



The California Tech

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PASADENA, CALIFORNIA

APRIL 5, 2004

IHC Questions Plan's Viability for Next Year

By KEVIN BARTZ

In a vote that will make or break the Avery Council's bid to open the house to freshmen, the Student Housing Committee is expected hand down a recommendation after a private meeting today.

Although the majority faculty SHC is seen as sympathetic to the idea, a compromise measure that would implement the plan in 2005 instead of 2004 is gaining steam among moderates on both sides and may be a wild card in balloting.

The month-old Avery debate bubbled to a climax this week when the Interhouse Committee unpacked its case against the measure to the SHC at a public meeting Wednesday.

"I think there was some productive discussion," said IHC Chair Kim Pependorf '06. "I'm glad that there were people who

were really listening."

In its talk, the IHC listed four long-term concerns along with a battery of logistical questions, all stressing their belief that Avery's plan is premature.

"There's just no way this can be beneficially implemented by next year," held Pependorf. "It could be detrimental to student life if we don't first look at all the issues."

Logistics must be ready by the April 26 housing lottery--much too soon to pound down details the Avery Council has so far left unaddressed, said Ruddock President Barrett Heyneman '05. "In general I think it's very bad policy to approve a 'plan' when you don't know any details about how that plan will be implemented," he held.

The result is an emerging compromise position that would set a

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L. Tran/The California Tech

Kim Pependorf, Penny Gunterman, and Jason Quimby of the IHC present their case against allowing freshmen in Avery this year.

Misconceptions of Israel as Jewish State Cleared up by Israeli Bedouin

By WILLIAM FONG

On Wednesday evening, Caltech Hillel sponsored a talk by Ishmael Khaldi, an Israeli Bedouin who has been traveling the world to share his unique experiences. Khaldi received his bachelor's degree from Haifa University and got a Master's degree in political science from Tel Aviv University. He has served in the Israeli Defense Military as well as in the Israeli Police Force.

During his talk, Khaldi shared his life experiences and attempted to correct misconceptions regarding Israel. The Bedouins are a nomadic group of shepherds who reside in the Middle East region. Today, the Bedouins form a minority in Israel.

With the Balfour Declaration in 1917, a substantial portion of the Jewish population began to leave Eastern Europe and settle in the areas that make up modern-day Israel. As the Jews set up small towns and cities, it brought the Bedouins in touch with the Jews as well as with modern society.

Very early on, the Jews and the Bedouins forged a special relationship, according to Khaldi. Khaldi points to a sense of humanity that traversed political, re-

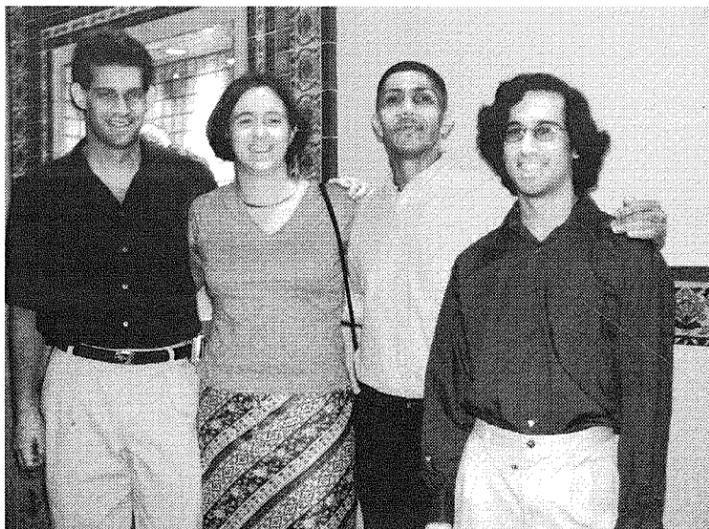
ligious and linguistic differences as the source of this relationship. Beginning in the 1930s and continuing up to the present, Jews and Bedouins served shoulder to shoulder against the British police and the Arab nations of the Middle East.

This brotherhood contrasts the Western perspective that Israel is strictly a Jewish state and is anti-Muslim. Although the Israeli

Bedouins are Muslims, they identify themselves as Israelis. However, the position of the Bedouins in Israeli society is somewhat nebulous to the Western world.

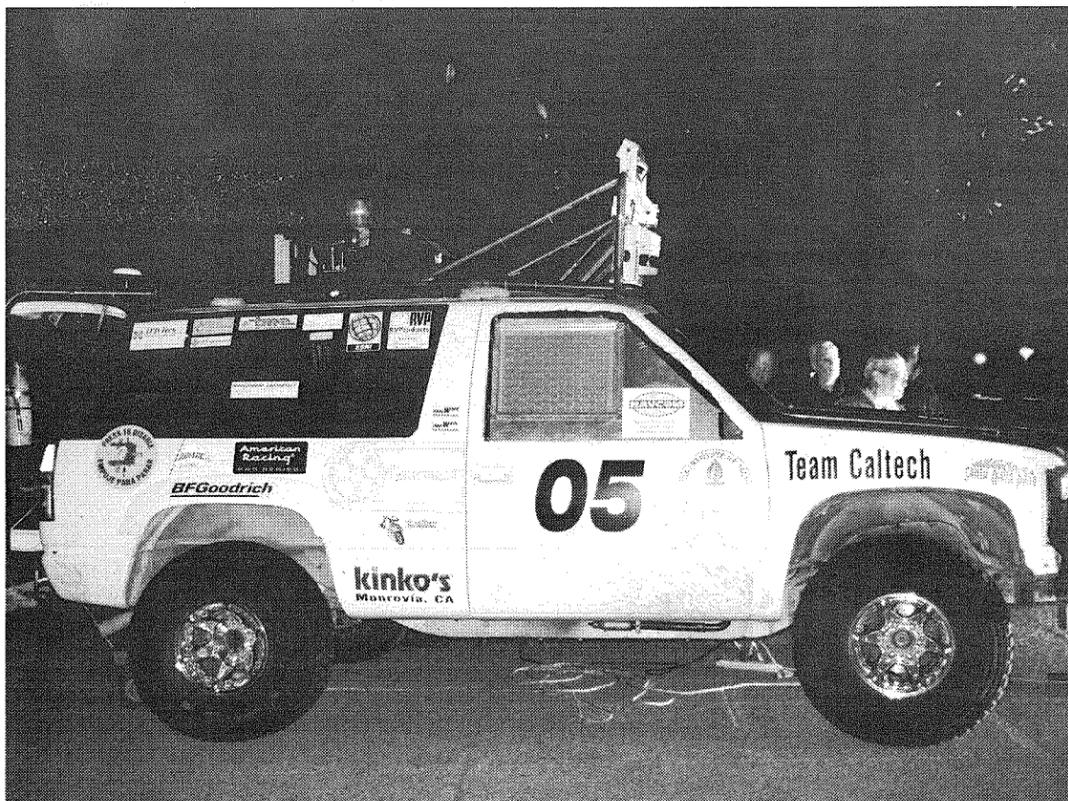
Khaldi cited a question from a student at the Illinois Institute of Technology who asked Khaldi if he had the right to vote. Being citizens of Israel, Khaldi said that the Bedouins no doubt had

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D. Korta/The California Tech

Ben Leitner, Emma Schmidgall, Ishmael Khaldi, and Ben Aronin, pose as Khaldi prepares to give his talk last Wednesday.



D. Korta/The California Tech

Bob, the autonomous vehicle built by Team Caltech for the DARPA Grand Challenge, is displayed after travelling 1.3 miles during the competition across the Mojave Desert.

'Bob' Takes Fifth in First DARPA Grand Challenge with 1.3 Miles

By ROBERT LI

On March 13, 2004, the first DARPA Grand Challenge was held. Designed as a cross-country race across the Mojave Desert from Barstow to Las Vegas, the contest pitted totally autonomous robotic vehicles against each other for a prize of \$1 million.

The Caltech team, led by MechE professor Richard Murray, was one of 15 finalists to participate in the contest. Although "Team Caltech" placed 5th and

traveled a total of 1.3 out of 142 miles, none of the other teams finished the course either. The "Red Team" from Carnegie Mellon, which had by far the greatest funding and the most previous experience, managed to travel only 7.4 miles before becoming stuck.

Last Wednesday, Dr. Murray gave a Watson lecture in which he described the efforts of Team Caltech and the challenges and successes that it has faced. Dr. Murray began first by describing the actual contest.

The Grand Challenge, funded by DARPA (the Defense Advanced Research Projects Agen-

cy), asked teams to build a completely autonomous vehicle that could travel from LA to Las Vegas, a distance of approximately 250 miles, in 10 hours or less. The actual event involved a preliminary qualification course at Fontana Speedway followed by a cross-desert course from Barstow to Primm, Nevada. Teams received 1000-2000 GPS waypoints 2 hours before the contest. These waypoints specified a corridor 10 meters to 10 kilometers wide that was guaranteed to contain some navigable path that could be traversed by a human driver in a 4x4 vehicle.

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Chess Team Defends Championship Title

By WEI JI MA

On March 20, the Caltech Chess Team beat top teams from around the country to win the 2004 U.S. Amateur Team Championships. The national championship was held on the Internet Chess Club. The win makes the Caltech Chess Team the first team ever to win America's most prestigious team chess championship twice in a row.

The winning team consisted of master players Patrick Hummel and Eugene Yanayt (both sophomores), Graham Free (senior), and Zhihao Liu (sophomore). In 2003, Yanayt, Free, and Liu teamed up with postdoctoral scholar and master player Wei Ji Ma to win the national Amateur Team Championships in the team's first year of competition. The Amateur Team Championships are open not only to college teams, but also to any other team of non-professional players.

The team earned the right to represent the west by demolishing tough competition at the western regional championship in

February with a perfect 6-0 score. This win was reason for International Jack Peters to write in the Los Angeles Times, "Baseball fans scream about the New York Yankees, but chess players yearn to break up Caltech." (Feb 29)

The team then defeated the midwest regional winners in the national semifinals and followed that with a victory over the east regional winners in the championship match. The Caltech team trounced both the midwest and the east, beating each team by a convincing 3-1 margin. In the national championship, all individual team members went undefeated.

The Caltech Chess Team is composed of members of the Caltech Chess Club. The club welcomes players of all skill levels throughout the Caltech community. More information can be obtained from the club's web site, <http://www.its.caltech.edu/~citchess>, or by contacting Patrick Hummel at hummel@its.caltech.edu.

Astronomers Detect Most Distant Planetoid Yet 8 Billion Miles Away

By ROBERT TINDOL

PASADENA, Calif.--A planetoid more than eight billion miles from Earth has been discovered by researchers led by a scientist at the California Institute of Technology. The new planetoid is more than three times the distance of Pluto, making it by far the most distant body known to orbit the sun.

The planetoid is well beyond the recently discovered Kuiper belt and is likely the first detection of the long-hypothesized Oort cloud. With a size approximately three-quarters that of Pluto, it is very likely the largest object found in the solar system since the discovery of Pluto in 1930.

At this extreme distance from the sun, very little sunlight reaches the planetoid and the temperature never rises above a frigid 400 degrees below zero Fahrenheit, making it the coldest known location in the solar sys-

tem. According to Mike Brown, Caltech associate professor of planetary astronomy and leader of the research team, "the sun appears so small from that distance that you could completely block it out with the head of a pin."

As cold as it is now, the planetoid is usually even colder. It approaches the sun this closely only briefly during the 10,500 years it takes to revolve around the sun. At its most distant, it is 84 billion miles from the sun (900 times Earth's distance from the sun) and the temperature plummets to just 20 degrees above absolute zero.

The discoverers---Brown and his colleagues Chad Trujillo of the Gemini Observatory and David Rabinowitz of Yale University---have proposed that the frigid planetoid be named "Sedna," after the Inuit goddess who created the sea creatures of the Arctic. Sedna is thought to live in an icy cave at the bottom of the ocean--an appropriate spot for the name-

sake of the coldest body known in the solar system.

The researchers found the planetoid on the night of November 14, 2003, using the 48-inch Samuel Oschin Telescope at Caltech's Palomar Observatory east of San Diego. Within days, the new planetoid was being observed on telescopes in Chile, Spain, Arizona and Hawaii; and soon after, NASA's new Spitzer Space Telescope was trained on the distant object.

The Spitzer images indicate that the planetoid is no more than 1,700 kilometers in diameter, making it smaller than Pluto. But Brown, using a combination of all of the data, estimates that the size is likely about halfway between that of Pluto and that of Quaoar, the planetoid discovered by the same team in 2002 that was previously the largest known body beyond Pluto.

The extremely elliptical orbit of Sedna is unlike anything previously seen by astronomers,

but it resembles in key ways the orbits of objects in a cloud surrounding the sun predicted 54 years ago by Dutch astronomer Jan Oort to explain the existence of certain comets. This hypothetical "Oort cloud" extends halfway to the nearest star and is the repository of small icy bodies that occasionally get pulled in toward the sun and become the comets seen from Earth.

However, Sedna is much closer than expected for the Oort cloud. The Oort cloud has been predicted to begin at a distance 10 times greater even than that of Sedna. Brown believes that this "inner Oort cloud" where Sedna resides was formed by the gravitational pull of a rogue star that came close to the sun early in the history of the solar system. Brown explains that "the star would have been close enough to be brighter than the full moon and it would have been visible in the daytime sky for 20,000 years." Worse, it would have dislodged comets further out in the Oort cloud, leading to an intense comet shower, which would have wiped out any life on Earth that

existed at the time.

There is still more to be learned about this newest known member of the solar system. Rabinowitz says that he has indirect evidence that there may be a moon following the planetoid on its distant travels--a possibility that is best checked with the Hubble Space Telescope--and he notes that Sedna is redder than anything known in the solar system with the exception of Mars, but no one can say why. Trujillo admits, "We still don't understand what is on the surface of this body. It is nothing like what we would have predicted or what we can currently explain."

But the astronomers are not yet worried. They can continue their studies as Sedna gets closer and brighter for the next 72 years before it begins its 10,500-year trip out to the far reaches of the solar system and back again. Brown notes, "The last time Sedna was this close to the sun, Earth was just coming out of the last the last ice age; the next time it comes back, the world might again be a completely different place."

Khaldi Analyzes Transition From Nomadic Life to Modern Society



D. Kortal/The California Tech

Ben Aronin introduces Ishmael Khaldi, an Israeli Bedouin that Hillel sponsored to come speak about Israel.

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the right to vote. A question that seemed obvious to Khaldi, it illustrated the misunderstanding of the situation in Israel.

In addition to discussing the relationship between the Bedouins and Israel, Khaldi also spoke about the difficult transition from a nomadic lifestyle to modern society. Citing himself as one of the fortunate ones, Khaldi emphasized the lack of education as an obstacle to modernization. With less than 5% of the population possessing a high school education, much less a college education, Khaldi stressed the importance of building schools.

Another obstacle was the understandable resistance of the elderly to modernization. Khaldi proposed that the effort should be focused on the younger generation but that the transition to a modern society should be gradual in order to minimize the erosion of values that have come to define what it means to be a Bedouin.

After his stop at Caltech, Ishmael Khaldi will continue traveling to colleges and universities across the United States and Europe to share his insight and shed some light on the ambiguity that surrounds Israel.

Douglas Appointed University Librarian

By DEBORAH WILLIAMS-HEDGES

PASADENA, Calif.-Kimberly Douglas has been named University Librarian at the California Institute of Technology. She had served as acting director of libraries since April 2003.

A staff member in the Caltech Library System since 1988, Douglas first served as head of reader services. She then served as director of the Sherman Fairchild Library of Engineering and Applied Science and as head of technical information services.

Douglas has long been involved in designing and implementing automated library services. She introduced desktop publishing to the Caltech libraries, initiating their online presence in the early 1990s and provided leadership in the design and implementation of Caltech's document delivery service, TOC/DOC. She has also taken a leadership role in implementing digital collections at Caltech, beginning in 1999 with the campus discussion regarding Copyright in Scholarly Communication.

Douglas was instrumental in the planning and execution of the Sherman Fairchild Library of Engineering and Applied Science that opened in 1997. She has published on a variety of topics, most recently on aspects of digital col-

lections.

Douglas received her MS in library science from Long Island University in 1977. She subsequently held positions in scientific research libraries at the Bigelow Laboratory of Ocean Sciences in Boothbay Harbor, Maine and at USC, where she headed the Hancock Library of Biology and Oceanography from 1982 to 1985 and the Science and Engineering Libraries from 1985 to 1988.

Douglas has served on the IEEE Library Advisory Committee and is currently a member of the Visiting Committee for the Goddard Space Flight Center Library. She has been active in Library and Information Technology Association Interest Groups by helping to found, chair and develop programs for the Interest Group on Electronic Publishing.

Dan Meiron, associate provost for information and information technology at Caltech, said, "It gives me great pleasure to announce the appointment of Ms. Kim Douglas as University Librarian... Kim brings to this appointment a deep appreciation of the traditional role of libraries coupled with an equally deep understanding of the enormous potential of the integration of new digital tools of scholarship."



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ASCIT BoD Discusses Formal, Coffeehouse

March 30, 2004

Present: Ann Bendfeldt, Ryan Farmer, Jenny Fisher, Shaun Lee, Kelly Lin, Galen Loram, Kim Pependorf, Claire Walton, Corinna Zygourakis

Guests: Parag Bhayani, Alex Munoz, Alex Shim

Introduction:

1. Call to Order, 12:05 PM

New/Open Positions:

2. Jenny Fisher will soon post sign-ups for ARC Representative-at-Large and ARC Secretary outside of SAC 33. If you're interested, please sign up!

Upcoming Events:

3. Claire Walton reports that the ASCIT formal will be held at the MOCA (L.A.'s Museum of Contemporary Art), with an after-party at an undecided location. The entire museum will be open to the ASCIT formal attendees!! Claire welcomes suggestions for after-party locations via email at <esc@donut.caltech.edu>.

4. Midnight Donuts will be held on Thursday, April 22, during Prefrosh Weekend. Lots of strawberry donuts.

Other Business:

5. Coffeehouse manager Alex Munoz reports that the CDS (Caltech Dining Service) Coffeehouse employee has been sick for a long period of time, accounting for the Coffeehouse's recent closures. Alex has asked CDS for a replacement, but does not know what will happen with the Coffeehouse this upcoming term.

6. Jenny announces the first ARC meeting on Thursday, April

7. Jenny reports that an alumni wants to fund an expansion of the teaching awards. Voted 8-0-0 to give Jenny approval to go ahead with this as she sees fit.

8. Kim Pependorf reports that the IHC will present its case (against frosh in Avery) to the Student Housing Committee on March 31. The IHC's statement is available online at <http://donut.caltech.edu/about/minutes/2004/mar162004>.

9. Kim notes that the issue of whether to put prefrosh in Avery this year will be decided by the admissions office by April 9.

10. Kim reports that she serves on an ad-hoc committee called the Swing Option working group, which is trying to make modular housing a viable option for the South House renovations. The committee is touring sample modular units on March 31. Also, an RFP (request for proposal) is out for an architect for the project, and there will soon be interviews for student representatives on the architect selection committee.

11. Kim is also on ad-hoc committee to fill new positions in Housing. Housing is adding an Assistant Director for Operations and an Assistant Director for Occupancy & Billing, who will both serve under Tim Chang, the Director of Housing.

12. Ryan Farmer will meet with publications officers to ensure that every publication adheres to its budget. In the future, the BoD may discuss a resolution to deal with publications that exceed their budgets.

13. Corinna Zygourakis reports that all pages on the donut website pertaining to ASCIT minutes

and officers are updated, so check it out!

14. Corinna also notes that several ASCIT resolutions, including resolutions VII, IX, X, XI, XIII, XIX, and XXI, were updated to more accurately reflect current procedures. Resolution updates have been posted on the donut website.

15. Corinna reminds everyone that the Alumni Fund is hosting a Sophomore Core Curriculum Completion Celebration (with free food!) on the evening of April 17. For more information, students may contact <eboyle@dar.caltech.edu>.

16. In preparation for a meeting with Vice President for Student Affairs Margo Marshak and the Division Chairs, the BoD discusses several issues, including student-faculty interactions, complaints about the REGIS online registration system and other scheduling issues, and preliminary honor code survey results.

17. The club meeting (in which clubs request ASCIT funding for the upcoming year) is Friday, April 2, at 7 PM in the Brennen Conference Room of the Center for Student Services.

18. After the club meeting, the BoD will meet on Saturday, April 10, to set its budget for the 2004-2005 year. The budget will then be posted online.

Money Requests:

19. Alex Munoz requests \$250 for Coffeehouse party this term. Vote: 6-0-0 (approved).

Meeting adjourned 1:00 PM.

Respectfully submitted,
Corinna Zygourakis

The Case Against Frosh in Avery

By BARRETT HEYNEMAN,
HESPER REGO,
and LIONEL JINGLES

For over a month now, the student-faculty housing committee has become a veritable battleground over the decision to put freshmen in Avery this coming fall. On one side, a sizeable group of Avery residents has submitted their proposal to the committee, while the IHC recently presented our objections to the idea. With only one undergrad on the seven-member committee, the IHC, as elected representatives of the seven houses, has been crucial in defending the position of the majority of undergraduates.

This idea, if implemented, will be nearly impossible to reverse. Moreover, since this potentially affects all undergrads, they should approve of such a serious issue before any decision is made. However, proponents of the Avery proposal have sidestepped popular opinion and appealed directly to the committee.

In addition to lacking public support, the proposal is more a philosophy and set of ideals than a detailed plan. Their suggested "shoot first, ask questions later" attitude is reckless. Certain details are absolutely necessary to determine if placing frosh in Avery is feasible and would positively impact the community.

In particular, the issue of House dues has not been properly addressed. Currently, Avery receives its entire social budget from Campus Life; this will not be the case if it obtains equal footing with the seven houses. While claiming that dues will not be necessary, the Avery Council still intends to sponsor social events. Nothing in the current

proposal resolves this discrepancy.

Furthermore, having freshmen will be a detriment to Avery's current balance of openness and community. The Council's ideal of forgoing exclusive membership allows any student to live in the house. In time, freshmen would introduce a singular culture, which would alienate those outside the community, resulting in de facto exclusivity. Displaced members of other houses and those who reject the house system altogether will likely be disruptive to the continuation of an Avery culture.

The establishment of such a culture has been the Council's key argument for receiving freshmen. At the last faculty meeting, a resident of Avery confirmed that without freshmen next year active members of the community will leave, and Avery's culture will likely dissolve. This statement betrays the instability of Avery's community. It would be a mistake to introduce freshmen into such an environment.

In the end, more would be lost than gained. Those who seek an on-campus alternative to house culture would lose a refuge. The freshmen placed in Avery's idealistic yet unstable community would risk isolation there and from the undergraduate house culture at Caltech. Advocates of the proposal are only concerned with the continuation of Avery's current culture; however, the freshmen's well-being and, to a lesser extent, the need for a housing alternative, should be the most important concerns.

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We do not expect our doctors to impose their political opinions on us when we go to them for treatment. We should likewise not be assaulted by the political prejudices of professors when we pay them for an education.

If your professor is abusing his or her teaching privilege or is confused about the professional obligations of an educator please contact us.

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PASADENA UTILITY SELLS GREEN POWER

By AMEERA CHOWDHURY

Pasadena Water & Power (PWP) customers can support renewable energy by purchasing 100% wind generated "green power." Why use green power? Because power plants that burn fossil fuels, such as coal, contribute to air pollution, acid rain, and are the largest single source of mercury, which contaminates fish.

Renewable energy, such as wind power, has often been faulted for being too expensive. But PWP's green power option is surprisingly affordable. A typical customer, who uses 500 kWh of electricity per month, would spend only \$12.50 more to completely convert to green power.

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The PWP Green Power option requires a six month minimum commitment, after which customers can change their contribution or end their subscription. You can print an application from the PWP website (<http://www.ci.pasadena.ca.us/waterandpower/>) or call PWP's Answer Line at (626) 744-6970.

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

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Tammy Yee Wing Ma Vi Tuong Tran
Managing Editor Business Manager

Matthew H Walker Circulation
News Director Natalia Deligne

Tearsheets
Tim Tirrell

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Cooperation Crucial on Avery Issue

By NEIL TIWARI

The IHC is an important governing body, composed of the Seven House presidents and an elected chairperson, which wields much power over student life. The IHC has always presented itself as an entity to which anyone can go to its meetings and have his or her concerns addressed, an entity that represents the majority and fights for its views, and an entity that forms its views on student opinions. However, the question is not of whether one can go to the IHC, but where things go from there.

This is about Avery, about its Council, and how it has tried very hard to work with the IHC. Avery no longer wants second-class treatment from the other Houses. It wants to build a community and it wants to extend its hand to incoming freshmen. The hope is that some of them might find Avery as a place that better suits them and will stay there throughout their years at Caltech, keeping the Avery community alive and growing.

The Council tried in the past with the previous IHC, and perhaps the comments contained in their minutes showed how difficult it was. The vulgar words and insults in their official minutes and the e-mails containing the flat-out rejection of Avery by the IHC are a permanent record of how the IHC was not such an open-minded or supportive body. The past has created a rift between the IHC and Avery, giving rise to much animosity on both sides.

A new IHC has risen, and while they are indeed more open and considerate, I worry that the specter of past difficulties have come back to haunt us. Just as in the past, Avery and the IHC are not working together, but against each other. Each side has a different view, and neither has worked with the other to achieve something together. Both sides are not sitting down together to submit a joint proposal to the Faculty Student Housing Committee, but are each submitting proposals and counter-proposals.

Do the IHC and Avery disagree

about the idea of freshmen in Avery on a philosophical level because it is inherently a bad idea no matter what Avery tries to do to make it favorable? Do they object to the idea because the Council's Proposal is incomplete, because one cannot risk accepting a proposal that risks the living experience of the future freshmen?

If the former question is an issue, then perhaps one can understand why the Faculty Student Housing Committee is needed to make a decision to prevent the constant quarrelling on both sides. Once a binding decision is made, both sides no longer fight over philosophy and are forced to work together to implement the details of what the Faculty decide is the future direction.

If the latter question is an issue, then over the past months we have wasted time submitting proposals and counter-proposals when instead we all could have been working in a joint proposal, one in which both sides feel comfortable with the details and work together to make it happen.

I implore both Avery and the IHC to give working with each other on a joint proposal a chance. I hope the IHC will be sensitive to the concerns of the Avery residents, respect the authority of the Avery Council, and understand the desire for Avery see the changes it desires implemented as quickly and as efficiently as possible. I hope Avery will reach out to the other Houses, obtain a list of concerns from the IHC and work with them in addressing them one-by-one, and work to gain the acceptance of the undergraduate community at large.

Through working together, neither side will see an absolute victory in the sense that both sides will not end up doing what each believes is the absolute best solution, but at least at the end of the day both can leave the issue not feeling in defeat. Avery has gone to the IHC, but from there things have gone nowhere. Perhaps, with another try and a better understanding for each other, we can go quite far in achieving a positive outcome.



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Dr. Gurinder Shahi

Chairman and CEO, BioEnterprise Asia

MBBS, PhD - National University of Singapore; MPH - Harvard University

Dr. Shahi's latest book:

BioBusiness in Asia - How Asia Can Capitalize on the Life Science Revolution
Pearson Prentice Hall Publishing, late April 2004

San Gabriel Valley

Friday April 9, 2004

7:30am Continental Breakfast

8-9:30am program

Avery Library, Caltech

Admission: \$25 if registered by April 7, \$35 at the door
Contact Monica Heath, IBEAR Executive Programs
213.740.7132 or

Based in Singapore, Dr. Shahi is a physician with training in molecular biochemistry and international health policy and management. He is Asia's leading expert on change management and strategic program implementation in healthcare and the life sciences.

Dr. Shahi has played a key role in the development of major international initiatives including the International Vaccine Institute and the Asia-Pacific International Molecular Biology Network. He has served as advisor and consultant to leading international organizations, governments, corporations and foundations. He has authored over 50 articles and served as lead editor on *International Perspective on Environment, Development and Health: Towards a Sustainable World*.

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Attention all undergraduate students on Financial Aid: The last date to request any adjustments of loan to work study, or work study to loan, for your 2003-04 financial aid award, is Friday, May 7, 2004. Requests for 2003-04 changes made after May 7 will not be considered. Please contact the Financial Aid Office at ext. 6280 if you have any questions.

The next deadline for MHF funds: April 15

In 2002-2003 the Moore and Hufstедler funds were established to enhance the quality of student life at Caltech. Approximately \$180,000 is available each year to fund qualified proposals. All members of the Caltech community are encouraged to submit proposals for events, equipment, and other projects aimed at improving student life at Caltech. For more details and guidelines for proposals, visit our website at: www.its.caltech.edu/~mhf. You can also view a list of previously funded projects on this website. If you have any questions, you are also welcome to e-mail us: mhf@its.caltech.edu.

The Hawaiian Club is offering hula (traditional Hawaiian dance) lessons again this term! Class will be held in Winnett Lounge on Saturdays from April 10 - May 29, 2-4 PM (with the exception of 4/24 and 5/1: these classes will be held on Sunday, 4/25 and 5/2). The cost is \$5/class for Caltech community members; \$12/class for all others. For more information, see our club website at <http://www.ugcs/~lilinoe> or email us at maruchan@its.

Humanities and Social Sciences Seminars for this Term:
9 April (Friday) HPS Seminar Rhodri Lewis (Oxford University). "To deliver the natures of

things: reason, religion and natural philosophy in C17th language planning"

16-17 April Conference: Consumption, Modernity, and the West

21 April (Wednesday) Harris Lecture Dan Kevles (Yale). Science, Arms, and the State: J. R. Oppenheimer and the Twentieth Century

29 April (Friday) Munro Seminar Carl Hoefter (Barcelona). "Chance, Time and Causation"

3 May Joshua Greene, Princeton University. "Cognitive Conflict and Control in Moral Judgment"

7 May (Friday) Munro Seminar Maria Farland (Fordham). "Decomposing City: Walt Whitman's New York and the Science of Life and Death."

14 May (Friday) Munro Seminar Clementine Oliver, Caltech/Huntington Fellow. "Where Do Pamphlets Come From? Political Writing in Late Medieval England"

21 May (Friday) Munro Seminar Justin D'Arms (Ohio State). "Objectivity in Taste and Emotion"

28 May (Friday) HPS Seminar Brian Copenhaver (UCLA). "From Magic to Science: Seeing a Way Out"

Attention: Current Freshmen, Sophomores & Juniors: **2004-2005 Upper Class Merit Awards.** Each year, the Faculty Committee on Scholarships and Financial Aid grants a number of Upper Class Merit Awards to the most academically-talented of the Institute's Sophomores, Juniors, and, occasionally, Freshmen. Upper Class Merit Awards are based on outstanding scholastic achievement as demonstrated by exceptional performance in formal classes, in independent research, and extracurricular activities since beginning academic studies at Caltech. They are not based on financial need. Last year, 56 students were awarded Upper Class Merit Awards in amounts ranging from \$17,925 to \$31,461. The number and caliber

of the applicants determine the level of awards in any year. Applications and recommendation forms are available online at: www.finaid.caltech.edu/Upper-ClassMeritAwardMarch2004.html or in the Financial Aid Office at 414 South Holliston Avenue, Room 110. Electronic submissions will not be accepted. **THE DEADLINE FOR SUBMITTING COMPLETED PAPER APPLICATIONS TO THE FINANCIAL AID OFFICE IS 5:00 PM, April 9, 2004.** No exceptions will be made to this deadline.

Dance Classes

All classes meet in the Braun Gym multipurpose room. There are 8 classes in each series. No special clothing or shoes are required for the beginners' classes. RSVPs required only for the bellydancing class. To be added to our mailing list, go to <https://utils.its.caltech.edu/mailman/listinfo/troupe-list>. All classes are co-sponsored by the GSC and ASCIT, with additional funding from Campus Life and Graduate Housing.

1) Beginning Bellydancing Saturdays, 12:45-1:45 PM, begins 4/3

Professional Instructor: Leela
Trial class fee: \$5 for students, \$8 for others

Caltech students full term fee: \$20 (\$2.50 per class!)

Other Caltech community members full term fee: \$50 (\$6.25 per class!)

CLASS SIZE IS LIMITED so RSVP to Kathy.Kelly@caltech.edu

2) Hip-Hop for Advanced Beginners

Thursdays, 9-10 PM, begins 4/1

Professional Instructor: Collette Sibal

Trial class fee: \$5 for students, \$8 for others

Caltech students full term fee: \$20 (\$2.50 per class!)

Other Caltech community members full term fee: \$40 (\$5 per class!)

Caltech Shooting Club presents: Free firearms training at Front Sight in Las Vegas. An alumnus has donated passes good for four days of gun training, good for anyone who didn't go last year. Courses are available in rifle, pistol, or shotgun, and normally cost \$1200. Cost to you will probably be less than \$100. Possible dates are April 23-26 or May 7-10. Contact coxj@its.caltech.edu for more information.

Interested in Applied Math in a broad sense? What is research in graduate school? And where does it lead outside of academia? **Join the new student chapter of SIAM! (Society for Industrial and Applied Mathematics).** We organize events to bring together undergraduate and graduate students, from all departments, to come and hear cool talks and vital career advice. Here's a sample of our activities:

- The "Meetings on Mathematics in Industry" are big, quarterly events, where we get top mathematicians to come and talk about their work in the Industry.

- In addition to these quarterly meetings we organize a weekly student seminar with speakers mostly from the ACM, CDS and CS departments. Undergrads are welcome to participate and present their work. This year several talks focused on the IEEE's Top 10 algorithms of the 20th century - this Friday is on the Fast Fourier Transform. Come and join us at noon in room 200 Guggenheim. Lunch is provided.

Sign up for free student membership to SIAM during the Google event, and receive a free subscription to 'SIAM News' and 'SIAM Review'. Stay informed on the upcoming chapter activities by joining our mailing list. For more info and to sign up, visit www.its.caltech.edu/~siam.

Racquetball Challenge Court. Wednesdays, 5:30 - 8 PM, Braun Gym. Show up to the Racquetball club's challenge court and take on anyone here. We usually have two reserved courts, and we play winner stays on. Challenge yourself and a worthy opponent! Everyone is welcome and we normally have all skill levels show up (including beginners). And if you don't know how to play, look for our next monthly club sponsored lesson. You can borrow the necessary equipment from the front desk. See you there!

Submit to the Totem! The Totem is now accepting submissions for the 2004 edition the literary magazine. Anyone in the Caltech community can submit their poetry, short stories, artwork and/or photography to the Totem. Please send your work by email (totem@its.caltech.edu), or by campus mail (MSC 292).

Women's Center Events

1) Reel Women - Dying to Be Thin

April 8, 12:00-1:00pm. 2nd floor common area, Center for Student Services. An epidemic of eating disorders is spreading through America's youth, a contagion fanned by the media's obsession with wafer-thin celebrities. For millions of young Americans, the conflict between real and fashionable images of the body can be a matter of life or death. This video takes viewers behind

the scenes at laboratories and hospitals where specialists are experimenting with new approaches to eating disorders. Lunch and drinks provided!

2) April 14, 2004. Financial Wellness Series: Preparing for Retirement. 12:00-1:00pm. 2nd Floor Center for Student Services. Join Denise Carter, retirement consultant and TIAA-CREF representative, as she details the ins- and -outs of preparing for retirement and your financial future. You are not too young or too old to start! Lunch Provided. RSVP required! For more information or to register please contact wcenter@studaff.caltech.edu or ext 3221.

3) Women's Intermediate Self-Defense

Sunday, April 18, 1-5pm. This class is for those women who have participated in the introductory workshop and would like the opportunity to deliver full force, debilitating blows to a padded assailant in a variety of simulated scenarios. Registration required! Class size is limited. All classes are taught at the Women's Center, Center for Student Services, Bldg. #86. Please contact the Women's Center for more information or to register, 395-3221 or wcenter@studaff.caltech.edu.

SCHOLARSHIPS

The **Hispanic Engineer National Achievement Award Corporation "HENAAC"** is proud to announce that the 2004 HENAAC Scholarship Program is officially underway. This scholarship is available for undergraduate and graduate students majoring in Engineering, Math, Computer Science, or Material Science. There are fourteen \$5,000 Engineering, Math or Science Scholarships available. The deadline to apply is April 23, 2004. For application and other information, please visit their website: <http://www.henaac.org>.

The **Desk and Derrick Educational Trust Scholarships** (five in the restricted amount of \$1,500 each with one unrestricted of \$500) are available to students seeking degrees in fields related to the petroleum, energy, and allied industries. Applications are available on the Association of Desk and Derrick Club's website: <http://www.addc.org>. The application deadline is April 1, 2004.

Sallie Mae has a number of scholarships available: The Sallie Mae Fund First in My Family Scholarship Program, The Sallie Mae Fund Unmet Need Scholarship Program, The Sallie Mae Fund American Dream Scholarship Program, and The Sallie Mae 911 Education Fund. In addition The Sallie Mae Fund awards a \$1,000 scholarship to a future college student at each of its nationwide "Paying for College" workshops. For a complete listing of 2004 scholarship applications, criteria and deadlines, please visit: <http://www.thesalliemae.org>.

Educaid is offering their "DoubleTake" Sweepstakes. Win two \$2,500 scholarships - One for you and one for your school. Applications are available in the Financial Aid Office, or on Educaid's website: <https://www.educaid.com/doubletake>

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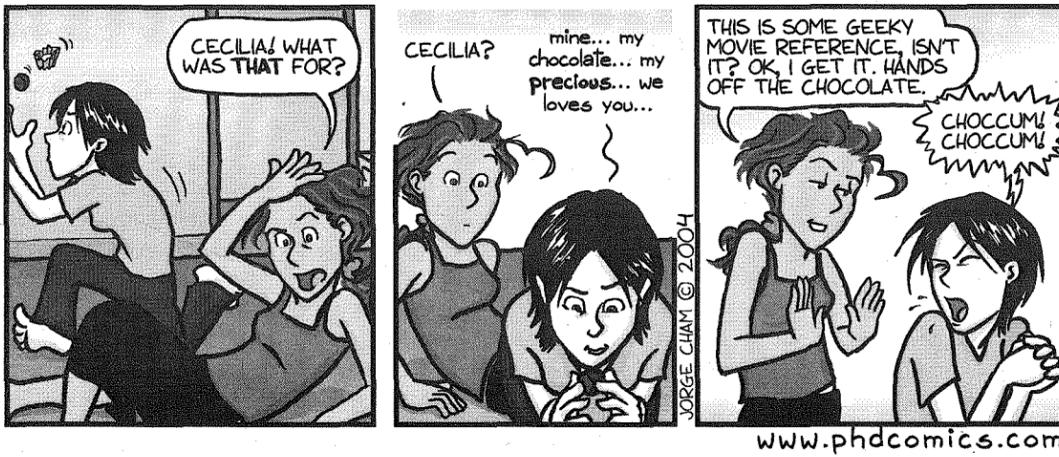
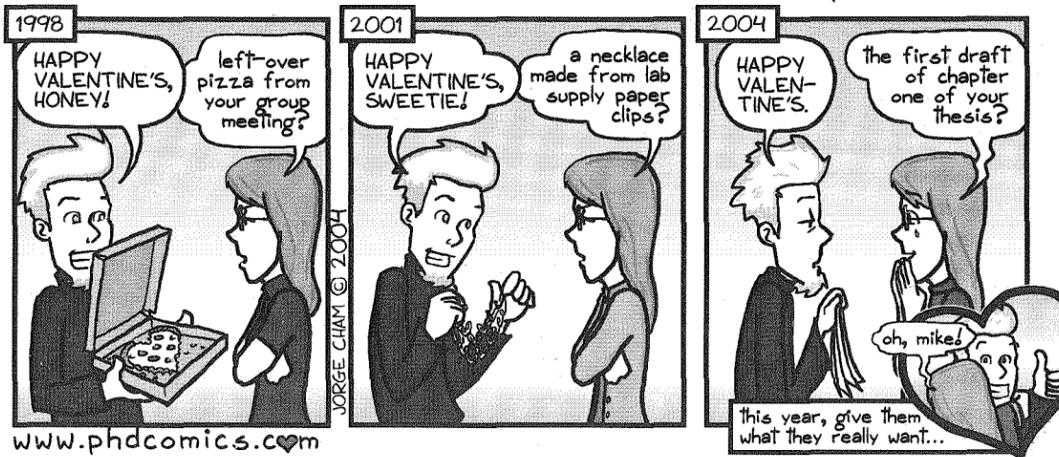
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PILED HIGHER AND DEEPER

by Jorge Cham



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Over 50% of UGs Fill Out Health Survey Blacker Wins Prize for Turnout

Caltech Health & Worklife Fair Slated for April Variety of Activities Planned

By JANE CURTIS
Health Educator

I remember when I first began talking with students and colleagues about the health survey, someone said, "I'll be surprised if you get more than 300 students to respond." Well, they were wrong and I'm very pleased. The response was terrific - 1,018 students which is a 50.35% response rate. I'm sure the personal and undergraduate house incentives contributed to a high response rate, but I also believe Caltech students like surveys and appreciate having their opinions heard.

We hope you can join us for the Caltech Health & WorkLife Fair on Friday, April 16th from 11 a.m. - 2:00p.m. Our theme is Get Balance! -- making the often-overlooked need to balance our lives between work, family, research/study and other commitments. The Fair is designed to promote well-being by providing information and resources on a variety of health-related topics. It has been expanded this year to include more health screenings and summer camp sign-ups. Health Net (our new health care provider) will be on hand to provide free health screenings in Winnett Clubroom. In early April, stop by the Caltech Bookstore window display to learn important information about the various health screenings. The American Cancer Society will also be holding a blood drive in Winnett Lounge. The band, Upstream, will return with the great sound of reggae; we will offer more chair massages and shorter lines for the climbing wall. The participating vendors will advertise their products and have give-aways. Take a break, come outside and enjoy the festivities.

Forty-one percent of the graduate students took the survey compared to 58.8% of the undergraduates. The female participation rate was 37.3%; male participation rate was 62.7%. Congratulations to Blacker for winning the \$300.00 cash prize - 90.35% of the house members took the survey (and I know they need the money). I am waiting for a few more prizes to arrive, but anticipate handing them out beginning April 12th. Winners - please keep an eye out for an email from me, and the names will be posted on the bulletin board outside the Coffeehouse next week.

Sponsored by Human Resources, Staff and Faculty Consultation Center, Caltech's Rideshare Program and the Caltech Y. The success of this event would not have been possible without the generous support of the staff and students on the Planning Committee. A special thanks to the following departments: Athletics, Caltech Y, Campus Life, Environmental Health & Safety, Facilities Management, Health Education, Human Resources, Safety Office, Security & Parking Services, Staff and Faculty Consultation Center and the Student Health Center.

In the coming months, I will be perusing the data and holding student focus groups. The overall goal is to share key survey findings and to learn from students what they think the best program format should be, given the distinct nature of Caltech.

Thank you again for taking the time to take the survey. I appreciate all of the feedback, including its limitations. This is a very good start to understanding the health of Techers. As I have mentioned to some people, the next I administer this survey, I'll be able to create 6-8 "Caltech specific questions", which will allow me to address some of the unique concerns faced by the graduate and undergraduate students.

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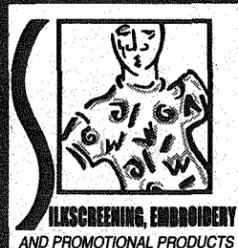
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SHC to Hand Down Avery Verdict Today

Continued from Page 1, Column 2

2005 date for the introduction of freshmen into Avery. The idea is winning over moderate factions of Avery's Council as well as the guarded consideration of elements within the IHC.

"I'm willing to wait a year and let Avery develop as a house rather than deal with the huge backlash," said key proponent Ryan Witt '05, widely seen as a candidate for Avery's next chancellor. "I think there have been some positive changes and I'd like to see those positive changes continue."

A 2005 date would give Avery a full year to work out the IHC's requested specifics. With the council's just-launched campaign to "take Avery's case to the people," Avery may even have time to win over skeptical undergraduates, the solid majority of whom presently side with the IHC.

Still, it's a minority of supporters who share Witt's position. Avery's resident associates said they're "pro-2004," while many in Avery's core group worry that momentum would drift over the course of a lost year. Jason Yosinski '06, for instance, said that Avery's presently strong leadership might peter out if they have to "fight for freshmen year after year."

Nor is the IHC ready to hop on the bandwagon. Neither Ricketts President Lionel Jingles '05 nor Ruddock President Barrett Heyneman '05 would lend his support, insisting the house residents they represent almost universally oppose the idea—be it 2004 or 2005.

In fact, the plan may be most attractive not to negotiators but to SHC faculty anxious to ease student infighting. In light of this, even Avery's pro-2004 contingent has resigned to going along with a 2005 measure. "Because the IHC is so negative about freshmen this year," explained graduate student and council member Geoffrey Hom, "it may have begun to taint how people think about it."

Indeed, the IHC's reasons for concern are many. In its Wednesday talk, the committee called on Avery to lay down specifics on a housing lottery system, a plan for Rotation room picks, a house dues framework and an additional RA

to meet freshmen housing standards. They also listed Avery's lack of community dinners and participation in inter-house athletics as points of apprehension.

"Avery's proposal didn't have numbers, it didn't have details, it didn't have a set plan," said IHC Secretary Joanna Cohen '05.

The council's proposal, laid out at the SHC's March 13 meeting, tallied the benefits and addressed prominent worries of opening Avery to freshmen, but unwrapped only the basics of how, procedurally, the leadership would prepare the house for freshmen.

Still, proponents called the IHC's demand for immediate detail a bit too burdensome.

"Many of the concerns they've raised we think we have a reasonable means of addressing," said Avery Chancellor Orion Crisafulli, a graduate student. "We don't think they're as big a deal as [the IHC] has said." To this end, the council staged an internal meeting Friday to rework the house's aging constitution and hammer down some of the specifics raised at Wednesday's meeting.

The IHC also pressed the question of whether the council's proposal would make Avery an "eighth house" or simply open it to freshmen without changing its status as an off-campus dormitory. An Avery with freshmen, said the committee, would lose its identity as a haven for those dissatisfied with the house system.

"There are two possible outcomes," explained Page House President Jason Quimby '05. "Avery could be a house, but then we'd lose the option of Avery as a 'halfway house.' Or Avery could not become a house—but then would it have the community necessary for freshmen?"

Still, advocates maintained that Avery can build such a community without trampling on the liberties of those upset with perceived peer pressure in the on-campus houses. "Avery wants the good things that go on in the houses but without the exclusivity," said Avery resident associate Molly Jones. "Our beliefs aren't a laundry list of traditions; they're a statement of principles."

But one issue Avery couldn't set aside so easily was the IHC's



L. Tran/The California Tech

Members of the Student Housing Committee and the IHC listen as IHC representatives outline their objections to having freshman living in Avery.

call for an undergraduate mandate before proceeding with such a historic change.

"There's a lot of negative energy on both sides," said Lloyd President Haluna Gunterman '05, "from people in the houses who are extremely concerned and from people in Avery who aren't connected with the houses." To this end, the IHC's presentation stressed that "time is needed to ease animosity on both sides."

Though they're saving it as a last recourse, the IHC has long toyed with the notion of a student survey that would illustrate the extent of opposition. Popendorf said Friday that the poll may be-

"Avery could be a house, but then we'd lose the option of Avery as a 'halfway house.'"

come a reality if the SHC rules for Avery Monday.

The Avery Council's response is a new campaign to "take its case to the people" to remedy prevalent "misperceptions." First in the planned slate of social gather-

ings geared at improving Avery's image was a Sunday barbecue co-hosted with Blacker House, where in a gesture of goodwill the council also purchased Blacker-sole fund-raiser lemonade.

The larger relationship between the IHC and Avery also took the spotlight at Wednesday's meeting when the IHC rejected a call by Avery rights advocate Neil Tiwari '05 for a jointly written proposal outlining stipulations and prerequisites for admitting freshmen to Avery.

Here, the house presidents fell back on their constituencies. "The undergraduates we represent just don't like this," said Heyneman.

Former Chancellor Yuan Sun '04 expressed disappointment, calling the IHC's collaboration critical in any effort to promote Avery's image. "I was kind of disappointed by the IHC saying, 'This is Avery's work, not ours,'" he said. "I honestly think we need the IHC's help. They can't just say that we'll convince all the undergraduates if they do nothing."

It is out of disagreements like this that some among Avery's core have entertained the possibility of introducing a non-binding arbitrator, plucked from among the faculty and staff who have been present at the SHC meets. Supporters, however, call it a very last resort.

Meanwhile, the entire landscape is braced for drastic change when the SHC hands down its long-awaited recommendation, expected to hold the most weight with the top Student Affairs and Campus Life administrators ultimately charged with approving any freshmen-in-Avery measure. Instead of scheduled meetings and orderly presentations, partisans on both sides will then have to take their cases directly to administrators—a considerably more daunting prospect.

Few are predicting that the SHC will rule in the IHC's favor. SHC head Border is viewed as very sympathetic to the plan, while Geology Professor Geoffrey Blake and Math Professor David Wales, though they have not publicly taken sides, are said to be open to Avery's arguments. Geology Professor John Bercaw, though he did not attend Wednesday's meeting, previously said he was impressed by Avery's presentation. Fellow absentee Athletic Director Tim Downes held, though he wanted to become better informed, that "in general, I think choice is a very good thing."

Ex officio member and Master

of Student Houses Cathy Jurca said after Wednesday's meeting that although "each side argues its case articulately and with enthusiasm... on the whole, I would have to describe my sympathies as lying more with the residents of Avery."

Committee sources have placed sole SHC undergraduate Manuel Garcia '05 in line with the IHC, while sole graduate student Karen Smith has expressed pointed concern about whether graduate students would feel welcome in an Avery with freshmen. While Geology Professor Paul Asimow said neither the IHC's nor Avery's approach is superior, he added that Avery may not have sufficient time to solidify details.

"The IHC is asking for a detailed proposal in advance of the basic policy decision, whereas Avery is seeking approval for the concept before fleshing out details," explained Asimow. "Debating tactics apart, neither of these approaches is inherently superior, but at this point there may not be time to work out the details this year."

Popendorf has already made contingency plans for an IHC response to any of the three likely SHC recommendations.

If the SHC recommends freshmen in Avery next fall, the IHC will have to step up its defense. "If that happens, we'll continue to fight it hugely," she said. "The logistics to be taken care of are huge. The automatic backlash would set us back even further. That is the worst possible course of action."

And a 2005 recommendation? "Our response to that in large part will depend on the response of the students," she explained. A survey, she added, would then be inevitable to canvas and demonstrate undergraduate opinion.

Most see an outright rejection of Avery's measure by the SHC as unlikely, but Popendorf said it wouldn't close the lines of communication the IHC has opened with Avery. "Even then, I still think the relationship between Avery and the houses is still something worth working on," she said.

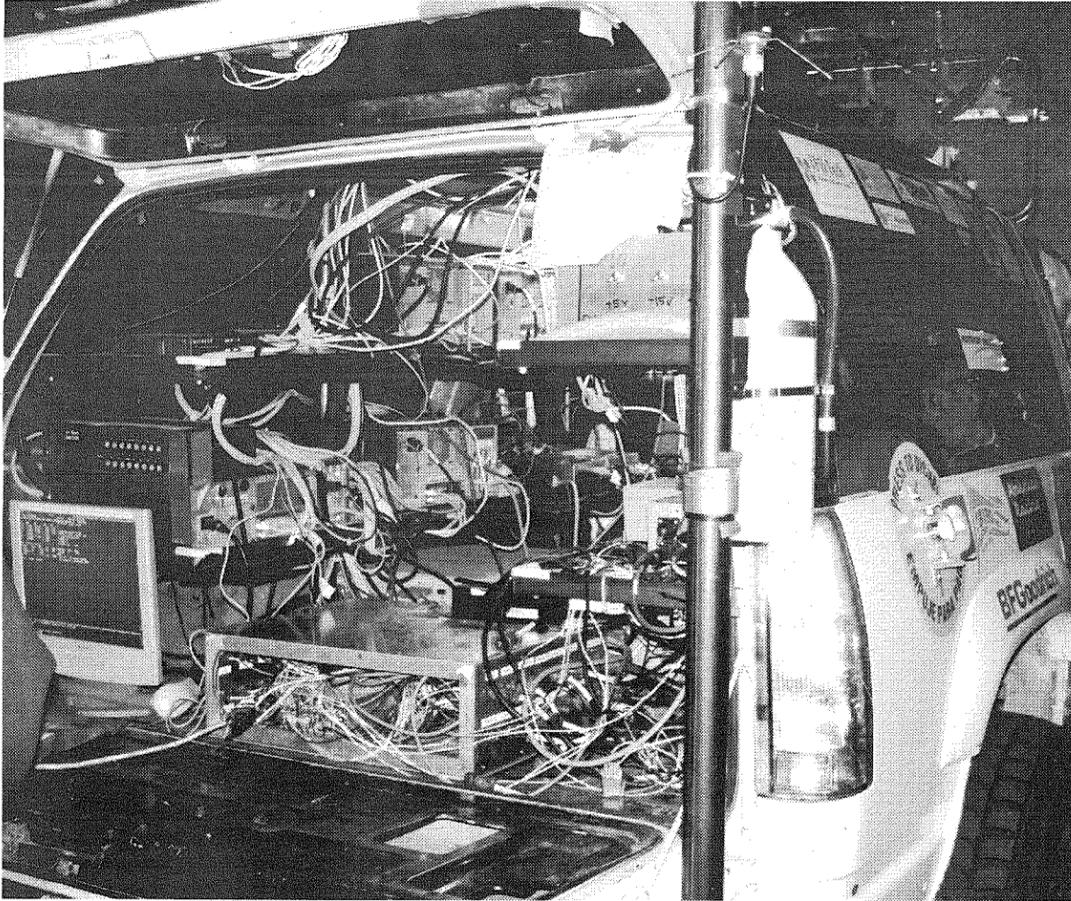
Also looming on the horizon is a decision due April 9 from Undergraduate Admissions staffer Michael Herrera on whether to admit Prefrosh Weekend prospectives to Avery.

In the meantime, anticipation is growing. "I think when we meet on Monday it could go either way," said Asimow.



L. Tran/The California Tech

IHC members and Avery advocates look on as Ricketts President Lionel Jingles, center, clarifies a point during the presentation last Wednesday before the Student Housing Committee.



D. Kortz/The California Tech

Bob shows off some of its hardware, including eight computers, two power supplies, a generator, and an air conditioner, along with the equipment needed to run its sensors.

Team Caltech Readies For Second Grand Challenge, Two Years Away

Continued from Page 1, Column 5

Being a cross-country race, the race course contained a wide variety of different terrains. These included clear roads, side roads, dirt trails, rocky terrain, open terrain, lake beds and highway underpasses. Since a vehicle needs to travel approximately 25 mph on average to meet the time requirements of the contest, the challenge is by no means trivial. Dr. Murray showed some videos of human drivers driving in cross-country conditions similar to the contest and it was evident that any successful design would have to take into account the huge amounts of vibration, dust and sliding that cross-country driving requires.

Since there was only a year from the announcement of the contest in early 2003 to the actual contest on March 13th, Dr. Murray said that he did believe that there was enough time for any team to win the contest in the first year. Thus his goal in entering the contest was to compete and get as far as possible. From this experience, the team would have a solid foundation to compete in and win future runnings of the race.

A goal of Dr. Murray's was that "Team Caltech" be primarily the work of Caltech undergrads. During the spring of 2003, an undergraduate course was offered in which 55 students did an initial project analysis and design. Continuing into the summer, 23 undergrads did some in depth design work. During the fall, 25 people built the actual vehicle and during the winter, 20 students plus 10 additional helpers from Caltech and JPL finished up everything in preparation for the contest. To coordinate the project, everyone was assigned to one of three teams: Vehicle (which took care of the mechanical and electrical hardware), Embedded Systems (which handled the computer interface, the control algorithms and vehicle management) and Planning (which wrote the software for navigation, route planning and terrain sensing).

The result of a year of intense work is "Bob", a heavily modi-

fied 1996 Chevy Tahoe 4x4. At a cost of \$500,000 and more than 20,000 person-hours, Bob has been retrofitted with electrically controlled steering, throttle, brakes, transmission and ignition. There are 8 computers, 2 uninterrupted power supplies, a generator capable of putting out 6 kW of power and an AC to cool everything. For navigation, the sensors used were 2 LADARs (Laser Detection and Ranging - a sort of radar but using lasers instead of microwaves), 2 sets of stereo cameras (one for short range and one for long range), a GPS unit capable of 30 cm accuracy and a IMU (inertial measurement unit) built by Northrop-Grumman that could measure acceleration and velocities.

Since the vehicle had to be completely autonomous, a great deal of work went in to writing the navigation software. Using an approach taken by the Mars rovers (which are also largely autonomous), the core of the navigation system is an "arbiter" program that integrates sensor data and makes high level decisions. Each sensor (the LADARs, cameras, GPS, etc.) sends to the arbiter a so-called "goodness map" that indicates the preferences for each direction (or arc) of movement as determined by that sensor. For instance, if the short range cameras detect an object dead ahead, then the goodness map for the short range camera would indicate a strong aversion to traveling straight ahead. The arbiter receives such information from each sensor at a rate of 2-10 measurements per second and integrates this using a weighted average into the final decision to go a certain direction at a certain rate.

According to Dr. Murray, there wasn't enough time to implement all of the original design specifications. Some parts, including a crucial road following program, could not be completed in time. Nevertheless, on March 9th, the team headed out to Fontana Speedway for the qualification round. In this round, teams had to navigate a 1.25 mile course specified as a

series of GPS waypoints that included barriers, obstacles, ditches and an underpass. To qualify, the vehicles had to make it through the course without hitting any obstacles. Teams were allowed two runs and the performance plus time was used to determine the pole position in the actual contest. Of the 25 teams that entered the qualification round, only 7 actually finished the course and among these 7 was Team Caltech. In fact, Caltech was the first team to make it all the way through the course. This event not only allowed Team Caltech to see how "Bob" performed on an actual course, but it also gave them an opportunity to see the competition.

The greatest competition came from the "Red Team". Led by Dr. Whittaker of Carnegie Mellon University, an institution with one of the best robotics programs in the world, the "Red Team" was by far the most well funded and experienced team. Their vehicle, a converted military Humvee, took \$3 million to build and contained the latest sensors and best software.

Of the other teams, there was SciAutonicsII, Golem and TerraMax. SciAutonicsII was a \$1 million converted dune buggy built by employees of Rockwell Scientific Company and Elbit, an Israeli defense firm that has extensive experience with UAVs (unmanned aerial vehicles). Golem was a modified Ford F-150 pickup truck built by a team led by Caltech PhD graduate Richard Mason and funded by \$35,000

SIF Prepares to Offer Yearly Disbursements

By DIANA LIN

The Student Investment Fund is an organization at Caltech which was founded in the 1970s from an endowment of \$10,000 along with the birth of its sister club in Scripps College from the same benefactor. The two organizations keep close contact and have semiannual banquets that they take turns hosting. The organization was created to allow those in the Caltech community to learn and practice making investments. All members of the community are welcome, regardless of their knowledge or experience. Currently, over half of its members are inexperienced and are mostly undergraduates.

Through all the unpredictable trials of the stock market, the club has successfully managed its investment so that its portfolio is worth over \$300,000. Over 80% of the portfolio is invested in stocks, which is an unusually high proportion compared to most personal portfolios, showing the club's current aggressive and optimistic view on the market.

After the high-tech stock bubble crash in the 90s, the club had to go through a painful refinancing of its portfolio in which it cut losses and reorganized its portfolio. At one point, the SIF portfolio went from being worth three-quarters of a million dollars and crashed to approximately \$220,000. Since then, the club has picked itself up and is currently worth approximately \$335,000.

Every year the club contrib-

utes to the community through disbursements, which are allowed to be worth up to 35% of its portfolio value. These funds can be applied to by all clubs at Caltech that fill certain criteria of being active, engaging and focused. However, the disbursements are only for capital expenditures for equipment that will be used for an extended period of time. This year, the applications were due last Friday, April 2, 2004.

The organization is currently led by its Board of Directors composed of eleven members who must be sufficiently active in the club to remain on the board. The chairman, VP/treasurer and secretary are Neil Choudri, Chris Flatt and Graham Free respectively all full members of Page House. Along with them, there are eight directors, which together compose the Board. The club has a long concrete constitution that governs the organization and activity of its members.

Meetings, which are open to all Caltech members, are every Monday at 6:15 P.M. in room 139 of Moore Laboratory. Meetings usually last for an hour that includes dinner, presentation of the portfolio summary from the treasurer and discussions of important news and proposals from participants. Sometimes meetings include invited special speakers from outside the community who come to share their insights and experiences about investing.

won by him on Jeopardy. TerraMax was a converted 6x6 military truck built by the Oshkosh Truck Company and Ohio State.

On Friday, March 12th, all of the teams lined up at Slash X, a famous bar outside of Barstow. Having received the GPS waypoints at 3:20am, the teams lined up for a starting ceremony at 6:00am and started off at 6:30.

The "Red Team", having had the best run time during qualification, went first. Their vehicle traveled 7.4 miles before going off course, getting stuck on a berm and having their front tires catch fire.

Caltech's "Bob", got off to a good start. However, around 1 mile, it decided to go off the dirt path that comprised the initial route and traveled 0.5 miles off road on a route parallel to the dirt road. It then decided to go back to the road but got stuck in a barbed wire fence. Because "Bob" lacked the sensors to detect the wire and didn't have the programming to deal with it, the vehicle attempted repeatedly to run down the fence with no result. After 45 minutes,

the judges shut down "Bob".

SciAutonicsII managed to travel 6.7 miles. Golem surprisingly went 5.2 miles and TerraMax traveled 1.7 miles but backed a half-mile for some reason so officially, it traveled only 1.2 miles.

According to Dr. Murray, future work will focus on 5 areas: improving perception, decision making and technical driving, getting more system engineers and improving the teamwork.

DARPA has already announced the Grand Challenge 2 for the fall of 2005 with an increase in the prize money to \$2 million. In response to this predictable development, Dr. Murray and Team Caltech will implement an aggressive strategy to get Bob in shape for the next contest and are looking for interested undergrads to help out.

More information can be found at the DARPA website <http://www.darpa.mil/grandchallenge>. The contest results are at http://www.darpa.mil/grandchallenge/media/final_data.pdf. Team Caltech's website is at <http://team.caltech.edu>.

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Pasadena, CA 91125