



Asian Super Grid

Page 4



South Korean Presidential Scandal

Page 6



Fake News Proliferates on Facebook

Page 3

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PEO Student Conference: Seize Your Opportunities



GABRIELLE KLEMT
1T GEOLOGICAL

If there's one thing this conference taught me, it's that politics could be an option for me down the road, especially if I stay as petty as I am now. And if there's a second thing I learned, it's that as university students we are just little caterpillars exploring the ground and we need to prepare ourselves for the future after school when we become butterflies. Is that the dumbest thing you've ever heard? Read to the end, you might see something you like better.

Two weeks ago, on November 4, a group of engineering students from across the province descended on the nation's capital for the Professional Engineers of Ontario Student Conference or PEO-SC. Have no fear, I'll give you a rundown of the sessions that were held and the wisdom I gained, but I also want to focus on another experience I got to have, due to the location of the conference.

On Friday morning, fifteen or so students met up at the Eternal Flame outside the Centre Block. After brief introductions, we made our way inside the famous building, through security, and met up with our guide, who works in the office of Marilyn Gladu, a Conservative MP and the first (and only) female engineer in Parliament. We also met up with Howard Brown who would be with us throughout the weekend. A brief tour of Centre Block took us to the Senate Chamber, the Library, and the Memorial Chamber, learning historical tidbits as we went. Next, we went through another security check to get into Question Period. On the way up to our seats for the period, we ran into a group of MPs rushing to

their own seats.

Howard, who used to work as a journalist at the Hill and somehow knows literally everyone in the building, stopped almost everyone to say hi and have them meet us. I got to meet Catherine McKenna, Minister of Environment, and Bardish Chagger, who was most excited to meet yours truly, as a UWaterloo student. Question Period itself was very eye-opening, especially how raucous the opposition side would get, shouting, booing, cheering; it seemed pretty childish compared to how calm the Liberal side was. I'm not going to lie, I was much more impressed by how the Liberals presented themselves, but also sad that I could not take part in some shouting and clapping.

As far as the discussion of the day, I found it really interesting. Their main topic was infrastructure spending, which always seems boring, but is basically the cornerstone of society so... (see what I did there?). But as someone working for a federal department right now, in a sector that sees where federal funds go, I thought the opposition's constant line of "where's the money being spent?" pretty uninformed. I've spent the last three months listening to and taking part in discussions about the massive amounts of federal infrastructure money being spent on retrofitting projects and other plans. Perhaps the Conservatives want to see huge new buildings being created or fabulous upgrades, but those things all take time, as one of my coworkers was saying the other day, and there are smaller projects that are easier to plan that need to get taken care of first. I'm not taking sides here; I just thought it was really interesting how our Parliament discusses things, and how the details that I know because of where I work are not communicated when the opposition behaves the way it does and refuses to listen to

what progress is being done – but that's a problem with the system, I think.

After the official Question Period, we hosted a question period of our own with Marilyn Gladu, over a lunch in one of the private dining rooms. She had a very interesting perspective as someone who came into politics after years of working as an engineer. Her career path was so trailblazing that she "built a bathroom everywhere she went", being the first female to work at many of the companies who hired her. Next, a few of us headed to the Engineers Canada head office a few blocks down from the Hill to talk to CEO Kim Allen and learn about the distinctions between his organization and PEO.

The interesting discussion lasted until we had to head back to our hotel to get ready for dinner at Mill St. Brewery on the river, and a night out exploring Ottawa's scene with some students from across Ontario. The next day's sessions were interesting enough from the get-go to keep me awake, quite the feat for a Saturday morning. We heard from a recruiter who works at YellowPages (and apparently they're not a phonebook anymore) about how to land that job you want. We also heard from representatives for PEO, Association of Consulting Engineering Companies, Engineer Your Life, and Engineers Without Borders. My main takeaways were the following:

For job finding, a lot of the info was stuff we learn in that 1A co-op course on utilizing key words from the job description to customize your resume and always having a few questions prepared for the interviewer. He did, however, really stress your online presence and the importance of making sure it reflects you, as well as really using LinkedIn to reach out to employers. The talk from PEO was about the importance of engineers entering politics. Unfortunately, the major-

ity of political representatives currently rely on other people's information versus their own understanding when looking to pass laws and bills on complex scientific or technical issues. Having engineers in the group of people who create and pass these important laws means there's greater understanding about the issue. The president of ACEC talked to us a lot about the importance of moving away from billing hours, to paying for work done in order to improve efficiency and effectiveness; he also encouraged us to look into consulting companies for future employment. Lastly though, he wanted us to think about switching our mindsets from always thinking initial lowest cost to final project costs. His view is that taking the lowest bid will lead to the highest expenditure be it down the road or during project completion. The presentation on life design from Engineer Your Life founder Erica was pretty inspiring. She challenged us to come up with life criteria by which to compare experiences and eventually tailor your life; to be honest, it was really fascinating and I'm not sure I can do it justice so I highly recommend you check out their website engineeryourlife.org, her best advice was to join a movement, and see where it takes you.

This conference taught me to seize the opportunities I'm given. We are living in a competitive job market right now, and because of co-op, us Waterlooians know that better than most students. It's time to accept those business cards, get our dream job experiences, evaluate what we want out of our own lives, and then go seek it out and take it! Too much excitement for an article about a conference you think? Wrong! I say (and not in the Trump way either), there's no better time to be excited about our prospects, the job world needs us and it's our duty to become some boss butterflies and give them what they need.

Drastic Spike in Hate Crime Reports After Trump's Win



SUMAITA KARIM
1A NANOTECHNOLOGY

Since Donald Trump won the American presidential election, the general population has been left in a state of chaos. From flag burning to rioting in the streets, a section of the American people could not be more opposed to their newly decided president. Unfortunately, those that support him also agree with his racist and xenophobic perspective on minorities, and more specifically how they should be treated. According to the Southern Poverty Law Center, there were 437 reports of harassment within the first week of his presidency. These reports mainly describe the threats as directed toward minorities such as people of col-

our, Muslims, immigrants, and the LGBT community.

Donald Trump's win has allowed those who may have shared the same perspective and beliefs as him to feel comfortable expressing themselves, and as a result, both physical and verbal hate crimes are becoming a regular occurrence.

This drastic spike in hate crimes has been impacting an array of age groups, even children in elementary schools. A woman in Colorado reported that her 12-year-old daughter was verbally harassed by a boy who said, "Now that Trump is President, I'm going to shoot you and all the blacks I can find." Another incident in a school in Washington State described students chanting "build a wall" in a cafeteria.

Places of business have also been targeted as prime locations for hate crimes. A Muslim woman shopping in Walmart

was victimized for wearing the hijab, a traditional Muslim head garment. The woman had her hijab torn off her head and was subjected to verbal abuse as her oppressor proclaimed, "This is not allowed anymore, so go hang yourself with it around your neck not your head."

Certain Americans are taking their discriminatory views to social media. Things like #gobacktoafrika and #whiteamerica are becoming more common among those participating in these acts of hate.

The assaults don't stop at verbal: vandalism has also been a big aspect of the hate crimes spreading across the States. The graffiti includes phrases such as "no more illegals 1-20-17", a reference to Inauguration Day. Swastikas and "Go Trump" have also been spray painted in numerous locations, including playgrounds. A transgender woman protesting Trump's presidency by writing "love

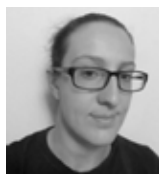
trumps hate" and #notmypresident on her car has noticed that it had been painted over with swastikas and the word "die". "Make America white again" and "heil Trump" graffiti have also been reported on multiple occasions.

In reply to these hate crimes, the President-elect, on an interview on CBS, ironically said that he was saddened to hear about his supporters instigating harassment towards minorities and that, "If it helps, I will say this, and I will say right to the cameras: stop it."

However, it is not just Trump supporters initiating the assaults: a man in Chicago was beaten as someone yelled "You voted Trump!" Men in Connecticut were also arrested for allegedly assaulting a Trump supporter. The United States is in turmoil from hate fostered by the Trump campaign, and now his upcoming presidency.

Letter from the Editor

So Long, 2016



CAITLIN MCLAREN
EDITOR-IN-CHIEF

At this point, it's a cliché to say that 2016 was not the best year. Between the deaths of beloved celebrities, the ongoing social problems that are becoming ever more visible, and of course the politics (let's not go there), it seemed that there was wave after wave of bad news all year. I don't know what kind of term you have had, but mine seemed Sisyphean - if you are an upper year your life is dominated by projects, and if you are not, then you are still adjusting to the new expectations. University is never easy.

There are two important things to realize when you hear about bad things happening. One is that you can't change the world, and the other is that yes, you can change the world.

The world is the way it is - yes there are wars, there is suffering, your favourite sports team does lose. Those things are outside of your control, and brooding about them is completely unhelpful. Becoming a misanthrope makes the world a worse place, not a better one.

On the other hand, a lot of things are indeed under your control, and you can also help with other problems. You don't like the political scene? Be an activist. People die - don't forget about the living, be thankful for them. Work to make the world better in little ways. Donate your time or money, if you have them. (Who am I kidding? We are students.) Perform random acts of kindness. Don't let the problems in the world around you get to you - they aren't your fault. However, the problems in your own circle of influence are your responsibility. Don't focus on the big picture and don't ignore the little picture - you can actually control the little picture. Make it into some epic art.

Of course, even your life isn't entirely under your control - we all live under the tyranny of school work. Sometimes we fall behind in homework or fail an exam, or just don't get the mark we thought we deserved. Sometimes it isn't our fault, and sometimes it is.

Another thing you should realize, or be realizing, is that we are all in this together. Your friends' success is your success; any victory for a person in this world is good for the world. That goes for life, but also for schoolwork. You need to get notes from your friend, or ask someone how the heck they did problem 3b.

Or you need to ask them to write an article to fill in for someone at the last minute (sorry, Alex!) or get someone to explain how InDesign works (thanks, Cameron, Raeesa, and Meagan!). Generally, your friends can help you get through difficult times (thanks to the awesome crop of first-years, who contributed an unbelievable amount to the paper this term!). Some special people are

willing to stay up all night to make sure everything is together (You rock, Raeesa!).

I'm looking forward to handing over this paper to Donovan, who will be taking over in January, and to Vince, who will be EIC in the spring term. You guys will do an amazing job!

This term has been really busy for me, and I wouldn't have been able to do it without this awesome staff. If I learned one thing this term, it would be: what doesn't kill you makes you stronger. If this year has been tough, or this term has been tough, you learn to handle more pressure. Don't panic; adapt. Ask for help, and do whatever you need to do.

Sometimes things are hard, but think about it in a different way. Your parents or grandparents very likely came to Canada from another country, or perhaps you did. If not, they came at some point, whether it was during the Age of Exploration, or across the Bering Strait eons ago. They survived that, and it could not have been easy. Your ancestors, whatever place they came from, survived war, famine, and plague. They spent their days performing backbreaking labour, and they survived that. Back in the time when they were primitive hominids, they survived every lion and sabre-toothed tiger. When they were small mammals, they dodged dinosaurs and pterosaurs. And so on, and so forth.

That is your heritage; it's written in your DNA. They got through all of that, and they survived. You will too, because if there's one thing humans are damn good at, it's surviving tough times. Whatever you do, don't tell yourself you can't do something.

There is an experiment that's a little hard to describe, but I will give it a shot. Stand up and point your finger directly in front of yourself. Turn towards the side of that hand, twisting as far as you can go. Take note of where your finger is pointing when you have twisted as much as you possibly can. Then, go back to normal. Close your eyes, and visualize yourself twisting again - but further. Visualize yourself pointing a foot or so further than you did last time. Now, twist again.

You could twist further, couldn't you? You could do what you had visualized, right? I was surprised the first time too, but it is absolutely real. Many of your body's physical limits are imposed by your brain, not by your bone and muscle. That's why there are stories of people performing incredible feats of strength in times of crisis - the emergency overrides their mental limits, and our bodies are a lot stronger than we normally give them credit for. This is not for no reason - if our bodies worked to their maximum potential all the time, there would be a great deal of wear and tear - but in a difficult situation, our normal limits do not apply.

Similarly, a lot of other things we think of as our limits are also mentally imposed. If we keep telling ourselves we are bad at calculus,

our brains say "I don't understand this, and since I'm 'bad at this' I have an excuse!" That's isn't true. If your brain couldn't understand mathematics, you couldn't toss a ball up and down and catch it. If you were actually bad at writing - well you're reading this, aren't you? If you aren't smart enough to be a Waterloo engineer - you're here, aren't you?

If you tell yourself you are capable of doing things, they will be easier. That doesn't mean you should be in overdrive all the time, because burnout is a real thing. Set high, but reasonable goals, and stay focused. After all, we have terms for a reason. There is always an endpoint.

When I was a first-year, I distinctly remember the Dean telling the class of 2017 "You will fail." I also remember going "Pshaw, not me!" But I did, eventually, fail some things - the odd assignment I didn't have time for, that midterm I didn't study enough for (*cough* organic chemistry *cough*). Even if you don't fail, you will definitely reach a point where you are disappointed with yourself.

Still, a setback isn't any reason to give up, or feel down in the dumps; look at it as a challenge. If you pass this challenge, you are ready for the next one, and one step more badass. Even if you don't pass this term, you still learned valuable lessons.

What did you learn this term? I don't mean "a bowling ball slides along the floor before starting to roll. Calculate the coefficient of friction." Instead, what did you learn about yourself?

Do you need to study more? "No" is an entirely acceptable answer. There are a lot more things than marks, and focusing too much on every percentage point can make you miss the big picture. You are here to learn, not to obtain grades. On the other hand, if you aren't satisfied with your performance this term, don't say "I'm not smart." That's nonsense. If you put in the work, you can definitely do it.

Exams start when, in two weeks? (Crap!) That's fine. Step 1: Tell yourself you will ace them all. Keep telling yourself that, out loud or in print or whatever you find most convincing, until you believe it. It's a self-fulfilling prophecy, but in a good way. Step 2: Actually put in the work. It isn't going to come free! Take breaks, for sure; that's an important part; but you only get out what you put in. Step 3: Walk into the exam room and say to yourself "I know what I know, and I will do my best". Write down whatever you know, and don't fret about anything you don't. Just do whatever you can - and even if the result isn't what you wanted, you will know you did your best. Step 4: Do anything you want - get plastered, you earned it, watch the entire run of The Magic School Bus, sleep for a week - but don't beat yourself up about any bad results. Learn a lesson, and use it for the future. Don't get angry about the past.

Anyway, it'll be 2017 soon, so chin up!

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FakeBook



ALINA PAVEL
1A NANOTECHNOLOGY

Google and Facebook have been facing criticism from the public recently due to the abundance of misleading, inaccurate, or even entirely fake news posts. Many sources are even saying that these fake posts and articles may have swayed the opinions of voters during the presidential election; election results could have possibly been different.

But could some misleading information on a social network really have caused Trump to win? According to a poll done by Pew Research Center, approximately 44% of US adults use Facebook as one of their news sources. Now imagine if this 44% had seen all the hoax stories posted during the election, such as one about the Pope

endorsing Donald Trump or the one about Bill Clinton having raped a 13-year-old girl; some people's opinions would surely be swayed pro-Republican. During the weekend following the election, the first thing that came up after searching 'election count' was a false article claiming that Trump had won the popular vote.

While keen users might be able to spot the fakes, many are oblivious to the plethora of entirely fake news sites dedicated to pumping out absurd stories, an example being the Denver Guardian—based off a real Denver newspaper. These fake articles and headlines act as clickbait, making thousands of users click and share, possibly without even reading a word of it. Unfortunately, this false information can spread across the internet very rapidly, especially through open platforms such as Facebook.

However, Mark Zuckerberg is trying to undersell this issue, stating that "of all the content on Facebook, more than 99% of

what people see is authentic," and saying that the election results can't be attributed to the stories shared on Facebook. Many employees disagree with Zuckerberg, expressing that "He knows, and those of us at the company know, that fake news ran wild on our platform during the entire campaign season." What is Zuckerberg trying to hide? Perhaps an affiliation with Trump and the Republican party? Probably not, but Facebook seems to be moving in the wrong direction as it was discovered that many of the editors responsible for fishing out the bogus articles were recently fired, leaving the website with an unending stream of false information.

Google has acted against the slew of inaccurate news sources by turning off their ad revenue service for these websites. Facebook soon followed, saying that they have launched efforts to find and exterminate sources of fake information on their website. They have even begun to develop

and improve their current trending news articles to solve this issue.

Currently, their algorithm works based on popularity; the more likes or shares an item gets, the more promoted it becomes in the trending news section. It is unclear how exactly they will implement a fix, as it is difficult to distinguish fake news from real news. Instead of targeting fake news and removing it, they could potentially focus on promoting news from known, credible sources. One thing is clear, however: Facebook and Google refuse to hire human editors; instead, they would like to focus on a more unbiased, software-based approach to the problem.

While we can't be sure if the sharing of hoax stories on Facebook had any influence on Trump's victory, this controversy has brought attention to the importance of legitimacy—something that often seems to be lacking due to the widespread use of social media and the internet.

American Women Seeking Long-Term Birth Control



RAEESA
ASHIQUE
2B ELECTRICAL

In the days since the election, Americans have begun to fear for their physical safety and the protection of their constitutional rights. The Trump administration's impact on health care is just one of the major concerns.

Throughout his campaign, Donald Trump promised to repeal Obamacare, which would cause about 22 million individuals to lose their health insurance. He also wants to defund Planned Parenthood, an organization that provides reproductive health services, including abortions.

The Affordable Care Act (ACA), commonly referred to as Obamacare, was signed in 2010 with the intention to increase the quality and quantity of health insurance, as well as expand health care coverage. It also significantly increased eligibility criterion and funding for Medicaid, which is a program helping those with lower incomes get health coverage.

Trump has been flip-flopping on this issue without providing a detailed plan, so his intended course of action is still unclear. Likely, he will keep two of the current benefits intact: one forcing insurance companies to cover people with pre-existing conditions, and the other allowing children to stay under their parents' plan until age 26.

Many women are concerned about how reproductive health services will be affected by any change. In 2012, a mandate under the ACA went into effect requiring that health care plans provide coverage

for all FDA-approved contraceptives, and the possibility of losing this coverage has many women looking for long-term solutions.

Trump's pro-life campaign has also sparked major concern. His plan to appoint pro-life judges to the Supreme Court opens up the possibility of weakening or reversing Roe v. Wade – which gives women the legal right to have an abortion – and hinted that the abortion decision would be handed to individual states.

Long-Acting Reversible Contraceptives

Long-Acting Reversible Contraceptives (LARCs) include IUDs (intrauterine devices) and hormonal implants. The IUD is a small T-shaped plastic device inserted into the uterus by a doctor, which can be medically removed. The device kills sperm before they can fertilize the egg, and is twenty times more effective than birth control pills, patches, or rings.

LARCs have always been less popular than short-term solutions, likely due to their cost. Without coverage mandated by the ACA, LARCs can cost up to \$1000, while the birth control pill costs about \$50 per month. According to multiple research articles, women use LARCs if they can afford them.

There are three brands of IUDs on the market: ParaGard, which lasts around ten years, Mirena, which lasts more than five years, and Skyla, which lasts approximately three. A ParaGard IUD would outlast two terms of Trump, although we better hope that he will not be re-elected.

Dr. Raegan McDonald-Mosley is the chief medical officer at Planned Parenthood. In a statement, she said, "It's too

early to tell if we'll see an uptick in requests for IUDs as a result of the election" adding, "While we truly hope that birth control methods will be available, accessible, and affordable to all women under the Trump administration, we understand people's real concerns about losing access to birth control, which is basic health care for women."

Almost all sexually active women (around 99%) have used at least 1 contraceptive method in their lifetime. About 7% use IUDs.

How can Trump make life difficult?

Trump would unlikely be able to fully repeal the ACA without the 60-vote supermajority in the Senate. However, the Democrat's filibuster power, which could allow them to block the vote, does not apply for bills related to the federal budget or taxes.

Budget reconciliation is a way around this. Last year, the Senate and the House passed a reconciliation bill which would have reversed a large portion of the health bill, but President Obama vetoed it. However, now we know that the Republicans could get this bill through the Senate and the House, and President Trump would definitely sign off on it.

What are some other avenues Trump could take? Since Medicaid affects the federal budget, Congress could remove contraceptive coverage from Medicaid plans, or decrease the number of people who are eligible for Medicaid. He could amend the ACA to remove the contraceptive mandate. He could have the Department of Health and Human Services to redefine preventive care, such that it no longer includes birth control.

Insured women would not be affected until the new health plan is enacted in 2018, but changes to Medicaid could be immediate.

What do we know about Pence?

For anyone scared of Trump, take a moment to look to his right, and start praying that Trump does not die of a heart attack or of an old age. Vice President-elect Mike Pence is a living nightmare. He appears set on moving backwards, with messed-up opinions on women's rights, LGBT rights, immigration, and climate change to name a few.

Pence is infamous for opposing women's health care and reproductive rights. He led the fight to defund Planned Parenthood, and signed eight anti-abortion bills into law in his four years as governor of Indiana, which included allowing hospitals to deny abor-

tions even if the woman would die without care, and mandating that an aborted fetus be buried or cremated (which the Supreme Court ruled against in June).

He has said "I long for the day that Roe v. Wade is sent to the ash heap of history."

Earlier this year, he signed a bill banning abortion on the basis of disability, gender, or race of the fetus, and holding doctors legally liable for performing it, prompting the Periods for Pence protest. The Facebook post which started it said, "any period could potentially be a miscarriage without knowledge...perhaps we should contact Governor Pence's office to report our periods. We wouldn't want him thinking that THOUSANDS OF HOOSIER WOMEN A DAY are trying to hide anything, would we?" Women began tweeting and calling the office with details of their period and asking for advice, since he seems to know their body better than they do.

People are trolling Pence once again. Planned Parenthood has received donations from 128 000 people since the election, with over 20 000 of them in Pence's name. This began when some celebrities, including comedian Amy Schumer and actress Amber Rose, posted their donation on social media and urged their followers to follow suit. He will receive a certificate of gratitude for each donation made in his name (although without receiving tax deductions).

Planned Parenthood has commented that people have been donating in Hillary Clinton's name, as well.

It's easy to be pro-life when you're a man

Let's take a moment and appreciate the irony of the situation. Trump, and his administration, is pro-life and anti-birth control. Does he expect sexually active women to magically avoid getting pregnant? Or is the logic that if they don't want a baby, they shouldn't have sex? Yes, that must be the solution, because a womanizer like Trump totally believes that abstinence is the best birth control.

Also, Trump is a man. Why does he believe he has the right to govern women's health issues?

Contraception and women's health are real feminist issues. Getting IUDs is some women's way of saying "screw you" to the administration, but this is not viable for everyone, and it is completely wrong that women must seek birth control methods to outlast Trump's administration. Health care is a basic human right that Trump wants to take it away from millions of Americans, which will have huge repercussions for so many women.

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Surviving First Year: What's Next?



JOSH LI
2A MECHANICAL

We've talked about coffee, we've talked about procrastination, we've talked about simulation tests, we've talked about reframing. What's left to talk about in this very final edition of How to Survive First Year?

Oh yeah, exams. Exams are going to be a big deal because they're more heavily weighted, but they're not going to be a big deal because you've prepared for them. Again, don't think of them as anything more than problem sets, not to mention you'll have several full days before those exams to study. It's now about putting this crucial time to good use.

Putting your time to good use means two things: not procrastinating and not wasting time. Luckily, there is a surefire method endorsed by psychology, musicians, and writers around the world to sustain concentration and achieve useful progress. It's called the Pomodoro

Method. The method uses a timing device (the inventor used a tomato wind up clock) to sustain unwavering effort for 25 minute, followed by a 5 minute break. A longer break can act as a reward after four Pomodoro cycles.

Now let me tell you how this will help you with those exams. A Pomodoro session with the defined goal such as "finishing chapter nine of linear algebra" is much less daunting than the vague "study for linear algebra", which can imply a whole course of knowledge that appears to be impossible to cover. Furthermore, wasting time is another major concern when "studying linear algebra" does not go well and you end up spending too much time on chapter 5, when the most important topics are in chapter 6. At the end of every Pomodoro session, you step away from the desk and evaluate: did I accomplish anything meaningful in this last 25 minutes? If the answer is no then you are usually better off leaving this question until later and moving on.

Non-stop studying will never alert you when you are wasting time. Research has also shown that the information you learn

in the middle of long study sessions is most easily forgotten. You remember the information at the beginning and end of study sessions best. Therefore, doesn't it make sense to have as many beginnings and ends as possible?

Now, life doesn't stop after your first university exams, but life will get easier after getting through that first exam cycle. Just ask your TAs if 1B is any more difficult than 1A, and they'll tell you that the next term is like an 8/10 if this term is a 11/10. In reality, the amount of content or material covered is about the same, with the same level of difficulty in some courses, but your second term feels less difficult than the first since you've adapted to university life.

In the upper years, design projects and lab work will make things more exciting. But keep in mind how with every passing school term, you are 12.5% closer to graduating! Keep the taste of real engineering from co-op; you may enjoy it and you may not. The whole point of these four-month, low-commitment work terms is to find what you thought you liked, but actually hated in practice. Each of these

lessons is priceless, as you get even closer to finding real passion.

For further reading and life inspiration I recommend the following final pieces of advice:

The 7 Habits of Highly Effective People by Stephen Covey is a book to live life by. If you still consider yourself a kid at heart, and want to get the same life lessons with less text and some cartoons, I also highly recommend the Teen version by Sean Covey.

No Fears, No Excuses by distinguished professor Larry Smith is a book you will come to cherish after a lackluster work term. It's also a personal journey to find a career where you love Mondays just as much as Fridays. If you didn't think that was possible, you haven't read this book.

And finally, I hope you young kids can appreciate these words. If you don't get it, go watch the movie.

Gather ye rosebuds while ye may, Old time is still a-flying.

And this same flower that smiles today, Tomorrow will be dying.

Carpe diem, boys and girls. Make your life extraordinary.

Studying Effectively, According To Psychology



TIFFANY CHANG
1T CHEMICAL

As someone who is interested in the subject of psychology, I hope to share my hobby with everyone in Engineering in a meaningful and interesting fashion. Last issue, I offered some ideas for activities to help you reduce feelings of stress. With final exams rolling around, I would like to share some strategies for effective studying.

First and foremost, you should know what type of learner you are. But maybe you're still not sure.

If you notice that you remember oral instructions very well, or you are good at explaining concepts yourself, you're an auditory learner. As such, you would benefit from reading your notes aloud when you're studying. Alternatively, you could record yourself reading your notes once, then listen to the recording every subsequent time that you study that set of notes.

If you find that you learn and study more effectively by reading your textbook, you're a visual learner. Thus, you would

benefit from taking lots of notes, using flashcards, doodling to accompany your notes, and colour-coding your notes.

If you have trouble sitting still during lectures and learn well using models or doing hands-on activities, you're a kinesthetic learner. Therefore, you would benefit from using flashcards, studying with peers, and studying in short sessions.

However, most of us have characteristics of these three different learning styles, so I recommend trying different strategies during the term to see what works best for you.

Make a studying schedule for yourself. Prioritize your studying based on your final exam schedule, and the subjects that you find most or least challenging. Remember to schedule in breaks, meals, exercise or other self-care activities, and sleep—probably the second most important activity of them all, after studying.

Start studying early. An important part of studying is to prevent the loss of information. A revolutionary theory in the field of psychology is the forgetting curve, which was first hypothesized by Hermann Ebbinghaus in 1885. With only one repetition of newly learned

information, the participants of the original experiment only remembered 40 per cent of the original information. With two repetitions of newly learned information, the participants remember 65 per cent of the original information. You can imagine the good that three, four, etc. repetitions can do for your memory.

Mix up your subjects during your longer study sessions. This challenges the natural occurrence in your brain of learning, forgetting, and relearning information. Some also argue that it challenges students to compare and contrast the different subjects that they are learning, which allows them to not only comprehend the material from a shallow understanding, but also at the roots of the subjects themselves. Most realistically, the problems that you are bound to come across in your professional careers will involve multidisciplinary knowledge, so mixing up your studying from now on will get you used to this reality.

Exams in the Faculty of Engineering tend to focus on applying knowledge. Take advantage of the Engineering Society's Exam Bank on their website for additional practice aside from your past tutorial problems, lecture examples, and past exam papers that your professor

or TAs might give you. Don't simply practice these problems repeatedly; aim to understand the concepts that are applied to solve them. If you don't understand one step in a multistep procedure, ask a classmate, your professor, or your TA. You do not want to experience the snowball effect of not understanding a concept that you learn early on to haunt you later on in a more complex topic.

Based on these practice problems, think beyond them: What else could your professor ask you on the exam? I remember that I did all the practice problems and assignment problems for one of my courses in 1B. However, for each question on the final exam, we had to make multiple assumptions, whereas in the tutorials and assignments, we had to make only one assumption—at most, two.

I hope that these strategies will help you. As someone who is only just going into 2A, I can still remember the anxiety that I felt before heading into finals. A bit of anxiety beforehand isn't a bad thing,—it should motivate you to study hard and study smart—but don't let these emotions deter you from believing that you will perform your best on final exams.

A Renewable Future: Asian Super Grid



LEANDER RODRIGUES
1A NANOTECHNOLOGY

There has been some great news that has gone under the radar for the past few weeks, which is regarding renewable energy. As of now, 88% of the energy consumption around the world comes from oil, coal, and natural gas. All of these fossil fuels are harmful for the environment and negatively affect the Earth's climate via smog, acid rain, and rising sea levels, but everyone knows that. Leonardo DiCaprio even talked about this in his Oscar acceptance speech, so this is a very real problem that people know about already. Unfortunately, there hasn't much initiative taken to combat this environmental problem, but that might be turning around very soon.

Entrepreneurs in China, South Korea, Russia, and Japan have agreed to commit to a dedicated plan for clean energy across Asia. The purpose is to provide clean energy as an alternative to fossil fuels and get electricity to consumers across the continent. This was outlined in a Memorandum of Understanding that seeks to fulfill the goal of clean energy by creating a massive clean electricity grid spanning the aforementioned developed countries solely based on hydro, wind, and solar energy. The countries were chosen based on their capabilities to provide much clean energy for the population in demand.

This idea to route power all around Asia sounds like a pipe dream initially, but it is going to be made a reality in China because of Masayoshi Son, the founder and head of the telecom and Internet giant SoftBank Group. He was inspired by the tragedy following the 2011 Tohoku earthquake, where a nuclear power plant

leaked and the power company was mandated to declare a nuclear state of emergency due to high radiation levels and flooding within the plant. He went on to establish the Renewable Energy Institute soon afterwards to promote clean energy as an alternative form of power. At the time, he knew very little about renewable energy, but was given an estimation that he could use solar and wind energy in the Gobi Desert region of China to provide enough power to replace thousands of nuclear reactors! The statistic was deemed to be a political impossibility, but with his attempts at unifying the alternative power industries across Asia it is becoming more and more possible!

Meanwhile, Japan has some work to do across the country before this grid can be established. The country is split pretty evenly between two different AC currents—60Hz and 50Hz—which would make a unified grid difficult for entire

country. The origin of this two current system is long and forgotten, but that does not mean that it can't be fixed. The wonderful thing about the time we live in now is that the cost of wind and solar power is falling rapidly, both for consumers and providers. With that, Japan can still contribute to the power grid and invest in changing the current for half the country so that they can reap the benefits of joining the super grid.

Optimistically, the plan to have a fully functioning Asian Power Grid is projected to be achieved by 2050. By then, it is expected that most of the world's energy would come from sustainable sources and we as the human race will have nearly eliminated fossil fuels as an energy source. The technology already exists; the goal is just to have the political basis and agreement as a species to save the planet we're on, and to allow future generations to experience the world we live in today.

Russia's Economy Minister Arrested for Allegedly Taking \$2 Million Bribe



**RAEESA
ASHIQUE**
2B ELECTRICAL

Russian economy minister Alexei Ulyukayev was arrested on Tuesday, November 15th as part of a sting operation, for allegations of receiving a \$2 million bribe to approve the takeover of oil company Bashneft by oil giant Rosneft. After appearing in court that afternoon, Ulyukayev was dismissed for “breach of trust”, the Kremlin said, and placed under house arrest until January 15 while the investigation continues. His deputy, Yevgeny Yelin, was appointed as acting economy minister for the time being.

Ulyukayev has denied the charges, but

says “I am determined to cooperate as much as possible with the investigation, it is in my objective interests because I want to save my reputation and my good name.” He faces 8-15 years in jail, if convicted.

Ulyukayev had been under investigation by the Federal Security Service (FSB) for over a year, including having his phone tapped and communication monitored. President Putin’s spokesperson, Dmitry Peskov, told state news agencies that Putin had been “informed at the moment the operation began.” He also said that, “This is a very serious accusation that requires very serious proof. In any case only a court can decide.”

The 60-year-old economic liberal served in the finance ministry in the 1990s and in Russia’s central bank since 2004, since becoming economy minister in 2013. Ulyukayev has

spoken out against increasing government involvement in the economy in the past. He is the highest ranking government official to be arrested since the failed coup in 1991, in what was then the Soviet Union.

There is much speculation regarding the political significance of this situation. Tatyana Stanovaya, a political analyst at the Institute of Modern Russia, has said, “The choice of Ulyukayev as a victim [of the investigation] was dictated by the fact that he was the weakest link and stood against the privatization of Bashneft by Rosneft.”

It may also be evidence of hidden tensions within the government. Other high-ranked officials are calling his arrest “absurd” and a “strange accusation”.

Bashneft is a mid-sized oil company which was seized by the state after owner Yevtush-

enkov was put under house arrest in 2014 for money-laundering. Since then, Rosneft owner Igor Sechin has been interested in taking over Bashneft. Earlier this year, the government put just over half of the company on the market, and Rosneft won the tender with a \$5 billion bid. This was seen as a victory for Sechin, who is a longtime friend of Putin.

Ulyukayev had spoken out against the deal in August, as he opposes the privatization of state companies. However, in early September he changed his mind.

The Investigative Committee said that “the legality of the sale of Bashneft to Rosneft is not being disputed by anyone and is not a subject of the investigation”, and there has been no wrongdoing on the part of Rosneft. A Rosneft spokesperson said that this case will not affect their work.

ION LRT Update



**DONOVAN
MAUDSLEY**
3A MECHANICAL

Taking the bus Uptown is about to get a whole lot easier, or at least as easy as it used to be. The stretch of King Street passing through Waterloo’s core was blocked off by GrandLinq in early February of this year. A nine month timetable was given for the completion of the stretch between Erb and William, and spokespeople for the project have stated that they are “on-track” (railway pun) to finish the construction. Lauren McGirr said that only very poor weather, on the level of a severe snowstorm, could push back the date back.

This announcement is music to the ears of many business owners in Uptown, whose businesses have taken hits due to the loss of foot traffic in the area. Many were worried that the closure of the stretch would extend into December and cut into the holiday shopping season.

As a resident of Uptown I was shocked to see the pavement down, just a few days after the gaping holes in the ground were filled in. Unfortunately, the reopening of King doesn’t mean that construction

is completely finished. While the tracks have been laid and the roads re-paved, the overhead power lines for the light rail system still need to be installed. GrandLinq has stated that construction on this system will run into early 2017 and won’t impact traffic or the pedestrian access on King.

Other intersections which are blocked by the stage 1 ION construction are also slated to open soon. King at Wellington, and King and Frederick are both set to re-open by the end of the year. However, King from Victoria to Wellington has no estimated re-opening date. GrandLinq’s adherence to their deadlines gives me hope that the ION project will be completed on time, or at least close to it.

In other ION LRT news, there is an open house scheduled at the ION Operations, Maintenance and Storage Facility on Saturday the 26th of November. The facility is located at 518 Dutton Drive and is currently under construction. It is expected to open in early 2017. Attendees will be able to view several parts of the facility, inspect parts of the system up close, and ask questions of the staff from GrandLinq, Rapid Transit and Grand River Transit. The event will take place from 10 till 2. The organizers recommend wearing comfortable shoes as the facility is rather large.

MP Faces Backlash After Praising Trump



HIRA RAHMAN
1A NANOTECHNOLOGY

Kellie Leitch, who is in the running to become the next leader of the Conservative Party, faced backlash after praising Trump’s win in an email to her supporters.

“Tonight, our American cousins threw out the elites and elected Donald Trump as their next president,” she stated in the email. “It’s an exciting message and one that we need delivered in Canada as well. It’s the message I’m bringing with my campaign to be the next Prime Minister of Canada. It’s why I’m the only candidate who will ensure that every visitor, immigrant, and refugee will be screened for Canadian values.”

Leitch’s support of Donald Trump has not only alienated many of her supporters, but has also lost the endorsements of many high-profile Tories, which could lower her chances of leading the Conservative party in the near future.

Leitch’s support for the religious and ethnic division advocated by Trump is not an isolated incident. As a cabinet minister to Stephen Harper’s government, she introduced the “barbaric practices tip line” and was the face of the campaign. The tip line was widely recognized as a tactic to provoke anti-Muslim sentiment.

As a candidate for the Conservative party leadership, she has adopted similar policies into her campaign. For instance, she proposes face to face meetings with all immigrants to ensure they support “Canadian values”.

Despite Kellie Leitch’s insistence that she speaks for the “average Canadian”, her admiration for Donald Trump’s message is not well supported by the majority of Canadians. In fact, only 14% of Canadians supported Donald Trump. Leitch’s anti-immigrant sentiment should come as a major concern seeing as she may lead the Conservative party—and maybe even the country—in the future. The message of her campaign should raise questions on whether or not she is fit to lead the Tories and a country that prides itself on diversity and multiculturalism.

Trump Wins — What Happens Now?



ALEX PEZZUTTO
1A NANOTECHNOLOGY

It happened. Whether it was your greatest nightmare or a dream come true, the seemingly impossible has come to pass—Trump will be the next president of the United States. Some are elated, some are full of ire, but everybody’s asking the same question—what now?

Well, not much.

Trump officially becomes president on January 20, which means we don’t get to see the wall or the deportation of Mexicans and Rosie O’Donnell—yet. Right now, Trump gets to pick the people to lead his cabinet, who in turn would govern specific domains of government under Mr. Trump. The appointment of these positions is understandably quite important, since these men or women will be responsible for allocating funding and creating policies. For example, the attorney general prosecutes cases that involve the government, and gives advice to the president and heads of the executive departments when needed.

Who might those people be, you ask?

Donald Trump has announced the nomination of Alabama senator Jeff Sessions as attorney general, Kansas congressman Mike Pompeo as director of the Central Intelligence Agency, and retired Lt. General Michael Flynn to serve as his national security adviser.

So who are these people, and what do their appointments hold for the future of America?

According to the National Journal, Jeff Sessions was ranked “the 5th most conservative US senator in 2007”, and it means exactly what you’d probably expect. For starters, he is anti-abortion. In 2005 when the US was deciding to go to war in Iraq, Sessions strongly advocated for that motion, and even went as far as to say that anti-war protesters “did not represent the American ideals of freedom and liberty”. He voted against a Senate amendment to a House bill that prohibited cruel, inhumane, or degrading treatment or punishment of individuals in the custody or under the physical control of the United States Government. He also voted against the Don’t Ask Don’t Tell Repeal Act in 2010, which would allow gays to

serve openly in the military.

Let’s move on to analyzing the new director of the CIA, Mike Pompeo. You’d expect him to be as well-learned as the head of one of the most powerful agencies of the world is supposed to be, but perhaps not. With regard to climate change, he stated in 2013, “There are scientists who think lots of different things about climate change. There’s some who think we’re warming, there’s some who think we’re cooling, there’s some who think that the last 16 years have shown a pretty stable climate environment.” Despite the almost universal agreement of scientists on global warming, Pompeo still finds grounds for skepticism, because continuously breaking temperature records year after year constitutes as ‘stable climate’, I guess. As per your usual Republican, he is also against abortion (except when the mother’s life is at risk, however).

Mike Flynn is where Trump starts to break the conservative mould, as he is a registered Democrat. Well, not really. While not wholeheartedly agreeing with waterboarding like his conservative counterparts, he states that “he would be reluctant to take options off the table”. When

asked if he would support Trump’s stated plan to kill the families of suspected terrorists, he replied by saying, “I would have to see the circumstances of that situation”. What becomes really polarizing are his comments about Muslims, stating on Twitter that “fear of Muslims is RATIONAL”. I wonder what will be in store for the Middle East now that Flynn is now a national security adviser. Fortunately, he doesn’t seem to be too trigger-happy, as he describes America’s reliance on drones as a “failed strategy” that just fuels more conflict.

In short, these are the three appointed cabinet members by Donald Trump. If there’s one thing you can say about Trump’s new cabinet members, it’s that they are vastly different from their predecessors, in both ideals and background. With the desire for change being so lauded throughout the elections, Americans believe that Trump and his posse will bring about a very different version of America. Many worry whether certain rights, such as regarding legal abortions, will be maintained, and with the current climate of American politics, these worries are well-founded.

Concordia cum Veritate – In Harmony with Truth

2016 Public Denunciation of University of Waterloo Korean Students Against Geun-hye Park's Government of the Republic of Korea

The chaos of Republic of Korea in 2016 is caused by President Park.

Park defines the Park-Gate Scandal as a singular event. The event is tragic, for the nation was deceived by a shadow cabinet led by a mere individual. The current turbulence in South Korea was foreshadowed from the beginning of Park's government in 2013 by a number of issues which disgraced the democratic spirit. As the lies and deception of the shadow cabinet are revealed by courageous presses, we, as a part of all 50 million Koreans, are eager for the day when all the truths are revealed.

Every hidden action of Park's government must be thoroughly investigated. Deception in state-controlled history textbooks, the disaster of Sewol Ferry, and the late Nam-ki Baek—who died after being hit by the water cannon used by police—are a few of the examples. On the basis of the school motto, "Concordia cum Veritate – In Harmony with Truth," the University of Waterloo Korean students adjure Park's government:

Grant the Freedom to Protest and Stop the Violent Suppression.

Let us remember the protest in September of 2014 when Park visited Ottawa. There, Koreans protested to passing of the law concerning Sewol Ferry. When the President's

guards tried to stop the protest, Canadian Police prevented it. "Don't touch them. You can't touch them." Freedom to protest is a constitutional right in democratic society. Abusing the executive orders, the government tries to stop the voice of the people and destroys the spirit of the constitution. Is the patriotism of the ruling party and government towards the people? Or is it towards the oligarchs? We insist that the government self-reflect on their actions.

The government must respect the right to protest and stop the violent suppression. Redeem the dignity of Nam-ki Baek, who was killed by police, and apologize. Imprison and investigate the police who are related to the violent suppression against the people.

Pass the Law Concerning the Sewol Ferry Disaster and Investigate the Incident Properly

Let us remember the students in Sewol Ferry. Their lives ended in the cold sea before they could bloom. At the time, Park promised a thorough investigation to the family of the deceased with tears. Not only did Park not keep the promise, she also dismissed the investigation team. Park heartlessly turned her face away from the victims. As the person in charge of the executive branch, Park must take responsibility and resign.

Strive for the Sincere Apology and the Proper Compensation for the Victims of the Comfort Women Program Ran by Imperial Japan During World War II. Also, Stop the State-Controlled Textbook.

Let us remember the history that Park attempted to distort. The history of our nation must be written as is. Park's government wrote the state-controlled textbook that hides and pushes aside the victims of the Comfort Women program by pursuing a shameful and covert agreement with Japan.

Retract the plans for state-controlled history textbooks, and investigate the roles of the shadow cabinet in the writing of the textbook and punish them accordingly.

Reflect the voices of the victims of the Comfort Women program during World War II, renegotiate the agreement with Japan for formal apology and lawful compensation, and teach unbiased history.

Reform the Prosecutor's Office. Launch the Special Investigation of the Park-Gate Scandal.

Let us remember the second line of the first constitutional amendment: "All the power and authority are from the people." Park has deceived the people by handing over the power from the people to a mere citizen, Soon-sil Choi. It is an unacceptable

crime which brutally destroys the democracy that our forefathers fought and sacrificed for. Soon-sil Choi, President Park, the ruling party, and the oligarchs have selfishly satisfied their own interests. They must pay for the price of their crime through a proper, full, and thorough investigation. However, prosecution, and who holds the right to investigate and push for prosecution, cannot be trusted as shown in the pictures published by media. The prosecution ought to investigate without sanctuary so that all truth can be revealed.

We, as students of the University of Waterloo rooted in Korean ethnicity, pronounce that we will fight together in Canada with those who act to protect the spirit of the constitution, the fundamental basis of Republic of Korea. Based on the university motto, "In harmony with truth," we will stand together. Though we are far away, we pray for our friends in the streets of Korea, raising their voice. We will continue to work in good faith until the wrong deeds are revealed. We adjure again. Resign, Park. Dismiss the ruling party. Investigate Park-Gate Scandal openly. Investigate the truth behind Sewol Ferry. Protect the democracy of Republic of Korea.

University of Waterloo

Korean students against President Park
9 November 2016

Background on the South Korean Scandal



DONOVAN MAUDSLEY
3A MECHANICAL

With the majority of the world fixated on the presidential election in the US over the past few months, few have heard of the scandal on the other side of world. South Korea's presidential palace, affectionately known as the Blue House, may soon become vacant. President Park Geun-hye has been widely accused of corruption and her resignation is demanded. The people of Seoul have taken to the streets four weeks in a row now, and brought the downtown core of the city to a standstill. Organizers of the rallies have estimated around 500 000 people came out on November 19. The police have stated that these numbers are greatly inflated, but the pictures of the rallies speak for themselves. It looks more like New Year's Eve in Times Square than a November night in Seoul.

The scandal revolves around the relationship between Ms. Park and her close friend Choi Soon-sil, but the foundation for it goes back decades. Ms. Park is the daughter of the late Park Chung-hee, a military leader-turned President who established the current era of South Korean democracy through a coup in 1961. Under his leadership South Korea was rapidly industrialized and the economy was greatly strengthened. When Park took power North Korea was by far the more successful country. The resources and support of the rest of the communist bloc meant that North Korea's industry was far more advanced than South Korea's. Park doubled down on South Korea's relationship with Western powers like the United States and West Germany. South Korea's military presence in the Vietnam War was second only to the United States. Germany relied on foreign labour, such as mine workers and nurses, from South Korea until 1977.

The economic growth in South Korea started slowing in the 1970s, and the population became disenfranchised with Park's autocratic rule. Freedom of speech and freedom of the press were virtually nonexistent. The Korean Central Intelligence Agency (KCIA) had wide

powers of arrest, detention, and torture which were used extensively on Park's opponents. In 1974 a man fired at the President during a speech in Seoul and struck the first lady, Yuk Young-soo, who died later that day. Park Geun-hye, who was 22 at the time, returned from school in Germany and began acting as her father's de-facto first lady. It was at this point that the base of scandal began to form. Choi Tae-min, the leader of a pseudo-Christian cult and the father of the aforementioned Choi Soon-sil, approached Ms. Park saying that her dead mother had visited him in his dreams. A KCIA report from the time states that Mr. Choi was acting on supposed wishes from the late first lady. Choi Tae-min became a mentor to Ms. Park during her formative years and an advisor to the President.

After several unsuccessful attempts, Mr. Park was assassinated in 1979 by his close friend Kim Jae-gyu, the chief of the KCIA. Kim stated during his trial that one of his motives was that the President had failed to stop the development of the relationship between Ms. Park and Choi Tae-min. Kim

was hanged in Seoul in 1980.

Ms. Park and Mr. Choi remained close until his death in 1994. Many have claimed that Mr. Choi is the "Korea Rasputin", manipulating power while never holding it. Documents leaked from the U.S. embassy in Seoul claim that Mr. Choi "had complete control over Park's body and soul during her formative years". After his death Ms. Park remained close with Choi Soon-sil.

Ms. Park has been an elected member of the South Korean government since 1998, and was the Leader of the Saenuri Party from 2004 till 2006 and again from 2011 till 2012, before being elected President in 2013. The first real trial of her Presidency came in 2014 after the sinking of the MV Sewol, a passenger ferry, where 292 passengers, 3 crew members, and 2 rescues divers lost their lives. The captain, who by South Korean law was required to remain with the ship, was one of the first onto the rescue helicopter. Many allege that lax regulations set by the Park administration led to the tragedy. Rumours of a secret seven-hour meeting immediately after the incident

between Ms. Park, Ms. Choi, and Ms. Park's chief of staff quickly emerged. Ms. Park's approval ratings plummeted from around 71% to near 40% within weeks of the incident.

Fast forward to 2016 and accusations of corruption begin to erupt out of Seoul. Many allege that Ms. Choi has been responsible for much of the decision making and governmental policy since Ms. Park took office. The documents leaked from the U.S. embassy also state that Choi Soon-sil and her family have amassed wealth due to her proximity to Ms. Park. The President's approval ratings took another plunge in October, falling to around 5%. Choi Soon-sil returned to South Korea on October 30 and is facing prosecution. She told reporters on October 31 "Please, forgive me. I'm sorry, I committed a sin that deserves death".

Ms. Park has also apologized for her part in the scandal, but so far has refused to step down. With hundreds of thousands gathering in the streets every week to demand her resignation though, it is very likely that her stay in the Blue House will not last much longer.

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Point Vs. Counterpoint

Is the Electoral College Good For Democracy?

POINT 

DAVID PARK
ELECTRICAL

“Democracy died today,” I told my friends soon after I learned that Mr. Trump won the US election. It was a fine day, but all turned upside down at that very second.

I thought Clinton would win for sure. Who in their right mind votes for Trump? Apparently, many people did so. Slightly less than half of the country voted for Trump. Trump is sexist, racist, criminal (he did not pay his taxes), and cynically populist.

There was the problem with his campaign slogan too: “Make America great again.” America grew by drinking blood from others. Isn’t it due to western imperialism that the world is in this mess? Trump is suggesting to go back to the times where America manipulated the world for their own benefit. The slogan is the pinnacle of selfishness, and people voted for it.

Sadly, this trend of being selfish is not limited to the US. Look at Britain, for example. Earlier this year, the UK decided to leave EU. Behind the Brexit movement was a racist, white supremacist group. It is not just Britain. Right-wing extreme groups are gaining power in Europe, including countries such as Sweden, Germany, and France. In the Middle East, there is the problem of Daesh, and Asian countries suffer the similar problem. The Chinese government oppresses Tibet. In South Korea, more than 30 percent of the people voted for the ruling party who are continuingly led by the daughter of a strongman.

Here is the conclusion: The public is not always just.

Not only people are always not just, but they are also easily misled. In psychology, there are phenomena called blame validation and excuse validation. In essence, people perceive evidence as they see fit: They will use a piece of evidence to blame someone if they do not like a person. They will also excuse people they like, no matter how much evidence shows up against that person, by saying that their actions are not blameworthy.

It is what happened in the election: People have excused Trump for his misdeeds and blamed the Obama and Clinton administration for every unfortunate outcome.

Let’s start with Trump’s mishaps. Remember the “locker room talk”? Trump was openly acknowledging and boasting about his “ability” to grope women and mistreat them. Numerous accounts and witnesses all condemned Trump, yet his supporters did not seem to care. Rather, they all defended Trump’s action, and some of them even said that his past actions are not related to his ability to lead the country.

Now, let’s talk about blame validation. Trump claimed that Daesh was established due to Obama withdrawing the troops that were stationed in Iraq. However, how many know that Obama was merely following the agreement negotiated between Bush administration and Iraqi government? People refused to acknowledge the facts with Trump. Not only that, there is the whole issue of Clinton’s email scandal. The justice department and the FBI announced numerous times that although it was a mistake on Clinton’s part, the

actions were not serious enough to press charges. However, people seemed to take it as a world ending event.

All these indicate that the rule by the public is not always a good option. Plato seemed to have a good idea on the matter. Plato was devastated when his teacher, Socrates, was sentenced to death. Plato dreamed of a state ruled by a philosopher king. The philosopher king is in love with wisdom, prudent in rule, and sophisticated enough to care for the other people. He saw the flaws of both democracy and oligarchy, and dreamed of a new system that is beneficial to all.

The founding fathers of US had a similar idea. They had a distaste for a mob ruling a country, so they insisted on a system called “Electoral College” to safeguard against the mob-politics. In US, people vote for electors when they vote for the president. Then, the electors, representing STATES, gather together in District of Columbia (also known as Washington, D.C) later in the election year to vote for the next president. What is interesting about the system is that the electors can vote for a candidate that are not selected by the public. By going against the choice of the public, the electors can negate the negative effect of mob ruling.

Of course, the current Electoral College is broken. It inherits the problem with the first-past-the-post system. Except for a few states, the winner takes all the electors. By doing so, it does not properly represent the public, nor does it protects the country from mob rule. It seems that Trump will take the Oval Office. The electors, it seems, will not go against the people’s choice in each state, but conform to the people in each state. There is the possibility of faithless electors, who vote for the candidates they did not pledge to vote. However, they have never turned the outcome of an election. In the end, the current Electoral College system neither properly represents the public nor corrects the people’s wrong choice.

However, when it is fixed, it can be of great advantage. Remember, Hitler was elected. Duterte was elected (and his extrajudicial killings cannot be justified). The current South Korean president, who handed the power to a mere civilian, was elected with the help from “concrete supporters” (30% of the total population supports the president whatever the circumstances are.).

In France, a right-wing extremist was almost elected to be president. Are we safe from our choice? Are we safe from our actions? Do we not need the guidance of philosophical kings?

Of course, had it not been for the Electoral College, Trump would have not won. Hillary still won the popular vote. However, the problem remains: What would happen if more people fall for the propaganda?

I used to believe democracy is the most just form of government. Now, with the victory of an unsophisticated, sexist, and racist president, I am not sure. The public made an unjust choice. Now hate crimes are on the rise. Democracy is dead, and maybe it is time to accept that the public is not always just, that we may need a working Electoral College system to safeguard against our actions.

CAMERON SOLTYS
3B MECHANICAL

The US system of government is a long-established one. Its constitution came into force in 1789. That constitution included Article 2, which established the powers and procedures for the President, the head of state. Within this article, the existence of the Electoral College is ordained. While this body has been changed by several subsequent amendments—notably the Twenty-third which gave the District of Columbia (D.C.) representation in the Electoral College—its purpose remains the same: to be elected by the citizens of each state and to elect the President and Vice-President of the United States.

The Electoral College is made of 538 electors. Each elector represents a state, with the number of electors allocated to each state being equal to the combined number of federal Representatives and Senators elected by said state. (D.C., which has neither Representatives nor Senators, is allocated three electors) During each federal election, citizens vote for who they desire to become president. Based on their response, the state appoints electors who promise to vote in favour of the population’s desired candidate. In 49 of the 51 states-plus-DC, these representatives are appointed on a winner-takes-all basis; if a 51% majority of the population prefers one candidate, the state appoints all their electors to vote for said candidate. In Maine and Nebraska, the electors are decided based on the vote in each congressional-district (similar to a Canadian riding), with the two extra representatives they receive due to their two senators being decided by the state-wide popular vote.

The Electoral College is a confusing and unproductive mess that could and should be removed from the US election process. At best, it is an unnecessary level of bureaucracy that can only cause problems due to its members’ ability to vote against their constituents will. At worst, it is a system that completely marginalizes much of the voting population through its winner-takes-all stance, the creation of swing states, and the lack of representation in the nation’s various territories.

One reason that the Electoral College should be removed is that it allows a presidential candidate to receive the majority of the Electoral College vote without winning a majority of the vote. Since each state (except Nebraska and Maine) awards all their electoral votes based on the majority vote, a state that overwhelmingly votes for one candidate does not result in more support than an equally-represented state that votes marginally for another candidate. In this case (assuming a two-party system), the first candidate receives 75% of the popular vote, but only 50% of the Electoral College vote. To be fair, this is an issue with all “winner-take-all” systems (including Maine and Nebraska, where the process is performed on a congressional-district level). “Winner-take-all” systems can be infuriating in general, but it is especially the case in the Electoral College where each state already has at least three representatives that they could integrate into a proportional-representation scheme election.

Due to the winner-take-all system—and especially because most states offer homogenous, sometimes enormous, representation in the Electoral College—the US presidential election focuses on a few “swing states” that have near-parity in voter opinion of the candidates (or, frequently, the parties). In these states, intense campaigning, especially of minority groups that can be swayed to one candidate or the other, occurs. Non-swing states, which are firmly in one camp, do not receive attention because their vote has already been, in some sense, decided. This is very unfair to

COUNTERPOINT 

all the voters in the non-swing states, whose opinions do not have to matter to the presidential candidate.

Even supposing that swing states are not an issue, the winner-take-all system causes the votes of the losers—and, in some sense, the winners—to be meaningless. It does not matter how much support the losers mustered; they receive no representation for their effort. While the citizens of the state who voted for the winning side are undoubtedly elated that their entire state’s representation is going to their desired candidate, many of their votes did not matter either; once a majority is reached, all additional votes for the winning party are as inconsequential as the votes for the losing party, since they have no effect on the outcome of the election. Thus, in any election of the Electoral College, exactly half of the votes have a meaningful impact on the election, the other half having none.

In addition to providing extremely poor representation to the people of the United States states, the Electoral College categorically provides no representation to the various US territories such as Guam, among others. Despite this, the policies and decisions of the president have an enormous impact on the people living in these territories. This lack of representation is very undemocratic, and it has lead Guam to perform a straw poll each election to raise awareness of this unfairness.

It has now been established that the current Electoral College system is undemocratic, denying legitimate representation to large sections of the US population. These issues could, possibly, be fixed. However, this is an arduous task that is simply unnecessary; the Electoral College is an entirely unproductive layer of bureaucracy in the modern US political system. The electors have only one mandate: to vote in the election of the next president. The Electoral College is like a personification of the people’s opinion, their votes needlessly given a physical body. Admittedly, there is one way in which an elector differs from a sheet of paper with a presidential candidate’s name on it; the Elector is not required to vote per the will of the constituents they represent. While this wholly undemocratic process could be fixed by yet more overhaul of the system, the result of this effort would be to turn the Electoral College completely into what this essay just accused it of being; people’s vote personified by a layer of bureaucracy.

One argument made in support of the Electoral College system is that, should a presidential candidate die between the casting of the public vote in November and the Electoral College vote in December, the Elector can vote for a still-living candidate without requiring the entire nation to return to the polling booths. However, this particular contingency could be fixed by acknowledging political parties as a legitimate political institution and allowing the party of a deceased candidate to field a new candidate who would be entitled to the votes awarded to their predecessor.

The United States Electoral College is an irrelevant bureaucratic layer that does not have any effect on the election process, except possibly to subvert the will of the people. Its use of a winner-takes-all system, especially on a multi-representative state level, results in the existence of swing states. This results in virtual non-representation of people outside of the swing states, as well as many people within the swing states. What is more, even ignoring the system overhaul that ought to be done to replace the winner-take-all process, the Electoral College has no purpose except to forward the pre-decided will of the people. The few token roles that they do play, such as resolving the unlikely issue of a presidential-candidate death, are of little consequence and could be replaced.

Editor’s Note:

Point Vs. Counterpoint is a feature meant to stimulate discussion on thought-provoking topics. The views and opinions expressed here do not necessarily reflect those of the authors, *The Iron Warrior*, or the Engineering Society.

VP Finance



ABDULLAH BARAKAT
VP FINANCE

Hey everyone! As this term is slowly but surely coming to an end, this can only mean one thing. THIS IS MY LAST IW ARTICLE AS YOUR VP FINANCE! The end of a legacy is upon us, but I am proud to be able to call myself your incoming A-Society President. I have full faith in Michael Beauchemin, my successor, to carry the mantel once I am done, but that is yet to come. As for now, here is my final update as VP Finance.

Novelties has introduced a lot of new items this term, and will continue to do so for the foreseeable future. Since we have managed to sell a lot of our current merchandise, that just means that more money is rolling in and allowing us to make new purchases to cater to our students' needs. We have ordered a new design for the Novelties ceramic mugs, so if you are a mug collector like I am, that is definitely exciting news! More patches, shirts, and swag are on their way as we speak, and I have confidence in Katie Arnold (the B-Society VPOF) and Michael to keep Novelties up-to-date.

Under my term as VP Finance, my Student Deals Directors and I have managed to secure four new deals, with the

potential of one or two more before my time is done. One of my platform points was to expand the student deals portfolio, and I would like to think I have succeeded at doing so. As for the expansion of the C&D into Engineering 7, I have been working with Mary Bland, our business manager, on obtaining funding in order to fully furnish the new C&D once E7's doors are open. While not much funding has been obtained relative to how much we will need, the groundwork has been set and I will hopefully be working with Michael to make sure we are better prepared once E7 is here (even though I won't be here for the actual opening day #OldMan).

The sponsorship committee met on

November 13 and we were able to allocate the total amount of sponsorship funding for the term (\$10,825.25). The allocations were ratified by the EngSoc council and all of the student teams have been informed on the status of their funding. ECIF applications closed on November 10, and the decision on the allocations will be made on November 23 at the last Board of Directors Meeting.

Lastly, I just wanted to say that I am absolutely honoured and humbled to have been able to serve you, the Engineering student body, as your VP Finance for the past 16 months, and I look forward to the next 16 months as your EngSoc President!

The Last Internal Intermission



SARBAJOY MAJUMDAR
VP INTERNAL

Hey everybody, this is your friendly neighbourhood Sarbajoy again and this is the last time I am writing to you as an executive of EngSoc. I have had most of my events end and I am really glad that every event so far has either ended really well or has ended with a lot of new things we learnt as a society, which made us win either way.

I am first off, super thankful to everyone I have met through my role, be it an attendant of one of the events, my directors, my commissioners, or other directors and commissioners I have had the chance to meet.

Your patience especially was super appreciated because I have learned so many people skills from all of you that helped me become a better person every day. As always, I want to remind you all that all of you have the real power to make the engineering community be amazing, whilst the execs are here just to facilitate the process of helping you make our engineering community great. Thus, remember all the time that you as a person and your acts for the society/community have more positive impact than the role you hold. I like to think that a good number of you would still be friends with me even after I hang my VP Internal boots.

Secondly, I would like to reach out to people who have been unhappy with me, both within my team and within the community. I would like to let you know that

I apologize if we were unable to find the common ground of working for the best of the society in multiple communications. I do not expect many people to like how I ran my portfolio in the past 16 months, and I do not expect many people to even think of me as a good person after the 16 months. However, I still do believe that whatever I have done were for the greater good of the society, and especially to you individually, and I will continue to believe in that to this day. If you do have an issue with how I think, I am very open to discussions and you can always arrange time with me to discuss your concerns, and I promise to work for a common ground between you and me.

Lastly, I am super proud that Mariko Shimoda will be your new VP Student Life. To everyone who supported me,

please do continue to support her like how you have supported me and I know that she will be a great exec. To people who have hated me being an exec for past 16 months, please have an open mind and give Mariko a chance to prove herself before you deem her unfit for her position and I know that she will do well. Lastly, please give Mariko and the other execs the same chance to grow and learn from mistakes like how you have given my team and I.

As for what I am up to next, I am still figuring out stuff and may just opt for a fun 4th year. I would probably be a disruptive fourth year in the future engsoc meetings, and will try to still engage new people to be involved in EngSoc. I will still be around in the Engineering community, but maybe not as much as over the past 16 months. Adios :)

Teaching Award



JEFF GULBRANSON
VP EDUCATION

Every term, an instructor, lecturer, or professor in the faculty of Engineering who has done an outstanding job is selected to receive the Waterloo Engineering Society's Teaching Excellence Award. This award is given to an instructor who has exhibited immense dedication to ensuring their class's success, has employed unique and unconventional teaching methods, and has allowed opportunities for experiential learning in their classes. The recipient of this award is selected based on the quality and quantity of student nominations as well as data gathered from course critiques. This term, we are proud to announce that the winner of the Engineering Society's Teaching Excellence Award is Christopher Kohar.

When asked about the course he is currently teaching (MTE 204 - Numerical Methods), Mr. Kohar mentions that it's generally regarded as "just another math course" that the students are required to take to finish their degrees. He says he hopes to teach his students "something they can apply tomorrow", and it shows. All his nominations bring up a 6 hour help session that he held before the midterm exam, that continued past midnight into the day of the midterm. They also mention that Mr. Kohar is known for extending weekend help sessions and is always willing and excited to answer any student questions, within or beyond the scope of the course.

To make his course as relevant and interesting as possible, Mr. Kohar uses examples that are "tied to [his] own personal experiences in the Mechatronics program, co-op and industry experience within the engineering field." Mr. Kohar goes on to talk about his "open-ended design projects where the students pick

a project area that they want to explore with Numerical Methods", which are also noted as a highlight by students enrolled in the course. He notes that this allows students a greater sense of ownership over their projects, allowing for more growth and learning in the process.

Mr. Kohar also states that the most important aspect of teaching to him is mutual respect. He says that "respect is a two-way street and it is earned" and that "students are not 'just a number'". He mentions his own time in the engineering program, saying: "I still remember what it is was like to be debugging spaghetti code, soldering circuit boards with no sleep, and building projects hours before the due date", and then continues to talk about how he's always willing to sit down with his students, help them make it through stressful situations, and remind them that everything is going to be all right.

When asked about his inspirations, Mr. Kohar had a lot to share with us. Firstly,

his father, "a graduate of Waterloo Mechanical Engineering (1977), who introduced me to the world of engineering and taught me that if I do a job, I better do it right, and not to worry about the outside noise." He went on to also mention his faculty mentor Professor Sanjeev Bedi and supervisor Professor Kaan Inal, both of whom showed great support for his teaching. Finally, Mr. Kohar mentioned the Mechatronics Engineering students themselves, who have taught him more about himself than they will ever know.

Congratulations Mr Kohar, and thank you for your contributions to the faculty! Christopher Kohar's name will be added to the Engineering Society's Teaching Excellence Award Plaque located outside of the C&D in Carl Pollock Hall (CPH). If you have an instructor that you feel has done an exceptional job in making one of your classes engaging, interesting, and all around great, don't forget to nominate them next term for this award! Nominations are accepted every term!



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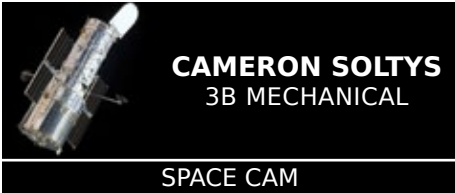
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JWST Construction Complete



CAMERON SOLTYS
3B MECHANICAL

SPACE CAM

On November 2, 2016, NASA Administrator Charles Bolden made an exciting announcement: the construction of the James Webb Space Telescope (JWST) is complete. If it is successfully launched—current plans are for October 2018—this NASA-lead joint American, European, and Canadian venture will be by far the largest space telescope humans have ever created.

The JWST is a project that is 20 years in the making, and one that almost didn't get made at all. It was initially planned for launch in 2014 at a cost of \$5 billion. However, cost overruns and delays caused the US House Appropriations, which oversees NASA's budget, to strongly consider cancelling the entire project in 2012. The combined work of many scientists and space enthusiasts managed to save the

telescope, moving the launch date to 2018 and increasing the budget to \$8.7 billion.

JWST is set to make amazing discoveries. In some ways, it is the successor to the spectacular Hubble Space Telescope. But in many ways, it is much more. For one thing, JWST will have a primary mirror that is 25 meters squared, seven times larger than Hubble's. For another, JWST will focus on observing the infrared spectrum of light instead of Hubble's ultra-violet/visible spectrum. This will allow it to make observations that simply cannot be done on Earth, with its infamously thermal-radiation-capturing warm atmosphere. Finally, JWST may be able to take images of the start of the formation of galaxies in the early universe and directly image large exoplanets around nearby stars.

With such an impressive list of expectations for JWST, it should not be surprising to learn that the spacecraft is an incredibly sensitive instrument. Every part of the craft—the mirror itself, the gigantic sunshield, and even the telescope's orbit—have been designed to give the sharpest, most sensitive images possible.

The mirror is made of beryllium coated

with gold. It comes in 18 hexagonal-shaped pieces because, simply put, the mirror could not fit in its rocket any other way. JWST will be launched in an Ariane 5 rocket, which has a palsy 4.57 x 16.19 m shroud. Once in space, the 6.5 m-diameter mirror unfolds. Just testing the mirrors' stability requires advances in interferometry; the designers need to know that the mirrors will not distort or shift during launch, so they used an interferometer to find the centre of curvature of the mirror before the rigorous flight-simulation tests. Once the testing is complete, the test can be performed again and the results of the two tests can be compared. However, the nanometre sensitivity required is so precise that slight vibrations caused by benign sources such as people talking can throw off the readings. To combat this, a special interferometer that samples at 5000 Hz—faster than the obfuscating vibrations—was developed.

The sunshield represents a second painstaking effort to keep disturbances down. Since JWST is an infrared telescope, its readings can be disturbed by its own heat. To combat this, a

multi-layer tennis court-sized sunshield is installed on the back of JWST. With this shield, it is hoped to keep the temperature of the telescope at 50 K. Even the heat generation from milliwatt-consuming electrical components on the far side of the sunshield was taken into consideration.

In the same vein of producing the crispest images possible, JWST is placed into a very particular solar orbit near the Sun-Earth Lagrange 2 (L2) points. This is one of five special "Lagrange Points" between any two large orbital bodies. Generally, the orbital period of an object increases with the increasing radius of the orbit. However, at these special points the combined gravity of the Sun and Earth (or any other two bodies) causes the small body to orbit at the same speed as the other two objects orbit each other. In the case of JWST, it will be located beyond the Moon, with the Earth and Moon between itself and the Sun. It will perform an 800 000 km "halo orbit" around L2 so that it the Moon or Earth will never eclipse the sun, causing the satellite to lose power.

Continued on Page 16

I Hope You're Good at Swimming



ANIKA ROLLER
1A ENVIRONMENTAL

LEAFY THOUGHTS

At a young age, I have learned from my mother that when packing groceries, you pack the cold items with each other so that they can stay as cold as possible for as long as possible. We did this – and still do it – as a way to keep things from melting. And so, due to this practice, I came to a very clear realization that melting is bad. Whether it's a small container of ice cream, or something slightly more significant,

like the Greenland Ice Sheets, I know it's bad (with the Ice Sheets being worse).

This melting Ice Sheet covers about 80% of Greenland and is a relatively large store of fresh water. This ice is melting at an increasing rate that may result in your grandchildren – maybe even your children – having to kayak across Greenland rather than walk.

Jason Box, a professor at the Geological Survey of Denmark and Greenland, says that even if the climate does not increase any more, "Greenland is going away." With the extremely fast melting rate, it's hard to imagine that the ice sheet can be fixed. At one of Box's weather stations, the equipment shows how intense the melting process is. Just 5 years ago, the hose

part of the equipment was buried 30 ft. in the ice. Now, it lays flat on the surface, no longer frozen in place.

Furthermore, this past summer, the conditions in Greenland were so warm and dry that the temperatures reached an average of 2 degrees Celsius higher than the ordinary summer. This high temperature melted the ice to so much of an extent that a dark, older, interior ice has been revealed. The total sum of melted ice in Greenland throughout June, July, and August of 2016 is 36 million square kilometers. Though some may say that this is average for the past decade, it is still significantly higher than the amounts of ice that typically melt compared to the last 100 years. When comparing 1979 to

2006, just 27 years, the summer melting of the Greenland Ice Sheet has increased by 30%.

The melting of this ice is such a real and proven problem, it is a shock that there has not been much to fix anything. This is likely because it is hard to accept the facts, as the damage has not necessarily come from us, but it is imperative that we acknowledge the evidence that we have and do something with it.

It will always be easier to ignore intimidating issues such as climate change, make claims that it is a hoax, or even chose to think that it is completely natural for an ancient body of ice to be melting, but it will also always be easier to walk, bike, or drive across Greenland rather than swim.

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Discover Broadway: Putting the Best Foot Forward in Kinky Boots



TIFFANY CHANG
1B CHEMICAL

DISCOVER BROADWAY

Welcome to another journey through the sights and smells of the Great White Way—better known to the rest of mankind as Broadway! I hope to share my passion for music theatre with everyone in engineering, especially some shows that may be lesser known, or better yet, get you hooked on the catchiness of showtunes or obsessed with their reflection of certain parts of reality. Last time, I took you behind the scenes of *Hamilton: An American Musical* to honour the premiere of *Hamilton's America*. This issue, we'll be visiting what I think is a really upbeat musical, which I hope will motivate you as you start preparing for finals and inspire you to appreciate "the most beautiful thing in the world" (whatever it may be, in your perspective).

Welcome to the world of Lola through

the lens of *Kinky Boots*. This show was based on the 2005 film of the same name by Geoff Deane and Tim Firth, which was based on a true story. Cyndi Lauper wrote the lyrics and music, while the story was written by Harvey Fierstein.

The *Kinky Boots* story follows the protagonist Charlie Price, who inherits a nearly bankrupt shoe factory called Price & Sons from his aged father, who suddenly passed away. In order to save the business and preserve his family's legacy, he forms an unlikely partnership with cabaret performer and drag queen Lola. Their only hope of saving Price & Sons is to show off a unique design at a prestigious footwear show in Milan: what they refer to as "kinky boots", since—according to Lola—"the sex is in the heel".

The intriguing thing about *Kinky Boots* is that it isn't the type of musical that typically draws my attention. However, I will admit that its name was the first thing that caught my eye. I also greatly appreciate art that reflects reality—especially when it is based on historical events—so I immediately gave it a shot when I learned

that it was based on the true events behind the near closure of W.J. Brooks Ltd., a family-controlled shoe factory in Northamptonshire that was saved by Steve Pate-man.

Besides Lauper's intention to preach sexual tolerance in an uplifting fashion, it also touches upon other issues that may hit home for a lot of us.

For example, some of us may study engineering for the sake of carrying on the family legacy or in the hopes of starting one—much like how Charlie gives up his dream of the glamorous London city life and returning to Northampton to save his family's company. Let's admit it: engineering isn't easy, and being proud of continuing or beginning upholding the family honour in engineering is admirable.

The partnership and eventual friendship between Charlie and Lola is interesting to watch develop, too. As different as they were on the surface, through their duet "Not My Father's Son", they learn that they are facing similar situations. Both of their fathers had very different expectations of them and did not approve of their

life choices. For me, as important as it is to have my parents' approval for everything that I do, it is important to recognize the numerous differences in our philosophies which stems from the difference in age, having grown up in a dissimilar era, and having been raised in North America versus Asia. However, with sufficient communication (or in the case of Broadway, singing—obviously!), we can at the very least understand, accept, and appreciate our differences in perspective.

That's it for now! I hope that you give *Kinky Boots* a shot and are hyped by its hopeful messages.

As for this column...well, I'm back on a school term in Winter 2017. I definitely want to continue this column; however, I may tackle it from a different light. Instead of exploring a different musical each issue, I might tackle some musical history, composers who have made significant contributions to Broadway, etc.

Thank you for having followed Discover Broadway for a semester! I hope that you fell in love with at least one of the four shows that I brought into the spotlight.

Raptors' New and Old Start Season in Style



ELIZABETH SALSBERG
3B NANOTECHNOLOGY

THE BENCHWARMER REPORT

Basketball fans! The Toronto Raptors returned to the court this past October, and what a return it has been. The new kids on the block have been impressive, with rookie big men Pascal Siakam (power forward) and Jakob Poeltl (centre) enjoying more playing time than expected early on. Sophomores Lucas Nogueira (centre) and Norman Powell (guard) have also been major contributors of late, seeing more time on the Raps' second unit. Superstar guard DeMar DeRozan is tearing up the NBA, having scored 30 or more points in 10 of 12 games. Ranked #46 in the top 100 NBA players by Sports Illustrated, DeRozan has more than disproved this grossly false ranking. The team has combined for an 8-4 record, with three of those losses coming at the hands of the NBA's best in the Cleveland Cavaliers and Golden State Warriors. All things considered, this is an impressive start to the season despite currently ranking fourth in the East.

The Raptors navigated through a particularly tough stretch of their schedule this week, facing the Cleveland Cavaliers and the Golden State Warriors on a back-to-back before heading out for an easier tilt with the Denver Nuggets merely a day later. The Cavs and Warriors could face one another again in the NBA finals (for the third straight year), so dropping both games was by no means unexpected. In 2015, the Raptors gave the Cavs a run for their money in the Eastern Conference Finals before bowing out in six games. The Raptors are expected to get just as far this year. If they can stay disciplined defensively, there is no reason to doubt they will give LeBron et al. a hard time or even *gasp* finish them off this time around.

Though the rim-protecting play of Bismack Biyombo (now a very rich man) is missed, he is replaced by emerging big Lucas Nogueira; through less than 12 games, Nogueira is averaging just shy of 2 blocks per game. Like starting centre Jonas Valanciunas, Nogueira has soft hands and is often the recipient of a sweet dish from point guards Kyle Lowry and Cory Joseph under the opposing teams basket. And boy does this guy ever throw it down—but not without jumping several feet first. Masai Ujiri

and his team emphasized patience with this young, developing player and it seems to be really paying off. This also bodes well for the development of newbie Jakob Poeltl, who has already shown significant promise particularly at the defensive end of the floor.

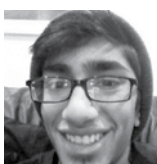
Now let's talk small(er) guys. Norman Powell has been sensational guarding the best in the NBA, including Russell Westbrook, Steph Curry and, yes, LeBron James. Comparisons to DeMarre Carroll can certainly be made. Norm's athleticism makes him a piece of work; he moves his feet freakishly fast while somehow staying in his opponent's face. Norm is feasibly capable of playing and guarding both shooting guard, and small forward positions. Improvements to his offensive game are still in the works but, nevertheless, we've seen him blow right by a fair number of defenders straight to tin. Between him and Carroll, good luck to you LeBron.

Point guards Kyle Lowry and Cory Joseph continue their notoriously reliable play of late, with Kyle averaging more than 7 assists a game. After a slow first three games which had the critics all a-raving, Kyle stepped on the gas. He's now up to 18 points a game. To the critics: a) Told you so,

and b) Kyle doesn't need to pitch in huge points since others around him can also score. Case in point: Valanciunas has more than 13 points a game. Terrence Ross has improved this year, pitching in 10 a game.

While this all very impressive thus far, further work is needed. The Raptors still lack the killer instinct needed to really finish off opponents. They have a messy habit of letting teams back into things after opening up leads, particularly in the middle quarters. As Dwane Casey recently put it, "We need to appreciate the 48-minute grind, and need to maintain our defensive mentality." It all goes back to defense. Though the Raptors have been averaging 109 points per game, that's with DeMar pitching in 33 a night. Realistically, one simply cannot expect this Jordan-esque level of production night in, night out. The defense needs to shoulder some of the load—meaning, they can't fall asleep on coverages, and pick and rolls, even if they're up by 10. Casey knows this and is undoubtedly working tirelessly to instill this in his charges. If they can make the adjustment to 48 minutes of defense, it won't matter if the ball's not falling; they will always have a chance to win. This will be critical down the stretch, particularly against the Cavs and in the playoffs.

Rubik Addiction



HASAN AHMED
1A NANOTECHNOLOGY

So since this is an engineering newspaper, I feel it is appropriate to talk about the engineering and performance of one of humanity's favourite inventions: the Rubik's Cube. The Rubik's Cube is a toy that dates back to 1981, where Erno Rubik created the cube for the masses. Since then, it has evolved into a standard toy for all kids and adolescents (at least, it should be).

Specially designed plastic pieces are interlocked together. Everything is based off the core in the middle, which has the 6 center pieces attached to it. This core is what allows the Rubik's Cube to turn in all directions. Then, the edges interlock with each of the centers to form a base. Finally,

the corners insert to finish the cube, and that encompasses the structure of the 3x3x3. So in total, that makes 6 sides with 6 different colours. Not only that, but there are a grand total of 43 252 003 274 489 856 000 permutations, and yet only one is correct (the solved state). Even though that may seem like a threatening number, chances are you're only going to see a small amount of permutations when playing with the cube.

Naturally, with all games and toys, people want to find out who's the best. Speedcubing has also been around since the creation of the cube. The top speedcubers in the 1980s had times ranging from 25 to 30 seconds; now, those times are considered to be at the beginner level of solving. Many methods of solving have been created in order to minimize times, but it's the cube that the speedcubers use that really help shave off those last few milliseconds.

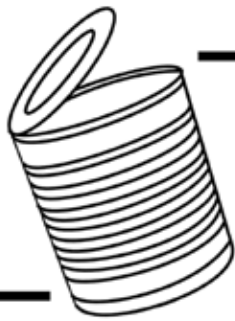
Of course, now that people wanted to

get fast at solving the cube, many companies sprung up making cubes that appealed to this market. Different types of plastics, springs, and interlocking mechanisms have been produced (especially in the last decade) to help build competition and promote speedcubing over casual cubing. The companies have been rapidly evolving, and they've been growing exponentially. Not to mention, cubes are relatively cheap and a very good investment, so if you're interested, now is the time to get a good speedcube.

Competitions have sprung over the world, and currently, an athlete named Mats Valk (considered by many to be second in the world) wanted to perform well at competitions with his own cube. After talking with a company, QiYi, they cooperated with him to build a cube that would fit his style and preference. Shortly after, Mats Valk and the new "Valk3M" went to a competition in Indonesia on November 6. Over there,

he broke the world record for a single time solve on a Rubik's Cube, with a 4.74 second record. It just goes to show how in just 35 years, the Rubik's Cube has become more than a toy for many people. The engineering of this product has improved so much in this time, and it's something that can be translated to all you engineers out there who want to work in industry in the future. Just take a page from the book of the speedcube, and apply it to your engineering career.

So, throughout this whole article, I've been raving about the 3x3x3 Rubik's Cube. I haven't even talked about higher order cubes (4x4x4) or weird cubes (megaminx), or even the speedcubing for those events. Feel free to Google them though, and be baffled at what these top tier cubers can do. For now, everyone should go pick up a cube at their local shop and start playing with this magnificent toy, and before you know it, you'll be hooked.



HOMER? YOU MEAN THE GUY WHO WROTE THE ODYSSEY?

MIGRANT CRISIS IN KANADIAN KITY

Murica Elects Pepe the Frog

Let's just give it a shot, see what happens

Groundbreaking Ceremony
for ICON's First Successfully
Installed Toilet

It is truly an ICONic moment.

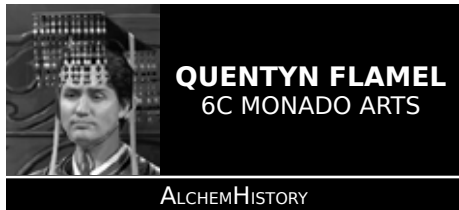
PCP: Should we have a PCP on
whether to have a referendum
about referenda?

Sponsored by WGRIP

Hillary uses Snapchat, because the messages delete themselves

Students vote for Jobmine reform

Do-It-Yourself Homunculi!



QUENTYN FLAMEL
6C MONADO ARTS

ALCHEMHISTORY

Welcome back, dear pursuers of the secrets to life and its expansion. It is I, Quentyn Flamel, great-great-great-great-great-great-grand-grand grandson of the ever celebrated alchemist, Nicolas Flamel. I have made it my goal in life to shed light on the recently shunned and horribly misunderstood science of alchemy. In this week's issue, I wish to discuss a personal favourite subject of mine: the often taboo but incredibly intriguing methodologies of humans creating human life, without all that "reproduction" mumbo jumbo. Yes, the creation of "little men", not the baby kind, but the homunculus kind.

Many falsely attribute the ideas of homunculus to such petty concepts as the mandragora, or root of mandrake. While the mandragora does have interesting properties when consumed as a medicinal ingredient, many foolish and suspicious believers mistake the human-like legs of the plants into being tiny human-like creatures, growing in the ground like babies in a womb. What silly thoughts, all plants grow in the ground, duh. Even in the Bible it is known that Mandrake has properties of curing infertility, and while yes

that is creating life and little men, it's the boring old "male and female intercourse" kind of life creation. How dull. Why would a man want to do such a thing with a woman, when he could create life all by himself?

Paracelsus knew the truth, for he was the first alchemist to properly realize that women could be eliminated from the equation, and life could be created with the life fluid produced by the masculine alone. As he wrote in his book [rough translation] "Putting the Celsius in Paracelsus: Cookin' up Homunculi":

"Place the sperm of a man, putrified for forty days, into a horse's womb, and feed it with the arcanum of human blood for forty weeks, and a human child grows therefrom, with all its members like a child born of women, but much smaller, and a lot weirder looking. Thereafter and it shall live for forty years until it is stabbed forty times by its comrades. In the back."

The creation of homunculus is not associated with necromancy, despite some uninformed beliefs, although the misinformation can be understood when other forms of life creation can be facilitated by the use of the recently deceased. Some alchemists might be impatient, and not wish to go through 18+ years of child rearing, petty arguments, and teenage angst with their self-conceived test-tube (or horse tube!) homunculi. Instead, why not have a fully-grown homunculus from the moment of life? You will

require a freshly deceased body in order to have a proper vessel for life, which are surprisingly hard to attain, even when submitting the proper paperwork for access to bodies donated to science, because Canadian legislature does not recognize as a true form of science... yet. The days of our obscurity continue, I am afraid. If your body procurement leaves you with a corpse with some major defects, it is perfectly acceptable to search for other corpses and to graft on superior components as needed. A thrifty tip: when looking at purchasing cadavers on the black market is to look for discounted bodies that are partially mangled or dismembered— you can often attain all necessary body parts more cheaply by buying in bulk, and maybe having some backup parts in case you accidentally drop your incomplete homunculus' head into a curing vat of mercury (I admit I could've found a better location for the mercury, but my basement is in dire need of renovations).

The final method for creating a homunculus is the not-so-easy bake method: if you have enough raw materials, you can combine them via transmutation to create a human vessel for your homunculus to inhabit. As a rough guideline, you will need 35 L of dihydrogen monoxide (read last issue's AlchemHistory for more about this fascinating compound!), 20 kg of carbon, 4 L of ammonia, 1.5 kg of lime, 800 g of phosphorous, 250 g of salt (a lower amount can be added to reduce

risk for hypertension), 100 g of potassium nitrate, 80 g of sulfur, 7.5 g of fluorine, 5 g of iron (adding more will not create Tony Stark, experiments have shown), 3 g of silicon, and traces of fifteen other elements to taste (try adding some radioactive compound to see if super powers result!). Once collected, you can either place the elements in gold vessels (which are transparent to alchemic transmutations) atop your transmutation circle, or if you are horrendously in dept like the recent alchemy undergrad I am, just dump everything on the floor at once and try to transmute it before the liquid components run around everywhere and/or you pass out from the thick fumes associated with the components. (Note from EdCom: Safety first frosch! Use a human-sized fumehood for all homunculus-related syntheses).

After any of the three methods of homunculus-making, you will then need to acquire a soul to put into your freshly formed vessel. This is, of course, entirely taboo and should never, ever be attempted lest you wish to be condemned to hell and/or purgatory (we aren't sure which it is yet), or accidentally mutilate yourself via the laws of equivalent exchange (which you actually may be able to pass off just as a laboratory-related accident).

Tune into the next issue of AlchemHistory when we delve into the much-requested and illustrious methodologies of chrysopoeia! Until then, dear readers: *εἰς τὸ πᾶν!*

A Review of Campus Food

Item 1: Teriyaki Dumpling Bowl With Rice

Dumplings are truly a gift from the gods. Every time I have the pleasure of eating one, I think of an old Chinese proverb: yǎ ba chī jiǎo zi, xīn lǐ yǒu shù – "When a mute person eats dumplings, he knows how many he has eaten, even though he cannot speak".

For this dish, I was blessed with the ability to watch its birth, from the very moment the dumplings were taken out of the fridge, to when they were tenderly placed in a crib of steamed rice and vegetables. I was even introduced to a novel idea for food preparation—microwaving! I watched in astonishment as the little bundles of joy spun to life in a matter of seconds.

Item 2: Oven-Baked Bruschetta

The Italians know how to do it best—make

good food, that is; namely pizza, pasta, and the lesser-known Bruschetta, an antipasto made with diced tomatoes typically served on toasted bread.

This bruschetta was unlike any other I've experienced in my 32 years of being a food reviewer. It was more than a meal; it was an experience. It was a transcendence, a passageway to a better place. First, the bun was thick, so much better than the thin, hard, unforgiving toast on which it is traditionally served on. The cheese—of a variety called 'marble' (how elegant!) smothered the tomatoes in melty goodness—like a warm hug!

Item 3: Chicken Shawarma Wrap

As a self-appointed expert in Levantine cuisine, I know my way around a good shawarma. It must be harmonious, as harmonious as the

Middle-East itself. The pita must wrap firmly around the fillings, like a passionate embrace—the pita must gently caress the meat, and in return the meat will offer a world of incredible flavour.

This shawarma wrap was no different—perfectly shaped, with just enough girth to satisfy a grown man such as myself.

By the end of it, I was left in awe, juices were dripping down my arms: a perfect blend of spicy seasonings and savoury sauce. What a masterpiece.

This journey has been a truly incredible one; it has changed me. I have ascended to a higher level. This Earth can no longer continue to satisfy me. I am thankful for all I have had the immense pleasure of consuming. I hope to find meals like UWaterloo's in the afterlife. Good-bye world.

Five Things You Want to Know

Names are unnecessary

You know those awkward situations when you meet someone? Ya, I hate those situations. Like come on, we're engineers here. Why do we have to meet people? And then they ask your name, which I have never understood the purpose of. I usually just stand there like "I have a name. My parents picked it out for me when I was born. It's a girl's name, too." And then they just stand there and I stand there and after a couple minutes of standing there, I remember my name and I tell them. And then they just walk away because people aren't supposed to take that long to remember their own name.

Cream is to coffee like sugar is to tacos

Imagine biting into a delicious taco, taste buds savouring the meat and salsa and melted cheese, only to find that it is sweet. What is this? Who would ruin a taco with such an abominable addition as sweetener? Blasphemy, I tell you, blasphemy.

This is the same as adding cream to coffee. It is, simply put, disgusting. Coffee was meant to be consumed black, no exception. If you are one of those strange individuals who ruins their coffee with cream, we can't be friends.

Dreams are easily confused with reality

Don't you hate when you go off on someone about something they did, but they didn't actually do it? Or when you don't print someone's article because you don't know whether they emailed it to you, or you just imagined it? Or when you postpone printing their comic for four issues? JK no I don't #NoRegrets

Why are you offended?

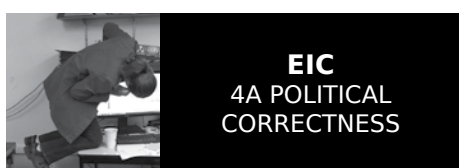
I guess you could say I have a high tolerance for rude humour. At least, that's one way of putting it.



PEPE LE GOURMAND
TROISIÈME ANNÉE

Having reviewed many Michelin-starred restaurants around the world, it was imperative that I visit the University of Waterloo after hearing such tremendous praise for its cuisine. After all, a food critic's job is never done until they find food so good, so fulfilling, so wholly gratifying that it allows them to reach an inebriating state of euphoria. Food so good it causes one to lose their will to live. Food so good it touches one's soul: that is what I have found here at Waterloo.

I tried many delicacies on campus, far too many to list. Instead, I shall provide a more cut-to-the-bone account of several meals I enjoyed.



EIC
4A POLITICAL CORRECTNESS

Running is good for your memory

Are you ever just walking to class, and you forget where you are? The world is spinning, your head is spinning, and you're only four cups of coffee into your morning. Take it from me: start running. It'll help with blood circulation, and you might even remember where you were supposed to be going. Even if you don't, at least you'll get there faster.

No One Will Read This Anyway



KIDS THESE DAYS
EDITOR-IN-CHIEF

SO... this is the part where I'm supposed to be profound for 1500 words. You got any idea how hard that is? I don't have time for all this thinking and shit. Sure, it seems easy when you get a thought that seems super promising, and go on a rant until someone makes you stop because it's 2 AM and you've had a bit too much. But when you actually sit down and have a piece of paper or a Google, it's a bloody pain. Why do you kids these days even read this, anyway? Go read a proper book or something. Why are you getting advice from some random 4th year just

because it's written in a newspaper?

Fine, subby's getting on my case saying I have to write something. As if you young people even have time for advice. Back in my day I would soak it up like a sponge. I caught every ducky the good Dean herself (All Hail!) threw my way. But nobody has time for that anymore. It's all reddit this, youtube that. What is a reddit anyway? Is that where all these frogs are coming from?

I'll have you know we work hard to get this paper out, and it doesn't happen any faster because we have to write a whole load of nonsense. If I had my way, we wouldn't have to write anything, the paper would be out that much faster, it would be a lot easier to read, there would be more pictures... you get the idea. But no, we just slave, slave, slave, and try to get some semi-decent stuff out for your

entertainment. As if you appreciate it!

Bah, I don't know why I'm even trying. Go look at a meme or something, that's all you people care about. That's what's wrong with the world these days - kids repeating things and thinking it makes them clever. I'll have you know, I never repeat myself! Never! Never! It's 1500 words of unique content every time, and everyone knows you kids don't have an attention span of more than 10. Would you like it better if I spelled everything wrong? Is that how kewl kids do it? I shudder to think of the day when the Tin Soldier drops its standards of grammar and spelling to appeal to you gang of overgrown babies. How did you even pass kindergarten, talking in acronyms the whole time?

Too lazy to even write the whole word... shameful. I've had it with all of you, wasting my time going on about how to do things when no one reads or does anything. I'm out!

I'll take my freedom now. I'm done with this whole "EIC" thing. What a thankless job! It's like herding cats while simultaneously charming a tone-deaf snake. While an actually deaf snake sits by and gripes. If you can't appreciate me, I'll show you.

Write your own editorials, in acronyms if you want. See if anyone ever reads that! Not even pictures of frogs will live up a wasteland of random capital letters. If you take my advice, and you never will, keep up these literary standards that have served the Tin Soldier for so long. But what do I know? I'm just some cranky old fourth year who is too busy with her FYDP to write a proper editorial. We're all going to the dogs together, my friends.



Surviving First Year



DUMB FROSH
1A PLUMBING

Hey guys! I'm an engineering student in 1A, and I think I've picked up a few good tips over this semester to pass on to anyone who might be entering next year or anyone in general. Even though this tip list is directed to 1A engineering students, anyone can follow these general ideas to make their Waterloo experience great.

1. First thing's first: learn all the acronyms. Whether it's the SLC, PAC, POETS, etc., you're going to feel like a foreigner if you don't learn these acronyms. If you want to ask me more about this in person, please ask the IW staff or contact me on FB, IG, TW, YT, SC, or find me in the QNC, CPH, DC, PPT, NaOH, or AAAAAAAAAAAAAAAAAAAAAA.

2. You know how people say to rely on alcohol in university? Absolutely garbage advice. You should be drinking red bull and coffee constantly to keep up with the pace of university. It only gets worse from here so you might as well get used to it. The constant anxiety and stress will be replaced with hyperactivity, so I guess that's better. But, if you keep this habit through your undergrad, you'll be able to afford the alcohol that you missed out on when you finally land a job. Either way, you're getting hammered eventually.

3. Be intelligent. Don't be dumb. Smarter people tend to pass courses more easily. If you can't be smart, be attractive, then the smarter people will help you out in hopes of you asking them out. But now that I think about it, if you were attractive, you'd probably be at Laurier, so this point isn't too important.

4. Start on that infamous fourth-year design project. Remember, FYDP can also stand for 'first year design project'. You might as well get a head start now so that you can relax in fourth year.

5. Touch the tool. You know you want to.

6. Something about geese because I haven't

beaten the dead horse yet.

7. Remember your parents pay a ton of money for you to go here, so don't mess up. Seriously, they'll be so mad at you. Like what were you thinking? Are you going to waste their money and fail out and be a bum on the streets? They're expecting you to do well, so don't disappoint them and be the failure child while your other siblings are under constant praise because of their lack of flaws. On the contrary, if you're paying for your own education, then feel free to do what you want, because it is (or was) your money. No pressure though.

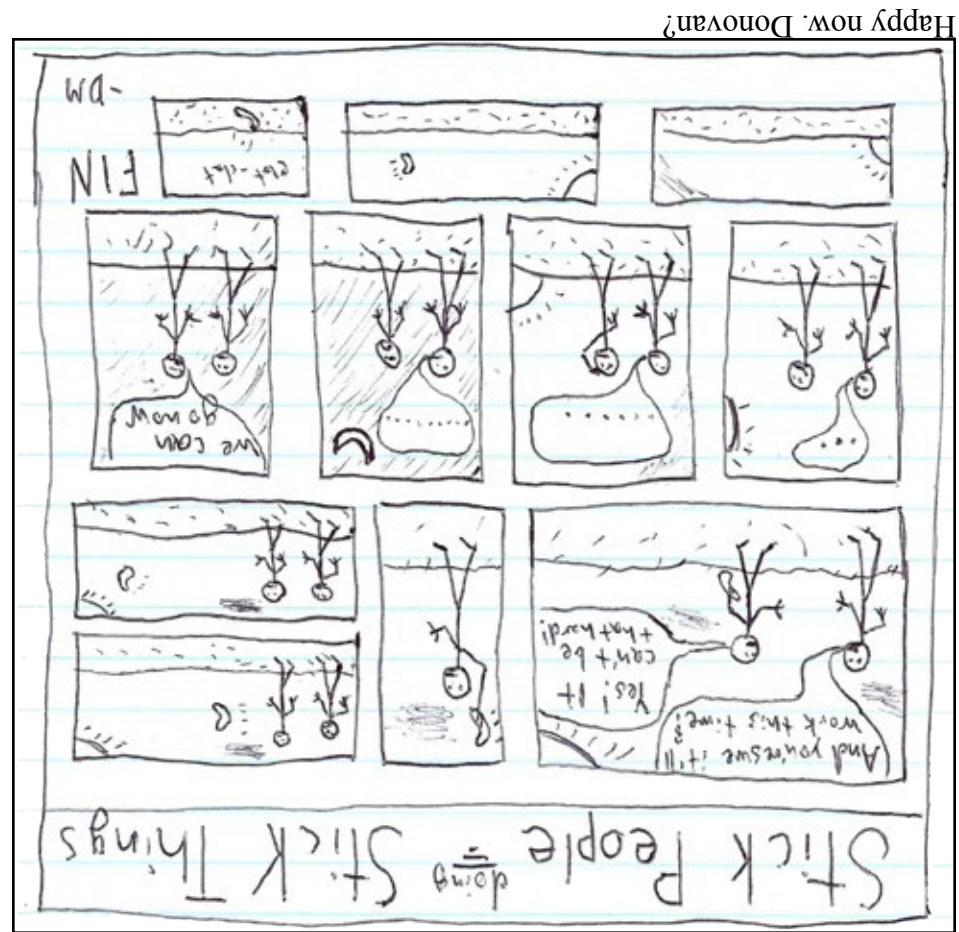
8. Studies say procrastination can help incubate an idea and lead to a better product in the end. Capitalize on this by procrastinating as much as you can and not doing your as-

signments. You're bound to have a creative thought eventually. If your professors say anything, get mad at them for not allowing creativity and free-thinking and call them communists.

9. I'd give a tip on finding a significant other if I could.

10. Have fun. Fun can sometimes constitute up to 15% of a course grade

And that's all I have! Next term I'll be back with a few tips on co-op interviews. I'll show you the best way of sucking up to your employer, resume examples via Google images, and suit coordination tips to give the best impression in your interview. Thanks to my friends Alex, Raeesa, and especially Mitch for helping me write this article.



Editor-in-Chief

Why can't anyone spell my name right?

Assistant Editor

Moves into the office
Sleeps once a week

Layout Editors

MIA
Swiss Orphan
How to edit masters?
How to layout the crossword?
WE DON'T HAVE ENOUGH CONTENT!... wait a sec... WE HAVE TOO MUCH CONTENT!!!!

Copy Editors

No, that is not the correct way to use "however"
For God's sake, we need you to edit
Why is nothing edited...
It goes "clause; however," get it?!?!?

Advertising Managers

Who?

Circulation Manager

Where have you been all term?

Social Media Manager

Gone with the wind

Staff Writers

I swear I'll print your comic next week
Mind your language!
Wow, you read like 5 books a week...
Just do LSD this time.
The Thing That Would Not Leave
When will your article be finished?
No really, I'll print your comic at some point!
I know your BFF abandoned you and broke your heart, but you still gotta write
You can't just come here for the food
Frosh replacing veterans

Contributors

You promised me an ad and just gave me a 150 word article :(
Congratulations, you've become a real staffer
Only in it for the soapbox

ADVISORY BOARD

Fell asleep
Wait, I gotta show up?
Sick with grief
Whatever, budget looks fine
Who needs quorum anyway.

Do you people actually do anything?

No, not really
What is your job?

O hai

Check for typos and controversy and shit

The Tin Soldier is not a forum for thought-provoking and informative articles, and has no association whatsoever with the Society of the Travelling Pants. Views expressed in *The Tin Soldier* are not those of the authors and do not necessarily reflect the opinions of Chuck Norris.

The Tin Soldier encourages submissions from students, faculty and members of the Non-Existent Action Committee. Submissions should reflect the concerns and intellectual standards of the Society of the Travelling Pants in general. The author's name and phone number should be included, except if they are non-existent. This information may or may not be posted on our website.

All submissions, unless otherwise stated, become the property of *The Tin Soldier*, which reserves the right to refuse publication of material which it deems too suitable. However we're so desperate for content that we'll likely take it (but we might just send it to *Imprint*). *The Tin Soldier* also reserves the right to edit grammar, spelling and text that do not meet university standards, but engineers suck at english so it's a low standard.

Mail should be addressed to PJ Katie, c/o YTV Canada, P.O.Box 7500, Paris, Ontario, N2L 3W7. We do not currently have a phone, however you may redirect all inquiries to Kickoff's, as we're likely there. We don't have a fax number as no one uses faxes anymore.

No, Not That President



PEPE LE GOURMAND
TROISIÈME ANNÉE

During my time as President, I've gotten to talk to the Faculty on numerous occasions about the new Engineering 7 building that's going up between E5 and E6 (to confuse visitors for decades to come). I'm honored to officially announce the plans for E8, E9, and E10. Each will offer facilities unique to various programs, as part of the Faculty's push for more hands-on experience for students.

First up, E8. It will house primarily Software engineering students, along with ECE and Tron. To prepare students for the harsh California climate, E8 will have an atrium full of sand, with heat lamps to maintain the correct temperature. The foundation will shake at random intervals to simulate earthquakes, allowing students to practice hiding under desks, a critical skill for any Cali co-op. Furthermore, there will be dedicated side-project studios for students to work on and improve their resumes.

Next, E9. This will be the new home of Chemical Engineering (E6 just wasn't cutting it). Similar to E8, the primary aim will be to help prepare students for co-op. This will include

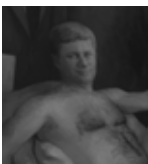
walk-in freezers throughout most of the building, to reflect the frigid winters of Alberta. Permafrost will provide the foundation, and make up each floor. Cowboy hats and boots will be mandatory in all labs, and exclusively country music will be played at the C&D. Unfortunately for those not from Alberta, the music will sound like the same song on repeat, so I recommend switching programs if not from out West.

Finally E10. This will be primarily for Civil and Architectural Engineering students. Rather than a traditional building, Waterloo has decided to innovate. E10 will instead be a bridge, connecting E8 and E9. Classes will take place outdoors, increasing the amount of sunlight en-

gineering students receive by a factor of 10. Be sure to stock up on that sunscreen for summer class, and bundle up during the winter! Waterloo has rarely been known to call a snow day, and no changes are expected, even with the addition of outdoor classes. Earthquake simulations from E8 may affect the bridge, so take care not to stand too close to the edge.

Thank you very much for taking a look at the upcoming Engineering plans, I hope you found something to look forward to. If you have any concerns, questions, or comments on the building designs, don't hesitate to pass them along to the incoming A-Society president Abdullah Barakat.

The VP of Int-A



STEPHEN HARDER
STILL UNEMPLOYED

Now this is the story all about how my life got flipped, turned upside down. And I'd like to take a minute, just sit right down, I'll tell you about how I became a prince of a place called A Soc.

In 2B management, promoted and raised, in the management lounge I used to spend all of

my days, chilling out maxin relaxing all cool, and throwing some coffeeshouses outside of school. But a couple of people were up to no good and started making trouble in the neighbourhood--so I ran for an election and people were scared, that they elected me as the Vice President of Int-A.

I begged and pleaded and got myself a commissioner, and he helped me get some awesome directors, and winter 2016 was definitely not a slip, except maybe for the ski trip.

Ski trip, yo, that was so bad. \$35 to Blue

Mountain, that was so rad. But everyone who went there came back alright, yet somehow talking about ski trips still gets me into fights.

And all the other faculties came and they say, hey eng is great and engs do many fun things, yippie yay. They say why can't we do more, but the FEDs says maybe it's time to go home. So I said I'll see what can be done, but at least everyone knew the VP of Int-A.

Fall 2016 came and a bunch of first years did too, and many people were unhappy about school. But I got 2 comms and bunch of direc-

tors, so the term fall 2016 was definitely not a disaster.

I whistled for my term to end, and when it came near, the tensions were high and we were diced every term, if anything I thought the term was unfair, but I was like forget it yo, it's the life of Int A.

I got one of my commissioners elected to replace me, and I yelled to her, smell you later. But I looked at my kingdom that I am finally leaving, as I will sit on my throne into the new EngSoc, which is known as the House of Sarb.

Think Up Your Own Goddamn Title



JAMIE HYMEN
SPELLING?

Hello all, and welcome to my last article as VP Education. I'd like to take this opportunity to pass along some final news from CECA.

First of all, all upcoming American co-ops have been cancelled until further notice. President-Elect Trump has cancelled the J1-visa program, which Canadian tech companies are hailing as a innovative decision. Over-

all, students are disappointed by the lack of warm weather and ping-pong tables at work as a result of the move. However, when asked if they would pursue opportunities in the US full-time, some were quoted as saying "Not for the next 4-8 years", "Is the Tin Soldier even a real newspaper?", and "No Inglés".

In addition, WaterlooWorks has been delayed. It appears that two new Javascript frameworks have been released this week, prompting Orbis Communications to perform a rewrite of the front-end. Also, in an effort to provide "web-scale" performance, the new database of choice will be MongoDB.

Despite the delays, I am told the final system will be worth the wait. With the elimination of manual backups by co-op students, 75% uptime will be a thing of the past.



In addition to the CECA updates, I'd like to pass along some news about Waterloo housing. The major housing companies have gotten together, and determined that the situation has gotten out of hand. Starting in January, 5 bedroom apartments will no longer be built. In fact, anything less than 6 bedrooms will be renovated to rectify the situation. The new norm will be 10 bedroom apartments, with a 10x10 foot combined kitchen

and common space. Developers will also stop selling units while the building is still being built. Instead, deposits will be taken before the land has even been purchased.

If anything I've mentioned speaks to you, I strongly recommend speaking to the incoming A-Society VP Academic, Pat Duong, or if you're here in the Winter, Andrew McBurney. They'd be more than happy to answer your questions. Please pass along any spelling or grammatical errors to them as well.

So long, and thanks for taking the time to read this all the way through. These 16 months have been one hell of an experience.

Upcoming Events Calendar

Wednesday Nov 23	Thursday Nov 24	Friday Nov 25	Saturday Nov 26	Sunday Nov 27	Monday Nov 28	Tuesday Nov 29	Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca/event-calendar/
Paper Published <small>Sometime</small> Ski Trip <small>8:00 AM - 11:00 PM</small>	Alpine Ski Trip <small>6:00 AM - 8:00 PM</small> Llama Petting <small>Fuck yeah</small>	Cross-country Ski Trip <small>Until we're tired</small>	Nordic Skiing <small>All day</small>	Ski Jumping <small>9:00 AM - 3:00 PM</small>	Telemark Skiing <small>Until the darkness takes us</small>	Freestyle Skiing <small>11:30 AM - 12:30 PM</small>	
Wednesday Dec 0	Thursday Dec 1	Friday Dec 2	Saturday Dec 3	Sunday Dec 4	Monday Dec 5	Tuesday Dec 6	 
Ski-flying trip <small>Why not</small>	Snowboarding trip <small>Forever, and ever</small>	Indoor Skiing <small>At POETS, because we couldn't get a bus</small>	Dry Skiing <small>Oh, baby</small>	Ski Orienteering trip <small>All aboard the Orient express</small>	Ski Simulators <small>We're living in the Matrix</small>	No Classes Time to study <small>11:30 AM - 11:35 AM</small> Grass Skiing <small>If we have grass</small>	

Point Vs. Counterpoint

How did NASA FAKE! the Moon Landing?

POINT

**SOUND STUDIO
ON EARTH**

Don't let the government lie to you anymore. We can see the truth. They thought that assassinating Lincoln could hide the FACTS! forever, however they were wrong. NASA never went to the moon. NASA could never go to the moon. The Nazis wouldn't allow it. They are not yet strong enough to return and begin the Eighth Reich, but they are strong enough to protect their new motherland. Look up at the sky, see the moon 10 times larger than ever before. The supermoon is here now. Why do you think it coincides with the "election" of the next face, the next front, of our communist-neo-radical mesocratic state? It is so the Nazis can put pressure on the agra-industrial complex to keep a reasonable person on the throne of the United State.

However I digress. Even if NASA had the power to overcome the military force that Hitler squirrelled away on the moon during

the Beer Hall Period (BHP) of 1910, the evidence of the Nazi infection should be obvious in these "moon" pictures. Where are the eagle droppings? Why are there no V-8 contrails in the sky overhead? Some argue that this is hidden in the "jpeg" of the official released photographs, and that the originals would clearly show the armies of destruction in the background. I,, however,, have had the opportunity to look at a png file, direct from a valiant truth-seeker working from within the System, and can confirm without a doubt that the moon's surface itself displays the "alleged" jpeg photo artifacts.

The moon landings were faked in a sound studio in D.C. Why else would the government have purchased a small warehouse in 1932 next to the Pentagon? Why was that warehouse demolished in 2014? To hide the sound stage. The cloud of white dust that filled the construction site was the grinding up of the "moon rocks so" that all evidence of the sound stage would be gone.

**SOUND STUDIO
ON MARS**

A careful analysis of the photographic and videographic evidence presented by NASA as proof that they successfully orbited, descended, landed, explored, launched, and returned to Earth has been performed. This study also considers the real and official performance of the Saturn 5 rocket, and the geopolitical ramifications of the alleged moon landings, particularly with respect to the Seventh Reich. This report concludes that it was not politically feasible for NASA to perform the moon landing. Furthermore, given the amount of fuel possessed by the Saturn 5 rocket and the visual evidence, the most likely location of the moon-landing recordings was Mars.

While poorly documented in the mainstream media, it is widely recognized in political and legal spheres that the German government-in-exile (more frequently "the Seventh Reich") has a fairly legitimate de-facto claim on the Moon. This was recognized as early as the Outer Space Treaty of 1967 which, while technically restricting the Moon from ownership by any nation state, did not outright condemn the Nazi occupation. Furthermore, modern legal interpretations of the nation-state, citizenship, and the initiation of imperial expansionist wars make it very clear that, even though the occupation is illegitimate, any attempt to disrupt the German lunar territory would be far less legitimate. Thus, it was completely impermissible for NASA to attempt a moon landing since it would lead to international condemnation.

This does leave the question of how the moon landing was faked however since it was obviously not performed on the moon. It is incontestable that the Saturn 5 Rocket was launched, carrying men to space; there is substantial personal evidence of this. Suggestions that the launch was real, but that all photographs were taken in a sound stage in D.C. near the Pentagon, are absurd; the number of people that would be required for this cover-up is so immense that it simply would not have worked. A much simpler explanation is that a secret CIA task force took control of the fabrication of the Saturn 5, installing LCD screens over all viewing ports so that the astronauts did not realize that they were not headed to the Moon, but to Mars. After landing on Mars, the astronauts were released into a robotically-build sound studio to make it look, both to them and to viewers on Earth, like the surface of the moon (obviously sans-Nazi paraphernalia, which the astronauts dutifully hid before taking their photos).

COUNTERPOINT

Editor's Note:

Point Vs. Counterpoint is a feature meant to stimulate shouting matches and draw tears. The views and opinions expressed here do not necessarily reflect any thought process, and the Iron Warrior isn't sure what to make of them, which is why we put them here instead.

Can't Do Brewskies Without Broskies


**ISEULT
3A TRAGEDY**

You haven't been the same, ever since he left. I've watched you struggling bravely, trying to hide the pain, but you can't conceal it from us.

He had been your drinking partner for so long, and you had drained many cups together - yes, together, in sorrow and in joy, with your mutual love for beer providing comfort in dark hours and pleasure in merrier ones. But it couldn't last forever, nothing

does, and one day he was gone. In the first few days, you grew pale and ill, and although you blamed the flu, we all knew that it was grief. Then, we stopped seeing you, but we never stopped looking for you. We needed you, and you knew it. So, slowly, you began drifting back. Sometimes you disappeared again, articles unwritten, but we understood. You can't write articles with a broken heart. And you never wrote a single word about beer again.

In the beginning, you said you would look for another partner, but slowly that quest faded away in everyone's mind. We stopped looking to you for guidance on craft brews. Whether every taste became

bitter to you, alone and bereft of your broskie, or if you just guzzled every drop down too quickly, the taste reminding you of happier times and the alcohol numbing the pain - that we never knew. We couldn't bear to ask.

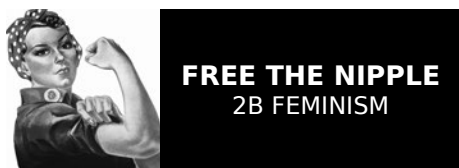
We do know that you walked like a ghost among us, and when we tried to find someone else for you, you mumbled excuses and left. It wasn't that there was a problem with the curious new fellow, or the eager young frosh; your heart belonged to someone else, and no one else could stimulate your taste buds or your pen. Beer goggles might help, we thought, but you never gave them a chance; it would do a dishonour to

his memory.

And in the end, you slipped away again, mourning in solitude. We rarely saw you, and when we did, you were drinking whiskey, not beer. His name hung in the room over us, and if we mentioned it, you begged us to stop. Everything was fine, you said. But it wasn't; we felt his absence in every article you didn't write, every drop of beer you didn't drink. Or did you drink, alone, your tears falling into the cup making it as salty as we were?

There was no proper memorial; only an image of beer glasses, lined forlornly against the sunset, with the words "Goodbye, Tristan".

Memoirs of a Strong Independent Woman


**FREE THE NIPPLE
2B FEMINISM**

2016 has been a year fraught with sexism, and it is getting worse by the day. We MUST take a stand. We women must band together.

First of all, will you BELIEVE men these days?? They think we are so incompetent,

which is incredibly degrading. For example, I, a perfectly capable human being, was walking on campus the other day when some GUY opened the door for me. Do I really look that weak? Who does he think he is, trying to show off those gains? I'll open my own door, thank you very much.

My friend had a very similar experience. She went shopping with her boyfriend for seventeen hours, and he carried her purchases the entire time! As if she cannot carry her

own goddamn shopping bags. I railed at him for grossly undermining her abilities, since she is a strong independent woman who don't need no man.

Facebook is also incredibly sexist, which is why I am encouraging all my friends to boycott it. Did you realize that they censor female nipples? They won't censor male nipples, or female breasts without nipples, or female breasts with male nipples. But you cannot post images of female breasts with fe-

male nipples. This injustice dumbfounds me.

Men are so unfair, and unrealistic in their expectations. Why should we have to cover our nipples? Or shave our legs, for that matter? Or armpits? I hate double standards.

Where is the justice? There is no way that the world can see themselves as tolerant, when such injustices exist all around us. No, this is unacceptable. We must tell men that we will make our own decisions. We do not need them. We do not need anyone.

If These Rocks Could Talk


**SEXMIC EROCKICA
2A GEO**

I remember the first time. It was you and me, sitting on the surface of our little planet. Nothing to do but cuddle close, looking out at sky. The only things around to see us were tiny organisms, inconsequential as ants. We watched them for a while as they worked tirelessly. They had a massive road network, cities that were a-bustle. So different from our relaxed forms, where we sat as if float-

ing on a great red ocean of love.

You started rubbing up against me. Slowly at first. Then slightly faster. Everywhere you touched me was getting hot. I was covered with water, like sweat from the heat of the day and the rivulets of liquid that flowed off of you. It was so hot. Everywhere you touched me, I melted. I could have stayed like that forever, in perfect bliss.

But the tension was mounting. I could feel it. You could feel it. Slowly it was growing. The rubbing became more vigorous. I found myself being drawn into the great red ocean, being sucked under. This was getting intense. I found myself... coming up. Now

we were beginning to rub in a place where we hadn't before. Your back started arching. You started straining. I kept rubbing.

More and more, we were contacting. I was still melting at every point of contact. I could see your every fault now, and you could see mine; there was nowhere to hide them. I began to push into you, driven by that ocean. Your back was arching more, a mountain. It was, if I do say so myself, the most spectacular mountain, the envy of any other.

You began to peak. Then you began to shake. I began to shake too. The ants, long forgotten, began to panic, running from near my sweaty skin towards your beautiful back.

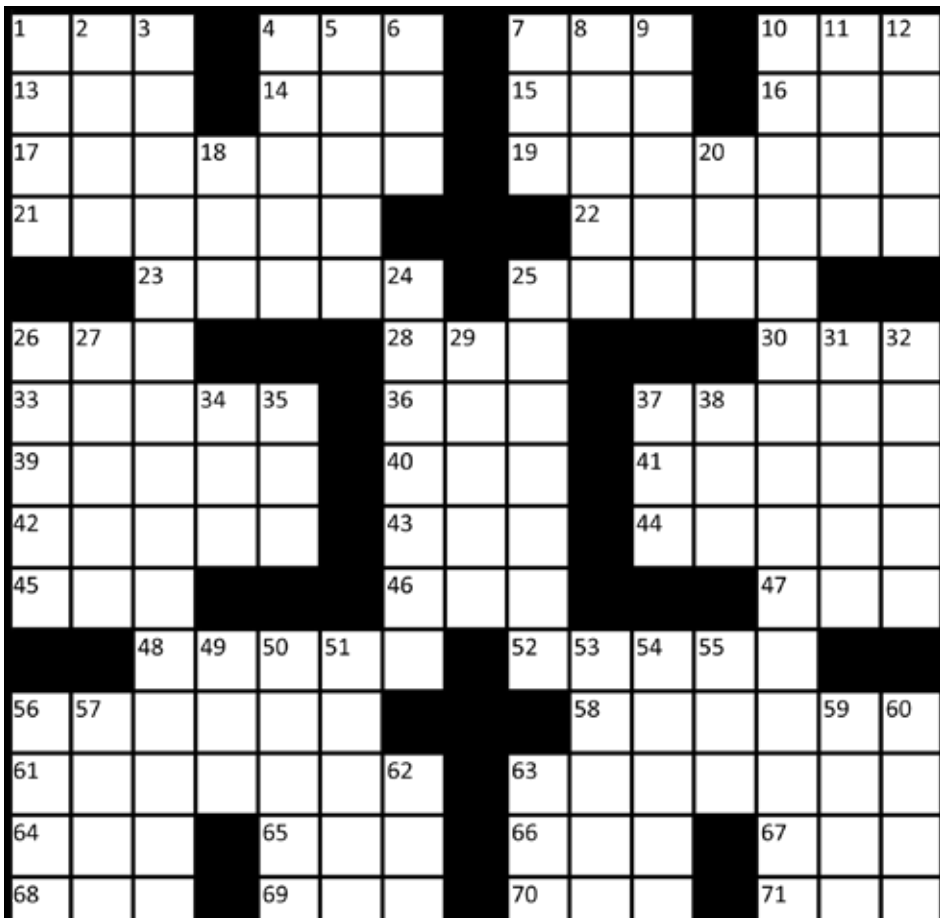
I could feel something growing. It was coming from deep within me. It was coming from deep within you too. And then it was there, between the two of us. At the surface. It was the product of our contact, and of the ocean of love. All the tension that had been building up was released. I shook violently. Fluids spewed high into the air.

We never learned the truth. But that eruption killed most plant life throughout all South Asia and most of the Oceania. I think it was worth it though because, a few million years and a few more tense episodes later, you gave birth to a mountain range greater than the Himalayas.

The Iron Crossword

Sportsball

CAMERON SOLTYS
3B MECHANICAL



ACROSS

- 1: Security agency of the Soviet Union (abbr)
- 4: Special effects (abbr)
- 7: Expensive international space project (abbr)
- 10: Less-damaging solar radiation
- 13: Visual sensory organ
- 14: Dream-heavy period of sleep
- 15: Single-stranded biological information storage (abbr)
- 16: French for "Lake"
- 17: Sorting, particularly by size
- 19: Second game
- 21: Also known as "football"
- 22: Lake ____, beautiful lake in Albert
- 23: Gained employment
- 25: Suffix meaning "living substance"
- 26: __ 5, empire-building game
- 28: Electrical and Computer Engineering
- 30: Consumed nutrients
- 33: Negatively charged ion
- 36: Definite article
- 37: Catholic evil-doer

DOWN

- 1: Barrels filled with beer
- 2: Greek pita wrap
- 3: Two vs two beach sport
- 4: Town ____, distributor of news
- 5: Category of artistic content
- 6: International Management Group (abbr)
- 7: Internal rate of return (abbr)
- 8: __'s law of refraction
- 9: First small-island nation in the Pacific to get independence
- 10: Sport played with a flying disk
- 11: Carpet-cleaning machines
- 12: Dull hurt
- 18: Official Wizards of the Coast tournament organization
- 20: Short for Australia
- 24: Notices
- 25: Accelerate quickly from a stop
- 26: Plant used to make coco
- 27: Neon or Xenon, for instance
- 29: Celebratory chant
- 31: Uses a shock-weapon
- 32: Spanish for "January"
- 34: Dream Link Entertainment (abbr)
- 35: 10 000 years
- 37: Dot dot dot, dash dash dash, dot dot dot
- 38: Discipline that applies learning theory to alter social behaviour (abbr)
- 49: Ontario tribunal for assessing incorrectly-classified properties
- 50: Classy dance
- 51: Prefix meaning "related to the brain"
- 53: kilogram or microgram, for instance
- 54: Three-word contraction meaning "untrue"
- 55: Resort centered around a spring
- 56: United States body that regulates farming (abbr)
- 57: Lunch or dinner, for instance
- 59: Abbreviation of "alternates"
- 60: Used for sleeping while camping
- 62: Part of the Freudian psyche
- 63: Homer Simpson saying

- 68: Every
- 69: Place filled with exotic animals
- 70: Tax paid on most goods in Ontario
- 71: Abbreviation for "Established"

DOWN

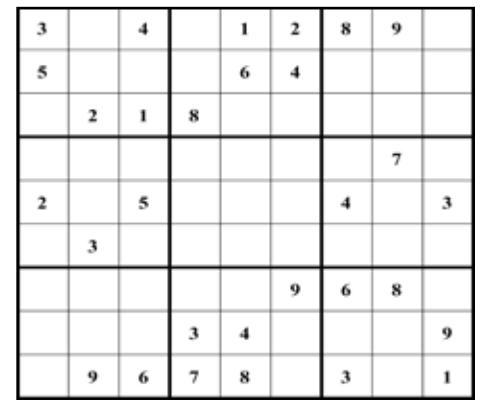
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Sudoku

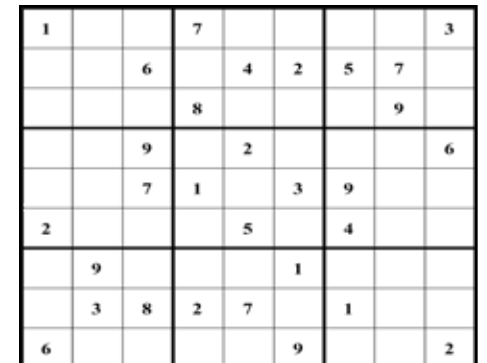
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CAITLIN MCLAREN
4A CHEMICAL

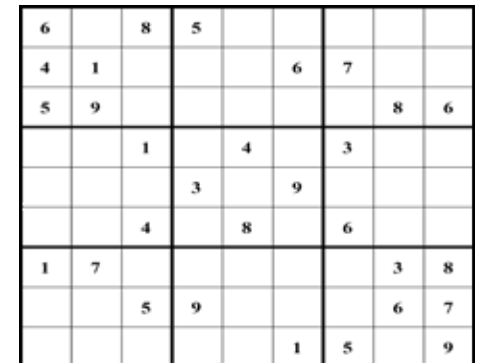
Medium



Hard



Very Hard



Solutions for previous crosswords can be found on *The Iron Warrior's* website at iwarrior.uwaterloo.ca/distractions.

THE IRON INQUISITION
Vince Magas, 3B Management

"What is your favourite pastime?"



"Sleeping."
Raeesa Ashique, 2B Electrical



"My birth. Best b-day ever."
Hasan Ahmed, 1A Nano



"Using facebook with textbooks open on the side."
Leander Rodrigues, 1A Nano



"Pika pika!"
Pikachu, Probably 1A Nano

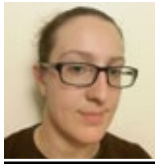


"Faking Iron Inquisition Answers"
Vince Magas, 3B MGMT



"Eviscerating my enemies."
Lemon Tree, 3A Enviro

Five Frightening Foodstuffs



CAITLIN MCLAREN
4A CHEMICAL

5 THINGS YOU DON'T WANT TO KNOW

Are you hungry? Of course you are; you're a student. Of course, being a student, you aren't picky about food. Everybody knows we just live on ramen and ketchup. Still, that isn't the strangest thing that people eat.

Here are a bunch of things that are still eaten around the world. They seem much weirder than student fare. Some are delicious despite their "weird" factor; others are so undeniably vile that it is a mystery why anyone ever even attempted to eat them.

Hasma

Hasma is a delicacy from China that is made of dried frog fat. Specifically, it is visceral fat found around the frog's fallopian tubes. To cook it, you should first rehydrate it so it becomes gelatinous. Possibly the oddest thing about hasma is that it is a dessert, which is normally not something you would associate with animal product or frogs. Or, for that matter, fallopian tubes.

However, it is apparently slightly sweet by itself, plus it is sweetened with rock sugar. It is an ingredient in sweet soups, which by itself sounds odd to North Americans. In the soup, it serves a similar purpose to tapioca: sweetish, squishy, and pretty pointless.

Traditionally, hasma is supposed to be good for respiratory disorders, so if you have asthma, you know what to do.

Blood Pancakes

Some cultures do not eat blood and do their best to remove it from meat; others, especially European cultures, consider blood to be just another animal product and add it to sausages

and other meat dishes. However, Scandinavians take it a step further. Adding to the list of "things that really don't seem like they should be sweet" is Blodplättar, which is made of normal pancake things like milk, flour, and molasses. Also pork blood. It's very good for you, being full of iron and such. Serve it with jam, like any other pancake. So now you know what to do if a vampire drops by for breakfast.

Fugu

Fugu is the meat of the Japanese pufferfish, which is exceptionally poisonous. For some reason, people still want to eat it despite the fact that, if it is incorrectly prepared, it can suffocate you slowly over a period of up to 24 hours while you are still fully conscious. Historically it has been banned in Japan, and currently is very strictly regulated, for obvious reasons.

Only certain organs are toxic so, if they are properly removed, the fish can be safely eaten. The fish itself does not produce the toxin so if it is properly farmed and fed, it will be completely fine. However, purists reject this non-toxic fish. Who doesn't want their sushi meal to be a brush with a horrible death? Some people have even intentionally eaten the toxic organs not to commit suicide per se, but to show how macho they were. Those guys are now dead, of course, but everyone knows exactly how brave they were, and also their exact IQ.

Steak Tartare

The Mongols managed to take over much of the known world back in the day due to their cavalry. Their horse archers were incredibly deadly and incredibly fast; armies travelled over absurd distances without stopping for days. Of course, this meant that they also had to eat on the move. (They also had to poop on the move, but I won't go there.)

Steak Tartare nowadays means that the steak is raw, chopped, and flavoured; "tartar" was an old-fashioned word for the Mongols and Asi-

atic Turkish tribes in Europe. This is because one way their armies liked to prepare food without stopping was to take slices of raw meat and place them under their saddles while riding. This would mash up the meat. At least they would wrap it up, so it wouldn't actually have horse hair in it (they weren't barbarians, after all... oh wait.). When they invaded Russia, being basically the only people to ever do so with even marginal success, the Russians decided that the meat thing was a good idea for some inexplicable reason.

The meaning of steak tartare obviously changed over the years, but some people think that the whole horse-squished meat dish is the ancestor of the modern hamburger. That might explain Burger King.

Hákarl

Hákarl is found in Iceland and it basically combines the negative qualities of all of the above. It is made of a fermented shark, and is exactly as vile as it sounds. It tastes strongly of ammonia and fishiness.

To prepare hákarl, start by killing and cleaning a shark, as you would expect. Then, bury it in a gravel pit for several months or, if you are more modern, put it in a container with a drainage hole. Why are you doing this step? To squeeze out the neurotoxin-rich liquids, because of course it contains neurotoxins. It also ferments (a.k.a. rots, because it is a fish) during this time and smells strongly of ammonia. Some people say that back in the day people would pee on it to make it smell less bad. Hákarl isn't very common nowadays but it is still very much eaten, although probably not peed on. Probably.

After fermenting it and possibly peeing on it, you hang it up to dry for some more months before serving it. There is no "cooking" step.

Traditionally, Hákarl is eaten while drinking very hard liquor. This is not because you have to be drunk to even think about putting it in

your mouth, but because the alcohol will mask the taste of the shark.

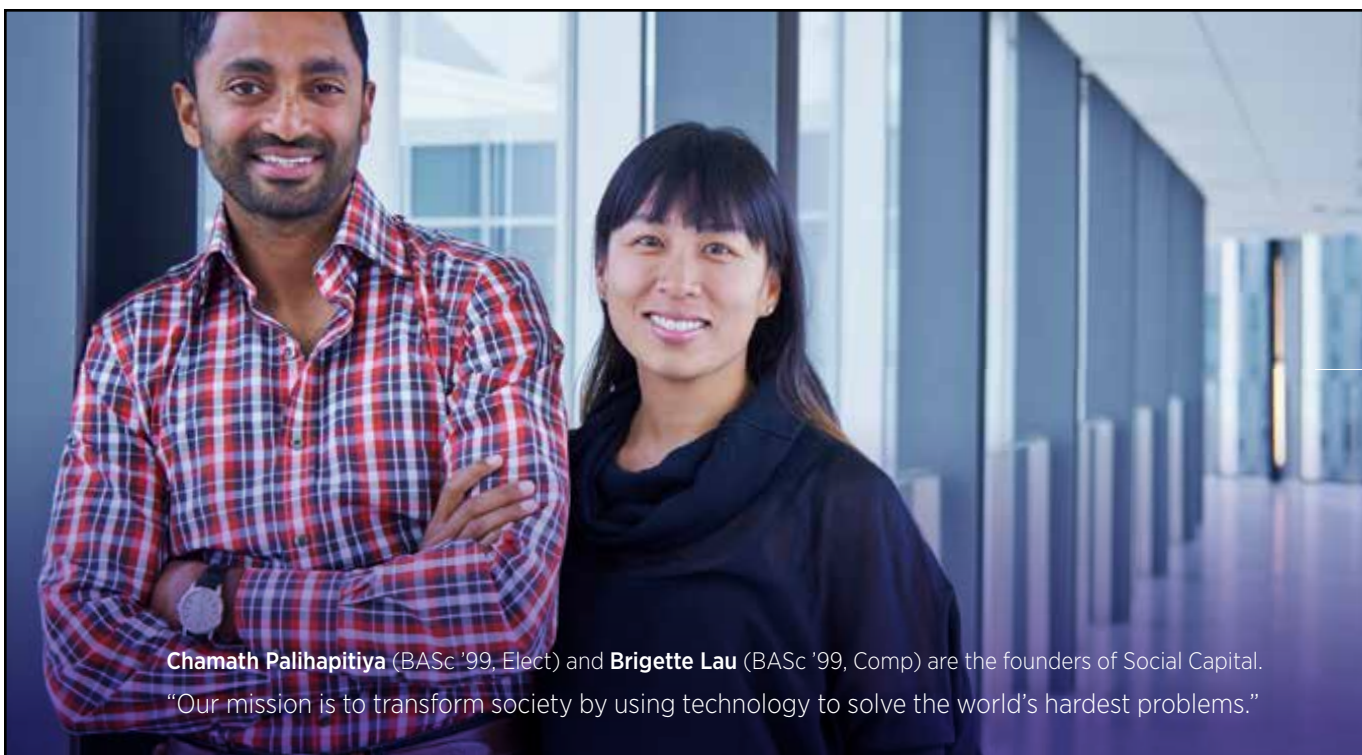
So there we have it: a dish that has to be treated extensively to render it non-toxic, and which smells so horrible that urine is considered a preferable smell, and tastes so bad that hard liquor is considered a preferable taste. The only reason they invented it was because Icelanders are vikings, and vikings' main goal is to be more hardcore than anyone else. I think we can all agree that they have succeeded.

JWST

Continued from Page 9

The advantage of the L2 halo orbit is that JWST's sunshield will block the Earth and Moon in addition to the Sun, eliminating another source of disturbance from the telescope. Additionally, because the spacecraft will be in constant and consistent sunlight, it will not have to contend with repeated thermal changes that would occur in a near-Earth orbit where the Sun would be eclipsed once per orbit. The disadvantage is that orbits around L2 are unstable; JWST will need to use 2-4 m/s of delta-V each year to maintain its orbit, with an expected total budget of 150 m/s.

When JWST begins taking pictures in 2019, it will find amazing new things. Certainly, it will be able to answer the interesting questions that it was sent to do: What do early galaxies look like? What do exoplanets look like? The expectation, however, is that JWST will make many unexpected observations for which there is no explanation. When it does, astronomers will gleefully throw themselves at the problem, probably solving quite a few of these new mysteries. For the mysteries that they cannot solve? Well, NASA has already announced new funding to research the creation of a picometre interferometer in anticipation of the telescope that will eventually dwarf JWST.



Chamath Palihapitiya (BASc '99, Elect) and **Brigitte Lau** (BASc '99, Comp) are the founders of Social Capital. "Our mission is to transform society by using technology to solve the world's hardest problems."

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