

Caltech campus gets ready for a groovy year

MONICA ENLOW
Editor-in-Chief

The 2014-15 school year began Sunday, September 21, 2014 with the arrival of Caltech's 234 incoming freshmen. This year the Caltech family is welcoming many new members, and renaming some old ones. Change is in the air and it smells as good as a pumpkin spice latte.

This year's convocation featured the new university president, Dr. Thomas Rosenbaum, and Professor Alan Weinstein, who gave an inspiring speech for the incoming undergraduates, graduates, and their families and friends.

As always, the graduate students had their orientation on campus, and the undergraduate class of 2018 was ushered off to the Marriott in Ventura Beach. The

weather was beautiful and everyone was so excited and happy to be there. The prefrish were herded by noble upperclassmen who couldn't really complain about a trip to the beach. While there they participated in a slew of team building activities.

The prefrish, although a tad awkward at first, came out of their shells to meet their new peers. Fun was had by all, students and faculty alike.

After three days of fun activities, the tuckered little tikes came back to try and find new homes through rotation. What will happen to these prefrish? Only time will tell. Stay tuned.

Here are some of the photo highlights from that because a picture is worth a thousand words.



It makes me happy to know that the prefrish still have hope in their eyes.



There are important photos...then there's this photo of the fantastic new Dean of Students John O. Dabiri doing the "Cupid Shuffle" at frosh camp. I wasn't lying when I said it would be put on the front page.



Alan Weinstein presents the first and most important lesson to prefrish: that pizza classes are your friend.



Good job, prefrish! Yeah! High-five! Awesome!



Team Sweden is off to the races with a determined and enthusiastic effort to learn better study habits.

Photos by Monica Enlow

New faces brighten multiple Caltech offices

NEERA SHAH
Editor-in-Chief

This year Caltech is seeing a lot of changes on the administrative front. In case you haven't been keeping up with who's who, I have compiled list of people I think you should know. All information is from caltech.edu.

John Dabiri
Dean of Undergraduate Students

Dabiri received his undergraduate degree in mechanical and aerospace engineering from Princeton University in 2001. He earned both his MS ('03) in aeronautics and PhD ('05) in bioengineering from Caltech, joining the faculty upon completion of his doctoral studies in 2005. A 2010 MacArthur Fellow, he is director of Caltech's Biological Propulsion Laboratory.

The role of dean of undergraduate students is to foster academic and personal growth through counseling and support for



-caltech.edu

student activities as well as act as a liaison between students and faculty. "It's essential that we continue the important work Dean Kiewiet has initiated in developing a comprehensive social safety net within the house system," says Dabiri. "I'm also eager to receive the recommendations of the ongoing ad hoc committee on undergraduate self-governance, which should provide

our students with greater opportunities to develop leadership skills through management of the houses."

Adapted from an article by Katie Neith, Associate Editor and Science Writer

Cindy Weinstein
Vice Provost

On September 1, Professor of English Cindy Weinstein became a vice provost at Caltech. She takes on the role filled for the past seven years by Melany Hunt, the Dotty and Dick Hayman Professor of Mechanical Engineering.

Originally from New Jersey, Weinstein received her undergraduate degree from Brandeis University in 1982 and her doctorate from UC Berkeley in 1989. "I've been teaching at Caltech for 25 years. My kids learned to ride their bikes at Caltech, and my dogs love to go for walks at Caltech. As vice provost, I am looking forward to continuing Caltech's traditions of excellence and helping to bring to campus new possibilities for teaching and

research that will yield even more success for both students and faculty," she says.

As part of her responsibilities, Weinstein will be working closely with the Center for Teaching, Learning, and Outreach and leading a committee that explores the role that new forms of technology might take in the classroom. "I will be thinking about

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Caltech Y
Column

CALTECH Y

The Caltech Y Column serves to inform students of upcoming events and volunteer opportunities. The list is compiled by Neera Shah from information given by the Caltech Y and its student leaders.

Founded by students in 1916, the Y was organized to provide extracurricular activities planned and implemented by students as an opportunity to learn leadership skills and discover themselves. The mission of today's Y remains the same—to provide opportunities that will prepare students to become engaged, responsible citizens of the world. The Y seeks to broaden students' worldviews, raise social, ethical, and cultural awareness through teamwork, community engagement, activism, and leadership. More information about the Caltech Y and its programs can be found at <https://caltechy.org>. The office is located at 505 S. Wilson Avenue.

Ongoing and past programs hosted by the Y:

- Alternative Spring Breaks: Costa Rica, New York, Yosemite, San Diego, San Francisco
- Make-A-Difference Day: Hillside Home for Children, LA County Arboretum and Botanic Garden, Children's Hospital Los Angeles (Coachart), Eaton Canyon, Lifeline for Pets
- Explore LA: Lakers game, Next to Normal musical, Norton Simon Museum trip
- RISE Tutoring program (an afterschool math and science-focused tutoring program that serves public school students between grades 8 and 12)

UPCOMING EVENTS

1. Hathaway Sycamores Tutoring

Thursday | September 25th | 5:30 - 8:30 PM | Highland Park

Volunteer at Hathaway-Sycamores, a group that supports local underprivileged but motivated high school students. There are a variety of ages and subjects being tutored. The service trip includes about an hour of travel time and 2 hours of tutoring. Transportation is included. For more information and to RSVP, email Sherwood Richers at srichers@tapir.caltech.edu.

2. Union Station Family Center

Sunday | October 5th | 4:00 - 8:00 PM | 505 S. Wilson

Prepare and serve dinner to the homeless at Union Station Family Center in Pasadena. Food and materials are provided. The Family Center provides a home-like environment for up to 50 parents and children and is one of the only shelters in LA County that accepts single fathers with children. For more information and to RSVP, email Liz Jackman at ljackman@caltech.edu.

Campus celebrates the lives and accomplishments of scientists

NEERA SHAH
Editor-in-Chief

This list has been compiled from caltech.edu. Full tribute articles can be found there.

Frank Marble 1918-2014

Frank Earl Marble (Eng '47, PhD '48), Caltech's Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering and Professor of Jet Propulsion, Emeritus, passed away on August



Frank Marble
-caltech.edu

11, 2014, two months after the death of Ora Lee Marble, his wife of 71 years. Marble was one of the fathers of modern jet engines; his doctoral thesis included a method for calculating the three-dimensional airflow through rows of rotating blades. A jet engine is essentially two sets of blades on a common axle. A compressor at the front of the engine slows the incoming air and feeds it to the burner, and a turbine spinning in the hot gases downstream ejects the exhaust and drives the compressor. More broadly, Marble's methods apply to any fluid flowing along the axis of a fan, pump, turbine, or propeller.

On receiving his doctorate from Caltech in 1948, Marble was hired as an assistant professor by Tsien Hsue-shen (PhD '39), the Goddard Professor of Jet Propulsion. Tsien assigned him to develop a set of courses in this new field, which blended chemistry, gas dynamics, and materials science

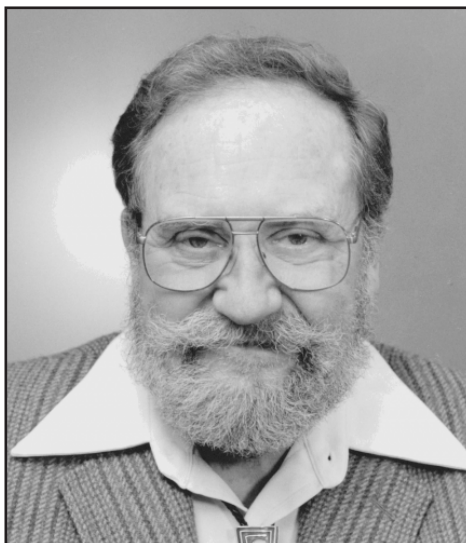
Tsien also gave Marble a half-time appointment at Caltech's Jet Propulsion Laboratory (JPL), which in the pre-NASA era really was studying jet propulsion, developing missiles under contract with the army. Tsien and his fellow members of the "suicide squad" had founded JPL in the wide-open scrublands of the upper Arroyo Seco in the 1930s after a string of accidents and explosions had gotten them evicted from the campus aeronautics lab. By the late 1940s, JPL had grown into an unrivaled set of testing facilities sprawled across some 60 acres.

Adapted from an article by Douglas Smith, Producer and Lead Writer of Legacy Content

Ray D. Owen 1915-2014

Immunology pioneer Ray D. Owen, professor of biology, emeritus, at Caltech, passed away on Sunday, September 21 at the Californian-Pasadena Convalescent Hospital in Pasadena, California. He was 98.

Owen's major scientific contribution was his discovery, in 1945, of immunological tolerance in twin cattle. Using blood typing, he recognized that one of a set of fraternal twin cattle had no immune response to the foreign antigens (substances that provoke an immune response) introduced from their twins. The finding paved the way for the experimental



Ray D. Owen
-caltech.edu

induction of tolerance through immune suppression and for early tissue grafting—which initiated the era of organ transplantation—by Frank Macfarlane Burnet and Peter Brian Medawar, who received the Nobel Prize for the work in 1960. "In fact, Owen was the first to postulate that immunosuppressive treatments such as x-irradiation might allow incompatible transplants, and participated in the experiments in which bone-marrow transplants to irradiated recipients were first successfully demonstrated," says Elliot Meyerowitz, Caltech's George

W. Beadle Professor of Biology.

At Caltech, Owen also was noted for his dedicated teaching—he received an award for teaching excellence from the Associated Students of the California Institute of Technology (ASCIT); for his extraordinary commitment to mentoring young scientists; and for his administrative roles. He served as chairman of the Division of Biology from 1961 to 1968 and

as vice president for student affairs and dean of students from 1975 to 1980.

Adapted from an article by Kathy Svitil, Associate Editor and Science Writer

Thomas A. Tombrello,
1936-2014

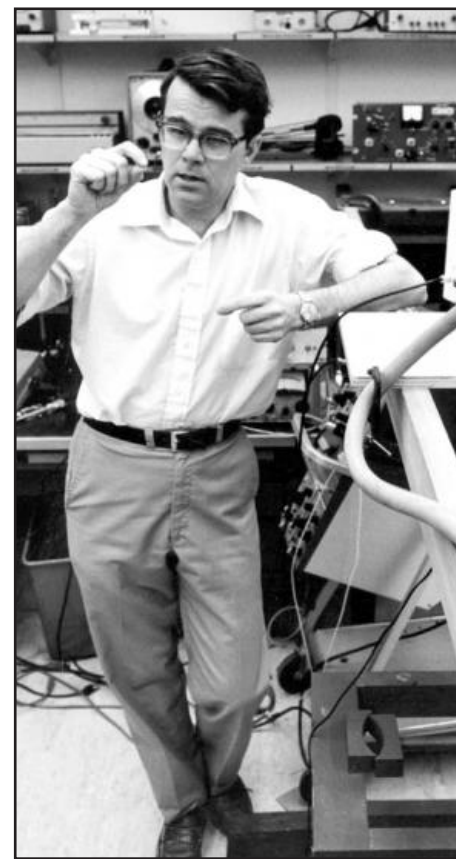
Thomas A. Tombrello, Caltech's Robert H. Goddard Professor of Physics, passed away on Tuesday,



Thomas A. Tombrello
-caltech.edu

September 23. He was 78.

Tombrello was an expert in the application of theoretical and experimental physics to problems



Gerry Neugebauer
-caltech.edu

in materials science, surface physics, and planetary science. His research studies included understanding the damage processes caused by megavolt ions in solids, characterizing the sputtering of materials by low-energy ions as well as growing and studying novel light-emitting materials. He served as the chair of the Division of Physics, Mathematics and Astronomy from 1998 to 2008.

Tombrello was a fellow of the American Physical Society and the recipient of an honorary

doctor of philosophy from Uppsala University. At Caltech, he was noted for his commitment to student education, receiving awards for teaching excellence from the Associated Students of the California Institute of Technology (ASCIT) for 1982–1983 and 1986–1987, and, in 1994, the inaugural Richard P. Feynman Prize for Excellence in Teaching, given annually to a teacher who exhibits "unusual ability, creativity, and innovation in teaching."

Adapted from an article by Kathy Svitil, Associate Editor and Science Writer

Gerry
Neugebauer
1932-2014

Gerry Neugebauer, Caltech's Robert Andrews Millikan Professor of Physics, Emeritus, and one of the founders of the field of infrared astronomy, passed away on Friday,

September 26. He was 82.

Neugebauer earned an AB in physics from Cornell University in 1954 and a PhD in physics from Caltech in 1960. He then served two years in the United States Army, stationed at the Jet Propulsion Laboratory, before returning to Caltech in 1962 as an assistant professor of physics. He was named an associate professor in 1965, professor in 1970, Howard Hughes Professor in 1985, and Millikan Professor in 1996. He retired in 1998.

He served as the director of the Palomar Observatory from 1980 to 1994 and as the chair of the Division of Physics, Mathematics and Astronomy from 1988 to 1993.

In addition to his leadership of the Two-Micron Sky Survey—the first infrared survey of the sky—Neugebauer led the science team for the first orbiting infrared observatory, the Infrared Astronomical Satellite

(IRAS), which conducted the first far-infrared sky survey and detected hundreds of thousands of objects. He and his colleagues also obtained the first infrared view of the galactic center, and he was the codiscoverer of the Becklin-Neugebauer Object, a massive but compact and intensely bright newly forming star in the Orion Nebula, previously undetected at other wavelengths of light.

Adapted from an article by Kathy Svitil, Associate Editor and Science Writer

Staff take on new roles

Continued from page 1

creative ways of teaching our students, such as flipped classrooms and MOOCs, and what educational innovations make sense given Caltech's size and goals," she says.

In addition, she will be involved with the Summer Undergraduate Research Fellowship (SURF) program, as well as the President's Diversity Council.

Adapted from an article by Jessica Stoller-Conrad, Science Writer

Erik Snowberg Master of Student Houses

Erik Snowberg, professor of economics and political science, has been appointed as Caltech's new master of student houses, or "MOSH."

Following Caltech tradition, the MOSH is a professorial faculty member who focuses on promoting a positive overall experience for Caltech undergraduates and acts as a liaison between students and faculty. To that end, the MOSH invites students over for meals and movies, hosts events throughout the year designed to foster interactions between faculty and students outside the classroom, and organizes trips to the opera, theater, and symphony, among other activities.

Snowberg has been at Caltech since he received his PhD in business administration from Stanford in 2008. He holds bachelor's degrees

in physics and mathematics (with a minor in economics) from MIT. "I am where I am in part thanks to my undergraduate professors," he says. "I can't really pay them back—they're all rich and famous—so I have to pay it forward."

Snowberg is taking over from Geoff Blake, professor of cosmochemistry and planetary sciences and professor of chemistry, who has served as MOSH since 2009. "Erik's experience as Faculty in Residence in Avery House over the last few years will be an enormous asset as he takes on the responsibilities of MOSH," says Anneila Sargent, vice president for student affairs and Ira S. Bowen



-caltech.edu

Professor of Astronomy. "He has a strong sense of the challenges as well as the opportunities that lie ahead, coupled with infectious enthusiasm."

Adapted from an article by Kathy Svitil, Director of News

Research Spotlight

The Tech is starting a new feature, and would like YOU to submit your research! If you would like your research featured, submit part of your research paper, your abstract, pictures of your lab, and/or pictures of your cool science to be featured in the paper. Email:

tech@caltech.edu

Developing an Electrochemical Assay for Detection of Dna2 Nuclease Activity

JENNY HE
Contributing Writer

Mentors: Jacqueline K. Barton and Helen Segal

Dna2 is a helicase-nuclease that is involved in DNA repair and replication. Mutations in Dna2 are linked to the pathogenesis of human diseases and developmental disorders such as cancer, Seckel syndrome (a form of dwarfism), and progressive myopathy. Thus, a complete understanding of the biochemical mechanism of Dna2 is important for understanding human health and disease.

Dna2 has an iron-sulfur cluster that is conserved in eukaryotes, from yeast to humans, but the role of the 4Fe-4S cluster is still unknown. The Barton lab has proposed that 4Fe-4S clusters in DNA binding proteins participate in DNA-mediated redox signaling. DNA acts as a molecular wire to transport electrons through the π -orbitals along undamaged DNA over distances as long as 100 base pairs.

Thus far, the only studies of DNA CT in a biological system have focused on characterizing DNA repair proteins from *E. coli*, a prokaryotic organism. The goal

of this project is to develop an electrochemical assay to study proteins like Dna2 from eukaryotic organisms that also signal one another via DNA CT. The results of this electrochemical assay compare to those of a gel electrophoresis assay as described in a 2013 PNAS paper, proving the legitimacy and usefulness of this assay. This work will potentially provide insight on how enzymes with 4Fe-4S clusters use DNA CT to repair DNA in eukaryotic cells. These results could set a foundation for expanding the current model for DNA CT and DNA repair in prokaryotic organisms to more complex organisms.

Get fit with Brad/Chad

BRAD CHATTERGOON
Contributing Writer

Every year many people make resolutions to eat healthier, exercise more, and be more outgoing. I can't help much with the last one, but I do have some advice for the first two. The road to fitness can be intimidating at first because there are so many parts to it: Am I eating right? What exercises should I do? Do I need to drink those icky protein shakes?

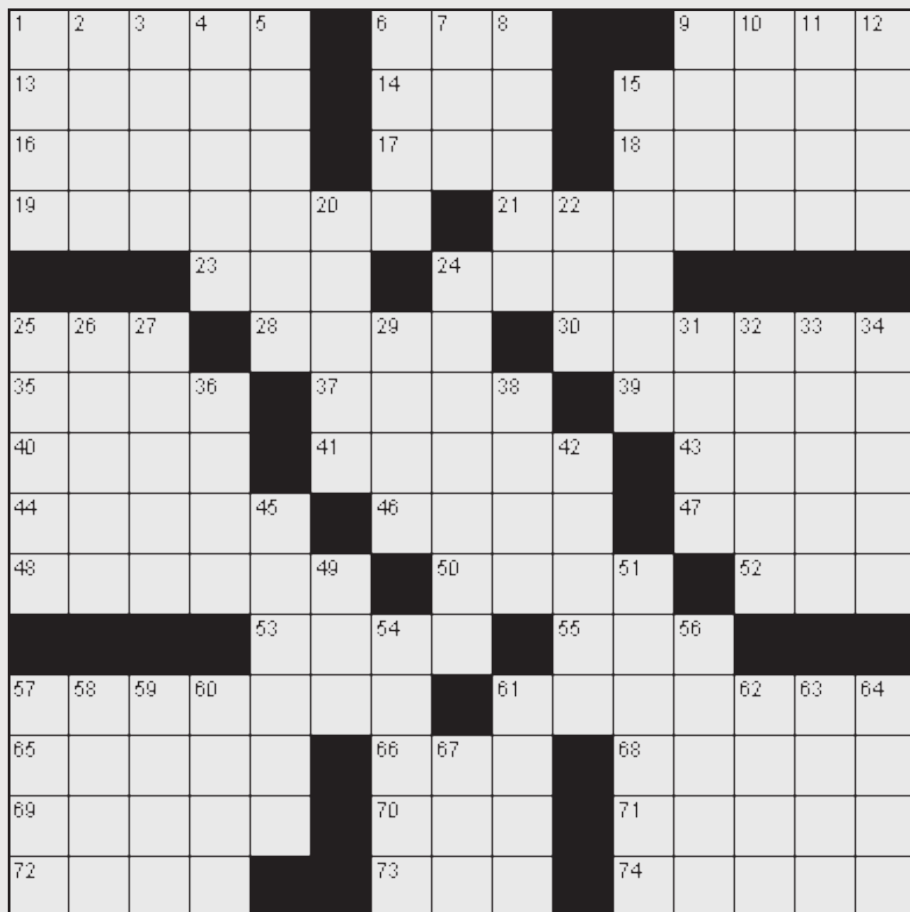
I've been in the fitness realm on and off for the past 4-5 years and fairly seriously for the past 2. During that time I've read countless articles, tried different nutrition and workout plans, but most importantly I've changed my body from skinny Indian kid (seriously, Google Image Search my name) to benching 200+ lbs so I know what works. Even though I've used an example that focuses on getting strong and potentially more muscular, that is only one

possible path for getting fit (and usually, in a male direction).

The advice that I have to give can be applied to both sexes and is more about getting healthier and stronger than about turning into the next Arnold Schwarzenegger. Tune in weekly to *The Tech* this term as I go through nutrition, workouts, different types of exercise, etc. Hope this can help get you ready for next year's New Year's resolutions.

-Brad/Chad

Crossword



Across

1. Sweetener
6. Constrictor
9. Nauseous
13. Establish validity
14. Peculiar
15. Utensil
16. Once more
17. Guided
18. Heading
19. Connected by kinship
21. Give out or emit
23. Short sleep
24. Rankle
25. Watering place
28. Misplace
30. Rain cloud
35. Tablet
37. Cereal grass
39. Enumerate
40. Not in favor of
41. Mayhem
43. Flank
44. Faculty
46. Unit of currency
47. Disparaging remark
48. Often used with a pestle
50. Reported information
52. Lair
53. Edible fat
55. Snakelike fish

Down

1. Box lightly
2. Exhort
3. Objective
4. Characterist of birds
5. Letting
6. Fearless and daring
7. Poem
8. Small viper
9. Rotate
10. Scintilla
11. Young male horse
12. Leg joint
15. Motionless
20. Era
22. Board game pieces
24. Ardent
25. Involuntary muscle

contraction

26. Spotted horse or pony
27. Part of a church
29. Cleansing agent
31. Nonvascular plant
32. Construct
33. Unjustified
34. Austere
36. Elevate
38. Olfactory organ
42. Cringe
45. Attach to
49. Regret
51. Board balanced on a fulcrum
54. Wipe out
56. Chuckle
57. Academic administrator
58. Reconstruct
59. Golf club
60. Conflagration
61. Manage
62. Starchy tuberous root
63. Finished
64. Spool
67. Twenty-four hours

Like us on
Facebook!



Introducing
Snap of the Week!

The Tech is introducing a new feature in its upcoming issues. **add: cal_tech on Snapchat** and send us your interesting, awesome, and totally rad snaps.

The most awesome snap(s) will be featured in The Tech!

Presidential Inauguration

On October 24th, the Provost has declared an institute holiday to celebrate the inauguration of Caltech's 9th President Dr. Thomas F. Rosenbaum. The inauguration ceremony will begin streaming at 2 pm and there will be an all-campus reception to follow.



Dr. Rosenbaum and his wife, Dr. Katherine Faber, Simon Ramo Professor of Materials Science, have joined the Caltech Family and we wish them all the best!

News briefs from around the globe

Need to know <100 words about the world this week

Countries declare position against ISIS

3 more countries – UK, Belgium, Denmark – join US-led coalition against ISIS [TIME]

New world marathon record set

2 hours, 2 min, 57 sec is new record set by Kenya's Dennis Kimetto [BBC]

Stranded refugees rescued

345 Syrian refugees stranded near Cyprus, picked up by cruise ship [TIME]

Syrian refineries bombed

4 ISIS-controlled oil refineries targeted by US-led coalition aircraft [BBC]

Civil disobedience protesters arrested

148 arrested over the weekend during sit-in outside government headquarters [BBC]

Volcano eruption in Japan turns deadly

31 hikers found dead near the top of Mount Ontake after sudden eruption [BBC]

Ebola death toll rises

3,080 now confirmed by the WHO to have died from Ebola in West Africa [TIME]

NOMINATE YOUR FAVORITE PROFESSOR FOR THE FEYNMAN TEACHING PRIZE!!!

Here's your chance to nominate your favorite professor for the 2014-15 Richard P. Feynman Prize for Excellence in Teaching! You have from now until January 5, 2015 to submit your nomination package to the Provost's Office to honor a professor who demonstrates, in the broadest sense, unusual ability, creativity, and innovation in undergraduate and graduate classroom or laboratory teaching.

The Feynman Prize is made possible through the generosity of Ione and Robert E. Paradise, with additional contributions from an anonymous local couple. Nominations for the Feynman Teaching Prize are welcome from faculty, students, postdoctoral scholars, staff, and alumni.

All professorial faculty of the Institute are eligible. The prize consists of a cash award of \$3,500, matched by an equivalent raise in the annual salary of the awardee. A letter of nomination and detailed supporting material, including, but not limited to, a curriculum vitae, course syllabus or description, and supporting recommendation letters

should be emailed to kkerbs@caltech.edu or directed to the Feynman Prize Selection Committee, Office of the Provost, Mail Code 206-31, at the California Institute of Technology, Pasadena, California, 91125. Nomination packages are due by January 5, 2015.

Additional information including guidelines for the prize and FAQ may be found at <http://provost.caltech.edu/FeynmanTeachingPrize>. Further information can also be obtained from Karen Kerbs (626-395-6039; kkerbs@caltech.edu) in the Provost's Office.

The California Tech

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The advertising deadline is 5 PM Friday; all advertising should be submitted electronically or as camera-ready art, but *The Tech* can also do simple typesetting and arrangement. All advertising inquiries should be directed to the business manager at tech@caltech.edu. For subscription information, please send mail to "Subscriptions."

CORRECTION: In Volume CXVII Issue 27, in Ariel O'Neill's article titled "Inside Caltech: New policy to affect e-cigarette smokers," everything attributed to Mike Raven should be attributed to Larry Martinez.

Techers continue to play sports despite opposition from opponents

MONICA ENLOW
Editor-in-Chief

Welcome back for an exciting year of sports. Yes, sports. Get excited. I don't have much to add here, other than I've actually noticed some W's on the Men's Water Polo scoreboard.

Upcoming Games

Women's Volleyball

Fri. Oct. 3 @ 7:30p - Cal Lutheran

Tues. Oct. 7 @ 7:30p - Occidental

Sat. Oct. 11 @ 1p, 6p - Mills College

Men's Water Polo

Tues. Oct. 2 @ 5:30p - Washington & Jefferson

Men's Soccer

Wed. Oct. 1 @ 4p - Pomona-Pitzer

Sat. Oct. 11 @ 4p - Occidental

Men's/Women's Cross Country

Sat. Oct. 4 @ Pomona-Pitzer Invitational



Evren Gocken and his opponent momentarily connect with each other through synchronized high knees.

-gocaltech.com



The caption I want to write for this photo is something along the lines of "Ungh."
-gocaltech.com

Scoreboard

Women's Volleyball

Fri. Sept. 19 vs.

CMS - L, 3-0

Sat. Sept. 20 vs.

Redlands - L, 3-0

Sat. Sept. 27 vs.

La Verne - L, 3-0

Men's Water Polo

Fri. Sept. 19 vs. Cerritos - L, 16-12

Fri. Sept. 19 vs. LA Trade Technical College - W, 15-8

Sat. Sept. 20 vs. Occidental - L, 17-4

Sun. Sept. 28 vs. Conn College - L, 19-12

Men's Soccer

Wed. Sept. 17 vs. Occidental - L, 4-0

Sat. Sept. 20 vs. Whittier - L, 5-1

Wed. Sept. 24 vs. CMS - L, 7-0

Sat. Sept. 27 vs. La Verne - L, 2-1



What a bunch of cuties.
-gocaltech.com

Polo team flies on plane, soars above expectations

GOALTECH.COM
Actual Sports Content Editor

ANNAPOLIS, Md. – For the first time in recent memory, the Caltech men's water polo team took to the skies and traveled to compete in the Navy Open. The Beavers had a four game slate against formidable competition that was highlighted with a high scoring victory against Division II opponent, Salem International University.

Throughout the weekend, the squad took big strides on the offensive front averaging more than 12 goals per contest over the four game stint. Leading the scoring parade was sophomore attacker, Chris Bradley.

"You gotta take a few to make a few," commented Bradley, who led all tournament scorers over the weekend, tallying 24 goals.

Senior goalkeeper, Ben Grabowski, who is coming off an All-American junior campaign, once again anchored the defense. His 60 stops for the weekend has him on a blistering pace to shatter his own school record of saves in a season of 281.

"My job is pretty simple," Grabowski said. "See ball, block ball."

The marquis game of the weekend was against Salem International University. The Tigers jumped out to a 2-0 lead in the first three minutes of action forcing a tactical timeout. From there, Caltech regrouped



Jim Blackwood sports a nice bit of facial hair. Because that is the only thing I could take from this photo.

-gocaltech.com



The men's team plays Salem. They are not burned at the stake.

-gocaltech.com

and scored two unanswered goals to end the first quarter deadlocked. From there, the game devolved into a heavyweight title bout where both squads forsook defense and went on scoring sprees.

The Beavers erupted for seven goals in the second quarter with a balanced attack. Sophomore Tomas Tussie, junior Jim Blackwood (2), junior Patric Eck, senior Matt Lappin and Bradley (2) all found the back of the net. Despite the onslaught, the pesky Tigers peppered Grabowski five times in the stanza bringing the first half to a close with the Beavers holding a 9-7 advantage.

In the third, it was Salem's turn to win an 8-minute frame. The Serbian, inside-outside combo of junior center Borislav Kovacav and sharpshooter freshman Djordje Stavreski hit five goals between them, outpacing the four goal effort from the Beavers. Entering

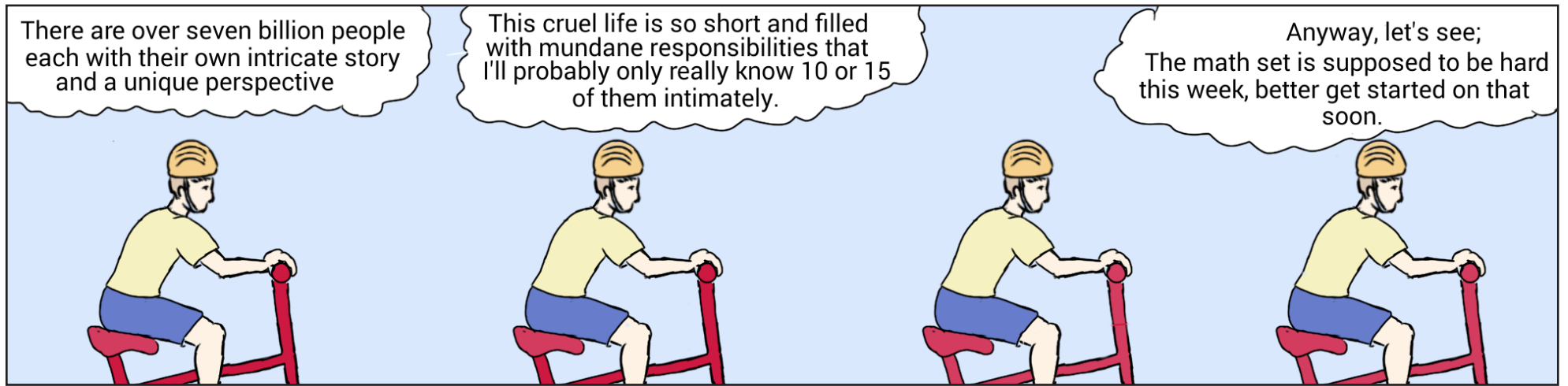
the ultimate quarter, Caltech found itself clinging to a 13-12 lead.

It wasn't until late in the fourth quarter the team found some breathing room. Eck scored in the opening minute of the frame only to have Salem score on the ensuing possession. Two possessions later, Blackwood hit his sixth goal of the game, but once again, the Tigers came right back to score and still trailed by just one. Finally, Caltech was able to consolidate defensively after their next scored goal. Bradley added one more insurance goal in the final 90 seconds to ensure the 17-14 victory.

"Our offense over the weekend was wholly more productive than a year ago," head coach Patrick Beemer said. "We clearly have ample room to grow, specifically on the defensive side of the ball, but this weekend was a great start to our season."

Acquired Taste

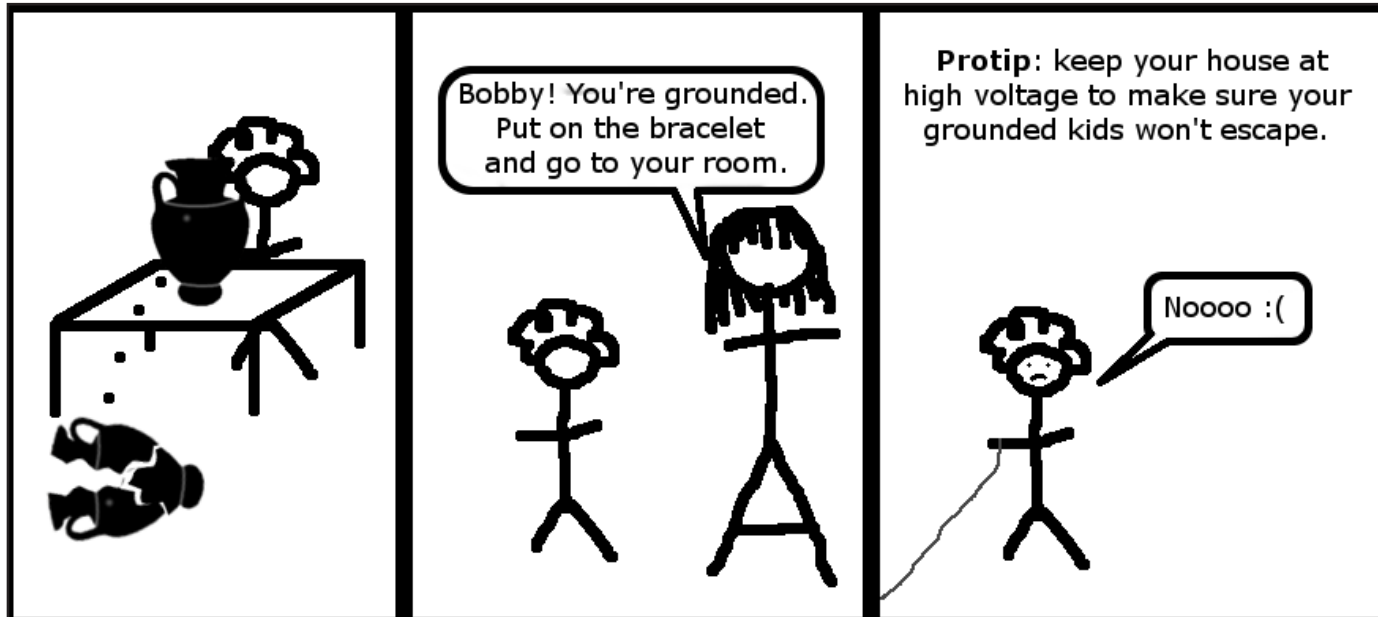
Dr. Z



Priceless Ming Vase

Georgio Kraggman

Answers to previous crossword



H	O	D	S	M	O	G	H	E	R	D		
S	A	V	E	P	A	C	E	A	V	I	A	N
O	V	E	N	A	R	E	A	M	E	T	R	O
F	O	R	T	E	G	A	R	B	N	E	E	D
A	C	T	S	H	I	N	E	A	T			
			S	P	I	N	F	E	W	A	G	O
A	L	W	A	Y	S	B	O	R	N	R	O	B
L	O	O	P	R	U	E	P	I	L	E		
S	I	R	I	B	I	S	S	T	E	A	D	Y
O	N	E	R	E	D	L	E	A	P			
			S	E	E	D	E	A	L	A	S	P
S	A	G	O	F	E	E	D	C	A	N	T	O
A	T	O	N	E	A	L	G	A	B	O	A	R
C	O	R	A	L	S	T	E	P	E	D	I	T
P	E	R	K	T	A	R	T	T	E	N		

Starting the Year out Strong

Liz Lawler

Answers to previous Sudoku



7	2	5	3	8	1	4	9	6
9	3	8	6	5	4	7	1	2
1	4	6	9	7	2	5	3	8
4	9	2	5	1	3	6	8	7
8	1	3	7	2	6	9	5	4
5	6	7	4	9	8	1	2	3
2	7	9	8	4	5	3	6	1
3	8	4	1	6	9	2	7	5
6	5	1	2	3	7	8	4	9

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Caltech prefrosh excited for the best four years of their lives

TIM SINCLAIR
Contributing Writer

We're told that the years we spend in undergraduate education are among the most treasured and valuable times of our lives. Kevin Yang, 18, a prospective physics major at the California Institute of Technology, expects no less. "I'm just so excited to be in a place where everyone else is as enthusiastic toward math and science as I am," Yang told us. We asked Yang, who is staying in Page during rotation, what he thought about the Houses. "I've only had dinner in a couple so far, but I really like all of the ones I've seen. I think I'll probably join 3 or 4 houses after rotation is over. They all seem super interesting!" Yang, who is planning on double-majoring in geophysics, or at least picking up a couple of minors—in BEM and geology—only had one reservation about Caltech life. "I'm

not sure if I'll be able to find a group of people to play League of Legends with. Most students here are so busy with homework and research, I don't think it will be easy to find others who'll make the time to play videogames."

Other prefrosh we talked to were just as excited for their Caltech undergrad experience as Yang. Emily Caldwell, also 18, hails from Washington, DC, and plans on majoring in chemical engineering. "I'm really looking forward to living in LA," Caldwell told us. "Being from the city, I love going out for a lazy brunch, walking around and checking out all the interesting stores, really making a day of it. I know I'll be busy as a chemical engineer, but if I work hard on Friday night I should be able to go someplace new every weekend." Unlike Yang, Caldwell has more of an idea of which house wants to rotate into. "I met a lot of

really fun people at frosh camp. We usually hang out in [booty] house, since most of them are living there for rotation. I think I'll talk to the president of [booty] house today to tell them that's where I want to rotate into!" We noted Caldwell's varsity field hockey jacket, and when asked how she felt about going to a school known for not being the most athletically strong, her response was refreshingly lighthearted. "After being very competitive in high school sports, I'm looking forward to not having as much pressure on me. It would be really fun to be a team that breaks a historic losing streak—that's something you wouldn't have the opportunity to do at many other schools!"

The Iterated Manifold is a weekly column by Timothy Sinclair, who once simultaneously chewed 27 pieces of double-bubble gum.

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