

Physicist Matt Taylor stirs up “Shirtstorm” over objectification of women

HANNALORE GERLING-DUNSMORE
Contributing Writer

On Nov. 12, the European Space Agency (ESA) made history with the first controlled landing on a comet, as the Philae lander touched down onto Comet 67P (67P). About 480 million km from Earth, Philae detached from the Rosetta spacecraft it was launched with in March 2004 and landed on 67P a total of three times; the first two attempts were bounces. Even though its harpoon, designed to anchor the lander to the comet, did not fire, Philae remained on the comet and successfully collected desired data. Due to the landing difficulties, Philae ended up approximately one km from its intended landing site, which put it in the shadow of a cliff. Subsequently, Philae received insufficient light to charge its battery with its solar panel, and Philae lost power on Nov. 14. As 67P and its new passenger travel closer to the sun, Philae may find itself in an orientation with more light, and thus may regain power at a later point. However, even if Philae never again re-establishes communication with Earth, the mission has been considered a massive success.

Unfortunately, the focus has shifted from the ESA’s massive triumph to a shirt. Specifically, the shirt Dr. Matt Taylor, a physicist from Imperial College London, chose to wear to discuss the mission in an interview for

Nature Newsteam. The shirt in question was covered in a pattern of women wearing lingerie in a variety of sexually suggestive poses. Almost immediately, social media exploded with feminist outrage. Both men and women expressed their anger, citing the struggles women already face when attempting to enter STEM (science, technology, engineering, math) fields, claiming the shirt further alienated an already marginalized demographic. On Nov. 14, Dr. Taylor issued an apology for his clothing choice, stating “I made a big mistake, and I’ve offended many people, and I’m very sorry about this,” before appearing to wipe away tears.

Some people have tried to debate whether or not the shirt in question is actually offensive, or if people should be offended by its pattern; frankly, that is a waste of time. The reality is, the shirt did offend a large number of people; even more important than noting their response, it is vital to understand why so many people were offended. Thus far, the discussion has been focused on responses to the shirt, without an attempt to unpack the greater issues shaping those responses. Only by understanding the fundamental reasons why the shirt offended so many people can the true issues at hand be resolved. Additionally, by only focusing on the shirt, and by extension Dr. Taylor, the criticisms have been overly personal, leading to social backlash against the perceived

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Techers join Harvey Mudd students in hosting high school math competition



Harvey Mudd student Martin Loncaric, one of the organizers of the competition, addresses the high school students.

Photo Courtesy of Ching-Yun (Chloe) Hsu

CHING-YUN (CHLOE) HSU
Contributing Writer

The Caltech Harvey Mudd Math Competition (CHMMC) is a team competition for high school students organized by the Caltech and Harvey Mudd College math clubs. The CHMMC was founded by Caltech alumnus Yakov (Yasha) Berchenko-Kogan (’11) and Harvey Mudd alumnus Joshua Ehrlich back in 2010. The competition takes place at Caltech and Harvey Mudd in alternating years. The CHMMC is entirely student-run, aiming to motivate interest in math.

On Nov. 22, CHMMC welcomed 46 teams and 256 individuals from 29 different high schools to Harvey Mudd. After registration and a brief opening ceremony, participants were led into different rooms for Team Round, during which each

team was given 10 short answer questions and a series of 4 proof-based power questions to solve in 75 minutes. Following the lunch break was the Individual Round, during which participants had one hour to try their best on 15 short answer questions. The questions in both rounds were of varying difficulty and represented diverse topics.

Harvey Mudd organizer Mimeo Xu noted, “We are super pleased with the types of questions we have! Our mix of problems had more diversity in combinatorics and approachable types of graph theory for instance.” While all the answers were being graded, Dr. Rob Thompson from the Harvey Mudd Math Department gave a presentation about introductory topology. The top-scoring individuals were then put into a Tie-

Breaker Round where the eventual ranking of winners was determined. Meanwhile, the rest of participants enjoyed a Mixer Round, where they met new friends and worked on problems together. Finally, the 2014 CHMMC culminated in the long-awaited awarding ceremony.

This year’s CHMMC was sponsored by Mu Alpha Theta, the MathWorks, Wolfram Research, the Harvey Mudd Math Department, the Harvey Mudd Presidents’ Office, and the Caltech Department of Mathematics. Top scoring individuals and teams received Mathematica licenses and copies of Matlab as recognition for their outstanding performances. Star League A-Star Earth Team was the winning team in the Team Round, and Benjamin Chen from Orange County Math Circle placed first in the Individual Round.

Caltech Y’s Explore LA event a success in Little Tokyo



Techers pose in Little Tokyo with Hello Kitty and later enjoy delicious food!

Photos Courtesy of Tyler Okamoto

TYLER OKAMOTO
KEVIN CHEN
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The Caltech Y’s Explore LA series gives Caltech undergraduate and graduate students opportunities to see Los Angeles from a new perspective. On Nov. 8, a group of six embarked on a journey to learn about Japanese-American culture, beginning at the Japanese American National Museum.

Starting with a reconstructed house from the Heart Mountain internment camp, the museum exhibited incredibly detailed records of the lives of Japanese Americans during the twentieth century. It was a sensational experience to see how issei overcame the cultural shock as

well as racial discrimination since immigration. The issue of prejudice was exacerbated during World War II when thousands of Japanese Americans were forced to relocate to concentration camps under adverse living conditions. The walk around the Japanese American National Museum certainly offered the students a powerful insight to the struggles of the early Asian American community.

Afterwards, the group shopped at the Village Plaza, which was filled with a variety of souvenir stores, ranging from traditional Japanese teapots to adorable plush dolls. The six Techers then concluded their visit at Daikokuya, a popular local ramen restaurant, where they enjoyed delicious food to wrap up the evening.

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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:

- 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

- 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. Smith Mountain Hike

Sunday | November 30th | 8:00 AM to 3:00 PM

The Caltech Y Outdoors group will hike to the summit of Smith Mountain in the heart of the San Gabriel Mountains. This seven-mile trip is good for both beginners and advanced hikers, with the first three miles gently climbing to a ridge straddling the border of the San Gabriel Wilderness. The last half-mile of the hike climbs steeply over 800 vertical feet off-trail to the summit of Smith Mountain, with 360 degree views that include the entire San Gabriel range, distant Southern California mountain peaks, and the Pacific Ocean in the distance if the atmosphere is especially clear. We will leave the Caltech Y at 8:00am and return at around 2-3pm depending on our pace and traffic. To sign up, fill out the form at the below. If you have questions, email Jeremy Sandler at jsandler@caltech.edu.

<http://goo.gl/forms/GvzeH3O7Vo>

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 vkumar@caltech.edu.

2b. Hathaway Sycamores

Thursday | 5:30-8:30pm | 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 info and to RSVP email Sherwood Richers at srichers@tapir.caltech.edu.

Caltech-Occidental Concert Band performs at quarterly showcase with guest conductor

NEERA SHAH
Contributing Writer

On Friday, Nov. 21, the Caltech-Occidental Concert Band held one of their annual concerts in Ramo Auditorium. The group was led by guest conductor Sharon Lavery, co-conductor of the USC Thornton School of Music Wind Ensemble. Students from the Blair High School Band also performed to introduce the Caltech-Occidental band.

The band is composed of students, faculty, staff, and alumni from both Caltech and Occidental College, the Caltech-administered Jet Propulsion Laboratory, and the local community. Since the band is composed of members of both schools, the band had a

second performance on Sunday afternoon at Thorne Hall at Occidental College.

There are weekly group practices, starting at the beginning of the quarter, to prepare for the performance. Directed by William Bing, the concert band puts on a performance for the community once every quarter. According to Ellen Price, a 4-year band member as a French horn player, Bing will, on occasion, perform with the band if there is a guest conductor.

The performance featured pieces by Charles Ives, George Gershwin, Paul Hindemith, and Auturo Márquez. The theme for the night was "America"; Price's personal favorite piece to play was "Danzón No. 2," composed by Márquez. She added that "the concert was interesting—it's always cool to

have a guest conductor. She worked well with the band."

Composers who have worked with the band or served as a guest conductor in the past include Joseph Curiale, Bruce Lofgren, Dirk Fischer, and George Stone. Frank Ticheli, another composer and conductor from the USC Thornton School of Music, often works with the band and has also appeared as a guest conductor in past performances.

The group has performed at other events such as an international music festival at Disney Hall and a variety of places across the world, including the Great Wall of China and Carnegie Hall. They have three to four major concerts every year, and their next community performance is expected to be near the end of next quarter.

Ukraine continues its year-long struggle for national sovereignty

CASEY HANDMER
Contributing Writer

In November 2013, Ukraine's then president Victor Yanukovich, playing EU and Russia off each other in an attempt to secure necessary foreign investment to counter nine years of economic stagnation following the 2004 Orange Revolution, reneged on an agreement for stronger economic and political ties with the EU in favor of Russia. Ukraine's capital, Kiev, is located in the more pro-EU western side of the country, and protests broke out.

By February 2014, the Maidan square protests had intensified. A series of violent escalations blamed variously on the U.S., NATO, Ukraine, Russia, and the Illuminati culminated in Yanukovich fleeing Ukraine for Russia, followed by the instatement of a provisional government, the reversion of the constitution to an earlier state, and new presidential elections. Yanukovich's private palaces were opened to the press and public, underscoring Ukraine's ongoing struggle with official corruption and releasing thousands of private records to public knowledge and analysis.

Yanukovich could not be described as a uniformly pro-Russian agent, but his loss in favor of parliamentary power sent shockwaves through the Russian military establishment, particularly since Ukraine's ongoing lease of port facilities in Crimea's Sebastopol are of vital importance to the Russian Black Sea fleet.

This concern led to the shadow annexation of Crimea shortly afterwards. Begun by pro-Russia paramilitary forces, many led by veterans of the Bosnian conflict in the mid 1990s, green-clad troops lacking identifying insignias or names rapidly seeded Crimea. Their presence catalyzed the peaceful co-optation or withdrawal of the Ukraine military presence in the Crimean peninsula, which subsequently declared de facto independence. On March 16, a referendum was held in which residents were asked to choose between aligning with Russia or adopting Crimea's 1992 constitution, in which it was a semi-autonomous state within the Soviet union. The status quo was not an option. In classic Russian style, 79% of residents voted to become part of Russia despite a 38% turnout.

Meanwhile, the far eastern Ukraine provinces of Donetsk and Luhansk (known

collectively as Donbass) had seen pro-Russia unrest, culminating in the occupation of several government buildings. At the time, these buildings formed the net total of land administered by the (internationally unrecognized) Donetsk People's Republic (DPR) and Luhansk People's Republic (LPR), but that was about to change. A series of pro-Russia and pro-Ukraine protests occurred but, as in Crimea the general desire was the maintenance of peace. Ethnically Russian and Ukrainian people have lived peacefully side by side in Donbass for decades.

A steady trickle of troops and equipment reinforcing the pro-Russian DPR and LPR arrived across the border. Despite Russia's official insistence that Ukraine's internal issues had nothing to do with them, these troops were less disciplined than the ones now formally acknowledged to have intervened in Crimea, and numerous cases of GPS-tagged Facebook photos show Russian soldiers "on the wrong side of the border." These incursions were opposed by Ukraine's army, and were localized to a few towns and cities within a few miles of Russia's border.

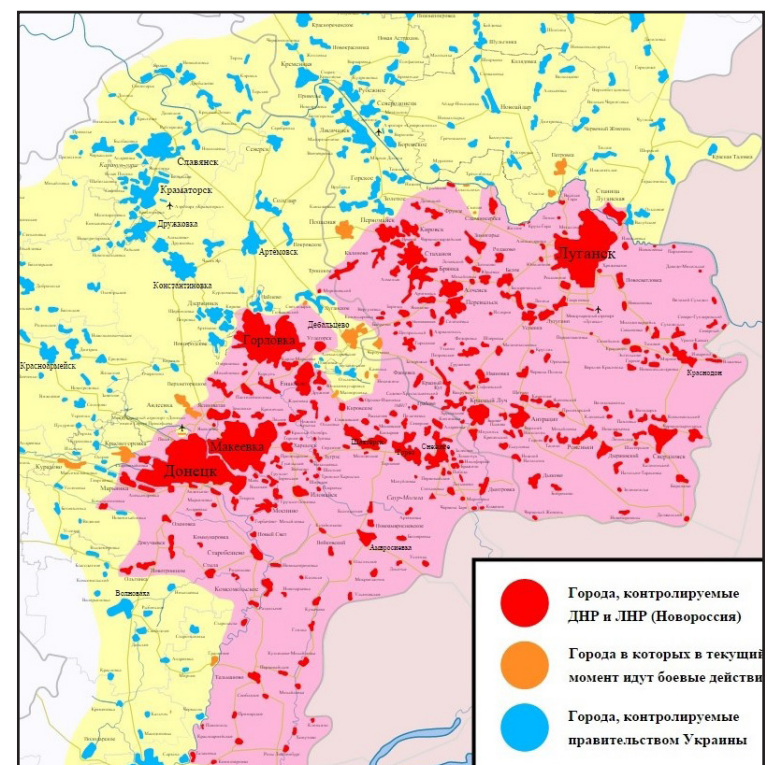
By July 14, the separatists had gotten hold of Russian-made BUK surface-to-air missiles and wasted no time defending their airspace. Over the next few days, they publicly announced shooting down several Ukraine military An-26 aircraft, including one on July 17. Shortly after it became obvious that July 17's shoot down was actually of MH17, making a bad year worse for Malaysia Airlines.

Ukraine's internal struggles now became an international issue. With the international finger pointed

at Russia, a series of spectacular backpedals occurred, during which it was claimed MH17 was shot down by Ukraine-operated fighter jets after being deliberately diverted into the conflict zone by corrupted European air traffic control, presumably to frame Russia. As usual, Russia's line is that all the weapons used by separatists were captured from Ukraine's army. Expert analysis has been unable to support these suggestions, finding instead no shortage of evidence that they had never been purchased or used by Ukraine. Russia's national media is every bit as uncritical and parochial as that of the U.S., however, so the deployment of such crude propaganda is still highly effective.

Through late July, separatists continued to lose ground as their promised full-scale Russian invasion force, massing at the border for months, failed to materialize. By mid-August, Ukraine looked poised to crush the last remnants of the rebels. However, by Aug. 23, reporting on MH17 had died down enough that Russia launched a "humanitarian intervention," rapidly retaking and holding roughly half of the Donbass region.

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This map shows occupied territory on Aug. 15. This map and the map on page 4 contain information from: <http://www.rnbo.gov.ua/> A complete list of maps, including these two, can be found on the Ukraine government National Security/Defence website.

[-http://www.rnbo.gov.ua/en/news/?cat=2v](http://www.rnbo.gov.ua/en/news/?cat=2v)

Faith in Strangers caters to a range of music tastes

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Every once in a while you stumble across music that for whatever reason you just haven't gotten around to listening to, and then an hour or so later you wonder just how you could have put it off for so long. This week, I had the enjoyable experience of hearing the work of Manchester-based producer Andy Stott for the first time, and so far it has definitely been the sort of thing I regret not listening to until now. Stott released his first record *Merciless* in 2006, an ambient-influenced, dance-focused album that displays an attention to the fine details of its sound's texture, an often dark, swirling, and bass-heavy mixture that serves as an example of well-produced dub techno, with particularly strong sound design. Stott's 2008 release, *Unknown Exception*, then stands in contrast as it seems to take quite a few cues from older electronic music, even sounding a bit dated as it evokes classics such as Aphex Twin's *Selected Ambient Works 85-92*, but without quite the level of Richard D. James' technical ability. Stott's 2012 release, *Luxury Problems*, however, was universally acclaimed for its chilling vocal samples, off-kilter and distorted percussion, and its all-around uneasy, thumping pulse that drives 50 minutes of dark, almost uneasy music. On the 2014 release, *Faith in Strangers*, Stott takes this style and applies it pointedly in some new directions.

The album starts off remarkably slow, with a six-and-a-half minute journey through bleak, swelling synth tones and nondescript background samples ("Time Away"), setting the tone for the next few tracks, which are all relatively low-key compared to the album's more aggressive second half. "Violence" then takes a few

minutes to fade in over a muffled, rumbling bass and ethereal female vocals, likely delivered by Stott's former piano teacher (as on his previous LP), before picking up a pulsing, deliberate beat that pushes the track through a cacophonous storm of warped and glitched audio that sounds as though the speakers might be on fire. This sort of intentional and controlled chaos is one of the things *Faith in Strangers* excels at; it never feels like it's too harsh or too chaotic, and serves as one of the layers that lies on top of Stott's solid beats, rather than unstructured noise attempting to dismantle the music's flow.

Stott's use of it is also impressively versatile, with strange samples serving as a large part of the percussion complementing vocals that trip over themselves on the quiet "On Oath," while also serving as the meaty, memorable moments of the aforementioned "Violence," or of the album's most energetic track, "Damage." Rearing its head more than two-thirds of the way through the album, "Damage" is the sort of track you'd expect to hear on a crowded American dance floor, with heavy bass, an aggressive main melody, and an overall in-your-face approach to showcasing Stott's style, markedly different from his typically more subdued efforts. While an entire album of it would get old very fast, it's an unexpected and fairly enjoyable

addition to the record, and at 4:35 it's the shortest track by a decent margin, so I can hardly imagine its inclusion offending more than the pickiest of listeners.



-<http://consequenceofsound.net>

After playing through *Faith in Strangers* a number of times, I was actually a bit surprised to find myself particularly drawn to the tracks on its second half, considering that Stott's work to this point has been for the most part quite a bit more laidback. I found the album's sixth track, "How It Was," to be one of its most memorable cuts, showing off a beat reminiscent of UK dubstep, but absolutely dripping in crunchy distortion and audio clipping, warbling its way through the track and

corrupting all of the samples that build around it until they too sound like the cries of dying electronics. As someone who tends to really enjoy music that makes an effort to be

dark and abrasive, I think Andy Stott has intelligently applied these two themes to this record without just updating his older compositions with different production.

While I feel as though most of the tracks I haven't already mentioned each have their own problems to nitpick, I would very much hesitate to call any of them weak, as they all present a different aesthetic and angle of approach, ultimately producing a varied and interesting set of takes on the album's sound. "Science & Industry," for example, sounds a bit like a muted version of a Chvrches song, with an up-tempo, synth pop-like beat running through it, supported by endlessly ticking samples of clocks and a

blood pressure-raising uneasiness that permeates every little piece of the sound. It gets a little repetitive after a bit, which is certainly a reasonable complaint about it and several other of the album's tracks, but I think that since each stands fairly independently from its companions it ends up not being a big deal since the album is always going to new places.

Harsh music is not something that everyone enjoys, and that's fair—it takes time to get used to, can be anywhere from distracting to downright uncomfortable, and is generally not the easiest thing to just put on for fun. However, some artists manage to really nail the aesthetic and make it a worthwhile inclusion to their work instead of something that exists just for its own sake, and if one can put in the effort to appreciate this, the results are usually pretty rewarding. On *Faith in Strangers*, Andy Stott has combined his experience in UK dubstep and techno with on-point production and an overwhelmingly inky aesthetic in order to make a strange beast that from its softest to most aggressive moments is unrelenting in its quest to throw something at the user that's just not quite what they expected, but is still pretty cool nonetheless. There's a lot you can get out of this record, and I definitely recommend giving it a listen.

Special Free On Campus Student Screening of *Interstellar* December 1

On the evening of **December 1**, Caltech students will be treated to an amazing Caltech-only experience featuring a screening of the movie *Interstellar* with a special talk on the science in the film by Professor (and Alumnus) **Dr. Kip Thorne**. Dr. Thorne has been an Executive Producer and the science advisor for the film and was involved in it from its inception, ensuring that real science is built into its fabric. He has also written the book "The Science of *Interstellar*," which should NOT be read before viewing the film; it is full of spoilers.

Please save the date and plan on joining your fellow students for what will most definitely be a thrilling, unique inside look into the movie *Interstellar* and the science behind it. More details will be sent to all students in the near future. Save the date!!!!

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Scientist's wardrobe choices come under fire

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bullying of Dr. Taylor that is ultimately counterproductive for the feminist movement.

In order to begin to understand the issues people took with Dr. Taylor's shirt, one must first put the shirt in context, both in society and in STEM fields specifically. It is claimed that out of 2,000 ninth graders of their respective genders, 280 boys and 210 girls have enough mathematical education to pursue a technical career; 143 of the men and 45 of the women will pick a scientific major at university, with 44 of the men and 20 of the women completing their degrees. Of these graduates, five of the men will obtain Ph.D.s in a scientific field, while only one of the women will. This phenomenon is known as the "leaky pipeline," and is attributed to a combination of many causes, including difficulty in being taken seriously by male colleagues, sexual harassment, and pressure to maintain a work-life balance with the high time demands of both an early academic career and starting a family. Additionally, in mainstream society, women are frequently valued for their appearance and perceived sexual value over their other traits, such as intelligence, ambitions, or achievements.

The outrage over Dr. Taylor's shirt came from people feeling as though Dr. Taylor was reducing women to sexual objects through his choice to display images of highly sexualized women. Further, it has been argued that due to

Dr. Taylor's perceived sexual objectification of women, women in STEM fields would feel as though their other male colleagues would also reduce them to sexual objects. Subsequently, this would make women in STEM fields feel demeaned, reduced to nothing but their bodies with little or no respect for their intellectual contributions to their chosen fields.

The first assumption made in the logic of the criticism of Dr. Taylor's shirt is that Dr. Taylor could not wear a shirt bearing sexualized images of women without sexualizing actual women. This stems from the idea that men cannot control their sexual impulses, which is distinctly unfair and reduces men to little more than animals in rut.

The second assumption made is that sexualization is inherently demeaning to women. This comes from the current portrayal of female sexuality, which presumes women have sexuality not for their own pleasure but rather for the pleasure of men, and therefore women reduce themselves to objects to be acted on when they have sex or are sexualized. Of course, this is a ridiculous narrative; it is now well studied that women are perfectly capable of obtaining pleasure from sex, and that women desire sex at least as much as men do. Thus, the problem is not the fact that the shirt had images of sexualized women, but in the way society views sexualized women.

The third assumption made is that a demographic should be treated as a monolith. This assumption was used in two

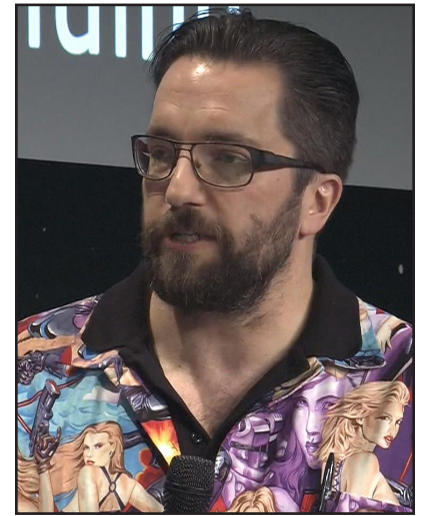
ways: first, to extrapolate the sexualization of one set of portrayed women to the sexualization of a broader group of women, and second, to extrapolate one male scientist doing so to all of the male scientists in a given research group. Judging a demographic by a given individual induces unfair pressure on the individual. Conversely, such treatment does not allow an individual to be judged on their own merits, instead judging them off perceived ideas about their demographic. Ultimately, the point is that Dr. Taylor's shirt is not what is marginalizing women, nor is it the reason STEM fields are unaccommodating to women; it is a symptom of larger, fundamental social issues.

The response to Dr. Taylor's shirt has largely ignored the fundamental reasons why it was offensive to many people. The lack of depth in the many discussions of the shirt demonstrates a truly concerning lack of examination; if feminists are not clearly articulating the reason something is problematic, they are not going to be able to rectify the situation at hand, let alone the true issues going into creating the problematic situation. By instead targeting Dr. Taylor specifically, it appeared that people identifying as feminists were getting extremely offended by a shirt, rather than the deeper social issues that the shirt was representing. This had two deeply negative consequences: the treatment of Dr. Taylor, and the subsequent perception of feminism as a movement.

A large number of people misdirected their justified anger

at social injustices to Dr. Taylor, leading to unfairly harsh criticism of him as an individual. There is no way to know what Dr. Taylor's intentions were in choosing the shirt, and most of the people accusing him of being a misogynist or someone who doesn't value women in STEM fields have never met him, and have no idea about Dr. Taylor's gender politics. While it is valid to criticize Dr. Taylor's shirt choice, it is not valid to extrapolate that one poor choice to a pattern of misogynistic behavior. It would have been vastly more constructive to take the opportunity to ask him to place the shirt in context and explain why he chose such a potentially inflammatory article of clothing for his interview. In the parlance of parents and teachers everywhere, the experience should have been treated as a "teachable moment," from which Dr. Taylor—and everyone watching—could have learned in a productive, supportive environment.

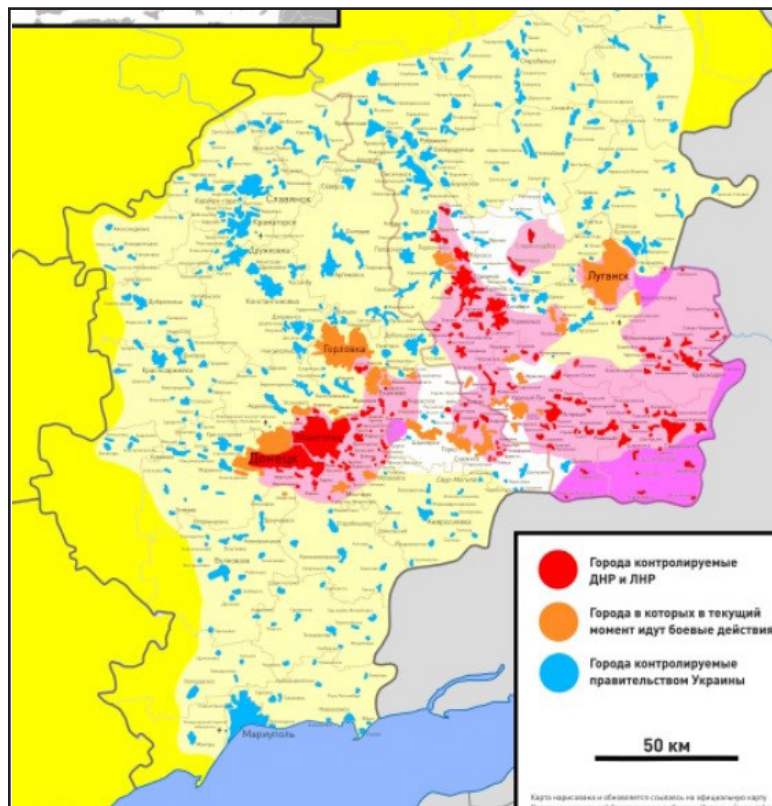
Due to the way a massive number of people responded to Dr. Taylor's shirt, not only was a man treated harshly and arguably unfairly, but also the feminist movement yet again came under fire as excessively politically correct and aggressive. In academic feminism, there is a concept called "tone-policing." Tone-policing is the practice of attempting to shut down a discussion by telling a given party that its manner of speaking is inappropriate. As tone-policing is frequently used to shut down people fighting against marginalization by dismissing them as "too angry" or



The shirt that spawned the "Shirtstorm."
-http://www.nbcnews.com

"too emotional," it is unpopular for feminists to criticize other feminists for aggressive rhetoric. However, no matter how just a movement's aims are, the movement is useless if it cannot enact change. In order to fight marginalization productively, it's important to know the audience one is addressing. While there should absolutely be safe spaces for feminists to go and share their responses to various problematic issues without worrying about how rhetorically effective they are, those spaces are not the public sphere. When addressing a feminist issue in a medium highly visible to a mainstream, public audience, it's important to not alienate the audience or put them on the defensive and to instead make the audience feel included and empowered to help fix injustices. Unfortunately, the feminist movement does not have the luxury of not considering rhetorical effectiveness. If the movement is to bring about equality of opportunity for all gender identities, it must first make sure it is effectively arguing its stance.

ICYMI: Ukraine still in existential crisis



This map shows occupied territory on Aug. 28.

-http://www.rnbo.gov.ua/en/news/?cat=2v

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By early September, Ukraine pursued a ceasefire with the separatists, though Russia still officially denied involvement. On Sept. 13, a convoy from Russia arrived unsuspected, undermining

the already shaky ceasefire. Russia stated the convoy contained humanitarian supplies.

The humanitarian crisis surrounding the conflict is real enough, however. Much of Donbass will have insufficient food this winter due to economic

and agricultural disruptions concordant with fighting all summer. For that reason, fighting since has focused on a number of known supply depots. Many countries keep large supply depots at logistic hubs in case of disaster. Luhansk and Donetsk airports are two such cases. Both large, modern international airports were occupied by Ukraine's army. Both airports have since been utterly destroyed by Russian artillery, though Donetsk's ruins are still defended by a band of fighters dubbed "the cyborgs" for their seemingly invincible, death-proof nature. That said, around 5,000 people, mainly military, have died since the September ceasefire at Donetsk airport and a few other hot spots in the otherwise cooling conflict. Mysteriously, the Organization for Security and Cooperation in Europe (OSCE), which oversees the ceasefire from white SUVs, seems never to be around when the bullets are flying.

Russia's original goal, stoked by a carefully maintained information bubble around key leaders, seems to have been the rapid annexation of Donbass and surrounding oblasts much like Crimea, totaling perhaps a third of Ukraine. Today,

it is thought that the goal is to forge a land corridor between Russia and Crimea, either through or around Mariupol. Mariupol, once broadly pro-Russia, is now heavily fortified. It is clear that in this conflict, however, Russia has all the time, money, and weapons in the world. A rapid or decisive victory is unnecessary. Ultimately, Russia may support the reintegration of separatist regions into a new federalized Ukraine with semi-autonomy under a new constitution that would ensure Russia's ongoing influence in Ukraine's domestic politics. This outcome may be even better than wresting away some contentious and now shell-shocked territory.

Throughout the conflict, pro-Ukraine forces have openly requested military support from NATO and/or the EU. In particular, many U.S. commentators have suggested helping to arm Ukraine's army to provide the firepower needed to oppose Russia's artillery. Cooler heads have wisely suggested that doing so would provide material proof that Russia has needed to support its narrative of persecution by NATO, and thus far Western governments have resisted showering Ukraine with weapons.

A less fraught suggestion is instead to shower Ukraine's NATO member allies and neighbors such as Bosnia with U.S.-made weapons so they can sell their Russian-made systems (with which the soldiers are already familiar) to Ukraine at a very reasonable price whilst avoiding accusations of direct interference.

In November 2014, the conflict is still very much ongoing. On Nov. 2, the separatist regions held elections. Ukraine stated such elections were in violation of the Minsk protocol, wherein Ukraine obtained independence at the end of the Soviet Union in return for giving up its substantial nuclear arsenal and permitting the Russian navy base in Crimea. On Nov. 7, NATO reported that Russia has deployed nuclear-capable weapons to Crimea. Current estimates place 7,000 Russian troops in Ukraine, and about 50,000 on the internationally recognized border. Through mid-November around 80 military vehicles (tanks, mobile artillery, etc.) have been moving through the separatist regions. It is unclear how the future will play out, or how well the separatist regions will weather the coming winter.

Bhagavathi runs across the country



Caltech saved money on Aditya Bhagavathi's airfare by letting him run there as a warm up. [-http://gocaltech.com](http://gocaltech.com)

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MASON, Ohio (Nov. 22, 2014) – Caltech men's cross country junior Aditya Bhagavathi (Plainsboro, N.J. / West Windsor-Plainsboro) bested his own program record on his way to a 139th-place finish at the NCAA Championships on Saturday morning.

Bhagavathi shaved another four seconds off his record set at the SCIAC Multi-Duals to clock in at 25:34.7 on the biggest stage possible, despite facing considerably more difficult conditions. He improved his position among West Region runners by three, placing ninth.

"This season has been an eye-opening experience for Aditya and the team as a whole," Head Coach Ben Raphelson said. "Our goal all along has been to pursue our true potential, and I think we're starting to discover how good Caltech cross country can be. We have reason to be tremendously proud of what we accomplished this year, while excited for the future."



After a day of preparation in low-30 degree weather, conditions improved a bit with temperatures in the high-30s by race time, but a soft, muddy makeup caused problems from the outset as multiple runners slipped coming around the many hairpin turns within the first mile.

Bhagavathi ran conservatively to open the race, hanging just outside the top 200 despite a fall of his own near the 3-kilometer mark. The junior bided his time until about midway through, when he kicked into gear and moved into the middle of a massive pack of runners. With the end in sight, he fired up his best finishing kick down the stretch to break into the top-150.

"Of course it was an amazing experience, but I am not leaving satisfied," Bhagavathi said. "Getting a taste of nationals makes me even hungrier for next year, and I hope to have my teammates competing here with me then."

Bhagavathi now owns the top two times ever run in Caltech program history, having broken Ian Shapiro's 2001 mark set at the NCAA West Regional and his own record from four weeks prior.

Ball so hard ... and it might hit his face



I really tried to photoshop the ball out of this picture, but it was too much effort. [-http://gocaltech.com](http://gocaltech.com)

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REDLANDS, Calif. (Nov. 22, 2014) – Sophomore Chris Bradley (Half Moon Bay, Calif. / Serra) capped the Caltech men's water polo team's season with his 25th hat trick as the Beavers fell, 20-7, to the University of La Verne on the second day of the SCIAC Championships on Saturday morning.

Bradley notched three goals to end the season on 135 goals, establishing a new program mark after eclipsing David Bruning's 1986 record of 117. Senior Ben Grabowski (Lake Forest Park, Wash. / Inglemoor) made nine saves in his final game as a Beaver to set new program marks in both single-season saves (346) and career saves (1,020).

La Verne opened the scoring on the first possession of the match, but Caltech quickly

turned the tables as junior Jim Blackwood (Rancho Palos Verdes, Calif. / Palos Verdes Peninsula) registered back-to-back goals to take the 2-1 lead. The Leopards recovered to regain the lead just a minute later, but Bradley evened things up on his first strike of the day with 2:13 left in the first quarter. La Verne came back with a penalty goal on the next possession, but once again the Beavers equalized as junior Patric Eck (Fullerton, Calif. / Troy) got on the board with 1:28 to go. Unfortunately for the Beavers, the Leopards mustered a late go-ahead strike to take a 5-4 lead and the momentum into the first break.

That would prove pivotal as La Verne surged ahead over the next two quarters, scoring eight unanswered goals before Eck finally stemmed the tide midway through the third quarter. Bradley came up with his final two goals over the last 11 minutes of the match, but La Verne cruised to the 13-goal victory.

Ball so hard. Ball is life.



Hold up #32, I'mma let you finish...but Beyonce had one of the best videos of all time. OF ALL TIME. [-http://gocaltech.com](http://gocaltech.com)

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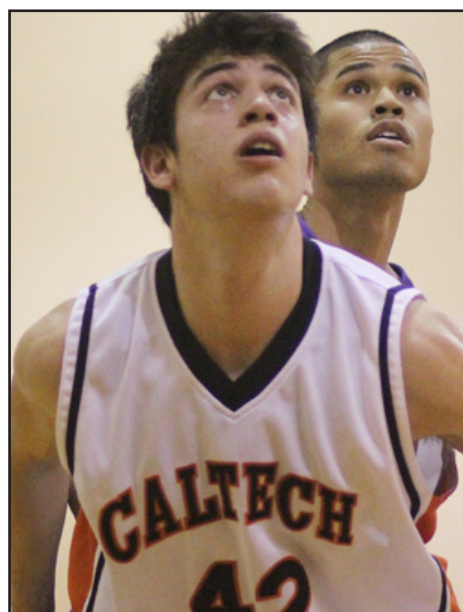
SALEM, Ore. (Nov. 21, 2014) – Juniors Kristin Anderson (Folsom, Calif. / St. Francis) and Stephanie Wong (Palos Verdes Estates, Calif. / Palos Verdes Peninsula) led the Caltech women's basketball team with double-figure scoring nights as the Beavers fell, 81-47, in their season opener at Willamette University on Friday night. Willamette opens the season 1-0 while Caltech begins at 0-1.

The Beavers hung close early on, trading leads through the first 10 minutes and holding a two-point lead at 16-14 after the opening 10 minutes.

The Bearcats exploded at that point, running off 13 straight points over four minutes to surge ahead by 11. Sophomore Michelle Wong (Palos Verdes Estates, Calif. / Palos Verdes Peninsula) hit a jumper to pull back within single digits, but Willamette rattled off another 12 unanswered points to head into halftime with a 21-point lead at 39-18.

Caltech picked up the first four points coming out of the break, but Willamette quickly sank a trio of three-pointers to extend the lead out to 27 and, after a brief Beavers spurt of six straight points on free throws, continued to build up the lead to its final 34-point margin.

Anderson led the Beavers with 11 points on 3-of-8 shooting and seven rebounds, while Stephanie Wong chipped in 10 points, including going 2-of-6 from downtown. Sophomore Kate Lewis (San Antonio, Texas / Ronald Reagan), Michelle Wong and junior Ann Chen (Thousand Oaks, Calif. / Westlake) contributed nine, eight and seven points, respectively, with Chen also adding six rebounds and Wong dishing out a team-high two assists while tying for the team lead in steals (two) with senior Bridget Connor (Albuquerque, N.M. / Albuquerque Acad.).



Nassar Al-Rayes watches Kristin Anderson live the ball life while he is also living the ball life. [-http://gocaltech.com](http://gocaltech.com)

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Actual Sports Content Editor

FOREST GROVE, Ore. (Nov. 22, 2014) – Sophomore Kate Lewis (San Antonio, Texas / Ronald Reagan) exploded for 24 points as the Caltech women's basketball team closed out its weekend trip to the Portland, Ore. area at Pacific University on Saturday afternoon.

The Boxers overcame an early deficit to record the 88-50 victory, improving to 2-0 overall while the Beavers drop to 0-2.

Pacific sank the first basket of the game, but junior Stephanie Wong (Palos Verdes Estates, Calif. / Palos Verdes Peninsula) drilled a three-pointer on Caltech's first possession to spark a 7-0 run over the next two minutes.

The Boxers regained the lead on a pair of free throws at the 15:45 mark, but the Beavers took it back immediately and held on for the next five minutes until the floodgates opened, with Pacific rattling off 15 unanswered points to surge ahead, 25-13. The hosts would increase the margin to 23 by halftime and continued to build up to the final 38-point edge.

Lewis' output led all players and was her third career 20-point effort, with the sophomore adding five rebounds, three assists, one steal and a block. Wong scored in double figures for the second time in as many games, notching 15 points, and made two steals. Junior Kristin Anderson (Folsom, Calif. / St. Francis) managed to record seven points and five rebounds over just 15 minutes off the bench due to foul trouble.



Lawrence Lee just broke Money's records for points in game and field goals. #getpaid [-http://gocaltech.com](http://gocaltech.com)

ASCIT Minutes

ASCIT Board of Directors Meeting

Minutes for 20 November 2014. Taken by Sean McKenna

Officers Present: Nima Badizadegan, Connor Rosen, Connie Hsueh, Patrick Nikong, Sean McKenna

Guests: Margaret Lee

Call to Order: 11:01 pm

President's Report (Cat):

- DevTeam Member Appointments were completed at the meeting and will be announced soon.
- Midnight Donuts will occur on December 3rd on the Olive Walk.
- Prefrosh Yield Committee signups were forwarded to the Houses. Sign up if you want to have an impact on the incoming Class of 2019!

Officer's Reports:

- **V.P. of Academic Affairs (ARC Chair: Nima):**
 - o Discussing frosh advising partnership between the ARC and the Deans' Office, which may be implemented next term.
 - o SURF advising may happen next school year.
- **V.P. of Non-Academic Affairs (IHC Chair: Connor):**
 - o Student Life and Housing Committee meeting is happening on 1 December. Send comments on anything to Connor, Justin Koch, or Andre Comella, the student representatives
 - o The Dean's Advisory Council is discussing the Independent studies program, peer advising, alumni relations, and upperclassmen/frosh advising. Thoughts can be directed to any member of the council
- **Director of Operations (Connie):**
 - o Phys 8 lab conversion will not involve students in the next step. Peter Daly is working on it.
- **Treasurer (Patrick):**
 - o We still have money coming in from outside sources for Big I
 - o Reimbursements for Big I should cover consumable expenses. Capital investments become property of ASCIT after Big I.
- **Social Director (Annie):**
 - o Be a Kid Again and ASCIT Formal are being planned. Formal will be in April.
 - o Caltech/Harvey Mudd party may happen again this year
- **Secretary (Sean):**
 - o Nothing to Report

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 BoD meeting will take place on December 4th, 2014 at 11pm in SAC 15.

Meeting Adjourned: 11:41 pm

REMINDER FROM THE COUNSELING CENTER:

Meditation Mob
(drop-in mindfulness meditation group)
meets every Tuesday
Bottom floor of Winnett
from 12:00-12:50 pm

CALTECH THEATER offers several chances to branch out and take chances, have fun and expand your social network this fall!

1. Wednesday Nights 730-930 in Ramo Auditorium.

Director of Theater Arts Caltech, Brian Brophy (*Star Trek TNG*, *Shawshank Redemption*) helps guide you through the fundamentals of Directing/Acting/Writing for the stage (life), to a final production of several ten-minute plays by students December 3, 2014. We still have room for about six more students! Last chance 2014!

2. WANTED: Actors, singers, musicians, technical personnel, and designers for new, original Caltech musical *Alice Through the Wormhole!* This musical is currently in the development phase with a world premiere run February 20-March 1 2015! If you are interested in any facet of production, including script development, contact Brian directly!

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.

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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."

Get Fit with Brad/ Chad: Weightlifting 102



-http://upload.wikimedia.org/

BRAD CHATTERGOON
Contributing Writer

Hey, guys and girls. So Big I happened this weekend. Was it just me or did it seem like the last Big I was a bit better? For those of you who missed it here are the highlights. There were a lot of people there. Many TAs were found interacting with their students outside of the classroom for the first time, and some are probably hoping also for the last time. Walking around the event, one could easily find oneself people watching and internally asking the same question quite often (“Does that person even go here?”) And finally, realizing that an RA/RLC is mouthing “Are you ok?” over your shoulder to the person you are talking to is the surest way to make you feel like a sexual predator. Anyways onto this week’s fitness contribution.

There are two broad categories of exercise types: compound movements and single joint exercises. Compound movements, as the name suggests, are made up of several muscle groups working together to produce movement. Single joint exercises, on the other hand, focus specifically on one muscle group movement. Compound movements usually involve large muscle groups and one can usually lift a lot of weight doing them. Examples of compound movements are the “big lifts”: squats, deadlifts, bench press, overhead press, and rows. Example of single joint movements are crunches, dumbbell bicep curls, and tricep pushdowns.

As a newbie trying to get into fitness, the first step is to build up some basic strength before moving on to any serious workout program. I recommend a basic four-day routine that I’ll outline below. The routine is designed to work on basic strength, both weights and functional, so that you will be better able to deal with any workout program or general fitness activity that you would like to pursue. The program can be repeated immediately after Day 4 or a rest day can be inserted between Day 4 and starting over from Day 1, but I do recommend that you follow it for 4-5 weeks before moving on to a more focused program.

Day 1: Full Body Split

- 5-10 min.: cardio warmup
- 2 x Superset:
 1. Barbell Bench Press 12 reps
 2. Barbell Bent Over Rows 12 reps
- 2 x Superset:

1. Barbell Squats 12 reps
2. Barbell Stiff-Leg Deadlifts 12 reps

- 2 x Superset:
 1. Barbell Overhead Press 12 reps
 2. Barbell Shoulder Shrugs 12 reps

- 2 x Superset:
 1. Barbell Bicep Curl 12 reps
 2. Barbell Lying Tricep Extensions 12 reps

- 2 x Superset:
 1. Lying Leg Raises 12 reps
 2. Seated Calf Raises 12 reps

*60-90 sec. rest between supersets.

Day 2: Functional Strength

- 5-10 min.: cardio warmup
- 10 x Giant Set:
 1. Body Weight Squats 20 sec.
 2. Pushups 20 sec.
 3. Prone Cobras 20 sec.
 4. Jumping Jacks 20 sec.
 5. Reverse Crunches 20 sec.

*60 sec. rest between giant sets. Do as many reps of each exercise as possible in the time period.

Day 3: Full Body Split

- 5-10 min.: cardio warmup
- 2 x Superset:
 1. Dumbbell Incline Bench Press 12 reps
 2. Pull Ups or Assisted Pull Ups 12 reps
- 2 x Superset:
 1. Dumbbell Lunges 12 reps
 2. Dumbbell Stiff-legged Deadlifts 12 reps
- 2 x Superset:
 1. Dumbbell Shoulder Press 12 reps
 2. Dumbbell Shoulder Shrugs 12 reps

- 2 x Superset:
 1. Dumbbell Incline Bicep Curl 12 reps
 2. Dumbbell Alternating Tricep Kickback 12 reps

- 2 x Superset:
 1. Cable Crunches 12 reps
 2. Donkey Calf Raises 12 reps

*60-90 sec. rest between supersets.

Day 4: Functional Cardio

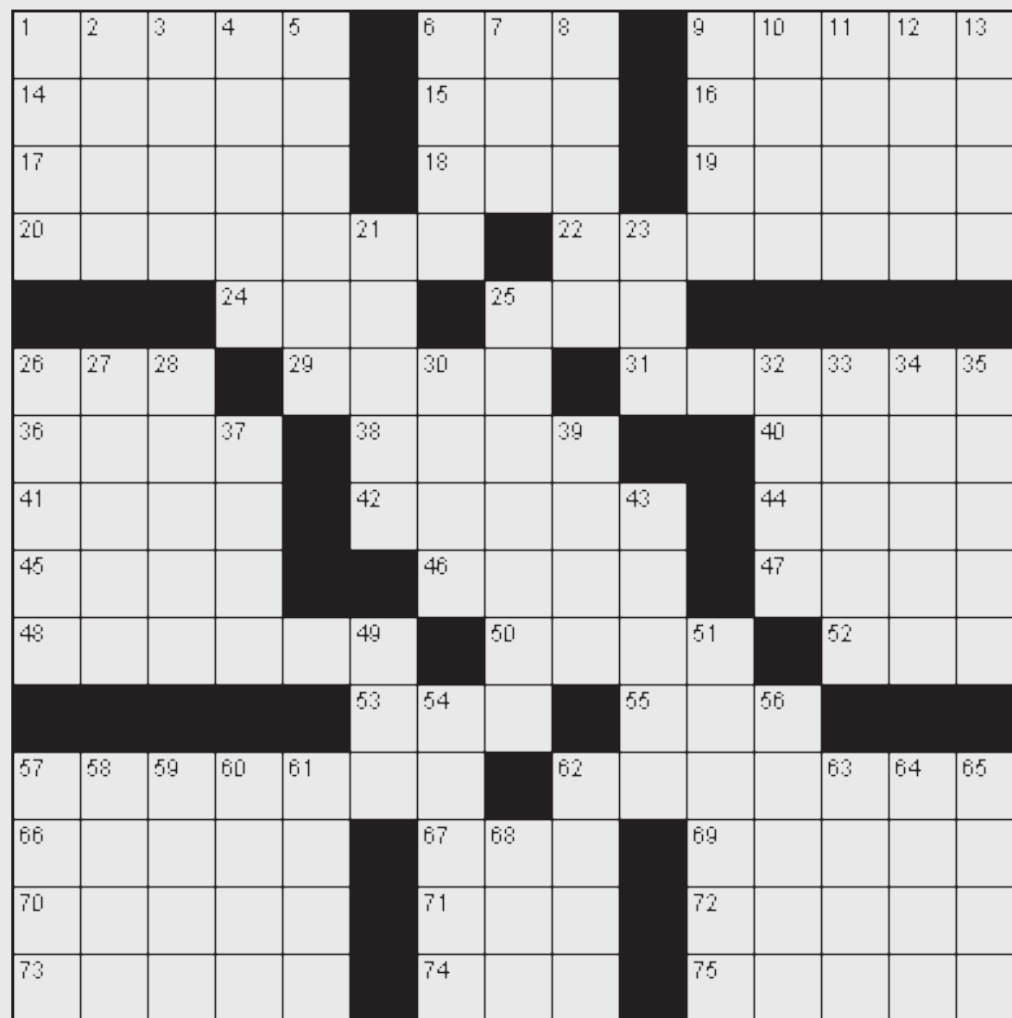
- 5-10 min.: cardio warmup
- 10 x Giant Set:
 1. High Knee Raises 20 sec.
 2. Mountain Climbers 20 sec.
 3. Plank 30 sec.

*60 sec. rest between giant sets.

This workout program should take you no longer than one hour at the gym and is an excellent intro program. Until next week.

-Brad/Chad

Crossword



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Across

1. Cattle farm
6. Wooden pin
9. Cutlass
14. Ablaze
15. Mature
16. Spooky
17. Overwhelming fear and anxiety
18. An opposing argument
19. Rapidly
20. Kind of table
22. Pit viper
24. Pastry item
25. Chicken
26. Beer
29. Ness
31. Olympic field event
36. Pile
38. Breakers
40. Flat-bottomed boat
41. In a relaxed manner

42. Mythical cave-dwelling creature
44. Song
45. Affirm
46. Stead
47. Violence by an unruly mob
48. Erase
50. Rational
52. Single
53. Edible tuber
55. In the past
57. Plug
62. Bother
66. Pontifical
67. Frozen
69. A relative by marriage
70. Sports venue
71. Deplete
72. Baked in an oven or on a griddle
73. Cash

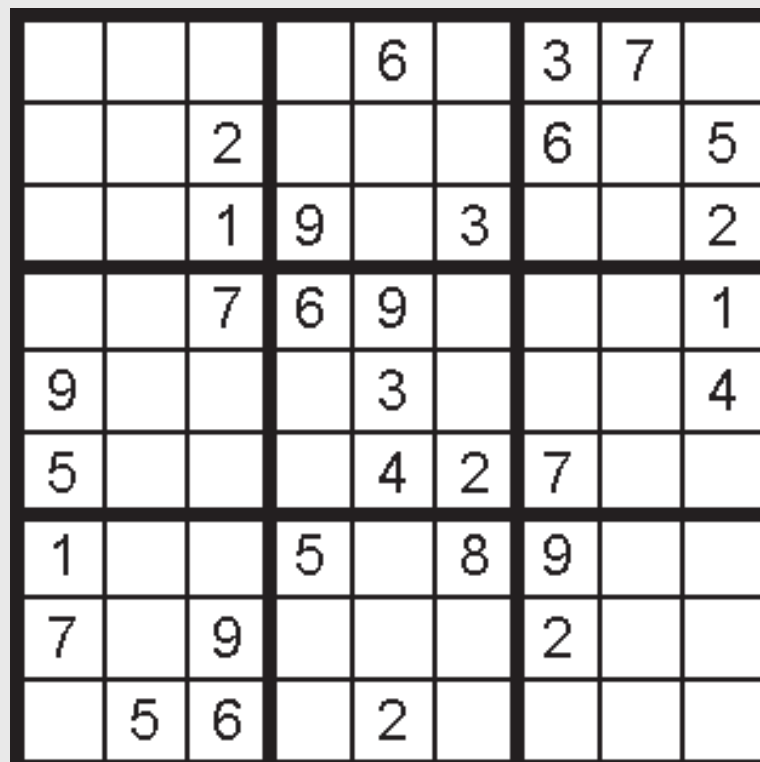
74. Female sheep
75. Measuring instrument

Down

1. Ecstatic
2. A great distance
3. Three squared
4. Thin potato chip
5. Feverish
6. Step
7. Self
8. Writing style
9. Furniture item
10. Sobbed
11. Using speech rather than writing
12. Food grain
13. Cervid
21. To the lowest degree
23. Conjunction
25. Valiance
26. In front
27. Depart
28. Tripod
30. Knitting stitch

32. Box lightly
33. Oddity
34. Employee organization
35. Condition
37. Heaped wood used as a funeral rite
39. Jumping insect
43. Relating to the moon
49. Oculus
51. Self-interest
54. Come into existence
56. Unit of weight
57. Junk e-mail
58. Starchy tuberous root
59. Overt
60. Part of a window
61. Frolic
62. Sort
63. Smudge
64. Bowling alley
65. Pitcher
68. Sound made by corvine birds

Sudoku



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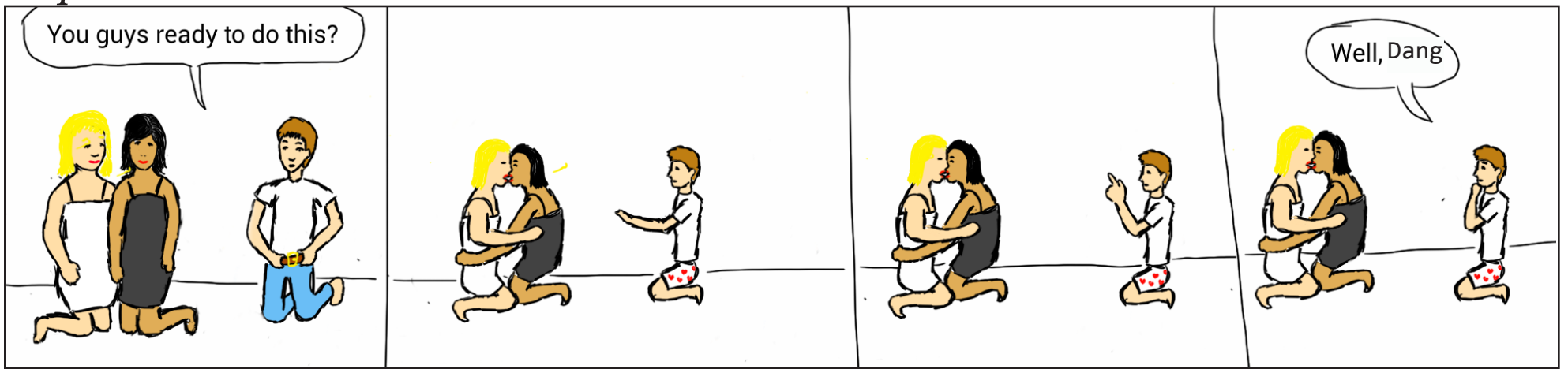
HUMOR

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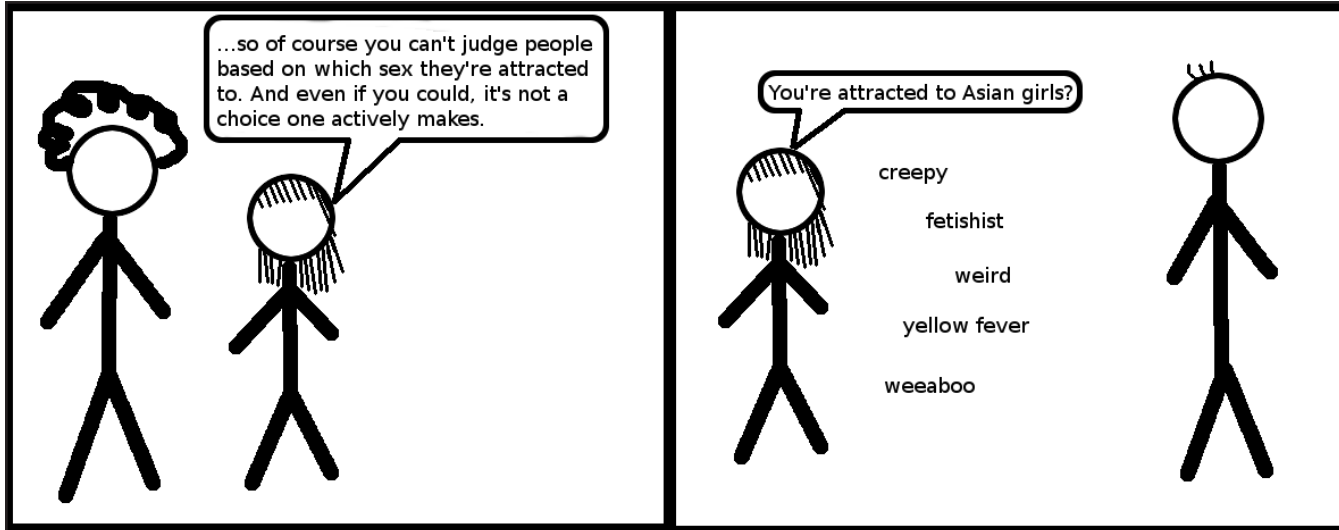
Acquired Taste

Dr. Z



103° in Bolivia

Georgio Kraggman



Answers to previous crossword



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Answers to previous Sudoku

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

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