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TECH@CALTECH.EDU

MAY 11, 2015

# The California Tech

## Five elected to American Academy of Arts and Sciences

**LORI DAJOSE**  
Contributing Writer

This article was originally written for the Marketing and Communications Office and is published online at [caltech.edu](http://caltech.edu).

The American Academy of Arts and Sciences has elected five Caltech community members as academy fellows. They are faculty members Michael B. Elowitz, professor of biology and bioengineering and an investigator with the Howard Hughes Medical Institute; Mory Gharib (PhD '83), Hans W. Liepmann Professor of Aeronautics and Bioinspired Engineering, director of the Ronald and Maxine Linde Institute of Economic and Management Sciences, and vice provost; and Linda C. Hsieh-Wilson, professor of chemistry; and Caltech trustees James Rothenberg and Maria Hummer-Tuttle. The American Academy is one of the nation's oldest honorary societies. Members are accomplished scholars and leaders representing diverse fields including academia, business, public affairs, the humanities, and the arts.

**Michael B. Elowitz** was noted for his work that "helped to initiate synthetic biology." Elowitz studies genetic circuits—interacting genes and proteins that enable cells to sense environmental conditions and to communicate. He and his group build simplified synthetic genetic circuits and study their effects in bacteria, yeast, and mammalian cells. He has received numerous honors in recognition of his work, including a MacArthur Fellowship in 2007.

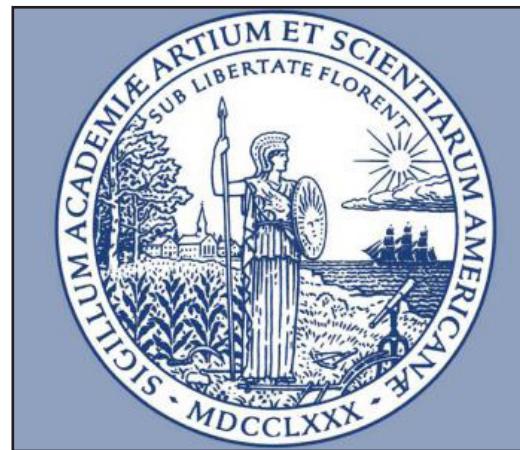
**Mory Gharib** and his group use nature's own design principles—apparent in fins, wings, blood

vessels, and more—as inspiration for a myriad of inventions. They have studied fluid flows inside the zebrafish heart to develop efficient micropumps and more efficient artificial heart valves, and cactus spine to develop arrays of nanoneedles, based on carbon nanotubes, for painless drug delivery. Gharib holds nearly 100 patents, and was elected to the National Academy of Engineering in 2015.

**Linda C. Hsieh-Wilson** was noted for her pioneering work in the new fields of chemical glycobiology and chemical neurobiology. Her work combines organic chemistry and neurobiology in order to understand how carbohydrates contribute to fundamental brain processes such as cell growth and neuronal communication, neural development, and memory at the molecular level. She and her group discovered a means for suppressing tumor-cell growth by blocking the attachment of certain sugars to proteins, restricting delivery of certain carbohydrates to proteins within the tumor.

**Maria Hummer-Tuttle**, a lawyer, was a partner and chair of the management committee and co-managing partner of Manatt, Phelps and Phillips in Los Angeles. She currently serves on the boards of Caltech, the J. Paul Getty Trust, the W.M. Keck Foundation, the Suu Foundation, and the Foundation for Art and Preservation in Embassies. Hummer-Tuttle is president of the Hummer Tuttle Foundation, serves on the advisory board of the USC Center on Public Diplomacy at the Annenberg School as well as on the program advisory committee of the Annenberg Retreat at Sunnylands,

and is a member of the Pacific Council on International Policy, the Council on Foreign Relations, and the Getty Conservation Institute Council.



**Jim Rothenberg** is chairman of the Capital Group Companies, Inc. In addition to his service on the Caltech board, he serves on the boards of Capital Research and Management Company, the Capital Group Companies, Inc., and American Funds Distributors, Inc. In addition, he is a portfolio counselor for the Growth Fund of America, as well as vice chairman of the Growth Fund of America and Fundamental Investors. A chartered financial analyst, he was named to the Harvard Corporation as the treasurer of Harvard University in 2004. He also serves as a director of Huntington Memorial Hospital in Pasadena.

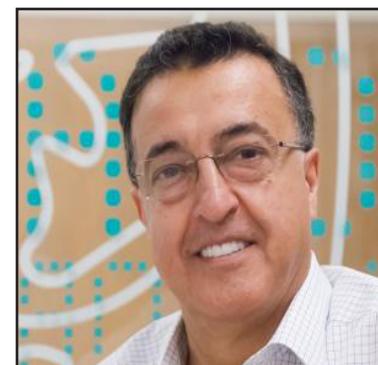
Elowitz, Gharib, and Hsieh-Wilson join 83 current Caltech faculty as members of the American Academy. Also included in this year's list are five alumni: Robert Cohen (MS '70, PhD '72), St. Laurent Professor of Chemical Engineering at MIT and codirector of the DuPont-MIT Alliance; Alexei Filippenko (PhD '84), professor of astronomy at UC Berkeley; Katherine Hayles

(MS '69), professor of literature at Duke University; Michael Snyder (PhD '83), professor and chair of genetics at Stanford University; and Donald Truhlar (PhD '70), professor of chemistry at the University of Minnesota.

Founded in 1780 by John Adams, James Bowdoin, John Hancock, and other scholar-patriots, the academy aims to serve the nation by cultivating "every art and science which may tend to advance the interest, honor, dignity, and happiness of a free, independent, and virtuous people." The academy has elected as fellows and foreign honorary members "leading thinkers and doers" from each generation, including George Washington and Ben Franklin in the 18th century, Daniel Webster and Ralph Waldo Emerson in the 19th, and Albert Einstein and Woodrow Wilson in the 20th.

A full list of new members is available on the academy website at <https://www.amacad.org/content/members/members.aspx>.

The new class will be inducted at a ceremony on October 10, 2015, in Cambridge, Massachusetts.



(From top) Linda C. Hsieh-Wilson, Mory Gharib, Michael B. Elowitz, Maria Hummer-Tuttle and Jim Rothenberg are among the new inductees to the American Academy of Arts and Sciences.

<http://www.caltech.edu/>

## Student leaders to host summit to discuss Honor Code

**PAUL DIETERLE**  
Chair, Board of Control

"Do you know why you're here?" This used to be the first question asked of every Board of Control defendant. The question always struck me as leading and pushed the BoC too far into the investigatory realm. Moreover, it only hurt the honest students; dishonest students who hid Honor Code violations got away with them.

In parallel with the Counseling Center, the new BoC leadership has worked to make the process of being BoC'ed less stressful for students. We now begin our hearings with "Thank you for taking the time

to meet with us..." and strive to conduct preliminary meetings less than 72 hours before a student's full board hearing concludes. This shortened processing time relieves much of the stress that comes along with alleged Honor Code violations.

However helpful these improvements are for student well-being, they are only tangentially related to the health of the academic Honor Code as a campus-wide institution. As far as the latter is concerned, we need to ask ourselves the big questions: Does the academic Honor Code work? How can we best prescribe the Honor Code? Why do we have an Honor Code at all?

These questions are perhaps more relevant now than at any time in recent memory. Last term, a proposed amendment to involve the deans in dismissed cases — an amendment that was recommended by a committee commissioned by the Faculty Board, which incorporated both student and faculty feedback — was voted down by the undergrad population. A spike in reporting led to nearly 5 percent of the undergraduate population being reported to the BoC in a single 10-week period. This spike was accompanied by above-average conviction numbers as well as above-average dismissal numbers.

While the conviction number has the most sex appeal, dismissals create a different type of tension. Defendants are frazzled by the BoC process and course instructors — often convinced that a student broke the Honor Code — are dismayed by the Board's decision. Sour tastes abound.

And yet, there is substantial evidence that the Honor Code and BoC process work on a macro level. Anonymous surveys indicate that Caltech students cheat less than students at other universities. Violators — especially those who take involuntary leaves of absence — have unexpectedly low rates of future convictions. Neither of these data represents conclusions of a

carefully controlled experiment, but they are encouraging from a heuristic point of view.

In order to ensure the short-and long-term health of the Honor Code, several student leaders and I will be hosting a campus-wide discussion about the Honor Code. This discussion will aim to educate students about the dismissal amendment — which has been rewritten and will be put to a vote later this term — and will also serve as a forum to discuss the Honor Code and its current implementation.

**Join us on Monday, May 11, at 7 p.m. in the Winnett Student Center.**

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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:

**Make-A-Difference Day:** Hillsides 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

## Upcoming Events

### 1. Science Policy Speaker Series with Dr. William Graham

Monday, May 18th | 12 - 1:30pm | Location TBD | Lunch is provided with RSVP

The Caltech Y's Social Activism Speaker Series is pleased to host Dr. William Graham. Dr. Graham received a B.S. in Physics from Caltech before completing a masters and Ph.D. in engineering from Stanford. He founded R&D Associates and spent 6 years at Rand Corp before being nominated as the Deputy then Acting Administrator of NASA from 1985 to 1986. He served as the Science Advisor to President Reagan from 1986 to 1989 while as the Director of the White House Office of Science and Technology Policy.

Dr. Graham has primarily focused on issues of national security and has served on numerous boards, committees and advisory groups. For example, he was on the US-UK Joint Working Group on Atomic Weapons and was a member of the Defense Science Board until 2008.

Please join us for a lunch discussion with open Q&A on Dr. Graham's experiences. RSVP at: <https://goo.gl/s1Xegp>

### 2a. Pasadena LEARNS

Friday | 3:00 - 5:00pm | Madison and Jackson Elementary School | Pasadena

Come volunteer at Madison and Jackson Elementary School! We are partnered with the Pasadena LEARNs program and work with their Science Olympiad team or do regular tutoring along with occasional hands-on science experiments. Transportation is provided. For more information and to RSVP, contact [vkkumar@caltech.edu](mailto:vkkumar@caltech.edu). Eligible for Federal Work Study.

### 2b. Hathaway Sycamores

Monday | 5:30-8:00pm | 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 1.5 hours of tutoring. Transportation is included. For more info and to RSVP email Sherwood Richers at [srichers@tapir.caltech.edu](mailto:srichers@tapir.caltech.edu). Eligible for Federal Work Study.

# NEWS

THE CALIFORNIA TECH

## Senior class co-president candidate statements (2 teams)

ELLORA SARKAR  
GRACE PARK

Wake up, class of 2016! Ditch day is Tomorrow, and we all have a lot of work to do, from planning ditch day, senior trip, senior gift, and events.

It's a lot of work but we think as your senior class co-presidents we can rise to the challenge and make senior year unforgettable. We've been serving as student leaders for years and worked to better the student life as a whole. Between the two of us, we served you on the IHC, prefrosh yield committee, admissions committee, and the head UCC counsel. Through these experiences we've established positive relationships with Tom Mannion, Deans, and many other administrators. We've also organized and helped plan events from all sizes: from huge school wide events like rotation, prefrosh weekend, caltech dance show, and the school 4th of July BBQ, to logically intricate pranks like the Pasadena sign, MIT mug prank, pi-chain, and to small scale events like Mannion Sunday dinners.

We've gotten the chance to get out of the house with these events and build friendships with techers in all the fine houses. So, here's our game plan: we think ditch day is awesome, so we want to plan school-wide fakes and make it flow as smooth as possible. Second, we will closely coordinate with administrators and your house reps to plan events that our class would genuinely be excited to attend. We'll make sure to ask for input and actually take

them into consideration for the senior class trip, senior banquet, and graduation week. Communication is hard, but we'll give it our best to ensure that you are well informed about any changes or plans. The upcoming school year is the last one we have to spend together as a class.

Vote for us and we'll pour our time, energy, resources, and skills into making sure it's the best year possible!

with Caltech Athletics, we know the value of cooperation and dedication to the task at hand. Even though we are not your typical student leaders involved in traditional, prominent leadership roles on campus, we are proud to be part of the Class of 2016 and the rest of the student body at Caltech, and we would like to reciprocate by serving as your senior class copresidents.

The primary responsibilities of the senior class copresidents are to organize Ditch Day, any campuswide fakes, the senior class trip, graduation, and the senior class gift. As representatives of our entire class, we will try to represent all of your opinions and ideas and speak for our class collectively when we plan these activities. We will work together with the senior reps from all houses in order to strive to ensure that these events and our class gift appeal to all of our class and represent the attitudes and wishes of each and every one of us.

We assure you that we will work our hardest to make our senior year a fun and memorable one and a fitting capstone to our Caltech experiences.

Although we understand that there is a lot to be done, we nonetheless are prepared to take the job seriously so that we can all end our Caltech experience on a high note. Together, we can make 2015-2016 great.

If you have any questions or topics you would like to discuss, feel free to contact either of us. Thank you.

WRITE FOR  
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CALTECH  
*presents*

Wednesday, May 20, 2015 / 8 p.m.

WATCHING PAINT DRY AND COLORS FADE:  
THE INTERSECTION OF ART AND SCIENCE



KATHERINE T. FABER,  
Simon Ramo Professor of Materials Science



Free Admission / Free Parking  
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[www.events.caltech.edu](http://www.events.caltech.edu)



Call campus x 4652 for information

## Democracy and elections: A love story

**SEAN MCKENNA**  
Contributing Writer

The only thing I love more than democracy is Winston Churchill's quote about democracy: "Democracy is the worst form of government except for all the others that have been tried." If you own a pickup truck or voted for Dick Cheney, you may be surprised that Churchill even knew what democracy was. Wasn't he too busy being oppressed by the queen of England instead of enjoying the sweet smell of freedom (read: McCarthyism) in post-war America? Shockingly, no. The United Kingdom is actually a democracy too. The U.K. held a general election on May 7 to elect the 650 members of Parliament's House of Commons. This election is akin to elections for the U.S. House of Representatives: members are elected to represent their respective constituencies. The results: 331 seats to the Conservative Party (Tories), 232 seats to the Labour Party, 56 seats to the Scottish National Party (SNP), and the remaining seats to minor parties. This means the Tories hold an absolute majority of seats in Parliament, and their leader David Cameron will remain prime minister. The election saw the Tories expand their plurality to a majority, so they no longer need the Liberal Democrats (Lib Dems) as a coalition partner. Cameron is now set to move forward with his agenda. This campaign, though, has brought up several things about

politics and democratic elections which irk me. Here's a list:

**Opinion Polls:** The results of the U.K.'s election show that pollsters really don't know anything. Even FiveThirtyEight, the supposed geniuses who had Obama's victory figured perfectly, had predicted the Conservatives to win 278 seats. The upper bound of their 90% confidence interval: 305 seats. The actual result: 331. These people clearly have a long way to go before they can produce dependable results. For you at home, remember that this means you should take every poll with several grains of salt (perhaps several salt-shakers full), and don't let media hype impact your own political decisions.

**Fear-mongering:** The Tories' message throughout the campaign was not dissimilar from the Republican message in the United States. (Isn't it ironic that these parties represent the same basic ideologies?) The Tories proclaimed doomsday for the economy if Labour's leader Ed Miliband were prime minister. It worked in the U.K. in 2015 exactly as the Republican message worked in 2010 and 2014 to convince Americans that Obama would lead us to socialist oppression. Of course citizens of the U.K. and U.S. have ideologies which are not identical, but our strength as nations comes from productive discussions and debates about the merits of our beliefs. Our weakness as nations has been on display for the last five years, as we eschew honest debate in favor of fear-mongering designed

to tug at peoples' heartstrings instead of their heads. But here's the sad truth: it works. Election results confirm it. I think the only way to avoid fear-mongering is for the electorate to become more educated and demonstrate a propensity to make decisions based on rational opinions instead of irrational inklings. Until that day, we're stuck with more doomsday prophecies.

**Nativism:** If there's one thing I hate more than fear-mongering, it's nativism. Britons showed it in their election. Some of Cameron's electoral promises were meant to pacify the U.K. Independence Party (UKIP), an upstart party focused on withdrawing the U.K. from the European Union and restricting immigration. To that end, Cameron has promised to renegotiate the U.K.'s position in the EU and then hold a referendum in 2017 on whether to stay a member. Distrust of immigrants from Eastern Europe and other foreigners from beyond Europe has prompted these actions, so leaving the EU would leave serious doubts about whether Western nations are actually committed to embracing diversity as we claim to be. Closing borders to outsiders would deal a blow to global economic mobility at the exact time that millions are being displaced from conflicted countries, seeking economic opportunity in the world's bastions of stability. Let's hope Britain chooses to remain integrated in the European network instead of taking steps to isolate itself.

## Born Under Saturn falls short of Django Django's self-titled

**NAILEN MATSCHKE**  
Contributing Writer

the entire quartet, so this album is still pretty enjoyable. But, because Django Django is so tied to this entertaining but ultimately shallow style, even at its best this album can do little except make me wish it was more like the first.

The part that grabbed my attention the most was when the band included a relatively short solo from a saxophone. After building up from a spacey synth to a thick wall of vocals, piano and electronic percussion for over two and a half minutes, out of nowhere in the middle of "Reflections" comes an unnecessary, simple sax line that doesn't make sense with the rest of the music and really just sounds like it was included because it's a popular thing to do. Regardless of how you feel about saxophone in music, it truly is one of the few times that Django Django tries anything new on this record. Other than that, I'd say the biggest difference between the two albums is that this one has more piano, as it plays a similar role to Django Django's typical synths in tracks such as "Pause Repeat" and opener "Giant." The guitars remain an uninteresting but constant layer of the mix, while the grandiose vocal style is identical to that on the first album and is not helped by lyrics that can be colorful but generally don't have much substance to them.

It seems to me as though the percussion on this album follows a more typical rock-based style than

*Continued on page 4*

**9** Facts About  
**CALTECH &  
TITLE IX**

**Title  
IX**

**Title IX prohibits sex discrimination.** All students: male, female and gender non-conforming students are all protected from sex-based discrimination, harassment or violence. Our Title IX Coordinator is Felicia Hunt. She can be reached at titleixcoordinator@caltech.edu. She is located in the Center for Student Services. 626-395-3132.

**Sexual Harassment, including sexual violence, is a type of sex discrimination** that is banned by Title IX.

**Sexual harassment creates a hostile environment** when it interferes with or limits a student's ability to participate in, or benefit from, Caltech's educational programs or activities. Sexual harassment is a Title IX violation.

**Sexual violence includes sexual exploitation, sexual assault, rape, stalking, dating violence, and/or domestic violence.**

This includes situations in which a person is incapable of giving consent due to drug or alcohol use. Sexual violence is covered under Title IX.

**Caltech has confidential resources available for students who wish to access support around Title IX issues.** These resources include the Student Counseling Center, The Health Educator and Designated Staff in the Caltech Center for Diversity. For more information on how to reach any of these resources, see TitleIX.Caltech.edu.

**You are encouraged to report sexual harassment and violence to the Title IX Coordinator.** Under Title IX Caltech is required to take prompt action to end the behavior, prevent its recurrence, and address its effects.

**If you decide to report a Title IX issue you should know that:** you set the pace, your information will only be shared with those who need to know, and you have the choice whether or not to have your name used.

**If someone tells you they have experienced a Title IX issue:** offer support, listen to their concerns and encourage them to access available resources, including confidential support and/or one of our reporting options. Information about resources is located at titleix.caltech.edu.

**Retaliation against any member of the Caltech community who reports a Title IX concern is strictly prohibited** and we will act to prevent and promptly stop any acts of retaliation.

More information:  
[TitleIX.Caltech.edu](http://TitleIX.Caltech.edu)

Title IX Coordinator  
Felicia Hunt  
[TitleIXCoordinator@caltech.edu](mailto:TitleIXCoordinator@caltech.edu)  
626-395-3132

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## Django Django releases “psychedelic art rock” album

*Continued from page 3*

on Django Django's self-titled, thanks to plenty of straight 4/4 beats without the Latin and African flavors that were present before, claps on the upbeat and quite a few uses of a tambourine playing 1/16 notes. This really diminishes the quality of the percussion from what it was, and together with the piano it's like listening to Django Django through some sort of weird arena rock filter. It feels like the band squandered the chances it got to incorporate new sounds into its music, but at the same time I don't know how much Django Django could have done since instrumental and rhythmic variety is the core of the band's music, and I think the band would have to try an altogether different aesthetic to surprise the listener.

Some of these complaints may seem harsh, but it's just disappointing that *Born Under Saturn* is lacking in substance,

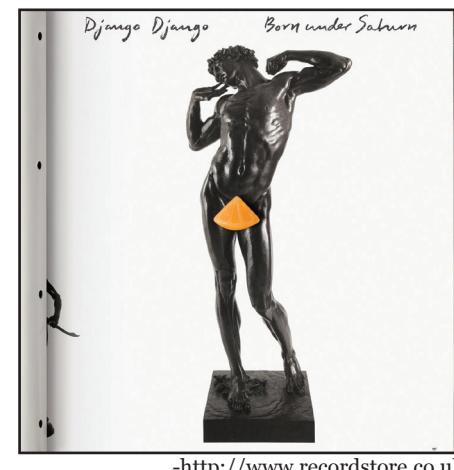
as it cannot be understated how competent these guys are at writing music that sounds good. There's very little that sounds out of place, and all the individual parts are designed to fit together in the almost predictable style you'd expect from classical music, not a rock band. There's a moment in the middle of “Vibrations,” during the lyrics “The thunder claps as I'm struck by my idol,” with the “claps” coming right on a clap-like sound from the percussion, and while plenty of artists have done this sort of thing, it's impressive in that there are examples in every song. If there's some interaction to be taken advantage of between two of the parts, you can be sure that the band incorporated it, which makes for a very satisfying listen if you like heavily rhythmic music.

It's not as though there aren't any tracks I liked: “4000 Years” has a somewhat cheesy chorus of “Don't think that you know me,

I'll always be a stranger,” but the relatively aggressive guitars and rumbling, evolving drumbeat reminded me of what I liked about the first album, the repetitive but soaring and vivid chorus of “First Light” was definitely memorable and “Giant” is probably the best use of simpler percussion. Still, it's a bit like listening to an album of B-sides from its predecessor: sure, it's not bad, but there's a reason these didn't make the cut.

I wish that this album weren't too mediocre, but I don't know what else I expected. Even hitting the benchmark set by Django Django's first album would have been difficult, but this situation also reminds me of alt-J's painting itself into an artistic corner and not knowing how to do anything else well. I can see this record appealing to people for whom Django

Django's earlier work has maybe been too weird since it takes a lot more inspiration from rock this time around, but I think that this is strictly inferior for people who liked *Django Django*. People in the latter group should still listen to *Born Under Saturn*, though, since they're bound to like at least something. Above all, I hope that Django Django is able to learn from this release and improve their next.



## Caltech alum releases book about long-running TV show *The Big Bang Theory*

DOUGLAS L. SMITH  
Contributing Writer

*The Science of TV's The Big Bang Theory*, subtitled “Explanations Even Penny Would Understand,” by Dave Zobel (B.S. '84) covers an astonishing variety of material — a bathroom book in the very best sense of the word. An encyclopedic compendium 398 pages long, Roman numerals not included, it is designed to be consumed piecemeal. The chapters, with zappy titles such as “Smoots and Wheatons” (about obscure units of measurement) and “Night Fishing” (about fluorescent genes), run some 10 quick pages each. The text is peppered with slightly less than  $6.02 \times 10^{23}$  sidebars that, like a typical conversation with Sheldon, are brimming with definitions

theory of gravity, despite any hard historical evidence for same; or, in an uncannily related example, the question of the floor on which Leonard and Sheldon's apartment is situated, based on measuring the

Caltech co-runs with that place where Wolowitz got his master's degree (MIT). LIGO is searching for distortions in spacetime that Einstein predicted would result from supernovae exploding, black

holes colliding and similar great disturbances in the Force. Of gravity, that is.

### Ask an Icon

— Questions posed to (and answered by) such luminaries as Neil deGrasse Tyson, Julie Newmar (Sheldon's favorite Catwoman) and, of course, Stephen Hawking.

### Out to Lands Beyond

— Profiles of alumni who have risen to the top of nontraditional (for Caltech) fields, including Frank Capra (B.S. '18), director of *It's a Wonderful Life* and other iconic films, including the eighth-grade health-class classic *Hemo the Magnificent*; Robert Lang (B.S. '82, Ph.D. '86), an origami master who blends art and engineering to fold paper into black forest cuckoo clocks and airbags into steering wheels; and Sandra Tsing Loh (B.S. '83), performance artist, author and radio commentator whose *Loh Down on Science* is internationally syndicated on more than 150 radio stations.

And this reviewer's favorite, **In What Universe?** — an ongoing attempt to figure out where Sheldon and Leonard's apartment building at 2311 North Los Robles Avenue actually is. Spoiler alert:

it doesn't exist, as is obvious to anybody who is conversant with both the stipends for postdocs and the fact that Pasadena's City Hall, whose dome is visible from the living-room window, is in a very pricey neighborhood.

Zobel is a consistently entertaining but full-bore writer, so brace yourself for a fire hose of good puns, bad puns, vividly visual metaphors, satirical asides and inside jokes — some of which are so far inside they may well skate past the casual reader, as illustrated in the paragraph below from “Smoots and Wheatons.”

“Almost anything can be turned into a unit of measurement. One night in 1958, at an institute of technology somewhere in Massachusetts, diminutive freshman Oliver Smoot's fraternity brothers pressed him into service as a living yardstick for measuring the length of the Harvard Bridge across the Charles River. The final tally: 364.4 smoots, plus or minus an ear.”

As a compulsive proofreader (it comes with the territory), my first thought was, “Aha! A typo!” and it was not until my third re-reading that it dawned upon me that, well, *duuuuh*, epsilon is the standard symbol for arbitrarily small quantities, such as when one is discussing error measurements. *Bazinga!*

*Douglas L. Smith is almost as big a fan of The Big Bang Theory as Dave Zobel; Smith is the Legacy Content Producer in Caltech's Office of Strategic Communications.*

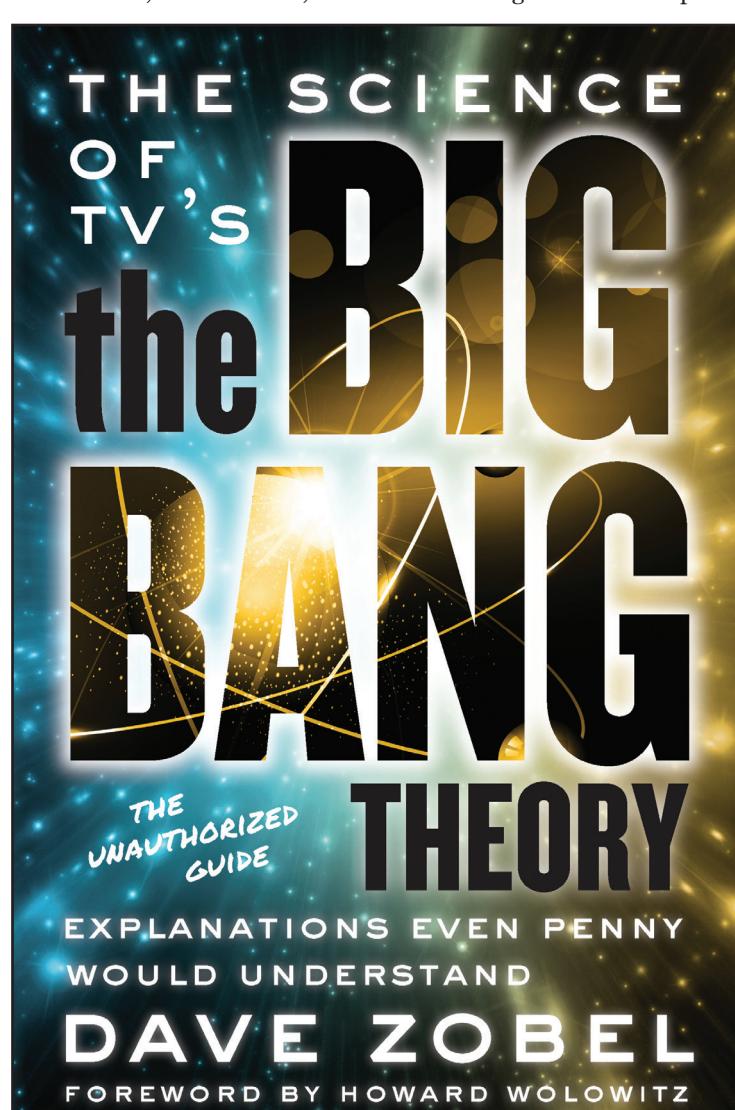


Photo Courtesy of Dave Zobel

various time intervals it takes for an object flung from the window or down the elevator shaft to shatter audibly off camera.

**[science to come]** — explorations of places where the scriptwriters' fancy may have flown a little off course, such as Sheldon insisting that Newton's being bonked with an apple inspired his

## Caltech's 35th Annual Bandorama to be held on Alumni Reunion Weekend

EMILY SNELL  
Administrative Assistant to Caltech Bands

On Friday, May 15th and Saturday, May 16th at 8:00pm in Ramo Auditorium, the Caltech-Occidental Concert Band (William Bing, Director) and the Caltech Jazz Band (Barb Catlin, Director) will be holding their 35th Annual Bandorama with free admission and no tickets required.

These concerts, held during the Caltech Alumni Association's Reunion Weekend, will feature many pieces directly tied to Caltech's history, staff, and alumni.

Before Caltech adopted its current name in 1920, it was known as the Throop College of Technology with its original campus in downtown Pasadena. “Throop March”, by E.C. Kammermeyer (arr. Ray Burkhardt) was written in honor of Throop College and will be performed by the Caltech-Occidental Concert Band.

Dr. Les Deutsch, a Caltech alumnus, will be conducting his own piece, “Centennial Suite” in which each of the four movements represents a year of his experiences as a Caltech Undergraduate. You'll have to come listen to hear Dr. Deutsch's interpretation of his life as a Caltech Undergrad before he went on to earn his Ph.D. in Mathematics from Caltech!

Additionally, Professor Paul Asimow will be conducting Dvořák's Slavonic Dances numbers 7 and 8. Dr. Asimow, Professor of Geology and Geochemistry, regularly guest conducts the ensemble when he is not on the other side of the baton playing his tuba.

The Caltech Jazz Band has reached new heights under the new jazz band director, Barb Catlin. A huge crowd came out to support them at the recent Caltech Jazz Festival.

However, these aren't the only reasons you should come see this free-of-charge concert! You can come to support your fellow Caltech Undergrads who play in the groups, including graduating seniors Sven Bömer, Ian Koss, Nicholas Parker, and Ellen Price in the Caltech-Occidental Concert Band as well as graduating seniors Daniel DeFelippis and Jonathon Liu in the Caltech Jazz Band!

# SPORTS

THE CALIFORNIA TECH

MAY 11, 2015

5

JOIN US IN WELCOMING ALUMNI BACK TO CAMPUS.



ALUMNI REUNION WEEKEND  
78<sup>TH</sup> ANNUAL SEMINAR DAY  
**MAY 14 - 17 2015**

# ASCIT Minutes

## ASCIT Board of Directors Meeting

Minutes for 5 May 2015. Taken by Phillip An.

**Officers Present:** Cat Jamshidi, Patrick Nikong, Sean McKenna, Connor Rosen, Nima Badizadegan, Connie Hsueh, Phillip An, Kalyn Chang, Jay Pelekar

**Guests:** Aadvith Chelikani, Jon Liu

**Call to Order:** 12:05

### President's Report (Connor):

- Faculty board meeting week: water conservation and CS option
- BoC summit May 11 at 7pm in Winnett - discussion of proposed amendment and current state of the Honor Code
- Vice Provost's office hours are adjusted - email sent out with corrected office hours
- Uniting: proposal for UASH min equal to full time enrollment min.
- Midnight donuts on Wednesday, May 6th
- Everyone should take the Campus Climate Survey

### Officer's Reports:

- **V.P. of Academic Affairs (ARC Chair: Nima):**
  - Undergraduate Seminar: May 13th
  - ASCIT Teaching Awards decided: email will be sent, date TBD
  - ARC Secretary and Rep at large signups are soon
- **V.P. of Non-Academic Affairs (IHC Chair: Cat):**
  - Sign-ups for committees are posted. We'll make appointments Sunday.
  - Frosh numbers should be released today
  - Feedback on the search for a new undergraduate dean can be directed to Connor or Cat.
  - What are your feelings about Chandler Dinners? Better quality food than normal house dinners, move towards greater frequency of dinners, cheaper than normal food
- **Director of Operations (Connie):**
  - ASCIT Screening Room is fixed
  - Avengers shown night before outing
- **Treasurer (Patrick):**
  - Reimbursements
  - Tax Return
- **Social Director (Annie):**
  - ASCIT Movie night went well, over 500 people showed up, popcorn and drinks costs \$4000
  - Aquarium Trip is scrapped
  - Puppies are happening on June 6th
  - TechStock and Dodgers Baseball Game: Will meet with Tom for Downtown Fiction headliner, 14 Bands have already signed up
- **Secretary (Phillip):**
  - Send out headshots for the update Board on Olive Walk
  - Donuts will happen on Wednesday. Be at Tom's at 9:30 to stuff them.
  - DevTeam: Incentivize further progress of updating the website and servers. Transition

If anyone has any questions or concerns about a section of the minutes please email the appropriate officer. We are happy to answer any questions. The next meeting will take place on May 12th at 12pm in Winnett Lounge.

Meeting Adjourned: 12:46 pm

## REMINDER FROM COUNSELING CENTER:

### Meditation Mob

(drop-in mindfulness meditation group)  
Meets every Tuesday, 12:00-12:50 p.m.  
Bottom floor of Winnett

## VICE PROVOST'S OFFICE HOURS

Professor and Vice Provost, Cindy Weinstein is holding office hours for graduate and undergraduate students. Professor Weinstein oversees the Council on Undergraduate Education, Caltech accreditation, the Staff and Faculty Consultation Center, Student-Faculty Programs, the Center for Teaching, Learning and Outreach and the libraries. She also has key involvement in diversity matters on campus.

*Student Office Hours for Spring Term 2015:*

*Wednesday, May 13, 12 p.m.-1 p.m.*

*Thursday, May 21, 12 p.m.-1 p.m.*

*Tuesday, May 26, 12 p.m.-1 p.m..*

*Wednesday, June 3, 12 p.m.-1 p.m.*

There are four appointments per hour. Sign up the day of the meeting starting at 11:30 a.m. in 104 Parsons Gates, Vice Provosts' Offices (x6339).

## The 35th Annual Bandorama

featuring

### The Caltech - Occidental Concert Band

directed by William Bing

with Guest Conductors, Paul Asimow and Les Deutsch

Music by Holst, Deutsch and Dvorak

### The Caltech Jazz Band

directed by Barb Catlin

Featuring the music of West Coast Composers Bill Holman, Steve Huffsteter, Gordon Goodwin and others

**Friday, May 15, 2015**

**Saturday, May 16, 2015**

**8:00 pm**

Ramo Auditorium

Free admission and no tickets are required

For more information, visit bands.caltech.edu or call 626-395-3295

## Caltech

## Public Events

## Hiring Ushers

**Flexible hours.**

**No experience needed.**

**Outgoing Personality.**

**Pay Rate:**

**\$15 per hour**

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## Caltech Students only!!

**Contact: Adam Jacobo**

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# FEATURE

THE CALIFORNIA TECH

MAY 11, 2015

7

## Brad/Chad Business Tutorial: Thoughts on Leadership I

**BRAD CHATTERGOON**

Contributing Writer

Hey, Caltech. Hope midterms went over well. For the seniors, just three more weeks! For the non-math inclined that means we are currently drifting through week 7.

The topic of leadership has been floating around my mind in recent weeks. Here are some of the questions I have been trying to answer: What is leadership? What does it mean to be a good leader? What should a leader's goals and actions be? The astute reader might discern that these three questions are almost essentially the same although not quite. For most of this and last term, I have been focusing on business topics and I introduced the idea of soft skills some weeks ago. Leadership is definitely one of the critical soft skills and in order to understand it a bit better I turned to Google as a source of reference. Here is my interpretation of some famous thoughts on leadership.

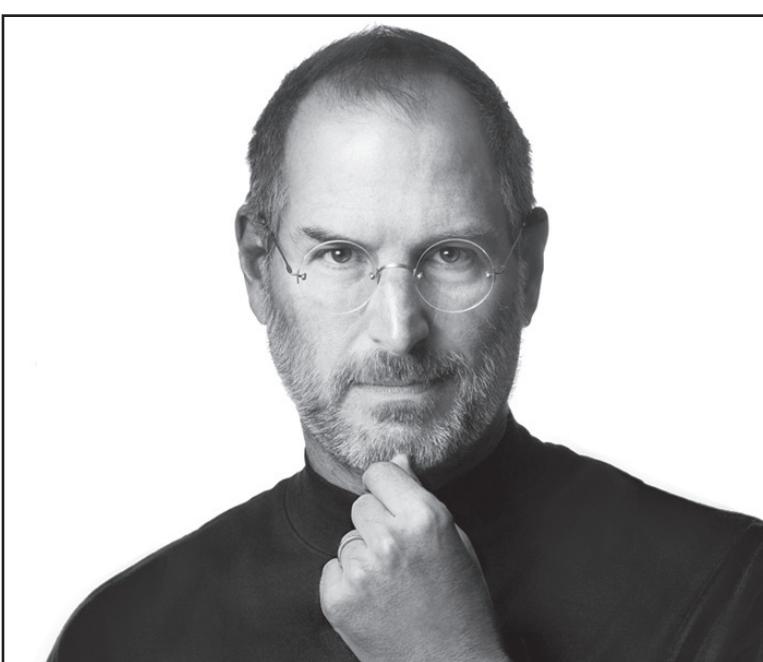
"When you grow up you tend to get told that the world is the way it is and your life is just to live your life inside the world. Try not to bash into the walls too much. Try to have a nice family life, have fun, save a little money. That's a very limited life. Life can be much broader once you discover one simple fact: Everything around you that you call life was made up by people that were no smarter than you. And you can change it, you can influence it ... Once you learn that, you'll never be the same again." — Steve Jobs

There is a difference between managing and leading, and further a difference between leading and being a leader. In some sense managing is telling others what to do. Leading is more than that. It's not so much telling as it is guiding, and it's not enforced by punishment — it's inspired by trust. It's also taking responsibility for others and putting the needs of the group above the needs of individuals. Being a leader though, that's something entirely different and it's what the quotation above formalizes.

Which one are you?

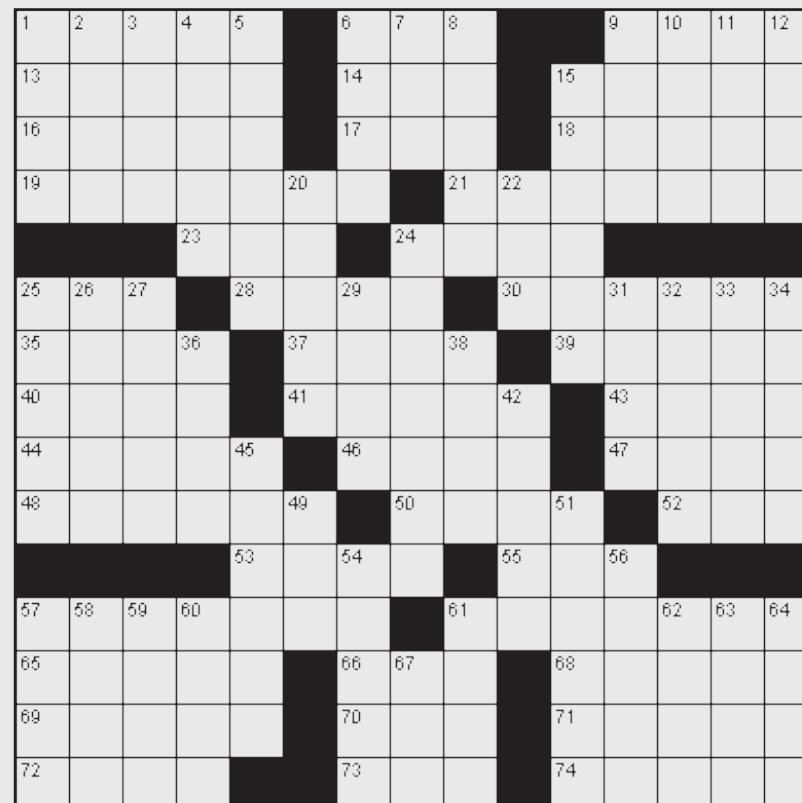
-Brad/Chad

*Look out next week for my thoughts on last week's responses.*



<https://www.flickr.com/>

## Crossword

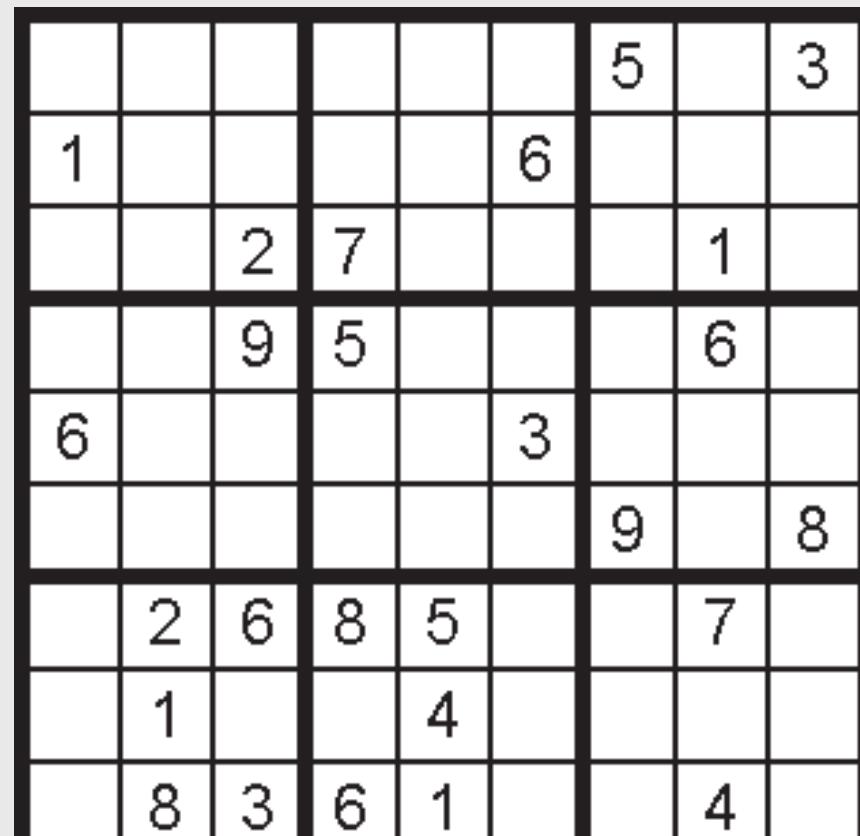


<http://puzzlechoice.com>

### Across

1. Animal                    44. Sports venue  
 6. Jewel                    46. Aromatic herb  
 9. Ursine mammal        47. Prevaricator  
 13. Planet                  48. Erase  
 14. Pasture                50. Orderly  
 15. Work out               52. Free of moisture  
 16. On the move            53. Small branch  
 17. Hard tough wood      55. Chart  
 18. Tripod                  57. Teller  
 19. Principal theme in    61. Living  
 a speech                    environment  
 21. Heavy fire of          65. Part of a church  
 artillery                    66. Imitate  
 23. Pitch                    68. Express mirth  
 24. Kind                    69. Gape  
 25. Health resort near    70. Beverage  
 a spring                    71. Follow as a result  
 28. Finishing line        72. Ripped  
 30. Interfere               73. Consume  
 35. Sapidity                74. Souvenir  
 37. Baseball glove        Down  
 39. Broadcast again      1. Bill  
 40. Boundary                2. Comfort  
 41. Part of a flower        3. Showily imitative  
 43. Female relative        4. Smallest American
- sandpiper                    sandpiper  
 5. Pharynx                  5. Pharynx  
 6. Great merriment        6. Great merriment  
 7. Snakelike fish          7. Snakelike fish  
 8. South American         8. South American  
 dance                        dance  
 9. Watercraft               9. Watercraft  
 10. Other than what is    10. Other than what is  
 under consideration      under consideration  
 11. Report or maintain    11. Report or maintain  
 12. Depend                  12. Depend  
 15. Long-haired             15. Long-haired  
 hunting dog                hunting dog  
 20. Heavy footfall        20. Heavy footfall  
 22. Limb                    22. Limb  
 24. Scene                    24. Scene  
 25. Lieu                    25. Lieu  
 26. Military chaplain    26. Military chaplain  
 27. The world's            27. The world's  
 highest                    highest  
 waterfall, \_\_\_\_ Falls    waterfall, \_\_\_\_ Falls  
 29. Having patches of    29. Having patches of  
 different colors          different colors  
 31. Bargain                31. Bargain  
 32. Pre-Christian         32. Pre-Christian  
 priest                      priest
- among the Celts            among the Celts  
 33. Relating to the        33. Relating to the  
 moon                        moon  
 34. Access                  34. Access  
 36. Segment of DNA        36. Segment of DNA  
 38. Story                    38. Story  
 42. South American        42. South American  
 cud-chewing animal        cud-chewing animal  
 45. Clothing of a          45. Clothing of a  
 distinctive style        distinctive style  
 49. Female animal         49. Female animal  
 51. Pill                    51. Pill  
 54. Very angry            54. Very angry  
 56. Musical                56. Musical  
 instrument                instrument  
 57. Actors in a play      57. Actors in a play  
 58. Singing voice         58. Singing voice  
 59. Celestial object      59. Celestial object  
 60. Swift long-eared      60. Swift long-eared  
 mammal                    mammal  
 61. Form of energy        61. Form of energy  
 62. Long tooth of a      62. Long tooth of a  
 walrus                    walrus  
 63. Chills and fever      63. Chills and fever  
 64. At that time            64. At that time  
 67. Small vegetable        67. Small vegetable

## Sudoku



<http://puzzlechoice.com>

# HUMOR

THE CALIFORNIA TECH

## Acquired Taste

Dr. Z

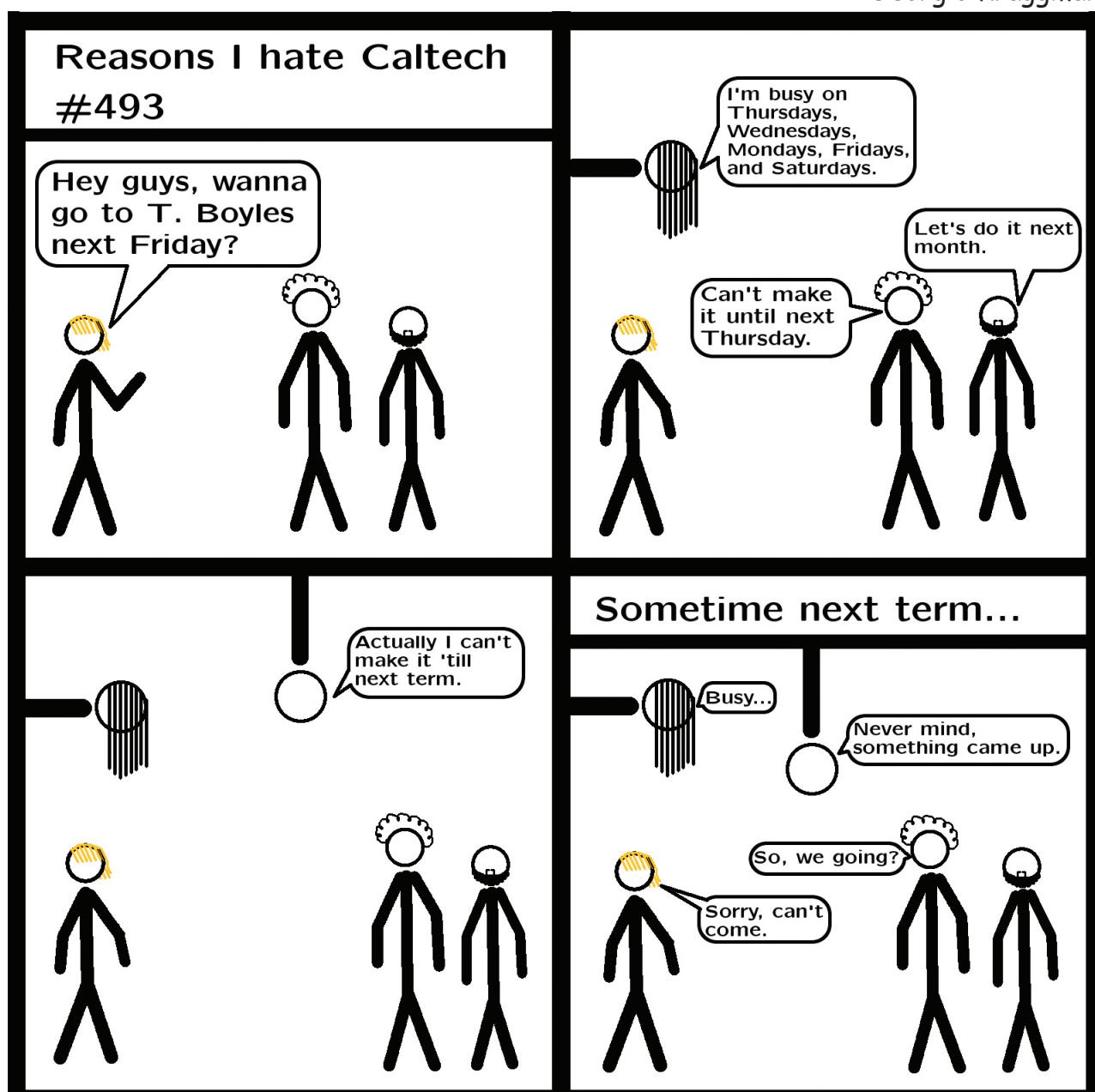


## Answers to previous crossword

Georgio Kraggman

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

-http://puzzlechoice.com



## Answers to previous Sudoku

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

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