The California Tech

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Caltech Chemist Robert Grubbs Wins Nobel Prize

By **ROBERT TINDOL**, Mild-mannered Reporter

Robert Grubbs, an organic chemist whose work on catalysis has led to a wide variety of applications in medicine and industry, has won the 2005 Nobel Prize in chemistry. The announcement was made this morning by the Royal Swedish Academy of Sciences in Stockholm.

Grubbs and this year's other two winners were cited specifically "for the development of the metathesis method in organic synthesis." Metathesis is an organic reaction in which chemists selectively strip out certain atoms in a compound and replace them with atoms that were previously part of another compound. The end result is a custom-built molecule that has specialized properties that can lead to better drugs for the treatment of disease, or better electrical conducting properties for specialized plastics, for example.

In particular, Grubbs has worked on olefin metathesis. Prior to Grubbs's work, metathesis was poorly understood and of limited value to scientists. Grubbs developed powerful new catalysts for metathesis that enabled custom synthesis of valuable molecules, such as pharmaceuticals and new polymers with novel materials properties.

According to the Nobel citation, metathesis has already led to industrial and pharmaceutical methods that are more efficient and less wasteful, simpler, and more environmentally friendly. "This represents a great step forward for 'green chemistry,' reducing potentially hazardous waste through smarter production," the Royal Swedish Academy announced.

"Metathesis is an example of how important basic science has been applied for the benefit of man, society, and the environment," the citation continued.

Grubbs is currently spending a month at the University of Canterbury in Christchurch, New Zealand, as an Erskine Fellow. In an e-mail message, he singled out his students and collaborators and said that he was especially pleased that the Nobel committee had chosen to recognize the research that had taken place at Caltech.

"I'm excited for all the outstanding students and postdoctoral fellows who have contributed to this work over the years," Grubbs wrote.

Grubbs added that he has been swamped with calls since the announcement was made earlier today, and that his son--a physician currently serving a residency at the USC Medical School--has been swamped with calls as well.

"Sometime when I'm more rested and I'm available in person, I'll be happy to sit down and discuss the work this award represents," he wrote.

Grubbs' award was an especially welcomed going-away present for Caltech president David Baltimore, who just Monday announced his pending retirement. Baltimore, himself a Nobel laureate, said he was pleased that the Nobel committee had recognized a Caltech researcher whose work had so direct an impact on biomedicine.

"Bob's work shows that basic chemical research continues to have importance to pharmaceuticals and industry, and it also shows that the sometimes highly esoteric work young people do in the lab is a huge contribution to society," said Baltimore. "I congratulate Bob on joining Caltech's growing list of Nobel laureates, and I envy his young students for the elation they're feeling today."

Grubbs is a native of Kentucky who earned his bachelor's and master's degrees at the University of Florida. After completing his doctorate in chemistry at Columbia University, he spent a year at Stanford University as a postdoctoral fellow, and then joined the Michigan State University faculty in 1969. He came to Caltech in 1978 with full tenure as a professor, and has been the Victor and Elizabeth Atkins Professor of Chemistry since 1990.

Grubbs has been a member of the National Academy of Sciences since 1989, and was the 2000 recipient of the Benjamin Franklin Medal.

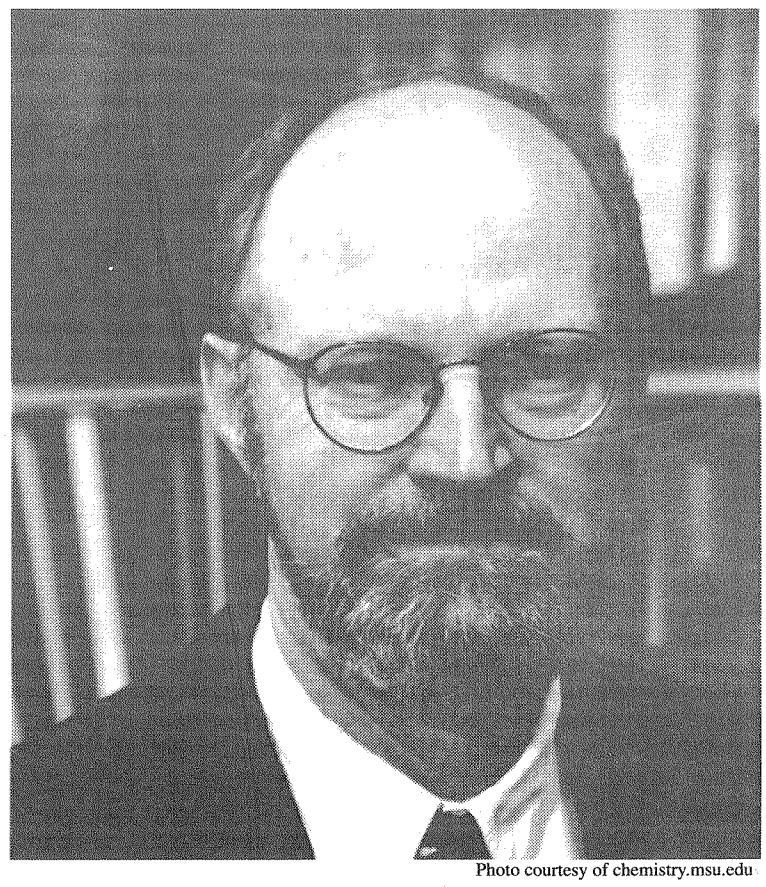


Photo courtesy of chemistry.msu.edu

Today's award brings to 32 the total number of prizes won by 31 Caltech faculty and alumni through the years (Linus Pauling won awards in both chemistry and peace).

Staying the Course: Baltimore Keeps on Truckin'

By **DAVID CHEN**

On Monday, October 3, Dr. Baltimore announced his plans to retire from his role as President of Caltech. Citing his almost nine years as President, Dr. Baltimore explained that he's not stepping down for a precise reason but that the time felt right.

Dr. Baltimore plans to retire in June, provided Caltech can locate a new President in time. He currently has no plans for what he will do immediately after retiring as President, except that he will remain as a Professor. "I will continue in research and will have graduate students and post-docs and some undergraduates" in his research groups. Whether he will be teaching courses remains undecided, although he expressed his possible interest in teaching immunology. He also noted his ongoing positions in the biotechnology industry.

Recent media coverage of this announcement has emphasized Dr. Baltimore's role in transforming Caltech. "I'm a little surprised by the articles giving me so much credit. I can say quite honestly that I just tried to be myself and bring my own sense of values, my own sense of appropriateness, to my position at Caltech." He also expressed his respect for the former leaders of Caltech, "I have great respect for how it was envisioned and formulated by George Ellery Hale at the turn of the century." Nonetheless, Dr. Baltimore is glad that outside observers look so favorably on Caltech's "trajectory and health."

A recent achievement is the $1.4 billion capital campaign that is still in progress. Dr. Baltimore explained, "It is to enable us to do things we otherwise couldn't do." For example, the campaign provides for new buildings, "thrusts into new areas of research," and renovation of the student houses.

He also clarified that the campaign does directly addresses neither the budgetary shortfall nor possible reductions from federal funds in the future. Caltech researchers "have been very good at competing for those funds and if they're more limited, we just compete a little harder and come out roughly the same way." He did note, however, that if the situation becomes more serious, "the campaign's not going to make up" for the decreased research funds.

Another characteristic of Dr. Baltimore's presidency is his willingness to speak out on public issues, such as how the Bush administration's policies affect America's scientific competitiveness. "I think many members of the Caltech administration have been reasonably outspoken about their beliefs in the past few years. I have been willing to speak out against things that I think are serious and often relate to national politics. And I think that is my responsibility as an individual and as a President of an institution that is extremely dependent on government support."

Responding to the reporter's question on student awareness of political issues, Dr. Baltimore explained, "I don't think students pay a lot of attention to such issues, but I think paying attention to the things they are paying attention to, like their physics homework, is a very important thing to be doing."

On the "MIT vs Caltech" prank, Dr. Baltimore stated that he was "overjoyed" and thought it was "magnificent that Caltech students had taken initiative on such a magnitude". The administration has been waiting for a response, but everyone on campus is still waiting for MIT to make a move.

On the topic of tuition, Dr. Baltimore stated that our increases have been "at an amount at or slightly greater than the consumer price index." He further described, "We at Caltech have a particular situation, in which our tuition is distinctly lower than tuition at competing schools. That's a nice advertisement for us, but we deliver an education that's as good as or better than anybody else. And we have a very tight budgetary situation; we're going to be looking to see whether it's reasonable to have a lower tuition, given that we have a great education program." He also explained that donors to the school may ask, "Why are you under-pricing your education?" when other schools charge a higher tuition.

Dr. Baltimore said that the financial aid program has thus far been able to keep up with the tuition increases, but that "it is a challenge." In addition, he acknowledged the difficulty in setting tuition. "The psychology, as well as the morality, of setting tuition is very complicated. All I can really say now is that we are thinking seriously about both issues because we are faced with the need to think them through."

Dr. Baltimore also talked about the biotechnology club and undergraduate involvement. "I would like to think that the undergraduates are more interested in fundamental biology than applied biology. But I know some will get interested in applied biology. Biotechnology is applied biology and that's fine."

"In order to be a contributor in a technical sense, you really need a Ph.D., and you really need some postdoctoral training. So getting involved as an undergraduate is interesting but still a long way down the road before you're going to be able to participate. People may want to get more involved in the managerial side, and you can do that at a younger age," but he mentioned that getting into such consulting or venture-capital companies may be more difficult.

Overall, Dr. Baltimore would like people to say, "He left Caltech in as good shape as he found it." Dr. Baltimore labels Caltech a "steady-state institution," explaining that the size of the institution, and the faculty size in particular, has remained approximately the same. "The faculty in age is roughly a steady-state group." Roughly 10 to 15 faculty members enter and 10 to 15 retire per year.

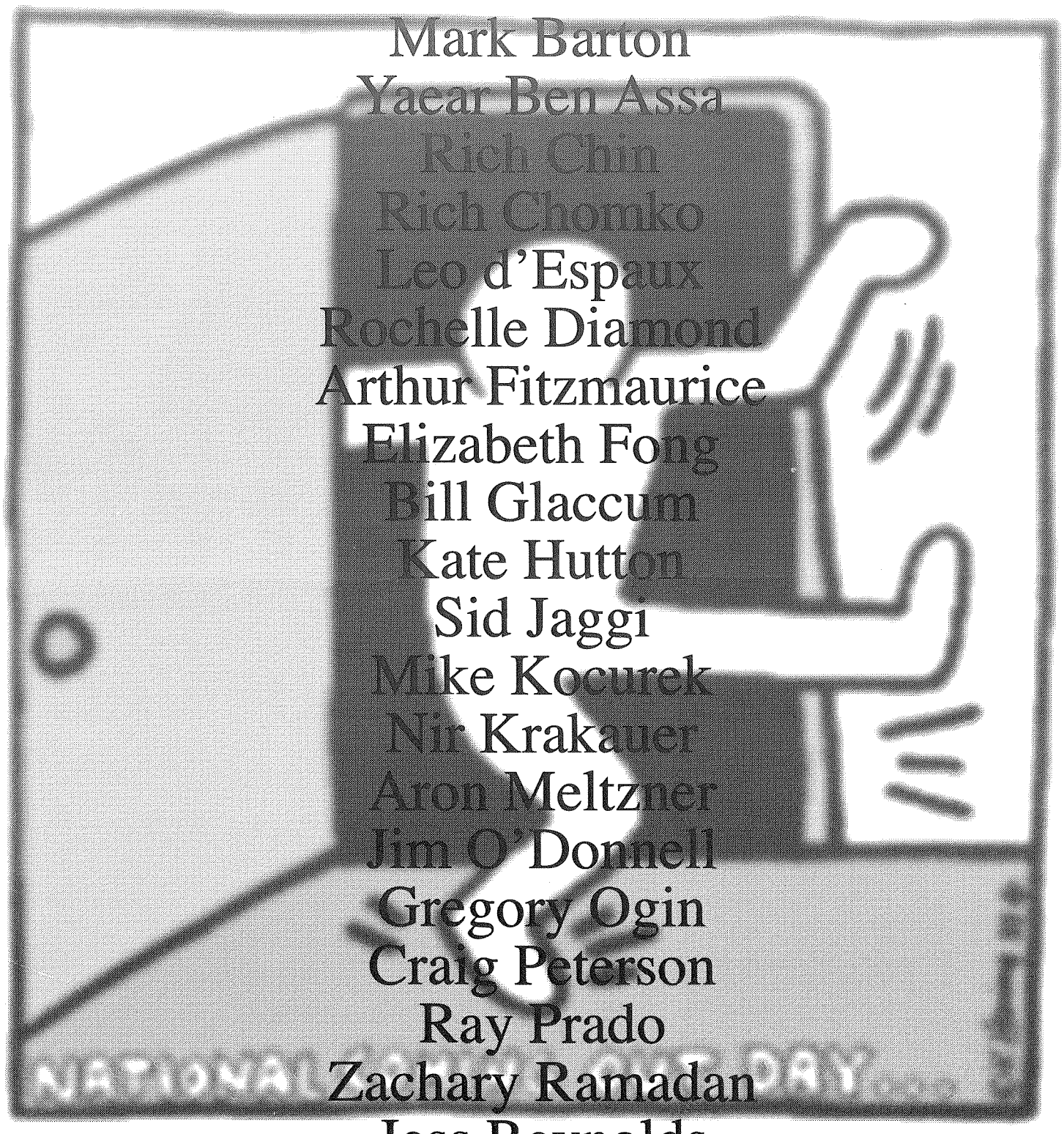
"Because we're at the frontiers of science, the particular goals that we have change all the time and, in fact, change very rapidly." Instead of adding on new pieces for the new goals, Caltech tries to redirect existing resources. Nonetheless, more resources are required at times.

"We've been doing this now for so many years that we're pretty close to steady-state. We do increase other things. We increase the size of the staff, and we have more graduate students and lots more postdoctoral fellows." He also explained that Caltech continually adds new buildings, but there is land on Caltech's campus into which to grow, as with the new Astrophysics building that will begin construction soon.

Dr. Baltimore listed a number of interesting problems that the research groups on campus may be investigating for the next half-century. Despite the ever-changing research questions, Dr. Baltimore envisions Caltech to remain Caltech for the foreseeable future. "I think Caltech in 50 years will be a similar institution to what it is now."

TECHERS CELEBRATE NATIONAL COMING OUT WEEK

We are here! We are your fellow students, faculty, colleagues, alumni, and friends. We are OUT and PROUD! We are just a few of the lesbian, gay, bisexual, and transgender individuals who are an important part of the diverse Caltech community.



National Coming Out Day logo courtesy of comeout.org

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Pillow Talk

By LEE H. COLEMAN

If there's a common bond that all Techers share, it's probably insomnia. Before your sleep gets too far out of sync this term, here are some tips for better sleep, courtesy of the Counseling Center.

- Your mom was right – you really do need between 7 1/2 and 8 hours of sleep each night. Less sleep than that can diminish your concentration and focus, which can ultimately impair your work. Instead of thinking about sleep as time better spent catching up on your work, come to think of sleep as an investment in yourself that will help you do the best work you can.
- Theoretically, it's good to try to go to bed at around the same time each night, but we all know that's just not possible most of the time. What's much more practical is to try to get up at around the same time each morning. (Yes, even on weekends…) Getting your body used to a routine can help you sleep more consistently and more restfully.
- Try not to nap during the day. If you must, try to do it in the early afternoon, and don't nap for more than 45 minutes. Napping for longer than that can interfere with falling asleep later that night.
- Don't read, study, or watch TV in bed. By using your bed only for sleeping, you condition yourself to associate your bed with a restful state instead of being mentally alert.
- Try not to eat anything a few hours before bed, and try to avoid caffeine or alcohol a few hours before bed.
- Finally, even though it seems intuitive to tire yourself out by exercising before bed, this can actually interfere with falling asleep quickly. If you do exercise, schedule it for at least 4-5 hours before getting in bed.

Lee H. Coleman is a clinical psychologist at the Counseling Center, located in the Health Center on Arden Road. If you are having trouble sleeping or want to talk with a counselor about any other concerns, call 395-8331 to set up an appointment. You can also call Jane Curtis, the health educator, at 395-2961.

Popping Off to the British Museum

By MAYRA SEIKH

Dear Techers,

Though I miss LA, there is something I do not miss – Commuting with LA traffic. London, like most logical metropolises has something LA could definitely use – PUBLIC TRANSPORT. Having bus stops and tube stations placed every couple of blocks all over the city makes it easy to get around. Though not always the most efficient mode of travel, it is usually the most convenient. London is also small, so walking most places is feasible. That being said, there are lots of museums, churches, bridges and other tourist attractions that can be visited in a day.

Of course, touristy places sound boring (at least they do to me). After all, part of the reason I came to a tech school was so that I didn't have to read and write about dead people. I would not have to interpret art or any of that nonsense (no offense to the aficionados out there). However, in the spirit of being a foreigner, I have been visiting such places, and to my own amazement, I like them, a lot.

The British Museum, which is only two blocks from the UCL campus, is amazing. The building has everything in it. Ancient Greek and Roman sculpture, Egyptian Art, African Art, North and South American Art, not to mention special exhibits about things like Persia (students get a discounted price). Walking though the museum I was really amazed at how much the British have managed to obtain (some would say steal) over the years of their Empire. There are places where replicas stand because the authentic pieces are in the possession of the British. It makes me wonder about what is left in the outside world if so much of it is being showcased in Britain. However, its quite possible that without the British, many of these monuments and artworks would have perished.

Of course I had seen many of the pieces in textbooks or read about them before, or even seen them as interpreted by Hollywood, but it is different in real life. Standing next to a monolithic temple dedicated to Apollo just inspires the kind of amazement that cannot be achieved by a thumbnail in the corner of some musty textbook. Not only the huge temple pieces, but the statues of Pharaohs, deities, and warriors are also huge and intricately carved. I wonder how many artisans and slaves worked their lives away to make them.

Appreciation of sculpture is not so far fetched because there is something inherently cool about the inanimate human form, but paintings are quite impressive also. The National Gallery/ National Portrait Gallery, has thousands of paintings and photographs. Of course there are portraits of the British Monarchs from the Tudors onwards, but there are also portraits of famous scientists like Darwin and Faraday. Less historical are the displays of 20th century actresses and a display of contemporary self-portraits made my British children, teens, and adults.

While on the topic of more contemporary art, the buildings in which the artwork is displayed are an art form themselves. The British Museum has much of the Greco-Roman sculpture in gallery areas that look Greco-Roman; they have Ionic Columns and high vaulted ceilings with patterned or wood molding. Many of the ceilings are skylights to allow natural light into the museum. The friezes are displayed by actually being embedded into the walls. Many of the rooms in the Gallery are painted by theme and have molding appropriate to the pieces on display. Some of the Sections, like the Parthenon Galleries have videos about how the pieces displayed actually fit into their original environment. Not to mention the guided tours in various languages.

For those of you who do not think architecture is a form of modern art, there is the Tate Modern. I have yet to visit so I will refrain from praising/deprecating what I do not know. For those of you are bored, why are you still reading? And for those who are actually interested in museums, don't forget that they are close to you too. Maybe not so easy to get to, but a trip to the Getty, LACMA, MOCA, Museum of Tolerance, etc. isn't that difficult. I know that when I return, I will definitely try them out. For the time being, I should socialize with the Brits.

Cheers,
Mayra

Caltech Teams Do a

By MIKE RUPP

Men's Soccer shows improvement against Pomona-Pitzer; Oxy

The Caltech Men's Soccer team took another step forward this past week with two well-contested matches where the team showed tremendous improvement on offense and displayed the talents of Junior Goalkeeper Jeff Shaw.

First against Occidental, the team scored its third conference goal of the season, courtesy of Senior Forward Andrey Evtimov with an assist to Junior Forward Stuart Ward. Shaw had nine saves in the 6-1 loss.

Later in the week against Pomona-Pitzer, the team fought to a 0-0 tie at halftime, thrilling the home crowd with spectacular saves and thrilling forays into Pomona territory, many of them led by Stuart Ward. A goal by Pomona just three minutes into the second-half gave Pomona the lead, and they were able to add a second goal with less than two minutes left, despite 14 saves by Shaw.

In five starts, Shaw's accumulated 41 saves for an 8.2saves per match average.

It was the closest margin of victory Pomona-Pitzer has had over Caltech since a 2-0 Pomona win in 2002.

The team plays its next match this Saturday at the University of La Verne. The next home match comes Saturday, October 22nd as the team hosts arch-rival Whittier College in what's sure to be a highly competitive game. That match begins at 11:00 AM.

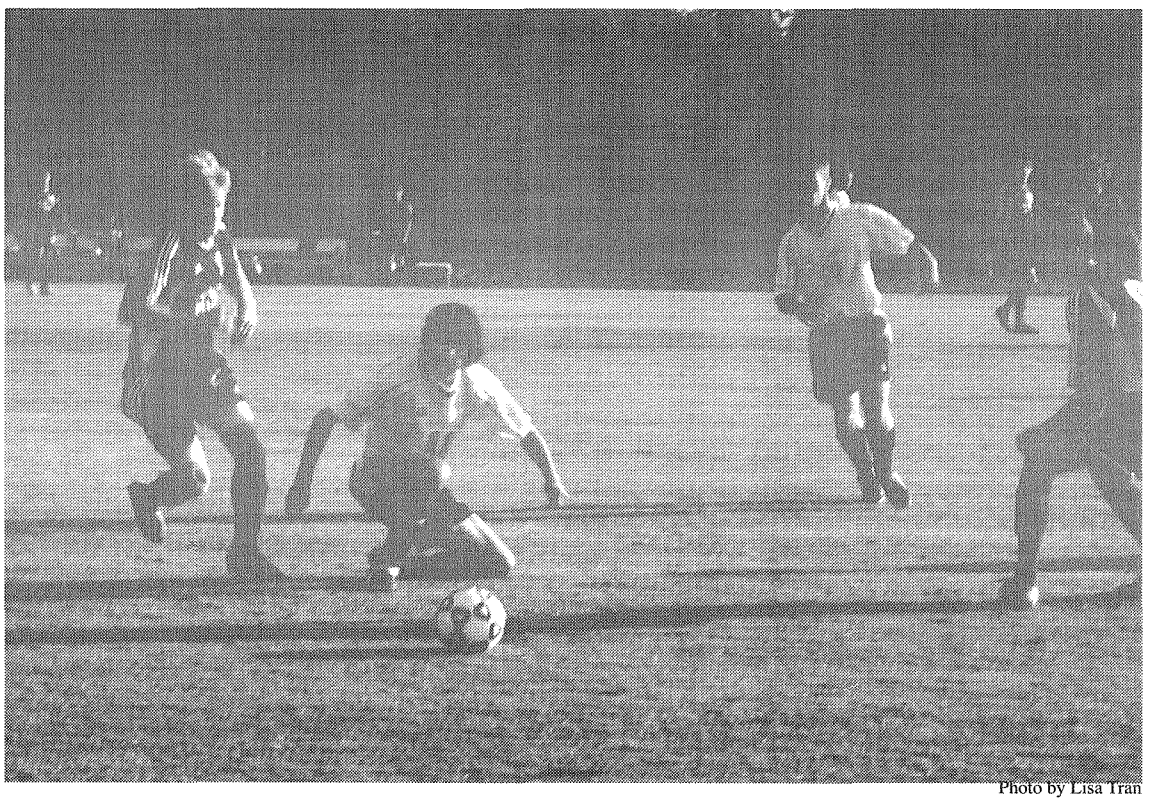
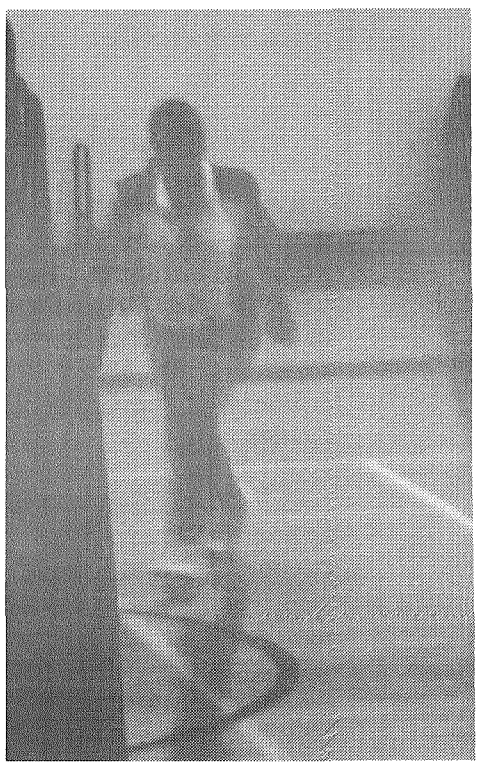


Photo by Lisa Tran



Women's Volleyball wins first game of the season vs. La Sierra

The Caltech Women's Volleyball team won its first game of the season in Game 2 of their best-of-five match with La Sierra University on Tuesday night. Caltech eventually lost the match, 3-1 (30-27, 25-30, 30-24, 30-19) but they were competitive throughout, hitting a season-best .195.

Junior Rebecca Streit led the team with 17 kills and three service aces. Her .389 hitting percentage was best on the team, and her 14 digs trailed only her sister, Elisabeth.

Senior Middleblocker Colleen Moody had season-highs in kills (13), blocks (five) and points (18).

Junior Elisabeth Streit was right behind her sister with 12 kills and a team-leading 16 digs.

Sophomore Setter Sarah Stidham had a season-high 41 assists.

For the season, Rebecca Streit remains just ahead of her sister in kills and service aces, while Elisabeth holds the edge in digs.

The team plays its next match Friday night at Occidental. Their next home match is Friday, October 28th, also against Occidental. Both matches begin at 7:30 PM.

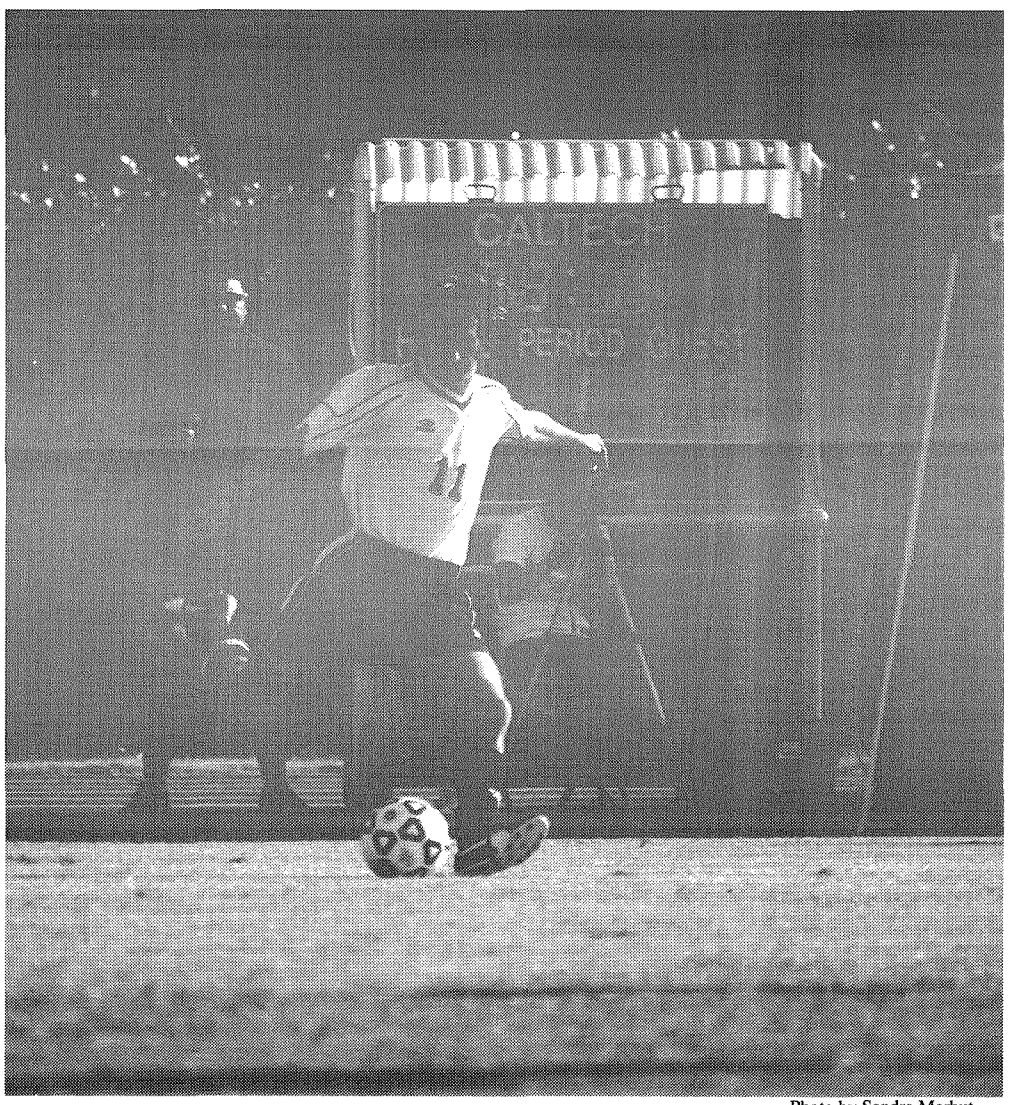
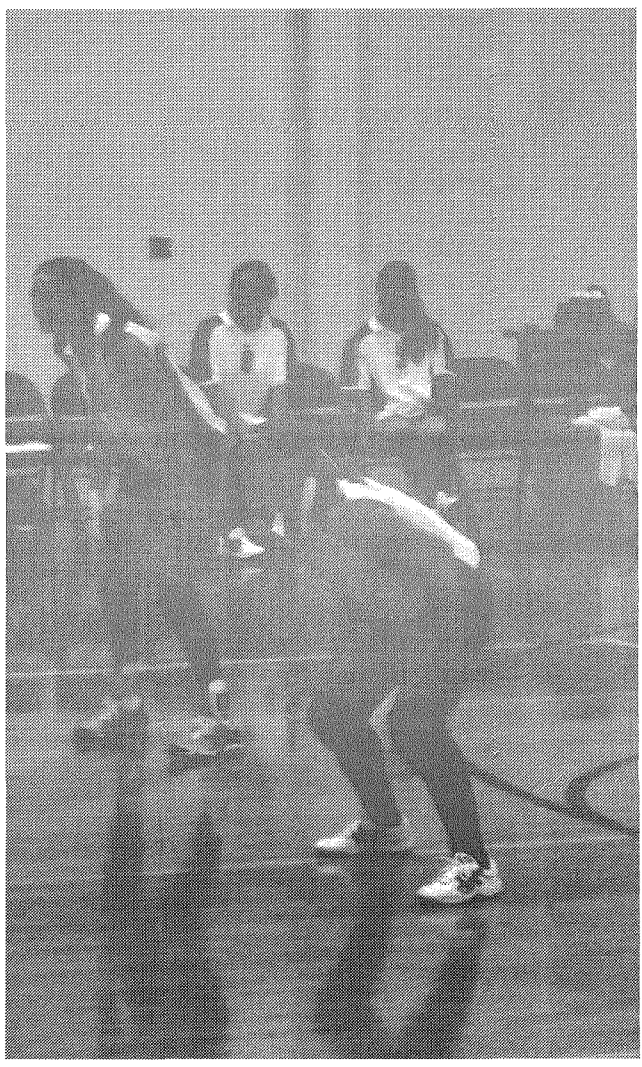


Photo by Sandra Marbut

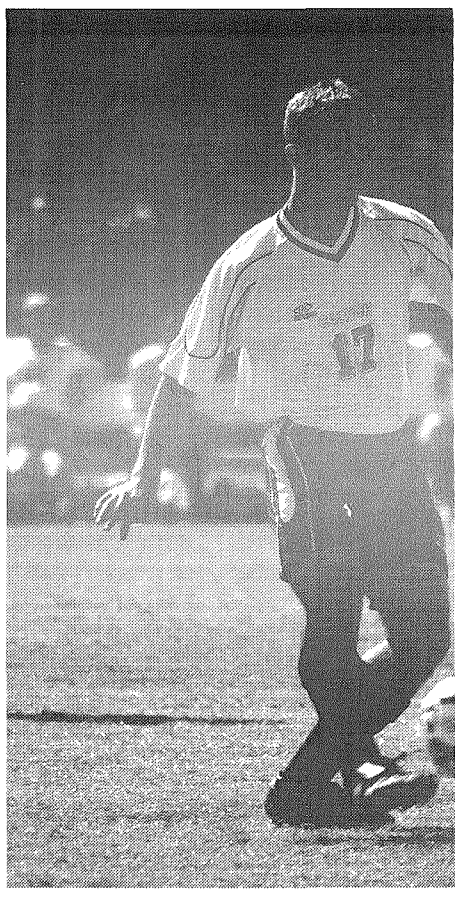


Cross-Country gears up for La Mirada

Caltech Cross Country will resume its schedule this weekend at the SCIAC La Mirada Mulit-Duals. Despite numerous injuries, the team has persevered this season, with Seniors Gustavo Olm and Ekua Anane-Fenin both showing tremendous leadership qualities.

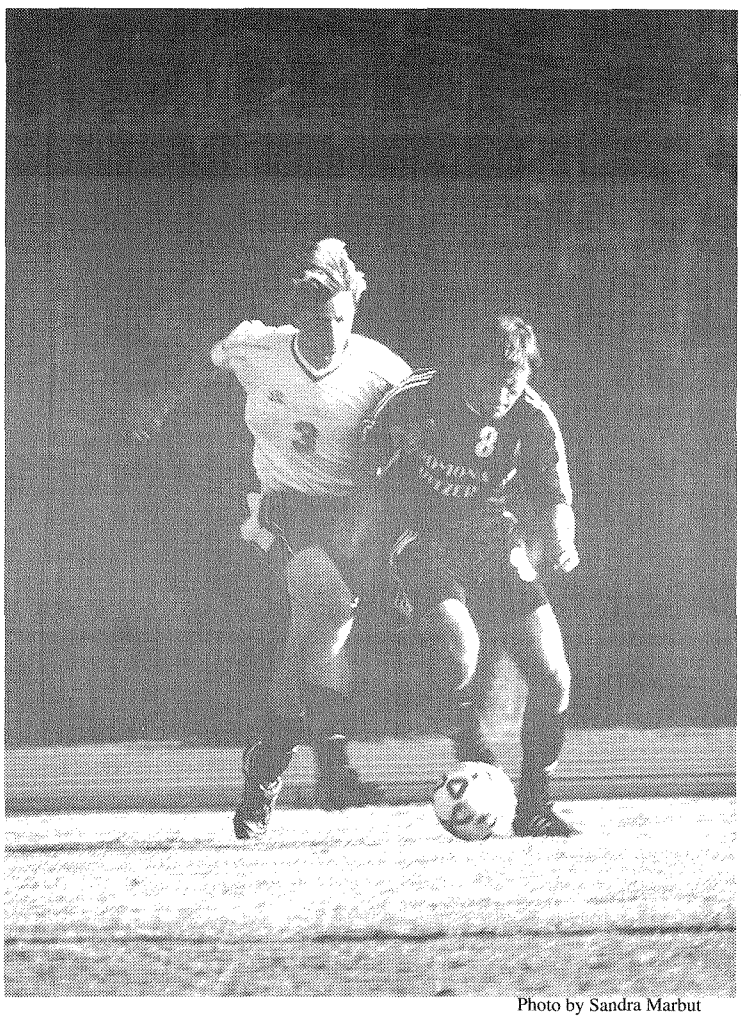
It will be the final meet of the season before the SCIAC Championships at the end of the month. The meet begins at 4:00 PM Saturday at La Mirada Park.

Photo by Lisa Tran



Little Better

Photo by Karen Wang



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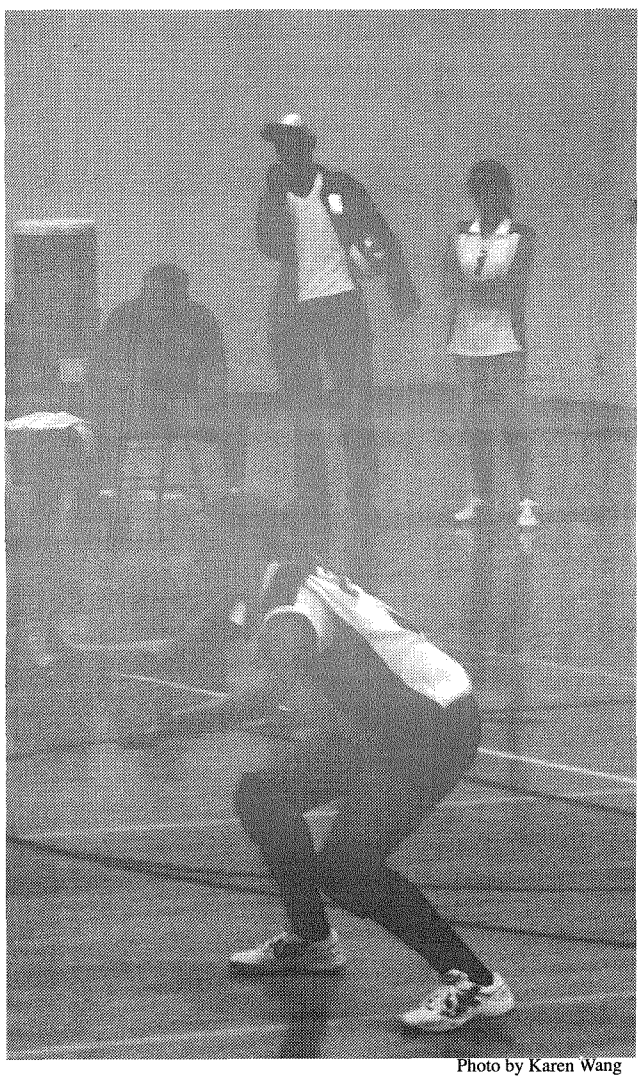

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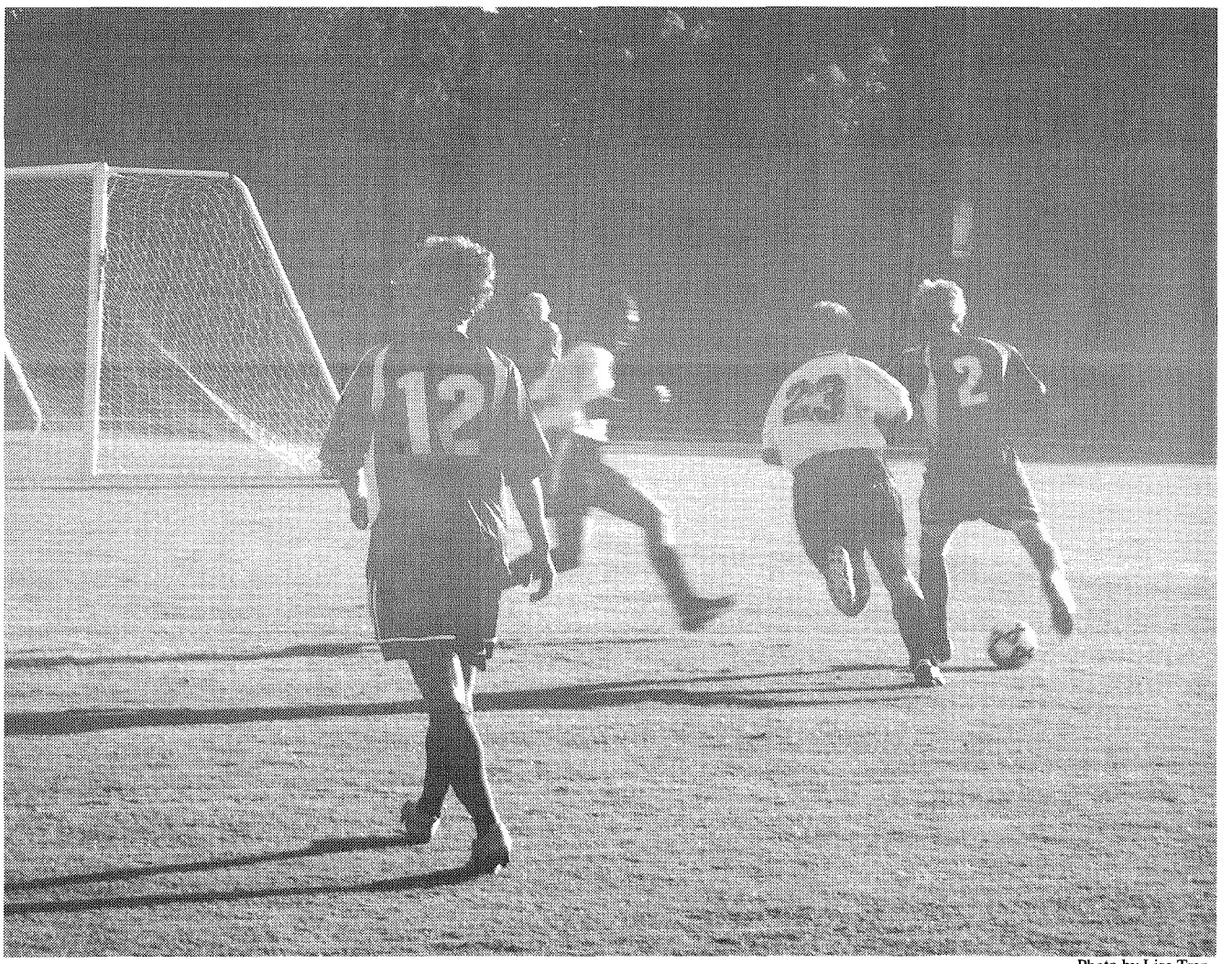

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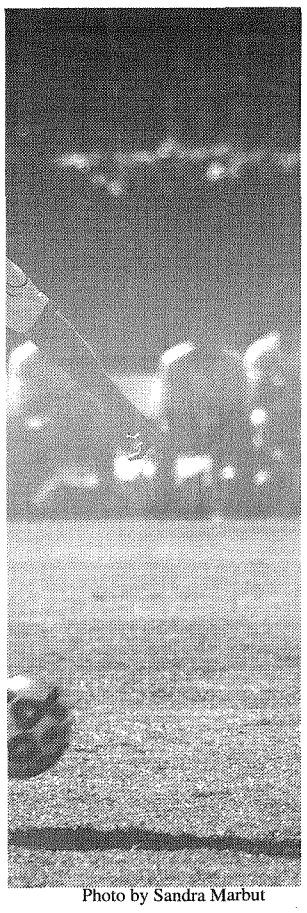

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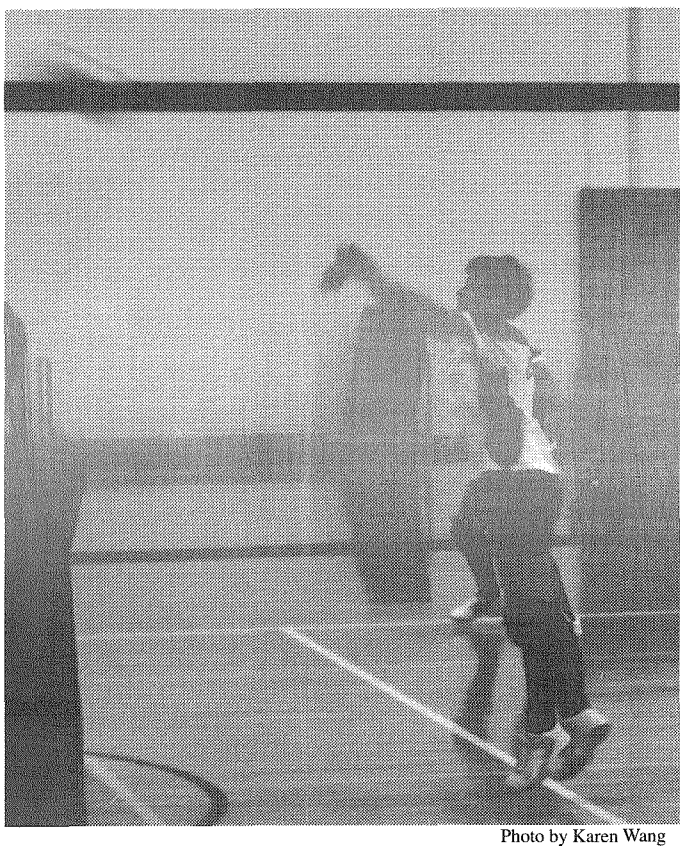

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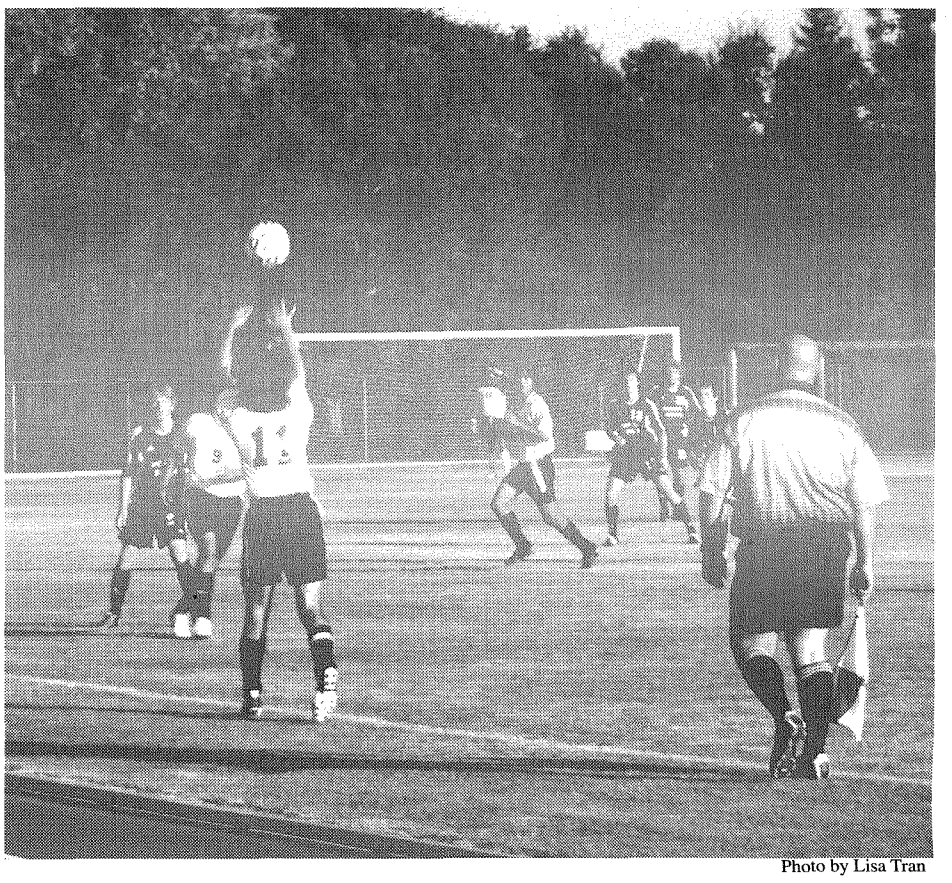
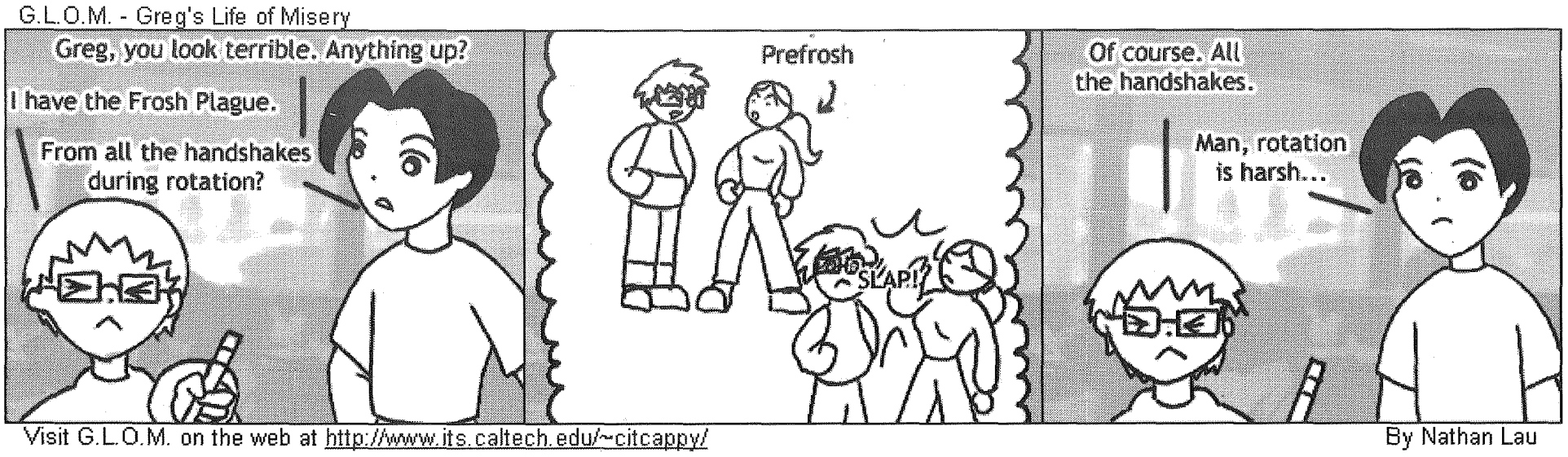


Photo by Lisa Tran

G.L.O.M. - Greg's Life of Misery



Visit G.L.O.M. on the web at http://www.its.caltech.edu/~citcappy/

By Nathan Lau

Irrational Exuberance

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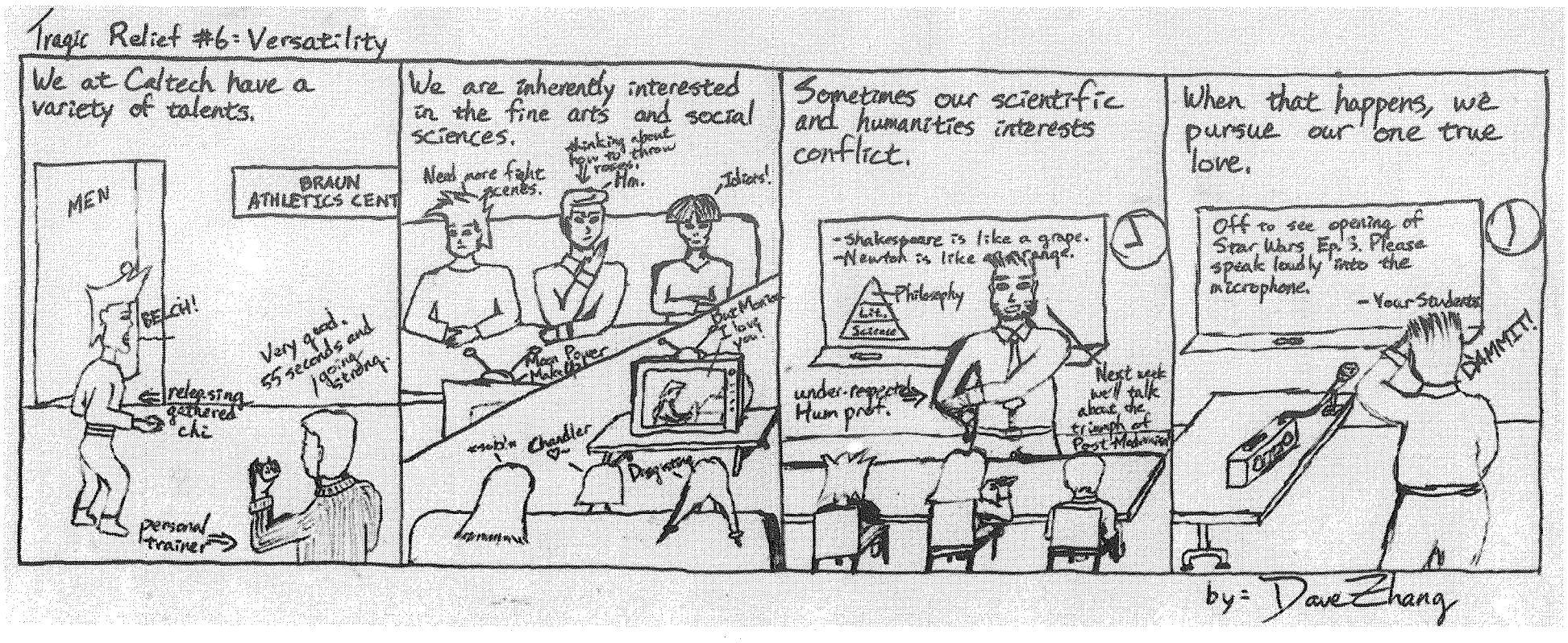
We Like Coquettish Kali-Tech Bread Life

By ADAM CRAIG



Hoffman's Luster Blinds the Eye to What *Capote* Lacks

By GILLIAN SINGLETARY

Although the marketing of Philip Seymour Hoffman's new star-turn suggests a simple biopic of an influential and enigmatic 20th century writer, *Capote* is certainly not so easily pigeonholed. Instead of attempting a sweeping portrait of Truman Capote's extravagant life, writer Dan Futterman chooses to focus on the five years that Capote devoted to researching and writing his most well-received novel, *In Cold Blood*. But it strays from the details of the true story behind the novel, the brutal slaying of a Kansas farming family, instead intent on exploring the strangely intimate friendship that develops between Capote and one of the killers, Perry Smith (Clifton Collins, Jr.). Nothing in the film exceeds the bounds of this plot line, which has Capote traveling back and forth from New York to Kansas, interviewing, prying and ultimately falling in love with Perry.

From Hoffman's first appearance on screen it is obvious that this film is a star vehicle for him. Consistently adept at creepy and strange character roles in off-beat fare like *Happiness* and *Boogie Nights*, Hoffman gets his chance to sink his teeth into the quirks of a flamboyant and meaty character, and he does so exuberantly. In every minute action, from the distinctive Southern lilt to the meticulous and consistent manner in which he unbuttons his overcoat, Hoffman brings Truman Capote back to life.

I can accept Hoffman as the driving force in this movie, but his exceptional role meant the strong supporting cast was grossly underused. Catherine Keener as Nelle Harper Lee, the voice of reason to Capote's flamboyant excess is charming at the beginning of the film but practically disappears for the bulk of the action, finally returning at the tail end. The relationship between her and Truman is unfairly underdeveloped in favor of too many visits to prison to see Perry. There is simply not enough exposition of the friendship for her disappearance to have its intended impact. Chris Cooper is also wholly underused as Kansas detective Alvin Dewey. We are privy to one scene toward the end where we see a glimpse into his anger toward Truman, who has become close with a man he loathes. Cooper's subtlety is classic, but more of his character would certainly have been appreciated. In an attempt to let Hoffman shine, director Bennett Miller let

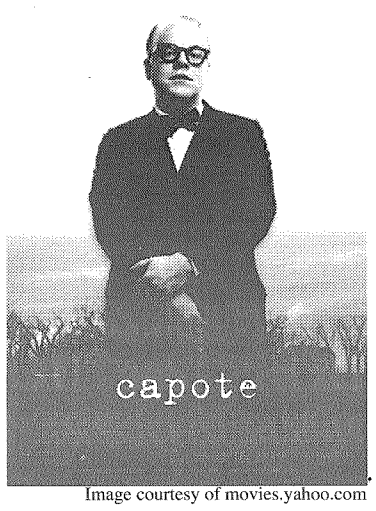


Image courtesy of movies.yahoo.com

immense talent go to waste on the periphery of the film.

On the other hand, Collins was allotted huge amounts of screen time opposite Hoffman, but never did anything to draw attention away from the star. It seemed he knew his lines, but his deadpan delivery left me uninterested in Perry Smith and his plight until the very end of the film. Perhaps a more talented actor would have interrupted Hoffman's glory, but I think it is more likely that he would have acted as a stronger foil and allowed more insight into the strong feelings that Truman develops for Perry.

The story is interesting in and of itself. I cannot fathom any writer who, with such unique and juicy fodder, would make anything boring out of Capote's obsessions with *In Cold Blood*. Futterman may have fallen into the trap of relying too much on the murder intrigue to the detriment of other elements of Capote's life. For instance, the nonexistent love affair between Truman and Jack Dunphy (Bruce Greenwood) is invisible to the point of distraction. Although it is implicit that they are lovers and that Jack resents Truman's devotion to *In Cold Blood*, neither the affection nor the conflict between them is ever explored. More development in this aspect of Capote's existence may have clarified the effect that this obsession was having on his everyday life and important relationships.

I expected the world of Hoffman in this performance and he certainly did not disappoint. However, I was pleasantly surprised by the superb cinematography that drove the film. Especially noteworthy are the panoramic Kansas landscapes that open the film and interrupt the action from time time. A character study like this would not normally be wont to include such scenery, or even to bother filming in a 2.35:1 aspect ratio, but these shots certainly made it worth it. Cinematographer Adam Kimmel was quite adept at shooting these still and sweeping landscapes but still making Truman's New York parties seem intimate and crowded. Although inexperienced now, Kimmel will surely see doors open with the wide release of *Capote*.

Truman Capote has been deemed a character compelling enough to inspire numerous biographies, replete with musings from friends and acquaintances, few flattering. His personality, embodied here by one of the great if under-appreciated actors of his generation, is multi-faceted and intriguing enough to carry this film. Beautiful cinematography and tight direction are just the icing on the cake. This is Hoffman's film and should be approached and referred to as such. *Capote* has its flaws, but, much like its inspiration, immense talent smoothes them all over and presents us with an entirely entertaining and interesting film.

ASCIT Minutes

By PETER FOLEY

Present:
Peter, Todd, Wendy, Dima, Michelle (playing President for Warner), Kelly

Ryan is here in spirit, but all he's doing is sitting in a corner, screaming NOOOO at the top of his lungs. My God that man can yell a lot. I don't think he ever actually stops to breath, maybe he's a robot. He talks to me in my dreams.

Guests:
Sheive, Anna Salazar from SASS, Lisa said hi, was here for 15 seconds.

Sass requested $500 for Nader talk
Peter moved $500, Todd seconds, passes 3yay-0nay-2abstain

Sheive gave updates on the Tech website and backend
Sheive asks about date concert is scheduled, whether there would be an opener.
Dima doesn't know about openers, Sheive's band volunteers.

Who's your daddy? Discuss.

Bonobos look remarkably like very hairy humans with absurdly small heads.

Dima/Sheive chit-chat about athletics bbqs, money for events, Sheive's band wants to play at them.

Taking people to the Ath:
Dima says lets let them go off-campus. It's just discussion, we don't need a vote to change things. They still have to come to meetings.

Bylaws:
We like to eat fishies!!!!! Also, we suck at getting bylaws out. Honest, we've been trying to get this done for the past 7 months. Why do we suck so much?
We need to get stuff in the tech and get the thingies online or whatnot. People go online more than they don't. Also, some people are big wankers.

CRC sometimes wants to play the MAGIC BoD BEAST GAME CHILD. Also, Jeremy is awesome, but he's a lloydie, so it'd kinda be turdish to have another one of those self-righteous asses on the BoD. It's still better than having a bunch of Flems around like a few years ago.

Monday at lunch is a friggin sweet time to meet and chat about stuff. People with beef are big chump-bots. We should email for questions first, cover a FAQ at the beginning, then ask questions.

Hyperlinks aren't true links. They're false. Like Ryan. He's a robot.

Dima talk some about the concert-beast. Band wants $25k instead of $20k. Admins want to give $2.5k instead of $5k. GSC doesn't want to give mad monkey-cash. Box, man. Box. Budget cuts -> why the monkey are we spending money on this crizzappe!?!?!?! Cuz that's what the MHF is for, beechuzz.

Dima says worst case is that band wants $25, GSC gives us no mad cash-beasts. That means we need ~$8200. Box, that's a lot of cash-money-beasts. I could totally get 2 boats with that. Box. Also, where's my sailing club MHF moneez, fools?

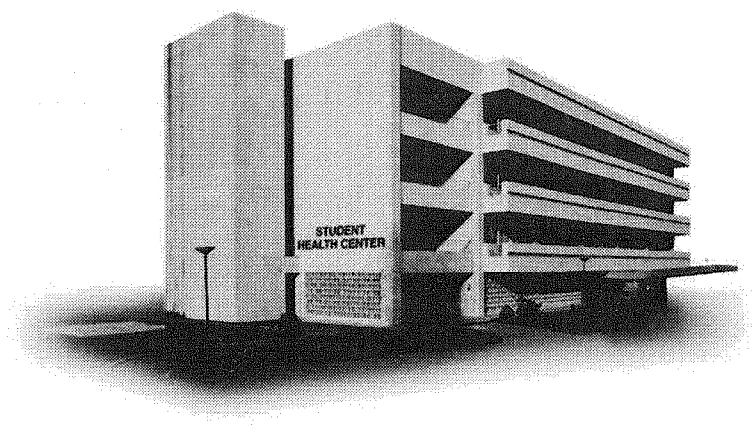
Not having money kinda sucks. Having strict budgets for student governments sucks too. We should be able to be more flexible and have more discretionary funding to do cool stuff when we get a chance.

Also, "Box" is an awesome expletive.

Who here is human? None of us. Especially not Ryan. He's a robot.

Ryan can be rearranged to form the word "arny" which sounds mighty hickish, and that makes me suspicious that Ryan isn't just any sort of Robot; he's a RoboRedneck.

Ode to Ryan:
Fishie fishie in the pond.
You are so wet.
Don't you wonder who I am.
No, cuz you're a robot.



Caltech Receives $18 Million Over 5 Years to Start Nanosystems Biology Cancer Center

By JILL PERRY

Jim Heath wants to catch cancer earlier and provide more effective monitoring of patients' responses to therapies. The National Cancer Institute likes his plan and just awarded him $18 million over five years to get started.

Heath, the Elizabeth Gilloon Professor and professor of chemistry at the California Institute of Technology, will direct the Nanosystems Biology Cancer Center at Caltech (NSBCC). This center will focus on the development and validation of tools for early detection and stratification of cancer through rapid and quantitative measurement of panels of serum and tissue-based biomarkers.

The new center establishes a collaborative team comprising investigators from Caltech, the Institute for Systems Biology (ISB) in Seattle, and UCLA's Institute for Molecular Medicine and Jonnson Comprehensive Cancer Center. Former Caltech professor and ISB founder Lee Hood is a co-director of the NSBCC, and Michael Phelps, Norton Simon Professor and chair of the UCLA molecular & medical pharmacology department, is also a co-director.

The grant is part of an overall effort by the National Cancer Institute (NCI), which is part of the National Institutes of Health, to establish seven Centers of Cancer Nanotechnology Excellence (CCNEs). The centers were announced today by the NCI as a major component of its $144.3 million, five-year initiative for nanotechnology in cancer research. First-year awards totaling $26.3 million will help establish the centers.

The focus of the Caltech center will be to develop and validate tools for the early detection and stratification of cancer through rapid and quantitative measurements of panels of serum and tissue-based biomarkers, and to also use those tools to evaluate the efficacy of various cancer therapies. In addition to general oncology applications, this CCNE will focus on prostate and ovarian cancer, glioblastoma, and melanoma. During the course of the projects that this CCNE will conduct, investigators will develop: Nanotechnology and microfluidics-based chips for profiling various cancers through serum analysis. The goal is to use a fingerprick of blood as a diagnostic window into health and disease by detecting a panel of serum-based proteins that reflect the onset, progression, and therapeutic responses of cancer. ¢ chip-based tools for isolating rare circulating white blood cells as a means of understanding how to better harness a patient's own immune system for fighting off cancer. ¢ identification of biomarkers that are indicators of the health status of specific organs, such as the prostate or ovaries, and are secreted into the blood. Such biomarkers are then detected using the nanotech-based chips for achieving an informative diagnosis of various cancers through serum analysis. ¢ technologies for visualizing cancer in patients (and thus directing therapies) through the use of in vivo molecular imaging. Highly targeted molecular imaging probes, prepared using "click" chemistry approaches, will be developed. ¢ high-throughput nanofabrication methods for constructing the low-cost, diagnostic, chip-based devices.

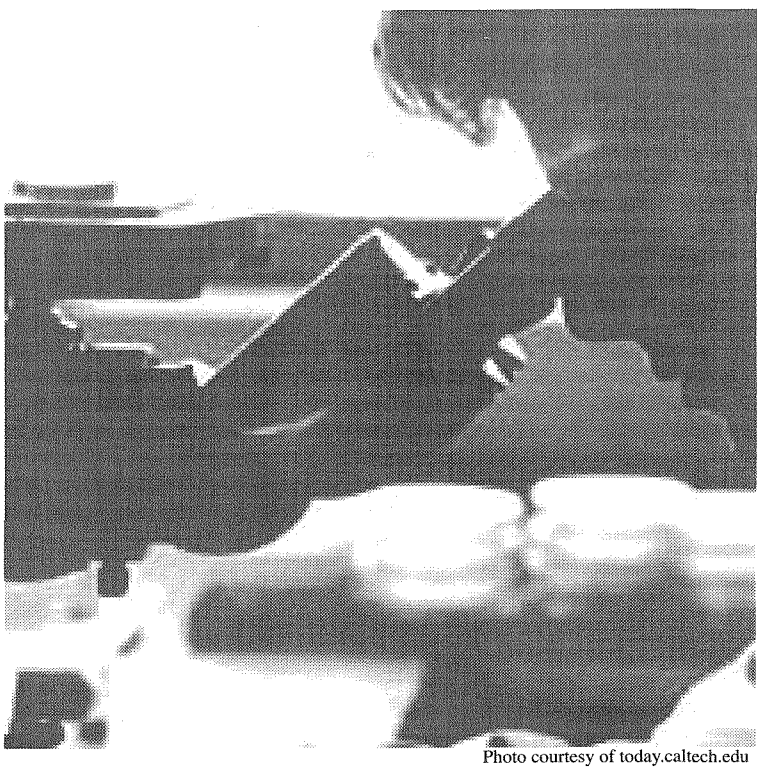


Photo courtesy of today.caltech.edu

This woman is looking into a microscope, probably at science.

"The clinical treatment of cancer will undergo profound change over the next 10 to 15 years," said Heath. "This change will be catalyzed by a systems biology approach toward understanding the disease, and by microfluidics and nanotechnologies that can translate that approach into clinically useful tools. These advances will allow for an early and informative diagnosis of cancer through in vitro diagnostics and in vivo molecular imaging of patients. These new technologies will guide drug discovery and treatment selection on an individualized basis, providing the right drug for the right patient. The goal of the NSBCC is to serve as the agent of that change by developing the core technologies for achieving this vision, and by catalyzing the commercialization of those technologies. The combination of nanotechnologies from Caltech, proteomics, genomics, and computational biology from the Institute for Systems Biology, and the molecular imaging, cancer biology and clinical cancer programs from UCLA Jonsson Comprehensive Cancer Center provide the cross-disciplinary basic and clinical science expertise committed to realizing this vision."

"We believe that nanotechnology will have a transformative effect on cancer diagnosis and treatment. In fact, its impact is already visible in the research being conducted through many of the centers we are announcing today," said Andrew von Eschenbach, M.D., director of the National Cancer Institute. "Through the applications of nanotechnology, we will increase the rate of progress towards eliminating the suffering and death due to cancer."

Nanotechnology, the development and engineering of devices so small that they are measured on a molecular scale, has demonstrated promising results in cancer research and treatment. NCI launched the plan to create the NCI Alliance for Nanotechnology in Cancer in September 2004, as a comprehensive, integrated initiative to develop and translate cancer-related nanotechnology research into clinical practice.

NCI's Alliance for Nanotechnology in Cancer encompasses four major program components, including the CCNEs. CCNEs are multi-institutional hubs, which will focus on integrating nanotechnology into basic and applied cancer research and providing new solutions for the diagnosis and treatment of cancer.

Each of the CCNE awardees is associated with one or more NCI-designated cancer centers, affiliated with schools of engineering and physical sciences, and partnered with not-for-profit organizations and/or private sector firms, with the specific intent of advancing the technologies being developed.

Similar centers will be established by University of North Carolina, UC San Diego, Emory-Georgia Tech, MIT-Harvard, Northwestern University, and Washington University in St. Louis, Mo.

CONTEST

Caltech Wants to Know....

What was your favorite piece of swag from this year's career faire? Send in your thoughts, so that we can boil them down to cold, anonymous statistics and print them as tidy bar graphs and pie charts. If you send in a particularly moving description of your best-loved freeby, we will publish it and pay you $10.

On an unrelated note, I have decided that our newspaper is lacking an element vital to any info-tainment publication, statistics. Send in statistics on anything. If we like your statistic, we will print it in the issue that comes out the Monday after we get it. The most interesting statistic, as chosen by a method that mainly reflects the editorial staff's short attention span and easily-amused mentality, will receive some sort of prize, probably whatever we have lying around the office.

Send all entries, questions, anecdotes, etc. to tech@tech.caltech.edu

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