your faith?" His answer was yes. He then made the statement, "I don't believe you should always tell the truth in life." He later requested I add "in all cases" to that statement.

This brought me to the serious realization that we had remarkably different views on faith, truth and tact. In light of that, I pose the following questions to you: (i) the actual context of the quotation and (ii) the clarification that Fred told me to make when Fred learned I was going to make public this statement.

(i) If you were asked a question about your faith and you knew the answer would be offensive, would you lie about your faith?

(ii) If you were approached by a

Continued on Page 6, Column 1

Female Involvement in Politics: Government Ratio Beats Norm

Former ASCIT President, Mathematician Analyzes Statistics

By TED JOU

Did anyone else notice that there were a lot of women in this past week's election? I counted 27 male and 20 female candidates on the ballot. 27/20 is a ratio of 1.35, which is much better than the 2.02 ratio indicated by this year's fall term enrollment. Among the winners, it is even better, with the new ASCIT BoD sporting a 3/6 ratio (that's three men and six women!). Of course, this doesn't surprise me, I've been involved in student government for a long time at Caltech and besides the cheerleading squad, there's no better place to meet women.

But seriously, is this just a fluke or is the ratio really better in the student government? Well, the current BoD has five men and four women, the BoD before that had six men and three women and the BoD before that had four men and five women. My memory doesn't go back further than that, but we might be on to something. How do we know for sure? I think we learned it in Ma2a: Hypothesis Testing!

So I tested the hypothesis: The male/female ratio in the student government is better than the ratio in the student body at large. I performed a paired t-test using the percentage of women in the undergraduate student body and the percentage of women in the student government each year. I defined the student government as the offices listed in the *little t* under "Student Government." Unfortunately, there's no data for the sex of students listed in the *little t*, but I made guesses based on first names. That introduces some error, but it should still be an unbiased estimator. The registrar had the historical percentages of women in the undergraduate student body.

Women first enrolled at Caltech in the fall of 1970, so the first

women could run for office in the spring of 1971. Unfortunately, there are a few years when the *little t* didn't come out, but the ASCIT archive has 29 volumes from 1971 to 2002. For each *little t*, I wrote down all the student government officers and when I could, I guessed the sex of the student by considering the first name. The percentage of females in student government each year was defined as the number of females identified divided by the number of total officers for which a sex was identified. The test statistic will be the percentage of identified females minus the percentage of females in the entire student body.

"Besides the cheerleading squad, there's no better place to meet women."

My first observation is that there isn't a clear trend through time; women have been getting involved at high rates since they first arrived on campus. In fact, the first female ASCIT President was Liz McCleod, who was elected in 1974. The first female House President was Deanna Hunt of Blacker, elected in 1975. They were members of the 2nd and 3rd classes, respectively, ever to include women.

Now, back to the hypothesis test. Considering all the data, the mean of the test statistic was 4.40% with a standard deviation of 0.83%. With 30 degrees of freedom, this gave a t-statistic of 5.31. The null hypothesis was rejected with 99.99% confidence. This means that on average, the percentage of women in student government is 4.4% higher than the percentage of women in the

student body and the test concludes that yes, the male/female ratio is better in the student government.

But there were more interesting questions. Is female participation the same in House offices and school-level offices? For school-level offices, the mean was 7.15% while for House offices, the mean was only 2.41%. These are statistically different with 99.99% confidence. So although women participate in student government at a higher rate than expected, they tend to choose school-level offices over House offices.

Seeing that result, I wondered if particular Houses are dragging things down or if this was a problem across all the Houses. Investigating this question, I found that Blacker (6.09%), Dabney (4.15%) and Ruddock (5.82%) can reject the null with 95% confidence. Lloyd (3.18%) and Ricketts (3.63%) also exhibit higher rates of women, but Fleming (-0.24%) and Page (-2.91%) actually have had smaller numbers of women in office than the overall ratio would predict, although none of those results are statistically significant.

As a last test, I considered a few different committees in the student government. The ASCIT BoD, where we started, had 6.46% more females, which rejects the null with 99% confidence. The Board of Control had 2.61% more females, which is not statistically significant. One result stands out though and that is the IHC, which had a statistic of -6.94%, which means that the IHC has had fewer females than the ratio would expect with 99% confidence. Out of all the categories I considered, the IHC was the only subset that shows a statistically significant result in favor of males. Apparently, in Caltech student government, the glass ceiling is right below a House Presidency.

Scurve Speaks Out On Marshak Decree

By SAM THOMSEN

Last Thursday at Ricketts dress dinner our president, Juan Rodriguez, read to us a letter from Margo Marshak, the vice president of student affairs, formally threatening individual expulsion or house dissolution for any further violations of school policy, in particular, building fires in our courtyard. As a direct result of the fire we built after initiations on the previous Friday, we were charged \$5000 to hire security guards to baby-sit us 24 hours a day the Friday, Saturday, Sunday and Monday of Apache. The news was taken with quiet shock. The only person willing to express his feelings honestly in front of Kim West, who had previously been invited to dinner, was Ian Farmer, a senior, who exclaimed, "The administration cannot dictate to us what is safe." He cut off protests with, "The laws of physics determine what is safe!"

These are dark times for Ricketts house. Some blame it on a stricter administration, that seems to pick on Ricketts more because our house traditions are more visible. Others blame it on the declining tendency for Scurves to tell each other, "Hey, don't do that, we'll get busted." I have even heard the suggestion that we are being persecuted because we have the most racial diversity. Regardless of the cause, things aren't the way they should be. Saturday night, as we hurried to finish building Apache, you could hear Juan discussing the courtyard gates with security. Traditionally, the house is

closed off to force people to enter through the tunnels. Now two of three gates had to be left open and the president had to explain to the guards how to deal with people trying to enter through them. Unfortunately, none of his directions would be accepted until they were first approved and vocalized by the RA. Security was not on our side. At least six of them were there to watch us.

It was difficult enough, when the removal of the fire pot was ordered, to decide whether or not to do it ourselves. It was difficult enough, after two groups of Ricketts reconciled their differences and stood together, swaying and singing around the fire, when security called our RA and obligated her to put it out immediately. It was difficult enough to have Apache with no fire. It was difficult enough to have TND banned. Being threatened with destruction leaves us hopeless and numb.

I am worried that breaking school policy will become a student tradition. That's not the way it should be, nor do is it the meaning behind the Ricketts house motto: Take me as I am. While other houses served alcohol behind closed doors during "Happy Hour," Ricketts served alcohol in our bar facing the Olive Walk during "Thursday Night Drinking." Dabney and Blacker have used steel barrels as containers for their courtyard fires. Scurves had a permanent structure in the center of their courtyard called "the

Continued on Page 6, Column 2

PHOTO OF THE WEEK



T. Ma/The California Tech

Caltech's Ecphonema performs at the annual Love Sucks a capella show. This year's show also featured Social Experiment, Out of Context, Fleet Street from Stanford and USC's Reverse Osmosis.

The Morals of Honesty: Voicing Offensive Beliefs

Continued from Page 5, Column 5

girl who asked you if she was pretty (and she wasn't) would you lie to her?

While I do not have the best track record, I can honestly answer both questions in the negative. (I have been in both situations and caused offense in both.) However, I would contest the fact that the second question is a fair clarification of the context of the speaker's statement, which was made directly in response to question (i) and is nowhere near the level of severity of question (i). If I am wrong in my evaluation then I am justly called a fool for both my belief and for my publication of that belief.

I believe it only fair that I answer both questions, along with my reasoning for my answer and would invite any response to my beliefs.

(i) I would not lie about my faith, although I would avoid the question if possible, but in the context of serious religious discussion, where the question has already been repeated once, I would answer truthfully and give the best explanation I was capable of.

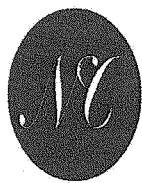
(ii) I would try to avoid answering, but again, if necessary I would tell her the truth. Why any girl would ask ME if she was pretty is a better question. If she were pretty, I'm sure she would know for herself and if she wasn't but thought she was then I doubt that she would put much stock into whatever I had

moralizing, it is all too often that honesty takes second place to feeling good.

If you have faith, I believe that you should be willing to step on a few toes to practice and affirm that faith and a true friend would accept your statement, even if it is offensive and be willing to share their own beliefs. I was asked, "as a member of the Caltech community and a scientist, how can you believe with no facts?" I would like to reply, that as a member of the Caltech community and a scientist, how can you let society and hurt feelings stand in the way of what you believe to be true?

to say. Furthermore, if she was asking and expecting me to say yes, then I would probably form the opinion that she is too full of herself and needs her big head deflated.

Borrowing from my high school JROTC, tact is the ability to work with others without creating offense. But while tact is only one of the twelve leadership principles, integrity is the first of the core values. And integrity is important, especially in religion. At the risk of



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YNews.
Upcoming Events:
ON-CAMPUS TUTORING (2/18, 2/20, Winnett 4-6 pm): Stop by Winnett and tutor a local middle or high school student. No experience is necessary. Everyone is welcome to come as their schedule allows. (Contact y-veep@ugcs if you'd like to join the tutor mailing list.)
REBUILDING TOGETHER (2/22, Caltech Y, 8:30 am - 3:30 pm): Do some exterior landscaping and repair for a local elderly family. Tools and lunch will be provided. Email Sidharth Jaggi (jaggi@caltech.edu) to RSVP.
Factoid:
 If you have Federal Work Study, you can earn \$15 while doing community service activities through the Caltech Y -- including on-campus tutoring and Rebuilding Pasadena Together.

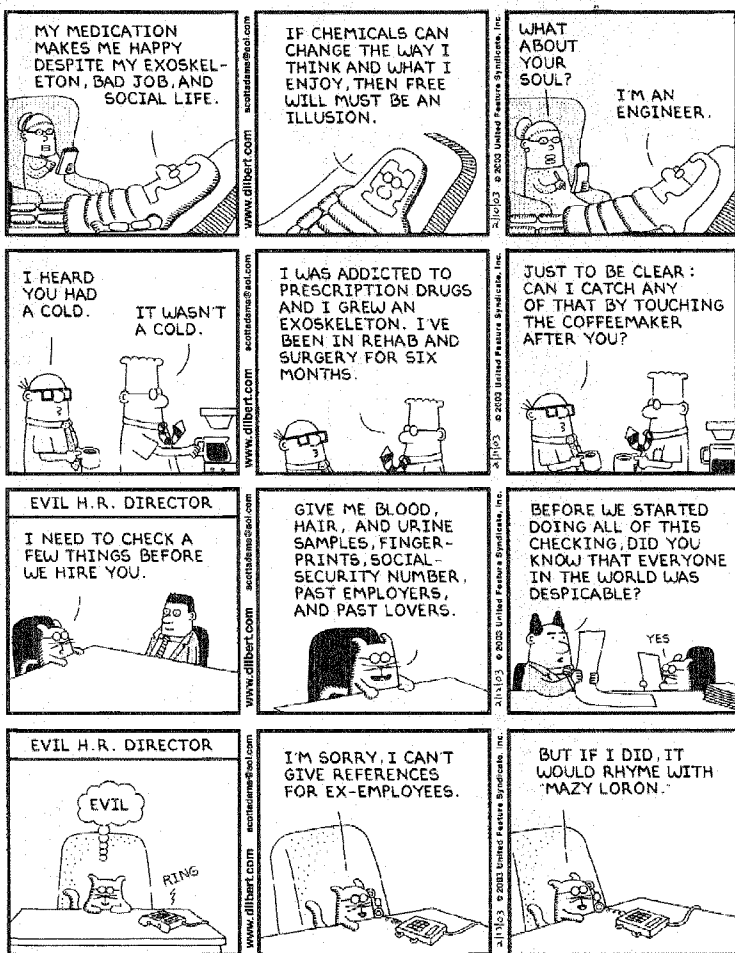
Y Not Join Us?
 Come to an ExComm meeting! All meetings are open to students, staff and faculty -- every Monday at noon in the Caltech Y.
 The Y (x6163) is located on the first floor of the Student Services Building, south of the Holliston parking structure. If you are interested in a Y activity or have questions about the Y, please stop by or send an email to the Vice President (y-veep@ugcs).

In honor of **Black History Month**, **Dr. Terrence Roberts** will speak at a luncheon on February 28, 2003 from 12:00-1:00 at the Athenaeum. The lunch is open to the Caltech community. Space is limited and reservations are required. For more information or to RSVP, please email cmesa@studaff.caltech.edu or call extension 6207. In 1957, Terrence Roberts and several of his high school classmates--"the Little Rock Nine"--were prevented by the National Guard from integrating Central High School in Little Rock, Arkansas, as the Civil Rights movement began to make its presence known in America. The topic of his talk will be "Lessons from Little Rock: An Educational Agenda for the 21st Century."

Are you stressed?? Find relief at the Stress Management Workshop! Come enjoy an evening of relaxation while learning ways to reduce stress. When: Tuesday 2/18/03 from 3:00 - 5:00 p.m. Where: Health Center Lounge. The workshop is open to all Caltech students. Please RSVP to the Counseling Center, ext. 8331.

The Literature Faculty is pleased to announce the **57th Annual McKinney Competition**. The Mary A. Earl McKinney Prize is awarded each year for excellence in writing. Only full-time students officially registered at Caltech as undergraduates are eligible to enter the competition. This year, prizes will be given in three categories: poetry, prose fiction and nonfiction essays. All submissions must be typed and double-spaced. Include your address and phone number. In the poetry category, entrants may submit up to three poems. Submissions of prose fiction should not exceed 12,000 words. Essays may be ones prepared for a humanities class or any good piece of original writing on a topic relevant to the humanities.

DILBERT® by Scott Adams



FoxTrot by Bill Amend



The prize in each category will be \$300. Each student is entitled to only one entry in each category. Contestants should submit their work to Professor Jenjoo La Belle, Division of the Humanities and Social Sciences, 101-40, by no later than March 6, 2003. No entries will be returned. Each category will be judged by a committee from the Literature Faculty. Essays will be judged on the quality of thought and the effectiveness of the writing. Winners will be announced in May and the names of the winners will appear in the commencement program. The Committee may divide the award in each category in case of more than one outstanding submission. Previous winners in any one category are not eligible for the competition in that category. If you have any questions, contact Prof. La Belle, x3605 or Barbara Estrada, x3609.

Job Opportunity! Undergraduate work study students to participate in gamma-ray astronomy research project at JPL. The job requires data processing and research on gamma sources using data obtained by the BATSE experiment on-board the NASA Compton Gamma Ray Observatory. Employment would be full time (40 hours/week) during the summer and part-time during the school year under the Caltech Work-Study program. Salary will be between \$14 and \$20/hour depending on the experience of the student. If interested, contact James Lin at (818) 354-2819.

Ricketts Speaks: Marshak Policy

Continued from Page 5, Column 5

Firepot." No wonder we receive all the attention. After initiations, the biggest mistake made, aside from breaking school policy, was closing and locking the gates to the courtyard. Whoever did it was probably trying to feel safer, but this was actually quite dangerous and against the spirit of the house. Our punishment was worse due to the action of one or few.

Why are things changing so much? Is it the result of a more conservative administration? Does the new trend of litigation and "puritanism" in our country play a part? The advice of lawyers is undoubtedly the cause of recent restrictions abolishing certain freedoms of the student body. It seems that many of these new policies, while not explicitly at odds with the Honor Code, show a mistrust for students that's against the spirit of the Honor Code.

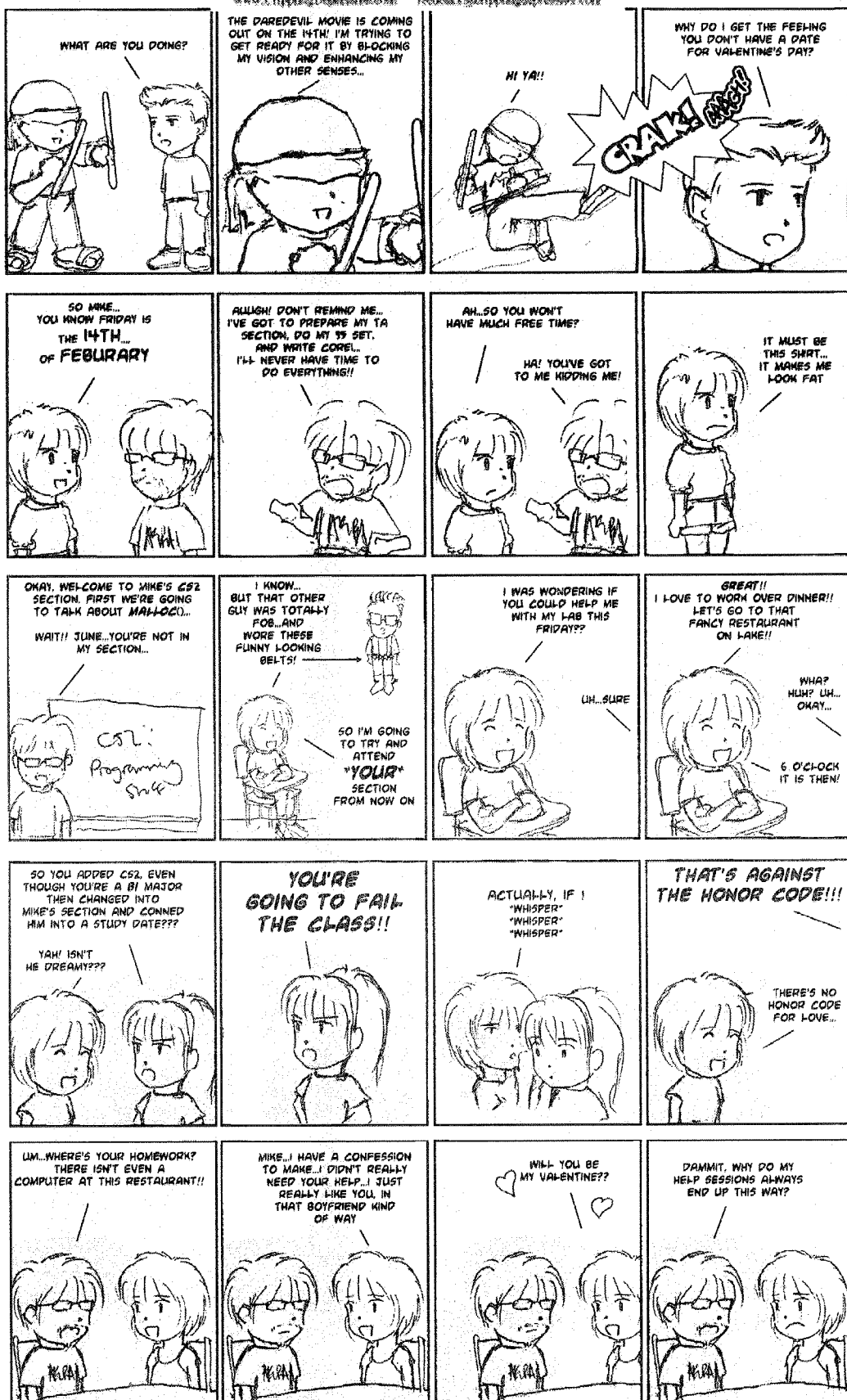
My friends and I are outraged because the reasons that we decided to come to Caltech are slowly disappearing. When was the last time we pulled a prank that got national attention... or even local attention? It has been speculated that Ditch Day won't survive another ten years. When it was pointed out that this would hurt Caltech's creative image, the reply was that what is

desired is the Axe-line student, whose parents hear of our "excessive freedoms," and send their child elsewhere; that the studious, stay-in-your-room-and-read-your-textbook student is what this school craves.

What about the [darn] Richard Feynman, break-into-the-safes-containing-all-the-secrets-of-the-atomic-bomb-to-show-that-they-aren't-really-safe student? That's what Caltech is about. That's what separates us from MIT, the Ivys or Oxford. That's why we're the best. If this new trend of conservatism is actually a threat, then I sincerely hope that there's a roarin' twenties or a swingin' sixties just around the corner. (The rockin' zeroes?) My friends and I can't wait for the pendulum to swing the other way. Hopefully we will preserve the spirit of Caltech until then.

Write letters. Stage protests. Devise old-school pranks. Finish your homework quickly, give up sleep entirely and start questioning authority in an honest and constructive manner. We as students aren't alone in this battle-- alumni, professors and people from the local community have expressed concern. Thanks to everyone who has fought thus far.

CRIPPLING DEPRESSION



MIKE WOULD LIKE TO SAY THAT THIS IS NOT A TRUE STORY AND HE IS STILL VERY MUCH SINGLE. THIS IS A PRODUCT OF TIM'S OVERACTIVE IMAGINATION, WHICH MIKE CONSIDERS BAD. ALSO MIKE'S FACIAL HAIR IS A PRODUCT OF HIS OWN IMAGINATION.

'Nothing Has Changed,' Declares Poon; Prof. Details Hong Kong Life Since '97

Continued from Page 1, Column 3

search institutes through joint training and research programs to enhance productivity and competitiveness in Hong Kong industry.

"The major goals of the tertiary institutions," Dr. Poon went on to say, "are to preserve Hong Kong's uniqueness as an international city and to integrate itself with the rest of the tertiary institutions in mainland China."

In order to maintain the uniqueness of an international city, English is still the primary language used in tertiary institutions. "All subjects are to be taught in English, except for Chinese," mused Dr. Poon. The Hong Kong Polytechnic University, where Professor Poon served as a president, has continued to invite overseas scholars for local conferences. Furthermore, their students have participated in exchange programs with universities in the United States, Australia, England and many more countries in Europe and Asia. Dr. Poon also emphasized his interest in setting up an exchange program with Caltech.

The second goal of the tertiary institutions is to integrate with the universities of mainland China. "Chinese history classes only cover up to the Opium War," claimed Dr. Poon. The result of the lack of contemporary Chinese history background is a confused sense of identity. Hong Kong residents have always referred to themselves as "Hong Kongnese," rather than Chinese. Dr. Poon said it is therefore important for tertiary education to emphasize on Chinese culture and history study, so to instill a better sense of

Chinese heritage and values.

One way to achieve the above goals is through Hong Kong's citizens' ability to communicate with people from different parts of the world. A "Biliteracy and Trilingualism" policy is thus adopted. Hong Kong students are required to take classes in both Chinese language and English language from primary school. They are expected to be able to read and write in two languages, English and Chinese, thus achieving "biliteracy." They are also expected to be fluent in three spoken languages—English, Mandarin and Cantonese—thus achieving "Trilingualism."

Regarding the language policies in Hong Kong, a member of the audience questioned whether the mandatory use of "mother-tongue language"—Cantonese—in secondary schools is a result of the 1997 handover to China. Dr. Poon said that the incident was a total misunderstanding. In the past, teachers were required to teach in English in secondary schools. The teachers found it difficult to present themselves clearly in English, however, because they never learned their English well. The result is teachers with not-so-good English teaching students in English, leading to a decline in the level of English language and subjects taught in English like biology and geography.

To address the problem, the Education Department promoted the use of Cantonese in secondary schools. Dr. Poon said that not only would teaching in mother-tongue language enhance the level of interaction and communication between the teachers and the students, more resources could also be reallo-

cated to improving the quality of English classes. Unfortunately, the mother-tongue teaching program was implemented after 1997, thus giving many people the misconception that the program is a product of the handover.

Indeed, as Dr. Poon would agree, perhaps "nothing has changed" is the best way to describe the 1997 handover. Hong Kong has been a British colony since 1840s until 1997. Under the British ruling, Hong Kong enjoyed a great degree of freedom. There have been few restrictions in trade and investment from foreign countries. Since the 1960s, Hong Kong experienced rapid economic growth due to the flourishing reexport trade between China and the rest of the world. The local electronics and garment industries have also become one of the strongholds of the Hong Kong economy.

In 1994, China and the United Kingdom signed a Sino-British Declaration. Under the terms of the Declaration, Hong Kong was to be reverted to Chinese sovereignty on July 1, 1997 as a Special Administrative Region of the People's Republic of China. The Chinese government promised "high degree of autonomy" and "one country, two systems" for at least 50 years.

For those who have been following Hong Kong current affairs, they may not agree that there have been no changes in the Hong Kong society, given the controversies over the implementation of the Article 23 and other issues regarding the Basic Law. It is nevertheless true that there have been no major and abrupt changes in the sociopolitical environment in Hong Kong. With forthcoming challenges, Hong Kong's citizens are, as Dr. Poon concluded, "as highly spirited as before to overcome the barriers to make Hong Kong a better place."

Dr. Poon Chung-Kwong visited Caltech and gave the talk as a Fulbright Distinguished Lecturer. He was a post-doctoral research fellow at Caltech.

Martian Polar Caps Made Of Ice, Shows Caltech Research

By ROBERT TINDOL

For future Martian astronauts, finding a plentiful water supply may be as simple as grabbing an ice pick and getting to work. California Institute of Technology planetary scientists studying new satellite imagery think that the Martian polar ice caps are made almost entirely of water ice—with just a smattering of frozen carbon dioxide, or "dry ice," at the surface.

Reporting in the February 14 issue of the journal *Science*, Caltech planetary science professor Andy Ingersoll and his graduate student, Shane Byrne, present evidence that the decades-old model of the polar caps being made of dry ice is in error. The model dates back to 1966, when the first Mars spacecraft determined that the Martian atmosphere was largely carbon dioxide.

Scientists at the time argued that the ice caps themselves were solid dry ice and that the caps regulate the atmospheric pressure by evaporation and condensation. Later observations by the Viking spacecraft showed that the north polar cap contained water ice underneath its dry ice covering, but experts continued to believe that the south polar cap was made of dry ice.

However, recent high-resolution and thermal images from the Mars Global Surveyor and Mars Odyssey, respectively, show that the old model could not be accurate. The high-resolution images show flat-floored, circular pits eight meters deep and 200 to 1,000 meters in diameter at the south polar cap, and an outward growth rate of about one to three meters per year. Further, new infrared measurements from the newly arrived Mars Odyssey show that the lower material heats up, as water ice is expected to do in the Martian summer, and that the polar cap is too warm to be dry ice.

Based on this evidence, Byrne (the lead author) and Ingersoll conclude that the pitted layer is dry ice, but the material below, which makes up the floors of the pits and the bulk of the polar cap, is water ice.

This shows that the south polar cap is actually similar to the north pole, which was determined, on the basis of Viking data, to lose its one-meter covering of dry ice each summer, exposing the water ice underneath. The new results show that the difference between the two poles is that the south pole dry-ice cover is slightly thicker—about eight meters—and does not disappear entirely during the summertime.

Although the results show that future astronauts may not be obliged to haul their own

water to the Red Planet, the news is paradoxically negative for the visionary plans often voiced for "terraforming" Mars in the distant future, Ingersoll says.

"Mars has all these flood and river channels, so one theory is that the planet was once warm and wet," Ingersoll says, explaining that a large amount of carbon dioxide in the atmosphere is thought to be the logical way to have a "greenhouse effect" that captures enough solar energy for liquid water to exist.

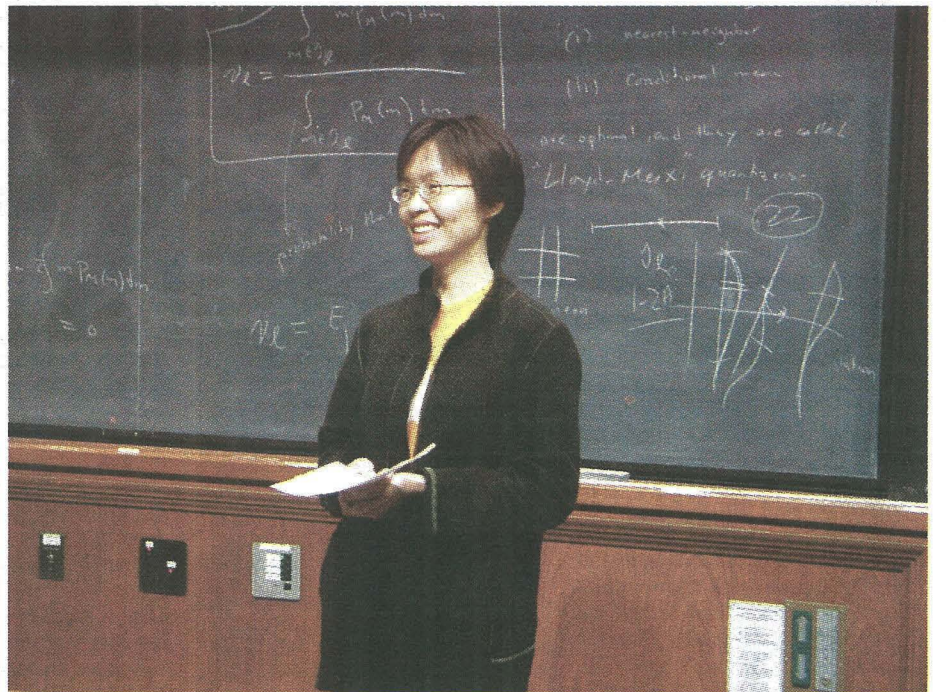
"If you wanted to make Mars warm and wet again, you'd need carbon dioxide, but there isn't nearly enough if the polar caps are made of water," Ingersoll adds. "Of course, terraforming Mars is wild stuff and is way in the future; but even then, there's the question of whether you'd have more than a tiny fraction of the carbon dioxide you'd need."

This is because the total mass of dry ice is only a few percent of the atmosphere's mass and thus is a poor regulator of atmospheric pressure, since it gets "used up" during warmer climates. For example, when Mars's spin axis is tipped closer to its orbit plane, which is analogous to a warm interglacial period on Earth, the dry ice evaporates entirely, but the atmospheric pressure remains almost unchanged.

The findings present a new scientific mystery to those who thought they had a good idea of how the atmospheres of the inner planets compared to each other. Planetary scientists have assumed that Earth, Venus, and Mars are similar in the total carbon dioxide content, with Earth having most of its carbon dioxide locked up in marine carbonates and Venus's carbon dioxide being in the atmosphere and causing the runaway greenhouse effect. By contrast, the eight-meter layer on the south polar ice cap on Mars means the planet has only a small fraction of the carbon dioxide found on Earth and Venus.

The new findings further pose the question of how Mars could have been warm and wet to begin with. Working backward, one would assume that there was once a sufficient amount of carbon dioxide in the atmosphere to trap enough solar energy to warm the planet, but there's simply not enough carbon dioxide for this to clearly have been the case.

"There could be other explanations," Byrne says. "It could be that Mars was a cold, wet planet; or it could be that the subterranean plumbing would allow for liquid water to be sealed off underneath the surface."



D. Korta/The California Tech

Hong Kong Student Association member Angel Kong '03 speaks before last Wednesday's speech by Hong Kong Polytechnic Professor Poon Chung-Kwong.

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Twenty Years Later, 'Electron Transport' Propels Gray to NAS Chemistry Award

By JON FOSTER

Chemistry Professor Harry Gray is well known to most undergraduates at Caltech from his book, *Chemical Bonds: An Introduction to Atomic and Molecular Structure*, which for many years has been used as a textbook in Ch 1 under the careful tutelage of Chemistry Professor Nate Lewis.

His contributions to chemistry have been far more significant than this slim volume, though, and it was in recognition of these contributions that Dr. Gray was recently awarded the National Academy of Sciences

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ALLOWS GREATER FLEXIBILITY

Up to Two per Term Permitted for Use From Pool of Ten

Continued from Page 1, Column 2

tabled until this year.

After talking to other faculty, the APC found that "generally everyone thought that the change was a good idea," according to Dr. Fultz. The APC then presented it to the Faculty Board, which approved it.

To assure that students follow the requirements, the registrar has software to track how many pass/fails each student has. According to Dr. Fultz, "The hope is that students will use [the new option] responsibly."

One concern, brought up by ARC Chair-elect Kathryn Hsu '04, was that "anyone struggling early in their career here will use too many of them at once: freshmen on grades pass/failing two courses a term will be out of pass/fail options after their first term, junior year, but I don't think anyone will be that unwise." To this end, a general sentiment, felt by both ARC and APC, was that the policy could be abused or misused, but that it was very unlikely.

An interesting consequence of the change is that transfer and 3-2 students each get an extra course to pass/fail, but members of the ARC and APC thought that in the interests of simplicity, they shouldn't add extra changes to reduce the number of pass/fails.

Khan added, "This is one of the things which the ARC is really proud of and shows that the ARC is capable of making a difference." Other ARC members echoed the sentiment with the feeling that this was one of the ARC's more important accomplishments.

Starting next term, students will be able to use up to two pass/fails per term. Dr. Fultz and Dr. Bronner-Fraser felt that most students already have this term's schedule laid out, so it would be to confound to try and switch this term.

Award in Chemical Sciences.

The citation for the award reads: "[for] his demonstration of long-range electron tunneling in proteins, his inspirational teaching and mentoring of students and his unselfish service as a statesman for chemistry."

Dr. Gray completed his major breakthrough paper on electron tunneling in 1982, so he expressed a bit of surprise that he was awarded a prize for this some 20 years after the fact. He explained, however, that electron transport in proteins was fairly radical when suggested and that "very often in these prizes people wait until they're sure you didn't screw up."

It is now fairly clear that Dr. Gray did not screw up in his original work and since the original paper, in which Dr. Gray's group showed that proteins could move electrons great distances at speed, the group has extended the research of electron-transfer chemistry.

Asked about the importance of electron transport, Dr. Gray replied that "electron transport is what keeps us alive" and went on to explain that it was vital to both photosynthesis and respiration. In plants, sunlight frees electrons which might ordinarily recombine to uselessly release heat, but an electron transport system carries the electrons away where they can be used to provide useful energy for the plant. Electron transportation is similarly important in respiration. Gray put it more colorfully, imagining the dire world without electron transport in which "we would breath in oxygen and literally burn up."

Electron transport is "not just an obscure, abstract something or other," he said. The practical applications include molecular memory for computers, artificial photosynthesis and DNA diagnostic devices. One gets the feeling that Dr. Gray would not dwell too much on the

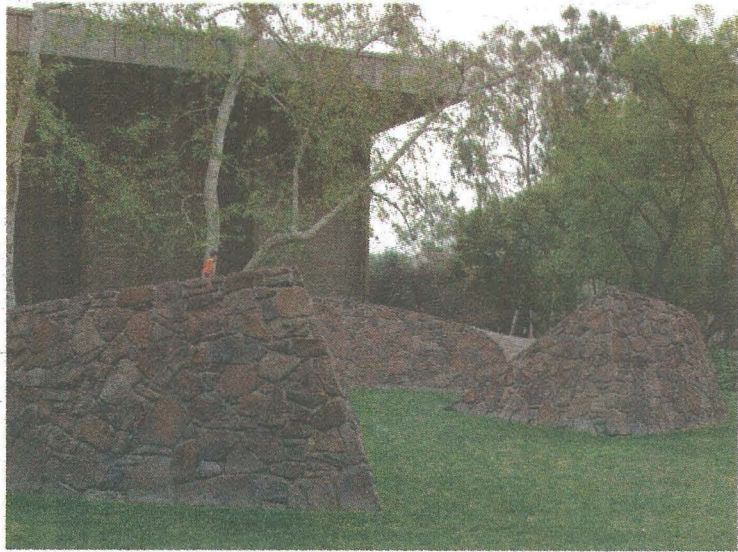
practical applications. The section of the citation about "unselfish service as a statesman for chemistry" probably refers to his efforts as a lobbyist for basic science.

"All the great things have been invented when people were working on something else," he said, and it is this view which has led Dr. Gray to testify before Congress and serve on numerous science boards promoting the value of basic research.

The final point of the citation, recalling Dr. Gray's mentoring and teaching, becomes obvious after just a little conversation with the man himself, who peppers his speech with anecdotes about being pranked by undergraduates, praise for the students and postdoctoral scholars who "do all the work" in his research group and talk about the large number of students he had who had the pleasure of working with who had gone on to make a contribution to science—including Ch 1's Dr. Lewis. Dr. Gray believes that it is the influence a scientist has on the lives of his students that makes the biggest difference in the long run.

And what of *Chemical Bonds*, that little black book? Dr. Gray explained that he was thrust into teaching a chemistry course at Columbia with only one day of preparation. He and the students were all bored with the current textbook, so he just talked about his new ideas in molecular orbital theory.

Later, he was asked to write up the notes for publication. A heavy focus on chemical bonds "led to substantial changes in chemistry classes in this classes" and Dr. Gray's thoughts on chemical bonding evolved into a whole series of books, with the rest a little more advanced than "Chemical Bonds." Despite this, Gray remains down-to-earth about his accomplishments, signing this reporter's copy with the words, "Don't believe everything you read in this book!"



"Moore's Stone Volute" features artist Lloyd Hamrol's fascination with geometric sculpture.

'Intuitive Feel' Key In Hamrol's Conic Art

Continued from Page 1, Column 4

he strung up a series of weather balloons from the roof of the old engineering building and attached lights to them. The result at night was a massive sail-like spectacle. This work was also Hamrol's first involvement with Experiments in Art and Technology, an organization that provides engineers to help artists who have technical problems.

In the evolution of his artwork, Hamrol first started out with flat surfaces like his triangle in a corner and a wax pool of water. Hamrol said his motivations at the time were, like many artists in the '60s, to "strip away any signature, any personality."

As he entered the '70s, Hamrol became fascinated with the conic form as well as with natural materials. For an exhibit in the Institute for Contemporary Art in Chicago, he created an eight-foot-tall plaster

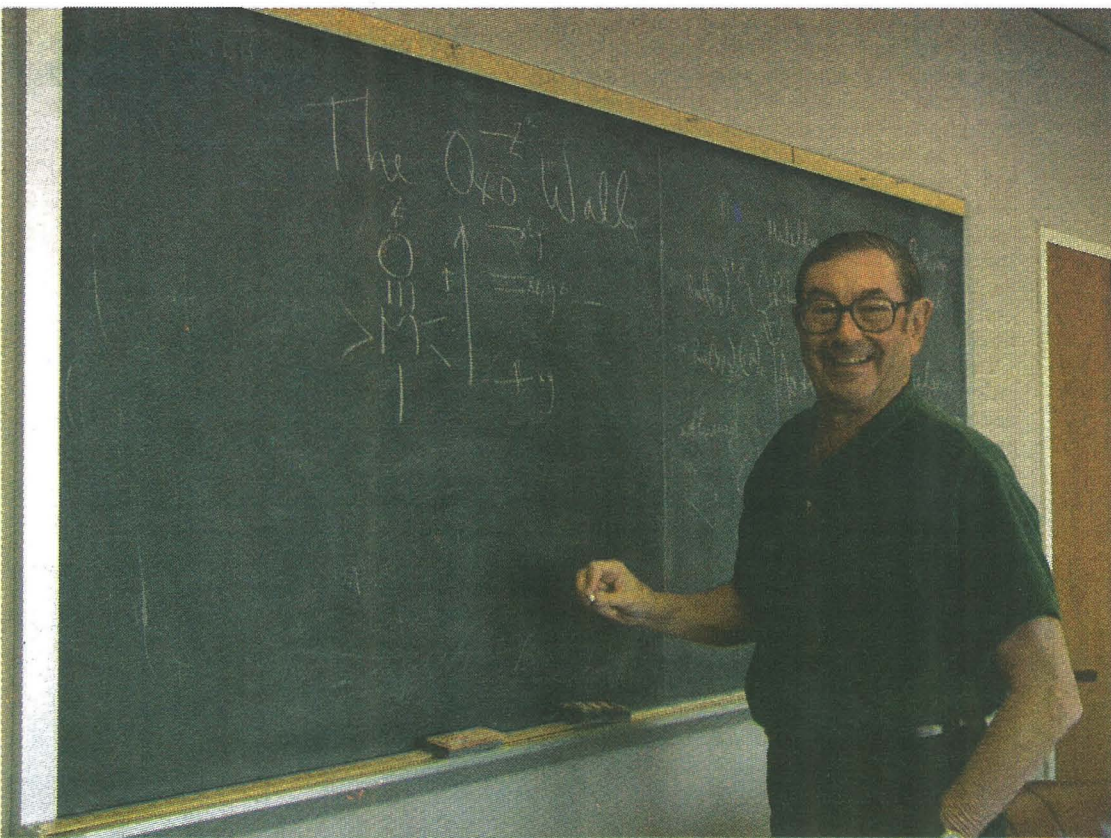
cone. Another work, planned but never built, was a series of concentric rings dug into the ground to form an inverted cone. Hamrol said he wanted these works to have mystery and achieved it because viewers of the works cannot see inside the cone from the base but must actively explore it.

Gradually, Hamrol decided to open up the cone, although he still preferred natural materials. His later works included "Stone Couch," a wide, shallow inverted cone made of smooth sea stones, a miniature stone mountain with a wide spiral ramp to the top at Washington school for the disabled and the famous "Gyro Jack" at Regrade Park in Seattle, which is an open helix-like conic structure meant to represent the changing topography of Seattle's Denny Hill.

All of this, according to Hamrol, led to the creation of Moore's Stone Volute in 1994. Created as part of Pasadena's public art requirement for the then-new Moore Building, Moore's Stone Volute had the form of an open cone. The name of the sculpture came from Gordon Moore, who paid for it, and Hamrol crafted its stone construction and "volute" to suggest something that is both scientific and natural. "Volute" has the dual meaning of a spiral or scrolled shaped form and a type of sea shell known for its distinctive spirals.

Hamrol stated that he always had an "intuitive feel" for the structure but nevertheless used strict measurements in the actual construction to ensure that the work came out as he had intended. Moore's Stone Volute is constructed of a base of packed earth covered with cement and then stones. Hamrol also stated that the sculpture was not inspired by anything on campus but in fact "exists in opposition to the surrounding architecture"; the contrast he saw as a metaphor for its purpose.

The next lecture in the series, to be held next Friday, will feature Professor Emeritus Asger Aaboe from Yale, who will speak on "Greek and Babylonian Science."



Chemistry Professor Harry Gray, of *Chemical Bonds* fame, is the recipient of a 20-year-overdue award from the National Academy of Sciences recognizing his work in electron tunneling.

CALTECH CONVENTIONAL WISDOM WATCH



Not a Hairy Issue: Electron tunnels may be a bit dark, a bit Gray, but it would've been NASTy for the insiders to ignore Harry yet again. The man who trained Nate the Great has finally struck a *bond* with judges.



A Silver Poon in its Mouth: Everyone was worried they'd get Jiang-ed out of existence, but Hong Kong's future appears lined with silver, ready to rise up like an Angel.



Car Tax: First, the admins in Gates try to give the boot to freshman parking. Now, the hacks in Sacramento want to triple the car tax. Sounds like a conspiracy to me!

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