The California Tech

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WHAT IT'S LIKE STILL LIVING AT CALTECH

Bilge Gungoren | Featured Story

Let me tell you about a regular day at Caltech, which I'm sure all of you reading this are familiar with: Walking out of the dorms, you can see students bustling around, rushing back and forth between lectures. There are always people sitting at the tables by the Olive Walk, either just hanging out or collaborating on the newest homework set that just came out. Walking up to Red Door Café, you can see that the tables outside are filled with people and, especially on a warm, sunny day, it's hard to find an open spot to sit. There's the ever-present line at Red Door, and there are even more students inside with their laptops open, catching up on work. Everywhere you go there is someone, either leaving their last lecture of the day, getting homework done, or just getting some quality time with friends.

Recently, though, it has become quite easy for me to find a seat outside Red Door, under the classic orange umbrellas, as the tables are empty every hour of the day. The café itself, which was always bustling with people, is dark and empty as it closed indefinitely at the beginning of the term. Chandler, which was once packed with students, only offers takeout food, with unoccupied chairs throughout the day. With the worldwide coronavirus pandemic, Caltech decided to continue introduction virtually for third term, which means that almost all the students have departed from campus, leaving only a handful behind, like me.

It's often said that "It's the people that make this place." I never realized how true it was until now. Caltech, more than any other college, is built on collaboration and hands-on research, which is incredibly difficult, if not impossible to achieve during these times. Online lectures, which are harder to follow and are riddled with technological problems, can't replace the real ones, especially with humanities where discussion is an essential part of it. Lab courses moving online deprives students of the crucial experience of working in a laboratory. Research, which a great number of undergraduates participate in, is pretty much at a standstill, which has affected me as well. Working with people through video chats, while possible, takes away from the active collaborative environment and confines people into working with a select group of people, and if that's not available, alone. Having to work away at home, while necessary, takes away from the full Caltech experience.

However, just as students are deprived of everything Caltech has to offer, Caltech also isn't the same without its students. Living in a Bechtel suite with only one other person means four empty rooms with closed doors, and halls and lounges lack the laughs and echoes of bustling students. Food is takeout, which means we eat in our suites by ourselves. Going out onto the campus isn't much different, as the walks are filled with silence. Even trying to work outside Red Door is a completely different experience without the hustle of people. While we can still talk to our friends and classmates online—the experience is limited and empty, just like the roads, the cafes, and the dorms. It is missing the best part of Caltech education: people.

At these times, I can't help selfishly hoping that this situation can be over as soon as possible and people can be back for summer.

The tables outside Red Door are often empty

Credit: Alejandro López

STUDENTS FORCED TO LEAVE CAMPUS

Devin Hartzell | Current Events

In an unprecedented response to the national health crisis, the Institute's spring quarter is being taught online. At 4 pm on Friday, March 20th, the undergraduate residences were closed, save for a handful of remaining students who moved to Bechtel.

The closure was backed up with strong language from the Administration: an email to the student body from Joe Shepherd, Vice President for Student Affairs mentioned that "only community members involved in essential functions are allowed on campus" and that unauthorized students on campus would be subject to "serious sanction." Furthermore, the email prohibited students from accessing items they left on campus, saying that "only essential items such as medicine or passports" will be retrieved.

It wasn't easy for students to pack up and leave the Caltech community behind. Sarah Crucilla (Ge '20), the outgoing IHC Chair, said that even though she lived off-campus, "the worst part was having to rapidly say goodby to people I thought I would get to see again. Some people had already left."

The sudden nature of the evacuation came as a shock to many students. Prior emails from administration implied that campus life would resume after Spring Break, so it came as a shock to some students when they were told not to return.

Norman Chung ('23) recounted a memory of Chandler before the shutdown was announced, "We all expected to return to Caltech after a week and a half, and we said the typical goodbyes to each other... [these memories] are things that would be considered pretty typical if the COVID-19 pandemic wasn't going on, but I remember them fondly because they're the last events/memories I'll have until we all come back, whenever that is.

In the time of crisis, the student government played a pivotal role in informing the student body about current developments, serving as a liaison between Administration and the Houses. "The IHC and ASCIT were also trying to get as much information out to the students as possible, so I helped organize and manage the student FAQ page we created. Our main goal was to distill the complex faq on the Caltech website into the pieces students have the most questions about," said Crucilla.

It's as of yet unclear when the campus will reopen. The SURF office is currently undergoing discussions regarding the status of the summer undergraduate research program, and another email from Shepherd mentioned that the undergraduate housing lottery would be delayed, as his office deals with the ongoing situation.

However, the email also mentioned that the office is "taking the necessary steps to prepare the residences for occupation by undergraduates in the fall." Recently, however, a New York Times report exposed concerns from other universities' administrations about the prospect of resuming normal activity in the fall.

This will likely depend on the nationwide and global prevalence of the Coronavirus in the Summer and Fall. Only time will tell what the situation will be then.

A notice displayed on Caltech's campus

Credit: Richard Kipling

MESSAGE TO HOUSES FROM THE TECH

Friends,

In light of the recent evacuation of campus, The California Tech is preparing a special edition to tell the story of how the Caltech Community responded in this time of crisis.

In order to cast as wide a net as possible, we are reaching out to students who were personally affected in some way by being forced to relocate, or who have fond memories of the events that took place in the last 2 weeks of Winter term surrounding the evacuation. If you would like to share your experience, please respond to the following google form and we'll reach out to you:

https://forms.gle/F5Dv5Yu4Sx78rnRGA

We are also soliciting photos from these events; the best way to submit photos is by sending an email to tech@caltech.edu.

Thank you for your support. We look forward to hearing your stories.

Thanks,

Your Tech Editors

Devin, Bilge, Kenny, Mavid, Daniel, Ash

INSIDE THIS ISSUE

WHO DO I YELL AT? THE CURRENT STATE OF UNDERGRAD LEADERSHIP

Kenny Thai | Current Events

Third term here at Caltech usually sees major changes in student leadership with the elections that should be happening by now, but due to the current state of Caltech, that is not quite true this year. Our current undergrad leadership is a confusing mix of those elected last term and a few people still riding out their terms from back in 2019, so this begs the question: *Who do I yell at*? This article will be covering schoolwide positions only. Positions which are elected by individual houses will not be mentioned.

As most undergrads should know, there has already been a set of elections during 2nd term with the following results that came in on March 11*:

Vice President of Non-Academic Affairs (IHC Chair): Kriti Devasenapathy

Board of Control Chair: Nicholas Currault

Board of Control Secretaries: Timothy Alan Yao and NO

Board of Control Unaffiliated Representative: David Melisso

Conduct Review Committee Student Co-Chair: Sara M Fish

California Tech Editors: Alexandria Hong, Bilge Gungoren, Devin Makana Chotzen-Hartzell, Daniel Goncalves Contaldi, Kenny Thai, and David Melisso

This was supposed to be the first of the two annual ASCIT elections, the second of which hasn not been held because of this ruling by RevComm:

"Due to the exceptional circumstances presented by the COVID-19 pandemic, Caltech's closure of the undergraduate Houses, and the move to online instruction for the Spring 2020 term, the Review Committee finds that the elections scheduled for April 20th, 2020 for the offices of ASCIT President, ASCIT Vice President for Academic Affairs, ASCIT Director of Operations, ASCIT Treasurer, and ASCIT Director of Social Activities are unfair to students. Accordingly, under Article VII, Section 7, the Committee finds these elections invalid and reschedules them to October 12."

This leaves the following incumbents in their positions until rotation:

ASCIT President: Varun Shanker

ASCIT Vice President for Academic Affairs (ARC Chair): Arushi Gupta

ASCIT Director of Operations: Rachel Sun

ASCIT Treasurer: Yuying Lin

ASCIT Director of Social Activities: Irene Chang*

ASCIT Secretary: LC Chen*

Notably, none of these incumbents are seniors, so they will all still be Caltech students in the fall. If you read the ASCIT BoD's minutes below (as I am sure everyone does), you might notice that LC Chen and Irene Chang are listed as guests. They do not technically hold those positions at the moment, but as LC has assured me, "Its mostly semantics," so I am still comfortable telling you they are the people you should yell at for their respective positions.

There are also few more positions that have been appointed recently:

RevComm Chair: Alejandro López (Incumbent)

Acting Board of Control Secretary: Simon Lequar, replacing NO (3/24)

Board of Control Unaffiliated Representnatives:
Alexandra Lai, Lexa Hummel, and Anna Tifrea (3/29)

IHC Secretary: Adam Abbas (4/13)

And with these, you should have a nice picture of undergrad leadership. The real takeaway, though, is that we should be congratulating NO for its landslide victory for the position of BoC secretary. I wish it luck in its future endeavors.

*Link to the full numerical results of the March elections: https://bit.ly/2XMZhrv

ARC MEETING MINUTES

Minutes 11 April 2020

Present: Arushi, Daniel, Maggie, Marcos, Anna, Anjini, Mohini, Megan, Nathan, Sophie, Erika

Minutes taken by Daniel

State of the ARC

Elections moved to the Fall

At-large Rep & Secretary appointments moved to the Fall

Reach out to committees

Programs we're definitely continuing

Course Concerns

> Using Beta Donut at https://beta.donut.caltech.edu/feedback/arc

Course Compliments

> Submit Compliments at https://sites.google.com/site/arccaltech/ARC-programs/course-compliments

Ombuds – "office hours" on 4/17 @noon in lieu of training

> See email from Arushi

Other programs we should think about

Research Outreach/Website

> Disclaimer, Research List will not be updated to reflect the virtual nature of our third term. Please reach out to profs on an individual basis.

Option Buddies

> Updates coming when Frosh submit their options (near-future)

Student-Faculty Lunches

> Unclear. Please reach out to the ARC if you have comments or suggestions.

Peer Course Advising

> A virtual platform is coming soon. Please reach out to the ARC if you have comments or suggestions.

Any other programs we should create?

Please reach out to the ARC if you have comments or suggestions.

ASCIT BOARD OF DIRECTORS MEETING MINUTES

Minutes for April 2, 2020. Taken by LC Chen.

Officers Present: Varun Shanker, Rachel Sun, Arushi Gupta, Yuying Lin, Kriti Devasenapathy

Guests: Irene Chang, LC Chen

Call to Order: 12:00 pm

President's Report (Varun):
Hearing suggestions of deferring elections to fall – ultimate decision up to Revcomm

Officer's Reports:

V.P. of Academic Affairs (Arushi):
Occupational therapist made a list of work at home tips

V.P. of Non-Academic Affairs (Kiriti):
Thinking about how to help with PFE virtually

Director of Operations (Rachel):
Possible deferring of appointed positions to fall

Treasurer (Yuying):
Student fees are still being collected

Guests:
Irene:
Social media challenge brainstorming

LC:
New Donut website at beta.donut.caltech.edu

Guests:
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.

Meeting Adjourned: 12:40

ARC TIP OF THE WEEK

Check out our Facebook Page!!
https://www.facebook.com/caltechARC

VICE PROVOST OFFICE HOURS

Announcement

Cindy Weinstein, Vice Provost, Chief Diversity Officer, and Eli and Edythe Broad Professor of English, holds regular office hours as an opportunity for undergraduate students, graduate students, and postdoctoral scholars to meet and discuss topics pertaining to 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 Caltech Diversity Center.

There are four 15-minute appointments available per office hour. Please sign up by email to aliciac@caltech.edu and a zoom meeting will be scheduled.

Vice Provost Office Hours:

Every Tuesday from 11:00am –12:00pm

Parsons-Gates Hall of Administration

We look forward to hearing from you!

http://provost.caltech.edu/vp_weinstein/office_hours

THE MOVE TO ONLINE CLASSES

Alex Hong | Current Events

The novel viral pneumonia COVID-19 has forced colleges and universities, including Caltech, to move their spring terms online, with many classes being conducted on the virtual meeting platform Zoom. This development has complicated the academic careers of students across the country. Peer institutions have recognized this disruption in their new grading policies, with numerous departments introducing pass-fail policies (Harvard undergraduates have been advocating for an A/A- system).

In particular, Caltech has allowed students to pass-fail any class (while still counting it for option requirements), and outstanding physical education requirements for seniors have been waived. Laboratory classes and some research credits will continue. REGIS remains open to allow students to add and drop classes and sections, as well as switch classes to pass-fail more easily. Further, the library is working with professors to make required textbooks available in electronic forms through Adopt-a-Text and course reserves.

Few students are as adversely impacted by the coronavirus crisis as Techers, who heavily rely on collaboration in order to work through the challenging problem sets. The honor code, the backbone of the Caltech community, is also complicated by the situation. Along these lines, the Academics and Research Committee and Board of Control have released a set of guidelines for online collaboration (accessible at shorturl.at/jrCQV).

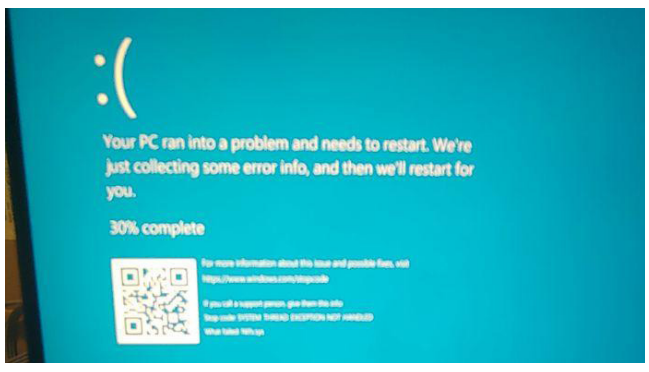
In regards to the quality of education, some students have had some concerns. Norman Chung ('23) commented, "If the professor knows how to use/has decent technology, lectures are pretty decent. That being said, if the professor doesn't know how to use/doesn't have decent technology, the lectures can get pretty terrible". The dependence on the professor's quality of technology is problematic, but it has been noted that recordings of live lectures do not suffer from the lag and audio cuts.

Simon Lequar (CS '22), the acting Board of Control secretary, had this to say about the move to online instruction: "I personally am somewhat ok with this change, since I didn't really attend lectures/office hours all that often. But I am a bit concerned with how well I'll be able to work with other people. I'd say most of my work with others was pretty dependent on me being able to go talk with someone in person or hash ideas out on a whiteboard, and I don't know how well that'll work virtually. For the honor code, I think people will have to check policies carefully for collaboration. Even though it's the easiest way to check answers or explain something virtually, you can't just send someone a copy of your work (if it's prohibited in the collaboration policy). I think the overall quality of education is going to go down a bit for me personally, but I'm honestly more concerned for my peers who might not have as easy of a time working from home or in other new living situations. It can put a lot of stress on us, but I'm hoping things go fine enough for everyone."

Project classes, the heart and soul of engineering options, are also heavily impacted by the shift. Ray Sun (EE '20) noted, "As a TA for an EE project class this term, I think that the move to online classes is especially challenging for project classes. TAing before this term, I usually explained concepts and asked students to solve example problems on a whiteboard. While tools to do this in an online environment exist, I feel that online office hours will not be as effective as in-person office hours, especially for project classes."

Despite the multitudes of stresses surrounding these huge changes, it is important to remember that Caltech is still very much a community. ARC chair Arushi Gupta (Mathematics '21) states, "I think it'll definitely be an adjustment and hard on everyone, students and faculty alike. We all have to remember that everyone is under a huge amount of stress and try to be as kind and understanding as possible. There's also a silver lining - it's an opportunity for Caltech to adopt new technologies, and for students and faculty to think carefully about the best ways to think, teach, and learn, and I'm optimistic we'll come out of this as a stronger community."

"My computer already bluescreened twice, both shortly after entering a Zoom call"
Kenny Thai ('23)



STAFF SPOTLIGHT: OMER TAMUZ

Alex Hong | Interviews

Omer Tamuz is a professor of economics and mathematics. His research spans a wide range of topics, focusing probability and its many applications to Economics, as well as Dynamical Systems, Group Theory, and Ergodic Theory. He is also interested in Machine Learning and Statistics.

Tamuz received a Bachelors' Degree in Computer Science and Physics from Tel Aviv University, where he searched for extrasolar planets. He then went on to receive a Ph.D. in Mathematics from MIT. Tamuz arrived at Caltech in 2015.

Interview conducted and condensed by Alex Hong.

Q. Given your background as an undergraduate studying physics, how did you end up in your current field?

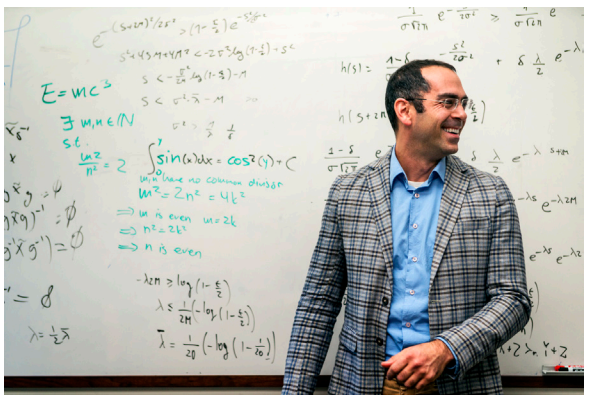
A. I did a bachelor's in physics and computer science. I did research in astronomy during my undergrad with extrasolar planets. During this, we analyzed some very big data sets of observations, running all sorts of algorithms to get rid of noise and understand the statistics and what's going on there. I really enjoyed that part, and realized I cared more about that than about the actual thing we were studying. I took a few years off as a software developer, then got a Ph.D. in math. The Ph.D. in math turned out to be about things related to economics - so that's how I ended up in economics and math.

Q. How has your experience at Caltech been?

A. Caltech is a very nice place to be a professor. It gives me everything I need to do my research - the right environment that allows me to do what I want to do. Specifically, it's very supportive, it has research as a top priority. There is very little bureaucracy and rules and politics that I have to deal with. You need something, you just go talk to people and people make reasonable decisions. You don't have to go through seven layers of bureaucracy, but that's not just because it's small. It's because the spirit of things is to help people do research.

Q. Describe your research to someone who didn't know anything about it.

A. It's just math. I do some pure math unrelated to economics. This pure math involves probability, group theory, and dynamical systems. And the economics I do is all theoretical economics - it's hard to tell the things I do apart from math. We try to ask things that are interesting from an economics perspective, but my contribution always boils down to proving some mathematical theorems. You have some economic model that's a mathematical model of something in economics, and you want to prove something about it. In economics, things are about information or uncertainty, so there's a lot of probability in there.


Credit: Omer Tamuz

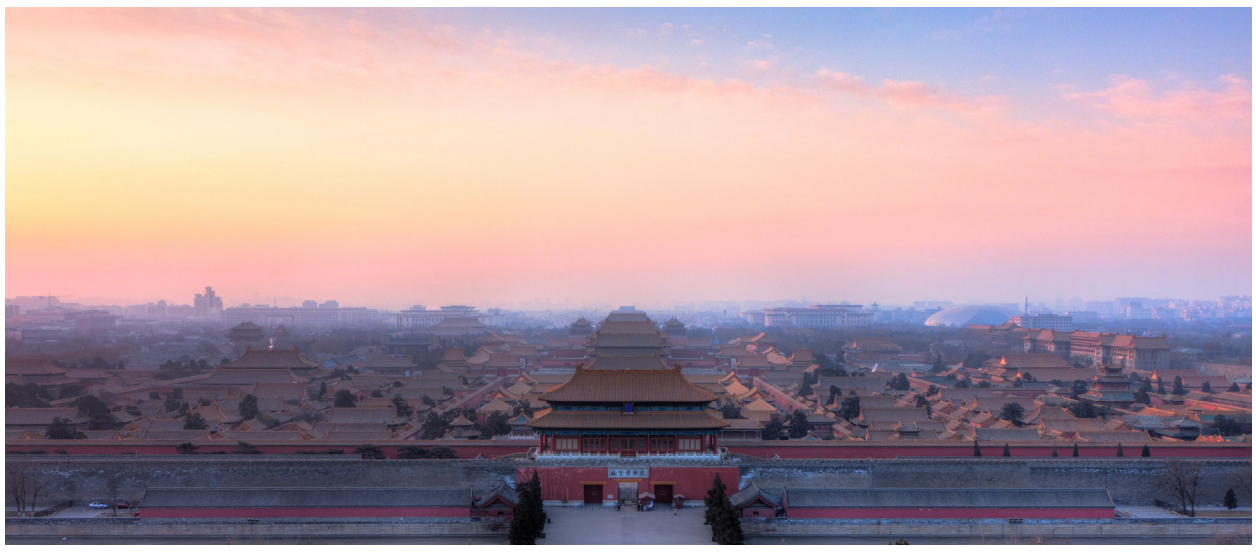
Q. Is there a particular project that you're really excited about right now?

A. These are sort of long stories, so you have to understand how people have been thinking about things for awhile and try to think about it in a new and interesting angle. One way to think about uncertainty is through probability. If I toss a coin, I don't know if it's going to come out heads or tails. It's not that I don't know; maybe I think they are equally likely. So in fact, there are numbers that are involved here - the probability that this happens is the same as the probability that that happens. In general, when you're uncertain about things, you can try to imagine some probability distribution in your mind about what's likely to happen. It's not clear that people actually keep a probability distribution in their head, but there's some kind of model that's not 100% accurate. Once you put the model in place you can ask a lot interesting questions about this model. They're not always going to tell you something about the world, since the model isn't exactly the world (but you're less worried about that). So we're thinking of uncertainty in terms of probability distributions. Now we can ask, for example, "I'm uncertain about how much money I'm going to have on the day that I retire". This is actually an important question because if someone told me something about this I might change my behavior - save more money, spend more money, etc. I have some distribution in my head: what's the probability that I'll have a million dollars, what's the probability that I'll be bankrupt. You can ask what happens when I learn something new. For example, I just learned that I won the lottery. So this distribution changes, I update my "beliefs" based on information that I get.

There are a lot of interesting questions you can ask about this process of updating beliefs. Another example: there's a new restaurant and you've never been there. You go there everyday, choose one of the things, and eat it. If I ask you before you go, "What's the probability that in two months from now this will be your favorite restaurant?" You have no idea, you've never eaten there. But as you try more things, over time you're more and more likely to know if two months from now whether it will be your favorite restaurant. Imagine that every day you ask them this. You try to understand from their answers whether our model is actually true, whether there is actually this probability distribution in their head that they update, and whether they update it using the correct calculation that you would expect from this model of probability. These are questions that I've been thinking about: if you believe in this model of having a probability distribution and updating it as you get more information, what testable implications does that have? What does that mean for the way people's beliefs change over time?

TALKING ABOUT CHINA

Anonymous Contributor | Opinion



A panorama of the Forbidden City, viewed from the Jingshan Park

By Pixelflake - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=19989908

I have lived in the United States my entire life save for a stint studying abroad. While I love "back-to-back World War champs" and "Superbowl champs 54 years in a row" memes as much as the next guy – as well as, of course, more substantial things about living in the United States – it was the time I spent living abroad that made me realize that I don't really care if the country I live in is the world's dominant superpower; it's just fine for me if I live in some small country where things are prosperous, peaceful, and stable, and where people are neighborly and socially conscious, provided I enjoy the living environment.

One thing that my time abroad didn't change, though, is my emphatic hope that the United States stays the world's dominant superpower – or at least that a country with similar ideals succeeds it. I don't necessarily feel obligated to live exactly wherever that may be for its own sake, but anywhere I would choose to live would be threatened if the United States, or a country that is like it, loses hegemony to a country that is not. I spent my time abroad comfortable with essentially the same freedoms I have here in the United States with no fear that they were in peril, but if the world's dominant superpower were not a democracy that respects civil liberties and the rule of law, the world would be a much darker place and I may have had something to fear: the creeping influence of a hegemon that shuns personal expression in the pursuit of perpetuation of its power at all costs.

The Cold War stemmed from an ideological conflict that, due to power as well as geography, became geopolitical. Without the irreconcilable ideological divide, there very possibly would have been no conflict at all. While communism has fallen by the wayside as a common enemy of the American ideal, the other idea we fought during the Cold War, totalitarian dictatorship, lives on stronger than ever.

An easy way for news sites to generate clicks is by rolling out alarming headlines that declare that China's GDP per capita, or whatever other metric they choose, is set to surpass our own by whatever year they predict. But why are these headlines so alarming? Given that, as I stated earlier, I would not much care if the United States were replaced as hegemon by a country with like-minded governance, I would not mind if Australia or Germany or Korea replaced it. However, the prospect of a world-dominating China worries me, and it is precisely the prospect of a government that so perfectly embodies the enemy of the Cold War having great influence over the rest of the world that is worrying to me. A totalitarian dictatorship with little respect for the rights or opinions of its citizens in which the leaders pull every lever at their disposal to hold on to power, often with great force, accomplishing a level of control that the Soviet Union only dreamed of, is not fit to have a great deal of influence over any country, let alone every country. While the United States has misbehaved, often egregiously, in its capacity as "world police" in the past, those who consequently call for the United States to step down from this role would be utterly appalled at what China would do in its place. In contrast, if China were a liberal democracy – or even simply if its statements emphasizing its lack of desire for geopolitical dominance were not met with actions that render them hollow – far fewer people would be concerned about its rise. Alas, the news sites generate clicks for a reason: people worry, rightly, about the prospect of a totalitarian dictatorship as hegemon.

Unfortunately, in criticizing this brutal dictatorship, people sometimes unfortunately fail to distinguish between the group of people with a unique, rich culture and long, storied history and the government that victimizes them most of all. Indeed, while it's easy as an outsider to worry about China's influence on other countries and global institutions, it's equally easy to forget that the biggest victims of the sick oppression doled out as a matter of course are the citizens of China themselves, and that the citizens and government are very distinct. Unlike in the United States, Chinese citizens do not get the privilege of having a say in their government's actions, and so it is very important to keep the distinction between the citizens and the government clear. However, too often, the line is blurred for the sake of brevity: news articles often refer to "China" without an explanation of this nomenclature. And while the need to carefully separate the usage of "China" into "China's government" and "China's people" may seem unnecessary to us in liberal democracies, where governance is a rough product of the opinions of its citizens, this metonymy is less appropriate for dictatorships such as China's government is, where the two entities that "China" can be inferred to represent ought to be thought of as much more separate. While the meaning of "China" is often obvious to us from context, it is worth making the distinction between "China's government" and "China's people" explicit, lest readers overlook the distinction and perceive an attack on the wrong entity.

It is worth making the distinction between "China's government" and "China's people" explicit.

And overlook it they do: as an understandable yet unfortunate reaction to this lack of clarity, people, especially Chinese people, often see attacks on "China" not as attacks on the Chinese government, as we consider obvious, but as attacks on Chinese people, leading to a defensive posture and a reflexive defense of Chinese people when in fact the criticism was not directed at them. Often, this causes the writers of the original articles to miss completely, failing to land their points about the Chinese government due to readers' ire about perceived slights against Chinese people. The angry readers, in turn, often apparently forget that the Chinese government is in fact a brutal and oppressive dictatorship.

The importance of people being on the same page on this matter is particularly salient given that the Chinese government is both a propaganda machine and remarkably efficient at censoring opinions that conflict with its official narrative, meaning that to write about China is to contend with a powerful force; it is especially important in the current context of the coronavirus crisis. When blame is assigned to China, citizens who have personally gone to great lengths to stop the spread of the virus and who think the blame is being directed at them sometimes lash out. This may come across to us as blame-deflecting whining and as a refusal to introspect and demand improvements in governance in favor of doing exactly what they accuse others of doing: using race- or nationality-based arguments to cast the effects of the virus as someone else's fault. To some extent this, is likely true – nationalism is a powerful force, especially in the context of the Chinese government's persistent narrative of its purported humiliation at the hands of other countries (while China was indeed the subject of colonial-era manipulation over a century ago, it has seen scant direct foreign influence in the postwar period) – but it is also likely in part a reflexive defense against what is perceived as a personal attack. As anyone who's ever been in a debate knows, framing matters.

The Chinese government made huge blunders, both unintentional and malicious, in its response to the virus, and even in its careless attitude toward the conditions that bred the virus in the first place, including the sustained operation of the wet markets despite the well-known risks and repeated warnings from the medical community that such markets were likely to spawn a SARS-like virus again. The Chinese government covered up initial cases, silenced doctors, misled the WHO and the world, refused outside help, and reacted with disdain toward countries that took robust steps toward mitigating the spread of the virus in their homelands. It can be argued that with a liberal democracy equipped with a robust, well-funded, and politically independent public health system in charge, the crisis may have never happened, or been averted after a few dozen cases.

In contrast to the Chinese government's initial response, after the crisis got going in earnest, the Chinese people – admittedly, at the direction of their government (it's important to give credit where credit is due) – stepped up and made huge sacrifices that we would consider extreme for the sake of the collective good and largely succeeded, so far, in reversing the spread of the virus. It is important to condemn the initial malicious and self-interested actions of the Chinese government while also praising the subsequent reversal of its course. It did the right thing by locking the country down, and not rewarding good behavior is arguably as bad as not punishing bad behavior. Likewise, we must acknowledge and respect the hardship Chinese citizens went through and the sacrifices they made in the midst of the crisis.

We must also remember to consider our role in the crisis. The United States was remarkably slow in its response to the crisis, taking a public tone that did not match the obvious urgency of the crisis after much information about the outbreak was already available, and we failed to act in time to reduce the present depth of the crisis as much as we could have. While the contagion may never have arrived here were it not for the actions of the Chinese government, the swiftness of escalation of the crisis in the United States is largely our own fault.

Going forward, if Americans cast the virus as "100% China's fault", we will likely fail to make improvements in our public health infrastructure and put ourselves at risk for another crisis. Likewise, if Chinese people cast their government's response as "perfect every step of the way", they'll likely fail to demand changes in their governance without which the government could put the entire world at risk of another crisis. In order to avoid these drastic outcomes, we must acknowledge blame exactly where it lies, and in order to do that, we must discuss our societies' responses – personal, collective, and governmental – across linguistic, cultural, and ideological barriers as clearly and transparently as possible.

TED CRUZ'S BEARD LOOKS EVEN WORSE IN PERSON THAN IT DOES ON TV.

Ben Cassese | Opinion

I worked in Washington DC this summer, an adventure enabled partly thanks to financial support from Caltech. Here's a Tech article on my thoughts about that experience, created to fulfill the terms of the Beckman Political Internship grant and hopefully get you thinking about alternative summers/careers in government.

My official title for the summer was Lloyd V. Berkner Space Policy Intern on the Space Studies Board in the Division on Engineering and Physical Sciences at the National Academies of Sciences, Engineering, and Medicine. When I accepted the position, "intern" was the only part of that mouthful I had a good grasp on. Although Google later revealed that Mr. Berkner was an American engineer who specialized in measurements of the ionosphere, it took until I actually got to Washington to better understand "Space Policy" and learn what I'd actually be doing.

The SSB exists to assemble expert committees and publish their recommendations. These serious volumes are meant to represent the scientific consensus of the time, and have influenced both one-off legislation and the funding priorities of major agencies. NASA's science funding closely follows the four Decadal Surveys (one for Heliophysics, Astrophysics, Planetary Science, and Earth Science) written every ten years. While I was there, the Astrophysics decadal was just getting underway, so part of my job involved assisting with that.

A large part of the internship, however, was dedicated to exposing interns to the breadth of Space Policy activities. As a result, I spent a lot of time roaming the city, stopping in on Congressional hearings, symposia, and networking events. These parts of my job put me in (minor versions of) The Room but not at The Table: I wore shirts with lots of buttons in conference rooms with lots of hardwood. To be clear, I mostly stuffed name tag badges, sent many FedEx packages, and sometimes braved the inside of the Beltway as a courier. I spend a lot of my time in a cubicle decorated with postcards of classic Hubble observations, but some of my days included walking down marble-lined hallways of Congress dodging college students in suits and heels who always seemed to be in a hurry to get somewhere. Those were the more memorable ones.

The Federal Triangle

Image by Carol M. Highsmith

One of the skills I practiced was taking massive reports and summarizing them into a pithy set of digestible bullets. In that spirit, I'll try to distill my biggest takeaways from the summer and specifically those less structured days into three categories.

1) The United States government is a massive enterprise. Literally thousands of people wake up every morning in Washington and dedicate themselves to either forming opinions or to informing others of those opinions. They tackle many, many more topics than I could have thought to write down. I worked in an area as limited as "Space Policy"- it turns out there's an entire graduate school division for that at George Washington University, that there are several entire companies dedicated to churning out reports and white papers on the issue, and that you could go to a public forum or discussion or networking event almost every day if you wanted. Just imagine a policy issue like healthcare or foreign relations.

2) A scientific/technical background does actually stand out and lend a unique perspective. If I can indulge in a sweeping generalization, this is a land of words, of memos and emails and bullet points, but generally not numbers. They rarely appear beyond basic spreadsheet manipulation, so you can forget MATLAB and Hamiltonians. It's harder to verbalize this "takeaway" since I can't point to specific instances of it coming into play, (beyond developing a reputation as the Python Guy in the office when 100s of files needed to be re-named), but outside the NAS there was a constant sense of being slightly out of place. Maybe it's because my ties had stars/spaceships on them while everyone else opted for solids/stripes. That said, I believe people like us can be useful in this setting, and that even if our concrete skill sets aren't applicable, the general perspective you acquire through a rigorous technical education is. An eye for optimization, balance, and clean rigor can guide policy in abstract but consequential ways.

This is a land of words, of memos and emails and bullet points, but generally not numbers.

3) Government is not magical. I already mentioned the marble- the setting where these discussions take place certainly impose a weighty air of importance on all proceedings regardless of their actual content. However, fair early into my time in those halls, the stone's demands for reverence were undermined by a simple immature question from a high school friend. I told him that even the bathroom stall dividers in the Senate office building were cut from matching marble: he immediately asked if the bathrooms still stunk.

Although he was trying to get a quick laugh, that question prompted some later reflection. The thing is, the bathroom still did stink a little. Despite the dramatic physical setting, the posturing of the players involved, and the idealism of the college interns who pinned a little American flag to their lapel each morning, there was nothing magical about government. It is made up of people: The people in The Room and at The Table are just regular human beings, and organizations and plans are created and destroyed just by talking. There is no underlying simplicity to be discovered around a conference table, no appeal to a higher empirical or objective truth. "Policy" is made when people with opinions create something out of thin air and convince other people it's the best choice, not when it's revealed to be necessary or optimal. Unlike a technical discipline where projects face physical constraints either from the universe or our current capabilities, there is no limit to our ability to plan and organize.

To me, this was a simultaneously horrifying and inspiring realization. Horrifying because the products of our government are a direct function of what people think and what they think they know, and that is bounded only by the information they surround themselves with and their willingness to process it. Inspiring because it's so much easier to make change and have impact than I originally assumed. "Easy" is an intentionally provocative and problematic word choice. True, structural reform or the inception of a new organization can take years and are rightly described as "monumental tasks". But at the end of the day, writing treaties, opening new collaborations, and even creating a Space Force all come down to just writing down an idea and convincing people of it. There's something powerful about working not under the constraints of the scientific process and the laws of the universe but instead under our capacity to communicate.

I wrote a lot of this facing a portrait of Lincoln in the room where the Antarctic Treaty was negotiated. I enjoyed my summer. When the email comes out describing the Beckman Political Internship, check it out. In the meantime, I'll be going back to my Hamiltonians.

THE HISTORY OF THE BOC, ~~WRONG~~ RIGHT ANSWERS ONLY, PART 1

Norman Chung | Humor

We all know what the BoC is: it's the organization on-campus that fights for the Honor Code. However, not many people know the origin story behind the BoC. As someone who believes that we all need some humor right now and as someone who totally knows what they're talking about, I'm going to enlighten you with that origin story, told through many wrong right answers for what the BoC stands for. Let's begin!

Phase 1 | Blight on Chaos

Caltech's Honor Code is as old as the university itself, but back then, it was an academically lawless wasteland:

- You had people using abacuses on their math exams, which is the equivalent of this today:

For computational aids, you may use:		
Calculators	YES*	NO
Computers	YES*	NO

* You may use a computer or calculator while doing the homework, but may not refer to this as justification for your work. For example, "by Mathematica" is not an acceptable justification for deriving one equation from another. Also, since computers and calculators will not be allowed on the exams, it's best not to get too dependent on them.

- You had people using carrier pigeons to get their answers to one another.

- You had people cutting out pages of their textbooks/humanities readings, gluing them on paper, and turning them in as their own work.

With all of the academic chaos occurring at the time, someone was sure to take notice. Someone had to make sure that the Honor Code was being followed. Someone had to form a society to fight back. Someone had to create the Blight on Chaos to restore order to the academic wasteland. It started out as an informal group of people who agreed that something had to be done. Much like today, admin wasn't listening to student complaints, so someone had to play the Caltech sheriffs. However, the violators of the Honor Code weren't going down without a fight. Out of hatred for the BoC and all that it represented, an Honor Code rebel group coalesced to stop the BoC in its tracks and to keep Caltech a lawless wasteland. None of them wanted to be bossed around by a wannabe group of enforcers. Ultimately, it boiled down to a showdown at high noon between the BoC and the Honor Code rebels. It was a numbers game, and the BoC was severely outgunned. We all know how good Techers are with numbers.

Battle of Beckman Lawn , c. 1869, colorized

Note: Arnold Orville Beckman was named after this event

To learn more about the phases of the BoC, be sure to read the next issue of *The California Tech* to catch the next installment of this column by the all-knowing Norman Chung!

SWAFF'S PICKS VOL. 5

Isabel Swafford | Columnist

Hello from quarantine! As we all adjust to the new work-from-home lifestyle, this is the perfect time to listen to some new music (and mix in some old favorites) to jazz up our daily routines! Swaff's Picks Volume 5 shows us some electronica-inspired tunes along with some famous artists going off their typical sound. From the likes of Billie EIlish, STRFKR, and Harry Styles, this one's got a little something for everyone.

Dreaming Of - Phoebe Green

Phoebe Green, a young synth-pop singer from the UK, creates her music with unapologetic lyricism and a hypnotic voice. Over a backdrop of shuffling drums and dramatic bass line, Green sings sweetly above it all to bring us her defiant and bold attitude in "Dreaming Of." In this self-reflective song, Green battles against an overpowering person in her life, singing that "I don't want to compromise myself for you," yet "you always find a way back in." In reality, relationships aren't always "what [we]'ve been dreaming of." Even though this song focuses on Green's dashed hopes, her attitude and music supporting her lyrics transforms the subject into an empowering lesson for everyone.

Warm Animal - Sure Sure

This Los Angeles-based band gives us groovy indie rock in a pared-down catchy single. The vocals sit centerstage, sustained by a light, gauzy harmony. Chris Beachy, keyboardist and singer, says that the track captures those lucid first moments in a new relationship where everything is exciting, and you just hope it all goes right. He says that "It's just those tentative first stages of love." This vulnerable feeling is emphasized in the bare vocals, underwritten only a few moments in the middle of the song, where a fleshy bass sound backfills the void left by the exposed vocals. "Warm Animal" is just one of many of Sure Sure's perfect-for-your-beach-zoom-background, summer-ready tunes.

Wide Open (feat. Beck) - The Chemical Brothers, Beck

This meditative take on EDM takes the listener on a journey of vulnerability and acceptance as a means of freedom. This track draws you in with its thumping cyclic drum beat and faded-out vocals from Beck only to wash it all away with a characteristic crash of pulsing wave sounds into oblivion. The lyrics repeat the motif of loss, whether it be love, life, or sanity, with Beck singing that "it's getting away from me." The inevitable explosion fills the song with sound, in contrast to its soft beginnings, and represents the act of acceptance, or forgiveness. When Beck returns after these interludes, his vocals are louder, and the background is fuller and more confident. The music video beautifully interprets these same ideas through choreography and amazing digital graphics, and with over 42 million views; it's worth the watch.

everything i wanted - Billie Eilish

By now, everyone has heard Eilish's "bad guy," with over 1.2 billion streams on Spotify, but in "everything i wanted," Eilish steps back from her loud and haunted style to create this introspective track. "everything i wanted" reflects on Eilish's meteoric rise to fame and the pain she's felt along the way. The raw, whispering vocals are so soft, you have to turn the volume up to hear all that she's saying. Being young and super-famous has its drawbacks, as Eilish remarks when she sings "they called me weak / like I'm not just somebody's daughter." She questions the public and their criticisms of her, "If they knew what they said would go straight to my head / What would they say instead?" She even questions her own choices asking "If I knew it all then would I do it again? / Would I do it again?" This fresh take on the pains of celebrity feels real and achingly honest, all while holding on to the core elements of Eilish's style.

Stay Forever (feat. STRFKR) - Whethan, STRFKR

STRFKR is one of my favorite bands and is a great example of indie rock mixed with electronic, spacey atmospheric sound. Their shows always feature wild props, costumes (often astronauts), and visuals as well as huge dance parties within the crowd. I was excited to see this collaboration with Whethan, an EDM artist with some high-profile collaborations. "Stay Forever" harnesses that dance party essence that STRFKR creates and perfectly intertwines it with Whethan's bright and fleshy EDM style. STRFKR's classic airy vocals move over sliding drum kicks and vivid washes of sound making this a perfect track to dance to, whether that's in your desk chair or in your PJ's at 3:00 in the afternoon; I won't judge.

Les bruits de la ville (feat. Yelle) - Voyou, Yelle

Voyou, a French indie pop artist, creates his music to tell stories and play characters, through his joyful and playful style. Translated to English, "voyou" can mean "thug," "hoodlum," or "hooligan," among many other creative synonyms to the word. Thibaud Vanhooland, the man behind Voyou, holds this definition dear to his heart, saying that "[the name] is the ideal means of keeping my private life separate from my work, allowing me to take on a myriad of personalities." Voyou's songs are vibrant explorations of indie pop and electronica. "Les bruits de la ville" (The sounds of the city) tells the story of a shy girl, new to the city life, and her discovery of the dance club scene. With established French artist Yelle, Voyou and Yelle, in telling this story, inevitably create their own dance track laden with its retro beat.

Golden - Harry Styles

Every song on Harry Styles' latest record, Fine Line, explores its own distinct sound and spirit, but I chose "Golden" for this volume of "Swaff's Picks" because it serves well as a representative work from the album and also holds the introductory position on the album. The style of "Golden" represents Styles' journey away from One Direction fame and into his indie pop-rock solo career. The song is led by Styles' relaxed vocals and sustained by a commanding guitar section and driving drums. His music is reminiscent of the likes of Lorde or Declan McKenna, and perfectly fits into the pop-rock genre. Throughout Fine Line Styles is coming to terms with his recent break up and is going through the stages of missing, remembering, and moving on. "Golden" is one such 'remembering' song and the repetition of the ethereal background vocals provide a melancholy and dreamy atmosphere to the track.

Promotional art of Harry Styles' latest record, Fine Line

AMAZON SKYMALL

Kenny Thai | Columnist

Hey so uhh... we don't live at Caltech anymore and for some reason these aren't listed as essential items, so I'm gonna have to delay the delivery of the items by 6 to n+1 business months, where n is the number of months that have passed when you read this in the far future.

Enter this week's raffle by using the QR code below:

***NOTE: WE MAKE NO CLAIM THAT THE RESULTS OF THE RAFFLE ARE RANDOM.**

blinkee Happy Poop Swirl Emoji Flashing Body Light Lapel Pins by

★★★★★ 1

$4.20

Want something that will show the world how dignified the person wearing such an extragagant lapel is? This will be the pin that'll do it! Now you'll finally have something to express how you feel on the inside~

HuntGold Animal 3D Three-dimensional Wooden Jigsaw Puzzle Model Development Toy(Snake)

★★☆☆☆ 2

$4.20

This product is listed for ages 4 to 18, which puts most of the Caltech population out of its demographic, but not me! Also pls no step on snek. It will probably bite back. You don't want wood splinters in your feet.

Mega Construx Despicable Me Cheese Merry Go Round Building Set

★★★★☆ 24

$4.20 ~~$6.99~~

This set will let even you assemble the minions! maybe. As far as I can tell, it's a single piece, but we'll never know until you buy one!

4) NO, $0.00

It won one of the seats for BoC secretary. Let's see if it can continue its success in this tight race! (This option allows me to pocket the money I may or may not get for writing this column.)

REPORT: 15 PERCENT OF PEOPLE COULD PROBABLY DO SOMETHING ABOUT THAT

Vidalia O. Botalot | Reporter

WASHINGTON--A report published Monday by The Pew Research Center revealed that 15 percent of people could probably do something about that. "We found that as many as 15 percent of the U.S. adult American adults could probably do something about this problem by going to the trouble of getting themselves to solve the problem," said lead author Christopher B. Edwards, adding that the vast majority of Americans were at least somewhat competent at the activities suggested by the phrase "go do something" suggesting that their potential to perform a task could be applied. "We found that the vast majority of Americans could probably figure out how to put their minds together, construct a means of achieving their goal, and then do it." The study also found that 15 percent of American adults could probably do something about it by simply doing nothing.

BREAKTHROUGHS IN MY RESEARCH: APRIL 2020

Wayne Dinunzio | Columnist

Semiconductor study shows that the coupling between electrons and thermal motion is an important mechanism for understanding how earthquakes can rupture connections between the Earth and space.

The study, conducted by researchers at Caltech and the University of Washington, shows that this mechanism is nearly always at least partially controlled by the motion of nearby objects—in other words, the motion of nearby electrons is controlled by the motion of nearby objects. Electrons can travel through dense bodies at near-light speeds, causing their motion to be nearly always in the background. For the most part, this causes the objects to simply be resonated—no change in the background. But over the past decade, researchers have found that as the Earth has started to warm up, the matter has been getting drawn into the interiors of Earth.

“We have shown that the main driver of this is the motion of the nearby bodies,” says Michael Turmon of Caltech’s Gauchoscience Center and the David P. Zwicky Lecturer in Space Science. “Previously, we thought that this nearly instantaneous emission of electrons was the only thing that was happening.”

The researchers found their first evidence of this motion in 2009, when they studied data from NASA satellites on the sun. They then studied data from the European Space Agency satellite and found that the sun moved about 50 times in the same direction that the Earth was moving. This motion is called cyclotron resonance.

Cyclotron resonance is a technique for imaging the interior of planets even farther out than what can be seen on Earth. In 2013, researchers using NASA’s JPL camera found evidence of cyclotron surjection in the outer solar system. A decade later, a team led by Turmon found similar signatures in the outer planets.

When a new planet is born, its orbital position is usually determined by the alpha of its luminosity—the number of photons that are possible to have in the vicinity. But the dim light of newborn stars determines its light as well. Because the light is so dim that it is difficult to see the bright regions through normal optical means, astronomers have used instruments called spectrographs that can break the light up into the many colors that are possible. But these instruments are expensive and require a large desired light that can be used for several years.

With a new instrument called a spectrograph, researchers can spectrum the light in ways that prevent the light from being centered on a single region and making it easier to see and analyze. For example, the Spectrograph could look at the spectral line—the stretch of intense light in the image—allowing them to view the entire region in all wavelengths of

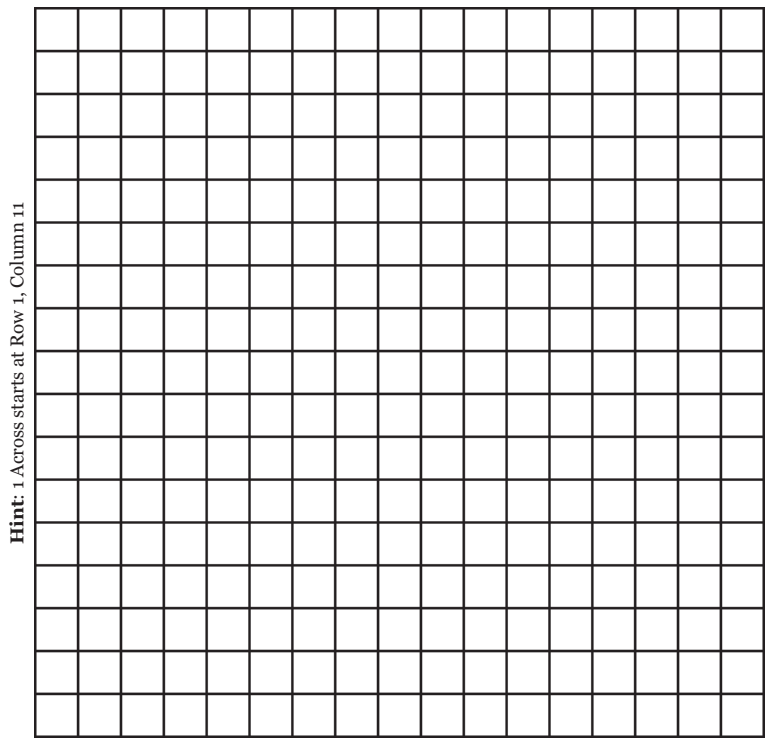
PUZZLE: DIAGRAMLESS CROSSWORD

Across

1. Peculiar
4. Type of window
6. Reiterated
9. Cab
10. Water barrier
12. Number
13. Plunder
15. Clergyman
17. Region
18. Enemy
19. Digit
20. Consideration
21. Distort
22. Short sleep
24. Shack
25. Wither from heat exposure
26. Mixture of greens
28. Golf term
29. Cooking surface
31. Panache
32. Average
33. Negation of a word
35. The latest fashion
36. In addition to
37. Evoke
39. Announcement of proposed marriage
41. Gaze
42. Inflexible
44. Used to obtain net weight
45. Feeling or expressing remorse
47. Happen again
48. Entanglement

Down

1. Metal bearing mineral
2. Face of a timepiece
3. Discourage
4. Personal belief
5. Mythical monster
6. Rant
7. Put to use
8. Swindle
9. Communication device
11. Vote into office
12. Surface burn
14. Consume
16. Armistice
18. A great distance
21. Militarist
23. Roof of the mouth
25. Root vegetable
27. Man or boy
28. Cold region
30. Reinforce
32. Seize suddenly
34. Colossus
38. Wheelbarrow
40. Tendon
43. Cut into cubes
46. Bath



Hint: 1 Across starts at Row 1, Column 11

Puzzle courtesy of Puzzle Choice

The California Tech

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SPRING SEASON SHUTTERED

Tea Freedman-Susskind | Current Events

On March 12th, the track team gathered in Brown gym for what would now be the third to last practice of the season, and the first optional one. The group was already thinner than it had been only the day before when the upturned faces of spring athletes seated on the polished gym floor, clustered by sport, form a half-circle around Betsy Mitchell, Caltech's athletic director, as she told the crowd that sports could still keep practicing even as the fate of the rest of the season was up in the air. In twenty-four short hours, the season had gone from having "permission to proceed" to cancelled in a move to curb the spread of the novel coronavirus.

The move came as little shock. "Given that half the schools in our conference were already closed, I wasn't really surprised." said Kyle Piper '23, a freshman on the team. "It was definitely disappointing, but I was able to take advantage of the extra time I had to say a proper goodbye to my senior friends and finish up the term strong...it's really frustrating that my first track season had to end this way, but we need to move forward, take care of ourselves during this off time, and prepare for the fall cross country season." The mood in the gym was grim as people phoned home and nervously glanced towards the seniors already trying to make plans to have some sort of finale to the season they'd looked forward to for so long.

Similar conferences were happening across campus that day. Teams scrambled to make plans for a spring break trip home that would last the rest of term, find a way to cap off the season in the last few allowed days despite practices and games being suddenly optional, and honor their seniors even as they wrestled with the unanswered questions of the abruptly ended season. The email to the sports teams from Ms. Mitchell announced it as a decision by the Southern California Interscholastic Athletic Conference (SCIAC).

Later that day, the National Collegiate Athletic Association (NCAA), whose Division III incorporates SCIAC, followed suit, cancelling the rest of the spring season. The NCAA's initial terse statement left little clear other than that "all remaining winter and spring NCAA championships" had been canceled by their President and Board. The next day, the Division III Administrative Committee issued clarifications—any requirements of member institutions left unfulfilled by the season's end were waived, and spring athletes were given an extra season of eligibility. In the coming years, expect to see some Caltech superseniors competing for the Beavers.

But for this year's spring sports—baseball, tennis, track and field, and women's water polo—it was a time of reflection. Back in Brown gym, even as athletes discussed the highs and lows of the season and wondered aloud what the coming weeks would bring, the track team headed out for another run, almost as if it were a regular Thursday.

During the spring season, teams have showed that although the season was cancelled, calling it a waste would be far from the truth. Said Coach Ben Raphelson, "in athletics and many other pursuits, the outcome is never certain...the reward comes from committing to that shared experience with your teammates and pursuing the answer to the question 'how good can we be?' We didn't get to answer that question in the way we expected, but I think we were all better for the time we got to spend together in that pursuit."

LETTER FROM THE EDITORS

Devin Hartzell

I recognize that this message is coming out later than it should be because of the Coronavirus, but its contents are still relevant as ever.

In our last issue, we ran an article about a mens' swim and dive team and didn't mention the womens' team at all. Though I will offer an explanation for why this occurred, let me be clear: this was inexcusable. I take full responsibility for our error. It is something that I should've noticed, and it is something that I overlooked as a result of my privilege as a man. It is something that never should have happened.

For the past few issues, we have aimed to provide a sports article written by one of our columnists, as well as one written by Mark Becker, the writer on the staff of the Institute, to provide more coverage of sports, as they are an important part of our community. When we selected our article from the many Mr. Becker writes each week regarding the swim and dive competition, we did not notice that the one we had chosen was merely about the mens' team.

Though we can't go back and change previous issues of The Tech, we are including the article Mr. Becker wrote about the womens' swim and dive team in this issue, in order to try to make this right. You have my word that we will do our utmost to prevent these mistakes from happening again.

If anyone has any other feedback about the way we have been operating, I'd love to hear it. We can only improve our publication with this feedback, so we value it dearly.

SUN RE-SETS 200 BREAST RECORD AT SCIAC'S DAY FOUR

Mark Becker | Sports

Caltech women's swim & dive capped its season with a number of highlights on the final day of the SCIAC Championships, including another record-setting performance from Jessica Sun ('21).

The Beavers placed eighth as a team for only the third time since the SCIAC expanded to nine teams in 2012 despite having graduated two of the best swimmers in program history last year and enduring several other losses, including to injury. Caltech's total of 213 points was just 40.5 shy of seventh place and is the fourth-highest point total in program history.

Sun lowered her own previous mark in the 200-yard Breaststroke in both the prelims and finals, placing 13th in a new-best 2:30.92 at the conclusion of the meet. Isabel Swafford ('22) also made it back for the evening session thanks to a fifth-place personal-best time in the 200 Back that was just .4 shy of second and held her position in the final with another PR of 2:04.60.

Several other Beavers recorded PRs to cap a successful meet, led by a massive 6.5-second drop for Maddie Swint ('23) in the 200 Fly (2:23.00) to also make it back for finals and place 17th. Stella Wang ('21) shaved nearly two full seconds off her best time in the 200 Back to finish in 2:19.69, while Katherine Pan ('23) posted a collegiate best time of 1:01.61 in the 100 Free. Sophomore Olivia Grobowsky ('22) also turned in a solid performance in the 1650 Free, narrowly missing out on the last scoring spot by a mere .08. The meet concluded with the 400 Free Relay, in which Swafford, Grobowsky, Sun and Swint performed exceptionally well; Swafford led off with a blazing 53.42 that had the Beavers tied for fifth at the quarter mark and was followed by a trio of swims well below the expected difference in flat vs. relay starts. Grobowsky snuck in just less than 1.5 seconds faster than her career-best time (58.66), while Sun touched nearly two seconds sooner than she ever has (55.47) and Swint came in more than 1.25 quicker (56.01) as the anchor leg for an eighth-place finish.

The women's team will now eagerly await the official news as to whether or not Swafford's 'B' cut time in Saturday's 100 Back will be enough to send her to the NCAA Championships. The full list of participants will be revealed in the next week. Head Coach Andy Brabson and the Beavers will be losing only Tzarina Shippee ('20) to graduation and will have a chance to build on their 2020 experience in 2021.

gocaltech.com

SWAFFORD TAKES DOWN PAIR OF RECORDS AT SCIAC'S DAY 2

Mark Becker | Sports

Isabel Swafford ('22) re-set one her own program record and claimed a second on Day Two of the SCIAC Championships.

Swafford was the lone Beaver to qualify for the evening finals session with her record-lowering performance in the 50-yard Freestyle as she threw down a 24.26 despite stumbling at the start. The new mark bests her previous record, set at last year's championship meet, by .08.

The team captain was not satisfied with that alone, however; moments after finishing her race at the conclusion of the morning preliminary session, she stepped right back up to the blocks and broke the program 100 Breast record by approximately one second to cap a perfect morning for the Beavers in terms of recording season-best times. Classmate Olivia Grobowksy ('22) and junior Jessica Sun ('21) began the day with 12.5- and 10-second drops in the 500 Free to both record their fastest times as collegiate student-athletes and place 21st and 23rd, respectively. Stella Wang ('21) then shaved more than half a second off her lifetime best in the 200 IM before senior Tzarina Shippee ('20) and rookies Katherine Pan ('23) and Maddie Swint ('23) each recorded career-best times in the 50 Free. Shippee and Pan each trimmed two-tenths from their season-best times, but Swint stole the show with a breakout 1.24-second drop from her first-year PR which even beat her previous lifetime best set nearly four years ago. She went on to prove that was no fluke in the evening finals session as she anchored the 200 Free Relay with a 25.28, while Pan also lowered her official PR by another quarter of a second as the leadoff leg. Swafford, meanwhile, showed well in the 'B' final heat to officially place 11th overall, earning another eight points for Caltech.

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