

D. Korta/The California Tech

Paleoanthropologist Richard Potts outlines his research at various archaeological sites, including Olorgesailie, where Louis and Mary Leakey first excavated in 1942.

Potts Explains Link Between Ax, Successful Human Development

By ROBERT LI

Dr. Richard Potts of the National Museum of Natural History in Washington, D.C. gave a lecture on Wednesday about his field work in Kenya and China titled "The Adaptable Hand-axe and Human Origins."

A paleoanthropologist, Dr. Potts is the head of the Smithsonian's Human Origins Program at the National Museum of Natural History. His primary research concerns the ecological dimensions of human evolution and he has ongoing excavations in Kenya and China.

In his 90 minute talk, Dr. Potts

used the history of hand-axes to support his thesis that unlike almost all other life on Earth, humans have been able to adapt and increase their versatility in the face of environmental variation. In contrast, most other life either follow variations in their environment very closely (and thus are restricted) or they die out and become extinct when their local environment changes drastically.

On the face of things, hand-axes do not seem like the logical choice to illustrate human adaptability. For a period of approximately one year between 1.6 million and 104 thousand years ago, hand-axes were the predominant stone tool

used by man. However, studies have shown that during this time, there was not a trend of directional refinement of the hand-axe. Instead, it seems that the development of the hand-axe occurred along random directions.

Despite the seemingly deficit of

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Students Learn Skills In Career Conference

By TAMMY MA

The Career Development Center and Alumni Association sponsored its first Undergraduate Career Conference this past Saturday, February 28.

The conference, with the title "Preparing to Launch Your Career," was a "full day career preparation program, specifically designed for Caltech undergraduates." Funded by the Moore-Hufstедler grant and the Student Faculty Alumni Relations Committee, approximately a hundred students were given the opportunity to sit in on workshops ranging from networking to skills and to network with alumni over lunch.

The program started at 8:45 am at the Athenaeum with registration and breakfast. Students were greeted with a T-shirt featuring a picture of Einstein wearing a chef's hat and underneath, the words, "Wrong career?" Each student was also given a binder full of information and career development worksheets.

The introduction was given by Dr. Jerry Houser, the Director of

the Career Development Center and brainchild behind the conference. He started by blowing up a balloon and having students hit it from table to table until it went all the way around the room. "The balloon is actually a metaphor for your careers-careers are not a linear thing. Like this balloon, they bounce around...they have a general direction, but you never know exactly where it will go. And like a balloon, they float and sink," he stated.

He went on to remark that "Caltech students are bright and have lots of opportunities. It's not difficult for them to get a job, the key is getting something quality." And the goal of the conference was to help students find that quality job they'll enjoy.

The career counselors explained "The Career Cycle," a circle that includes direction (exploring careers, networking and training), connection (interviewing and job search), transition (graduating, adjusting to a new job) and reflection (on our personality, interests

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Provost Search on As Stolper Learns Ropes

By ROYAL REINECKE

Less than a month ago, the search for a new provost began as Steve Koonin informed the Caltech community he would be leaving to become chief scientist for BP. Immediately a committee chaired by professor Ahmed Zewail formed to take on the task of filling this very special and important position of provost, the "Chief Academic Officer" for the university (or as Koonin cleverly noted, "the keeper of prison" under definition number four in the dictionary).

Chairman of the search committee Ahmed Zewail succinctly sums up the basic job of the provost by one main duty: "to keep this Institute the best in the world." So judging by the mammoth responsibility the provost must take on, you can probably imagine that the committee has a fair amount of work cut out for itself in its quest to find the perfect candidate.

The provost must represent academic excellence, but at the same time, Zewail explains that he must be "more than just a person who excels in science." In addition, the provost must demonstrate skills of management and be able to listen very closely to the concerns of faculty and students

The committee in charge of

deciding on the new provost consists of six people, one faculty representative from each department. Zewail represents the division of Chemistry and Chemical Engineering, which he also currently chairs.

Although the committee keeps its list of possible candidates strictly confidential, Zewail does not like its doings to be thought of as "secretive." After all, the committee holds regular open forum meetings with the different departments. They hope to finish up their work by the end of May and then the new provost will take office. Currently, Zewail admits that the list of possible candidates has been narrowed down to under ten possibilities.

In the interim, Dr. Baltimore appointed Chairman of the Division of Geological and Planetary Sciences Ed Stolper to act as provost. Upon being asked to take this position, Stolper agreed as "a service to the institution." Now his color-coded computer calendar reflects an overall emerald hue since Stolper marks all his provost-related activities in green. The acting provost wonders in amazement at "all the free time I must have had!" Indeed he compares his term to a forty-eight hour plane trip, "You come out of it tired, with wrinkled clothes,"

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Artists Create Addition for City's Art Festival, Vectors Replacement

By K. SZWAYKOWSKA

Public art on the Caltech campus is rarely a matter on widespread discussion with most members of the Caltech community. Or, at least, such was the situation until the notorious "Vectors" project proposed last year led to a new sense of awareness of art in the community.

An artistic addition to the campus was due, as by ordinance of the Pasadena City Council, the construction of the Broad Center for the Biological Sciences required that the Institute spend \$66,000 to fund public art.

The idea was to commission the world-renowned American minimalist sculptor, Richard Serra, to construct a piece of "world-class" art on campus and "Vectors" was his proposed sculpture. It was to be a wall zigzagging diagonally across the lawn west of the Beckman Institute, starting short at the highest elevation of the field and gradually increasing to a height of eight feet. The sculpture was designed specifically for the site and as Serra believed, would illustrate the underlying values of Caltech.

The proposal for the piece, however, was finally rejected due to violent opposition by faculty and both graduate and undergraduate students, most of who did not believe that scarring the lawn with such construction could constitute "art". This leaves, now, an approximately \$60,000 budget

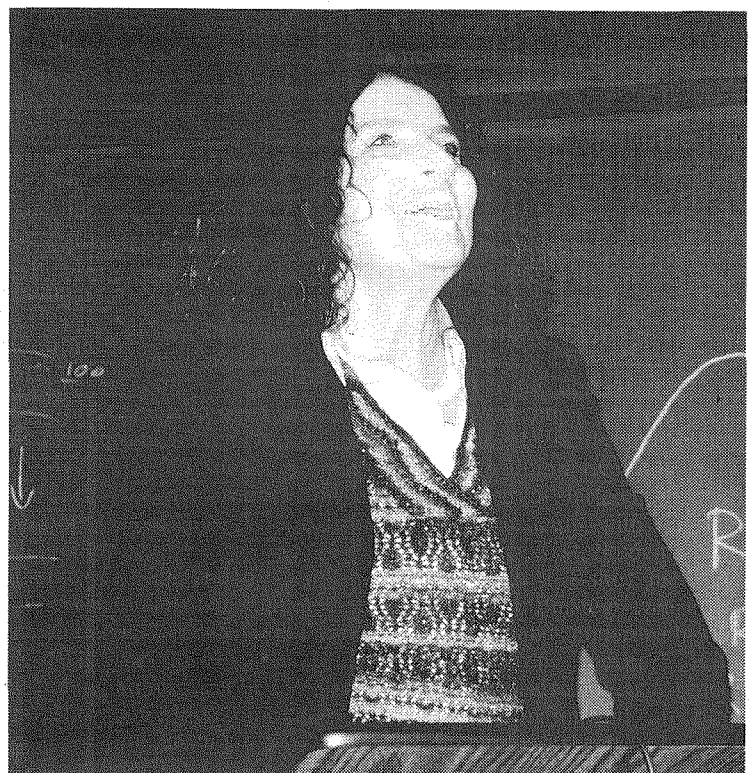
for public art and a new project on how to spend it is already underway.

Two local (that is, South Californian) artists have been commissioned by the Caltech Art Committee to construct a temporary piece on campus for the city-wide Tenderland Festival which will take place from October of this year through January 2005.

The festival will come together as the result of collaboration between about eighty different partners to create public art in the Pasadena region. The theme for this exhibition is the celebration of the Earth and the natural environment, as expressed through art.

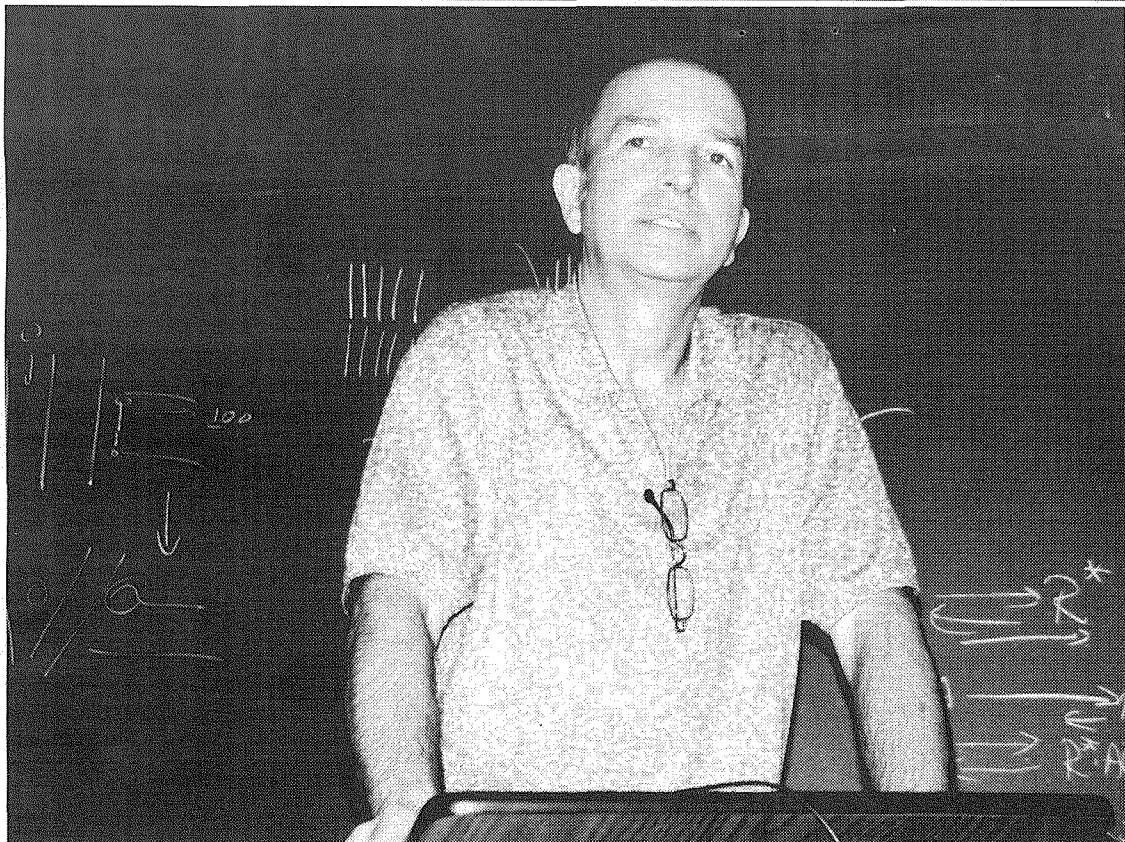
Similar collaborations in the

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D. Korta/The California Tech

Artist Lita Albuquerque shares her vision for the Caltech art project before a small crowd of interested community members.



D. Korta/The California Tech

Artist Michael McMillen prefers gloomier pieces than partner Lita Albuquerque, but both will be working closely with the Caltech community to produce their artwork.

Interim Provost Content to Have Little Impact During Short Term

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but then everything goes back to normal.

Stolper admits that upon accepting such a responsibility, "you fear you will screw things up." As in any situation, he advises "anticipating how you can mess up and thinking through situations beforehand." Upon being appointed, Stolper received a number of good luck e-mails, one of which sums up his general hopes for his time in the position; former provost Steve Jennings wrote "Best wishes for a relatively quiet watch." So far, Stolper feels like he hasn't really had to steer but that the ship has been moving along smoothly.

Although "there is no manual, no explicit instructions," Stolper figures out how to do the job day by day. Mainly he meets with students and faculty for coffee (perhaps also a welcome java boost) or over lunch in order to learn about the matters on their minds. For Stolper, the main satisfaction from acting as provost comes from being able to see that a place is "different and better because you're here."

Throughout his nine years as chair of the geosciences, Stolper worked to boost morale within his division and he continues to do

so. For example all the students in GPS get t-shirts each year. Stolper views wearing sweatshirts and tees emblazoned with the word "Caltech" as an important sign of pride in our school.

Looking back over his time as chair of GPS, Stolper sees that he originally held very modest goals. Now he sees that, "when you come in every day times 365 days a year times nine years, you can accomplish so much." Stolper definitely notes the importance of patience.

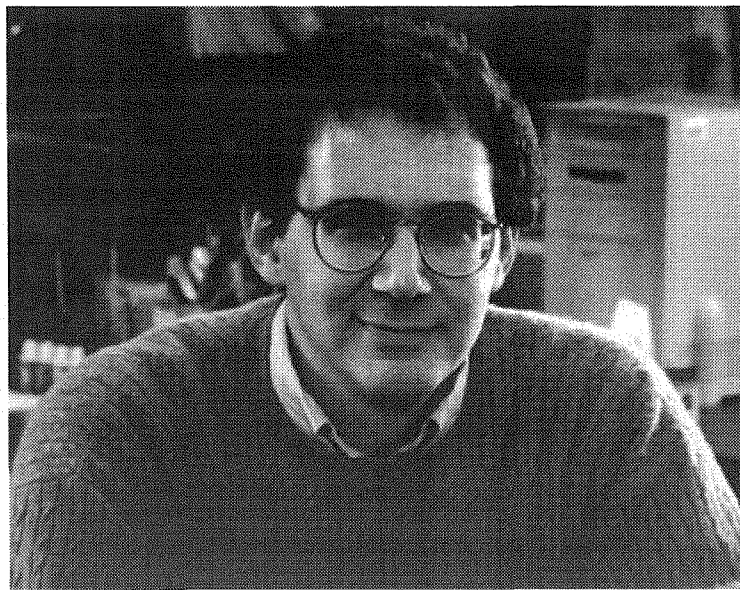
Since he will only be in office for a short time, he feels that he will not truly be creating any real long-term changes. Indeed Stolper likens the situation to "loading up the car for a big family vacation, with all the snacks and the suitcases and the beach balls ... and then driving to the end of the block."

The new provost will not be able to build upon the information Stolper is collecting either. When he takes office, he will also have to start completely anew for him-

self and put together all the building blocks. Just as we students must learn how to handle Tech, Zewail explains that the new provost must also "discover the key parameters to function."

In the meantime, Stolper jokingly comments that he tries to "seem serious." In actuality, he really does care about doing his best to serve Caltech. Just recently he met with faculty to decide on eight or nine new professorial appointments. He also ate lunch with all the house presidents. Stolper points out that while the president of Caltech provides a public face for the institute, "the provost is who people on the inside really interface with." He sees the position as "the intersection of a lot of decisions-and in lots of small ways an opportunity."

Most importantly, Zewail explains that he and the committee are "working hard and doing our best to get a good provost-a provost who cares about the well-being of the Institute ... and who cares about you."



Courtesy of gps.caltech.edu

Professor Ed Stolper is starting to settle into the job that he's holding for a few months until a new Provost is found.

Hajimiri, an associate professor of electrical engineering. Hajimiri and his team have used revolutionary design techniques to build the world's first radar on a chip--specifically, they have implemented a novel antenna array system on a single, silicon chip.

Hajimiri notes, however, that calling it a "radar on a chip" is

a bit misleading because it's not just radar. Having essentially redesigned a computer chip from the ground up, the technology is revolutionary enough to be used for a wide range of applications.

The chip can, for example, serve as a wireless, high-frequency communications link;

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Students Help Decide On Latest Art Project

Continued from Page 1, Column 5

past ("Radical Past", which celebrated Pasadena's unique history, "The Universe", which focused on man's exploration of space and others), have met with great success; this led to the expansion of the art festival in Pasadena from the first three-venue project to artistically beautify the area around JPL in 1980, to the current large-scale enterprise and the recognition of Pasadena as a "city of art and science." Caltech's contribution to public art will be in participation with this program.

The two artists selected by the Art Committee to work on the project are Michael C. McMillen and Lita Albuquerque. This time, in contrast with the previous artist selection which led to Serra's unfortunate adventure with Caltech, an undergraduate representative (Jaquelin Wilbur) and a graduate student representative (John Bender) were included on the Art Committee and were able to vote for the artist candidates.

"This is it," says Bender of the new artist selection, explaining that, though their plans for a piece are not yet laid, these artists will be the ones funded by Caltech to create the required public art.

They are both, as Bender describes them, "up and coming artists", who were selected based on their artistic talent and their perceived ability to integrate science and technology, which makes them a "good fit" with Caltech. It is expected that they will work closely with one another and with members of the Caltech community to create something truly suited to the character of the Institute.

The artists gave a short presentation of their past work this Tuesday at the Beckman Institute Auditorium in an effort to get students and faculty more interested in their projects. Attendance was low, but the ideas presented made a worthwhile study of the respective characters of their respective creators.

Mitchell McMillen is a well-recognized artist and sculptor whose works appear in museums around the world, including the Australian National Gallery, the Gaslow Gallery of Modern Art, the Los Angeles County Museum of Art, the Solomon R. Guggenheim Museum in NY and others. His goal through his works, he said, is "exploring ideas and trying to preset them--to present intangibles to a variety of people [he] will probably never meet".

Much of the work that he presented on Tuesday seemed to express the tension between man and the environment and gave a sense of exploration of the deeper idea in human understanding. Not only as a matter for thought, but also physically, McMillen's work challenges perception. In his "Aristotle's Cage", McMillen created a small montage depicting a trailer standing in the foreground of a desert sunset, while in the background, a city encroached on the relatively peaceful scene. A model of a human and that of a canine skeleton were suspended near the top of the piece. The work was designed to have great depth when observed by the viewer and indeed, it seemed to stretch to the horizon.

Another notable piece consisted of a corridor ending in a locked door with a blackened window at one end and of a second room, where one could look through a slot to see a bizarre, gray land-

scape and an imposing, gray factory. The window of this factory was lighted and occasionally, one would see someone looking out. Mirrors were arranged so that, in fact, one would see in the factory window the other visitors who were looking through the blackened window in the first part of the piece. As in these examples, McMillen's work is very thought evoking, if often very depressing.

Lita Albuquerque's work is, in contrast, rather light and ephemeral and focuses on the relation between man and Earth and between Earth and the heavens. Albuquerque has created vast sand paintings and covered rocks and other formations with blue dye, photographing them as they appear under different lighting, with the changing weather and time of day.

In one "characteristic" work, she asked a dancer to dance her a spiral across the desert and with the aid of several students, covered the resulting path with dye, forming a huge sand-sculpture that was destroyed the same day by a pair of motorcyclists (though Albuquerque says that the tracks they left on her piece only served to enhance its artistic character).

In another notable piece, she and a group of helpers arranged an array of disks filled with blue dye in front of the Great Pyramids in Egypt. The design was originally to be a honeycomb pattern of disks (the symbol of Ancient Lower Egypt was the honeybee), but when authorities objected, it was changed to represent the pattern of the stars, "reflected" on the desert floor.

Albuquerque has also made more permanent works, however, which are featured in museums including the Whitney Museum of Art, the Museum of Contemporary Art in Los Angeles, the Los Angeles County Museum and others. She has collaborated with scientists and other artists before, merging science and art to present the ideas of the first through the latter.

The styles of Michael McMillen and Lita Albuquerque are very different, but complimentary and both have gained international recognition through their work. Working together, as John Bender puts it, "both have the potential to be very interesting". The end result can be judged at the end of the year.

The California Tech

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VOLUME CV, NUMBER 18

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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 advertisers.

Letters and submissions are welcome; e-mail submissions to tech@tech.caltech.edu as plain-text attachments, including the author's name, by Friday of the week before publication. Sorry the Tech does not accept anonymous contributions. The editors reserve the right to edit and abridge all submissions for any reason. All written work remains property of its author.

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Engineers Develop Radar Chip

By ROBERT LI

PASADENA, Calif. -- Imagine driving down a twisty mountain road on a dark foggy night. Visibility is near-zero, yet you still can see clearly. Not through your windshield, but via an image on a screen in front of you.

Such a built-in radar system in our cars has long been in the domain of science fiction, as well as wishful thinking on the part of commuters. But such gadgets could become available in the very near future, thanks to the High Speed Integrated Circuits group at the California Institute of Technology.

The group is directed by Ali

A First Shot: ASCIT President Loram on Tradition, Dean Revel

By GALEN LORAM

In the Name of Tradition

Well, I'll follow in the steps of my predecessors and attempt to write a bit of a weekly, or biweekly perhaps, update on the state of affairs at Tech. This is not just for undergrads--I'd encourage any and all of you to read what's below from here on out, and if anything piques your interest, follow up on it. Write something for *The Tech* on it. Talk to someone about it. Act on it! While I harbor few illusions that everyone out there will read this, I imagine that there are enough of you who do that it's worth scribbling them out. I base this largely on the fact that I've heard complaints about the 'fire-side chats' as Tom called them, and whatever Ted Jou called his articles. So--assuming that people don't write letters to the editors quoting without actually reading the article--some people do read them, and hopefully consider them at least vaguely interesting. If you have any thoughts as to what you think would be interesting to see here, or if there are things that particularly irk you that end up showing up repeatedly in the column, I'd love to hear from you. Or if you like it, please, let me know. I actually do read and respond to email and I'm really easy to spot and come talk to, so I'd encourage you to go that route as opposed to denouncing (or tar and feathering) me in *The Tech*, but... whatever floats your boat.

Departure of Dean Revel

I guess perhaps the largest thing you will shortly be receiving an email about (if you haven't already) is that Jean-Paul Revel, the Dean of Students, will be stepping down at the end of the year. No more fun articles in *The Tech*. No more being told that we all have the potential to be stars (even superstars!) soon after arriving. No more knowing that we had someone in the Dean's seat that took a part-time job so

serious that he worked from before 8 a.m. until long after 5 p.m. A bientot, Jean-Paul: It's been a pleasure working with you, and I wish you only the best from here on out. To the search-committee, I hope that you can find someone willing to be as dedicated as Dean Revel was--it's a big pair of shoes to fill.

Outstanding Staff Awards

At the end of last term ASCIT solicited nominations for staff awards for folks that people felt had really gone out of their way to be great to students. After receiving in excess of 50 nominations, we settled on six staff members, as well as recognizing a range of house custodians who work incredibly hard for us each and every day. So, if you see any of these folks, give them a big smile, and a thank you. To those below: we can't say how much we appreciate your exceptional service--so we hope that you enjoy the gift baskets, which are a small token of our gratitude.

- Alphabetically:
 Alice from the Tech Express
 Clara from Chandler
 Gilbert from the North Kitchens
 John from the Mechanical Engineering Shop
 Marie from Housing
 Suzette from the Dean's Office (and now Margo's Office)
 Custodians:
 Alvaro from Ruddock
 AnnaRosa from Blacker
 Carlos from Blacker and Ricketts
 Miguel from Dabney
 Rosie from Lloyd
 Rosa from Avery
 Salvador from Page
 Zenaida from Ricketts and Formerly of Fleming

Committee Vacancies

There are a couple of committee openings: We're also looking for someone to fill a vacancy on the Moore-Hufstedler Committee. It would likely just be for one of the meetings; however something

like \$60,000 is disbursed at each of these meetings, so it is still an incredibly important position. If you'd be interested in serving on this committee (technically as an alternate, but according to Margo, alternates are not treated any differently from regular members), feel free to drop a paragraph to bod@ugcs.caltech.edu sometime before Friday at 5pm stating why you would like to serve on the committee. We also need a Movie Chair--signups are up outside of SAC 33. This should be someone interested in movies with a willingness to put in a decent amount of time. I'll leave the details for an email spam, but give it a thought if you're a movie buff.

Join the Board of Control (they said; See the world, they said...)

In a similar note, Board of Control Representative at Large interviews are up now down by SAC 33. If you have any interest in serving on the Board of Control, I would strongly encourage you to go and sign up. It's how I got my start on the Board many years ago, and found it to be a fascinating, if time-consuming and weighty, stretch of my life. I'd encourage you to talk to a rep or two before you plunge in, but certainly consider it. If nothing else, it's a good excuse to don a black suit and sunglasses and disappear into the night.

And Yoga

And, based on reactions from the article Kevin wrote following my election, neither 'chicken-dancing' at Goth Clubs, nor grand plans for subversion of government entities beginning with Caltech was half as interesting as yoga. So: as of the writing of this article, 43 consecutive days - 17 to go.

Ciao,
 Galen
 ASCIT President

This Week's ASCIT Minutes

Milkshakes in the Yard, Passing of the Torch

February 25th, 2004
 12:15 PM

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

Absent: Jenny Fisher (class)
 Guests: Eric Cady, Ben Pedersen, Dima Kamalov, Vera Pavel

Introduction:

1. Call to Order
2. Welcome to the new BoD!
 This is the first meeting of the new BoD after its inauguration on the evening of Friday, February 20.

3. From now on, ASCIT meetings will be held on the Olive Walk on Tuesday (instead of Wednesday) at noon.

New/Open Positions:

4. An MHF Committee alternate (non-voting student representative) will be selected by the BoD. Interested students should send the BoD a one-paragraph email, explaining why they want to be on the committee and what they will contribute. Vote: 6-0-0 (approved) to select MHF alternate in this manner.

5. Former alternate Jason Quimby is now a full student member of the Moore-Hustedler Fund committee.

6. We are looking for a new movie chair in charge of maintaining the ASCIT DVD library! Signups for this position go up on Wednesday, February 25, and come down on Thursday, March 4, at 5 PM. Interviews are next Sunday, March 7, at 8 PM.

7. Sign-ups for IHC secretary, Ath man, and Food Chair come down on Monday, March 1, at 5 PM. Don't forget to sign up if you're interested!

8. Because Dr. Jean-Paul Revel will soon step down from the position of Dean of Students, a search committee for a new Dean of Students has been established. Student representatives are Katie Richardson, Michael Priolo, and Lizz Feltnagle, pending their agreement.

Money Requests:

9. Dima Kamalov requests \$75 to make milkshakes for students who received mid-term blue-slips because the coffeehouse no longer does this. Milkshakes will be served this Sunday at 5 PM on the Olive Walk. Vote: 7-0-0 (approved).

10. Eric Cady, from Lloyd House, requests \$100 multihouse

funding for Capture the Flag/BBQ with Blacker this weekend. Vote: 6-0-0 (approved).

11. Ben Pederson, from Blacker House, requests \$100 multihouse funding for Capture the Flag/BBQ with Lloyd this weekend. Vote: 7-0-0 (approved)

12. Shaun Lee, J.D. Salazar, and Jordan Boyd-Graber ask to take Professor Mani Chandy out to lunch at the Ath. Vote: 7-0-0 (approved).

Other Business:

13. Kim Popendorf mentions that Capra Ranch is being sold, and Margo Marshak (Vice President of Student Affairs) is working to ensure that an endowment for student retreats is established.

14. Kim Popendorf spoke with several members of the Avery Council (undergraduates Yuan Sun, Alex Shim, and Neil Tiwari, and graduate student Geoff Hom), as well as Professor Kim Border (Chair of the Faculty Housing Committee), about the issue of housing freshmen in Avery. The IHC is currently waiting for Avery to show that they have widespread support among the Avery residents, in addition to enthusiastic support from a dedicated core group of students. In the past year, Avery has become more of a community; but although it wants to admit freshmen next year, it says that it does not want to become a eighth "house." In general, the IHC feels that having frosh in Avery is not a good idea and will send a letter to Dr. Border.

15. Kim Popendorf mentions that Margo Marshak will present house renovations plans at a Board of Trustees meeting in early March. Renovations will hopefully start in the summer of 2005.

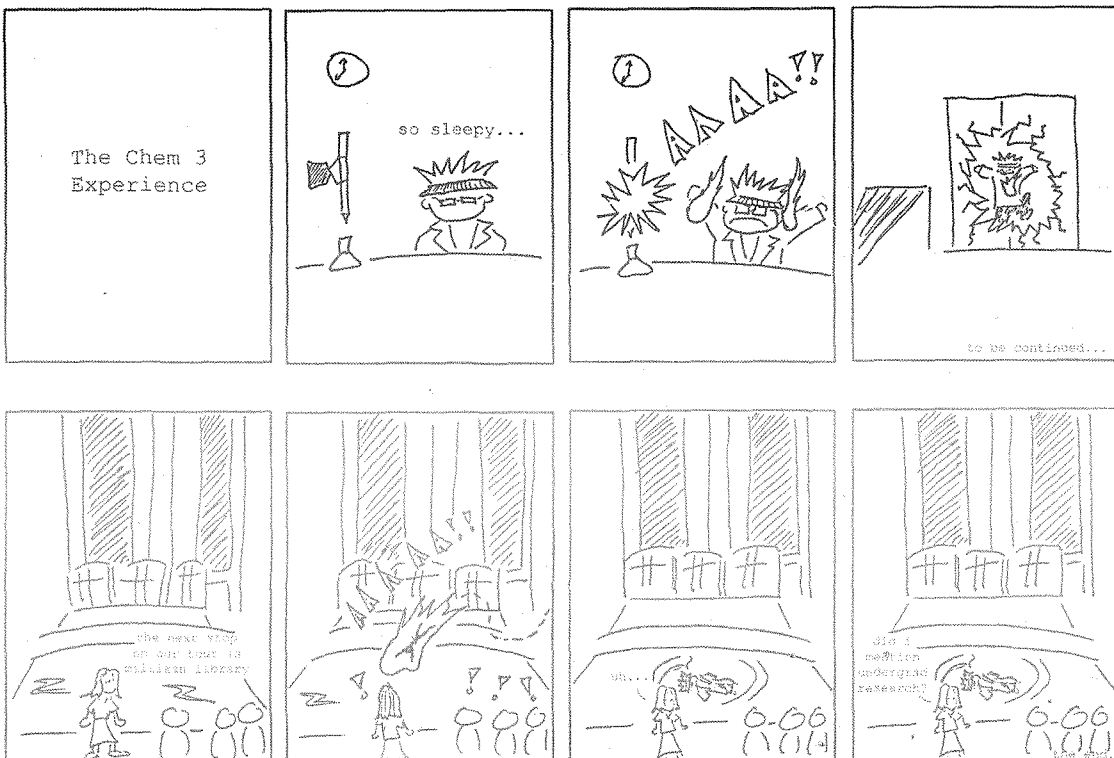
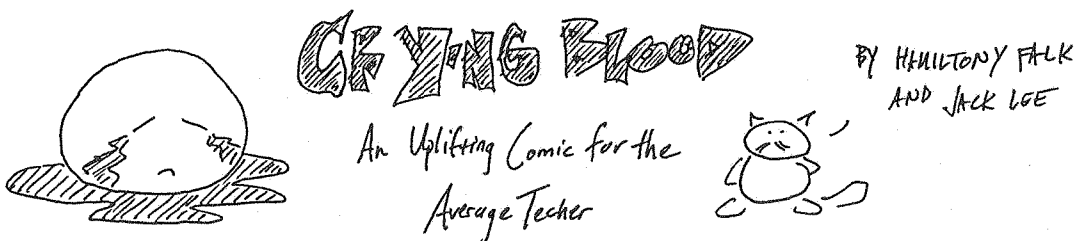
10. The BoD generally agrees that a DVD drop-off box is a good idea and will put the newly selected movie chair in charge of this.

11. The Hong Kong Student Association, Ecphonema, GROW, and Shorinji Kempo have not picked up their checks. These clubs must email corinnaz@caltech.edu to request their funding.

12. Meeting for clubs to request funding from this year's BoD will occur the first week of third term.

Meeting adjourned 1:05 PM.

Respectfully submitted,
 Corinna Zygourakis
 ASCIT Secretary



SURF applications and proposals are due today, March 1, 2004. The SURF application is now available online. Students can start checking the SURF website at www.surf.caltech.edu. For questions, please call the Student-Faculty Programs Office at x2885 or email us at sfp@caltech.edu.

GSC Teaching and Mentoring Awards. Each year the GSC recognizes professors for their excellence in teaching. GSC also recognizes members of the Caltech community for their outstanding mentorship, and shows appreciation to teaching assistants who put in extra effort to guide students through a class.

We need the help of the entire Caltech community to identify the bests of every academic year. Please fill out a nomination form available at the red door cafe' or online at: <http://www.its.caltech.edu/~gscacad/awardinfo.html>

In particular, the mentoring award nominees need not be faculty members or TAs. The nomination deadline for this term is on Friday, March 19th. Please do not hesitate to contact Amir Sadjadpour (amirs@its.caltech.edu) or Sherry Suyu (suyu@its.caltech.edu) for any questions or concerns.

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 March 12-15, April 23-26, 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**

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The Case for John Edwards

By ASA S. HOPKINS

Tomorrow, March 2nd, California has the opportunity to take a meaningful part in the presidential election process for the first time in many years. Historically, the nominees have been decided by the time California votes, and in the general election the state is considered a safe state for the Democratic nominee.

However, this year we have a real choice between two qualified and compelling candidates: John Edwards and John Kerry. John Edwards is the right choice for California, and the right choice for the Democratic Party.

Senator John Edwards has a compelling, positive vision for the country -- a vision that is grounded in reality yet inspires each of us to reach out to our fellow Americans and build our future together. So often it seems that we are a divided nation: "Two Americas," in the words of Senator Edwards. Edwards has the vision, the will, and the concrete plan to restore our national hope, purpose, and to unify this country once again.

In the CNN/LA Times debate at USC on Thursday evening, Edwards again demonstrated the difference a coherent vision makes. In response to a question on the subject of health care, Edwards began by talking about the 35 million Americans living in poverty, and the importance of helping them move up the middle class, as well as helping the middle class save again.

What does this have to do with health care? As Edwards said, "I think the issue becomes this: Whether you believe health care is an isolated problem--it's a very serious problem for the American people--or whether you think it's part of a bigger frame that it needs to fit in." Democrats can ill afford to be a party of isolated issues. Instead, we must put forward a positive vision, based in our core values, and demonstrate how policy decisions flow from those core values.

Edwards does more than just wring his hands about poverty--he has proposed real solutions to help those in need: increasing the Earned Income Tax Credit more than double its current amount, raising the minimum wage so that no one who works full time remains below the poverty line, and improving school curricula so that every child gets a first-class education and is prepared for college.

Here at Caltech, we know the importance of education. It is the great social equalizer, the guarantee of meritocracy. As the first person in his family to graduate from college, Edwards understands the need to help the hundreds of thousands of students who cannot afford higher education. That's why he proposes to send students to public college free for one year, as long as they are willing to work 10 hours a week. This sig-

nificant reduction in the load on other sources of financial aid will help older students as well.

On foreign policy, Kerry and Edwards present very similar plans for how to proceed. Both emphasize the importance of restoring America's image in the rest of the world. Both voted for the resolution authorizing the war in Iraq and have criticized the Bush administration's handling of the aftermath of the war there.

In terms of political liabilities, Kerry's history of support for cutting the Defense budget, as well as his relative inability to give a straight answer on his rationale for voting for war, needs to be weighed against Edwards' focus on domestic issues during his tenure in the Senate. His foreign policy experience is largely limited to serving on the Senate Intelligence Committee.

John Edwards has been in Washington long enough to understand the need for change, but he has not become a part of the Washington culture. He has fought corporate interests his whole life, on behalf of those who have fallen by the wayside of society, in the Senate and during his career as a lawyer. He has never taken corporate PAC or lobbyist contributions. John Edwards wakes up every morning to fight for folks like the ones he grew up with, and he will take that fight to the White House.

The final point I'd like to address is the question of who can beat George Bush in the general election, and how to do it. Like it or not, many voters decide their vote in part on cultural issues, often voting against what would appear to be their personal economic interest. There are wealthy Democrats who favor higher taxes on the rich, and many middle-class Republicans end up taking on a larger share of the tax burden when they elect Republicans. To attract these voters, a moderate tone is key.

As a southerner with an uplifting message, John Edwards is in a prime position to counter the cultural divisiveness that the Bush campaign will rely on for victory, primarily in the South and border states. Once these cultural issues are neutralized, Edwards' focus on jobs and economic and social division will lead the Democrats to victory, both to the White House and in the critical Senate races in the South this year.

The contrast between John Edwards' positive, uniting vision and George Bush's divisive, negative effect on the country could not be more stark, and this disparity will present us with a clear choice in November. I, for one, am confident the American people will choose a compelling positive plan, brimming with optimism and unity, over continued folly and division.

For more information on John Edwards, please visit <http://www.johndwards2004.com>

www.johndwards2004.com

courtesy of A. Hopkins
Senator and presidential candidate John Edwards expounds his views at USC last Thursday. Reporter Hopkins believes his focus on jobs will lead the Democratic party to victory.



Democrats vs. Republicans 2004, Fighting the Unemployment Rate

By PARAG BHAYANI

Outsourcing. Jobless recovery. Globalization. Economic growth. These words and many such others are being tossed around by both Democratic and Republican candidates and operatives as campaigns gear up for what looks to be a brutal election season.

A topic that will prove crucial for the electorate is the current job market and how the situation can be ameliorated. Depending on whom you listen to, between two and three million fewer people are employed than when the Bush administration took over in January of 2001. This past January provided the first month of salient job growth since December of 2000, with 116,000 more people employed. However, this rate is significantly lower than necessary to match the administration's on-again, off-again prediction of an increase of 2.6 million jobs in 2004. Expect figures like these to be cited ad nauseam as we approach the November 2nd elections.

As the race for the Democratic nomination is nearing its end, Senators John Kerry and John Edwards are voicing opposition to NAFTA, the landmark 1993 pact that eliminated trade barriers for all countries of North America, and other trade agreements. Many unemployed workers and labor unions have fingered such trade pacts for the severe loss of manufacturing jobs over the last few years. Another phenomenon being blamed for the anemic increase in employment is the outsourcing of white-collar work, such as accounting and computer programming, to India and other nations. This is one of the reasons that, despite exceptional economic growth, many people are still out of work.

A major campaign theme this year will pit free trade against keeping jobs at home and only supporting domestic industry, called protectionism. As the Republicans are hoping for economic growth leading to increased demand for jobs, the Democratic Party is gradually regressing to the strong protectionist doctrine it adhered to before the pro-globalization Bill Clinton came along. This latter theme may strike a chord with millions of blue-collar workers who are out of work.

However, America cannot plunge straight into a hard-line protectionist economic policy. For one thing, the high costs faced by businesses in not being able to acquire external resources will inhibit commercial growth. Companies may also be forced to pass these expenses on to consumers, driving prices higher. Foreign nations, especially China and the European Union, will most likely retaliate by enacting protectionist measures themselves, leading to the stagnation of the global market.

But unrestricted free trade is by no means the proper solution either. Aside from the obvious hemorrhage of jobs, it is impolitic to partner with a nation that exploits its workers for government gain or ignores environmental standards in encouraging domestic industrial growth. Farming out work related to national security and defense also requires caution, since wartime is not the best period for relying on other nations. As with most things in politics, a happy medium needs to be found to ensure the best solution for all parties involved. Economist Paul Krugman states that free trade

is politically viable only if it is backed by effective job creation measures and a strong domestic social safety net.

Kerry has proposed the most comprehensive solution thus far. Although he is being portrayed as a tax-raising liberal, his platform involves several tax deductions. According to a February 26 article in *BusinessWeek*, Kerry would offer manufacturers a tax break equal to two years' payroll-tax payments for new hires and he plans on creating incentives to prevent incorporation offshore so as to avoid paying taxes. He also wants to reform NAFTA to prevent severe job losses and limit government contracting with companies that send work overseas. Edwards has also adopted many of these reforms in his plan for the economy.

Kerry's proactive plan will also spur the creation of jobs. It seems that George W. Bush is leaving the fate of employment to the free markets, a policy adopted by Herbert Hoover in the early 1930s. Both were staunch opponents of government interference in economy, and both had poor records of job creation.

On the other hand, Democrats are planning on invoking some of the policies of Franklin D. Roosevelt by creating public works programs akin to those that helped America during the Great Depression. According to the *BusinessWeek* piece, plans include boosting police hiring (something Bush has targeted to be cut in his latest budget) and pouring federal money into equipment for first responders such as firefighters.

In addition, it is high time for our nation to invest in alternative sources of energy and wean itself from dependence on foreign oil. Kerry proposes to make the nation energy-independent by the year 2015 by funding development programs for wind farms and hydrogen fuel. Such measures, in addition to stimulating economic growth and job creation, will strongly protect the environment. Finally, greater social programs must be enacted to prevent despair and privation for

the unfortunate. Education initiatives need to be fully funded, affordable health care for all people must be an option, and unemployment benefits for those who have been laid off should be provided until the government starts creating jobs.

Of course, most of these plans rest on a tax increase; Kerry and Edwards both plan on raising income taxes on the top five percent of incomes. This may seem like a bad idea, and it will be very difficult politically, but even a cursory examination of the fiscal health of the nation will lead one to conclude that either taxes need to be raised or the government needs to pray for unrealistic rates of sustained economic growth. President Bush is campaigning to make his tax cuts permanent this year, something that must not be done. In his appeals, he always states, "It's your money." One must keep in mind, though, that while the vast majority of Americans received fewer than \$500 income tax dollars' back, programs such as special education in public schools and Community Oriented Policing, whose benefits add up to well over \$500, have been cut. Commentator Mark Shields addresses this: "Because of the [taxes paid to the] federal government, I know the medicine prescribed for my family is safe, the poverty rate among senior citizens has been cut by 70 percent, four out of five Americans who today attend college go to a public college or university. We know that even if we kept every nickel of taxes, we would not be able individually to do the important tasks our federal government does to make our nation safer, healthier, more prosperous, and more just."

Note: In last week's article, I erred in stating that the 9/11 Commission had been given until January of 2005 to complete its work--this was just a proposal. Last Friday, House Speaker Dennis Hastert agreed to give the panel two months past the original May 27 deadline. I apologize for any confusion.



Continued from Page 3, Column 5

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. Peter Norvig, director of search quality at Google will give the first talk of this series on Wednesday, March 3rd, 4:15PM at the Beckman Institute Auditorium, on 'The Challenges of Search: Lessons from Google'. Come at 3:45 for refreshments. The talk will be followed by a career-oriented discussion: prepare your questions.

- 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 member-

ship 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!

Join Caltech Ballroom Dance Club for its amateur taught Mambo class! Mambo, meaning "conversation with the gods" is a spicy Caribbean mix of African rhythm and European moves. This particular class will center around learning moves to make a Mambo formation for performances. However, all the steps can be used outside of the formation! Thursdays from 7:30 to 9:00 pm in Winnett Lounge, starting Feb 12. Cost: \$1/class. Refreshments

Continued on Page 5, Column 1

Readers Respond to Chamberlain's View on *The Monologues*

Accepting the Complexity of Women Sexuality

By ROBIN DEIS and
IRAM BILAL

It is unfortunate that Lyle Chamberlain seems to have missed the point of the performance of *The Vagina Monologues* that Caltech hosted on February 13. However, it is helpful that his mindset was clear from the moment he entered the lecture hall, and that he states it clearly in his first paragraph: he and his friends came because they need to "understand what your [sic] wife feels like."

Every criticism he makes of the performance is rooted in that single statement. His entire conception of female sexuality is in the context of a married, heterosexual relationship. The problem being that not all women are married or heterosexual, and that women of whatever classification can celebrate their sexuality as openly as men do. Chamberlain feels that the solution to all the ills presented is "living with a sensitive spouse," and that men are "an integral part of the solution." Let me put this plainly: marriage and child rearing are not the only happy ending available to women. It may be one version, but even then, the health of that relationship is based on both partners' respect for themselves and each other, not dependence.

It is touching that Chamberlain can admit that he was moved by the portrayals of violence against women in foreign countries (though he did complain that "no hopeful monologue" is given, completely ignoring the fact that at this moment there are no hopeful stories for the women of Juarez). However, it is still extremely clear that the content of the monologues were deeply threatening to his traditionalist belief system. He asserts that "we don't need 'monologues. ...[we] need real relationships and a society that applauds them." These "real relationships" (in the context of the article, clearly meaning heterosexual marriages) are not what will stop violence against women. When women can only define themselves as whole with the help of a man, violence will continue. When women can find strength and independence in themselves, they have a fighting chance. This independence is a given for many of us, but the problem is that not enough women share that independence.[RD1]

Chamberlain also makes the mistaken assumption that the monologues performed on the 13th are intended to cover the entire range of female experiences. They do not. They are not meant to. The range covered is wide, but to completely understand the full spectrum of women's sexuality, the show would have to include the story of every woman who has ever lived.

It is this essentialist view of the show that leads Chamberlain to worry that the show portrays men as being one of only two groups: predators or "passing acquaintances." Again, just because very few men were discussed does not mean that the roles they appear in are the only roles available to men. The show is called *The Vagina Monologues*, so the focus of the night is pretty obvious. Men can be central to one woman's sexuality, completely superfluous to another, and anywhere in between. And the point is that either way is okay, as long as it is the woman's choice.

Chamberlain does make the accurate

observation that no single solution to the problem of violence against women is offered by the monologues as a whole. However, the fact is that the solutions are really not the focus of the play itself because sadly, many people still do not know or understand the problems clearly enough to be able to actually sit down and begin to solve them. Hence, while Chamberlain's observation is valid to an extent, he misunderstands the motive behind the monologues. The idea is to bring issues to light, because unfortunately, the solutions are not so easy that they can be cooked up and acted out in two hours. However, what the play does is open the audience's eyes to what is actually going on. It is likely that almost every person in the audience on the 13th was in one way or another made aware of some incidents that they had never considered before. Saying that one man who raped a little girl is a monster does not mean that almost all other men are not more considerate. It just means that particular man is a monster, and the monologues are speaking against that man and his violence.

Through all of this, it is very important to remember that the monologues are not meant to say that sexual gratification is the only way for a woman to be fulfilled. What they are meant to say is that women are sexual beings, just like men, and that should be celebrated. They are one-sided, but it is clearly as a response to the overwhelming difference in our society between the openness of men's sexuality and the silencing of women on the same subject. No one is trying to say that all men are rapists. One man is specifically glorified for his appreciation of female sexuality. But the point, which may be surprising to some men, is that women are capable of finding fulfillment—sexually and otherwise—without the help or presence of a man.

It is fairly offensive, however, that Chamberlain attributes the standing-room only attendance partially to the fact that "sex sells." There is a very important distinction between a show with clearly prurient sexual content and a show that discusses sex and sexuality in an open way. The people who attended (hopefully) did not do so in the hopes of being aroused or excited, but to think about issues that affect half the world's population. In fact, although Chamberlain bemoans the lack of proactive solutions offered by the monologues themselves, the result of the production was over two thousand dollars raised entirely to be donated toward the prevention of violence against women.

It is understandable that Chamberlain was disturbed by the content of some of the monologues. It is likely that every member of the audience was disturbed by one issue or another. What Chamberlain misses is the fact that feeling disturbed is not necessarily a bad thing. That feeling forces you to think hard about an issue and make your own decisions.

The Vagina Monologues isn't about fear, depression, or any sort of gender segregation. It is about being aware—and hopefully accepting—of the complexity of women's sexuality.

pictures of you and your friends.

Submit to the Totem! The Totem is now accepting submissions for the 2004 edition of 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

The Future of Feminism: Lessons from Our Past. Thursday, March 4, 2004, 12:00-1:00pm. Hall of Associates, Athenaeum. Lunch is free and open to the Caltech community. In honor of Women's History Month noted author and science education consultant, Sheila Tobias, will share her research on the history and future of feminism with a special eye on science and engineering. Space is limited. Please RSVP to x3221 or wcenter@studaff.caltech.edu.

Another Nice Guy's View on the V-Day Show

By SALOMON TRUJILLO

I read Lyle Chamberlain's article in *the Tech* last week and I believe he may have missed the point. I understand his fear, so I want to address it. The fear is that female empowerment entails cultivating hatred toward men. It's true that *The Vagina Monologues* was about female empowerment, but it was not about indoctrinating females into hating men. It's about women accepting themselves as independent. This doesn't mean they aren't allowed to have male partners. Female independence and dating should be independent phenomena. It's summed up in a phrase spoken by many of my female friends: "I don't need men. I like them. I like them a lot, but I shouldn't be reliant on them."

Now, don't get me wrong, men have similar problems. In high school, I felt pressured to have a girlfriend. I felt I was inadequate as a person if I could not get a girlfriend. I shouldn't have been pressured. It's a problem. It should be solved, but that's a monologue for a different collection. Overall, the gender discrimination falls harder on the women so that's where one should take action first.

The Vagina Monologues isn't the end-all answer to all women's problems. If anything, it's a step on the sexuality front. We can enforce laws on equal-opportunity employment, but not laws about people's attitudes toward female sexuality. The monologues were attempting to remove the social taboo from female sexuality. In a world where female genital mutilation occurs due to a social taboo, it's best to try and remove the taboo in our society first.

The main point of *The Vagina Monologues* is to combat the various views from around that globe that favor male sexuality. One such view is that we expect men to be sexually active while women should be celibate. One of the most extreme views claims that female sexuality is inherently evil and tempting. Due to this view one would fault the woman for not being mod-

est instead of correctly faulting her attacker.

Granted, these views are starting to disappear while some aren't present in America, but they still exist in one form or another in each society. The monologues concentrated primarily on the glorification of female sexuality to combat our society's tendency to exclusively praise male sexuality.

Note that the monologues did so without consideration to sexuality overall. The monologues didn't attempt to answer, "Is sexuality good or bad?" Instead it said, "Don't be afraid of female sexuality." You shouldn't be afraid to say the word "vagina." The masturbation, the lesbian encounters and even the pedophilia were included to draw a portrait of female sexuality without glossing over extremes. It attempts to invoke each emotion such that they can paint a full picture. They're funny, entertain, serious, sad; they cover the entire spectrum.

The crimes against women were presented to inform people the dangers of a negative view of female sexuality. The mutilations were the result of a society fearful of female sexuality. The brutal rapes were the result of the objectification of women. The monologues contributed to the fight against these atrocities: on-stage by removing social taboos and off-stage by donating the proceeds to global causes.

We fear that which we do not understand. We attack that which we fear. If we attack female sexuality, we attack the women themselves. The *Vagina Monologues* are about fighting back. Women are tired of being mistreated. One way to combat the fear is to bring the subject out in the open. The Monologues do just that. Talks about women and sex and female sexuality shouldn't automatically involve men. Just remember that they aren't going to forget about us either.

Caltech Dance Show Coming Up

By ROBIN DEIS

The first ever Caltech Dance show is less than two weeks away!

The Dance Show is a chance for dancers of all types to perform on stage. For the last three years, members of the Dance Troupe have been auditioning and performing at USC, but this show will be the first one organized, directed and performed by members of the Caltech community.

The response to the call for choreographers and dancers has been amazing. An incredible diversity of styles will be presented, from Salsa and Mambo to Bellydance and Hula. Almost every segment of the Caltech community is represented

among the over 50-person cast.

The Dance Show will take place on Friday, March 12 and Saturday, March 13 at 8pm in Ramo Auditorium. Tickets for reserved seats may be purchased for a donation of \$2. Ticketholders will be seated 15 minutes before the house is opened to non-ticketholders, who may also choose to donate toward next year's show.

The Caltech Dance Show is generously sponsored by the Caltech Dance Troupe, the Moore-Hufstedler Fund, the Graduate Student Council, and Campus Life and Graduate Housing offices. For more information, contact troupe@caltech.edu.



These hula dancers from the Hawaiian Dance Club will be performing in the March 12th and 13th Dance Show in Ramo Auditorium.

courtesy of R. Deis



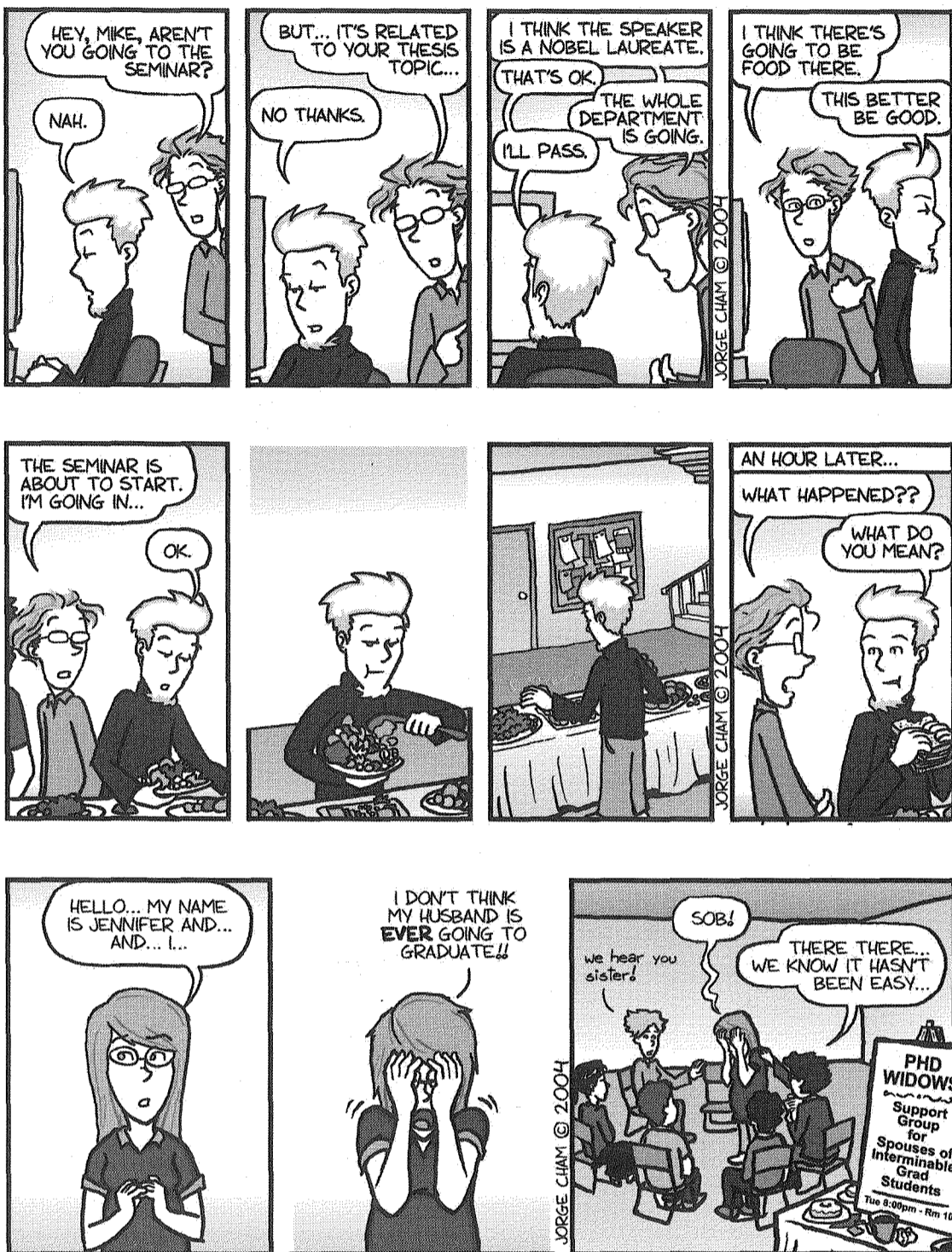
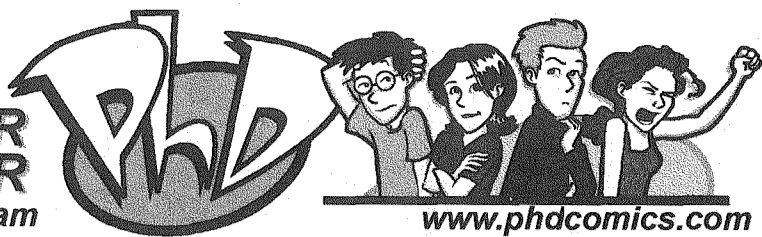
Continued from Page 4, Column 5

will be served. No experience or partner necessary!

Learn the exhilarating and fabulous Viennese Waltz! (and learn what it might be like to live in a centrifuge...) Monday nights starting February 9th. Winnett Lounge, 7:30 to 9:00. Viennese Waltz classes taught by professional instructor Michael Donovan. Fee: Students, \$6 per class or \$25 for the series; others, \$8 per class or \$35 for the series. No partner or experience needed! Lots of refreshments. Mini party for practice dancing to be held afterwards!

The Tech Express will be holding their annual Spring Fling Luau March 10th from 11am-3pm. Drop by for music, hula dancing, free food, door prizes and outrageous

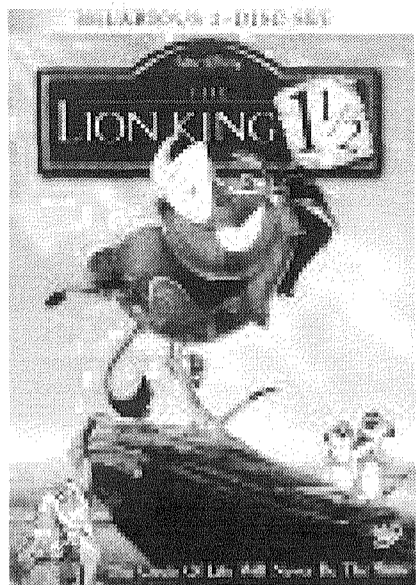
PILED HIGHER AND DEEPER
by Jorge Cham



The Lion King 1 1/2: More Than a Sequel

By HARRISON STEIN

In the early 1990's Walt Disney Pictures had an unprecedented string of stellar animated hits that made it the most popular movie studio in Hollywood. In consecutive years, Disney released the *Little Mermaid*, *Beauty and the Beast*, *Aladdin*, and the *Lion King*, and as they all became smashing successes, the future of hand-drawn animation seemed secure. However, after the *Lion King* became a 300 million dollar blockbuster in 1994, Disney began diverging from its reliable movie-making formula and ended up with clunkers like *Pocahontas*, *Hercules*, and *Mulan*. In fact, things are so bad for Disney hand-drawn films that the company might close their animation studios. Nonetheless, ten years after their last smash hit, Disney finally has a reason to reconsider its options--from a most unlikely source.



courtesy of www.disney.go.com

Starting with *Return of Jafar*, the preposterous sequel to *Aladdin*, Disney began ruining its classic films by releasing ridiculous and superfluous sequels, prequels and rehashes. *Cinderella* and the *Lady and the Tramp* are masterpieces, but direct-to-video stinkers *Cinderella II: Dreams Come True* and the *Lady and the Tramp II: Scamp's Adventure* are two of the low points in recent American cinema. I had no reason to believe that the *Lion King 1 1/2* (currently on video and DVD) would be any different from the average two-bit sequel, and thus, I was pleasantly surprised with the results.

The original *Lion King* was a funny, captivating and poignant film with an unparalleled soundtrack. Instead of mindlessly remaking the original, resulting in a clunky sequel, *1 1/2* successfully spoofs the *Lion King* with a witty, creative screenplay and a new perspective of the film's events. *1 1/2* tells the same basic story, but instead of focusing on Simba, the writers wisely center the tale on hilarious sidekicks Timon and Pumbaa. The film is narrated by the meerkat and warthog, in a similar fashion as *Mystery Science Theater*, as they

periodically stop the actual film in order to make amusing comments.

As a standalone film, the *Lion King 1 1/2* leaves much to be desired because the story is often incoherent, the original songs are disastrous and the funniest jokes are the ones that satirize the *Lion King*. Nonetheless, the only people that will ever consider viewing this straight-to-video sequel are fans of the classic original and they will not be disappointed. The film narrates Timon's star-crossed life with his fellow meerkats, Timon and Pumbaa's hilarious first encounter and various other scenes from the *Lion King* that didn't seem to involve the odd couple. Most notably, this film fills in the cracks regarding Simba's growth with Timon and Pumbaa by including a distinct, but much improved *Hakuna Matata* montage and a hilarious new take on *Can You Feel the Love Tonight*.

For the first time in years, Disney has released a film that looks, sounds and feels like a timeless Disney classic. The animation is not nearly as crisp as the original film, but Disney does not skimp on the production just because it's a direct-to-video release. The cast is impressive as Matthew Broderick and Nathan Lane reprise their old roles and complement newcomers Julie Kavner (the voice of Marge Simpson) and Jerry Stiller (Seinfeld's Frank Costanza). And unlike other Disney sequels, this one takes daring risks with self-parodying jokes. For example, one of the most touching scenes in *The Lion King* is when Mufasa points to the horizons and tells Simba that one day, the whole kingdom will be his. In this film, Timon's mother gives the same speech, only she says that one day, the kingdom will belong to someone else.

Even though *Lion King 1 1/2* is far from perfect, it is a major breakthrough for Disney Pictures. With all of the rubbish that has arrived in multiplexes this year, it is clear that *Lion King 1 1/2* should have been released in theaters and by demonstrating unexpected ingenuity and creativity, the creators of this film show that hand-drawn films and low budget animated sequels still have artistic merit in this technological age. After ten years of disappointing mediocrity, Disney finally has a film worthy of the claim King of Cartoon Sequels.

*** out of ****

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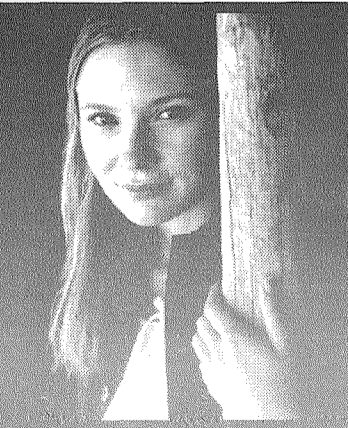
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Chip Uses Include Cruise Control, Robot Guidance, Wireless Antenna

Continued from Page 7, Column 3

providing a low-cost replacement for the optical fibers that are currently used for ultrafast communications. Hajimiri's chip runs at 24 GHz (24 billion cycles in one second), an extremely high speed, which makes it possible to transfer data wirelessly at speeds available only to the backbone of the Internet (the main network of connections that carry most of the traffic on the Internet).

In cars, an array of these chips—one each in the front, the back, and each side—could provide a smart cruise control, one that wouldn't just keep the pedal to the metal, but would brake for a slowing vehicle ahead of you, avoid a car that's about to cut you off, or dodge an obstacle that suddenly appears in your path.

While there are other radar systems in development for cars, they consist of a large number of modules that use more exotic and expensive technologies than silicon. Hajimiri's chip could prove superior because of its fully integrated nature. That allows it to be manufactured at a substantially lower price, and makes the chip more robust in response to design variations and changes in the environment, such as heat and cold.

The chip could serve as the brains inside a robot capable of vacuuming your house. While such appliances now exist, a vacuum using Hajimiri's chip as its brain would clean without constantly bumping into everything, have the sense to stay out of your way, and never suck up the family cat.

A chip the size of a thumbnail

could be placed on the roof of your house, replacing the bulky satellite dish or the cable connections for your DSL. Your picture could be sharper, and your downloads lightning fast.

A collection of these chips could form a network of sensors that would allow the military to monitor a sensitive area, eliminating the need for constant human patrolling and monitoring.

In short, says Hajimiri, the technology will be useful for numerous applications, limited only by an entrepreneur's imagination.

Perhaps the best thing of all is that these chips are cheap to manufacture, thanks to the use of silicon as the base material. "Traditional radar costs a couple of million dollars," says Hajimiri. "It's big and bulky, and has thousands of components. This integration in silicon allows us to make it smaller, cheaper, and much more widespread."

Silicon is the ubiquitous element used in numerous electronic devices, including the microprocessor inside our personal computers. It is the second most abundant element in the earth's crust (after oxygen), and components made of silicon are cheap to make and are widely manufactured. "In large volumes, it will only cost a few dollars to manufacture each of these radar chips," he says.

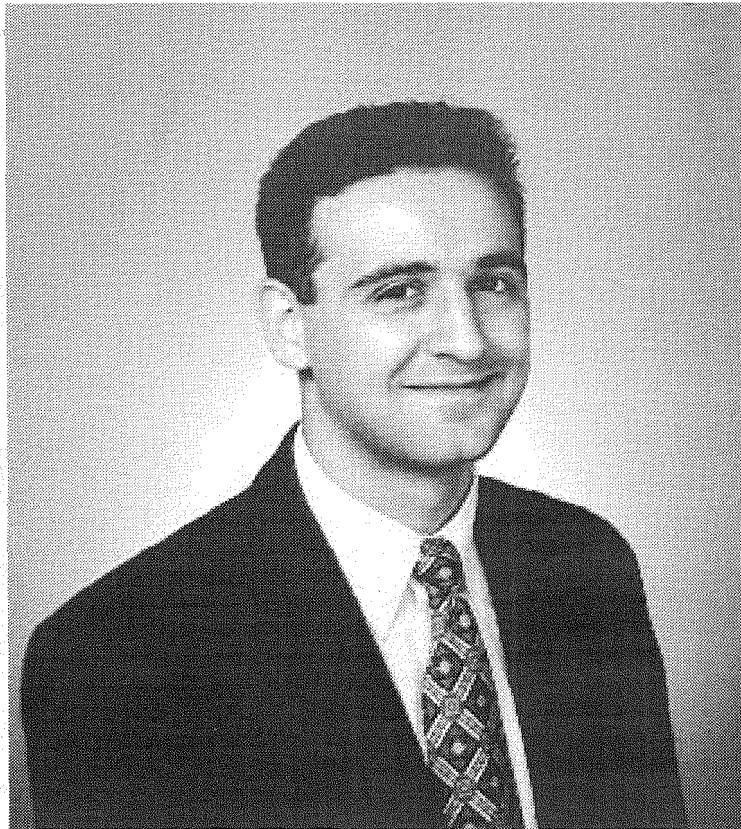
"The key is that we can integrate the whole system into one chip that can contain the entire high-frequency analog and high-speed signal processing at a low cost," says Hajimiri. "It's less powerful than the conventional radar used for aviation, but, since

we've put it on a single, inexpensive chip, we can have a large number of them, so they can be ubiquitous."

Hajimiri's radar chip, with both a transmitter and receiver (more accurately, a phased-array transceiver) works much like a conventional array of antennas. But unlike conventional radar, which involves the mechanical movement of hardware, this chip uses an electrical beam that can steer the signal in a given direction in space without any mechanical movement.

For communications systems, this ability to steer a beam will provide a clear signal and will clear up the airwaves. Cell phones, for example, radiate their signal omnidirectionally. That's what contributes to interference and clutter in the airwaves. "But with this technology you can focus the beams in the desired direction instead of radiating power all over the place and creating additional interference," says Hajimiri. "At the same time you're maintaining a much higher speed and quality of service."

Hajimiri's research interest is in designing integrated circuits for both wired and wireless high-speed communications systems. (An integrated circuit is a computer chip that serves multiple functions.) Most silicon chips have a single circuit or signal path that a signal will follow; Hajimiri's innovation lies in multiple, parallel circuits on a chip that operate in harmony, thus dramatically increasing speed and overcoming the speed limitations that are inherent with silicon.



Courtesy of ee2.caltech.edu
Associate Professor Dr. Ali Hajimiri leads the group that developed the new radar chip.

Praise for Baltimore's Defense of Integrity

Dear Sir:

I would like to commend in a public forum, Dr. David Baltimore for his very bold and public stance in signing the report of the Union of Concerned Scientists regarding restoring scientific integrity (http://www.ucsusa.org/global_environment/rsi/index.html).

As long as we have scientists of

his caliber fighting to protect the honest interpretation of scientific data, our future is bright. I only hope that the rest of the faculty and future scientists in the student body can follow his example in the years to come.

Sincerely,

Tom Fletcher

Southwest Research Institute

San Antonio, Texas

SwRI technical managers will be interviewing BS, MS, and PhD level candidates from the CS, CE, EE, Ch E, and Physics disciplines on Monday, March 8th, from 9am-5pm.

Please contact the Career Development Center for an appointment.

Prospective scientists and engineers are invited to an information session and reception following. Summer or co-op student, graduate student, and post doctorate applicants are also invited.

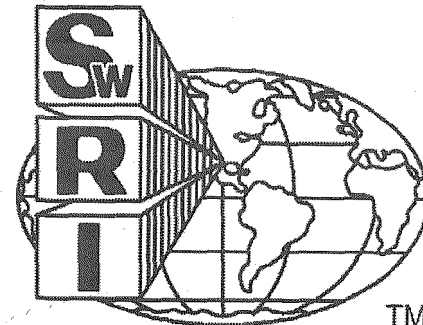
March 8, 2004

Career Development Center
Chris Brennen Conference Room
4:30pm-6:00pm

Refreshments will be served

SwRI is a leading independent, applied engineering and physical science R&D organization with over 2,800 staff members providing technical solutions, processes, and products to both government and commercial clients worldwide. We welcome the opportunity to meet with upperclassmen and graduate students to discuss possibilities in applied engineering and R&D.

Please contact Lisa at (210) 522-4791
eMail at lisa.bourgeois@swri.org



TM

Networking, Interview Etiquette Taught During Career Seminars

Continued from Page 1, Column 2

and goals) as the four phases we will need to repeat over and over in life as we develop our careers.

The skills workshop was led by Victoria Lieding, a career counselor. The hour-long workshop focused on helping students see their skills from their school experiences and extracurriculars. Interviewing proficiency was reviewed, as was creating a high-quality resume.

Angela Wood, also a career counselor led the Values Workshop. She tried to help the undergrads "discover their genuine selves," and "help plan for the future."

Right before lunch, the networking workshop. Amy Malak, the Associate Director of the Career Development Center spoke about networking techniques, networking etiquette and really

emphasized the importance of building good relationships. In encouraging Techers to get out, she stated, "It's the relationships you keep, build and maintain and even introverts can do that." One of the tips she encouraged everyone to remember is that when "You meet someone, (at a professional meeting, a networking lunch, anything)...before you even put a step into that room, think of three questions to ask them." This way you'll be prepared to ask meaningful questions and to keep the conversation interesting.

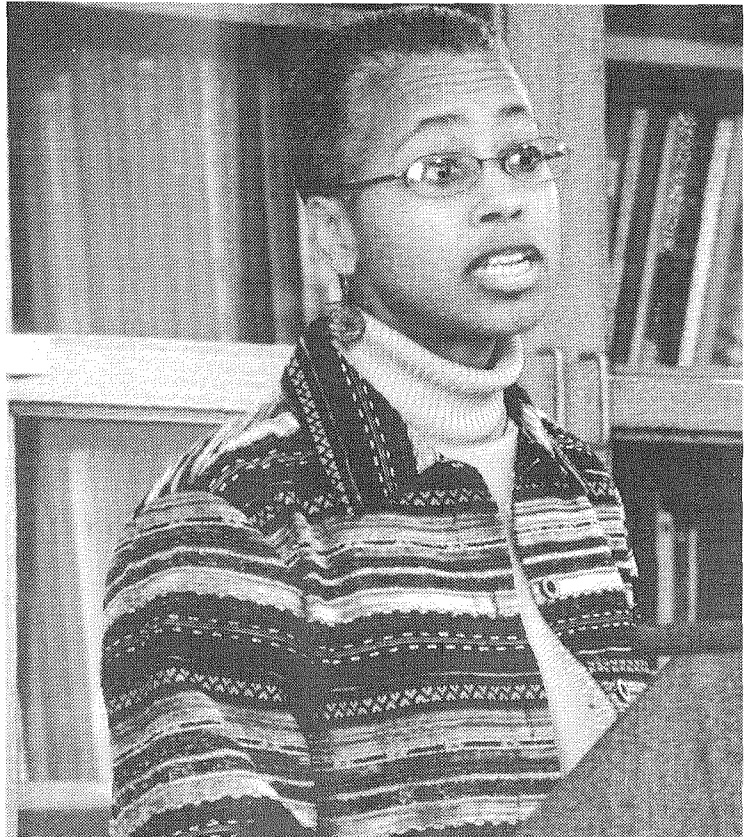
The undergrads were then given the opportunity to put their newly learned networking skills to work over lunch with 13 alumni. These alums ranged from the mechanical engineer at Boeing Satellite Systems Spacecraft Mechanisms Group, to the Medicinal Chemist at Amgen, to the software engineer from DreamWorks Animation. Students exchanged busi-

ness cards and gained valuable advice and information from the older mentors.

After lunch, the career center picked up again on a Myers-Briggs Temperament Indicator Workshop, in which each person did a personality style inventory. Participants then learned to analyze the pros and cons of their personality type and perhaps to better understand those of a different type.

Finally, the day was wrapped up with door prize giveaways. Students left the conference armed with a binder full of career info and hopefully a better understanding of the next steps they need to take to get launched into their careers.

The Career Development Center hopes to make this an annual event and by the satisfactory response they received from undergrads, it looks like that may just happen.



D. Kortal/The California Tech

Dr. Kumea Shorter-Gooden explains her theory of shifting that black women are adopting to deal with racism.

Shorter-Gooden Discusses Race Discrimination, 'Shifting' Theory

By IRAM PARVEEN BILAL

"How do bigotry and bias affect our lives?" asked Dr. Shorter-Gooden during Wednesday's lunch discussion sponsored by the Women's Center in the Avery library. To an audience of well-represented black women on an otherwise non-diverse campus, Dr. Shorter-Gooden explained the effects of racial and gender discrimination against African American women. She elaborated on the concept of "shifting" which also happens to be the title of her recent book *Shifting: The Double Lives of Black Women in America* that she co-authored with Charisse Jones.

Based on research garnered from the African American Women's Voices Project, Dr. Shorter-Gooden explained the survival strategy of many black women. She focused on the results of an open-ended survey. Twenty-three percent of its respondents were college students and even though the survey obviously could not represent all the 19 million African American women in the U.S., she claimed that it was a fairly unbiased representation of their views.

Dr. Shorter-Gooden explained "shifting" as the different ways that African American women deal with bigotry. Said she, "Ranging from the way we make our hair to the way we change our internal selves, shifting is an idea that we all implement in some way or another." She said that the member of any minority, whether in terms of race, religion or sex becomes a "token" in the society. A token is always scrutinized more than everybody else. There are higher expectations for the same job from them than from others and they are probably even judged more harshly than others. Such people, who experience bias in their daily life, as a result, are more likely to be depressed.

She explained that black women have higher rates of binge eating, obesity, hypertension and diabetes than other groups. "We believe it is a result of the pressure and demand shift on us", she said.

She used the example of beauty. Beauty is an arena where sexism and racism meet when discussing bias against African American

women. Even though, in general black women are heavier than white women, they have higher body esteem. However, this is slowly changing because of the norm of beauty in today's world. Dr. Shorter-Gooden highlighted, "Sadly, in today's society, beauty is defined as being white, thin and blonde." Even more sadly, black women who realize this common perception try in their own ways to be like that, she exclaimed. Blonde extensions, eating disorders, excessive dieting, laxatives, binge eating and vomiting were some of the practices in order to become more "beautiful" nowadays.

It is also interesting to note, said Dr. Shorter-Gooden, that most famous female black entertainment stars like Alicia Keys, Beyonce Knowles and Halle Berry are in essence the fairer or non-traditional looking black women. In fact, she claimed that the more European looking black women are seen as models of beauty. Hence, even though their fame is a plus for the black community, they cannot really form realistic idols for black children.

She also addressed the insidiousness of racism. "All these 'isms' are not just individual acts, they are embedded in the structure and cultures of our society," she said. At times, we do not even realize how racist we are because it is a social norm to act in a certain way. Most of us, even if are biased, would like to believe that we are fair-minded. This phenomenon, she explained, was "aversive racism".

When asked about solutions to the existing and undeniable problem of racial bias, Dr. Shorter-Gooden responded that the first and foremost was to deal with and get over our discomfort about these issues and openly talk and listen to the victims of bias. "It is always good to listen to these people."

She ended her talk with a very creative metaphor that described us as contributing to racism when we do not actively do anything to prevent it. She said that we are all on a moving walkway and the destination of the walkway is racism. Hence, as long as we are standing on it and not even running actively towards the destination, we are all contributing to the

shift of the society towards the end. We have to actively jump off or run back to prevent reaching that undesirable end.

Dr. Kumea Shorter-Gooden is a professor and former coordinator in the Multicultural Community/Clinical Psychology Emphasis Area at the California School of Professional Psychology (Los Angeles campus) of Alliant International University. A licensed psychologist, Dr. Shorter-Gooden has a psychotherapy and organizational consultation practice. She is an active presenter and workshop leader, speaking to numerous community-based and church groups.



T. Ma/The California Tech

Undergrads Phil Wong and Andrew Hobbs take a moment during lunch to network with an alumnus.

Hand-axes Support Adaptability

Continued from Page 1, Column 3

innovation, the hand-axe is an extremely adaptable device. Large in mass, the hand-axe is a high work capacity tool that can carry a lengthy cutting edge (formed by flaking it with another rock) capable of diverse cutting functions. Furthermore, a skilled individual could make a hand-axe within a few minutes. Because of these overwhelmingly useful features, Dr. Potts believes that the hand-axe and its adaptability enabled early humans to spread out from Africa to Asia within a very fast time period.

Supporting this hypothesis is Dr. Potts' field work. In Kenya, Dr. Potts has worked at the famous Olorgesailie site. First excavated by Louis and Mary Leakey in 1942, Olorgesailie is the most precisely dated site in the world spanning the past million years and

is believed to be representative of a lake shore community of half a million years ago. At Olorgesailie, Dr. Potts and his team have made several important discoveries. Using a landscaped based approach where they "follow the soil." Dr. Potts has found that hand-axes were all made using exactly the same method despite differences in the final axe type. Furthermore, axes were overwhelmingly made using local materials found within a few kilometers thus indicating that there wasn't much trade going on.

Near the end of his talk, Dr. Potts revealed a bombshell. Although thousands of hand-axes have been found at Olorgesailie and elsewhere, we didn't know what the toolmakers looked like, until now. Last June, some of the top skull bones of a young adult male were discovered by Dr. Potts

and his team at Olorgesailie. The bones show an individual with a very small and thin brow in contrast with the heavy brow found in other fossils. Due to the rules about such discoveries, Dr. Potts refused to elaborate more on the subject until he submits his paper in a few weeks.

Dr. Potts also discussed some of his field work in China. In Southern China, Dr. Potts has found stone hand-axes dating to around 803 thousand years ago, an astonishingly early date that, combined with Dr. Pott's discoveries of hand-axe and stone tools use in Northern China, further supports the hypothesis that the human adaptability that came with the invention of the hand-axe and other stone tools enabled humans to overcome environmental variability and quickly spread from Africa to other environments.

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