Kwong Forecasts Ambitious 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. A foreign delegate said Dr. Poon, regarding the sociopolitical environment, claimed that there have been no changes. One of the biggest controversies in tertiary education last year was the government's 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 integration is not mandatory. It is only recommended," said Dr. Poon. "Students are still free to determine their personal preferences.

There have been challenges facing the economy, however. Dr. Poon admitted that Hong Kong has been adversely affected by the continuing Asian economic downturn. Hong Kong's traditional role of a export 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, Technology, and Environment, said Hong Kong is now in the process of repositioning itself. The current plan is to develop Hong Kong into a center of four major 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 projects. 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 research agencies.

Continued on Page 7, Column 1

Reform Mandate Fills BoD With Fresh Faces
By KAYTE FISCHER

Amidst campaign aimed at reform and at opening up the ASCIT process, elections last Wednesday boiled down to a race of 37-candidate field to a nine-member ASCIT Board of Directors with no holdovers from the crew elected last year. "There's a freshness," said incon­curring President Tom Fletcher '04. "Most of [the newly elected representatives] are not welded 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 two-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 BHC Chair Jeremy Pins '04. "There are people from different houses, different activities, different social groups, that should be able to represent the undergraduate population very well." A dually, newly ascoted ASCIT Chair Kathryn Hsu '04 noted that the BoD seems eager to get student opinions and to communicate its own work. Incoming Freshman Director at The Corinna Zylkat '07 added that flexibility and enthusiasm create a highly responsive leadership group.

Social Director Kim Hitoos '06 focused on the sentiment of change for 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 new faces, the BoD has been hearing various notions of the highest priorities for ASCIT. ASCIT's vice-president Anna Szaniecka '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 conducting interviews for representatives at large. To a similar end, Pins is talking to people and taking some time to become acquainted with the issue of the BHC and the BoD before acting.

Reactions to the election itself varied. While pleased with the elec­tion, one member cited as high points the 37-candidate BoD's strengths will lie

Continued on Page 2, Column 5

Volute Sculptor Hamrol Pinpoints 'Artistic Origin'

By ROBERT L

Last Monday, Lloyd Hamrol, creator of the on-campus public sculptu­re "Moore's Stone Volute," gave a talk on the sculpture's artistic ori­gin and inspiration. Entitled "A Sculpture at Caltech: Moore's Stone Volute and Genesis of its Form," the seminar was part of the James Michelson Seminar Series. Moore's Stone Volute is the curved, ramp-like construction between Noyes and BBIB. Hamrol is an internationally known sculptor and creator of public art with a career that spans more than 40 years. He bought 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, Hamrol was presented with a $10,000 grant by the National Endowment for the Arts. The grant allowed Hamrol to travel to Japan to study the traditional Japanese roof construction, which he used as inspiration for his work. In 1970, he was asked by Moore to create a sculpture for the Caltech campus. Hamrol worked on the sculpture for a year and a half, during which time he made several prototypes and changes. The final piece was completed in 1972 and installed on the Caltech campus.

Continued on Page 4, Column 4

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 the Academic Policy Committee chair Brent Pultz, in choosing courses to take on pass/fail.

The decision, which was submitted by the faculty's APC and rec­ommended by the student Academic 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 of third term last year to former ARC chair Simon Wilkie, after talking the idea over with other students. One of the main reasons for the change, said outgoing ARC Chair Baut Khan '05, "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 them 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

Continued on Page 8, Column 1

STEWART TIPS RACE TO CHUNARA-JO

By KAYTE FISCHER and PHIL HARRIS

A last-minute discovery on the part of withdrawn senior co-presi­dential candidates Samuel Lee and Debbie Lee '04 that they had re­signed their candidacy 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 friends of Lee 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-Le Lee team's effort to remove the illegal vote, Election Chair Isaac Stone '03 said the pair had to be removed from the election. They admitted that single vote sunk the pair be­cause the mandates majority-mi­nority. Since the revote was a runoff.

The controversy raised scrutiny over currently 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 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 our 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 trampled 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 try."

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.
NEW BOD AIMS TO IMPROVE LIFE OF STUDENT BODY

Continued from Page 1, Column 5

tions remain property of its author. Letters and submissions are welcome; advertising should be submitted electronically or as camera-ready. The editors reserve the right to edit all submissions for any reason. All written content-dense as

The California Tech

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NEWS

FEBRUARY 17, 2003

The Tech is published weekly except during vacation and examination periods by the Associated Students of the California Institute of Technology, Inc. The opinions expressed herein are strictly those of the authors and submitters.

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**By LIZ STAMESKIN**

As a senior, I’ve seen many changes in the way students interpret the definition deals with various circumstances. I remember the formation of the IRC, which made it much easier to give student input on decisions that would directly affect the yearbook class code. I’ve seen decisions that I found appropriate and behavior I found unacceptable. I’ve noticed that many offenders of instituted policy are not hurtfully or unfairly punished. However, I was shocked to read the letter sent to Ricketts by the Vice President for Student Affairs. Firing Ricketts five thousand dollars seemed an extraordinary punishment; threatening dismissal 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, that I find particularly disappointing.

Many students in my house were afraid of the dismissal threat, but they were not immediately putting out Ricketts financially. While I unreservedly applaud their arguments, I must also see that the people that Ricketts not involved in this infraction are no less deserving of information than any undergraduate student. No house is free from its colorful, often peculiar traditions. No house consists entirely of students who follow every policy diligently. If the house solicitation is willing to do this, the students, there are many others that do not house that has offenses against their name. The situation with the firepot is more problematic. Clearly Ricketts is not the one wrongdoer of the seven houses.

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Letters: Fiery Freedom of Speech Debate Over Pro-Racial Slur

Continued from Page 3, Column 2

I was not particularly outraged at Shaq’s actions, merely saddened. Perhaps if more people acted like him, who once received an award from the NAACP, could occasion the violence. While I would have written the most offensive article possible, “it is not particularly offensive if it is fctional.” Many “quotes” I used were actual quotes from my brother-in-law that speaker changed. For reference, most of the “ebenics” was done us using an automatic generator online.

“Black-on-black usage of the word has success-fu­­ successfully reduced its of­­fensiveness.”

While I am slightly flattered that the word “ebenics” was used in a recent article, I sincerely believe that the article made an inaccurate statement. Without an accurate basis for my belief, I am unable to correct your article. Without an accurate basis for your belief, I am unable to correct your article. I trust that you will make a correction in your next issue.

(Continued on Page 3, Column 3)

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

(Continued from Page 3, Column 3)

feeling brought on by stress. John believes in John-is-Godism, which believes that John is the only true religion and that John should always be ready to de­­fend John. In the former case, John’s faith is in his own voice and in his own mind. John is the source of his beliefs. John is the source of his beliefs. John is the only one who can judge his actions. John is the only one who can judge his actions. John is the only one who can judge his actions.

Truth v. Tact: Religious Debates and Integrity

(Continued from Page 6, Column 1)
Female Involvement in Politics: Government Ratio Between Men and Women

By TEOD JOY

Did anyone else notice that there were a lot of women in this past year's election, and 20 female candidates on the ballot for the student government? This is much better than the 2.02 ratio indicated by this year's fall ballot. For a long time at Caltech and elsewhere, there's no better place to meet women.

But seriously, this is 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. My memory doesn't go back further than that, but we might be on to something. How do we know for sure? I decided to test it in Maza: Hypothesis Testing!

So I tested the hypothesis. The male/female ratio in the student government is better than the ratio in the undergraduate student body. The registrar had the historical percentages of women in the undergraduate student body. Women enrolled in 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 archives has 29 names 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 their last 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 1979. The first female House President was Deanna Hunt of Blacker, elected in 1973. They were preceded by the 2nd and 3rd classes, respectively, to even include women.

Now, back to the hypothesis test. Considering all the data, the mean of the test statistic was 4.4%, with a standard deviation of 8.3%. 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? As student-level offices, the mean was 7.15% while for House offices, the mean was only 2.41%. Do 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 House offices are dragging things down or if this was a problem across the whole House. Investigating this question, I found that Blacker (6.09%), Dalney (4.15%) and Raddock (5.82%) can reject the null with 95% confidence. Lloyd (3.38%) 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 average. This 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 first was the women's group. There, we started, had 4.64% more females, which is only 3.95% higher than the average 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 6.49%, 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.

Apparent, in Caltech student government, the glass ceiling is right below a House Presidency.

The Morals of Honesty: Voicing Offensive Beliefs

Continued from Page 5, Column 5 girl who asked if she was pretty (and we think we know who she is). While I have not broken the record, I can honestly agree both questions in the negative. (I have an IQ of 150 and am not yet 21 years old.)

While I have not broken the record, I can honestly answer both questions in the negative. (I have an IQ of 150 and am not yet 21 years old.)

I would not lie about my faith, although I would avoid the question of why I believe. If you should be willing to step on a moralizing, it is all too often that self and hurt feelings stand in the way of what you believe to be true.

If you have faith, I believe that you should be willing to step on a few too many practices and affirm that faith and a true friend would accept your statement, even if it is offensive to your 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 re- nick Hawksworth, 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?

Scurve Speaks Out on Marshall Decree

By SAM THOMSEN

Last Thursday at Ricketts dinner our president, Juan Rodriguez, read to us from Mango Marshall, the vice president of student affairs, formally threat- ing individual expulsion or house dissolution for any further violation of school policy, in particu- lar, building fires in our courtyard. As a direct result of the fire we built after initiations on the previous Fri- day, we were charged $5000 to hire security guards to baby-sit us 24 hours a day, Friday, Saturday, Sunday and Monday of April. The news was taken with quiet consternation. The only person willing to express his feelings honestly in front of Kim Webb, who had previ- ously been invited to dinner, was Jan Farmer, a senior, who ex- claimed, "The administration can- not 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 obvious. 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 going to get better, so I would like to finish this discussion of the courtyard gates with security. Traditionally, the house is closed off to force people to enter through the tunnels. Now two of us have gates to be left open and the president had to explain to the guards how to deal with people trying to enter through them. Unfor- tunately, 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 recol- ciled 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 diffi- cult enough to have Apache with no fire. It was difficult enough to have TND banned. Being threatened with destruction leaves us hopeless and numb.

We wondered that breaking school policy will become a student tradi- tion. That's not the way it should be, nor do it in 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 al- cohol in our bar facing the Olive Walk during "Thursday Night Fire Safety!" Other houses have used steel barrels as contain- ers for their courtyards. Ricketts had a permanent structure in the center of their courtyard called "the

Continued on Page 6, Column 2

PHOTO OF THE WEEK

Caltech's Ecophenomena performs at the annual Love Sucks a capella show. This year's show also featured the course Website: Context, Fleet Street from Stanford and USC's Reverse Omens.

STUDENT TRAVEL: NOT JUST ONLINE
REBUILDING one is welcome to come as their schedule allowing. To join the tutor mailing list, email Sidharth Jaggi (jaggik@caltech.edu). Future events:

If you have Federal Work Study, you can earn $150 while doing community service activities through the Caltech Y. Come to a kick-off meeting later this month or have Federal Work Study, you can earn $150 while doing community service activities through the Caltech Y. Come to a kick-off meeting later this month for more details.

In honor of Black History Month, Dr. Terence Roberts will speak as a free, on-campus event on February 23, 2003 from 12:00-1:00 in the Aden House Dining Room. The lunch is open to the Caltech community. Space is limited and reservations are required. For more information or to RSVP, please email contact@caltech.edu or call extension 6367. In 1957, Terence 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 a result, a whole generation of African Americans has lived in relative ignorance of 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 tips to reduce stress. When: Thursday, 2/18/03 from 3:00-4:30 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 Patricia McMillan Competency. The Mary A. East McKuskey Prize is awarded for excellence in writing. Only full-time student officially enrolled as a Caltech undergraduate are eligible to enter the competition. The competition will be given in three categories: poetry, prose fiction and expository writing. 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. Entries will not be read or returned. Entries must be prepared for submission in any style or good quality of original writing on a topic relevant to the humanities. The prize in each category will be $300. Each student is entitled to only one entry in each category. Contests should submit their work to Professor John La Belle, Division of the Humanities and Social Sciences, 101-40, by no later than March 5, 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, analysis, and 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 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 Finster, x3609.

Job Opportunity! Undergraduate students interested in astronomy are encouraged to apply for the job of "Y-news, Upcoming Events: on-campus Tutoring (2/18-3/20). Winning student to win $500 and tutor a local middle or high school to win. No experience is necessary. Every one is welcome to come as their schedule allows. To join the tutor mailing list, email Sidharth Jaggi (jaggik@caltech.edu). Future events:

If you have Federal Work Study, you can earn $150 while doing community service activities through the Caltech Y. Come to a kick-off meeting later this month for more details.

In honor of Black History Month, Dr. Terence Roberts will speak as a free, on-campus event on February 23, 2003 from 12:00-1:00 in the Aden House Dining Room. The lunch is open to the Caltech community. Space is limited and reservations are required. For more information or to RSVP, please email contact@caltech.edu or call extension 6367. In 1957, Terence 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 a result, a whole generation of African Americans has lived in relative ignorance of 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 tips to reduce stress. When: Thursday, 2/18/03 from 3:00-4:30 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 Patricia McMillan Competency. The Mary A. East McKuskey Prize is awarded for excellence in writing. Only full-time student officially enrolled as a Caltech undergraduate are eligible to enter the competition. The competition will be given in three categories: poetry, prose fiction and expository writing. 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. Entries will not be read or returned. Entries must be prepared for submission in any style or good quality of original writing on a topic relevant to the humanities. The prize in each category will be $300. Each student is entitled to only one entry in each category. Contests should submit their work to Professor John La Belle, Division of the Humanities and Social Sciences, 101-40, by no later than March 5, 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, analysis, and 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 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 Finster, x3609.

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

Continued from Page 1, Column 3

Martiyan Pole Caps of Ice, Shows Carter Resolved

By ROBERT TINDOL

For future Martian astronauts, finding a decent landing site 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 Mars "cold model" of the polar caps believed made of dry ice in error. The model dates back to 1966, when the first Mars spacecrafts confirmed that the Martian atmosphere was largely carbon dioxide.

Ingersoll and his team argue that at the time assumed 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 actual cap contains water ice under the dry ice covering, but experts continued to believe that the south polar cap was made entirely 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 THEMIS instrument aboard Mars Odyssey show that the lower material heated 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 pits are made of water ice, and not dry ice, as had been assumed. The discovery is actually similar to the north pole, which was determined, on the basis of Viking data, to lose one-meter covering of dry ice each summer, exposing the water ice underneath. The two poles are similar, but the materials show, which maps up the floors of the pits and the bulk of the polar cap, is water. This means the planet has enough water to sustain life. In fact, the planet is actually similar to the north pole, which was determined, on the basis of Viking data, to lose one-meter covering of dry ice each summer, exposing the water ice underneath. The two poles are similar, but the materials show, which maps up the floors of the pits and the bulk of the polar cap, is water.

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 in marine carbonates and Venus's carbon dioxide being in the atmosphere and making the runaway greenhouse effect. By contrast, the rightmost layer on the south polar ice cap on Mars may have as much as 10 times more carbon dioxide than Earth and Venus.

The new findings further pose the question of how Mars could have been warm and wet to begin with. While Ingersoll and his colleagues assume that there was once a sufficient amount of carbon dioxide in the atmosphere to heat up the planet, they can't readily explain what happened to the water.

"There could be other explanations," Byrne says. "It could be that Mars was a cold, wet world, or that the subterranean plumbing would allow for liquid water to be sealed off underneath the surface."
Twenty Years Later, 'Electron Transport' Propels Gray to NAS Chemistry Award

By JON FOSTER
Chemistry Professor Harry Gray is well known to most undergraduates and faculty 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. I under the careful tutelage of Chemistry Professor Nate Lewis.

His contributions to chemistry have been so 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 P/TWEAKED TO FOUR-YEAR DISTRIBUTION
ALLOW'S 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 ARC found that "generally every one thought that the change was a good idea," according to Dr. Fultz. The ARC recommended it to the Faculty Board, which approved it.

To ensure that students follow the requirements, the registrar has software to track how many pass/fails each student has taken. 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/fail/two terms 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 thought 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. Bonner-Fraser felt that most students already in the system's pool would complete their courses and leave, so it would be too confusing 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 same 20 years after the fact. He explained, however, that electron transport in proteins was fairly radical when suggested and that "very often in those people's papers it's not even clear they're doing it." As for pass/fails, Dr. Gray said that his group showed that proteins could move electrons at distances greater than speed, the group has extended the research of electron-transfer chemistry.

"As a metaphor for [it]," Dr. Gray explained that "electron transport is what keeps us alive" and went on to explain that it was vital to both photosynthesis and respiration. In plants, such a feature might which might ordinarily recombine to uselessness release heat, but an electron transport system carries the electrons away where they can be used to provide useful energy for the plant. Electron transport is similarly important in respiration. Grey put it more colorfully, imaging the dire world without electron transport in which "we would breathe in oxygen and literally burn to a crisp.

Electron transport is not just an obscuse, 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.

An interesting consequence of the change was a shift in Dr. Gray's mentoring and teaching, becoming 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 "it is the best in the country" for teaching a chemistry course at Columbia with only one day of preparation. 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 lecture on recent developments. A few colorful stories focus on chemical bonds "led to substantial changes in chemistry classes in these classes" and Dr. Gray's thoughts on chemistry boiling 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."

Caltech Chemistry Professor 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.

To FOUJYEAR, YEAR

A Silver Poon in its Mouth: Everyone was worried they'd get Jiang-ed out of existence, but Hong Angel.

Another view, 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 could not see 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 that something is both scientific and natural. "Vo­ late" has the dual meaning of a spiral or scrolled shaped form and a type of sea shell known for its dis­ tinctive 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 sur­ rounding architecture"; the contrast he saw as a metaphor for its pur­ pose.

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

The California Tech
Caltech 40-58
Pasadena, CA 91126

By KERRY DE CALIFORNIA TECH

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

FEBRUARY 17, 2003

Not a Hairie Issue: Electron tunnels may be a bit dark, a bit gray, but it would've been NASy for the insiders to ignore Harry yet again. The man who trained Nate the former State Sen. was finally struck a blow in his final battle against the angels.

A Silver Poon in Its Mouth: Everyone was worried they'd get Jiang-ed out of existence, but Hong Kong's stock option traders 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!