



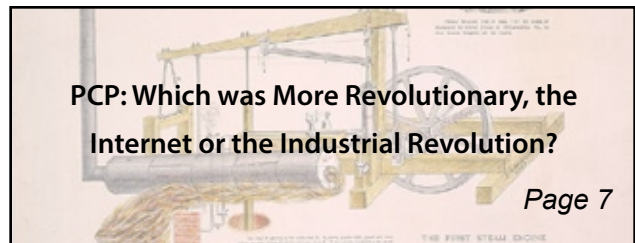
PEI Votes For Electoral Reform

Page 4



DAPL Protests Continue

Page 3



PCP: Which was More Revolutionary, the Internet or the Industrial Revolution?

Page 7

facebook.com/TheIronWarrior

twitter.com/TheIronWarrior

iwarrior.uwaterloo.ca

Trump Beats Clinton to Take the White House



via Business Insider UK

Donald Trump delivers first speech as President-Elect



**RAEESA
ASHIQUE**
2B ELECTRICAL

The last year and a half of campaigning, which can be better described as a series of scandals and repetitive divisive issues, has culminated in a shocking result as the American people voted in Donald Trump as the 45th president of the United States.

The businessman and former reality TV star with no political experience was never viewed as a likely winner, but he has disproved the polls with a win over Democratic candidate Hillary Clinton. Let it be noted that they are two of the most unpopular candidates in modern American history.

Trump took the stage at the Hilton Hotel in New York just before 3 AM on Wednesday morning to say that Clinton had called to concede the election and offer her congratulations. "I have just received a call from Secretary Clinton. She congratulated us on our victory ... and I congratulated her and her family on a very very hard-fought campaign."

In his victory speech, he called for unity, which is very interesting considering his campaign was built on nothing of the sort. "Now it's time for America to bind the wounds of division," he said. "It is time for us to come together as one united people. It's time."

The Clinton campaign team has said she will speak on Wednesday morning.

Soon, we will be referring to Donald as President Trump: American head of state, head of government, and commander-in-chief of the world's largest military. He is also entering the White House with a Republican Senate and Republican control of the House of Representatives.

How does the electoral system work?

The American system is called the electoral college. Each state has a certain number of electors based on their population, for a total of 538. A candidate needs half of them, so 270, to become president. Whoever gets the most electors in each state gets all of that state's electoral votes. For example, California has 55 electors, and the candidate who gets more electors receives all 55 votes. The exceptions are Nebraska and Maine, where the votes are split.

Certain states are pretty much guaranteed. For example, California votes Democratic and Texas votes Republican almost without question, so candidates do not spend much time or money appealing to these states.

For this reason, elections often come down to "swing states", which may vote one way or the other. This election came down to a couple swing states. Florida was a key player, where most of the Trump support was from those who

are disappointed in Washington, and are calling for serious change. Ohio, North Carolina, and Pennsylvania also put him over the top. In Ohio, black voters and young people were less likely to vote Democratic than they were in 2012. In North Carolina, Clinton took the majority of the non-white voters, but this was not enough to counterbalance Trump's sweep of the white vote. Wisconsin allowed him to secure the remaining electoral votes.

After the swing states turned, Clinton was left with her blue firewall in the Midwest, but states that had been Democratic for decades also voted with Trump. This destroyed her last chance of a win.

How did Trump win?

So, what happened? How did Trump manage to secure the Oval, although Clinton was polled to win for months? Also, how did Trump manage to make it so far considering the trail of scandals he has left in his wake?

Rural people and working class whites, especially the uneducated ones, voted Republican as they felt overlooked by the elite. Ironic, hey? Let's vote in a man who is part of the 1%, in order to break out of the system that favours the 1%.

Trump's campaign is mired with more scandals, assault allegations, uncensored speech, and bigoted comments than campaign promises, but nothing seems to harm him. We have seen this again and

again over the course of the campaign. He reappears, apparently unscathed, after each new scandal. America keeps finding a way to forgive him.

Trump saw something that pollsters and analysts did not, although I for one cannot follow his thought-process. He seems to have some sort of instinct telling him how to appeal to the voters. He delivers what people want to hear, based on their concerns regarding immigration or gun control or America's current lack of greatness. He is the answer to their prayers.

They also appreciated his outsider status, since he was not a politician. This must mean he is more likely to create change and fix the corrupt system, right?

Not being Hillary was also a huge bonus. The email scandal has come up time and again, which is grounds enough for many that she would be a horrible president, and the issue resurfaced with FBI Director James Comey reopening the investigation into Clinton's private email server just eleven days before the election, due to the possibility that one of her advisors sent inappropriate messages to a young girl. No evidence of criminal action was uncovered, but with the case reopened so close to the election, Clinton lost the chance to deliver a decisive final message to voters.

Continued on page 8 as Election

Letter from the Editor

Lest We Forget



CAITLIN MCLAREN
EDITOR-IN-CHIEF

It's the time of year where we all go around with red flowers pinned onto our coats. These are supposed to be in memory of our veterans, but many people just get them because everybody else does or because "it's the right thing to do," without fully appreciating the significance. This November, don't wear your poppy without thinking about its meaning and don't merely parrot a history lesson or platitudes about respecting veterans; think about the implications our history of war has for our lives today, and what it should teach us for the future.

Most people in Canada today have never experienced war and don't have a full understanding of the sacrifices soldiers made for their country. That's a good thing. That's the reason we wear the poppy: not to perpetuate terrible memories and experiences, but to remember that war is indeed terrible, and that we owe our avoidance of it to the sacrifices our grandparents and great-grandparents made to achieve peace.

War is never as black and white as its propaganda paints it, and history is written, if not always by the winners, by people in the aftermath under the eyes of the winners in a world where it is impossible to find the absolute truth under layers of destruction, deliberate lies, and politicization of history. There is a fine line to walk between recognizing a need for military action and romanticizing war, between respecting courage and glorifying violence. These things are not identical. It is possible to praise the men and women who put their lives in danger in the service of their country without glossing over the implications of war. Indeed, these things complement each other; knowing the grave consequences of military occupation should inspire greater respect for those who fought to prevent it from happening to their home country. While the horrors of war should not be ignored, they should not be blamed on the individual soldiers fighting for their nation.

I would say that in Canada, there is fairly wide recognition of this fact. Our chief memory of the World Wars is not some patriotic jingle or piece of propaganda, but *In Flanders Fields*—a poem which makes no mention of politics, or the myriad justified and unjustified reasons for war, but merely speaks of the dead and urges us to keep faith with them. That is why we pin poppies on our chests and call it patriotic; not because we look back fondly on the World Wars or wish to bring Canada into future wars, but because we recognize that these are causes that our ancestors and their contemporaries died for, and that their deaths are partially responsible for the better lives we have today.

Unfortunately, these days it seems that war veterans are largely remembered in order to be politicized. Whether it's bringing veterans

into some political disagreement that they didn't ask to be a part of and probably would fall on all sides of, using them as a prop in order to appear patriotic, or just giving their courage lip service while performing actions that go against the ideals that they fought for, the public treatment of veterans—both living and dead—is far from what they deserve. Instead of acknowledging that the causes of freedom and humanity, which were at least nominally the main motivations for the World Wars, are ones to unite us all, the achievements of "the glorious dead" are all too often used for political gain.

There is another poem that is associated with remembrance this month, little more than a children's rhyme:

*Remember, remember
The fifth of November
Gunpowder, treason, and plot.
I see no reason
That gunpowder treason
Should ever be forgot.*

While we remember our veterans on November 11th, November the 5th is dedicated to the memory of a foiled terrorist attack. While Guy Fawkes Day is not really celebrated outside of Britain, and not taken very seriously there either, perhaps it should be. Most people are familiar with the Guy Fawkes masks that are today seen as a symbol of anarchy, as popularized by V, the anti-hero protagonist of *V for Vendetta*. However, that has little in common with the historical Guy Fawkes or the Gunpowder Plot.

The political turmoil in England that caused Fawkes and his co-conspirators to blow up the House of Lords had its roots in the reign of Henry VI, and erupted again after the death of his daughter Queen Elizabeth I. While much more complicated than a simple religious quarrel, the successional disputes were very much split along religious lines. The Protestant faction had the support of the majority in England, while the Catholic dissidents had a great deal of overseas support. At the time, James I of England (VI of Scotland) was the Protestant king of England. Guy Fawkes was far from an anarchist; he was a Catholic who supported the claim to the throne of James' Catholic sister, Elizabeth of Bohemia. While such a religious quarrel seems foolish to us today, at the time it was seen as affecting the legitimacy and neutrality of the crown, and no one questioned the importance of the issue. In fact, the law prohibiting an English monarch from even marrying a Catholic was only changed in 2011; to this day, a monarch, as the head of the Church of England, is not permitted to be Catholic by definition.

What is the point of that little history lesson? This was not a random, lone-wolf attack by a madman; it was the action of an extreme holder of an at-the-time legitimate political position. Guy Fawkes was not trying to destroy his country; in his mind, he was trying to save it. He was a traitor all the same, because murdering heads of state is a traitorous action regardless of intention.

Not liking one's political leader is not an excuse to overturn the order of a country. The foiling of the Gunpowder Plot promoted unity in Britain at a time when the monarch and parliament had a rocky relationship. If it had been successful, the Gunpowder Plot would not have brought about Guy Fawkes' political goal; it would, in fact, have created anarchy and/or opened a door for another tyrannical leader such as Oliver Cromwell.

At the time of writing, the results of one of the ugliest elections in history is unknown; you, who are reading, will know the result. No matter what that result is, there will be bitter feelings on both sides for years to come. In Canada, we have no say in the election but the results will affect us, and most of us have strong feelings on the candidates. These feelings are informed by facts, but they are fed by an attention-seeking media and rabidly partisan opinions being touted as objective. This is not to say that concerns are not legitimate, but that dialogue between different sides of many political issues has devolved into accusations of malice and bad faith.

Can we have two minutes of silence, please? Not only in memory of the dead, but in general. Can we stop arguing, mudslinging, demonizing, and generally acting as if we aren't all on the same team? Can we stop listening to hyperbolic bad news and hysterical punditry? Those are entirely contrary to the historical lessons this November.

Remembrance Day should remind us all that we have a shared history and a shared debt to those who created this world for us. We should remember that, although our grandparents disagreed over partisan issues, just as we do now, they were able to unite in defense of our country against a common threat. We should remember the people who fought for our freedom to state our political positions openly.

Guy Fawkes Day should remind us that, regardless of the strength of our political beliefs, we are not angels and our opponents are not devils. If we believe that the rightness of our cause puts us above the law, the majority, and the legitimate political leader, we are the villains. Politics are important and affect not only ourselves, but also future generations. Be politically active, but don't be an extremist.

This November, when political uproar is coming to a climax, and some people are forgetting civility and respect, pin a poppy on your jacket and remember our better nature. Remember how thousands and thousands of men and women cared so much about our country, including those they disagreed with politically, that they risked and often lost their lives defending it. Remember that this country was shaped by their sacrifice and that it should not be damaged by petty quarrels. And remember that the reason we keep these memories alive is because, if we forget the lessons of history, we could easily bring ourselves into war and destruction again.

THE IRON WARRIOR

The Newspaper of the University
of Waterloo Engineering Society

Editor-in-Chief
Caitlin McLaren

Assistant Editor
Raeesa Ashique

Layout Editors
Raeesa Ashique

Copy Editors
Cameron Soltys
Raeesa Ashique
Meagan Cardno
Hasan Ahmed
Josh Li

Circulation Manager
Vince Magas

Web Editor
Bryan Mailloux

Social Media Managers
Anika Roller
Cecile He

Staff Writers
Raeesa Ashique
Tiffany Chang
Josh Li
Donovan Maudsley
Caitlin McLaren
Sumaita Karim
Cameron Soltys
Hira Rahman
Alex Pezzuto
Leander Rodrigues
Meagan Cardno
Will Klanac
Yuhan Lin

Contributors
Adelle Vickery
Abdullah Bakarar
Jeff Gulbranson
Sarbjay Majumdar
Will Wilmot
Peter Ro
Janet Ma
Gordon Stublely

ADVISORY BOARD
Off-Stream Editor-in-Chief
Donovan Maudsley

Executive Members
Sarbjay Majumdar
Chelsea VanderMeer

Students-at-Large
Megan Town
Maya Deen

Advertise With Us!

Want to reach a wide, intelligent audience which includes students, faculty and staff at the University?

We are the official newspaper of the University of Waterloo Engineering Society representing the entire undergraduate engineering student body of over 6000 students.

Our newspaper is distributed all across campus and is the perfect medium to advertise your event, employer information session, service, etc.

For more information, please visit iwarrior.uwaterloo.ca/advertising or contact us at iwarrior@uwaterloo.ca, 519-888-4567, Ext. 32693

Send your submissions for the next issue to iwarrior@uwaterloo.ca by November 18.
Fall 2016 Publication Schedule: September 28, October 13, October 26, November 9, November 23

The Iron Warrior is a forum for thought-provoking and informative articles published by the Engineering Society. Views expressed in The Iron Warrior are those of the authors and do not necessarily reflect the opinions of the Engineering Society.

The Iron Warrior encourages submissions from students, faculty and members of the university community. Submissions should reflect the concerns and intellectual standards of the university in general. The author's name and phone number should be included.

All submissions, unless otherwise stated, become the property of The Iron Warrior, which reserves the right to refuse publication of material which it deems unsuitable. The Iron Warrior also reserves the right to edit grammar, spelling and text that do not meet university standards. Authors will be notified of any major changes that may be required.

Mail should be addressed to The Iron Warrior, Engineering Society, E2 2347, University of Waterloo, Waterloo, Ontario, N2L 3G1. Our phone number is (519) 888-4567 x32693. E-mail can be sent to iwarrior@uwaterloo.ca

Canadian Youth Turn Their Backs on Justin Trudeau



ALINA PAVEL
1A NANOTECHNOLOGY

October was a trying time for Prime Minister Justin Trudeau. Only one year into his term, he has encountered much criticism from politicians and citizens alike as people are evaluating how much he has accomplished—and how many promises he has broken. This past month was perhaps the most eventful, with Trudeau being heckled and harassed by protesters in multiple instances.

Tensions ran high at the National Young Workers Summit in Ottawa, as Trudeau was faced (or rather the opposite) by angry protesters. The protesters, mostly young adults, were demonstrating their disap-

pointment by turning their backs on the Prime Minister. Participants stated that the action reflected what Trudeau is doing: turning his back on them.

Many issues were brought up during the event, regarding everything from pipelines to post-secondary education costs, as well as the more urgent topic of job security and wages. It seems that the biggest problem youth have with Trudeau is his inability to keep the promises he made—which are what attracted more youths as supporters and encouraged them to vote in the first place. The increase in votes from the younger demographic is what helped Liberals secure the win, which is why it is crucial that Trudeau works towards the promises he made to young voters.

Some supporters are pleased with Trudeau's contributions so far. Since being elected, Trudeau has introduced many

aids for young people, such as doubling the number of summer job placements, increasing student grants, and eliminating student loan repayment until an annual income of at least \$25,000 is attained. The president of the Young Liberals of Canada praised the Prime Minister for his actions, stating that he has done more for youths "than any government in a generation."

Trudeau expressed his discontent with the protesters by saying, "I will tell you, it is a little bit frustrating for me to come in, sit down and look forward to hearing from you and talking with you, and seeing a room full of people who are standing in a way that shows they are not listening to me, that you don't want to engage." The Prime Minister was challenged many times during the event, and people were more inclined to yell and argue than to have constructive dialogue, much to his dismay.

As Trudeau apologetically ended the session, his farewell was met with angry exclamations of "Keep your promises!" and even more heckling. Other politicians interpreted the event as a sign that his approval from young adults is slipping.

Judging by the recent demonstrations, it seems that more and more youths are getting involved in the political sphere and standing up to Trudeau. Many attractive promises were made to young people during Trudeau's campaign but, despite the measures taken so far, Canada's young adults still feel as though they are being neglected. They say they just want their voices to be heard, they are tired of being lied to, and they are ready for things to change for the better as soon as possible. As stated by a young woman at the summit, "We are not the future, we are the right now."

The Tribes Have Paid the Price for America's Prosperity



RAEESA ASHIQUE
2B ELECTRICAL

Police arrested 140 protesters of the Dakota Access Pipeline when they moved to evict a camp set up on pipeline property on Thursday, October 27. They are accused of using abusive tactics with the peaceful protesters, including tear gas, pepper spray, and bean bag rounds, and of holding detainees in dog kennels.

The protests have been ongoing since April, and there are plans to continue through the winter if necessary.

The Dakota Access Pipeline is a 1172-mile (1885-kilometre) pipeline spanning four states and costing \$3.7 billion. It is built by a group of companies led by the Energy Transfer Partners, and was supposed to be finished by the end of 2016. It will provide the fastest route for moving Bakken shale oil from North Dakota to US Gulf Coast refineries in Illinois, transporting up to 570,000

barrels of crude oil per day.

Protests are led by the Standing Rock Sioux Native Americans, who say the pipeline passes through sacred sites and burial grounds, and threatens to pollute their main water source. Also, they rightfully own the land they are protesting on, under the Treaty of Fort Laramie signed in 1851.

In an Op-Ed for the New York Times, tribal chairman David Archambault II wrote, "It's a familiar story in Indian Country. This is the third time that the Sioux Nation's lands and resources have been taken without regard for tribal interests. The Sioux peoples signed treaties in 1851 and 1868. The government broke them before the ink was dry."

It's been the same story over and over, for hundreds of years, and the government still fails to understand the hardships they have subjected Native Americans to.

President Obama commented in an interview released last week that "there is a way for us to accommodate sacred lands of Native Americans", and that the US Army Corps of Engineers is



via worldwide.chat

Protesters face heavily-armed police officers.

considering rerouting the pipeline. This is his first comment on the controversial project since the mass arrests. He added that the government will "let it play out for several more weeks and determine whether or not this can be resolved in a way that I think is properly attentive to the traditions of the first Americans." The plan to essentially stand by and do nothing has led to angry responses.

Environmental activists join the fight, arguing that the pipeline will increase fossil fuel emissions.

Proponents of the pipeline claim that this is a safer and more cost-effective method of transportation, compared to road or railway.

Although the protests have been mostly peaceful, there has been violence, mostly on the part of law enforcement. As mentioned earlier, police used extreme measures on demonstrators on the day of the arrests. Red Fawn Fallis allegedly pulled out a gun and fired three shots as she was being wrestled down to the ground, for which she was charged with the attempted murder of an officer a few days later. This is the first gun-related charge since the protests began.

Archambault said on Monday, November 1 that they will continue protesting into the cold season, and are looking at proper accommodation to withstand North Dakota's severe winters. Protesters are currently primarily staying in teepees, and he notes that, "We have to make sure we are proactive and find a way to ensure [the protesters'] safety."

This announcement comes in light of the clash with police, as well as the state's recent allocation of millions more in funding to support law enforcement at the pipeline site.

People have recently been checking in to Standing Rock on Facebook, using Facebook's location feature. Protesters

are worried that police are tracking them on social media, and random check-ins are meant to divert attention. The police department has said: "The Morton County Sheriff's Department is not and does not follow Facebook check-ins for the protest camp or any location. This claim/rumor is absolutely false."

Even if the police were using social media locations as a tool, remote check-ins would not confuse them. However, the real impact of the virtual show of solidarity is raising awareness. The protest has only recently received a lot of publicity because of the arrests, and social media is helping to heighten the response.

On a separate note, the armed militia group led by the Bundy brothers were recently, and surprisingly, acquitted of federal conspiracy and weapons charges. The anti-government group took over a federally owned wildlife sanctuary in Oregon earlier this year, claiming that the American government does not have a right to own public land.

The contrast here is interesting: an anti-government – extremely white, may I add – group was acquitted because they posed no threat to the public, but another group who is simply fighting for continued access to clean water is attacked. Attacked for what? And the end of the day, the pipeline is all about money, and this should never be at the expense of people's basic living conditions. This also speaks to the systemic racism that is sadly not a thing of the past. Native Americans are being violently mistreated, and are still fighting for their land. Archambault also wrote in the Op-Ed, "Whether it's gold from the Black Hills or hydropower from the Missouri or oil pipelines that threaten our ancestral inheritance, the tribes have always paid the price for America's prosperity."

P.Eng. THE LICENCE TO engineer in Ontario



To practise as a professional engineer in Ontario,
you must be licensed by Professional Engineers Ontario.
It's the law.

**Take your professional career
into your own hands.**

For information on licensing—and how the PEO Student Membership (SMP)
and Engineering Intern Training (EIT) programs can help you get there—
visit www.peo.on.ca or www.engineeringstudents.peo.on.ca

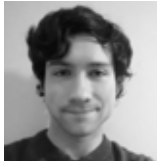


Professional Engineers
Ontario

...regulating the profession
...serving the public

Trade Agreement Gone Long

Signs of Life Seen in Canada-EU Trade Agreement



WILL LKANAC
3B MECHANICAL

At the Canada-EU summit this past month, Canadian Prime Minister Justin Trudeau signed off on a trade deal that has been in the works for over nine years. Solidarity for the Comprehensive Economic and Trade Agreement (CETA) was struck in Brussels on October 30, shortly after obtaining buy-in from Belgium – the last country to assent. CETA has been pushed along a rocky path to get here, and from the looks of it, it won't get any smoother going forward.

We first travel back to our best estimate of the beginning: the 2007 Canada-EU summit in Berlin. Back then, both parties saw an opportunity to grow closer economically, and agreed to work on a joint study that would analyze the drawbacks and advantages for that situation. Following this, in 2009, negotiations for the agreement opened at

the next summit in Prague. These continued without notice until August 2014, when part of the draft agreement was leaked by German television station ARD. One month later, there was an official announcement that talks had finished. On initial reveal, the primary benefit of the agreement was highlighted as the elimination of most tariffs between parties, and the flourishing trade purported to follow. However, since the full release of the document, there has been rising protest by citizens of both Canada and the EU.

Now, what exactly is being protested? In Canada, there is an emphasis on the issue of public procurement. Concern for the former is rooted in restrictions that the agreement imposes on the ability of Canadian municipal and provincial government organizations. If goods and services or construction acquisitions above a certain value are performed by these bodies, they are not permitted to be biased in their choice of supplier based on its party of origin. The direct result of this is a conflict with existing programs that aim to support local industry

by reserving business for them.

More recently in Europe, the spotlight fell on Wallonia, a French-speaking part of Belgium. Their opposition of CETA on the brink of the 2016 Canada-EU summit drew the eyes of onlookers to them and their sentiments. Fears of being drowned out by cheaper Canadian imports were expressed by some, mirroring sentiments held by our very own dairy farmers. These were assuaged with the help of two declarations: one made by both Canada and the EU, and the other by the Belgians. The first of the two clarified the ability to regulate and the right to protect resources, and made amendments to an Investor State Dispute Settlement (ISDS) system proposed by CETA. On that same note, the Belgian declaration stressed that ISDS articles would not come into effect until the agreement was ratified, and that their ratification was contingent on changes being made to it. With that, the politicians of Wallonia relented.

Four words may be enough to get a notion of what ISDS is, but they are not

nearly enough to stress the weight it holds in these negotiations. Through the ISDS, investors from one party, with stakes in the assets of another, can sue the second party for damage and mismanagement, among other reasons. Critics claim this undermines existing avenues for pursuing this action, and unnecessarily empowers corporations with the reach to achieve this. For Canada, this is a particularly sensitive issue due to its history of disputes under NAFTA. The Canadian Centre for Policy Alternatives reported 35 NAFTA claims against Canada as of the beginning of 2015, with paid damages exceeding \$172 million CAD.

And so once again progression slowed to a crawling pace. Canadian representatives now need to introduce federal legislation to put the agreement into place here. On the other side of the Atlantic, the European Parliament will vote to ratify CETA, and pending success, each nation in the EU must repeat the same process individually. All we can do now is close our eyes until the next summit and wait patiently for the surprise.

Not Forever A Loan



LEANDER RODRIGUES
1A NANOTECHNOLOGY

I don't think I need to explain to anyone reading this that paying for tuition, and for the university life in general, is an expensive feat. You pay an institution so that you can work full-time for four years, then maybe get a job that will pay you full-time to pay back the money that you spent but didn't have. The system is a little weird, and if I were to interview a random selection of students, they might have a few colourful words to use to describe it, but maybe less so after this week. Think of this news as putting an air freshener

over your trash can.

The Liberal government announced that as of November 1, 2016, students who have taken out a Canada Student Loan will not be required to pay back their debt until they're earning at least \$25 000 a year. For anyone wondering, the previous minimum earning rate to start repaying student loans was \$20 210 annually. This new increase was made to help ameliorate the incredible debt load that faces post-secondary graduates as they try to join the work force. Statistics showed that an astonishing 750 000+ students were repaying debts during the 2013-14 year, with around a quarter million more students receiving repayment assistance.

The announcement also came with some other great news for students of low-income

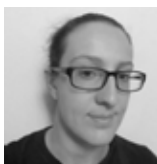
families. There is an approximately 50% increase in the size of grants that don't need to be repaid. That means \$2000 to \$3000 for full-time students from low-income families, \$800-\$1200 for students in middle-income families, and \$1200-\$1800 for part-time students in low-income families. This has been predicted to increase educational grants from the government by about \$1.5 billion over the next five years.

This is clearly a step in the right direction, and will have some positive results for the post-secondary graduate life in general. Some observers of the change noted that graduates may have an easier time with major life milestones, and won't have to delay buying that car, house, or even engagement ring.

Realistically, the number can still be seen as too low to help with the interest that accumulates on student loans. When doing the math, \$25 000 will net you about \$1500 a month after taxes, which isn't very much to be living properly on and to start repaying debts. While the news is good, many interviews from students didn't see this as a fix to anything, but more so an insult to the size of debt that can be accumulated and to the students who are forced to deal with it to get an education.

This news by no means solves every student debt problem out there but it's still going to benefit most people, even if only marginally. Hopefully it helps a good number of those graduates stressing about paying back their loans. Good thing we have co-op, eh?

Prince Edward Island Votes for Election Reform



CAITLIN MCLAREN
4A CHEMICAL

From October 29 to November 7, the province of Prince Edward Island held a plebiscite on electoral reform. Islanders had the choice of five different possible electoral systems. The referendum was unusual in that it was the first to allow participation from 16 and 17 year olds. It also permitted voting by telephone, and online. The result of the non-binding plebiscite was a narrow victory for a mixed-member proportional system with 52% of votes. The referendum itself was carried out under a preferential system, with voters ranking the options according to their preference.

PEI had a previous referendum in 2005, where Islanders had opted to stay with the first past the post system rather than change to a mixed-member proportional system. However, that referendum had a low turnout of about one third of eligible voters; for comparison, there was 82% turnout in the most recent provincial referendum. The lack of turnout and choice to keep the status quo was partially blamed on the fact that the Conservatives in power in 2005 actively campaigned against changing the system.

However, there are reasons why many people were dissatisfied with the first past the post system. For one thing, it means that the composition of the government does not directly represent the composition of the voter base. It is even theoretically possible for a

majority government to be formed by a party which loses the popular vote. Furthermore, the first past the post system is vulnerable to gerrymandering, which is deliberately drawing the borders of electoral districts in order to advantage one party. First past the post also frequently leads to a majority government, which some feel does not give minority parties the power that they should be entitled to based on the amount of the popular vote they received.

The five choices Islanders could choose between were: first past the post, first past the post plus leaders, preferential voting, mixed-member proportional, and dual-member mixed proportional.

The first choice on the ballot was the current system, referred to as first past the post. In this system, voters make one choice on the ballot, and the candidate with the most votes for each district wins. Although a plurality is required, the candidate who wins for any particular district has not necessarily received a majority of the votes. This is the system used in Canada's other provinces, as well as in federal elections.

First past the post plus leaders is nearly identical, except that extra seats would also be made for the leaders of parties who received more than 10% of the popular vote. Leaders would not run for district seats, as they do under the current first past the post system.

Preferential voting allows voters to rank their district candidates in order of preference. They could rank all or only some of the candidates. Initially, only the first choices would be counted, and if one candidate got over 50% of

the votes, they would win. If not, the lowest-ranked candidate would be eliminated, and their votes redistributed to the voters' next-ranked choices. This procedure would continue until one candidate had a majority.

The mixed-member proportional system proposed is fairly complicated. A ballot would have two parts; the first would be a normal ballot for district candidates, who would be chosen using first past the post. Those candidates would make up one-third of the Legislative Assembly. The second part of the ballot would allow a voter to choose one candidate from a set of party lists; these votes would be counted as a vote for that candidate as well as their party. The rest of the Legislative Assembly would be chosen proportionally according to the popular vote. However, it should be noted that the remaining seats are not themselves assigned according to the popular vote; instead, they are assigned in a way that will make the Legislative Assembly conform to the popular vote. For example, suppose that two parties won 15% of the popular vote, corresponding to three seats. One party did not win any district seats, while the other won two. In this case, the first party would be given three seats based on the popular vote, while other would be given only one. Candidates winning seats by means of the popular vote are considered to represent the entire province. Mixed-member proportional systems usually result in minority or coalition governments.

In a dual-member mixed system, candidates run in pairs in every district. The first member of the pair wins the seat for that district in a first past the post race; the second seat is as-

signed based on the popular vote, and thus may or may not be the elected candidate's actual running mate. The seats gained by a party from the popular vote would be assigned to the candidates from districts where that party did the best. In practice, it would likely be similar to the mixed-member proportional system, but considering that this is a new system proposed specifically for PEI, there is no historical data to examine.

If you found all of these different options confusing, you are not alone. In fact, Prof. Peter McKenna, the chair of the University of Prince Edward Island's political science department, is suspicious. He suggests that the Liberal government proposed so many options in order to confuse voters, making them more likely to choose to stay under the current first past the post system, which heavily favours established political parties. This may or may not have been at play; while the first past the post system received more of the first-choice votes than any other system, redistributed votes from other choices gave the mixed-member proportional system a slim majority of 52%.

Only 36% of eligible voters took part in the plebiscite, and the results are not binding. However, Premier Wade MacLauchlan declared that the results would be discussed by his caucus. This result may foreshadow the direction that Canada is moving in; election reform was an item on Prime Minister Justin Trudeau's platform, and a promise he reiterated once in office. We in the rest of Canada may be voting in a similar referendum sometime in the future.

Twitter Announces Closure of Vine



TAHREEM FAROOQI
1A PLANNING

On October 27, Twitter announced the closing down of the ever-popular app, Vine. Vine is an app where users can post six second videos, usually of comedic nature. Twitter acquired the app in 2012, but as other social media platforms such as Instagram, Snapchat, and Facebook began to implement their own video watching platforms, Vine could no longer compete. Already having let go of nine percent of their workforce,

Twitter decided it would be best to let go of Vine altogether.

Like most social media platforms, there are many that use it casually and a few that have it as their career base. Similar to YouTube, there are those who make videos on Vine, also known as Vine Stars, and make a profit. So, what will become of Vine Stars once their main social media platform shuts down? Well, luckily for the Vine Stars and for their fans, there are many other social media platforms that can still accept their content; most have already made that move.

Vine Star Liza Koshy has moved their content to YouTube and has already garnered success from there, as their fans tend

to move along with them. But for some, the situation is direr than previously described. Most very much enjoyed the restriction that Vine provided, allowing people to only post content of six seconds. It challenged people's creativity and eventually garnered them success through the creativity produced. One Vine content creator who is especially troubled is Gretchen Lohse, a musician who used the unique video content-constricting platform to boost popularity for her musical due, the Carol Cleveland Sings. She states "Vine was its own art form... It was really refreshing and different than the other apps that are out there. It opened up this whole new world of art for

us." Vine stars such as her are perplexed as to where to go next with their content and still maintain their success.

It was recently revealed that, in the efforts to maintain views on the Vine app, Twitter contacted some of its biggest creators on the platform. A deal was offered where, if Vine were to consider paying 18 of the biggest Vine stars 1.2 million and altering their platform to create a more direct interaction between the Vine stars and the fans, the content creators would agree to create three videos every week. But the deal was never put into place and many of these content creators moved onto other platforms, leading to the fall of Vine.

"Internet of Things" DDoS Attack Takes Out Major Sites



CAMERON SOLTYS
3B MECHANICAL

On Friday, October 21, many internet users in the Eastern US, along with users in Southern Ontario and a variety of other locations, found themselves unable to access many large and important websites. Among the many sites affected were Twitter, SoundCloud, Spotify, reddit, GitHub, and the New York Times. This issue was caused by an ambitious distributed denial of service (DDoS) attack that targeted a piece of critical internet infrastructure called DNS.

DDoS

A DoS or "denial of service" attack is a malicious activity where someone attempts to prevent access to a specific website or other web service. They cause this "denial of service" by sending many illegitimate requests to the server that is hosting the website. The server is unable to accommodate the large number of requests, and can either crash or be sluggish in responding to any legitimate requests it receives.

A DDoS attack is like a DoS attack except that, instead of sending all the illegitimate requests from one or a few computers, the requests are sent from many devices. These devices are typically in a botnet, which is a network of malware-infected computers established to perform tasks like participate in DDoS attacks or send spam emails. The advantage of a DDoS attack over a DoS attack is that it is harder to mitigate; whereas the

many requests being sent by a few computers can be easily identified and blocked, it is much harder to discern the real requests from the fake ones when a small number of requests are being sent from many sources.

DNS

Most DDoS attacks target one website. That website is hosted on a webserver, so that server will suffer from the attack. This means that only the target site and any other websites on the same server will be affected. Furthermore, large internet services like Twitter and Reddit do not have all their information stored on one server, so targeting one webserver would not affect them as much as a small site. However, this recent DDoS attack didn't target a webserver; it targeted a DNS server run by Dyn Inc.

DNS (domain name system) servers are critical internet infrastructure that translates URLs, like iwarrior.uwaterloo.ca, to IP addresses, like 129.97.50.135. The URL is much easier to remember for humans, but the IP address contains the actual "address" that allows a computer to find the appropriate server to connect to for the information it wants. Unfortunately, the IP address associated with a URL can change and new websites are always being created, so it is impossible to know the IP address associated with a URL. To resolve this issue, a DNS server is used. Whenever a computer needs to find a resource from a URL, it approaches its primary DNS server to request the corresponding IP address. That DNS server may know the proper IP address and respond, or it may forward the request to another server that is more likely to know the association.

From the perspective of a website creator, for users to access their site, the creator need to get their URL-IP address association into the DNS servers. Dyn, the company targeted in this attack, offered a "managed DNS" service. This service allows other internet companies to quickly and easily update Dyn's DNS records to show the proper associations. Any DNS server that received a request for a website could forward the request to Dyn's server, which would respond with the most up-to-date information.

When the DDoS attack targeted Dyn's server, they flooded it with excessive numbers of DNS requests. The server was so overloaded that it couldn't handle all the requests; many legitimate users could not reach the service they were seeking because they could not find the IP address they required.

It is important to note that the services affected by the attack were not actually having any issues. Some people who had manually changed their primary DNS server—for instance to those offered by Google or OpenDNS—reported no problems because their DNS server had the information they required locally, and did not have to forward the request to Dyn.

Mirai and the Internet of Things

The attack on Dyn was performed using a botnet made up of Internet of Things (IoT) devices. These devices are the "smart" devices such as web-accessible CCTV cameras and DVRs. According to TechCrunch.com: "IoT devices are cheaply manufactured and notoriously insecure, making them easy to compromise." For example,

some of the devices used in the attack were CCTVs owned by the internet security company Flashpoint. The multitude of unsecure devices allow malicious individuals to make huge botnets and perform DDoS attacks on larger scales than previously seen.

Part of the growth of IoT-based botnets is because of a piece of malware called Mirai. Mirai infects Linux systems, turning them into bots in a botnet. This botnet is then used to search the internet for weakly-secured IoT devices. When one is found, the Linux bot attempts to take control of the device by inputting the default login credentials. If the credentials have not been changed, the bot gains access to the device, infecting it with malware that allows it to participate in DDoS attacks.

Mirai-based botnets have been used in a variety of very large DDoS attacks recently. For instance, the website of security journalist Brian Krebs was overloaded with an unprecedented 630 Gbps (Gigabits per second) attack. That was quickly superseded by a 1000 Gbps attack on a French firm named OVH. Unfortunately, the source code for Mirai was recently published online, meaning that the techniques it uses are now being incorporated into other pieces of malware.

Web security is an ever-evolving issue. The growing number of IoT devices is creating a growing pool of resources for botnets to draw from. Security researchers continue to attempt to discriminate between legitimate and illegitimate web traffic during DDoS attacks. It is not a battle that is ever going to be over, and one that is sure to cause more inconvenience and disturbance in the future.

Explore with Engplay



THOMAS WILLERT
3A MECHANICAL

If you ever linger around the engineering buildings while on term, you may have heard mention or seen posters alluding to auditions for a certain play. Those would belong to EngPlay, the Engineering Student Society's long running termly theatrical production! Auditions for EngPlay are typically held at the very beginning of term, during the second week of classes. With this, the show is announced, the cast are selected, and the fun starts.

Over the course of the next two months, you'll get the chance to meet everyone in the production. You'll play around with improv exercises to keep you quick on your feet and sharp with your words. Most probably, you'll be playing around with your lines as you get more comfortable and confident with them. And quite definitely, you can expect a time commitment of one rehearsal a week, with a few more cropping up as the

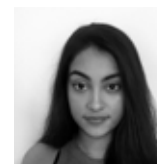
performance dates approach.

Especially for anyone who hasn't performed before and isn't sure if they would like it, I would recommend trying out the experience. You might not figure yourself the type, but you may very well surprise yourself; you never know until you try!

Each term there's a different show, and this is the crowning quality of EngPlay. Variety is the life blood of the show, bringing new people in and allowing the community to thrive and grow. In recent years, the show has done sketch, drama, and absurdist comedies, along with musical performances and student written shows.

This term, the show of choice is called "Game of Tiaras". It is one part Game of Thrones, another part Disney, and a third part King Lear. And all the parts, along with the sum, are very lovely, so I would recommend checking out our performances. We perform November 17th, 18th, and 19th in Hagey Hall. Look out for our booths in the SLC and CPH to get tickets, or purchase them through the Orifice and the Hagey Hall Box Office. We hope to see you there!

Baby Boxes



SUMAITA KARIM
1A NANOTECHNOLOGY

In hopes of reducing Nunavut's high infant mortality rate, the territory is adopting Finland's baby box program. Nunavut plans on distributing more than 800 of these baby boxes to parents of newborns.

The baby box program will provide families with an assortment of baby goods such as baby diapers, onesies, and breastfeeding equipment. To add a little unique touch, the boxes will also include a variety of children's books in four of Nunavut's official languages.

The baby box itself can also be transformed into a bed, as it comes stocked with a mattress and fitted sheets for a cozy and safe feel. The beds are specially approved by Health Canada to help reduce the risk of sleep related deaths in infants, such as sudden infant death syndrome.

That's not all: the boxes also include family planning aids, such as condoms, and bro-

chures educating parents on infant care. The contents of these boxes retail at \$500 and all of the items are not locally manufactured.

The baby box program comes from a long-standing tradition in Finland. In 1939, the baby box program helped reduce the infant mortality rate to less than 2 in 1000 from 90 in 1000.

In Canada, Nunavut has the highest birth rate, with over 850 babies in 2016-2017 and the highest infant mortality rate every year since 1999.

The department of Health is aiming to hand out boxes in 25 communities through health centers this year. New parents can also register for a box at prenatal appointments. If the program is successful, it will continue to run in the coming years.

This type of program was first introduced in Canada when Alberta launched "Welcome to parenthood". The baby box program is an extension of this initiative run by Nunavut's department of Health and Education.

Similarly, in Saskatchewan, the store owners of Ready Set Baby Planners and Boutique have begun to offer them; however, these boxes must be purchased.

Canada's Interaction with First Nations - Part 1



**RAEESA
ASHIQUE**
2B ELECTRICAL

My first co-op was in London, Ontario, and some of my coworkers were pretty racist. One told me that she does not like Muslims, besides me of course, because I was different. I am pretty sure that I am the only Muslim she has ever known personally, so she really had no basis for the initial statement. Another coworker spoke in an unflattering way about Canada's First Nations. Again, I am pretty sure he does not know any Aboriginals personally, but as a straight white Canadian male, he feels entitled to gripe about how Aboriginals do not have to pay taxes. I tried to explain to him all of the horrible things that we (Canada) have done to First Nations in the past, until I realized that I have a very poor grasp of the history myself.

Now, this is likely because I went to elementary school in the US. These days Canadian children are taught extensively about Canada's history of interactions with Aboriginals in elementary school. I actually spoke with an elementary Social Studies teacher to see how this topic is approached, and I will return to that subject later.

In Saskatchewan, where I went to high school, every grade 12 is required to take Canadian Studies if they plan to graduate. Now, theoretically a Canadian Studies course should at the very least explain all the events that happened in our history, even if it is through a white man's lense. However, in high school we focused on English-French relations, which I agree is important in discussing how Canada evolved to be the country we know today, but it is equally important to discuss Canada's interaction with First Nations. To be blunt, it is equally important to make students aware of Canada's horrific treatment of First Nations throughout history. But this is glazed over, and all of these grade 12s are graduating with a very incomplete knowledge of our true history.

When I realized how shockingly messed up the education system is, I became determined to do research on the subject and write this article.

So here I am, making good on some advice Dr. Rachel Griffin gave in a presentation I attended near the beginning of term. She said white people need to feel comfortable standing up and saying "I have privilege", and then advocating for coloured or minority groups. Heterosexual cisgender people need to feel comfortable standing up and saying "I have privilege", and then advocating for LGBTQ rights. There aren't enough minorities with loud enough voices to enact change all on their own. In the same spirit: I am a Muslim female lucky enough to live in Canada where I rarely, if ever, face racism or discrimination. I have privilege. I am trying to standing up for Aboriginal rights, and I am starting with spreading awareness about Canada's history.

I want to start with sharing my experience from the Integrated Knowledge Summit I attended a couple weekends ago at St. Paul's. It was organized by the University of Waterloo's Aboriginal Student Association, and was designed to be an intercultural and cross-disciplinary opportunity for collaboration and change in response to the Truth and Reconciliation Commission's Call to Action. I only attended for part of Saturday, during which I had the opportunity to listen to speakers and panel discussions on various topics, and then sat down to socialize with members of the University's Aboriginal Education Centre. I gained so much perspective within those few hours, and there are two things I would like to share.

Aboriginal worldview is so much different than the Western worldview. Theirs are foreign to us, as we are a culture built on consumerism and a desire for power, but they are infinitely more beautiful.

For example, Aboriginals honour nature – it is the core of existence, and humans could not exist without it. We are dependent beings. For this reason, many

ceremonies centre around giving thanks and acknowledging nature.

They do not think about hierarchy, power, or control. It is all about what one person can do for the community. As one summit attendee said, "It's not about a win. We're all in this together."

They do not have the concept of ownership and commodification. Land cannot be owned, which is why they do not consider their land "stolen" by settlers. How can you steal something that is not possessed? Rather, lives, family, and culture were stolen. Homes were taken away over and over. But it was not about land itself.

A territorial acknowledge is a formal statement honouring the Aboriginal people whose traditional land we stand on. Many events are being opened with the acknowledgement, such as convocation, which is a huge step for reconciliation. The intent of the acknowledgement is not "admitting defeat", because this is not an Aboriginal value. Again, it is not about winning or losing. It is about working together. It is about reconciliation, which in many definitions means honouring both differences and commonalities. This idea came up a lot during the discussions.

The second, and very powerful, takeaway from the summit is related to stolen culture.

Blue Waters is an elder at Seneca College, where she works with the youth. She says that whenever people ask for her credentials or qualifications, she says that she has worked with people for a very long time. She knows people. To be honest, if I ever needed counselling I would love to go to her. She shared grains of wisdom with every sentence she spoke.

She described the Aboriginal concept of the wellness wheel, which follows the progression of a person's life. Quadrant one is "emotion" (baby), quadrant two is "physical" (teenager), quadrant three is "intellect" (adult), and quadrant four is "spiritual" (elder). On the wheel, the adult sits opposite from the baby. This is because the baby teaches the parent, and the parent raises the baby. However, at a certain age, the child and parent no longer

understand each other, which is around when the child becomes a teenager. At this point, they are sent off to live with their grandparents, which is why teenagers sit opposite to elders on the wheel. The elders are able to provide for their spiritual needs. Also, the teenager is more likely to listen when they are being advised, rather than told.

Today, the fourth quadrant is missing, which keeps the wheel out of balance. The youth have no one to turn to, and their spiritual needs are not being fulfilled. (Note: Aboriginals are very spiritual people, another thing that is missing in Western culture. Blue Waters commented that the youth in general are missing their spirituality.) They can't learn about beliefs, ceremonies, culture, or language – colonization took this way, and broke the cycle of continuous learning.

A lot of adults do not know anything about their culture, as so many children were put in residential schools in the 60s. The youth have no one to turn to, since their parents are ignorant and there are not a lot of elders around anymore. Those who are still alive and have knowledge are a resource stretched too thin.

One attendee tearfully lamented the way residential schools infected the whole system. She hated her culture and background as a child and teenager, and tried to avoid her identity. She said that by the time she was ready to learn and remember, it was too late: her grandmother had dementia.

For years, Canada committed cultural genocide, which was basically erasing all evidence of Aboriginal culture. They seized land, forced them to move, destroyed political and social institutions, banned language, persecuted spiritual leaders, and forbade spiritual practices. They destroyed culture, family, and identity, causing trauma and generations of systemic issues within communities.

Next issue, I will get into the actual history of Canada's interactions with Aboriginals, with a particular focus on the residential schools. In the meantime, I hope I have managed to build some sympathy and share some perspective.

Why Did Trump Win The Election?



ALEX PEZZUTTO
1A NANOTECHNOLOGY

Remember those famous, immortal comments Donald Trump made in a leaked video, describing his attempts at 'courting' women? Though perhaps courting is too soft of a word for describing unwanted advances on married women and what could potentially be cases of sexual assault. You would have thought that after that debacle, he'd be completely tarnished and out of the race. Sure, it was in 2005, but you'd expect a man in his mid-fifties to have some integrity. Yet in spite of these events, Trump somehow beat Clinton, which begs the question—how could anyone stand behind Trump after he was exposed for bragging about harassing and pursuing married women? Do the people of America have gnat-sized attention spans? Or did they see something in Trump that still warranted their votes? As tempting as believing the former reason is, I would have to argue otherwise.

By the end, Trump only had one saving grace—he wasn't Hillary Clinton. That's pretty much the only conceivable theory to explain his campaign's resilience to

complete failure. And when you really dig through Hillary's past, you begin to understand why. From money laundering, to vote-rigging, and even down to a compulsive tendency for lying, Hillary's got her hands in an absurd number of cookie jars.

Amongst the emails stolen from the DNC, 20 000 of them were addressed to Hillary Clinton. Instead of being impartial on behalf of the people of America they represent, these messages show a clear bias for Hillary, discussing how they would handle Bernie's growing popularity. Officially, Clinton won the democratic nominee quite decisively, gaining 60% of the delegates and 93% of the superdelegates. Upon further analysis, one would discover this victory wasn't particularly clean. Voter suppression tactics were used in states that favoured Sanders. Polling stations in Arizona, Puerto Rico, and Rhode Island were extensively reduced, providing less opportunity for Sander's supporters to cast their ballots, while polling stations that were open were occasionally blockaded by coincidental means, like Bill Clinton's rally. These states were also subjected to a gross amount of registration tampering and voter purge. Bernie voters were informed that their party affiliation was switched without their consent. The

result? Their ballots would end up being disqualified—and an unprecedented amount of them were, including 20 000 in Phoenix, Arizona, 91 000 in New York, and 360 000 in California. Of the votes that were submitted, many of them were erroneously tallied. Independent researchers found that 11 out of the 11 polls they studied exceeded the margin of error they were allowed, and all 11 of these errors favoured Clinton. This was done by comparing exit polls (controlled by the research group) to the official ones (democrat-controlled), and the findings resulted in a 16% error, an absurd margin to get away with.

The corruption didn't end there. According to wiki-leaks, the kingdoms of Saudi Arabia, Qatar, UAE, Kuwait, Brunei, Oman have all donated tens of millions of dollars to the Clinton foundation. Just to recap, anyone running for public office, let alone for presidency, is not permitted to accept foreign donations in order to avoid obvious conflicts of interest. Yet, Clinton managed to escape that law with a loophole known as the Clinton Foundation. Since it is a charity organization, the money it received did not constitute as campaign contributions. Now, whatever reasons these countries might have had in wanting Clinton to win is unknown, but I doubt it's because of their eagerness to

see a female president, considering the Middle East's track record on women's rights. But it's quite apparent how pliable Clinton is, and how she was inclined to serve the interests of those aristocrats as opposed to her fellow Americans. If you don't believe me, just look up 'Hillary Clinton lying for 13 minutes straight' on YouTube. The video exposes her flip-flopping and lying on 'being under sniper fire in Bosnia', her stance on gay marriage, and most notably, her dealings with the bankruptcy bill. This bill, first proposed in 2001, would make it harder for families to declare bankruptcy, tacitly sponsored by credit card companies who would gain from such a bill being passed. When she was a First Lady in 2001, she urged her husband to veto the bill. In 2005 as Senator Clinton, she was amongst the people who voted in favour of the bill. Why? As a senator, her constituencies changed, and was pressured to represent the industries that funded Washington. And the largest contributor being the credit industry, well what do you know!

So, why did America elect Trump? This is why. As the cliché goes, this election boiled down to picking the lesser of two evils. To a lot of Americans, a pompous, unqualified buffoon was a lesser evil than a candidate they could not trust to serve the best interests of Americans.

Point Vs. Counterpoint

INTERNET

Which was more world changing: the internet or the Industrial Revolution?

IND. REVOLUTION

JOSH LI
2A MECHANICAL

If you were to choose the one aspect of our modern society that is most definitive of the times in which we live, what would it be? The possible answers are many, ranging from the machines that drive our endless lines of manufactured products, to the countless cars that zoom across city roads, to the globalized adoption of cultures and ideas from around the world. The world, as it is today, is a culmination of numerous changes and revolutions built atop one another, and almost all of these had been the result of human innovation. As such, the most definitive way to quantify any such innovation is to determine the degree by which society advanced as a result. By this criterion, two novel aspects of human civilization are of particular importance: the prominence of complex industrial processes responsible for building everything around us, and the interconnected nature of our world. These respectively result from the Industrial Revolution and the building of the internet, two innovations which rival one another as revolutions of human society.

Before we begin comparing these two revolutions, however, I would like to make a point regarding the analysis of innovations in general. When comparing any two chronologically dissimilar innovations of any significance, it is tempting to claim that the older one is more important because the newer one would not have occurred without it. While this is perfectly true, fully employing this logic would only serve to stymie the discussion, as almost every innovation is built on top of the previous ones. With that line of thinking, we will simply value ideas and discoveries by their oldness without considering the individual impacts of each one. As such, this comparison will only take into account the difference between society before and society after each innovation and ignore other separate innovations that may have followed as a result. This assumption will serve to isolate the analysis of each innovation and its merits.

Despite its singular name, the Industrial Revolution refers to a series of new inventions built between 1760 and 1840 that changed the fields of manufacturing, textile, and transportation for years to come. The key inventions of the revolution were mechanical cotton spinners and looms, the steam engine, and the use of charcoal for ironmaking. The steam engine in particular was a pivotal tool throughout the revolution, as it introduced a power source of unprecedented efficiency. The later innovations of steam-powered ships, trains, looms, and even factories were all based upon this single invention. The internet, on the other hand, came into prominence in a much shorter period of time. Its first instance came in the form of ARPANET, a private network between military and university computers commissioned by the US military in the 1950s. This was followed by the creation of the World Wide Web network by Tim Berners-Lee of CERN in 1989, which was eventually adopted for public use in the early 90s. This novel method of allowing near-instant interaction between computers on a network quickly exploded in popularity, creating the phenomenon that is now the internet that we know and love.

In regards to the advancements brought on by the Industrial Revolution and the

internet, it is safe to say that their primary merit was the speeding up of existing processes. After all, trains and ships had already existed far before the 18th century, but new steam engines allowed them to travel far faster. The same can be said for the internet, which can be seen as a means of universally expediting all communication by allowing near-instantaneous exchanges across long distances. The difference, however, lies in which aspects of life were sped up. On one hand, the Industrial Revolution was responsible for a significant increase in the efficiency of industrial and mechanical processes. This increase in speed quickly spread to other aspects of civilization, such as transportation, trade volume, and even the availability of low-paying but abundant work in the newly built factories. However, many other aspects remained relatively untouched. Policing, education, and entertainment, along with many others, all experienced little direct change as a result of industrialization. As such, though the impacts of the Industrial Revolution were numerous and dramatic, they were mostly economical in nature and left much else untouched.

On the other hand, the popular adoption of the internet during a time when computers were commonplace in every household allowed for nothing short of an astronomical increase in all aspects of communication. All of a sudden, every person was capable of disseminating as much information as they want to anybody else in the blink of an eye, regardless of proximity. And unlike industrial processes, there are absolutely no limits on what can be affected by communication. Economics, politics, security, education, and even entertainment have, like every other human activity, strong ties to the spread of information. The ability for a single idea to instantly become available to all, on-demand, is an unprecedented power with implications far beyond the technology of the internet itself. Now, the impact of every lesson, every news story, and even every cat video is greater than ever before, as their effects can now be felt by the whole world. Thus, the information revolution brought forth by the internet is essentially a revolution in every other field as well. By revolutionizing the very essence of all human activity, the internet has directly transformed the way civilization operates at a breadth far beyond what was accomplished during the industrial revolution.

In this comparison between two of the most impactful innovations in human history, we defined the measure of revolutionary capacity for any innovation as the degree to which its fruition was able to advance mankind. Under this criterion, one must consider the direct impact of these innovations on all aspects of human civilization. As such, it is most reasonable, in my view, to consider the internet the more revolutionary of the two innovations due to its astronomical impact on the way people communicated, which in turn revolutionized every other human activity. Thus, for the same reason why the written word is considered by some to be the most important invention for human survival, the internet proves to be the most important invention for human advancement.

YUHAN LIN
1A ECE

First and foremost, like the good ol' chicken and egg, the internet came well after the Industrial Revolution. The computer, portal to the internet itself, would not have been possible without the machinery, manufacturing processes, or the consumer goods spending that came from the revolutionary period between 1760 to 1850. Therefore, although the internet is indeed revolutionary itself, the notion that it is more revolutionary than the Industrial Revolution is flawed in the chronological form.

For argument's sake, it is very easy to misrepresent the magnitude of change brought about by the Industrial Revolution for a simple fact: our generation takes the modern, industrialized world for granted. We were born into a life of mass produced goods and abundant electricity. In our young, naive, Facebook and Instagram-bound eyes, the internet is a greater part of our everyday lives, while steam engines, textile production, and manufacturing is either a distant past or hidden inside factories we've never seen (outside of the Discovery Channel) or completely overseas.

In the span of recorded human history, the world before the Industrial Revolution outstretches the world afterwards by 5000 years to 200. The truly magnificent transformation that has occurred can only be fully appreciated by taking the full history of human time into consideration. At the very basic level, life in the 5000 years prior to the Industrial Revolution was very similar, while the era of the the last 200 years, which our generation was born into, is a completely unprecedented world. For that matter I want to introduce you to life before the 19th century, before the Industrial Revolution.

You are most likely a farmer, probably in a community of farmers. Unless you were born into the rich aristocratic class, or close personal friends with the Pharaoh of Egypt, you lived off the land. (Farming, in all honesty, is the only other "revolution" that is even close to the magnitude of the Industrial one). Before the Industrial Revolution, 80% of the world's population were farmers; in Canada today, we're at 2.2%. You worked day in, day out, dreaming of fulfilling your desire for knowledge, but schooling was too expensive and your family needed you in the fields. You were the proud owner of one change of clothes and a few other things, all of which were either passed down or made by hand.

Then something came along and revolutionized the world. It's imperative to note that these transformations occurred through a variety of significant breakthroughs. One invention led to another breakthrough in a separate field. It wasn't just the textile industries and their new flying shuttle that created

demand for the Spinning Jenny to twist yarn and the spinning water frame. It wasn't just the use of coal, which Britain happened to possess in abundance near the surface, as a replacement energy source for wood or charcoal. It was also the smelting as the result of that coal in new reverberatory furnaces to produce cast iron, along with the new machinery to bore, plane, and shape metals in manufacturing processes.

The countless individual inventions of the Industrial Revolution are too many to mention in a piece this short. But I would like to consider the steam engine, one of the greatest breakthroughs in human history developed originally by Thomas Newcomen and refined greatly by James Watt. The steam engine itself served to remove water from mine shafts which were easily flooded. The mining industry became much more profitable, and increased availability of coal and minerals led to iron making and the invention of rolling mill. This paved the way for the more efficient engines to be transformed into steam locomotives, leading to even more iron and coal demand.

Let's not forget that energy generation of any kind, from cheap reserves or even nuclear power, comes down to a steam engine in the end to make our electricity. The electric bulb was first adapted twenty years after the end of the Industrial Revolution.

The engine itself was revolutionary enough to completely overhaul our world, for in the early 1830's the first steam-powered locomotive was introduced in a line between Liverpool and Manchester, unlocking the potential for unlimited cross-country travel and shipping of heavy produce outside of the oceans and lakes, something we take for granted everyday

Once again, these feedback loops extend between industries and beyond Britain. Belgium was quick to take advantage of its own coal reserves, followed by France in a slower shift to manufacturing. Germany entered a frenzy to build railways. Textile companies found their way to New England and the United States, who were quick to use steamboats in the fast flowing rivers in the north-east.

We begin to see the net change in multiple avenues from clothing to manufacturing to transportation. Everything goes back to my central argument of how dramatic this shift was from the way of life that endured for the 5000 years prior. The world was revolutionized from a time of endless farming to that of factories and urbanization (only 3% of the population lived in cities before the Revolution). The population of Europe, which had remained relatively steady in the years prior, quadrupled to 400 million by 1900 in 200 years.

As noted by Pad Hudson, the Industrial Revolution was also the first period in history with a simultaneous dramatic increase in population and per capita income. The Industrial Revolution was more revolutionary because of how dramatic a change it caused, which took us from a few labouring farmers to the world that we live in today.

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.

What is North Korea Up To?



DONOVAN MAUDSLEY
3A MECHANICAL

9 out of 10 experts polled said that the wackiest East-Asian country is North Korea. The outlier said Japan, but only because of the recent upward trend in body pillow sales there. The Hermit Kingdom has been quiet lately, but that can only mean that they're building for some future potentially-war-causing shenanigans. I'm going to outline five recent things that show off the strangeness of the secluded nation.

Their First Lady is MIA

While Kim Jong-un is the recognizable face of the Northern peninsula, up until March of this year, his wife Ri Sol-ju commonly appeared with him. While the reason behind Ri's disappearance could be that she simply doesn't have the desire to travel around the country anymore to factory site visits and military institutions, there are many theories. Ri may be pregnant with the heir to North Korea's throne. The happy couple may have had a bit of a falling out. One of the darker theories is that Ri crossed Kim Yo-jong, Kim Jong-un's younger sister. Kim Yo-jong is thought to be the power behind the throne in North Korea, and was recently made the head of the Propaganda and Agitation department. Unsubstantiated rumours also suggest that Ri was close with Jang Song-thaek, Kim Jong-un's uncle, who

was executed last year because of crimes against the state.

They Have a Family of American Film Stars

Fleeing crimes in South Korea in the 1960s, American soldier Joe Dresnok tried to get to the USSR through North Korea. He was captured and, because of his looks, was installed as an actor playing the villain in almost every propaganda film made by the nation. The decision maker in this process was none other than Kim Jong-il himself. It turns out that Kim was a major movie buff, who even screened bootlegs of American horror movies to seduce the girls during his college years. Dresnok continued to work as an actor until he retired, when his sons took over for him. The two sons also do the majority of the English voice dubs for the Korean films.

They Have a Bizarre Internet Presence

Recently, the regionally-blocked web sites belonging to North Korea were leaked. All 28 of them. Access to the websites was quickly revoked, but screen captures of most can be found on Reddit. The majority of the websites had to do with the government's various departments, as well as bashing the South Korean government and promoting Kim Jong-un's reign. There are also rumours circulating that the North Korean government is paying internet commenters around the world to bash the South Korean President wherever and whenever they can. The idea behind this is to disrupt her plans

for re-election next year.

They May be Planning Some Extreme Military Action

Kim Jong-un went on a recent trip to view tactical exercises by the nation's Special Forces. During the trip he told the soldiers that they were to "put a sharp dagger in the enemy's heart and break its back." North Korea also talks frequently about their capability to hit many viable targets with nuclear weapons. In reality they likely don't have the capabilities to hit anything further away than the Sea of Japan. Unfortunately, that range does include South Korea. This estimate is of course assuming that the North isn't holding back some super-secret military breakthrough.

They Just Got Pranked by a Pair of Australians

A pair of amateur golfers from Australia found the application for North Korea's official golf tournament online and applied, posing as their national team. They emailed in applications and were accepted. They spent five days in the North Korean capital Pyongyang, played in the two-day tournament, and were given a tour of the city. Their caddies were not pleased with their performance on the links, stating that one of them "brought great shame to [his] family" after shooting a 120. They returned to Australia without issue. Upon discovering that they had been hoodwinked, the North Korea government demanded that the two return to Pyongyang and apologize. I for one wouldn't go back.

Continued from page 1 as Election

2016: a year in review

What do we have to show for 2016? Brexit. The Colombian referendum. The American election. It's definitely been an interesting year for democracy, which is about the most tame way to put the current situation of the world. In the words of Franklin D. Roosevelt, "Democracy cannot succeed unless those who express their choice are prepared to choose wisely." It's a shame that so many people did not choose wisely.

Winner aside, this election has exposed a deep level of racism and all forms of bigotry in the United States, and has validated the voices of those who feel this way. It has told people that racism and sexism and bullying are acceptable, and that some people are better than others. While the election results are shocking and upsetting to many, the entire campaign is just as much so.

What Now?

Trump will be inaugurated on January 20. Until then, he will assemble his cabinet and work on a thorough policy agenda. He better get started crunching numbers for that wall. Rumour has it that math is not his strong suit, so this may take a while.

So, what fallout can we expect? Best case scenario is Trump doesn't do what he didn't say he would do. Since it's never been quite clear what he was planning to do. But as long as he doesn't do it, that's cool.

Also, it would be nice if he did not start a nuclear war. But only time will tell.

Space Cam: Saturn's Hexagon Changes Colour



CAMERON SOLTYS
3B MECHANICAL

SPACE CAM

Saturn is frequently called "the jewel of the solar system". The origins of that moniker may have been forgotten to history, but the reason is rather apparent. Saturn, of course, has beautiful gigantic rings, twice as wide as the planet itself. Its spectacular golden colour is beautiful, making it a delightful sight through a telescope. Saturn has an additional strange and wonderful feature to it; a massive hexagon at the north pole, adorning the top of the planet.

The hexagon was first discovered in 1988 by researchers looking at the 1980 and 1981 Voyager 1 and 2 photos. They observed the distinctly-geometric shape in the otherwise longitudinally-coloured planet. Unfortunately, the technology did not exist at the time to observe it further after the probes moved on. Its continuing existence was confirmed by Cassini, the NASA-ESA probe that is still in orbit around the planet today. The hexagon is massive, each side 32 000 km wide—larger than the diameter of the Earth.

The cause of the consistent hexagonal pattern is still not known, but several theories have been proposed. A study out of Oxford University suggested that interesting repeating patterns could form if the wind speeds changed quickly as one progressed from the pole to the equator. Under certain conditions relating to properties like the viscosity of the fluid, the hexagonal pattern will occur. The specificity of parameters required to make this phenomenon occur could explain why similar hexagons are not observed at Saturn's south pole, or on Jupiter's poles.

A second theory was proposed in 2015. This one, based on computer simulations, suggests that a jet stream near the pole might form a hexagonal pattern due to perturbations. This theory is backed up by the fact that it correctly predicts the hexagon will

rotate at about the same rate as the planet itself, and by the fact that there is a jet stream bounding the shape.

Regardless of the origins of the hexagon, it has begun to exhibit another surprising property: colour change. In 2012, Cassini took colour photos using its wide-angle camera, clearly showing that the hexagon was a dark blue hue. This contrasts with the golden hue of the rest of the planet. However, photographs taken this year show that the area inside the hexagon has changed to gold, much more in-line with Saturn's typical colouration.

The prime theory put forward by NASA to explain this change is that it indicates the passing of seasons on Saturn. Saturn has a 29-Earth-year orbit and a 27° orbital tilt, comparable to the 23° tilt that gives Earth its seasons. Saturn is approaching its summer solstice in May 2017, the time of year

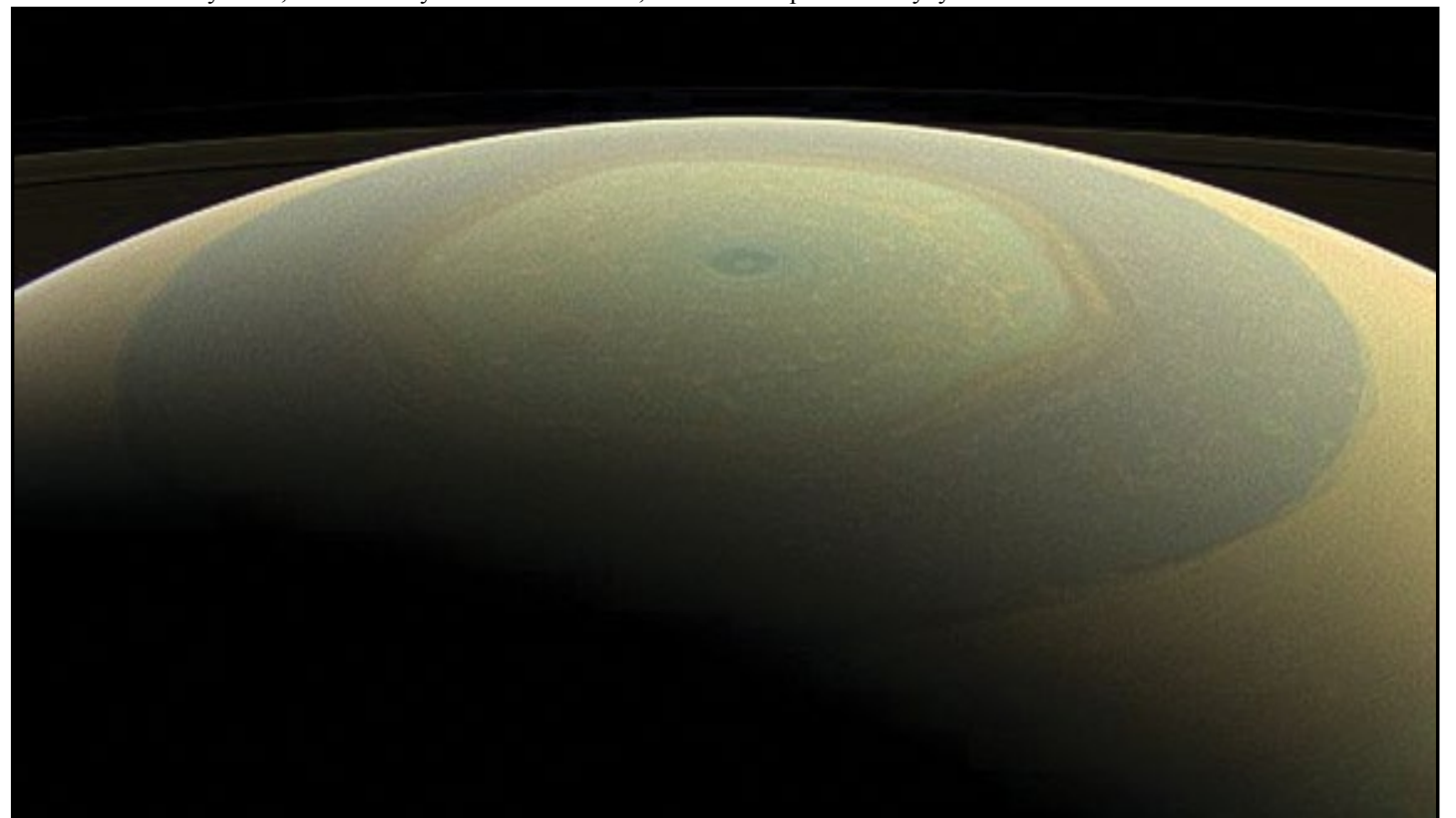
when the northern hemisphere receives the most sunlight. NASA suggests that the growing sunlight is causing photochemical reactions in Saturn's atmosphere. The resulting haze is gold in colour, causing a change in the hexagon's appearance. As the planet orbits around the sun, it will near its winter solstice. The associated reduction in sunlight will cause the created hazes to not be replenished, and the hexagon will revert to its blue colour.

NASA is being certain to clarify that their photochemical hypothesis is just that: a hypothesis. They also put forward alternate explanations, like other changes in the solar heating of Saturn, or changes in wind patterns that alter atmospheric circulation.

It would be interesting to continue to watch the evolution of the hexagon. However, Cassini's mission is almost over. On November 29, the craft will perform a flyby

of the moon Titan that will put it into a death-orbit. Over the next year, Cassini will make close flybys of Saturn's rings before entering the planet's atmosphere on September 15, 2017. This destruction will occur so that the probe is not left to drift where it desires. If this were not done, it could crash into and contaminate one of the icy moons around Saturn that could be harbouring alien life.

This story shows the important of long-term observations of the other bodies in the solar system. Without them, the hexagon would have been discovered, but the colour change would not have been. Hopefully, knowledge that amazing findings like this one can only be found by dedicated orbiter craft will encourage more long-term missions, especially to planets like Uranus and Neptune where their long orbital periods make any seasonal changes difficult to observe.



via wikimedia commons

Saturn's North Pole

The New Future of Waterloo Formula Hybrid Race Cars

PETER RO
WATERLOO HYBRID

Another competition year has passed and Waterloo Hybrid has plenty to show for it. Returning in May from the international Formula SAE Competition held in Loudon, New Hampshire, the team brought back fourth place overall, having competed against 28 other teams. Despite being one of the youngest teams in the Sedra Student Design Centre, Waterloo Formula Hybrid has been one of the leaders in the Formula Hybrid International Competition. Since the team's formation in 2012, they have since achieved a Top Ten finish in 2014 and an impressive first place overall in 2015. This year, the design team returns as Waterloo Formula Electric, having leveled up to expand their horizons to fully electrical vehicles.

In the 2015-2016 academic year, Waterloo Hybrid constructed a whole new electric vehicle from scratch, poured thousands of

hours of design, fabrication and testing; fought through sweat and blood, night and day to complete the vehicle for the competition. "I can't even count the number of days where we stayed at the bay all night to meet deliveries," says Cole McCaughan, Waterloo Electric's newest Team Lead.

The competition, hosted by the Society of Automotive Engineers, challenges undergraduate and graduate students to design, build and compete with their own open-wheel, single-seat race car. The Waterloo team competed in the Electric Drive class, receiving major accolades and 1st place in Design for multiple innovations in the powertrain system. The vehicle features two custom-made brushless DC hub motors sponsored by Allied Motion and a rack-and-pinion steering system, accumulator module, battery management system, and a steel tube chassis, all custom-designed by Formula Hybrid.

Aside from their great success in the competition, Waterloo Formula Hybrid

has now fully transitioned to its identity as Waterloo Formula Electric. With a new name comes a new brand, new colours and a new logo. But, most importantly, Formula Electric will bring a whole new attitude by beginning an initiative to further increase its educational capabilities by hosting more workshops and seminars to teach students important skills in the industry. The team also aims to reach out to more faculties at the University of Waterloo create a well-rounded team of dedicated members.

"A student design team is a multidisciplinary effort," says Natalia Godwinska, Waterloo Electric's Business Lead. "With a diverse team of students from many educational backgrounds, we believe that we can execute our initiatives and ideas to take back first place as we did in 2014."

Of course, none of this would be possible without the help of sponsors and the University of Waterloo staff and faculty members. Their guidance and assistance is

crucial to the success and continuation of the team, and as such, Waterloo Formula Electric will continue to uphold their reputation as one of the top teams competing for Electric Drive. Waterloo Electric gives out a special thanks to the Sandford Fleming Foundation for providing the team with a travel sponsorship in May for the trip to New Hampshire. The sponsorship has helped pay for the expenses associated with shipping the team's vehicle - an extremely vital task.

With the addition of Aerodynamics, Composites and Recruitment Teams, Waterloo Electric expects to compete in the 2017 Lincoln Competition with a whole new aerodynamics package, improved motor packaging, and high voltage accumulator design. Waterloo Formula Electric meets every Monday at 7:00 PM in E5 room 2001. The team is always welcoming new members, whether they are looking for a place to start their professional career or a place to find their passion.

Attack on Police Academy in Pakistan Leaves 61 Dead



YUHAN LIN
1A ECE

On Monday, October 24, cadets residing in a police academy in Quetta, Pakistan, woke to the sound of gunfire and explosions during the onset of a violent attack that would leave at least 61 dead and 117 injured. Militants entered the academy's dormitories at around 11 PM local time and opened fire on hundreds of cadets. The attackers also lobbed grenades into rooms where cadets were sleeping, and two suicide vests were detonated. Security quickly responded to the altercation with a

large scale paramilitary operation that lasted into early Tuesday, rescuing more than 260 police cadets who were held hostage and killing one attacker.

The attack was claimed by the Lashkar-e-Jhangvi (LeJ) armed group, a Sunni organization that primarily targets security personnel and the Shia minority in Pakistan. It was outlawed by the government of Pakistan in 2001, and designated as a terrorist group by the US State Department two years later. LeJ has since attained a notorious reputation for launching sectarian attacks, particularly in the Balochistan province where the police academy is located. These include a suicide bombing in a Quetta market that left 83 dead in 2013, and a bombing of a bus carrying Shia

pilgrims that killed over twenty in 2014. The latest attack on the police academy, however, comes as a surprise in light of the recent crackdown launched by Pakistani authorities against LeJ, which concluded with the killing of the group's leader, Malik Ishaq, in a shootout early last year. The fact that the attack occurred so soon afterwards attests to LeJ's ability to recover from heavy blows, as well as the prominence of terrorism in the region in general.

As for the survivors, the attack proved to be a harrowing experience. The gunmen entered the dormitories while the cadets were still asleep and unarmed. One anonymous cadet, who appeared shaken, described his experience in visceral detail. "They just barged in

and started firing point blank. We ran for cover, screaming. We were just trying to escape and save ourselves," the cadet told reporters during a segment recorded live on Pakistani television. Other survivor stories include accounts of grenades landing inside the living quarters, and survivors who hid under beds and jumped out the windows to save themselves. Despite all this, however, the ultimate goal of the attack was left unachieved. Although they were shaken, the survivors refused to be submissive. The spirit of solidarity and defiance against the use of violence and terror against the innocent as a tool of intimidation was best encapsulated in the words of survivor Safar Khan, who spoke with CNN after the incident. "We will not bow before terrorists."

Learn the secrets of startup success from the true insiders



\$2million
in funding available for
your entrepreneurial ventures

- How not to have ideas that suck
- Who wants what why and when
- Demystifying market #s
- Hunt problems, create solutions
- Product, market, fit

PROBLEM IDENTIFICATION: THE START IN STARTUP
October 28, 4:30-6:30pm QNC 1502

For full program information and deadlines visit:
<https://uwaterloo.ca/spectrum-28-student-venture-program>

WATERLOO
ENGINEERING

SPECTRUM 28
STUDENT VENTURE PROGRAM

Third Time's the Charm?



ADELLE VICKERY
PRESIDENT

Hello everyone, and welcome to my second-last article. I would like to follow the lead of my two predecessors, David Birnbaum and Leila Meema-Coleman, and use this issue to talk about my failures as President. This is a difficult article to write, but I believe it is going to be the most important. I was elected on a specific set of ideas, along with the rest of my team, and in the spirit of accountability, I strongly believe that it is important for the student body to be aware of the failures of its Executive team. I hope this trend of outlining shortcomings continues into the future, especially for those involved in student advocacy.

I do want to start with some accomplishments that I am proud of. First off, I believe

I have further improved our relationship with the Faculty. This includes making sure that the President is included in more discussions and decisions at the Faculty level. For example, going forward the EngSoc President is going to have more of an active role in Orientation Week, such as having a voice in the selection of FOC and a more active role during the week. On the topic of relationships, I honestly believe that I have begun to rebuild the bridge between us and Feds; in the Winter, we signed the Societies Agreement that was in the works for 2 years and have since developed a well-established relationship based on mutual support. The last major section is Council; the year before I was in office, Council was governed by the Executive and there was hardly ever any discussion on motions. During the last two terms, we have seen numerous mandates put forward by class reps and some very good discussion. I also succeeded in implementing remote attendance

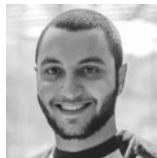
for JAGM, with the help of Jeff Gulbranson, to allow students on co-op to attend and voice their opinions.

Now, onto what I wasn't able to accomplish. Some items on my platform weren't completed due to infeasibility, so I'm not going to touch on those, but others weren't completed because I didn't put the necessary work into them. First on this list is a Council restructure. When I was elected President, I was tasked with running the Council Review Committee, which was in charge of proposing a new structure for Council. This Committee worked hard for a year, before preventing its report at JAGM. I'd really like to thank Hannah Gautreau, Brian Howe, Theresa Decola, Simon Grigg, and Melissa Ferguson for all of their hard work over that year. Unfortunately, the way we were set up to propose change, it was an 'all-or-nothing' situation, and the proposal failed. I do hope some of the aspects of the proposal are incorporated in the fu-

ture. Next is relations with B-Society. Over the first year of my Presidency, the relation was fairly rocky. I strongly believe this is because our teams were elected on different platforms and ideas; this is inherent in our structure and isn't going to disappear. However, I could have done more to foster good relationships and compromised on various issues so we could work better together. I think with the new B-Society team, this has improved and I'm happy to see some of our initiatives being integrated into BSoc and the incoming ASoc executive continuing BSoc initiatives. Lastly, I wanted to integrate more services for graduating services, and I'm sorry to say that I didn't work towards that implementation at all.

There are definitely other areas in which I failed. If you would like to talk to me about these points, feel free to reach out! I can usually be found in the Orifice (CPH 1327) and can be reached by email at president.a@engsoc.uwaterloo.ca.

EngSoc Student Deals Program



ABDULLAH BARAKAT
VP FINANCE

Hello Waterloo Engineering!

So for this issue, I'd like to take an opportunity to discuss an aspect of the VP Finance portfolio that I believe most students have an interest in: the Engineering Society Student Deals Program. This program was established in Spring 2013 by a former and infamous EngSoc President, David Birnbaum, and the program was created to allow EngSoc members (that's all undergraduate engineering students, unless you've refunded your fee) to receive deals at places in the plaza and the surrounding Waterloo area.

All you have to do is come in to the

EngSoc Office (CPH 1327) and request a student deals sticker, show us your WatCard, and start saving! We currently have 9 venues that are participating in this program:

Vegetarian Fast Food offers 10% off cash purchases (they don't just have vegetarian food either)

Molly Bloom's offers 15% off food (WHAT?!!)

Sweet Dreams Teashop gives you 10% off food (if they're feeling particularly nice, they'll even give you a discount on the bubble tea)

Kickoff offers a free basket of waffle fries with the purchase of two pitchers (only when Bill is working)

At Marble Slab Creamery, EngSoc members will now receive double stamps for every regular priced purchase

Menchie's Frozen Yogurt offers 10% off all regularly priced frozen yogurt

Baba Chicken Grill provides a free milk tea with any combo (1, 2, or 3) at regular price OR 5% off food when paying by cash

Mongolian Grill gives you 10% off the all-you-can-eat stir-fry buffet (dine-in only)

Crossroads Board Game Café now offers double stamps per game purchase

All these deals can be seen on the EngSoc website at www.engsoc.uwaterloo.ca/services/student-deals/

There are two main things that this program needs: awareness and more deals. A lot of students know about the program, and have come into the Orifice to get their stickers, but at the same time a lot haven't. That's one of the reasons I wanted to write about the program in this issue, to get the word out there. If you don't have the sticker, you should come get one! If you know someone who doesn't have the sticker, tell them to come get one! If you know

someone who knows someone who knows someone... you catch my drift, just get the sticker! It's easy to do and totally worth your while.

What about more deals? We're constantly trying to approach new places to get new and exciting deals to offer to our students. We are currently talking with a number of restaurants in and around the university area. However, we always want to know what you want to see in the student deals program. If you have an idea for a new deal, please let me know! Stop by the Orifice and we can chat, or send an email to me at vpfinance.a@engsoc.uwaterloo.ca. I'm always happy to get your feedback and see what you want out of the Engineering Society. That's all I've got for this issue! As always feel free to let me know if you have any questions about EngSoc's finances, or EngSoc as a whole!

My Term is Semi-Done



SARBAJOY MAJUMDAR
VP INTERNAL

Hey all, Sarb here, and I am honestly still recovering from the hype and euphoria I have had from Semi-Formal, which happened on Friday November 4th. It has recently dawned on me that I am almost done my term, and that is kind of sad now when I think about it.

This is an article in which I want to talk about some of my successes and failures as an executive, as well as some big upcoming things.

First, I want to talk about all my failures. I have not been able to create a proper on-going interfaculty collaboration tradition. While I have made good connections with everyone from each faculty during my time, I do not think I was able to establish a setup that allowed us to hold termly co-operations with each other. Secondly, I did not advertise many of my events as much as I should have as an exec, and that could have been a reason why some of my events under me did poorly during my time. I may have submitted some of my IW articles late (*Earlier than half the staff members - Ed.*), and I may have not been a good member of the IW board of directors. Lastly, I think that I was definitely not the most professional of a person when it comes to handling conflict resolutions. There are many evidences of my lack of professionalism as executive, and I sincerely apologize for

everything that has happened. There are many more failures that I am sure exist, but I am genuinely not aware of. So please do let me know what they are, because I really love to hear back from people.

However, I want to say that I feel that my term has been successful in some aspects. First off, I feel that my team and I helped inspire many people to want to be involved in EngSoc. I have had the chance to interact with a lot of directors and commissioners who were utilizing their experience to be a first step to EngSoc, and many people have told me that they have enjoyed their time as being a director or commissioner. Secondly, I have been amazed to see some dying events like Ski Trip and Genius Bowl flourish under my term as exec. I have also supervised a really successful First Year Development Portfolio for EngSoc this term. Lastly, I am super proud to have known the numerous directors and baby directors that have worked under me, and have developed some skills to want to take things to the next level.

I could never imagine EngPlay being run in Hagey Hall under me, and being a full-blown musical (ticket sales starting soon); I could never imagine Genius bowl having 20 teams sign up last winter (and this term's may be bigger, happening on November 10); I could never imagine First Year Mentoring having 95 mentors and 300 mentees; I could never imagine Professor Larry Smith being a keynote speaker for the First Year Engineering Leadership Conference; I could never imagine that Postsecret was going to be a termly thing rather than a week-long initiative; and I could never imagine see-

ing new people coming to EngSoc people and saying "EngSoc is actually very fun". Best of all, I know that all the things I have mentioned are just small accomplishments, and whoever will replace me will have the chance to make everything I mentioned, and more, become bigger than what they are right now.

Eventually, I want to say that I did nothing much as an exec except to help people try out new things with EngSoc. I am, however, really ecstatic to see that people who have worked with me closely have been inspired to either run for an EngSoc executive position in the upcoming EngSoc elections, or has used their experience to start other ven-

tures on campus or their personal lives.

Hence, I want to thank all my directors, commissioners and everyone else I have met to make me feel that I was a decent-enough of an exec this past 16 months, but most importantly, have helped make EngSoc be a much more inclusive, open and creative society.

As always, I am approachable and love to talk to any of you (even if you don't like to talk to me) so feel free to reach out to me via email (vpinternal.a@engsoc.uwaterloo.ca) or stop by the Orifice (CPH 1327) on Mondays 2.30pm-4.30pm as well as any other times you are free and I will help you to the best of my abilities.

ENGPLAY PRESENTS

GAME OF TIARAS

HAGEY HALL

NOVEMBER 17 18 & 19 8 PM

ADMISSION \$6

PRESENTED BY THE WATERLOO ENGINEERING SOCIETY

A Wild Election Appeared!!!



WILL WILMOT
VP EXTERNAL

So I took a look at all the articles, and realized that no one decided to cover the election... not THAT election, but the Engineering Society one. How did I see the articles ahead of time, you ask? Perks of helping the Iron Warrior team edit stuff. If you like to write stuff, edit stuff, have ideas for articles and/or are looking for a way to get involved, you should stop

by E2-2347 around 5:30 on Tuesdays and say hi!

Back on topic - this is my last article as an executive member... Well, okay there will be one more, sure, but there will be new people to introduce and explanations of what will change once my team leaves office. Now, there's an election coming up - yes, indeed, another opportunity to get your say (again, we aren't talking about the American election here). For some positions, you'll be voting for one (or a pair) of the candidates to represent you for the next 16 months; others, you will be voting either yes or no on a candidate

who runs unopposed. Regardless of what your view is, you should get out and vote. These individuals will form the rest of a team that will work alongside Abdullah Barakat (the incoming President/current VP Finance if you didn't know) to create and/or continue stuff that serves and helps you guys, the student population. There are a whole bunch of services that will be continued from previous terms such as the Student Deals (see other article on page nearby), resume critiques, and much more. Let me take a second to note that if there is something that you'd like to see happen, feel free to stop by the

Orifice (CPH 1327) and talk to one of the executives about getting your event off the ground.

If you feel like you want to get involved in a larger capacity, stay tuned for commissioner applications which should be available sometime this month once the new team has been elected. They will meet and decide on which positions will be available in the upcoming spring term.

Final reminder to get out and vote from November 7th to 11th. If you have any questions or just want to chat, drop by the Orifice, or send an email to vpexternal.a@engsoc.uwaterloo.ca.

VP Education Shortcomings, Take 1



JEFF GULBRONSON
VP EDUCATION

Hello, and welcome to the penultimate Iron Warrior of the term! Originally, I was going to be writing my article about Co-op 2.0, but then I realized which number issue this was. That means it's also my last serious article as EngSoc Exec, so I wanted to take a cue from previous executives and talk about my time in office, what I wish I'd been able to do, and where I see the role going. First, I'd like to point out that much of what's been accomplished these past 16 months would not have been possible without the help of others, and I'll do my best to give them the credit they deserve. I apologize in advance if I miss you.

There are many things I'm proud I've been able to do during my time as VP Education, starting with Career Fair. I've been lucky to have amazing directors both terms, and it would not have been able to grow as an event without the

efforts of Eric Shi, Channa Potter, and Jenny Ma. We have a location we're able to consistently use, employers that return term after term, support from CECA, and some good momentum to carry forward. (It's also the reason my portfolio is the only one that ended last term with a profit.) In addition, hardware workshops were introduced this term and have been a huge success. Thanks to Eric Shi, Ken Geertsema, Wesley Fisher, Daniel Lizewski, Tianyu Guo, David Perna, Kathryn Lynch, and Solomon Kingsley. I hope that the amazing work you've done carries over into consequent terms. On that note, moving services under Education was something I pushed for, and my team supported me with, that I'm glad to have done. This includes the ongoing resume critique service we're starting, which has been in large part due to my amazing student services commissioner, Arianna Skirzynska. And lastly, I'm happy that I'm leaving the position with positive faculty relations. My predecessor Josh Kalpin did a lot to legitimize the position, and I'm confident when I say the next VP Academic will

start off with positive recognition from the faculty.

Now, on to what I didn't accomplish, and wish I could have given more time. Firstly, it would have been nice to revamp the workshops we offer. I think that some of the workshops we run could likely be changed both in format and content, and while the hardware workshop did a good job of adding something new, I would have liked to see more of a change. I also would have liked to set up an academic rep meeting across all programs/years. It would be a good opportunity to provide tips for reps when talking to professors, and the Associate Dean Teaching is very interested in attending. I think it would especially be important for first-year reps, who might be nervous or not sure what to say in meetings. Tacking onto that idea, I would have liked to have promoted the position of VP Education further. The role is a great resource for students on both academic and co-op policies, and I was able to help students that approached me. However, I'm sure that for every student that did talk to me, two didn't, because they either didn't know about the role, or

what it can do to help them.

Finally, where I see the role going, which will be VP Academic from now on. For the most part, I think it's heading in the right direction. The transition of services to Academic is something that I hope continues, as I believe it fits in with the portfolio. I see the VP Academic also taking on the role of student representative at the Examinations and Promotions (E&P) committee, which is currently held by the President. This is something that's been recommended in the past, and I think fits in well with the VP Academic's primary purpose of advocating on behalf of students. And finally, I predict (or perhaps hope) that the student body will be more informed about the position, so that it can be utilized as a resource when needed.

I think that covers most of what I wanted to talk about, and if you made it this far, then good on you! If you're interested in anything I said and want to chat, you can usually find me in the Orifice (CPH 1327). I look forward to seeing what my successor brings to the role, and contributing to EngSoc outside

So You Think You Can Critique?

JENNY MA, GORDON STUBLEY COURSE CRITIQUES DIRECTORS

Hey engineers, it's that time of the term again! With faculty course critiques around the corner, here are some things to get you up to date. Last Fall, Engineering introduced a brand new campus-built online course evaluation platform, *Evaluate* (<https://evaluate.uwaterloo.ca>). This successful trial transitioned the faculty away from the paper-based course evaluations of the past,

with an astounding overall response rate of 58.8%, for which we are very grateful! As course critiques are approaching again, we're aiming to maintain the high response rate for a smooth transition to electronic evaluations - it's definitely time to make the move.

Teaching has significantly changed since the paper questionnaire was introduced over 20 years ago, when single-instructor, multi-section, lecture-based courses were the norm. Today, Engineering's programs

include labs, projects, seminars, team-taught, online, and other types of courses, many of which cannot be adequately evaluated with the questions found on the existing paper questionnaire. In the past, since paper questionnaires can't be customized for different courses, critiques were not available for certain types of courses.

Moving to electronic delivery is the first step toward a new comprehensive evaluation system that will provide

instructors of these varied course components with meaningful student feedback. We anticipate the introduction of a new set of core questions that are applicable to all course experiences plus additional question sets that are specific to different teaching modes. This will provide instructors of all types with meaningful student feedback.

This term, even more classes will be evaluated electronically - just under 3% will be evaluated using the paper questionnaires. This means a lot less waste, as the paper-based system used more than 20,000 paper questionnaires and 600 envelopes per year. It also brings a lot more efficiency, as the online platform is integrated with campus data systems and doesn't require staff time to manually scan completed questionnaires. And using electronic questionnaires means that we will be able to think about creating different question sets for lectures, labs, and project courses.

Starting November 14, students will be given class time to complete Course Critiques electronically. Make sure you find out from your professors when you'll be given class time so that you can bring your web-enabled phone, tablet, or laptop to class, and take Evaluate for a spin.

Your active participation in course evaluations provides course instructors with valuable feedback on their teaching. Your feedback is important, as it helps guide teaching development efforts at the individual, program, and faculty levels. So please complete all of your course critiques - future engineers are counting on you!

KITCHENER WATERLOO



Travel Vaccines
& Advice
by Appointment

Health Canada Certified for Yellow Fever

519.570.4208

www.kwtravelclinic.ca

Physicians Certified in Travel Medicine

Police Woman Repeatedly Assaulted in the Workplace



TAHREEM FAROOQI
1A PLANNING

A police officer of the Toronto police force claims the environment to be “poisonous” to women, mainly speaking from her personal experience.

Police woman Heather McWilliam claims that she has experienced numerous instances of sexual harassment while working in the 23 Division. According to CBC, McWilliam constantly faced both verbal and physical harassment.

They would treat her like a sexual object. When attending meetings her staff sergeant, Christopher Nolan, would describe himself giving oral sex to her, as well as physically demonstrating it. There

were photos of her in a bikini passed around the office. He would whisper in her ear suggestive phrases such as “lick her”, as well as loudly vocalizing how he would “spank her in his office later” (CBC, 2016). This eventually breached physical harassment once he tried to kiss her on the mouth, as well as trying to shove his tongue in her mouth. Nolan admitted to making these comments.

McWilliam eventually filed for harassment at the Human Rights Tribunal of Ontario and the hearing continues. All the claims have been denied thus far, and none of the allegations made have yet been proven in court.

Despite this, McWilliam and her lawyer Kate Hughes believe that this isn’t just a problem affecting one person, but rather a systematic problem within the whole police force. They claim that it is an

extremely “poisonous” environment for most women in the police force. One of the major reasons why most women don’t call attention to harassment in the workplace is that it leads to the end of their career. Once any allegations are placed, they will most likely not continue in that division, or in that workforce entirely. The other major reason is the fear that comes with the lack of trust between the women and their coworkers. When working in the field, they are responsible for each other’s lives. The fear that is associated with “rating”, which is what it would be considered in the workforce if one were to file a harassment complaint, is too great when it comes to one’s life, especially when “rating” is seen as someone breaking that trust.

This fear, Hughes claims, is seen all throughout the police force, stating, “To the female officers out there who are still

suffering in these conditions at Toronto Police Service and who have not come forward, and they are fearful, we’re still going to fight for you, even though you’re unable to. We still know you’re out there and we want to fight for you.”

The representing lawyer of the Toronto Police Services Board battles this claim, stating that this is only a one-time situation rather than a repetitive issue. Lawyer Amandi Esonwanne states, “What you have here is one person. You don’t have before you a set of facts dealing with a number of women in the Toronto Police Service.”

Heather McWilliam has since been diagnosed with post-traumatic stress disorder since the harassment has taken place. Nolan, admitting to having made those comments, has been sentenced to forfeit twenty days of pay.

France Dismantles “Jungle” Refugee Camp



HIRA RAHMAN
1A NANOTECHNOLOGY

French police officially began dismantling the infamous Jungle Refugee camp in the city of Calais in late October. The refugee camp had become a temporary home to over 9000 refugees, 82% of whom were trying to reach the UK.

The French government claims that the decision to close down the camp was due to humanitarian concerns brought on by the poor living conditions within the camp. The camp lacked proper sanitary and washing facilities, and many refugees were living in tents. According to a United Nations High Commissioner for Refugees (UNHCR) spokesperson, “The Jungle site

has been problematic for a number of years, and UNHCR has long recommended its closure. Living conditions are appalling, with the most basic shelter, inadequate hygiene facilities, poor security and a lack of basic services.”

About 2000 of the camp’s residents left voluntarily days before the camp was dismantled. Other refugees living in the camp were taken to reception centres throughout France, where they will have the opportunity to apply for asylum or face deportation. Although refugees living in the camp came from several different countries such as Sudan, Afghanistan, Iraq, Iran, and Syria, it is more likely for Syrian and Iraqi refugees to be granted asylum, although it’s not guaranteed.

The dismantling of the refugee camp has brought up many concerns about the hundreds of unaccompanied children who

were living in the refugee camp. According to various aid groups and the UNHCR, these children are at risk of exploitation, trafficking, and violence.

At this point, children are the only group of refugees from the camp permitted to remain in Calais. They will be housed in the camp’s converted shipping containers for the time being. The British government accepted 200 teenage refugees a week prior to the dismantling of the camp. All unaccompanied minors with proven family links in Britain will eventually be transferred there.



via Wikipedia

The Calais “Jungle” refugee camp.

Netflix and Bills



LEANDER RODRIGUES
1A NANOTECHNOLOGY

I don’t think I need to explain to anyone reading this that paying for tuition, and for the university life in general, is an expensive feat. You pay an institution so that you can work full-time for four years, then maybe get a job that will pay you full-time to pay back the money that you spent but didn’t have. The system is a little weird, and if I were to interview a random selection of students, they might have a few colourful words to use to describe it, but maybe less so after this week. Think of this news as putting an air freshener over

your trash can.

The Liberal government announced that as of November 1, 2016, students who have taken out a Canada Student Loan will not be required to pay back their debt until they’re earning at least \$25 000 a year. For anyone wondering, the previous minimum earning rate to start repaying student loans was \$20 210 annually. This new increase was made to help ameliorate the incredible debt load that faces post-secondary graduates as they try to join the work force. Statistics showed that an astonishing 750 000+ students were repaying debts during the 2013-14 year, with around a quarter million more students receiving repayment assistance.

The announcement also came with some other great news for students of low-

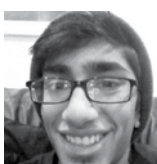
income families. There is an approximately 50% increase in the size of grants that don’t need to be repaid. That means \$2000 to \$3000 for full-time students from low-income families, \$800-\$1200 for students in middle-income families, and \$1200-\$1800 for part-time students in low-income families. This has been predicted to increase educational grants from the government by about \$1.5 billion over the next five years.

This is clearly a step in the right direction, and will have some positive results for the post-secondary graduate life in general. Some observers of the change noted that graduates may have an easier time with major life milestones, and won’t have to delay buying that car, house, or even engagement ring.

Realistically, the number can still be seen as too low to help with the interest that accumulates on student loans. When doing the math, \$25 000 will net you about \$1500 a month after taxes, which isn’t very much to be living properly on and to start repaying debts. While the news is good, many interviews from students didn’t see this as a fix to anything, but more so an insult to the size of debt that can be accumulated and to the students who are forced to deal with it to get an education.

This news by no means solves every student debt problem out there but it’s still going to benefit most people, even if only marginally. Hopefully it helps a good number of those graduates stressing about paying back their loans. Good thing we have co-op, eh?

The Narcotic Nurse



HASAN AHMED
1A NANOTECHNOLOGY

Elizabeth Wettlaufer, a 49 year-old nurse, was recently charged with eight counts of murder of her elderly patients. These murders occurred over a span of 7 years, from 2007 to 2014, and happened in both Woodstock and London, Ontario nursing homes. Police say the patients were administered a drug that would kill them. Even though the investigation began recently, and information was uncovered fairly quickly, Elizabeth was described by her neighbours

as a good person, and “nothing was out of the ordinary,” according to Shawna Fraser.

Although that may have been true from her perspective, rumours had spread regarding her substance abuse issues and restriction of access to insulin for non-personal use. She was also banned from visited long-term care facilities unless she was the one who needed medical treatment. Elizabeth had also recently gotten out of rehab for the second time. Even though this could be related to her killings, it makes more sense that these restrictions were based on her personal mental health. She would have been in jail much earlier if the nursing homes knew of her actions.

Wettlaufer had practiced since 1995, and

it is still a shock for most of her neighbours to hear the news. It seems her serial killer actions were easily masked throughout her community, as she has also volunteered at charitable organizations. However, family members of the victims were not happy, because of the obvious repercussions of finding out that their loved one potentially could have survived. All eight victims’ names were released, and obituaries were posted.

It is only the second case in Canada where this is believed to have happened, with another case happening in the 1980s. However, many other cases have occurred where the defendants have either been falsely accused, not enough evidence was

present, or they pleaded guilty of a lesser charge. Whether they were actually guilty is always difficult to prove, and careful precaution is always taken to avoid a wrongful conviction.

Elderly abuse isn’t been something that has been recently measured, and it’s difficult to estimate its prevalence in Canada. Elizabeth’s actions are not a reflection of long-term care facilities in Canada (or even Caressant Care, where she worked). So, even though sadism in the medical industry may sound like something that should be feared by all patients, it’s a rare case, and chances are you are in good hands and the staff are doing their best to help you get better.

Silphium and Contraceptives That Didn't Go Extinct



MEAGAN CARDNO
4A NANOTECHNOLOGY

For as long as people have enjoyed sex, unwanted pregnancies have also plagued couples wishing to remain baby-free. In ancient times, around the first and second century BCE, there was a mysterious plant known as silphium, that was much-sought out by members of the public for its medicinal properties. Thought in popular legend to be a gift from Apollo, the god of medicine, it was used as a general cure-all for many remedies, including: sore throat, fever, warts, and all sorts of general aches and pains. However, as an added bonus, it also seemed to have significant contraceptive use amongst the population.

The true identity of the plant is not entirely known; many suspect it to be a member of the parsley family, which are known to have estrogenic properties, mimicking certain types of hormone therapy. It also might be related to a family of wild carrots, such as “Queen Anne’s Lace”, a type of contragestative agent. It can cause damage to the lining of the uterus, the endometrium, where the fertilized egg is usually implanted, thus putting a potential pregnancy

at risk of not being carried to term. Regardless of its true identity, the plant was incredibly important to culture of the time. It was such a key stable in its trade that the city of Cyrene (in the location of present-day Libya) had symbols of the plant emblazoned on their currency. Sadly, the plant was so desired that it was farmed and harvested to the point of extinction just a few centuries before the common era.

Luckily, even though this contraceptive technique is no longer available for our own purposes, we do have a plethora of other methods of preventing pregnancy. These methods can be categorized into a few key routes of methods: sterilization methods, barrier methods, and hormonal treatments.

Sterilizations methods are exactly what they sound like— methods that involve either the male or female removing their ability to reproduce entirely. These feature either the male vasectomy, which involves the severing of the vas deferens and prevention of sperm from being ejaculated during sex, or the female tubal ligation, in which a woman’s fallopian tubes are blocked, sealed, or severed entirely from the uterus, preventing eggs from reaching the uterus. Both of these procedures halt the production of both sexes’ gamete cells permanently.

Barrier methods are perhaps the simplest to

understand: sperm + egg = zygote, so if you don’t want zygote, don’t let sperm reach egg. There are a multitude of methods that fall into this category— male condoms, which prevent sperm from even entering the vaginal opening, as well as female condoms, diaphragms, and sponges, all of which prevent any sperm that enters the vagina from entering the cervix. Many commercially available barrier methods come with an added assurance: foam or liquid spermicide, chemicals which kill or otherwise hinder sperm cells before they can cause trouble anywhere.

At present, the only contraceptive methods that utilize hormonal therapy are available for the female half of the equation. These methods utilizes synthetic progesterone and/or estrogen, depending on the formulation, to mimic hormonal patterns typically produced during pregnancy. This causes the female body to “believe” that it is pregnant, for a time, and the ceasing of ovulation (egg production). This means that a woman should not have any eggs present in the fallopian tubes that could get her actually pregnant. These hormones can be delivered in a variety of methods: daily pills, dermal patches, implantations under the skin, vaginal rings, and with intrauterine devices, or IUDs. The latter devices can last for several years before they require replacement.

Most IUDs actually have another anti-pregnancy technology behind them: a small amount of copper coiled around the device. Surprisingly, copper is a rather potent spermicide. The entire reason behind this is not well-documented, but it is believed that copper reduces the oxidation processes and glucose consumption within the uterus, which is required for sperm cells to perform mobility processes, essentially halting them in their tracks.

Contraception methods are different than pregnancy methods, as instead of preventing sperm and egg from meeting, they work against gestation, or the implantation of a fertilized egg into the endometrium. If you messed up and accidentally have a fertilized egg, your next step to prevent baby.exe from executing is to prevent that egg from getting too comfortable where it is. This typically is achieved via mifepristone, a synthetic drug which causes the degeneration of the endometrium, and a direct reduction of production of progesterone—the same hormone used in hormonal contraception. Without adequate levels of progesterone, fertilized eggs usually do not survive long, either due to an improperly prepared endometrium for egg implantation, or lack of protection from the body’s own immune system during early stages of pregnancy.

On My Mind: Psyching Yourself Out of Stress



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 time, I offered some tips to help you before and during job interviews, and explained the psychology of why they are effective. This time, since first-years finished their first-ever university midterm exams—congratulations!—and upper-years are either finished or wrapping up,—you’ve got this!—this would be a good time to visit some relaxation techniques and the psychology behind why they work.

Exercise is healthy for your body and your brain. Setting the bodily benefits aside, our body releases chemicals called “endorphins” when we exercise. Endorphins interact with the opioid receptors in our brain, which reduces our perception of pain—they make us more resilient! They also stimulate a feeling

of euphoria, which explains the “high” that many people describe after a solid run (the “runner’s high”) or workout. Any type of aerobic exercise at a moderate degree for a duration of 20 to 30 minutes will have this positive effect. Other benefits include better brain performance (e.g. decision making, learning), improved memory, and reduced risk of Alzheimer’s.

Obviously, the hardest part of exercise is taking the first step—getting started. My general rule of thumb is to find something that you like. Join an intramural sports team. When the weather is nice, go outside and play a couple rounds of Frisbee with your friends. Hit the gym if that’s your preference.

Spending time in nature has some restorative effects on our brain, too. The feeling that you get when your brain is just not absorbing any information is called “mental fatigue”, and spending time outdoors is the perfect way to overcome this common problem. Not only does mother nature provide tranquil environments, but it also forces us away from technology, which can be a source of stress, such as seeing your jam packed Google

Calendar of lectures, tutorials, and labs, or receiving a work email over the weekend.

Deep breathing is an excellent method to destress as it is the method that you can practice pretty much anywhere. The science behind deep breathing is quite complicated since it involves numerous processes, but we will focus on the sympathetic nervous system (SNS) and the parasympathetic nervous system (PSNS) for the purposes of our discussion.

To use a simple analogy, the sympathetic nervous system acts as the gas pedal, whereas the parasympathetic nervous system acts as the brakes. Maintaining equilibrium is crucial to the human body. When you inhale, blood travels from the heart to the vasculature of the lungs. Consequently, the sympathetic nervous system kicks into the gear, and it causes the heart rate to increase.

When you exhale, the blood in the lungs returns to the rest of the body, and your heart rate slows down as the parasympathetic nervous system kicks back into gear.

By slowing your respiratory rate, your body has more time to emphasize the self-

regulatory processes of the sympathetic and parasympathetic nervous systems. Particularly, when you slow down your exhalation rate, you increase the effect of the parasympathetic nervous system’s outflow.

Personally, I love listening to music because there is a wide variety of music genres to choose from, depending on my mood. There is an interesting field—one that I considered studying before I chose Engineering, actually—called Music Therapy. As you can probably deduce from the name, music therapists use the healing effects of music to help patients in a range of healthcare settings, from operating rooms to family clinics. Listening to and playing music increases the human body’s production of an antibody called “immunoglobulin A” and “natural killer cells” (these cells attack viruses that invade the body and boost the immune system’s performance). Music also reduces levels of cortisol, which is known to most as “the stress hormone”.

These are some personal music suggestions from me, depending on your state:

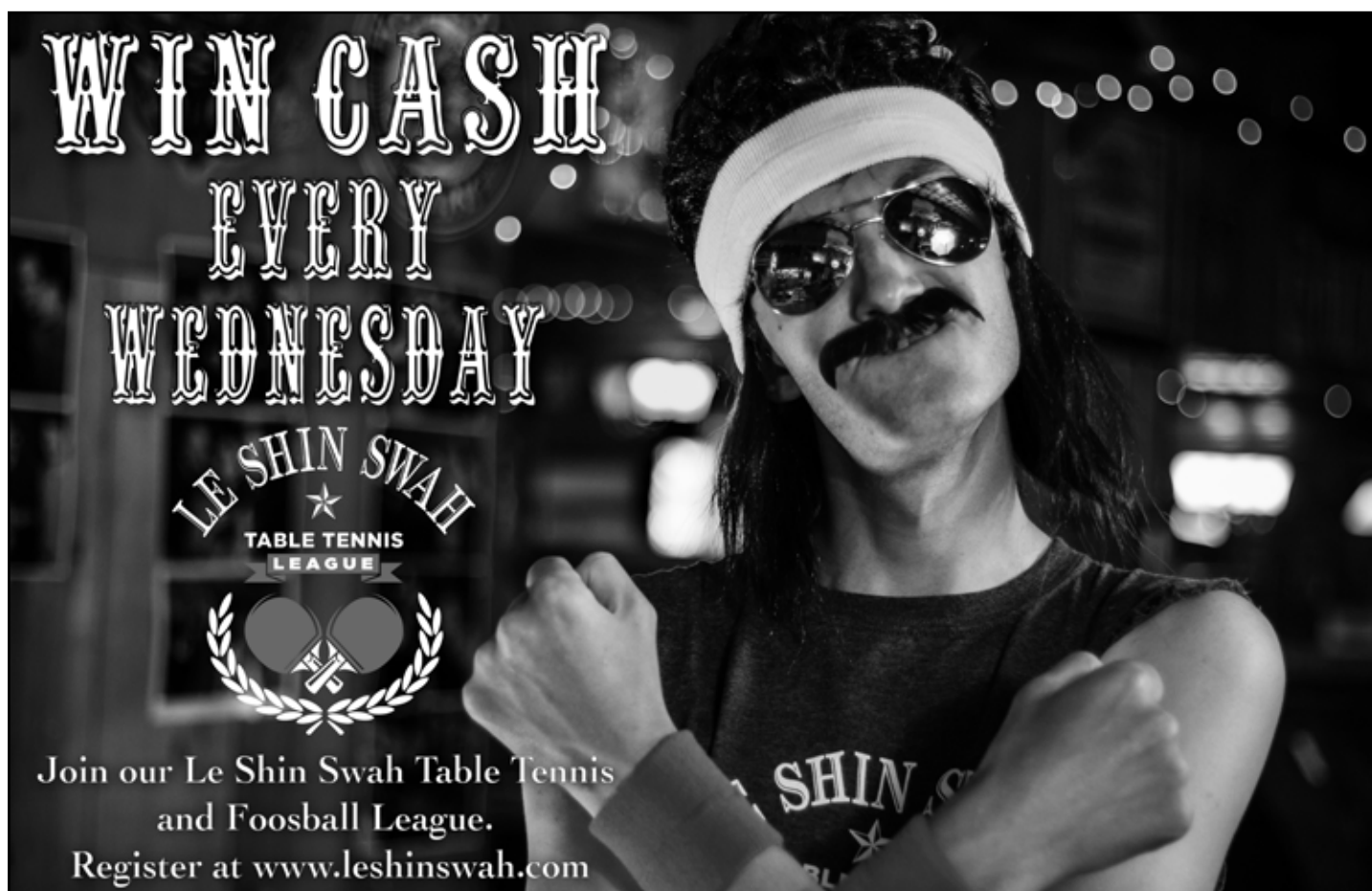
If you want to be productive, classical music is a classic choice. I would further suggest Mozart, Beethoven (piano concertos, symphonies), and Chopin (Mazurkas).

If you want to relax, listen to jazz.

If you need to blow off some steam, listen to something loud. A while back, I was listening to the soundtrack of an animated show that is made by Rooster Teeth called RWBY.

Finally, because we are in Engineering, I would strongly suggest pursuing a creative hobby of some sort. I cannot speak for everyone in Engineering, but I need opportunities to take a break from the Science and Mathematics that goes into our courses for the sake of my sanity. For me, thinking is taxing, but singing along to my favourite jams or colouring in my adult colouring book is easy. My brain is still activated, but different parts of it are activated during a creative activity rather than a hardcore, academic activity.

Thanks for reading! Take care of your mind—it is, arguably, the greatest asset that you can ever have in your lifetime. No matter which strategy you try—be it exercise, wanders in nature, listening to music, or pursuing a creative hobby—do something that you love! If you find another activity that works for you that isn’t on my list, do it instead. That way, it sticks, and you can give your brain much deserved pampering for a lifetime.



WIN CASH EVERY WEDNESDAY

LE SHIN SWAH
TABLE TENNIS LEAGUE

Join our Le Shin Swah Table Tennis and Foosball League.
Register at www.leshinswah.com

Discover Broadway: More Secrets from Hamilton



TIFFANY CHANG
1T CHEMICAL

DISCOVER BROADWAY

Welcome to another journey through the sights and smells of the Great White Way—better known to the rest of humankind as Broadway! I hope to share my passion for musical theatre with everyone in Engineering, especially some lesser known shows, or better yet, get you hooked on the catchiness of showtunes or obsessed with their reflection of certain parts of reality. Last issue, I took you through the world of *Jekyll and Hyde* in honour of Halloween, and this week, we'll be revisiting *Hamilton: An American Musical* to honour the premiere of *Hamilton's America*, a PBS documentary that took Hamilton fans from all around the world through the making of this musical that has taken the entire world by storm and has “blown us all away”.

Since I watched this documentary, I have gained a clearer understanding of the history behind one of America's Founding Fathers and the American Revolution. In addition, I have sought deeper meaning in the libretti of *Hamilton* and gained further respect for composer and lyricist Lin-Manuel America.

The first is how Alexander Hamilton managed to immigrate to America—specifically, New York. We learn the basics of his story in “Hurricane”, where Hamilton proclaims his humble beginnings to the world:

*“When I was seventeen, a hurricane
Destroyed my town.
I didn't drown;
I couldn't seem to die.”*
His solution?
*“I wrote my way out,
Wrote everything down far as I could
see.
I wrote my way out.
I looked up and the town had its eyes
on me.”*

The full story is that Hamilton wrote a letter to his father about the hurricane that destroyed St. Croix. Minister and journalist Hugh Knox published his letter in the Royal Danish-American Gazette. When his townspeople read it, they were in awe

that a seventeen-year-old had written such an eloquent and beautiful letter. After *Hamilton's America* was over, I read his letter online, and tears welled up in my eyes. Not only did Hamilton use imagery to perfectly capture the mighty hurricane, but he is also resolute in his faith in God—he would live to see another day, and he would still have the opportunity to leave his mark.

Composers love to reuse themes in large scale works, and Miranda is no different. Even though this number was cut from the show, “One Last Ride” is the full version of “One Last Time”. Besides Washington telling Hamilton that he would be stepping down as President after his term, and Hamilton dissuading him, Miranda brings back the theme from “Right Hand Man”. Instead of the chorus chanting “Here comes the General [Washington during the war]!”, they chant ““Here comes the President!”

To be historically accurate, there is also mention of the Whiskey Revolution. During Washington's reign, Hamilton, as the United States' first treasury secretary, introduced this tax—the first tax imposed by the newly-formed government—to help reduce national debt that was incurred during the American Revolutionary War.

There is also a hilarious interjection from Hamilton, “Pay your f**king taxes!” What more to expect from the father of the United States' modern model of economy?

“Congratulations” is embedded in the musical number “The Reynolds Pamphlet”, which highlights how stupid Hamilton was for publishing his affair. In the show's current incarnation, “The Reynolds Pamphlet” has a line about Hamilton—literally—ruining his own life:

*“Have you read this?
You ever see somebody ruin their own
life?”*

“Burn” also has numerous lines about the trade-off that he had made in publicizing his affair—

Angelica reminds her younger sister Eliza,
*“Be careful with that one [Hamilton],
love. He will do what it takes to survive.”*

However, “Congratulations” really hits home. In *Hamilton's America*, Miranda stated that Angelica was the only person who could match wits with Hamilton—

probably even surpass him.

“Dear Theodosia” also has its reprise in the off-Broadway run of *Hamilton*, in between “Burn” and “Blow Us All Away”; however, it was cut from the official production since Burr's wife and daughter shared the same name. Here, Burr tells his daughter that her mother has passed away from stomach cancer, rather than implying the same thing in “The World Was Wide Enough”, where Burr exclaims,

“This man [Hamilton] will not make an orphan of my daughter!”

Burr breaks the tragic news to his daughter in the reprise of “Dear Theodosia”.

In fact, the reprise of “Dear Theodosia” has the complete opposite mood to *Hamilton's* current incarnation of the same number. Even though it is a tear-jerker, it is a beautiful one.

One of my favourite numbers that was unfortunately removed from the Broadway production is “Ten Things One Thing”. It provides additional information to the number “The World Was Wide Enough”, and it epitomizes an interesting point that Manuel brought up in his discussion with Stephen Sondheim and John Weidman (the composer and the librettist of *Pacific Overtures*, *Assassins*, *Road Show*, respectively): Miranda admitted that he “was drowning in research [while writing *Hamilton*]” and the best piece of advice that he got from the two Broadway greats was to “just write the parts that you think are a musical”.

Miranda did the only thing that he could really do as an artist: he synthesized all of what he knew about Hamilton and imagined what this great man was thinking about from the moment he woke up to the moment where his pistol went off towards the sky.

Most importantly, we learn more about the pivotal relationship in the musical—the relationship that Miranda constantly revisited while revising the production—Hamilton and Burr's. They are polar opposites: Burr was born into aristocracy, while Hamilton was born into poverty and had to earn everything for himself. They were both revolutionaries during the American Revolution, and became lawyers in the state of New York at basically the same time. However, Hamilton is extremely opinionated and can never resist the urge

of voicing his beliefs, while Burr prefers to “Wait for It”—wait for the perfect moment to make a move.

Hamilton resonates with audiences because of its honesty: Miranda did nothing to hide the flaws of these “deeply flawed people” in our history. But they made contributions that have been passed down for generations, contributions that still affect their modern descendants—such as the US Constitution, the New York Stock Exchange, and the architecture of the American economic structure—among many others.

We may no longer be able to be “in the room where [this all] happened”, but *Hamilton* sets the stage to take us back into the era of the Founding Fathers, and *Hamilton's America* delves deeper into the history.

If you have listened to the musical, I highly recommend this documentary to you. It reinforces and expands on the themes in Miranda's creation, and it further closes the distance between the audience and these significant historical figures and events.

Personally, it has also inspired me to read the Federalist Papers, which are interesting reads to say the least—especially in a modern era of disheartening politics, where it seems to me that many have forgotten the initial inspiration for uniting the States of America and ratifying a Constitution for the new nation.

Hamilton and *Hamilton's American* have also inspired me to purchase Ron Chenow's biography of Alexander Hamilton, which catalyzed Miranda's inspiration for writing this Broadway hit. The musical's coverage of Hamilton's achievements and personal life is only the tip of the iceberg—there is so much more to learn, so many more personal connections to make to history!

Not only do *Hamilton* and *Hamilton's American* serve to remind people of how modern society came to be, they also remind us of how modern issues today have existed since the time of a nation's creation. It will do us well to move forth with our lives with the resilience and passion that historical figures, such as Hamilton, invested in the ideal of a perfect nation to ensure the continuous progress of our communities and our country.

What now? Let's Reframe



JOSH LI
2A MECHANICAL

I've heard this a couple times in the halls.

**“I failed that PHYS115 Midterm,
it's all over...how am I going to be
a Chemical Engineer now?!”**

Firstly, let us put things into perspective. Suppose you really bombed a midterm and got a measly 20% on it. Let's assume that after four years and eight terms you graduate with a 70% average. Now, by the math of ECE's Professor Wong (who wrote a book on *Surviving First Year*, which I highly recommend you check out), the final impact of this disastrous midterm on your overall average is 0.37%. The immediate impact of a bad midterm on your current term is only 2%. Understand that it's a long road ahead, and a lot of things will change until then.

Also, I want to point out that whatever craziness and panic that strangled your mind last week has probably passed by

now. (If not, it will.) You're still at a great school, you still have your family at home. Frankly, aside from having a little more motivation to study, nothing major has changed outside your dramatic thoughts. This is called the focusing illusion: “Nothing in life is as important as you think it is, while you are thinking about it.” said Daniel Kahneman in *Thinking Fast and Slow*.

**What do you think affects your
career more, your first co-op job
or your first set of midterms?**

On the path of being a full-fledged engineer one day, schooling is only the first step. The second step, real work experience and practical learning, begins over the period of six separate four-month work terms. For the moment, your current progress on the first step does not affect the second. (Employers do not see your marks if you are applying this term!) You may be surprised to find very little correlation, if any, between academics and co-op success. Next term, even though your transcript will be included, most employers will take marks into very little consideration in comparison to your

work history or what's actually on your resume.

The big picture is, how well you do in school has very little impact on where you find co-ops, and as long as you graduate, is not indicative of your engineering future.

Now, if Jobmine hasn't panned out the way you had hoped, let us use the power of reframing.

Reframe

All the facts and circumstances of day to day life have no inherent meaning. You assign them meaning based on your own interpretations of the event. A failed midterm could be considered a personal disaster or an early (and rather harmless in the long term) wakeup call for improvement. Being rejected can be completely demoralizing, or a valuable taste of the job market and an opportunity to seek other arrangements. We rarely remember to consider these circumstances from another perspective, but the truth is that interpreting the same facts in another, more positive, way can lead to growth rather than despair. In psychology, they call this reframing.

“To reframe means to change the conceptual and/or emotional setting or

viewpoint in relation to which a situation is experienced and to place it in another frame which fits the ‘facts’ of the same concrete situation equally well or even better, and thereby changing its entire meaning.”

- *Watzlawick, Weakland and Fisch - “The Gentle Art of Reframing”*

Students come to this university for co-op, not Jobmine. Co-op means that you will not be in school next term, but rather available to work for any company. Arranging your own job might be better than a one page form online and an email from CECA. Do you have family or distant friends who are engineers? Chances are that you do. Wouldn't it be a good idea to send them your resume and be the only applicant in a position?

Frankly, after you submit that application on Jobmine, very little is left in your control, and putting so much energy in watching so many applications turn into rejections is just plain demoralizing. A person who reframes would take that as a sign to tackle something that they can control, looking for other employment opportunities on their own. Even if they don't find anything, they'll feel a lot better from the process.

Five Things You Don't Want to Know: Feet of Clay



CAITLIN MCLAREN
4A CHEMICAL

5 THINGS YOU DON'T WANT TO KNOW

Hello to all my goodly readers! You who are reading this know who the next President of the United States is and, whoever it is, you probably aren't entirely satisfied with the situation.

It may comfort you to know that many great cultural heroes of folklore weren't exactly perfect. In fact, they ran the gamut from "buffoonish" to "sociopathic". Most of the stories you read of them nowadays are propaganda to make them look good; if you look at original sources, you'll find a lot of absurdities.

Fionn mac Cumhaill and his Thumb-Sucking

Fionn mac Cumhaill was a great hero of Irish mythology. His name is literally pronounced "Mac Cool", which should tell you everything you need to know, both about Fionn and about the Irish language. He went around warring and building the Giant's Causeway and doing other standard hero stuff. He was also incredibly wise, and that is a story in itself. In ancient Ireland, there was apparently a Salmon of Wisdom, which became wise from eating wise hazelnuts. A wise dude caught it, but he decided to tell Fionn (a small boy at the time) to cook it without eating any. The questionably wise man then took a nap. Fionn actually kept his word and didn't sample the fish, but a drop of hot fat landed on his thumb and he quickly put it in his mouth from the pain. This made him wise, and the man decided to just give him the whole thing since the damage was done. From then on, Fionn could access magical wisdom by sucking on his thumb. Planning before battles, making important decisions, foretelling the future: Fionn could be seen doing all of these things while sucking his thumb.

Lemminkäinen was a Mama's Boy, and an Idiot

You may not have heard of Lem-

minkäinen unless you are Finnish, but he was an important hero in Finnish mythology and played a large role in the Finnish national epic, the *Kalevala*. He was good at fighting but not much else, and his mom usually told him what to do. Once, he tried to capture the Swan of the Underworld to impress a girl and got himself killed doing so. His mom used sorcery to bring him back to life, whereupon Lemminkäinen still thought he had a chance with the girl and was all set to try again. His mother told him that it wasn't going to happen, and that he was coming home, NOW. He sheepishly followed her back, but didn't learn any lessons about common sense.

Later, Lemminkäinen was on a stealth mission with some other heroes to retrieve a magical artifact. They successfully charmed everyone to sleep and made off with it, when Lemminkäinen decided that it would be a good idea to start singing. Despite being told not to repeatedly, he was so overcome by joy at their success that he began singing loudly. Of course, the guards all woke up and he and his friends barely escaped with their lives.

First Man and First Woman Had Stupid Arguments

The founding figures of Navajo mythology were aptly called First Man and First Woman, and they got along fine until one day First Woman claimed that First Man only brought her food because he wanted to have sex with her. This started an argument that led to all the men and women in existence at the time declaring that they could live without each other, and they began living on separate sides of the river and taunting each other. What follows is a rather raunchy sequence of the "substitutes" they found for each other, and several women became pregnant from antlers or peeled cacti or some other random thing. They gave birth to fearsome monsters. The quarrel finally ended when one man attempting to have sex with a raw deer liver. An owl saw him doing that and told him: "This is wrong", which is a memorable understatement. The owl scolded them for being idiots and told them to

stop fighting, and the humans eventually made up. No word on whether the deer liver became pregnant.

Theseus and the Chair of Forgetfulness

Theseus was the great Greek hero, famous for slaying the Minotaur. That was all very well, but most people don't realize that, after King Minos' daughter Ariadne helped him do it, he repaid her by abandoning her on a desert island because he wasn't really a very nice guy. He later married her sister, which wasn't awkward at all. However, the sister, Phaedra, fell in love with her stepson Hippolytus, whom Theseus had had with another woman. Hippolytus was exactly as creeped out as you would expect, and rejected her quite rudely. Phaedra proceeded to kill herself after telling Theseus that Hippolytus had raped her, which led Theseus to curse his son and cause him to be killed by the god Poseidon. Poseidon didn't have any involvement in the whole thing and really came out of nowhere, but hey, a curse is a curse.

However, all these Game of Thrones-level machinations don't hold a candle to the sheer ridiculousness of the incident when Theseus and his friend Peirithous decided to kidnap Hades' wife Persephone for shits and giggles. Hades, god of the underworld, was possibly unique among the Greek gods in not being a dumbass, and saw through them right away when they arrived in his court. He offered them a seat politely, but when they sat on the stone chair, a) it attached itself to their skin, and b) it caused them to forget their lives. They stayed in stasis like that until Hercules happened to be passing through the underworld for unrelated reasons, and ripped his cousin Theseus off the chair. Peirithous is still there to this day,

sitting on the Chair of Forgetfulness next to Theseus' detached butt skin.

King Arthur Murdered Babies

Everybody knows King Arthur as the righteous king who ran Camelot and protected the weak. However, people don't usually talk about the time when he fathered an incestuous child with his half-sister Morgause. In fairness to King Arthur, he didn't realize at the time that she was his sister (whether she knew or didn't, and how consensual it was on Arthur's part, depends on the version). He did know that he was sleeping with a woman who was married to his enemy, so don't give him any points for common sense.

The result of this liaison was Mordred, whom Merlin foresaw would be Arthur's eventual doom. Merlin's magical powers did not extend to finding the kid, but he did know Mordred's birthday. He and Arthur then promptly lost any claim to heroism by rounding up all the babies in the land with that birthday and putting them out on the stormy sea in a crappy boat, the logic being that he would be innocent; it was God who was drowning the babies. This worked out for Arthur precisely as well as it did for King Herod in the Bible, and Mordred managed to survive. At this point, I am rooting for him.



Not what it looks like; he's slaying the Minotaur

Concrete Chic

ADAM HEINS
4A MECHATRONICS

Another The University of Waterloo's main campus has a bad reputation when it comes to appearance. It is consistently ranked poorly among other schools in Canada with regard to aesthetics. How could we have avoided this regrettable situation?

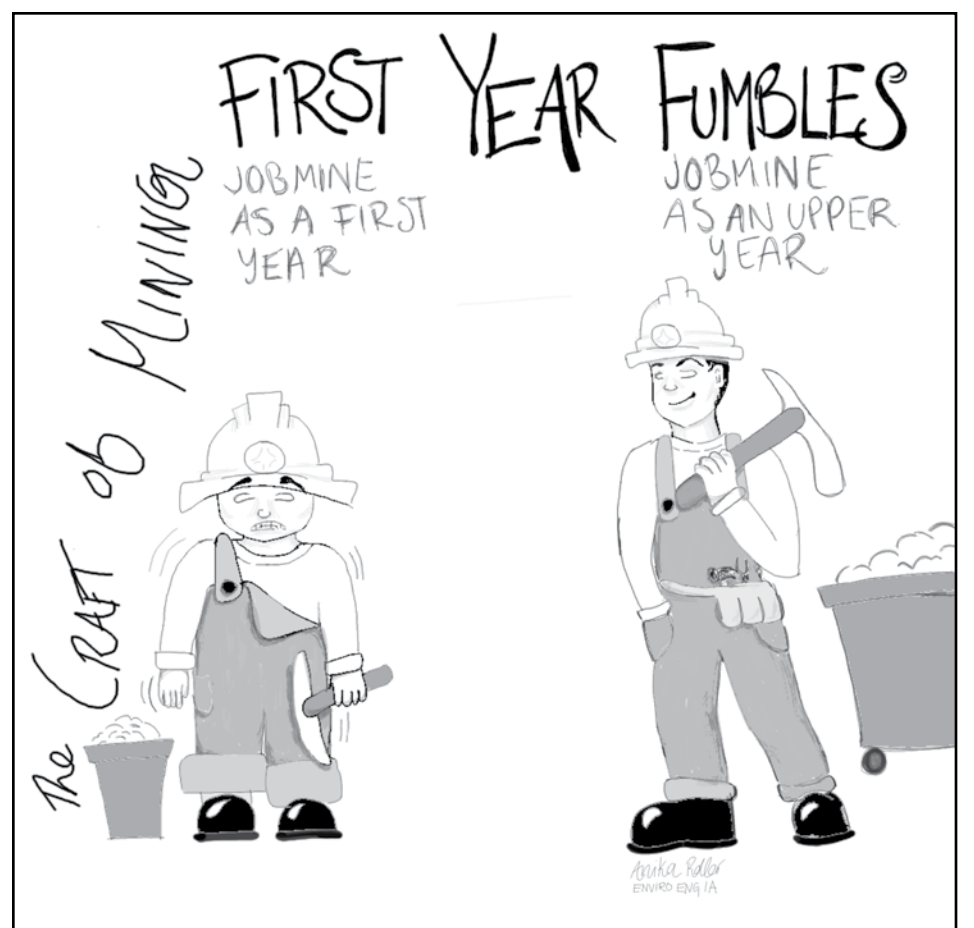
The University of Waterloo was founded at a low point in the history of architecture. The late 1950s and the early 1960s were a time of unbridled concrete usage and a seeming distaste for natural light. One of the treasures of this era still stands tall in the middle of our campus: the Mathematics and Computer Building, more commonly known as MC.

MC boasts an unforgiving grey concrete exterior and tiny windows. It has been compared to dungeons and prisons. Many students cite it as one of the prime factors contributing toward Waterloo's untoward appearance. After all, how can MC compete with its young and pretty neighbours, QNC and M3? A little farther away, E5 and E6 mock

MC's cold concrete with their sleek glass exteriors.

However, MC is not necessarily the problem. Consider an alternative course of history, where all of the buildings on campus are built in the same style as MC. I propose that Waterloo's main source of unattractiveness comes not from a few ugly buildings like MC, but more so because the architectural style of the campus is so inconsistent. We have plain old brick structures like RCH, E2, and Physics 1. We have stark and imposing behemoths like MC and DP. We have whatever DC is. And more recently, we've obtained a slew of modern glass boxes. Like a plaid shirt and polka-dot pants, these different styles clash.

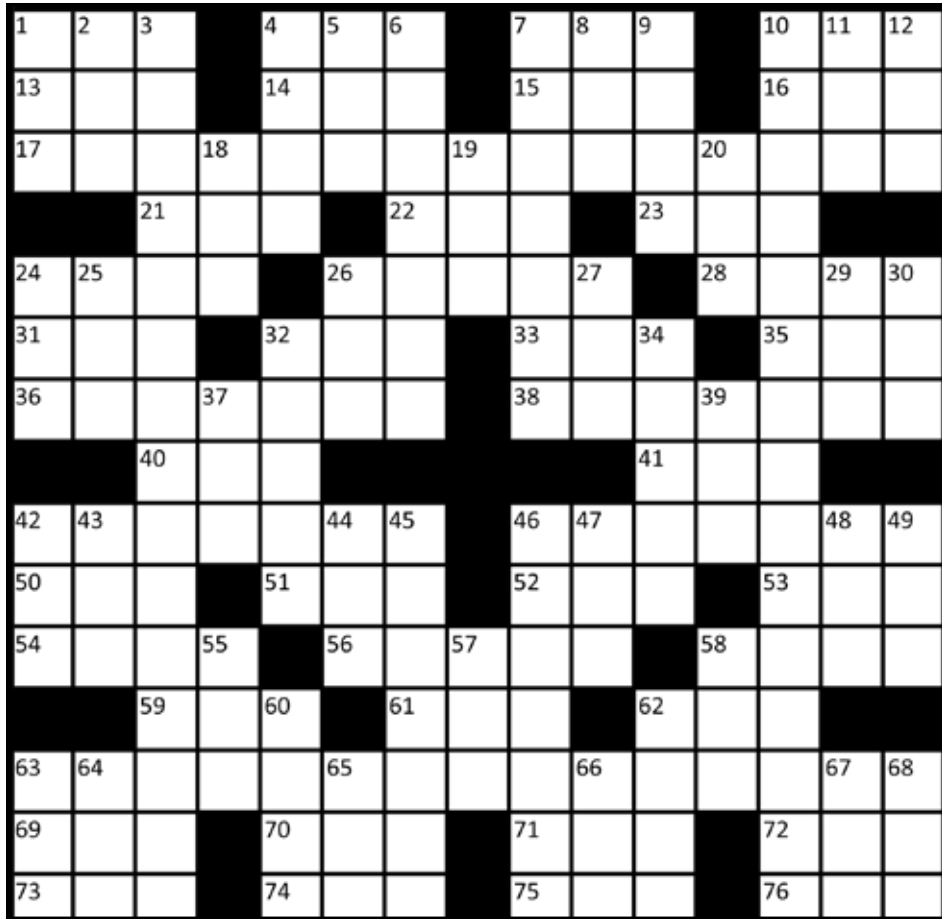
People already complain about Waterloo being dungeon-like. If all of the buildings looked like MC, we could take pride in the fact that this sentiment would no longer be hyperbole. We would have a strong campus that makes no time for softness, color, or natural light. A true commitment to pragmatism and distraction-free studying. And while a campus full of MCs may not be beautiful, at least it would match.



The Iron Crossword

The Magic Toolbox

CAMERON SOLTYS
3B MECHANICAL



ACROSS

- 1: Early American ISP
- 4: Eng. building near Grad House (abbr)
- 7: Take property by force and threat
- 10: Clean up by wiping
- 13: Water! Water! Water!
- 14: ___ Wesley, Harry Potter's friend
- 15: Europe Air Express (abbr)
- 16: Used to chop wood
- 17: Medical device to inspect the throat
- 21: Internet speak for "need to leave"
- 22: Basic manipulations of a matrix in linear algebra
- 23: Goes in a horse's mouth for riding
- 24: Grandmother, in Britain
- 26: Intelligent
- 28: 100 ___ metres in a kilometer
- 31: Life story
- 32: French for "here"
- 33: Neckpiece that goes with a suit
- 35: Long indent, for instance in a dirt road
- 36: Element 33
- 38: Device for joining pieces of photographic film

- 40: Long aquatic animal
- 41: Place serving alcohol
- 42: Final stage
- 46: Newborn child
- 50: Epic ___ Battles of History
- 51: Martian day
- 52: Cry of pain
- 53: Opposite of against
- 54: Inventor of the telephone
- 56: Pet name for "Sarah"
- 58: ___-ALT-DEL
- 59: An acknowledgement of debt
- 61: Italian for "on"
- 62: Petrol
- 63: Air-powered tool for breaking rock
- 69: Waterloo-region municipality where "Cold Creek Manor" was filmed
- 70: A metric for categorizing body size
- 71: Finale celebration hosted by EngSoc
- 72: A crowd-sourced interview
- 73: Game system of "Super Mario Bros."
- 74: Tolkien monster who hates sunlight
- 75: Sweet ___, "Always Sunny in Philadelphia" character

76: ! In C and C++

DOWN

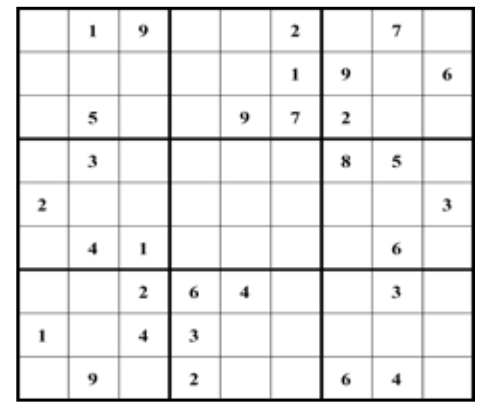
- 1: ___ codes, for typing special characters
- 2: Mythical land of Finn and Jake
- 3: Gripping tool for very narrow spaces
- 4: Substance having physiological effect
- 5: Sorrow or distress
- 6: Found in an area, particularly a disease
- 7: Spoken or written accounts
- 8: Used in a paddle-boat
- 9: Bowie at the ___, a BBC music album
- 10: Expert in a field of product-making
- 11: Hug Kiss Hug, or Kiss Hug Kiss
- 12: For each
- 18: Municipal area around Toronto (abbr)
- 19: Period of geologic time
- 20: Sloth from "Ice Age"
- 24: Sports league of the Raptors
- 25: 78% nitrogen, 21% oxygen
- 26: ___-fi, genre of space travel
- 27: Bonus left to a waiter
- 29: White ball on a pool table
- 30: The nuclear research reactor at the Idaho National Laboratory
- 32: What happens ___ says ___ (2 wd, repeated)
- 34: The arm equivalent to the knee
- 37: Protein often eaten for breakfast
- 39: Being ___, TV show about an aspiring filmmaker
- 42: Abe ___, brewery located in Uptown
- 43: Internet speak suggesting you have little knowledge
- 44: ___ Easley, city on Tatooine
- 45: Does not lose energy during impact
- 46: Became aware of
- 47: Female sheep
- 48: Anonymous way to browse the internet
- 49: Environmental Research Letters (abbr)
- 55: Short for Louis
- 57: Charge for drunk driving
- 58: Used to take videos or photos
- 60: Raised area in the center of a mushroom cap
- 62: Entrance, particularly in a fence
- 63: Used to keep animals like pigs
- 64: Bill ___, science educator
- 65: ___ 35, a French tank
- 66: Used to till ground
- 67: Rock music with confessional lyrics
- 68: Large rodent that famously inhabits sewers

Sudoku

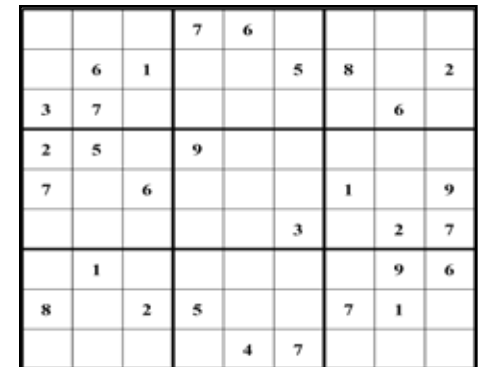
#2016-11

CAMERON SOLTYS
3B MECHANICAL

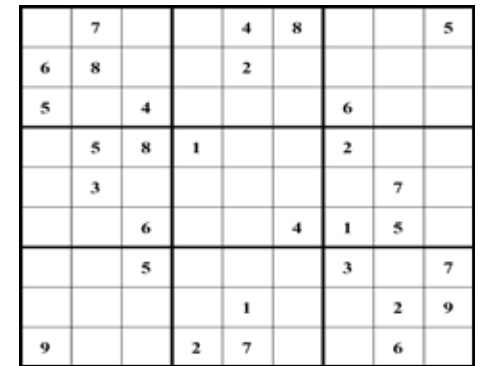
Medium



Hard



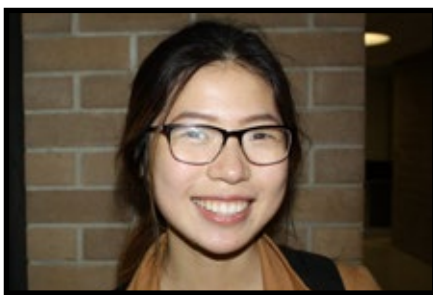
Very Hard



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

THE IRON INQUISITION
Vince, Leander, Hira, Sumaita

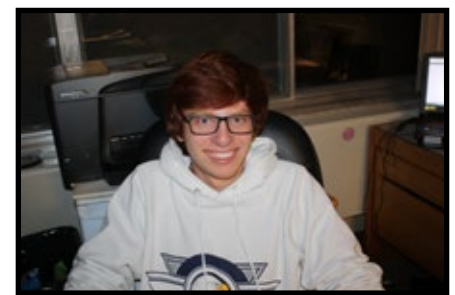
What Do You Look For In A Leader?



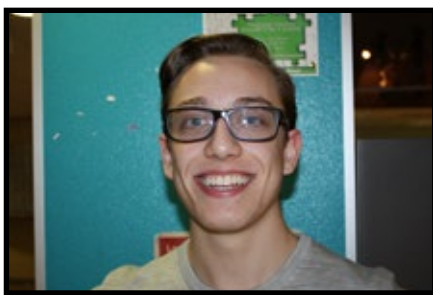
"Persuasiveness and good hair."
Vivien Ding, 1A Nano



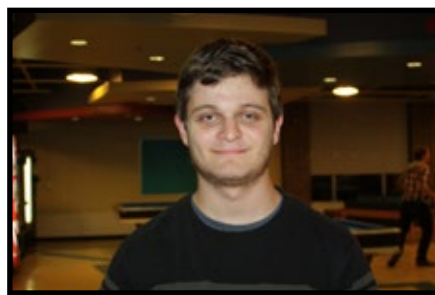
"Charismatic, they believe in themselves, and they're motivated."
Mitul Patel, 1A Mech



"Good at building walls."
Luke Seewald, 1A Comp



"The quality I look for in a leader is to not be a criminal."
Jay Abramovitch, 1A Nano



"Knows what they're talking about and doesn't make promises they can't keep."
Christian Crimi, 1A Nano



"Leadership."
Martine Dionne, 1A Mech